



“AMERICAN” RADIALS

**PACEMAKERS IN
HOLE PRODUCTION**

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**THE AMERICAN
TOOL WORKS CO.
CINCINNATI, OHIO, U.S.A.**

LATHES RADIALS SHAPERS
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1053-16.

"AMERICAN" RADIALS

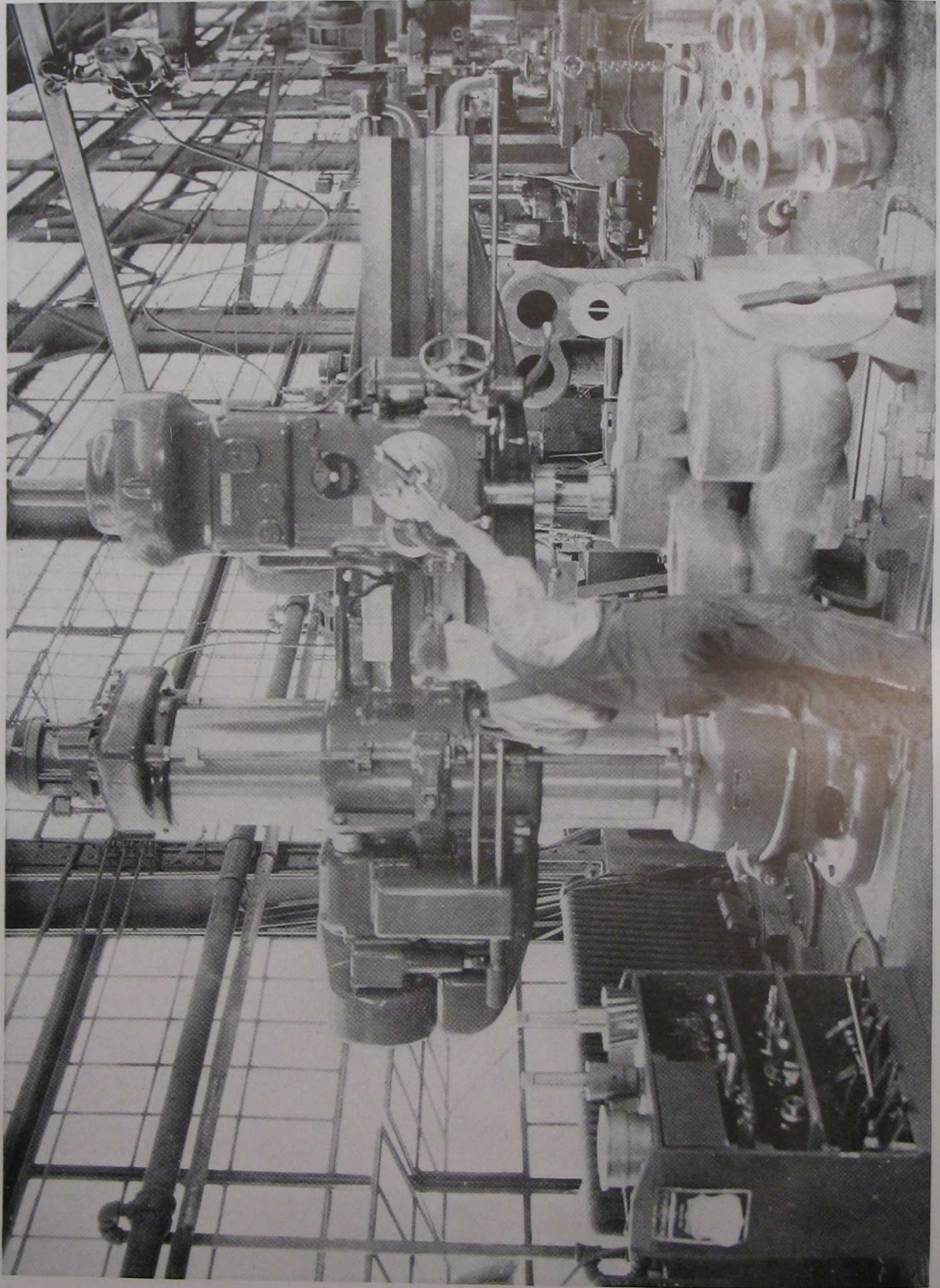
**PACEMAKERS IN
HOLE PRODUCTION**

Catalog "D"
December, 1937

The American Tool Works Company
Cincinnati, U. S. A.

Lathes . . . Radials . . . Shapers

American



"American" 19-inch Column Radial doing a fine job of boring, reaming and facing
in one of the Mid-West's most prominent manufacturing plants

American

The Purchase of a Radial Drill is an Investment

IN return for your money you secure a machine with which you expect to produce work at a profit. The extent of that profit will depend upon the ability of the machine you buy to drill, tap, bore, ream and face holes rapidly and economically. To perform these operations rapidly the machine must be powerful, rigid and must have suitable speed and feed ranges for the various classes of work to be done. To produce economically, the machine, in addition to performing rapidly, must be easy to manipulate, for very frequently the time required after finishing one hole to set the machine for the next hole is greater than the actual drilling time.

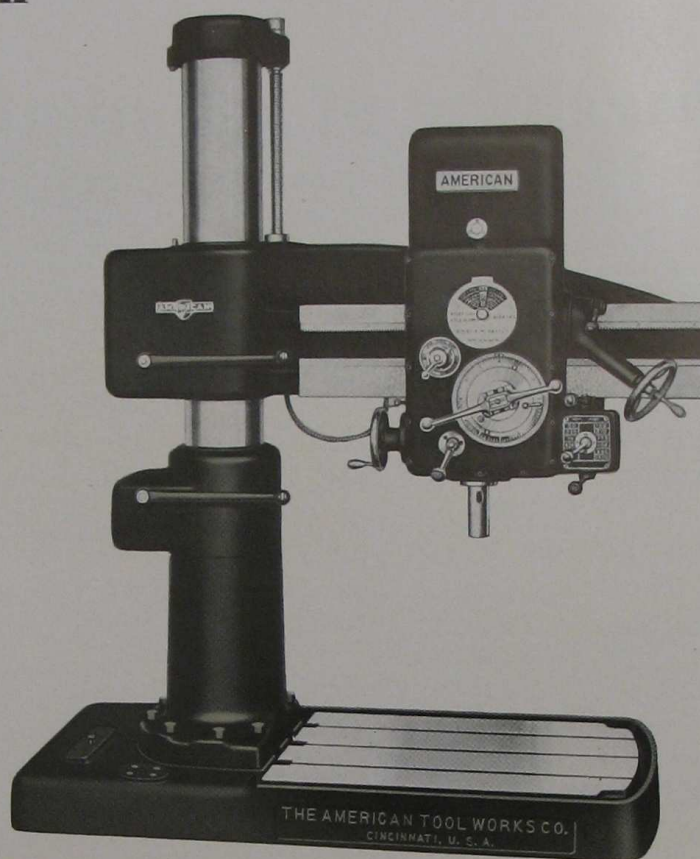
Recognizing the important relation of these two factors to profitable operation, we have made a determined effort, in designing "American" Triple Purpose Radials to develop these two qualities to the very highest degree. From the results that are being secured from "American" radials in the plants of the largest and most prominent machine tool users in this country we are convinced that our efforts have been successful in producing a line of radial drills that will not only meet every requirement of the radial drill user satisfactorily, but will meet each and every demand with a profit.

It may be of some interest to the reader to know that this company has been building radial drills for the past 50 years, during which time it has developed and is now offering the largest and most complete line of both plain and universal radials built anywhere in the world. Not only is there a most complete assortment of sizes offered in the standard models, but, in addition, a wide variety of special designs are available, which are particularly adapted to highly intensive performance on certain specific classes of work. Several examples of special designs are shown on the following pages.

The American Tool Works Company
Cincinnati, U. S. A.

Lathes :: Radials :: Shapers

American

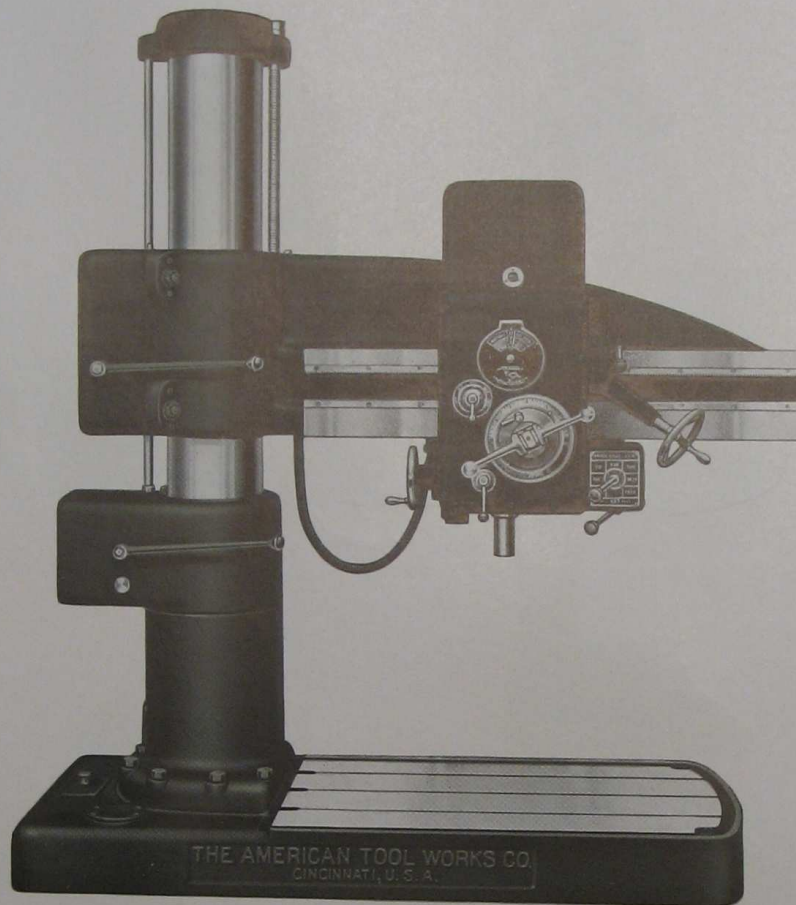


“AMERICAN” Hole Wizard Radials

Built in 3-ft. and 4-ft. sizes, and in 9-speed and 12-speed types
See Special Bulletins No. 305 and No. 309 for complete description

TYPE	9-Speed		12-Speed	
ARM LENGTH	3-Foot	4-Foot	3-Foot	4-Foot
Drills to Center of Circle on Base or Table	72"	96"	72"	96"
Maximum Distance, Spindle to Base	51"	51"	51"	51"
Minimum Distance, Spindle to Base	16"	16"	14"	14"
Traverse of Spindle	10"	10"	12"	12"
Minimum Distance, Spindle to Column Stump	10 3/4"	10 3/4"	10 3/4"	10 3/4"
Hole in Spindle, Morse Taper Number	4	4	4	4
Diameter of Spindle at Point of Drive	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Traverse of Head on Arm	25 1/2"	37 1/2"	25 1/2"	37 1/2"
Traverse of Arm on Column	25"	25"	25"	25"
Bearing of Head on Arm	16"	16"	16"	16"
Bearing of Arm on Column	18"	18"	18"	18"
Height of Drill over Column	91"	91"	91"	91"
Extreme Height of Drill over Spindle	96 1/4"	96 1/4"	96 1/4"	96 1/4"
Number of Power Feeds	4	4	6	6
Range of Power Feeds	.004" to .020"	.004" to .020"	.004" to .025"	.004" to .025"
Number of Spindle Speeds	9	9	12	12
Range of Spindle Speeds	Any one of the following	Any one of the following	Any one of the following	Any one of the following
Height of Base	70-1500	70-1500	50-1500	50-1500
Working Surface of Base	100-2150	100-2150	70-2100	70-2100
Radius to Clear Extreme Point of Head on Arm	140-3000	140-3000	100-3000	100-3000
Plain Box Table (Height—Top Surface)	6"	6"	6"	6"
Universal Table (Height—Top Surface)	30"x42"	30"x54"	30"x42"	30"x54"
Swinging Box Table (Height—Top Surface)	65 3/4"	77 3/4"	65 3/4"	77 3/4"
Worm Swinging Table (Height—Top Surface)	20"-18"x24"	20"-18"x24"	20"-18"x24"	20"-18"x24"
Round Table Mounted on Swinging or Worm Swiveling Table	21 3/4"-20"x24"	21 3/4"-20"x24"	21 3/4"-20"x24"	21 3/4"-20"x24"
Net Weight	24"-16"x37"	24"-16"x37"	24"-16"x37"	24"-16"x37"
Crated Weight	26 3/4"-16"x31 1/4"	26 3/4"-16"x31 1/4"	26 3/4"-16"x31 1/4"	26 3/4"-16"x31 1/4"
Boxed Weight	24" Dia.	24" Dia.	24" Dia.	24" Dia.
Cubic Feet—Boxed	5300 lbs.	5500 lbs.	5400 lbs.	5600 lbs.
	5550 lbs.	5750 lbs.	5650 lbs.	5850 lbs.
	6250 lbs.	6450 lbs.	6350 lbs.	6550 lbs.
	170	195	170	195

American



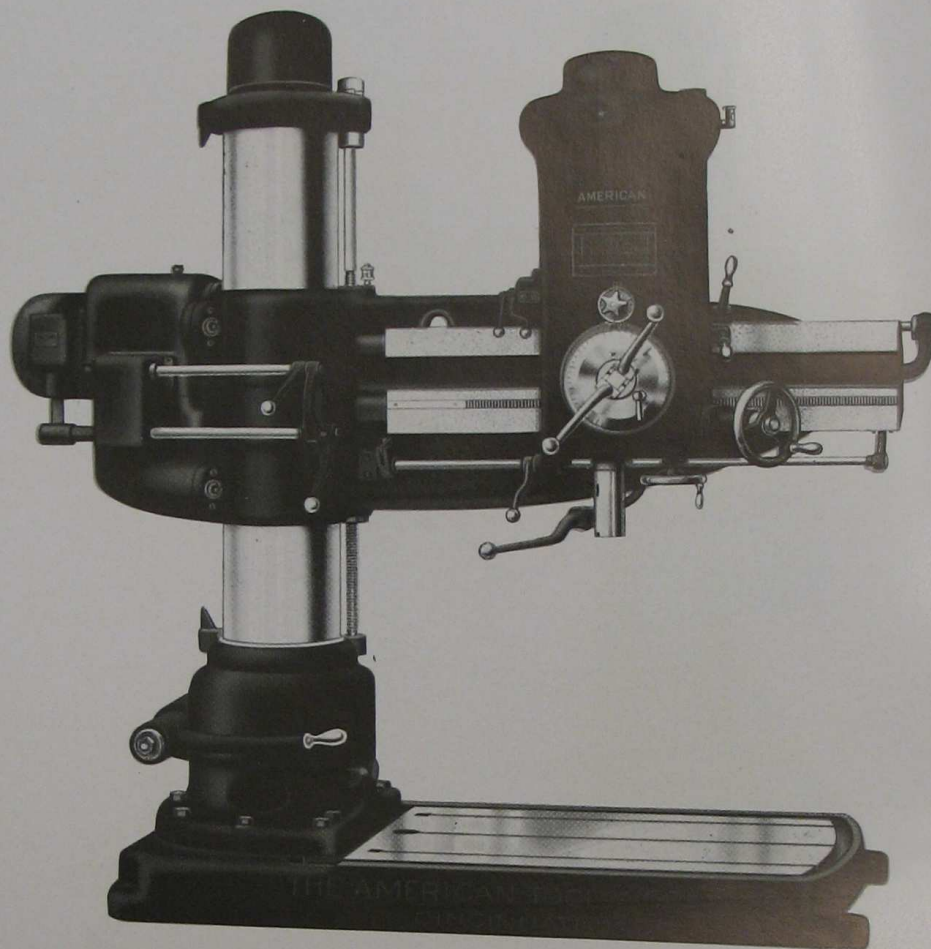
“AMERICAN” Super Hole-Wizard Radials

Built in 9-speed type only—Column diameter, 11 inches

See Bulletin No. 313 for complete description

ARM LENGTH	3-Foot	4-Foot	5-Foot	6-Foot
Drills to Center of Circle on Base or Table.....	72"	96"	120"	144"
Maximum Distance, Spindle to Base.....	55 1/4"	55 1/4"	55 1/4"	55 1/4"
Minimum Distance, Spindle to Base.....	16 3/4"	16 3/4"	16 3/4"	16 3/4"
Traverse of Spindle.....	10"	10"	10"	10"
Minimum Distance, Spindle to Column Stump.....	10 3/4"	10 3/4"	10 3/4"	10 3/4"
Hole in Spindle, Morse Taper Number.....	4	4	4	4
Diameter of Spindle to Point of Drive.....	2 1/2"	2 1/2"	2 1/2"	2 1/2"
Traverse of Head on Arm.....	25 1/4"	37 1/4"	49 1/4"	61 1/4"
Traverse of Arm on Column.....	28 1/2"	28 1/2"	28 1/2"	28 1/2"
Bearing of Head on Arm.....	16"	16"	16"	16"
Bearing of Arm on Column.....	22"	22"	22"	22"
Height of Drill over Column.....	100 3/8"	100 3/8"	100 3/8"	100 3/8"
Extreme Height of Drill over Spindle.....	101 3/8"	101 3/8"	101 3/8"	101 3/8"
Number of Power Feeds.....	4	4	4	4
Range of Power Feeds.....	.004" to .020"	.004" to .020"	.004" to .020"	.004" to .020"
Number of Spindle Speeds.....	9	9	9	9
Range of Spindle Speeds..... Any one of the following	70-1500 100-2150 140-3000	70-1500 100-2150 140-3000	70-1500 100-2150 140-3000	70-1500 100-2150 140-3000
Height of Base.....	36"x41"	36"x53"	36"x65"	36"x77"
Working Surface of Base.....	68 1/2"	80 1/2"	92 1/2"	104 1/2"
Radius to Clear Extreme Point of Head on Arm.....	20"-18"x24"	20"-18"x24"	20"-18"x24"	20"-18"x24"
Plain Box Table (Height—Top Surface).....	21 3/4"-20"x24"	21 3/4"-20"x24"	21 3/4"-20"x24"	21 3/4"-20"x24"
Universal Table (Height—Top Surface).....	21 3/4"-20"x24"	21 3/4"-20"x24"	21 3/4"-20"x24"	21 3/4"-20"x24"
Net Weight.....	7700 lbs.	8200 lbs.	8700 lbs.	9200 lbs.
Crated Weight.....	8000 lbs.	8500 lbs.	9000 lbs.	9500 lbs.
Boxed Weight.....	9600 lbs.	10100 lbs.	10600 lbs.	11100 lbs.
Cubic Feet—Boxed.....	210	230	250	270

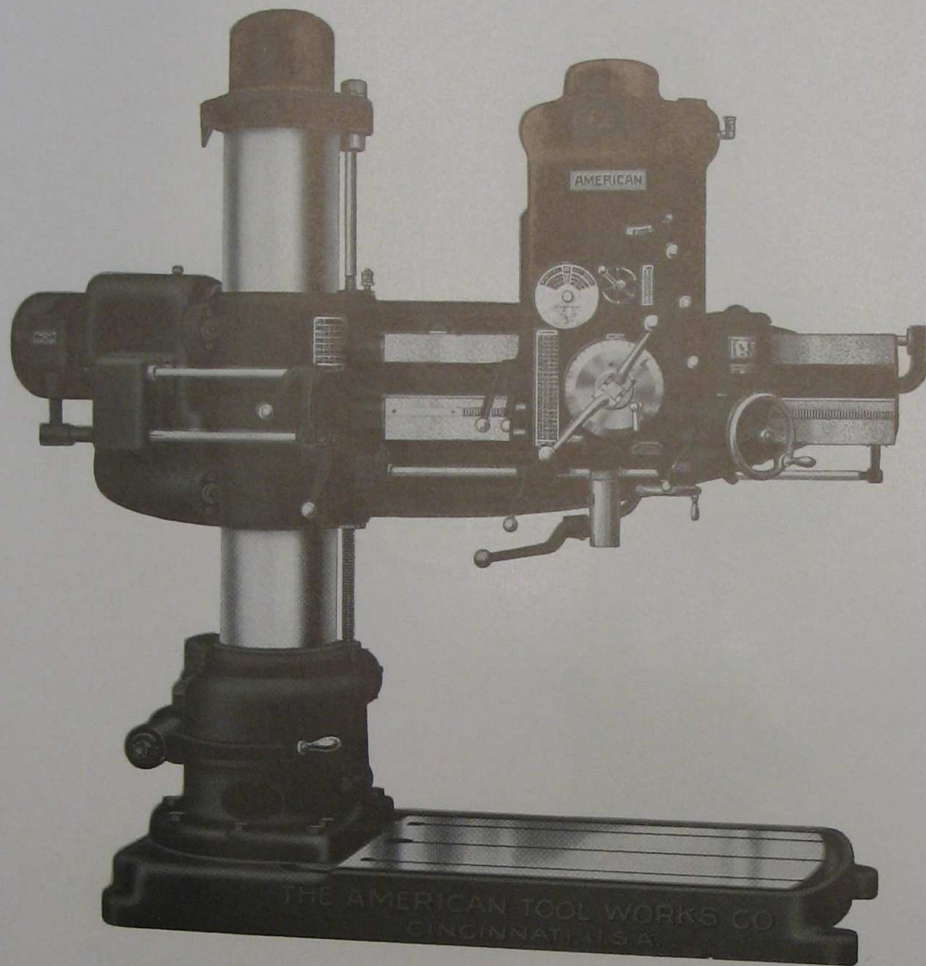
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“AMERICAN” Triple Purpose Radials 11-Inch Column Diameter

ARM LENGTH	3-Foot	4-Foot
Drills to Center of Circle on Base.....	72"	96"
Greatest Distance, Spindle to Base.....	54"	54"
Minimum Distance, Spindle to Base.....	6 1/4"	6 1/4"
Traverse of Spindle.....	16"	16"
Minimum Distance, Spindle to Column Stump.....	9 1/2"	9 1/2"
Hole in Spindle, Morse Taper No.....	5	5
Diameter of Spindle at Point of Drive.....	1 11/16"	1 11/16"
Traverse of Drill Head on Arm.....	26 1/2"	38 1/2"
Traverse of Arm on Column.....	31 3/4"	31 3/4"
Length of Arm Bearing on Column.....	20"	20"
Plain Box Table (Height—Top Surface).....	18"—20" x 24"	18"—20" x 24"
Universal Table (Height—Top Surface).....	21 3/4"—20" x 20"	21 3/4"—20" x 20"
Number of Feeds.....	6	6
Range of Feeds.....	.004" to .026"	.004" to .026"
Range of Spindle Speeds.....	34 to 1240	34 to 1240
Height of Drill over Column, Gears and Collector Rings approximately.....	94"	94"
Extreme Height over Top of Spindle.....	110"	110"
Height of Base.....	7"	7"
Base Capacity (Width, Length, Working Space).....	35" x 42"	35" x 54"
Net Weight.....	6,500 lbs.	7,000 lbs.
Crated Weight.....	6,800 lbs.	7,300 lbs.
Boxed Weight.....	8,400 lbs.	9,000 lbs.
Cubic Feet, Boxed.....	210	230

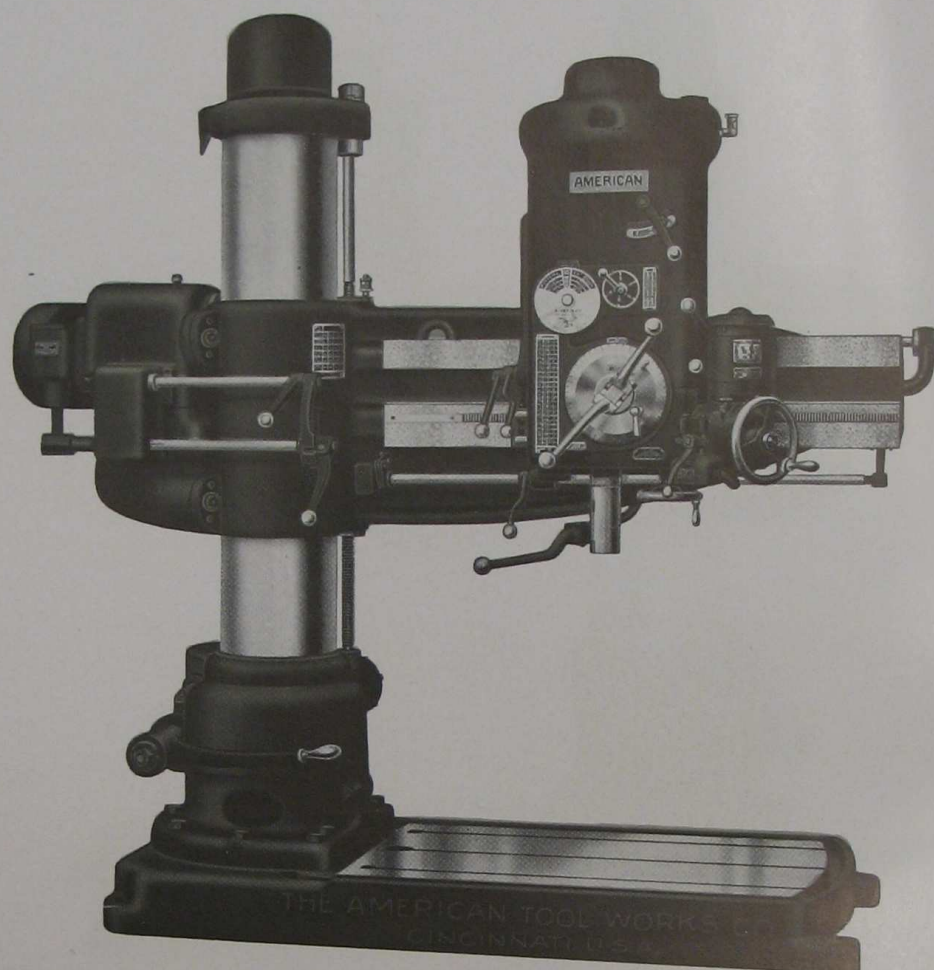
American



“AMERICAN” Triple Purpose Radials 13-Inch Column Diameter

ARM LENGTH	4-Foot	5-Foot
Drills to Center of Circle on Base.....	96"	120"
Greatest Distance, Spindle to Base.....	59 1/4"	59 1/4"
Minimum Distance, Spindle to Base.....	13 1/2"	13 1/2"
Traverse of Spindle.....	14 3/4"	14 3/4"
Minimum Distance, Spindle to Column Stump.....	9 1/4"	9 1/4"
Hole in Spindle, Morse Taper No.....	5	5
Diameter of Spindle at Point of Drive.....	2"	2"
Traverse of Drill Head on Arm.....	38 3/4"	50 3/4"
Traverse of Arm on Column.....	31"	31"
Length of Arm on Bearing Column.....	26"	26"
Plain Box Table (Height—Top Surface).....	18"—20" x 24"	18"—20" x 24"
Universal Table (Height—Top Surface).....	21 3/4"—20" x 24"	21 3/4"—20" x 24"
Number of Feeds.....	15	15
Tap Leads—Threads per Inch.....	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27
Range of Feeds.....	.004" to .125"	.004" to .125"
Range of Spindle Speeds.....	23 to 1200	23 to 1200
Height of Drill over Column, Gears and Collector Rings approximately.....	103"	103"
Extreme Height over Top of Spindle.....	119"	119"
Height of Base.....	7"	7"
Base Capacity (Width, Length, Working Space).....	35 1/2" x 53"	35 1/2" x 65"
Net Weight.....	10,000 lbs.	10,700 lbs.
Crated Weight.....	10,300 lbs.	11,000 lbs.
Boxed Weight.....	13,800 lbs.	14,600 lbs.
Cubic Feet, Boxed.....	325	350

American

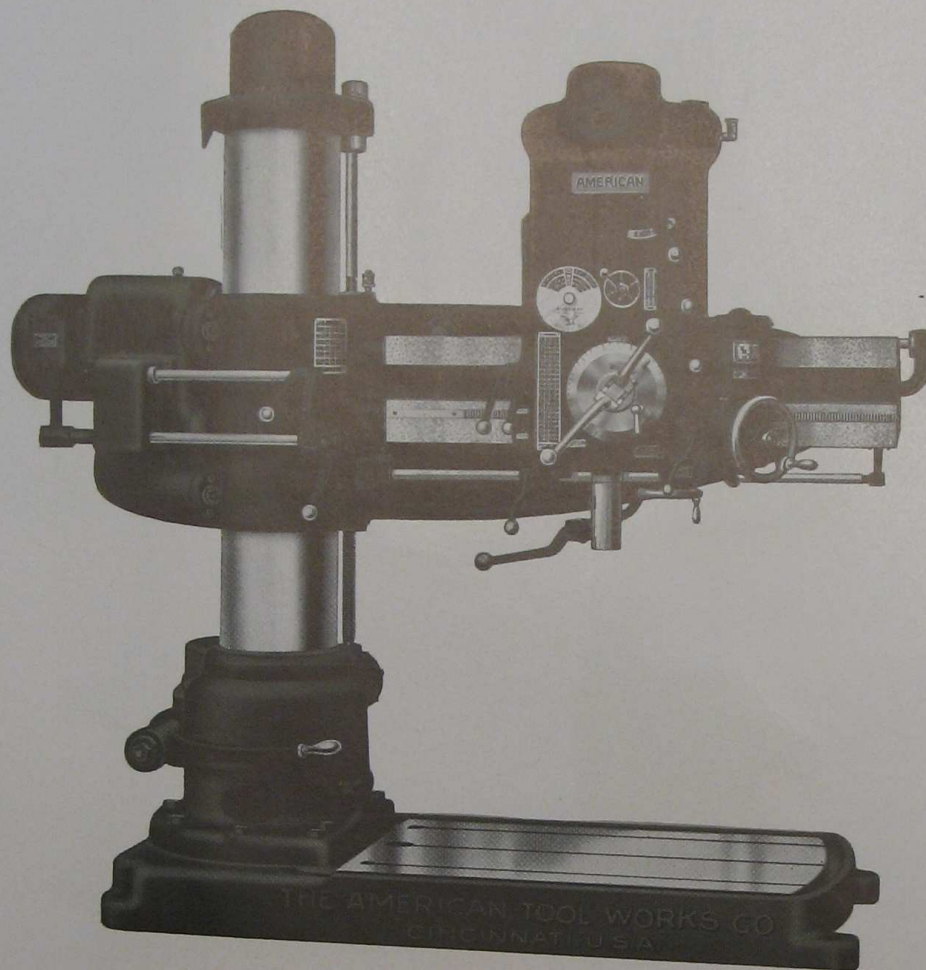


“AMERICAN” Triple Purpose Radials

15-Inch Column Diameter

ARM LENGTH	4-Foot	5-Foot	6-Foot
Drills to Center of Circle on Base.....	96"	120"	144"
Greatest Distance, Spindle to Base.....	66"	66"	66"
Minimum Distance, Spindle to Base.....	14 1/2"	14 1/2"	14 1/2"
Traverse of Spindle.....	18"	18"	18"
Minimum Distance, Spindle to Column Stump.....	10 3/4"	10 3/4"	10 3/4"
Hole in Spindle, Morse Taper No.....	5	5	5
Diameter of Spindle at Point of Drive.....	2 1/8"	2 1/8"	2 1/8"
Traverse of Drill Head on Arm.....	37 1/4"	49 1/4"	61 1/4"
Traverse of Arm on Column.....	33 1/2"	33 1/2"	33 1/2"
Length of Arm Bearing on Column.....	30"	30"	30"
Plain Box Table (Height—Top Surface).....	20"—24" x 24"	20"—24" x 24"	20"—24" x 24"
Universal Table (Height—Top Surface).....	21 3/4"—20" x 24"	21 3/4"—20" x 24"	21 3/4"—20" x 24"
Number of Feeds.....	15	15	15
Tap Leads, Threads per Inch.....	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27
Range of Feeds.....	.004" to .125"	.004" to .125"	.004" to .125"
Range of Spindle Speeds.....	23 to 1200	23 to 1200	23 to 1200
Height of Drill over Column, Gears and Collector Rings approximately.....	114"	114"	114"
Extreme Height over Top of Spindle.....	135"	135"	135"
Height of Base.....	8"	8"	8"
Base Capacity (Width, Length, Working Space).....	42 1/2" x 53"	42 1/2" x 65"	42 1/2" x 77"
Net Weight.....	12,400 lbs.	13,200 lbs.	14,000 lbs.
Crated Weight.....	12,600 lbs.	13,400 lbs.	14,200 lbs.
Boxed Weight.....	15,700 lbs.	17,000 lbs.	18,300 lbs.
Cubic Feet, Boxed.....	450	470	490

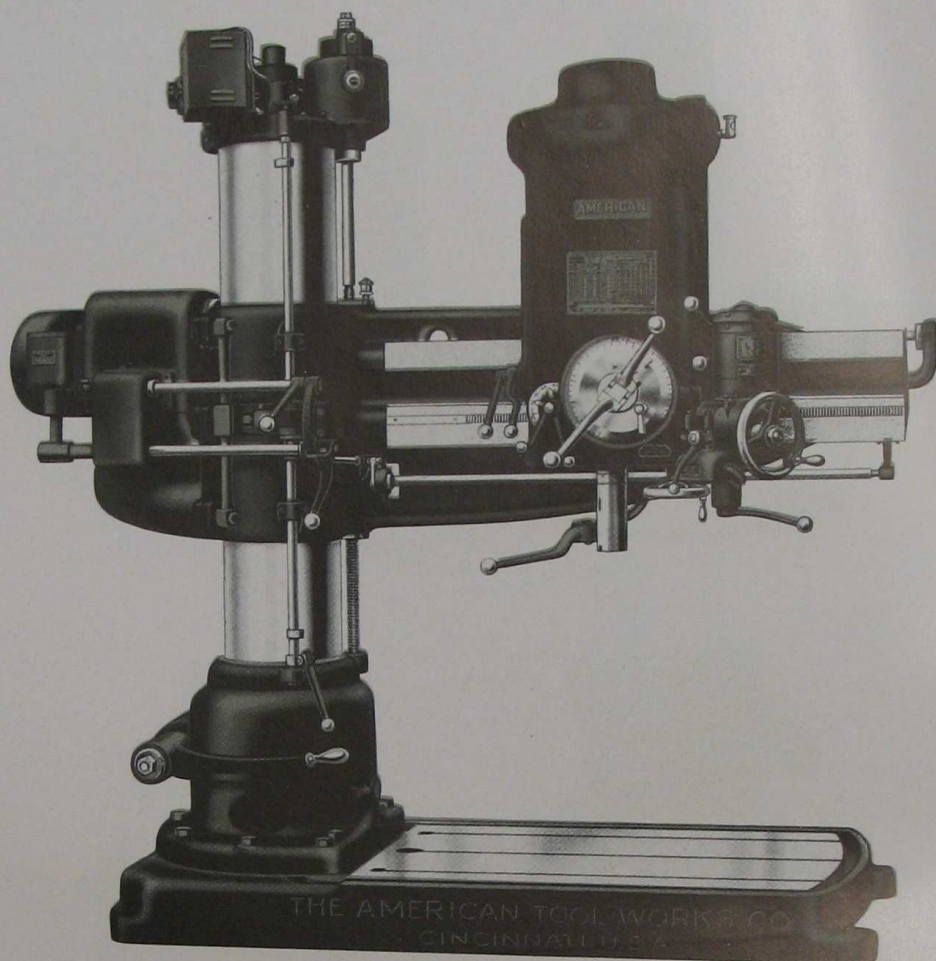
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“AMERICAN” Triple Purpose Radials 17-Inch Column Diameter

ARM LENGTH	5-Foot	6-Foot	7-Foot
Drills to Center of Circle on Base.....	120"	144"	168"
Greatest Distance, Spindle to Base.....	72"	72"	72"
Minimum Distance, Spindle to Base.....	14"	14"	14"
Traverse of Spindle.....	18"	18"	18"
Minimum Distance, Spindle to Column Stump.....	11 ³ / ₈ "	11 ³ / ₈ "	11 ³ / ₈ "
Hole in Spindle, Morse Taper No.....	6	6	6
Diameter of Spindle at Point of Drive.....	2 ¹ / ₁₆ "	2 ¹ / ₁₆ "	2 ¹ / ₁₆ "
Traverse of Drill Head on Arm.....	48 ⁵ / ₈ "	60 ⁵ / ₈ "	72 ⁵ / ₈ "
Traverse of Arm on Column.....	40"	40"	40"
Length of Arm Bearing on Column.....	30"	30"	30"
Plain Box Table (Height—Top Surface).....	20"—28" x 28"	20"—28" x 28"	20"—28" x 28"
Universal Table (Height—Top Surface).....	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"
Number of Feeds.....	15	15	15
Taps Leads, Threads per Inch.....	8, 11 ¹ / ₂ , 14, 18, 27	8, 11 ¹ / ₂ , 14, 18, 27	8, 11 ¹ / ₂ , 14, 18, 27
Range of Feeds.....	.004" to .125"	.004" to .125"	.004" to .125"
Range of Spindle Speeds.....	23 to 1200	23 to 1200	23 to 1200
Height of Drill over Column, Gears and Collector Rings approximately.....	123"	123"	123"
Extreme Height over Top of Spindle.....	144"	144"	144"
Height of Base.....	9"	9"	9"
Base Capacity (Width, Length, Working Space).....	45" x 64"	45" x 76"	45" x 88"
Net Weight.....	16,000 lbs.	16,900 lbs.	17,800 lbs.
Crated Weight.....	16,200 lbs.	17,100 lbs.	18,000 lbs.
Boxed Weight.....	20,000 lbs.	21,000 lbs.	22,000 lbs.
Cubic Feet, Boxed.....	500	550	600

American

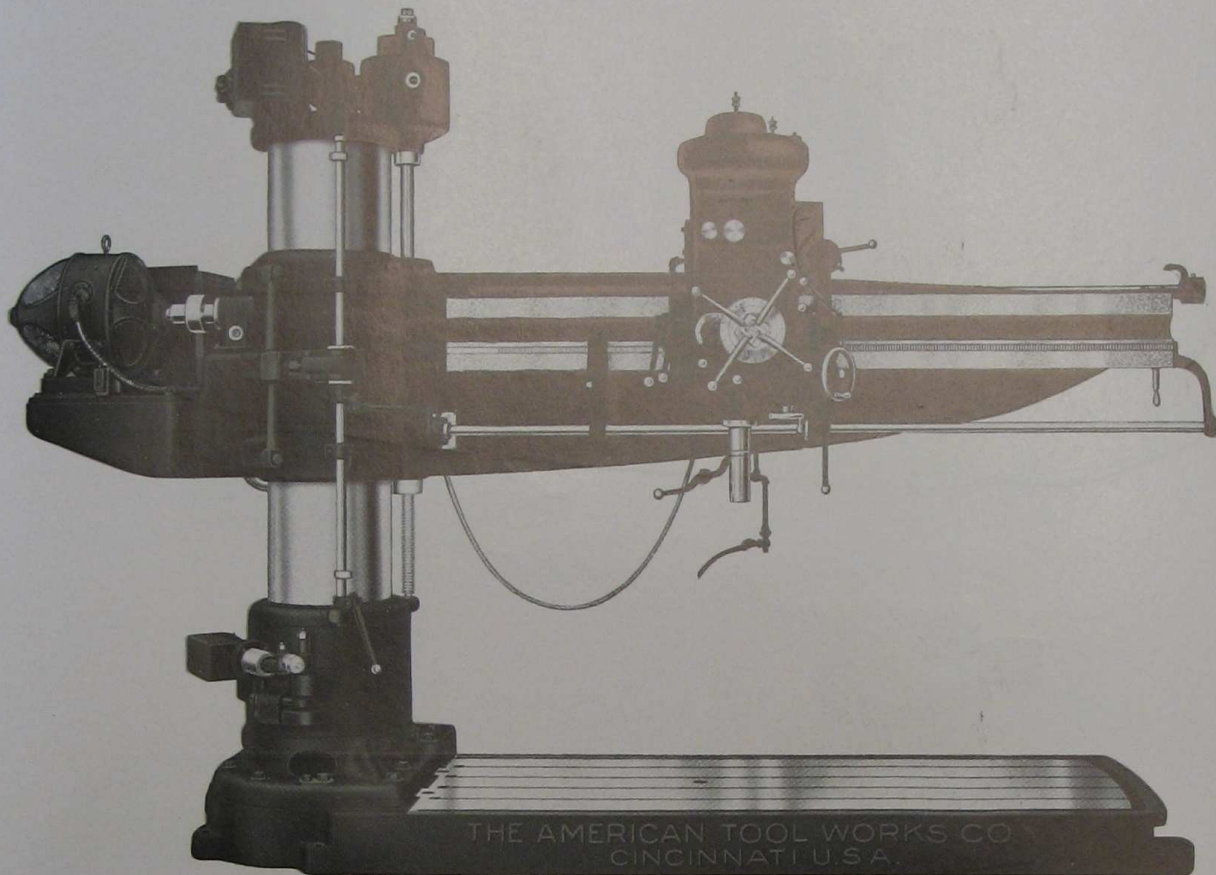


"AMERICAN" Triple Purpose Radials

19-Inch Column Diameter

ARM LENGTH	6-Foot	7-Foot	8-Foot
Drills to Center of Circle on Base	144"	168"	192"
Greatest Distance, Spindle to Base	77 1/4"	77 1/4"	77 1/4"
Minimum Distance, Spindle to Base	15"	15"	15"
Traverse of Spindle	19 3/4"	19 3/4"	19 3/4"
Minimum Distance, Spindle to Column Stump	13 1/2"	13 1/2"	13 1/2"
Hole in Spindle, Morse Taper No.	6	6	6
Diameter of Spindle at Point of Drive	3"	3"	3"
Traverse of Drill Head on Arm	58 1/2"	70 1/2"	82 1/2"
Traverse of Arm on Column	42 1/2"	42 1/2"	42 1/2"
Length of Arm Bearing on Column	34"	34"	34"
Plain Box Table (Height—Top Surface)	20"—28" x 28"	20"—28" x 28"	20"—28" x 28"
Universal Table (Height—Top Surface)	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"
Number of Feeds	12	12	12
Tap Leads, Threads per Inch	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27
Range of Feeds (twelve in number)	.005" to 125"	.005" to 125"	.005" to 125"
Range of Spindle Speeds	16 to 800	16 to 800	16 to 800
Height of Drill over Column, Gears and Collector Rings approximately	148"	148"	148"
Extreme Height over Top of Spindle	162"	162"	162"
Height of Base	10"	10"	10"
Base Capacity (Width, Length, Working Space)	50" x 77"	50" x 89"	50" x 101"
Net Weight	22,500 lbs.	23,600 lbs.	24,700 lbs.
Crated Weight	22,700 lbs.	23,800 lbs.	24,900 lbs.
Boxed Weight	28,000 lbs.	29,200 lbs.	30,400 lbs.
Cubic Feet, Boxed	625	675	700

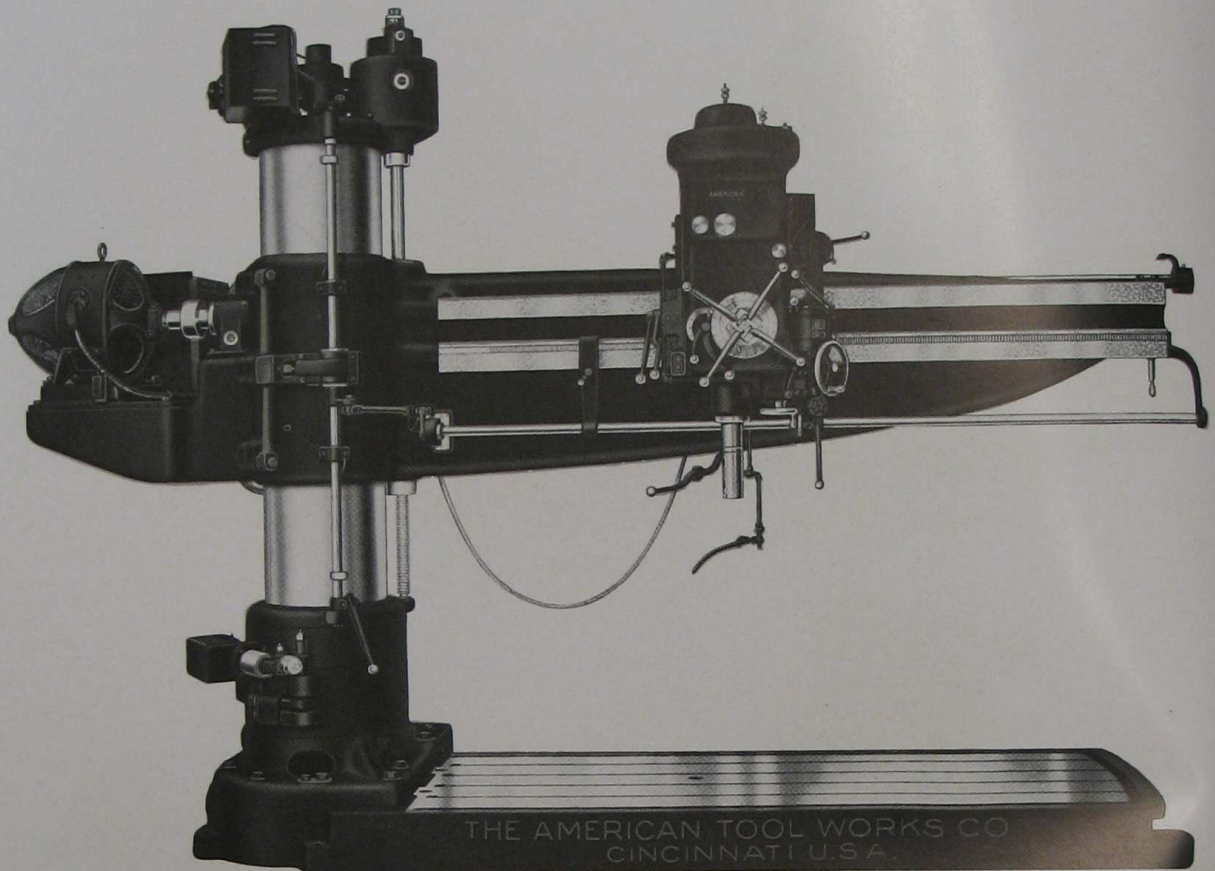
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“AMERICAN” Triple Purpose Radials 22-Inch Column Diameter

ARM LENGTH	7-Foot	8-Foot	9-Foot	10-Foot
Diameter of Column.....	22"	22"	22"	22"
Drills to Center of Circle on Base.....	14'	16'	18'	20'
Greatest Distance, Spindle to Base.....	96"	96"	96"	96"
Minimum Distance, Spindle to Base.....	22"	22"	22"	22"
Traverse of Spindle.....	24"	24"	24"	24"
Minimum Distance, Spindle to Column.....	21 1/2"	21 1/2"	21 1/2"	21 1/2"
Hole in Spindle, Morse Taper No.....	6	6	6	6
Diameter of Spindle at Point of Drive.....	3"	3"	3"	3"
Diameter of Spindle at Nose.....	4 1/8"	4 1/8"	4 1/8"	4 1/8"
Traverse of Drill Head on Arm.....	71 1/2"	83 1/2"	95 1/2"	107 1/2"
Traverse of Arm on Column.....	50"	50"	50"	50"
Length of Arm Girdle.....	42 3/4"	42 3/4"	42 3/4"	42 3/4"
Separate Box Table, Height—Top Surface.....	20"—40" x 28"	20"—40" x 28"	20"—40" x 28"	20"—40" x 28"
Universal Table, Height—Top Surface.....	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"
Range of Feeds, 12 in Number.....	.005" to .125"	.005" to .125"	.005" to .125"	.005" to .125"
Tap Leads—Threads per Inch.....	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27
Range of Spindle Speeds.....	16 to 800	16 to 800	16 to 800	16 to 800
Height of Drill over Column, Gears and Collector Rings approximately.....	175"	175"	175"	175"
Extreme Height of Drill over Spindle.....	203"	203"	203"	203"
Height of Base.....	12"	12"	12"	12"
Base Width and Length in Front of Column.....	56" x 91 1/2"	56" x 103 1/2"	56" x 115 1/2"	56" x 127 1/2"
Net Weight.....	41,000 lbs.	43,000 lbs.	45,500 lbs.	48,000 lbs.
Crated Weight.....	44,000 lbs.	44,500 lbs.	47,500 lbs.	50,000 lbs.
Boxed Weight.....	46,500 lbs.	50,000 lbs.	53,500 lbs.	55,000 lbs.
Cubic Feet, Boxed.....	700	750	850	950

American

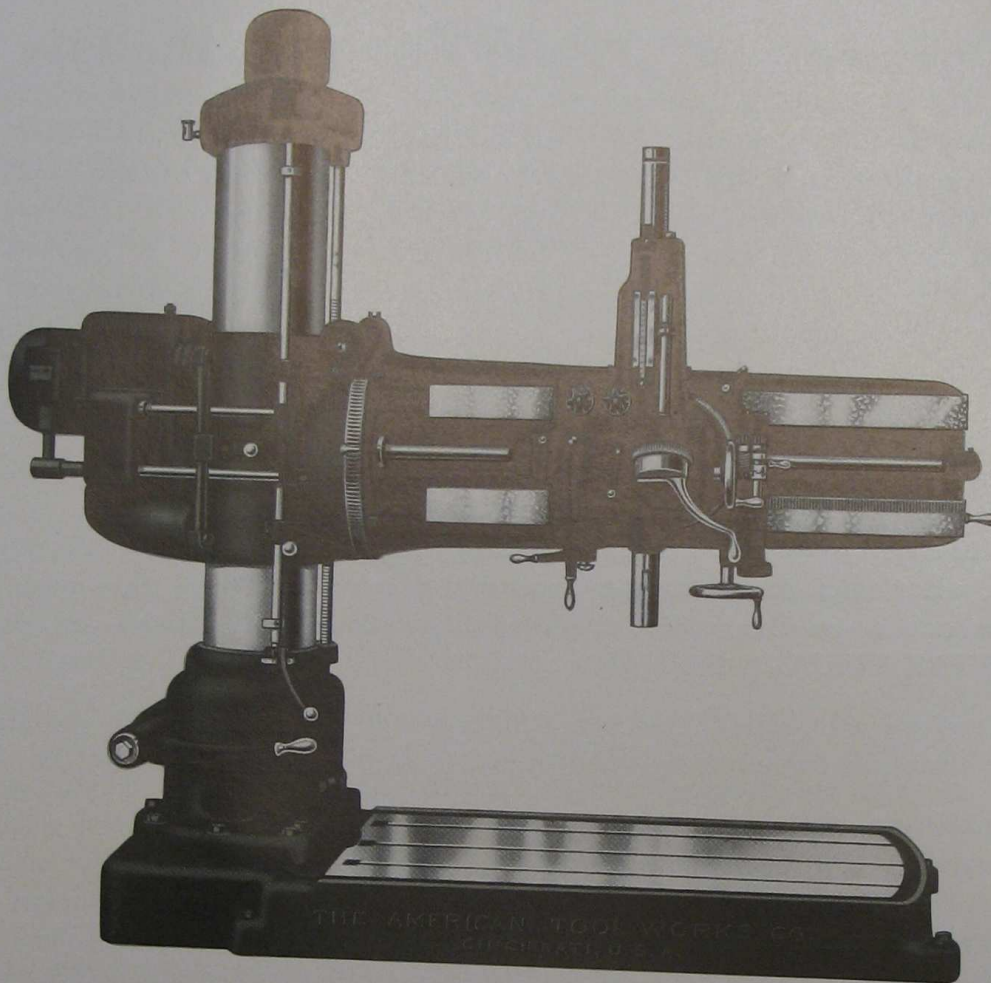


“AMERICAN” Triple Purpose Radials

26-Inch Column Diameter

ARM LENGTH	8-Foot	9-Foot	10-Foot	11-Foot	12-Foot
Diameter of Column	26"	26"	26"	26"	26"
Drills to Center of Circle on Base	16'	18'	20'	22'	24'
Greatest Distance, Spindle to Base	96"	96"	96"	96"	96"
Minimum Distance, Spindle to Base	27 1/4"	27 1/4"	27 1/4"	27 1/4"	27 1/4"
Traverse of Spindle	24"	24"	24"	24"	24"
Minimum Distance, Spindle to Column	32"	32"	32"	32"	32"
Hole in Spindle, Morse Taper No.	6	6	6	6	6
Diameter of Spindle at Point of Drive	3"	3"	3"	3"	3"
Diameter of Spindle at Nose	4 1/8"	4 1/8"	4 1/8"	4 1/8"	4 1/8"
Traverse of Drill Head on Arm	71"	83"	95"	107"	119"
Traverse of Arm on Column	44 3/4"	44 3/4"	44 3/4"	44 3/4"	44 3/4"
Length of Arm Girdle	48"	48"	48"	48"	48"
Separate Box Table, Height—Top Surface	20"—40" x 28"	20"—40" x 28"	20"—40" x 28"	20"—40" x 28"	20"—40" x 28"
Universal Table, Height—Top Surface	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"	26"—28" x 28"
Range of Feeds, 12 in Number	.005" to .125"	.005" to .125"	.005" to .125"	.005" to .125"	.005" to .125"
Tap Leads—Threads per Inch	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27	8, 11 1/2, 14, 18, 27
Range of Spindle Speeds	16 to 800	16 to 800	16 to 800	16 to 800	16 to 800
Height of Drill over Column, Gears and Collector Rings approximately	181"	181"	181"	181"	181"
Extreme Height of Drill over Spindle	203"	203"	203"	203"	203"
Height of Base	12"	12"	12"	12"	12"
Base Width and Length in Front of Column	56" x 103 1/2"	56" x 115 1/2"	56" x 127 1/2"	56" x 139 1/2"	56" x 151 1/2"
Net Weight	47,500 lbs.	50,250 lbs.	53,000 lbs.	55,750 lbs.	58,500 lbs.
Crated Weight	49,500 lbs.	52,250 lbs.	55,000 lbs.	57,750 lbs.	60,500 lbs.
Boxed Weight	52,800 lbs.	56,650 lbs.	60,500 lbs.	64,350 lbs.	68,200 lbs.
Cubic Feet, Boxed	850	950	1050	1150	1250

American



“AMERICAN” 5-Ft., 6-Ft. and 7-Ft. Full Universal Radials

ARM LENGTH	5-Foot	6-Foot	7-Foot
Diameter of Column.....	15"	17"	17"
Drills to Center of Circle on Base.....	120"	144"	168"
Hole in Spindle, Morse Taper No.....	5	5	5
Diameter of Spindle at Point of Drive.....	3"	3"	3"
Range of Spindle Speeds.....	21 to 340	21 to 340	21 to 340
Range of Feeds.....	.006" to .060"	.006" to .060"	.006" to .060"
Number of Feeds.....	8	8	8
Greatest Distance, Spindle to Base.....	64"	70 1/2"	70 1/2"
Minimum Distance, Spindle to Base.....	10 1/2"	13 1/2"	13 1/2"
Traverse of Spindle.....	20"	20"	20"
Minimum Distance, Spindle to Column.....	27 1/2"	28 1/2"	28 1/2"
Traverse of Drill Head on Arm.....	36 1/4"	47 3/4"	59 3/4"
Traverse of Arm on Column.....	33 1/2"	35 1/2"	35 1/2"
Separate Box Table (Height—Top Surface).....	20" x 24" x 24"	20" x 28" x 28"	20" x 28" x 28"
Universal Table (Height—Top Surface).....	21 3/4" x 20" x 24"	26" x 28" x 28"	26" x 28" x 28"
Height of Drill over Column, Gears and Collector Rings approximately.....	113 1/2"	124"	124"
Extreme Height of Drill over Spindle.....	137"	144 1/4"	144 1/4"
Height of Base.....	8"	9"	9"
Net Weight.....	13,750 lbs.	18,000 lbs.	18,500 lbs.
Shipping Weight.....	14,000 lbs.	18,200 lbs.	18,700 lbs.
Boxed Weight.....	15,750 lbs.	21,200 lbs.	21,700 lbs.
Cubic Feet, Boxed.....	300	390	400

American

"American" Triple Purpose Radials

"American" Radials are built in 9", 11", 13", 15", 17", 19", 22" and 26" column diameters with arm lengths varying from 3 ft. on the smallest size to 12 ft. on the largest. They are extremely powerful, heavy and rugged. Designed primarily to handle the wide variety of operations encountered in the average shop, they are provided with a speed and feed range calculated to produce the correct speeds and feeds on operations varying from large boring and tapping to the average high-speed drilling in cast iron and steel.

The new "American" Triple Purpose Radial marks the greatest advance in radial drill design that the industry has ever known, because, not only has the design of the general working parts been materially improved, but, what is of much greater moment, a new function or purpose has been added to the radial drill's field of operation—hence its name "TRIPLE PURPOSE RADIAL."

Heretofore the radial has been solely a drilling and tapping machine, now the third function is added by the new "American"—BORING.

In placing so much emphasis upon this new function we do not wish to detract in any degree from the drilling and tapping qualities of this machine. As a matter of fact, this new radial is without question the most economical producer of drilled and tapped holes of any radial drill built. To bear out this statement we direct attention to the great driving power of the machine, the individual excellence of each and every part, the collective superiority of the various features, the harmony with which they work, and their simplicity of operation. But the point we wish to emphasize particularly is that IN ADDITION to a superior drilling and tapping machine the "American" Triple Purpose Radial is what no other radial drill can claim to be—a BORING MACHINE. In consequence, this machine will not only perform to the very best advantage the work of the standard radial, but will do boring operations efficiently and economically that heretofore could not be handled on a radial drill.

It therefore follows that by installing the new "American" Triple Purpose Radial the purchaser will obtain a machine which will not only perform all of the work expected of an ordinary radial drill, but will, in addition, handle work that no other radial can handle successfully.

Power

It would be folly to design a radial with such great possibilities as this new "American" without endowing it with ample power to realize the full benefit of its excellent design, consequently the power factor was given the most careful and scientific study, resulting in a power input commensurate with the capabilities of the other factors. To transmit this power to the best advantage the number of elements involved, such as gears, shafts, bearings, etc., has been reduced to a minimum, while an excellent lubricating system has been designed, which reduces the frictional loss to a very small percentage.

Quadruple Geared Head

The head of this radial is such a striking improvement over other radial drill heads that it should be given the most careful consideration. It is of the quadruple geared type producing four speeds, which in turn are divided into two distinct ranges—one for high-speed drilling and light tapping, the other for heavy tapping and boring.

The head mechanism is fully enclosed inside of one large casting or housing, which not only prevents all possibility of accident from exposed running parts, but presents a neat and finished appearance as well.

Double Spindle Drive

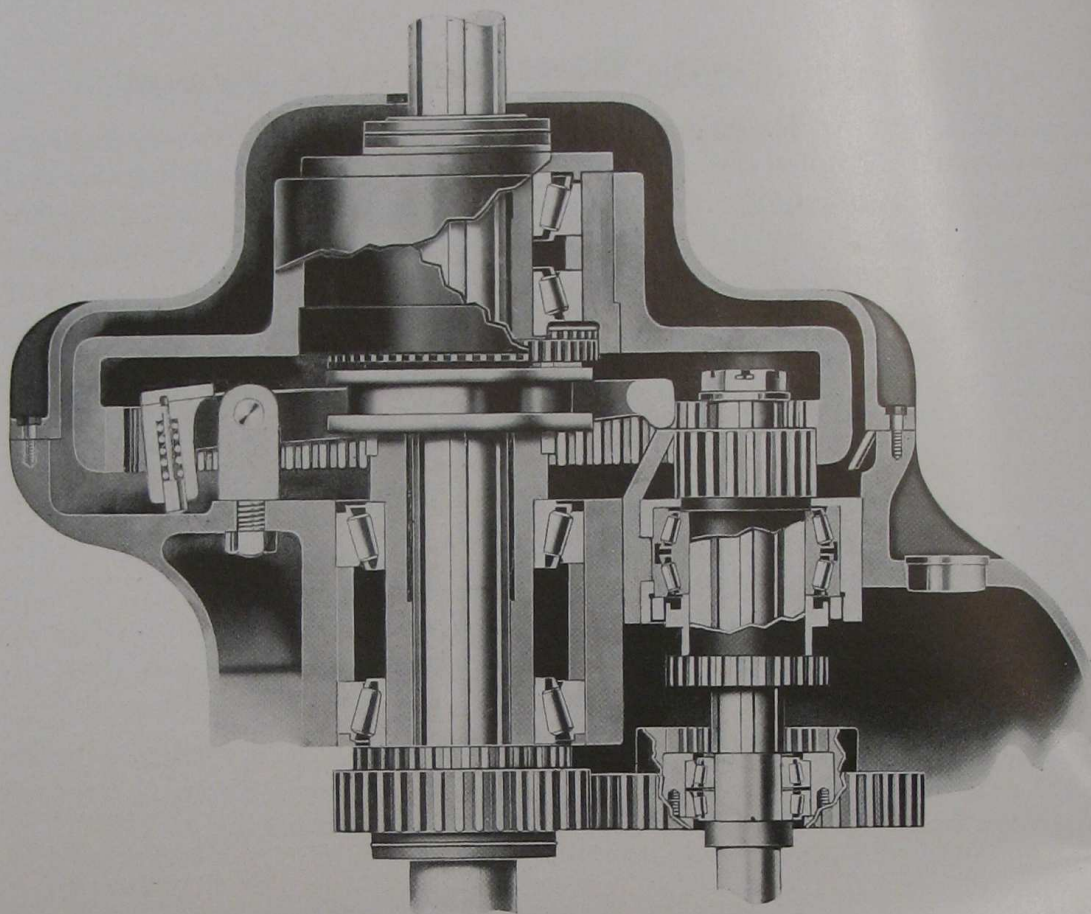
Through the double spindle drive suitable speeds can be obtained for both high-speed work and for large work requiring slow speeds and tremendous power, without reducing the initial power input, resorting to very small pinions, or operating the gears at high velocities.

The external gear drive provides speeds for work requiring high spindle speeds, while the slow speeds for work requiring slow spindle speeds are secured through the large diameter internal gear.

At first thought it would seem that in supplying such a wide spindle speed range excessive gear velocities would be encountered, and such would be the case were it not for the double spindle drive.

The internal gear referred to is the large gear MULTIPLE SPLINED TO THE SPINDLE and MOUNTED ON ROLLER BEARINGS. The advantages of the internal gear drive are obvious. Not only does it produce a most powerful drive, but the smooth, rolling action between the pinion and gear, in addition to the greater area of tooth contact, impart a smoothness to the spindle action that can't be secured through the external gear

American



Sectional view of the patented Double Spindle Drive employed on 11" column and larger sizes of triple purpose radials, showing how the internal gear is detached from the spindle to eliminate the flywheel action

drive. Consequently for heavy drilling, tapping, boring, spot facing and trepanning operations an internal gear driven machine has a very decided advantage over those with only external gear drives.

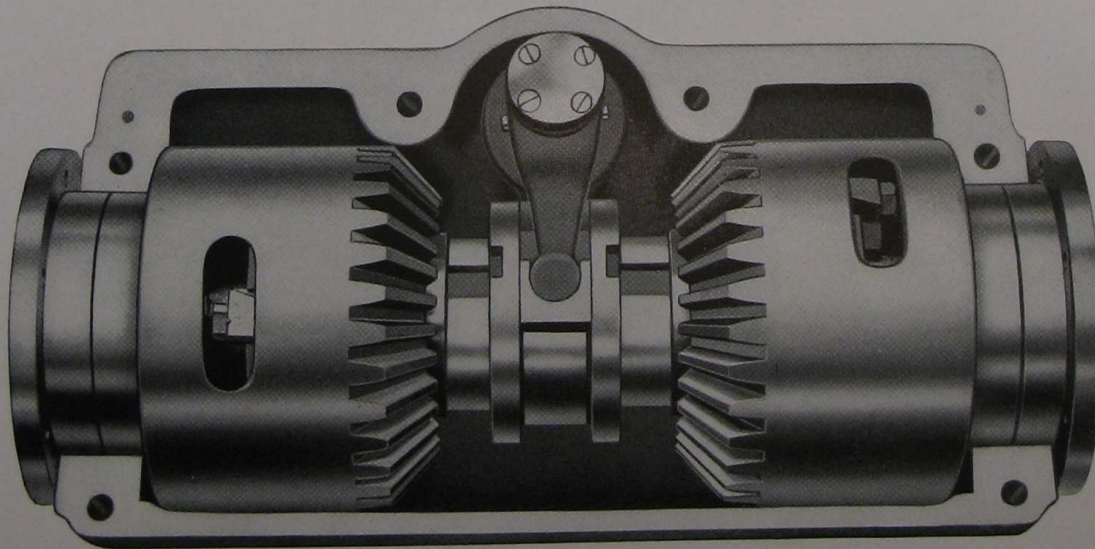
As the accompanying illustration shows, the internal gear is connected to the spindle driving sleeve by a gear tooth clutch. When the internal gear is disengaged and the external or high-speed drive used, the internal gear is automatically de-clutched or disengaged from the sleeve, leaving it free from the drive unit. When the internal gear drive is again thrown in, the external gear drive is automatically disengaged and the internal gear automatically engaged with the spindle driving sleeve. There is no possibility of conflict between the two drives.

The internal gear is mounted between roller bearings, which take the weight of the gear and eliminate friction between the gear and the spindle driving sleeve.

Wear Resisting—Trouble Proof Tapping Attachment

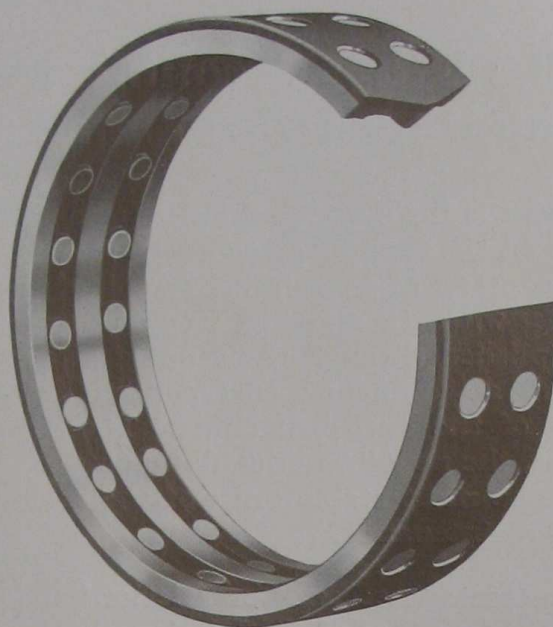
The tapping attachment is the most vital unit of the radial drill. There is more wear and tear on the tapping attachment than on any other unit of the machine. It is constantly in service. Every bit of power transmitted to the spindle, together with the starting, stopping, and reversing of the spindle are all accomplished through the tapping attachment frictions. In the past the tapping attachment was responsible for over 50% of the maintenance expense of the entire machine. That time has passed. Instead of the weakest, the new "American" tapping attachment is now one of the strongest and most stable units of the machine—absolutely free from trouble and maintenance.

Our patented combined spring steel and fibre friction band contacting with the hardened and ground surface of the friction cup has revolutionized the tapping attachment. The fibre, which covers the tempered spring steel band, has a greater coefficient of friction than cast iron, and, instead of cutting, it glazes from contact with the friction cups and becomes practically impervious to wear. The life of this unit is further protected by the spring of the steel band, which causes the friction band to snap away from the friction cup immediately when released, thus eliminating drag between the band and cup, and permitting oil to rush in, to thoroughly lubricate and cool the parts.



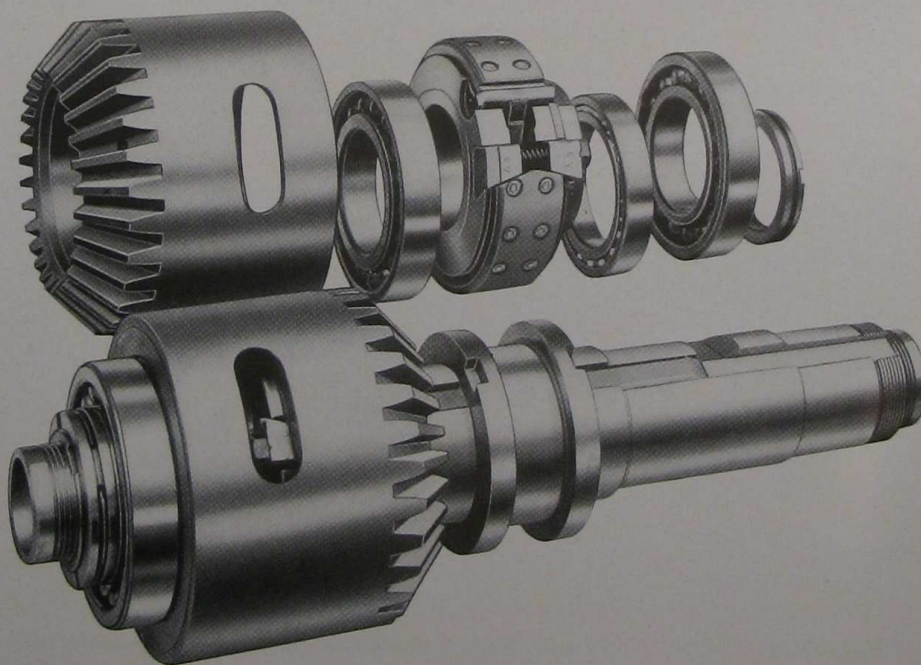
Tapping Attachment Unit assembled

American



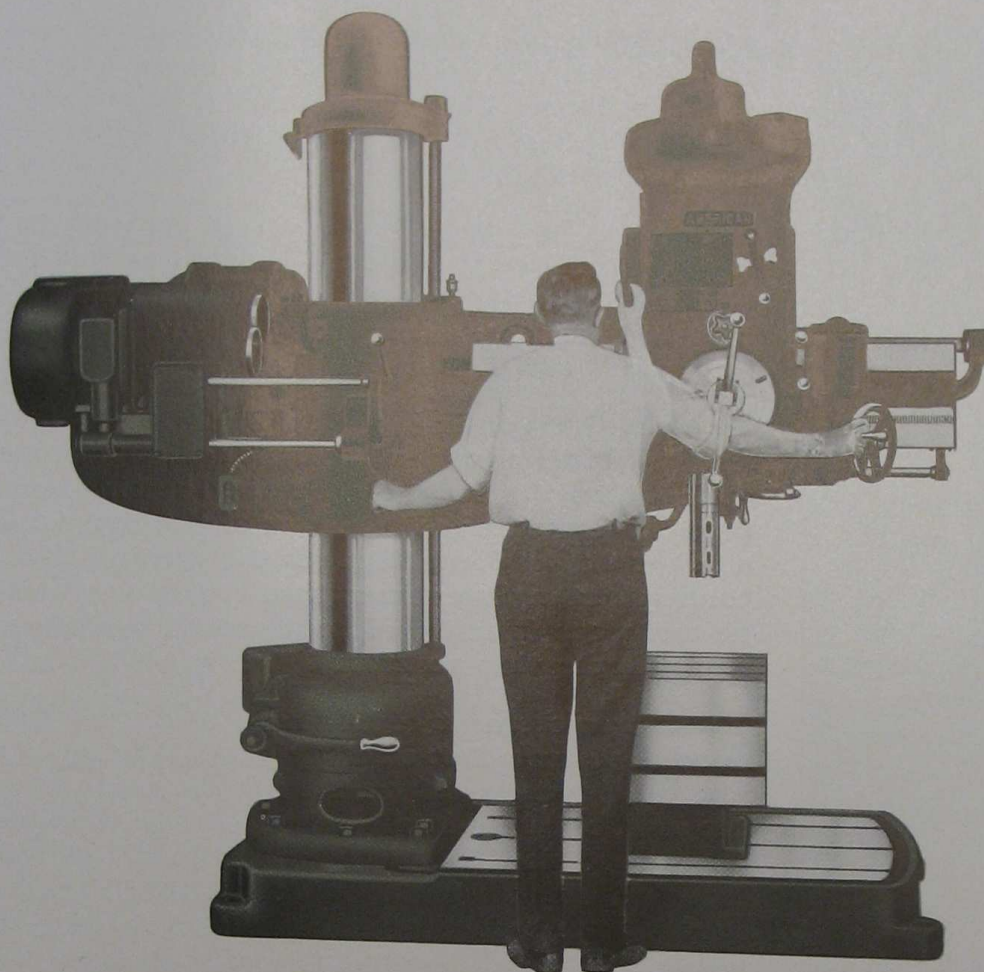
Improved Fibre Covered
Spring Steel Friction
Band used in Tapping
Attachment

The whole tapping attachment unit is mounted on large ball thrust and radial bearings, is enclosed in an oil-tight housing, and runs in a bath of oil. The gears and all operating units are made of alloy steel, heat-treated and hardened, and the entire mechanism is as nearly indestructible as it is possible to build a unit of this kind.



Tapping Attachment dismantled

American



Centralized Control

Simplicity and Convenience

No standard radial drill built can boast of greater simplicity of design or more pronounced operative convenience than the new "American." Turn to the large illustration on pages 26 and 27. Observe how all of the operating levers have been centralized and grouped to afford the highest degree of operative convenience. For example, the gear box speed control levers have been extended to the arm girdle, where on all smaller size machines they can be reached without moving from the operating position, while on the larger sizes never more than one step is required to reach them. Through these two levers the six gear box speeds can be controlled with almost unbelievable rapidity, in fact practically as fast as the operator can

American

SPINDLE SPEEDS			
23	HEAD BOX	A. UP	DOWN
27	HEAD BOX	A. UP	DOWN
32	HEAD BOX	A. UP	DOWN
38	HEAD BOX	A. UP	DOWN
46	HEAD BOX	A. UP	DOWN
55	HEAD BOX	A. UP	DOWN
64	HEAD BOX	A. UP	DOWN
76	HEAD BOX	A. UP	DOWN
90	HEAD BOX	A. UP	DOWN
108	HEAD BOX	A. UP	DOWN
130	HEAD BOX	A. UP	DOWN
155	HEAD BOX	A. UP	DOWN
180	HEAD BOX	A. UP	DOWN
210	HEAD BOX	A. UP	DOWN
255	HEAD BOX	A. UP	DOWN
305	HEAD BOX	A. UP	DOWN
365	HEAD BOX	A. UP	DOWN
435	HEAD BOX	A. UP	DOWN
500	HEAD BOX	A. UP	DOWN
590	HEAD BOX	A. UP	DOWN
710	HEAD BOX	A. UP	DOWN
845	HEAD BOX	A. UP	DOWN
1010	HEAD BOX	A. UP	DOWN
1200	HEAD BOX	A. UP	DOWN

Direct - Reading Speed Plate indicating positions of speed-changing levers for each of the 24 spindle speeds

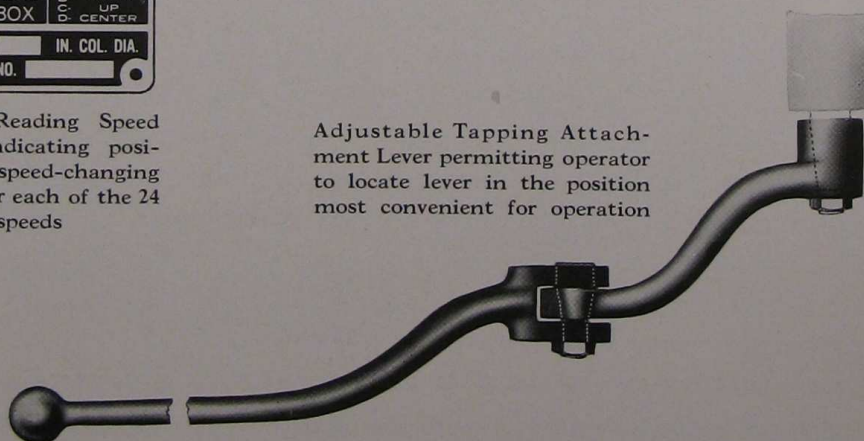
move his hands. From the head, with one movement of the lever, the operator clamps or unclamps and raises or lowers the arm through a noninterfering, perfectly fool-proof, safety elevating mechanism of advanced design.

Notice also how the speed and feed controls on the head are grouped to afford the greatest ease of operation, that two levers are furnished for raising and lowering the spindle, and that easily-read speed and feed plates are provided.

To make the swinging of the arm easy a special ball bearing is interposed between the column and sleeve at the bottom, while at the top a ball bearing is interposed to take the radial thrust of the sleeve. It is also a matter of convenience to the operator that the column binding lever extends well to the front, where he can reach it easily without greatly changing his natural operating position.

The easy movement of the head along the arm is another feature that strongly appeals to operators. The head is mounted on the narrow guide ways of the arm, which in itself makes for easy movement, and, in addition, the center of gravity of the head is brought directly over the guide ways by locating the spindle counterweight inside the head casting, close to the spindle, which gives the head an almost perfect balance on the arm. Ease of movement is also facilitated by mounting the head-moving mechanism on ball bearings and setting the hand wheel at a convenient operative angle.

Adjustable Tapping Attachment Lever permitting operator to locate lever in the position most convenient for operation



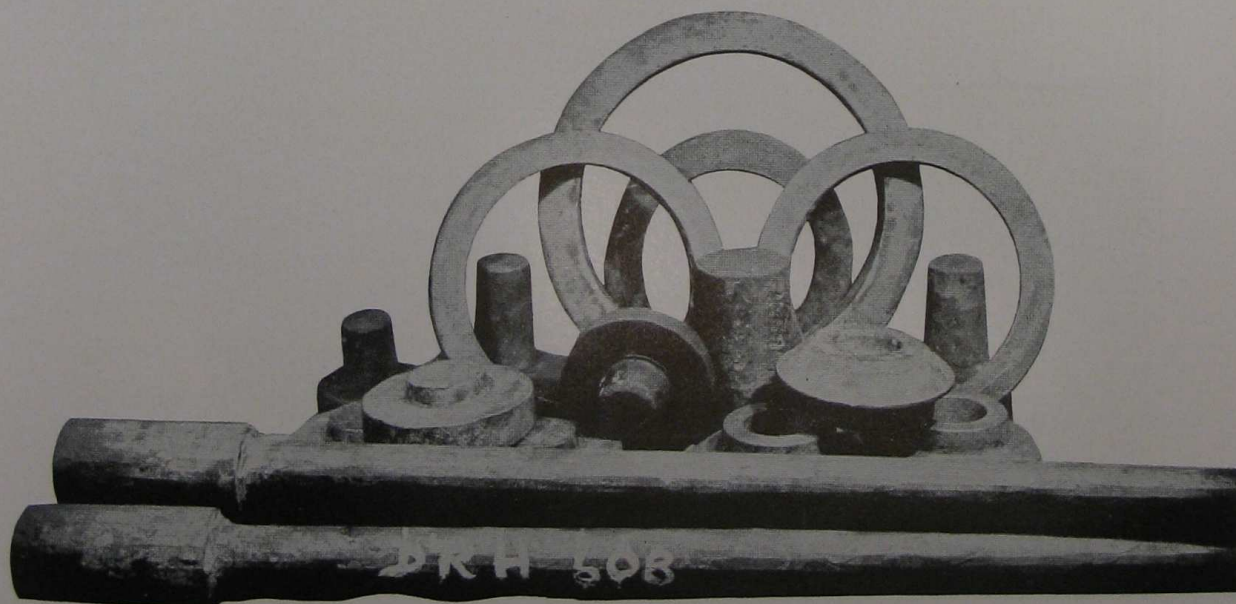
Material Guaranteed

No matter how much power a machine has, no matter how simple and convenient it is, if the materials from which the various members are made are not suitable for the work imposed, nor strong enough to withstand the different stresses, the machine never will be a success.

It was because of the thorough realization of the importance of this feature that such unprecedented care was given to the material selection for this new radial. Every gear in the machine, with the exception of the large internal gear, which is a semi-steel casting, and a few feed gears, which are manganese bronze, is made from a chrome manganese steel forging, heat-treated, oil-tempered and hardened. All driving shafts, including the long horizontal shaft, and every shaft in the head, are made of nickel alloy steel, heat-treated and ground.

The quality of materials used for the gears, shafts and bearings, combined with the quantity of cast iron in the base, column, arm and head, produce a unit which is practically indestructible.

Every piece of the machine is guaranteed to be of sufficient strength to withstand the various stresses imposed upon it, and to be free from flaws. Any defects in material or workmanship will be made good.



Chrome Manganese Steel Forgings, Tensile Strength, 250,000 Pounds

American

Feeding Mechanism includes 5 Power Tap Leads on all sizes larger than 11-inch column

No unit of the "American" Triple Purpose Radial has been more highly developed or thoroughly modernized than the feeding mechanism. The correct feeding range for each size machine has been carefully selected and combined with useful power tap leads on all sizes above the 11-inch column. In design the mechanism is unusually simple, using very few parts to accomplish the desired results. The materials employed are the

very best, including hardened steel slip gears, multiple splined shafts, ball bearings, etc. One very important improvement is the use of a declutched or stationary handwheel for the hand feed. When using the power feed this handwheel is automatically declutched and remains disconnected until the power feed is disengaged when it again becomes operative. This eliminates the danger of a revolving handwheel, a feature which will be appreciated by every radial drill operator.

The feed mechanism is thoroughly protected against sudden shocks or excessive stress by a friction which forms the connection between the mechanism and the spindle, and acts as a slipping point. This friction is an improved expanding band type, quickly adjustable from the outside for the desired tension. It is operated by two levers known as the "quick return levers," which operate in unison.

FEEDS	DIAL	LEVER
.004	A	3
.006	B	3
.009	C	3
.012	D	3
.016	E	3
.014	A	2
.022	B	2
.026	C	2
.029	D	2
.040	E	2
PIPE TAP LEADS		
27 THR.	A	1
18 THR.	B	1
14 THR.	C	1
11½ THR.	D	1
8 THR.	E	1

Direct-Reading Feed Plate

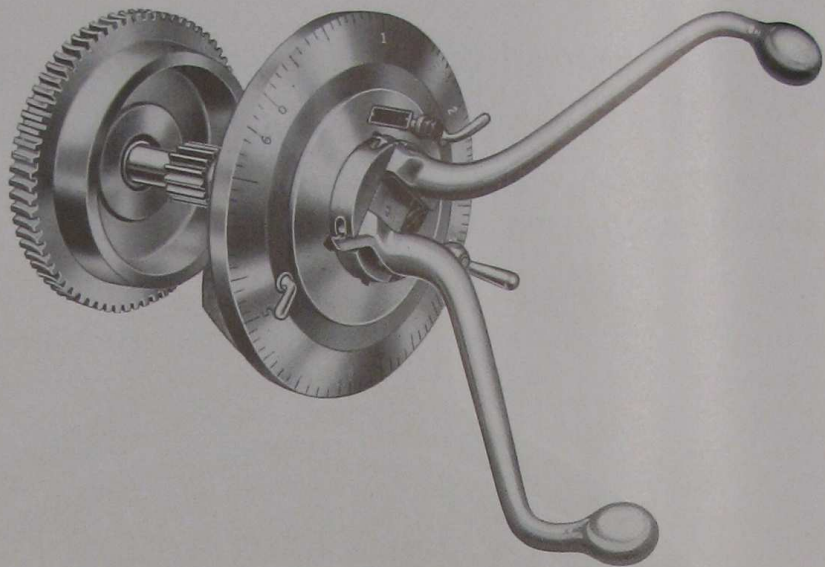
The feed worm wheel runs in an oil bath, insuring a minimum of wear between the worm wheel and worm.

In compactness, completeness and convenience no radial drill feeding mechanism surpasses this new development.



Combined speed and feed selector, which indicates at a glance the correct speeds and feeds for various sizes of twist drills in different metals

American

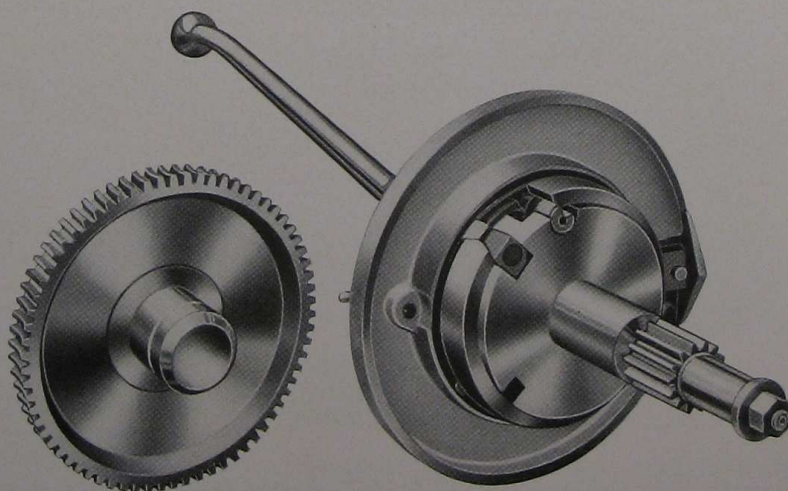


Feed Friction Unit showing graduated depth dial

Automatic Trip

A greatly improved automatic trip on the feed deserves special mention because it has been made a feature of real value. All settings are made by simply turning the dial until the desired depth is seen at the top, opposite the Zero Mark stamped on the head, then locking the dial. There is no need for the operator to twist or turn his head in order to see the depth gauge—it is plainly before him when standing in a normal upright position. The depth gauge is effective for the following length of travel, at one setting, on the various sizes of radials:

Hole Wizards	Full Travel	15" Column	5 inches
11" Column	4 inches	17" Column	5 inches
13" Column	5 inches	19" Column and larger	6 inches



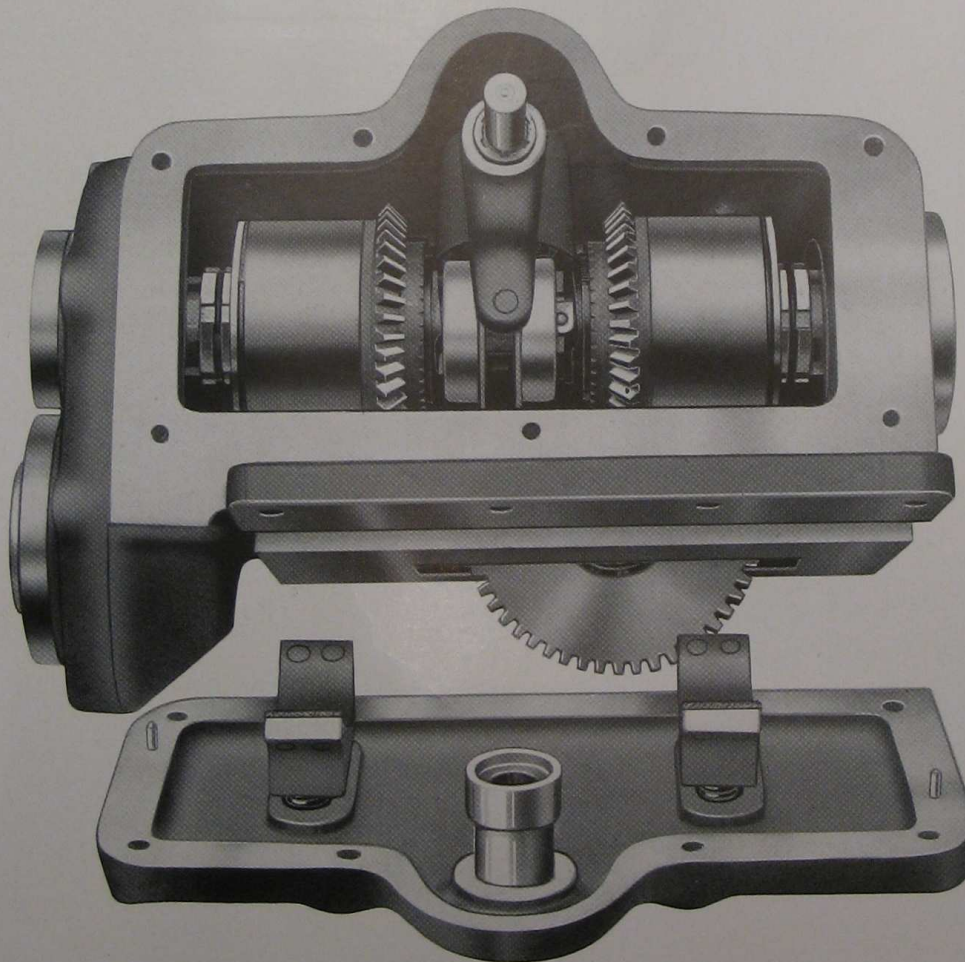
Feed Friction and component parts—rear view

The Elevating Mechanism

Controlled from Head—Accident Proof

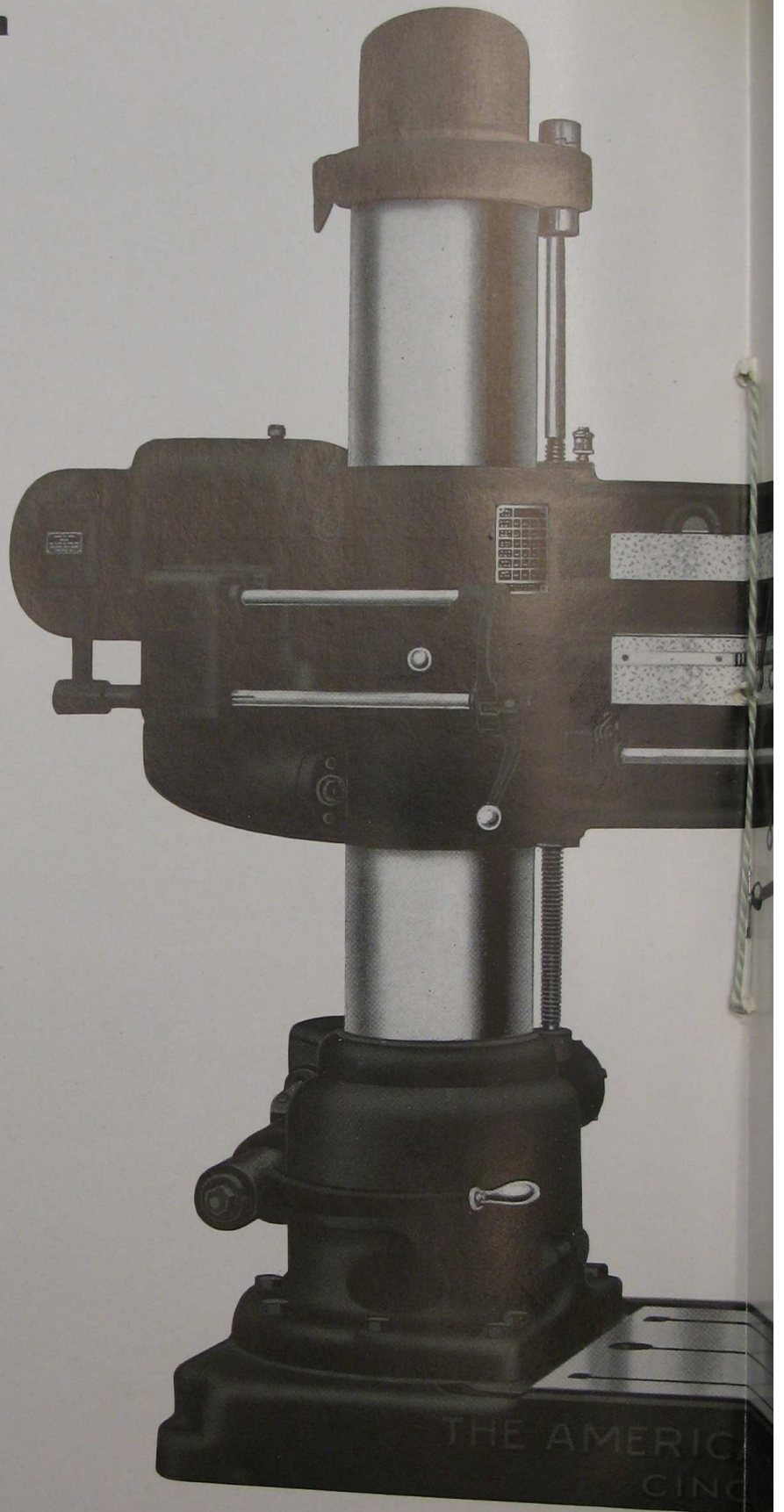
The arm is clamped and unclamped, raised and lowered through the elevating lever located at the head, directly in front of the operator. The arm-clamping and elevating mechanisms operate in unison and are perfectly timed to prevent accident. When the control lever is raised for elevating the arm the arm clamp is automatically released before the elevating mechanism becomes operative. The same is true when lowering the arm. When the control lever is in the neutral position the arm is automatically clamped to the column.

Two very valuable safety features are incorporated in this elevating mechanism. One is the brake which automatically operates on the

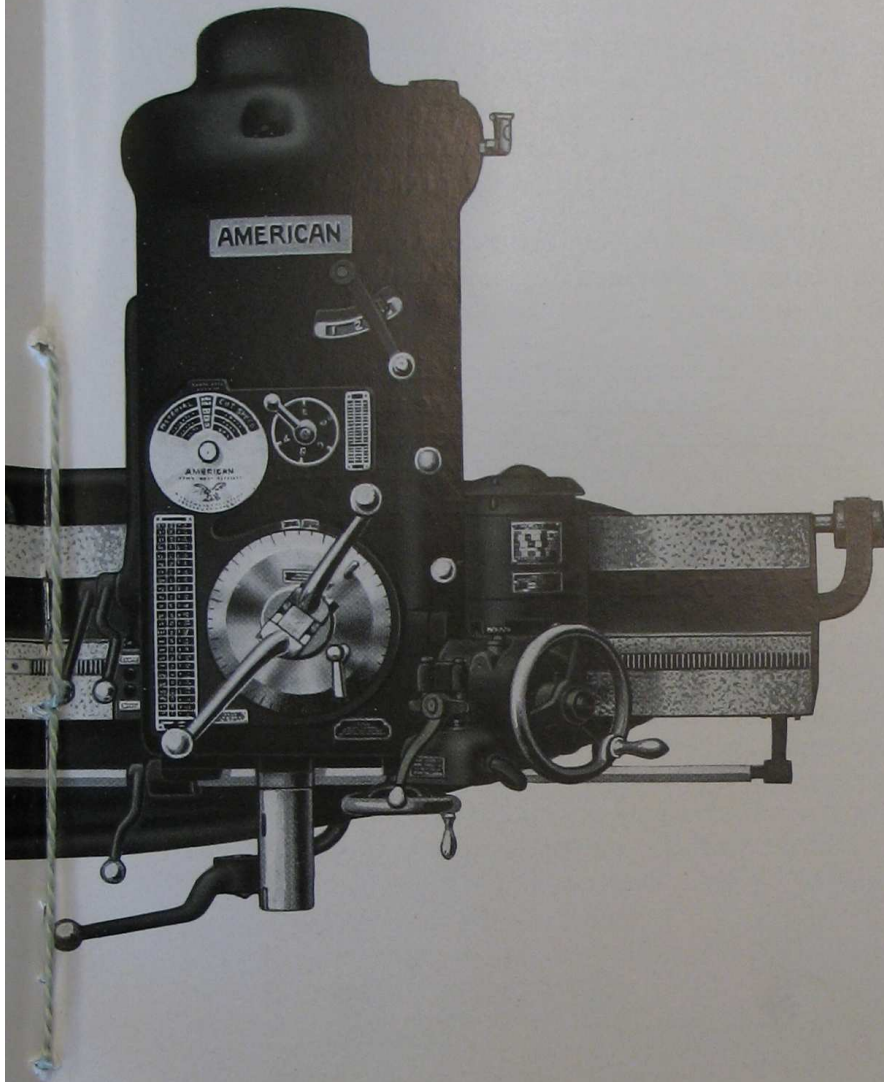


Elevating Mechanism assembled, showing brake shoes attached to cover

American



THE AMERICAN
CINCINNATI



American

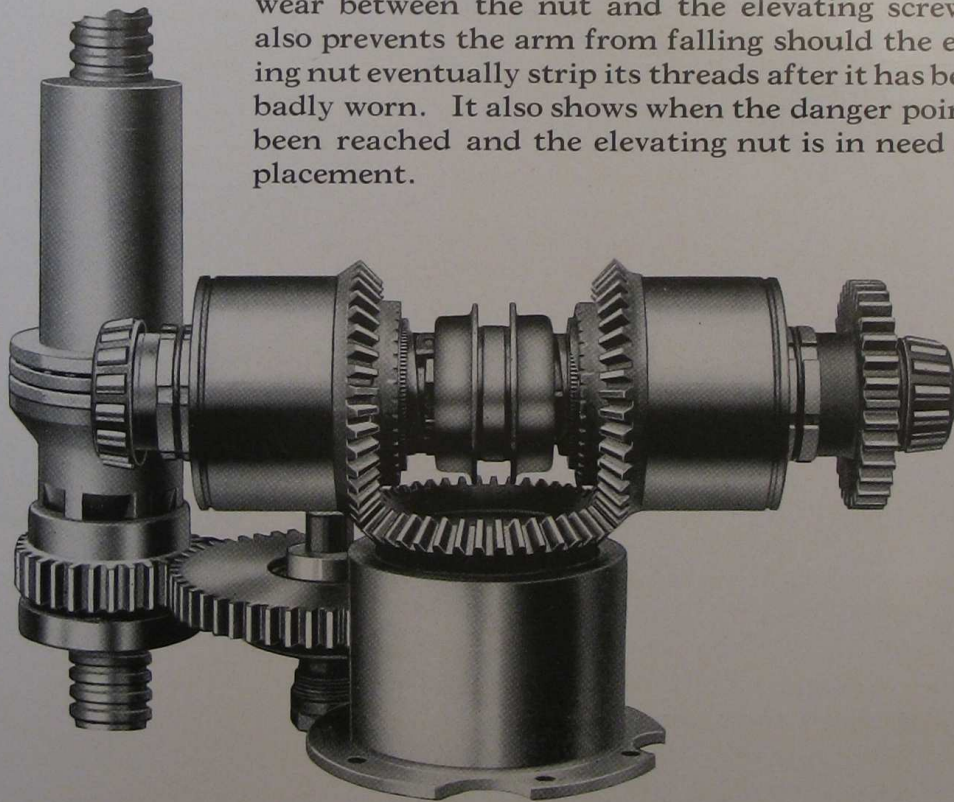
elevating gears and prevents the arm from coasting after the elevating mechanism is disengaged. The other is the safety clutch provided on the elevating screw, which automatically disengages if the arm meets an obstruction when being lowered. These two safety features insure an accident-proof mechanism, and unquestionably add greatly to its life.

This mechanism also embodies the usual safety stop dogs on the elevating shaft for automatically disengaging the elevating mechanism when the arm reaches either extreme of movement.

The mechanism employed in this elevating unit is of the most modern design and construction. Only anti-friction bearings are used. All gears are alloy steel, heat-treated and hardened. All shafts are multiple splined, and the frictions are of the very latest and most improved, all steel, multiple-disc type. The entire mechanism operates in a bath of oil.

Safety Elevating Nut

On the 19-in., 22-in. and 26-in. column sizes a safety elevating nut is also provided, which not only indicates the amount of wear between the nut and the elevating screw, but also prevents the arm from falling should the elevating nut eventually strip its threads after it has become badly worn. It also shows when the danger point has been reached and the elevating nut is in need of replacement.



Elevating Mechanism exposed

Power Traverse for Head

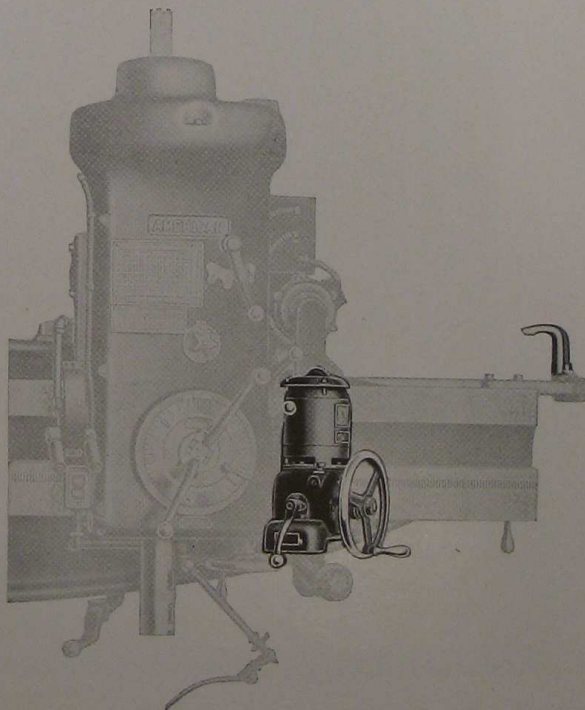
Fully Protected Against Accident

Another very attractive improvement is the independent power traverse unit for rapidly moving the head along the arm by power. Instead of accomplishing this by purely mechanical means which requires a number of small operating members and is operative only when the machine is running, an independent electrical unit is used which is simple and sturdy and entirely self-contained.

The "American" Power Traverse is operated by a motor and switch mounted on the side of the head—always ready for use whether the machine is running or not. The whole mechanism is a simple, compact, self-contained unit with a small control lever at the front for operation. This small lever operates the motor control switch and automatically disconnects the hand traverse mechanism before starting the electrical power traverse.

Ample safety features are provided to insure perfect safety both for the operator and for the mechanism itself. When the power traverse is engaged the hand traverse is automatically disengaged causing the hand traverse hand wheel to remain stationary. This is a very important feature as it prevents accident to the operator which might result from a rapidly revolving hand wheel. The traverse mechanism cannot be engaged while the head is clamped to the arm and is protected against accidental over-travel by limit stops at each extreme of the arm which automatically disconnect the motor circuit when the extreme travel in either direction is reached.

A further safeguard is provided by the operator having to hold the control lever in engagement while traversing the head by power. The moment the operator releases the control handle it snaps back into the neutral position, thus disconnecting the electrical circuit and stopping the motor. This



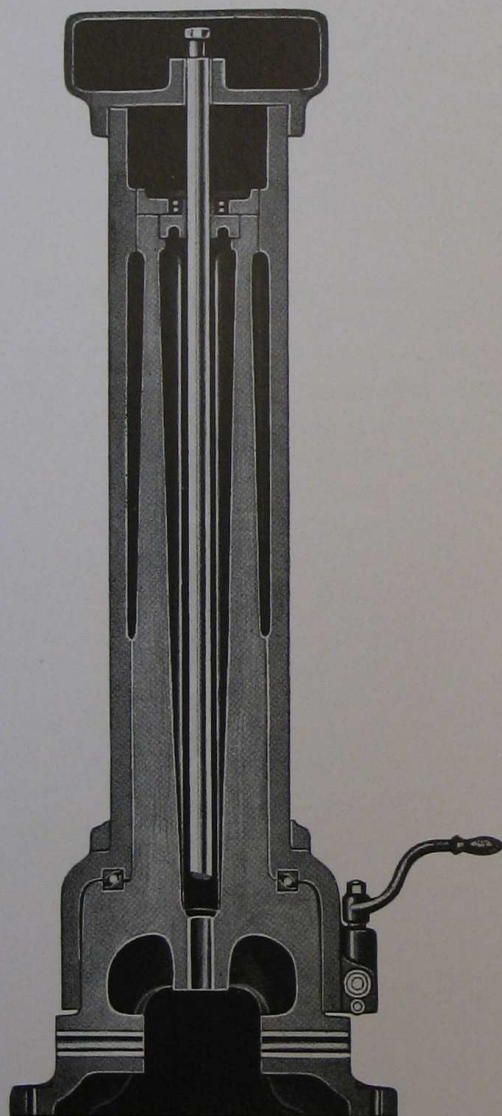
Power Rapid Traverse for Head

American

also automatically reengages the hand traverse so the head can be traversed manually. The motor runs only when the head is being traversed by power, consequently the power traverse mechanism is subjected to very light, intermittent duty which insures long life and dependable service.

Base

The base is very heavy and the addition of stiffening ribs results in marked rigidity. An oil channel surrounds the working surface and extension for table.



Showing reinforced Tubular Column
used on all sizes

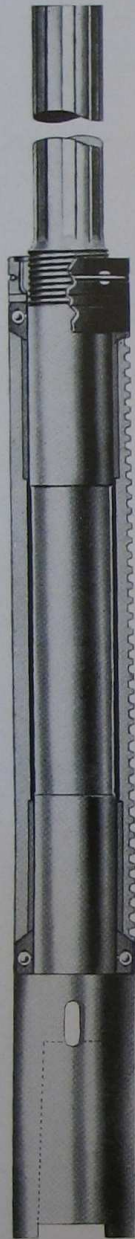
Column

The column is well ribbed, with lower inner bearing well up toward the center of the sleeve. The sleeve has also been enlarged in diameter, and is guided at the top by a high-grade ball bearing, while its weight and that of the arm is absorbed by a special ball bearing at the bottom, which runs in hardened steel ball races.

The rigidity of the column has been increased far beyond that of the average radial drill. The new column, as the accompanying illustration shows, has been greatly reinforced, particularly at the lower portion, where the most severe stresses occur. This forms a most effective construction for resisting such stresses as are imposed by radial drill operation.

The sleeve which fits over the column is well ribbed and thoroughly substantial. It is guided at the top by a radial ball thrust bearing, while the weight and radial thrust at the bottom are taken by our patented combined thrust and radial ball bearing shown by the accompanying illustration.

Spindle Construction

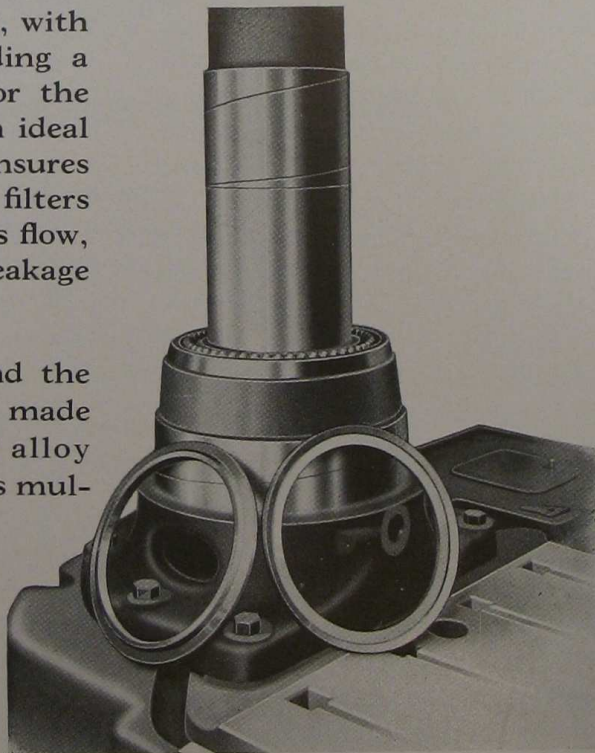


Details of
Spindle
Construction

The spindle has both an anti-friction and plain bearing mounting in the sleeve. This construction supplies the advantages of both types of spindle mountings—a valuable feature found only on the “American” Triple Purpose Radial. In addition to the anti-friction bearings in the spindle sleeve, which absorb both the radial and thrust loads of drilling operations, renewable bronze bushes are provided to absorb the heavy side thrusts from boring and facing operations. This combination provides both the desirable anti-friction mounting for high-speed drilling and a large-area plain bearing for all other classes of work producing severe side pressures against the spindle bearings.

The anti-friction bearings provide a large factor of safety, and are the best that money can buy. The sleeve bearings are renewable, altho practically wear-proof. The “Moccasin” type bushing, with wood inserts providing a capillary oil feed for the bearings, has proven ideal for this service. It insures a constant oil film, filters the oil, regulates its flow, and prevents oil leakage from the spindle.

Both the spindle and the spindle sleeve are made from heat-treated alloy steel. The spindle is multiple splined, and the sleeve has the feed rack cut integral with it.

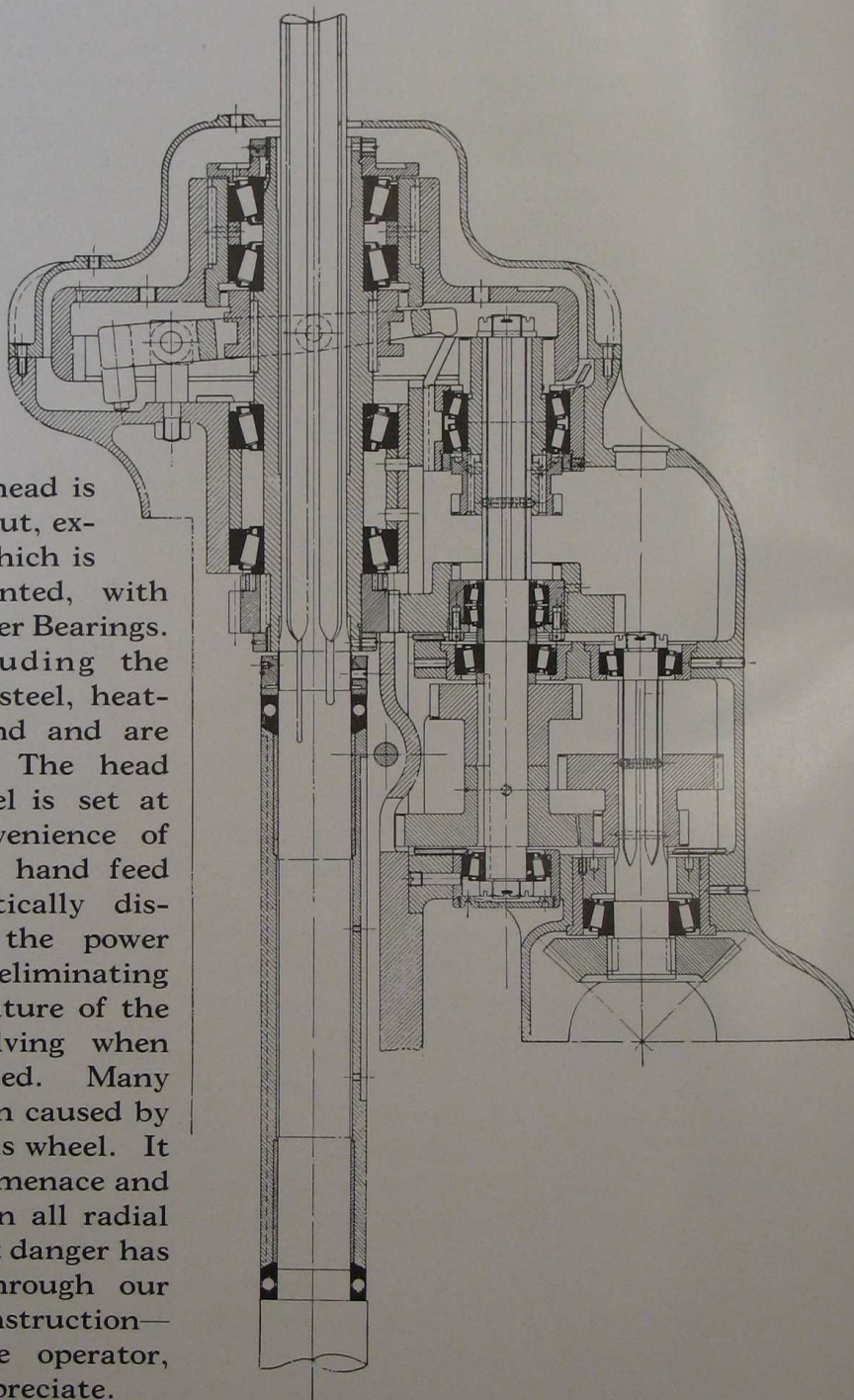


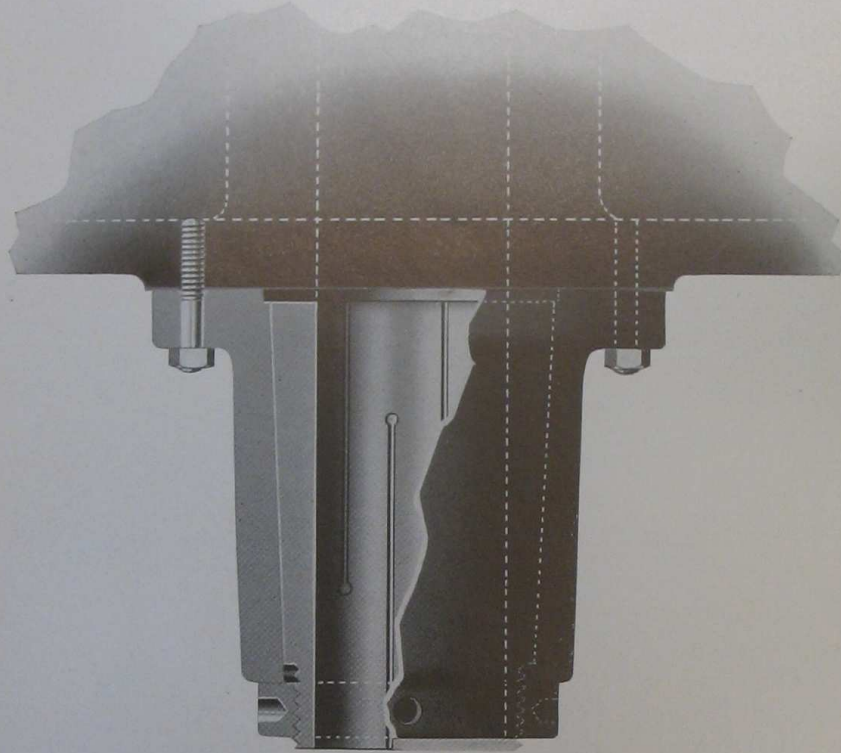
Patented Ball Bearing Mounting
of Column Sleeve on Column

American

Anti-Friction Head

The anti-friction head is equipped throughout, except the spindle which is ball-bearing mounted, with Timken Taper Roller Bearings. All shafts, including the spindle, are alloy steel, heat-treated and ground and are multiple splined. The head moving hand wheel is set at an angle for convenience of operation and the hand feed wheel is automatically disconnected when the power feed is in use, thus eliminating the objectional feature of the hand wheel revolving when using the power feed. Many accidents have been caused by the revolving of this wheel. It has always been a menace and source of injury on all radial drills, but now that danger has been overcome through our patented safety construction—a fact which the operator, especially, will appreciate.





Auxiliary Bearing for Spindle

To augment the advantages of the internal gear drive for boring and facing operations, an auxiliary bearing may be provided at a slight additional price, except on 22" and 26" column sizes, on which it is regularly furnished, for steadying the spindle under this service. This bearing is securely fastened to the bottom of the head casting, and carries a split taper bushing of phosphor bronze, with adequate means for adjustment.

This adjustment is made from the outside by means of a nut similar to the main spindle bearing of a milling machine or a horizontal boring mill.

The spindle nose is increased 8" in length to provide an 8" bearing in the extension at the bottom of the head when the spindle is raised to its limit. The spindle sleeve also is given a sliding fit in this bearing, which results in less overhang or less extension of the spindle sleeve when operating.

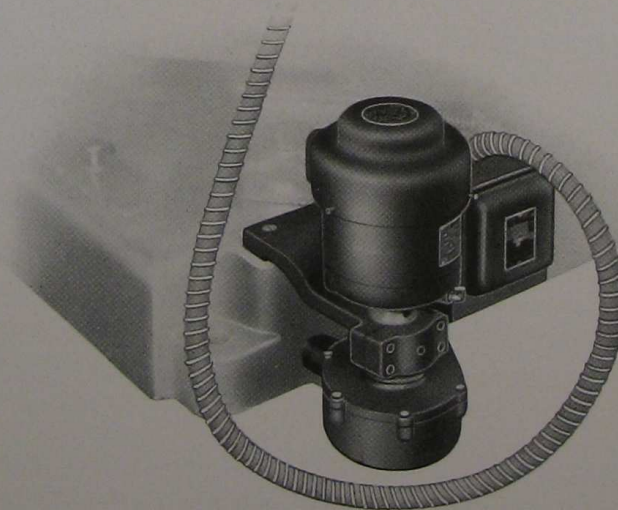
This gives the spindle an outboard support, which, combined with the smooth action imparted by the internal gear drive, provides an advantage especially for boring and facing that is absolutely beyond comparison.

American



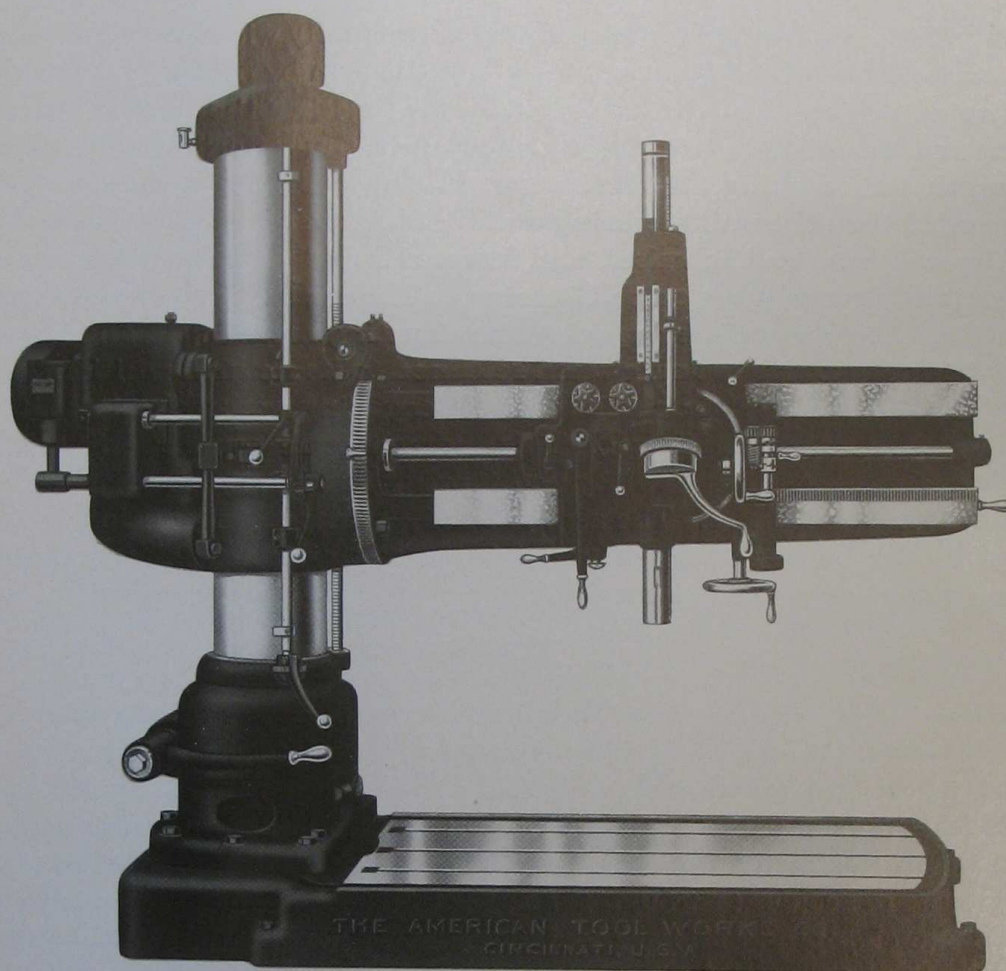
Electric Column Clamp operated from head

The accompanying illustrations show the electric column clamp which is operated from the head, for clamping and unclamping column sleeve to column and the motor driven coolant pump and connections for delivering coolant to the cutting tool. A sump regularly supplied in the base provides a reservoir for the coolant.



Electric Pump for Coolant

American



“American” Full Universal Radial Drill

Built in 5-ft., 6-ft. and 7-ft. Sizes

When contemplating the purchase of a universal radial, perhaps the greatest consideration should be given to the arm construction, since the efficiency of the machine depends largely upon the ability of the universal arm to withstand the stresses imposed by various drilling and tapping operations. To this particular feature we have given the most careful study and in the development of the “American” Universal Arm we have combined those characteristics essential to extreme rigidity under the most severe drilling service.

The “American” Universal Radial Arm is made in the form of a double wall section strongly reinforced by heavy transverse ribbing. On the front

American

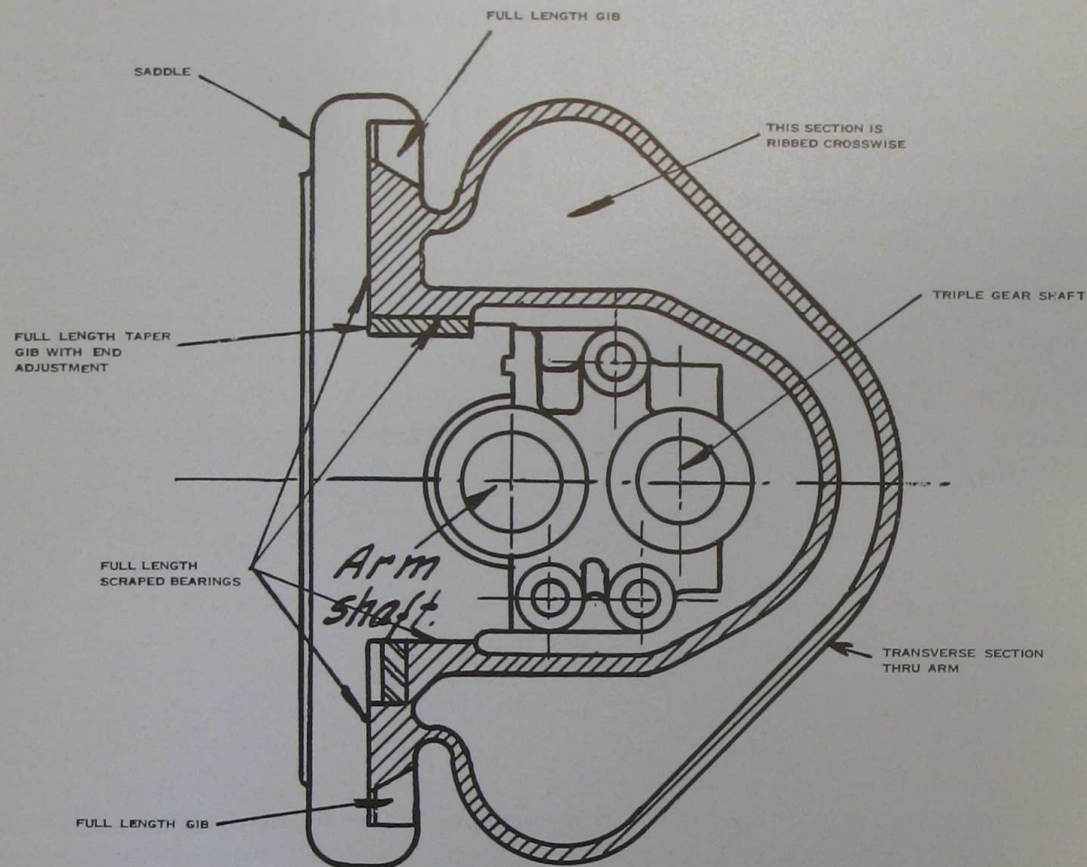
wall "ways" are formed for carrying the unusually wide and rigid saddle, which is firmly locked at any point along the arm by means of a powerful clamping device. This, in addition, binds together the double wall sections and the saddle into a very compact unit, thus affording unparalleled strength for resisting stresses. Arm is clamped by two binder levers, controlled thru the unit elevating and binding lever located at the bottom of the column, and is raised and lowered rapidly by a double thread, coarse pitch screw hung on ball bearings. The control lever automatically unclamps the arm before engaging the elevating mechanism and likewise automatically binds the arm when returned to its neutral position. Arm is rotated in a complete circle by worm engaging worm wheel cut in the periphery of the arm flange. This movement in connection with the swiveling head, permits drilling and tapping at any angle radiating from the center of a sphere. The arm is firmly clamped in position by four large binder bolts and is graduated in degrees on its periphery, readings being taken at a fixed pointer.

Head

The head is of very compact design and is equipped with powerful Steel Triple Gears. It may be swiveled through a complete circle by means of a hand wheel and worm which engages a worm wheel fixed to the head. This feature is of special value in setting the spindle for angular drilling. The worm holds the swiveling head in any position, and eliminates all possibility of accident through the head swinging around of its own weight when the clamping bolts are loosened. The hand wheel affords quicker motion than the use of a wrench. Graduations on head show, at a fixed pointer, the angle as set, and three binder bolts are provided for securely clamping the head at any angle. Head is moved rapidly along the arm by means of multiple gearing and rack through the same hand wheel that swivels the head, by simply engaging the traversing clutch. A binder is supplied which permits of readily locking the head at any point along the arm.

Saddle Shaft Construction

A feature of great merit is found in the power transmitting elements between the arm shaft and the spindle. The saddle shaft, which forms part of this connection, is offset to one side of the spindle, and is mounted in two (2) long bearings, one of which is integral with the saddle, and the other with the swiveling head. Power is transmitted from the saddle shaft through mitre gears to a shaft in the front of head, from which the spindle is driven through spur gears. This construction eliminates the



Section thru Universal Arm

cramping, consequent loss of power and rapid wear, which is obviously unavoidable in other makes of universal drills where the spindle is driven directly from the arm shaft through bevel gears mounted on each side of an extremely short, single saddle bearing.

Spindle

With the six-speed gear box on arm 18 changes of spindle speeds are provided, advancing in geometrical progression. The wide range of speeds obtainable, together with the enormous power and unusual rigidity, render this drill highly efficient for drilling with high speed twist drills, and particularly fits it for a wide range of tapping requirements. A speed plate fixed to the arm girdle shows at a glance how to obtain suitable speeds for the work. Spindle is provided with both hand and power feeds, also with quick advance and return.

Triple Gears

The triple gears are made of alloy steel, heat treated and hardened, are of powerful design, and provide one direct and two reduced speeds through the medium of spur gears and positive clutches. They are operated from the front of the head saddle by a convenient lever, without stopping the machine. Triple gears are mounted on the back of the saddle, and are fully enclosed by the rear walls of the arm, thus permitting the universal arm to be rotated through a complete circle with no possibility of an overhanging mechanism interfering with the work being machined. This is a distinct feature on this drill.

Feeding Mechanism

The feeding mechanism is located on the head, and provides eight (8) distinct rates of positive geared feed, covering a carefully chosen range in geometrical progression from .006" to .060" per revolution of spindle. This mechanism is controlled by two dials, on the face of which the respective feeds are plainly indicated. Any one of the feeds is instantly obtained by merely turning the dial until the desired feed comes opposite a fixed pointer. The rate of feed being used is plainly indicated at all times, and reference to index plates is unnecessary. The feed train is engaged and disengaged at the worm wheel through friction clutch and lever, which lever also controls the quick advance and return of the spindle. This feed friction is so designed as to permit the machine being crowded to the limit of its capacity without unduly straining the feed works.

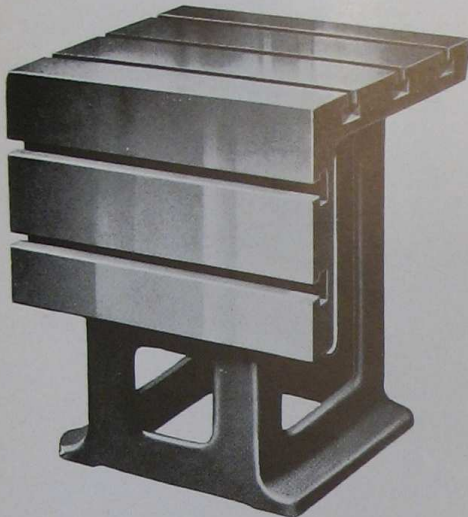
Depth Gauge and Automatic Trip

These features are of greatly improved and simplified design, and will trip the spindle at any predetermined depth. Readings are taken from zero on a vertical "scale," similar to an ordinary machinist's scale, making unnecessary the reading of a circular gauge. The tripping mechanism is so arranged that the spindle will be tripped at any point within the limit of travel by merely setting the trip dog so that the scale reads the depth to be drilled from zero. This trip acts automatically at the full travel of spindle, thus preventing breakage to feed mechanism. Feed can be tripped by hand at any point.

The other units of these universal radials, such as the tapping attachment, column, base and speed box and various styles of drives and tables are identically the same as furnished for our Triple Purpose Plain Radial Drills, and have all been illustrated and described in the Triple Purpose Radial Drill section.

American

Tables for "American" Radials



Plain Box Table



Universal Table

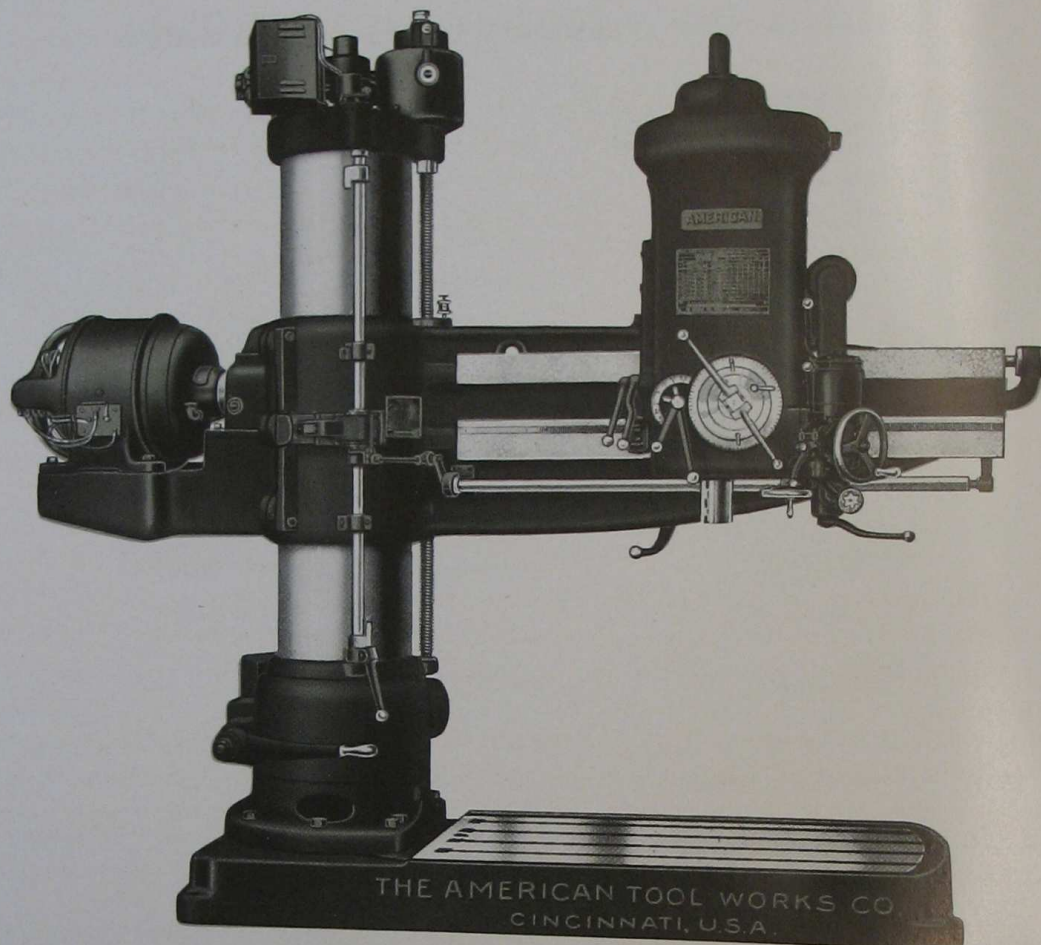
The Plain Box Table, having accurately planed top and side surfaces, with large "T" slots, is furnished as an extra when ordered. It is intended to be used on the base, but if desired a base extension at the side of column can be furnished at extra cost, for carrying it.

The Universal Table consists of a swivel base on which is mounted a housing carrying the tilting top which can be swiveled to any angle within 90 degrees, and either face set in the vertical position by means of a segment and worm. This arrangement, together with a T-handle wrench, makes it very easy to move the table when carrying a heavy load. The top can be securely clamped to housing by two bolts, thereby relieving the worm and segment of undue strain. Graduations on both segment and base show the angles at which the top is set.

Table Dimensions

COLUMN DIAMETER		9-inch	11-inch	13-inch	15-inch	17-inch	19-inch	22 & 26-inch
Plain Box Table	Top Surface	20" x 24"	20" x 24"	20" x 24"	24" x 24"	28" x 28"	28" x 28"	28" x 40"
	Side Apron	14" x 24"	14" x 24"	14" x 24"	16" x 24"	18" x 28"	18" x 28"	18" x 40"
	Height	20"	18"	18"	20"	20"	20"	20"
	Weight, lbs.	475	475	475	575	850	850	1060
Universal Table	Top Surface	20" x 24"	20" x 24"	20" x 24"	20" x 24"	28" x 28"	28" x 28"	28" x 28"
	Side Apron	12" x 24"	12" x 24"	12" x 24"	12" x 24"	14" x 28"	14" x 28"	14" x 28"
	Height	21 $\frac{3}{4}$ "	21 $\frac{3}{4}$ "	21 $\frac{3}{4}$ "	21 $\frac{3}{4}$ "	26"	26"	26"
	Weight, lbs.	700	700	700	700	1325	1325	1325

American



Motor Drives

Adjustable Speed Simplified Motor Drive

The adjustable speed motor drive is strongly recommended on these larger radials not only on account of its relatively greater simplicity of design, but also because of the obvious advantage of an instantaneous motor speed control at the operator's finger tips, which enables changing speeds under a cut. This feature is of undeniable value, especially when drilling large holes in steel in which hard spots may be encountered. When this occurs the drill may become quickly dulled unless the spindle speed can be instantly slowed down to meet this condition.

This type of drive demands an adjustable speed motor, consequently a 3 to 1 shunt wound, semi-enclosed, approximately 600 to 1800 R. P. M., direct current motor of the proper horse-power and voltage should be used. In connection with this motor a 6-inch diameter face plate type speed adjusting rheostat is necessary.

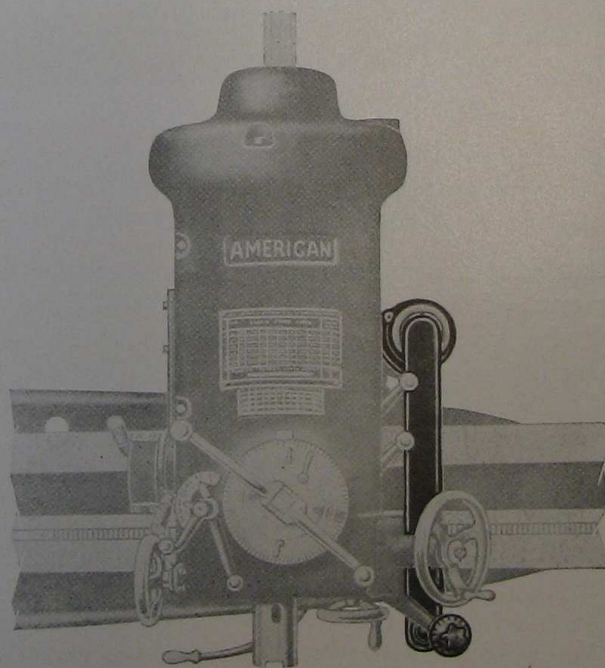
The connection between the motor and horizontal arm shaft is through a pair of helical gears which run in an oil bath. The gears are of alloy steel, heat-treated and hardened. The pinion is mounted in the housing and rigidly supported on both sides by anti-friction bearings. Sufficient freedom is provided between it and the armature shaft to permit of lateral movement of the armature shaft without disturbing the gear alignment.

Electrical Speed Control from Head

This mechanism, as shown by the accompanying illustration, is located at the right-hand side of the head in the most convenient position for the operator regardless of the position of the arm on the column or the head on the arm. Even when the arm is in its highest position the electrical speed control unit is within easy reach—its very convenience acting as an incentive to the operator to use the correct speed for his work. This in itself is a decided advantage as it tends to greater economy of production through the use of proper cutting speeds.

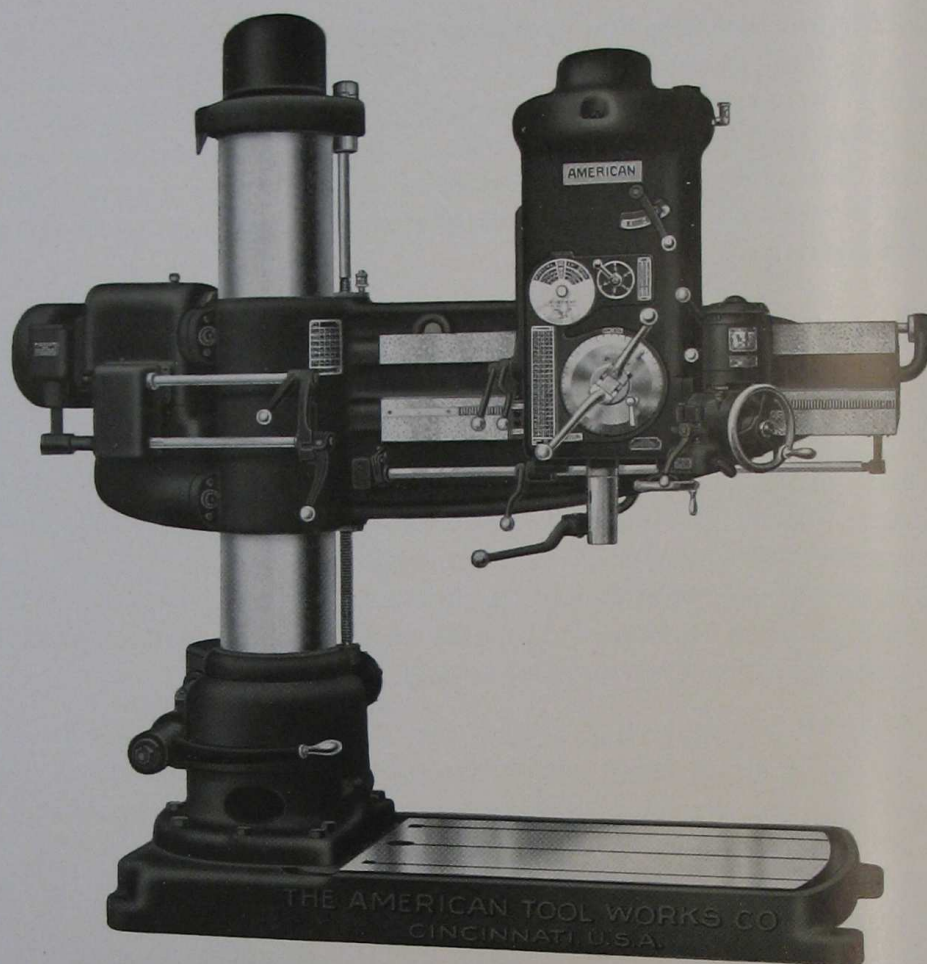
The control of the electrical speeds provided by the rheostat is accomplished through a star knob which through a sprocket and chain connection operates the speed adjusting mechanism of the rheostat. This entire speed control mechanism is mounted directly on the head, thus eliminating the splined rod and bevel gears formerly employed for obtaining the same results.

A graduated dial directly in back of the adjusting knob makes it possible to secure the desired speed almost instantaneously. The new speed control feature has unquestionably added greatly to the efficiency of the "American" Triple Purpose Radial and surely will be appreciated by the operator who desires the greatest results from his efforts.



Electrical Speed Control from Head

American



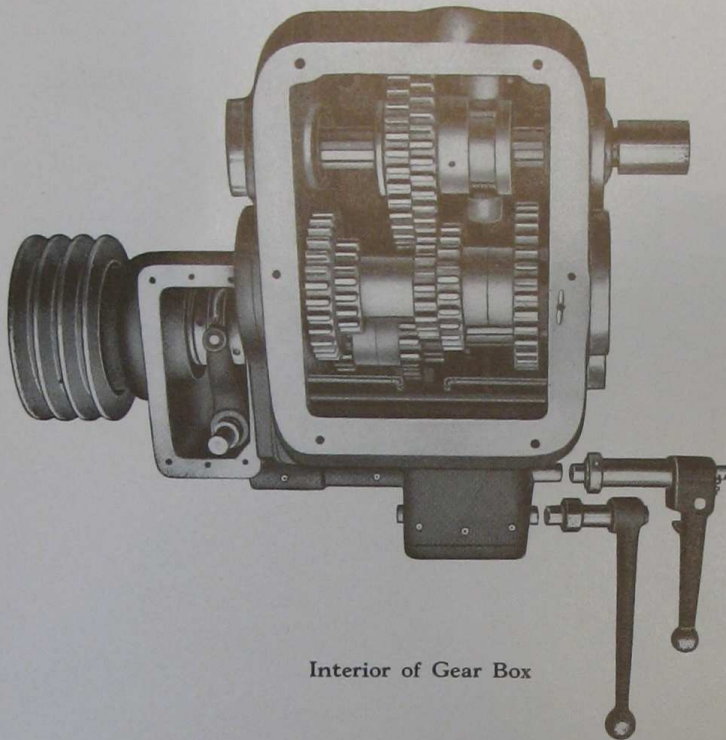
Motor Drives

Constant Speed Simplified Motor Drive

The new constant speed simplified motor drive embodies several improvements of tremendous value. The motor is adjustably located at the rear of the gear box on a substantial extension cast integral with the arm. The drive is through a multiple vee belt suitably guarded. The overhang of this new drive is considerably reduced and is, in fact, a neat, compact, close coupled construction.

By far the most important advantage of this new design is in the speed control mechanism which has been brought to the highest possible degree of operating efficiency and offers the operator unexcelled convenience for making the various speed changes.

The connection between the driven sheave wheel and the initial drive shaft is through a hard plate multiple disc clutch and brake which is



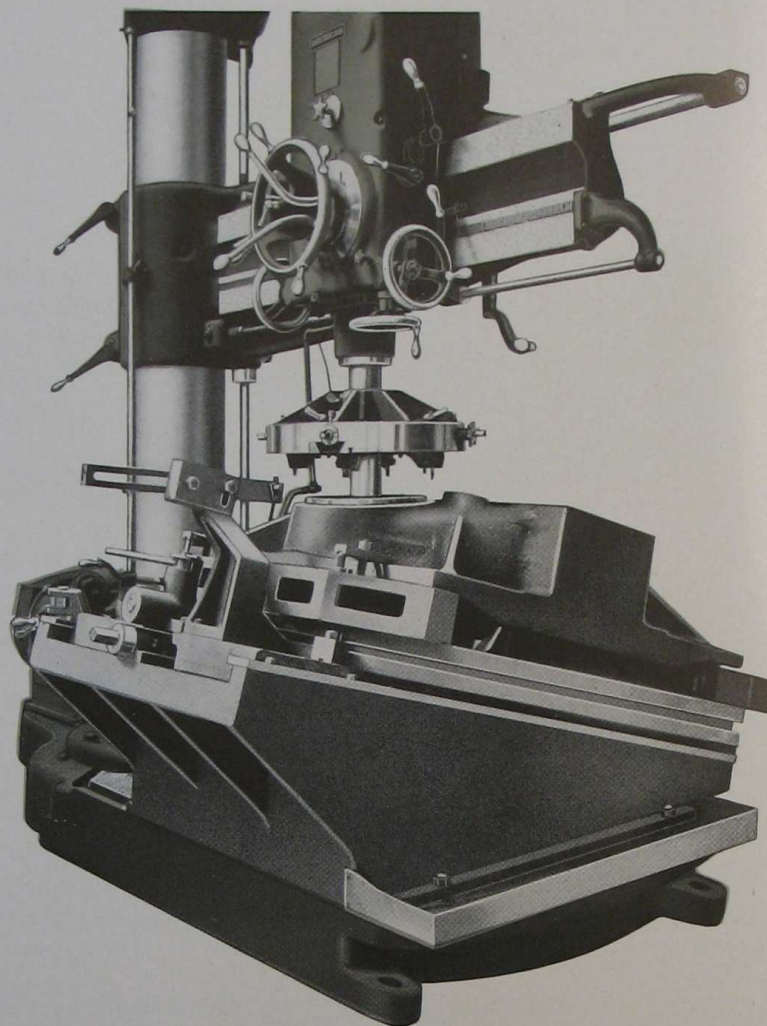
Interior of Gear Box

automatically operated by the lower speed change lever. This lever is seated in a notched plate which locates it in its respective operating positions. When this lever is withdrawn from the notched plate the multiple disc clutch is automatically released and the brake instantly applied. This slows down the mechanism and permits quick shifting of the gears without clashing. The action is almost instantaneous.

This initial clutch control has the further advantage of enabling the operator to stop the entire machine while the motor is running. Ordinarily when the operator is not drilling (which often represents 60% or more of the total time, especially when frequent "set-ups" must be made) he will simply disengage the tapping attachment and leave the balance of the machine running. This means unnecessary wear and depreciation. With this new design the entire machine can be conveniently stopped at the initial drive. When this is done nothing is running but the motor and vee belt drive.

This new design, therefore, affords all the advantages of efficient speed control without sacrificing strength and durability in the drive mechanism as it retains in every detail the rugged proportions which has been one of the outstanding features of "American" Radials. Not one gear, shaft or other detail has been reduced in size. In fact, the mechanism has been strengthened by the use of multiple spline shafts throughout the entire drive.

American

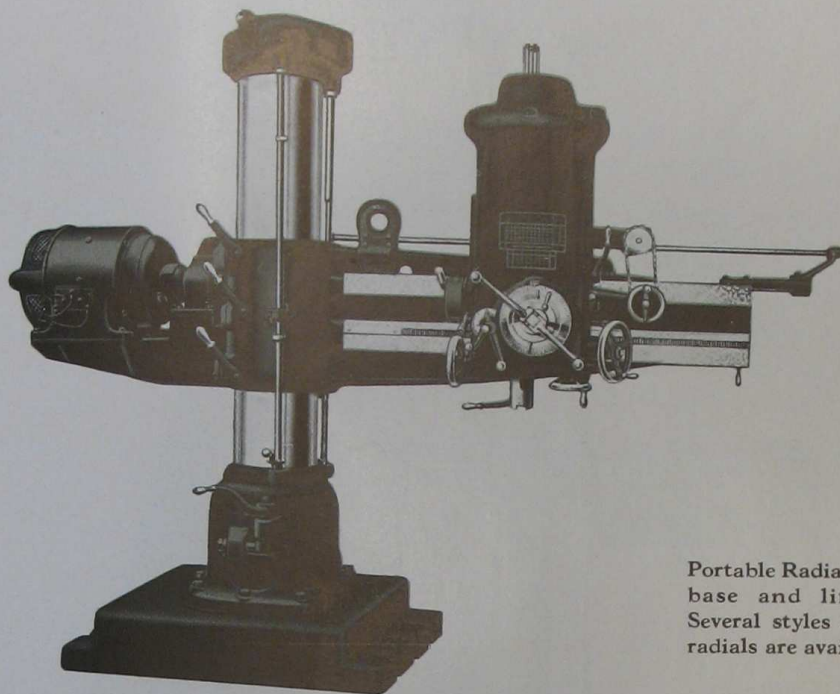


"American" Triple Purpose Radial boring, facing and turning
cast steel transformer covers — finished diameter, 20 inches

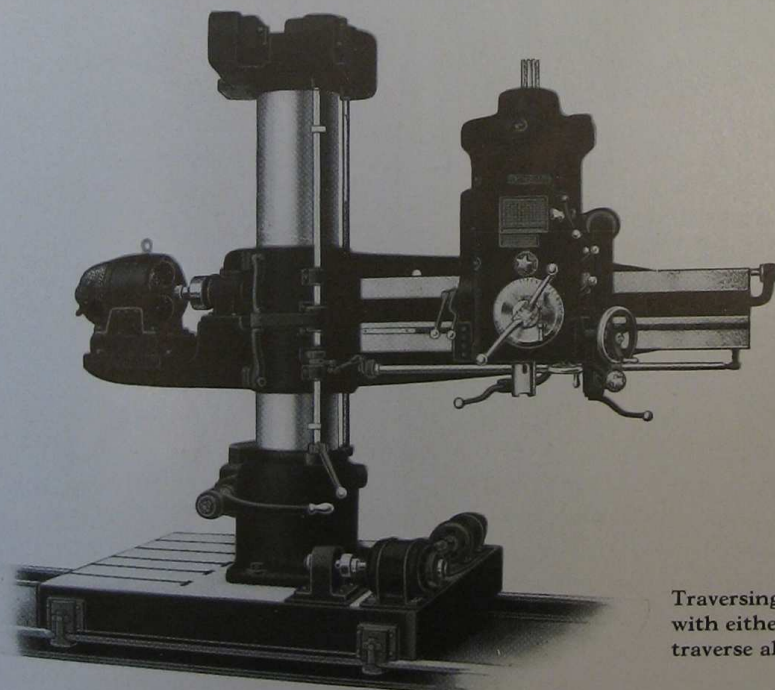
Special Designs for Solving Drilling Problems

Occasionally unusual drilling requirements are encountered which cannot be most economically met by the standard design of radial drill. For these special or unusual operations we have designed a variety of special radial drills, several of which are illustrated on the following pages. Since we have available such a large assortment of "special" designs, it would be advisable for the radial drill purchaser with difficult or unusual drilling problems to consult us before making his selection. Equipment designed especially for certain classes of work will oftentimes multiply the results possible from standard designs.

American

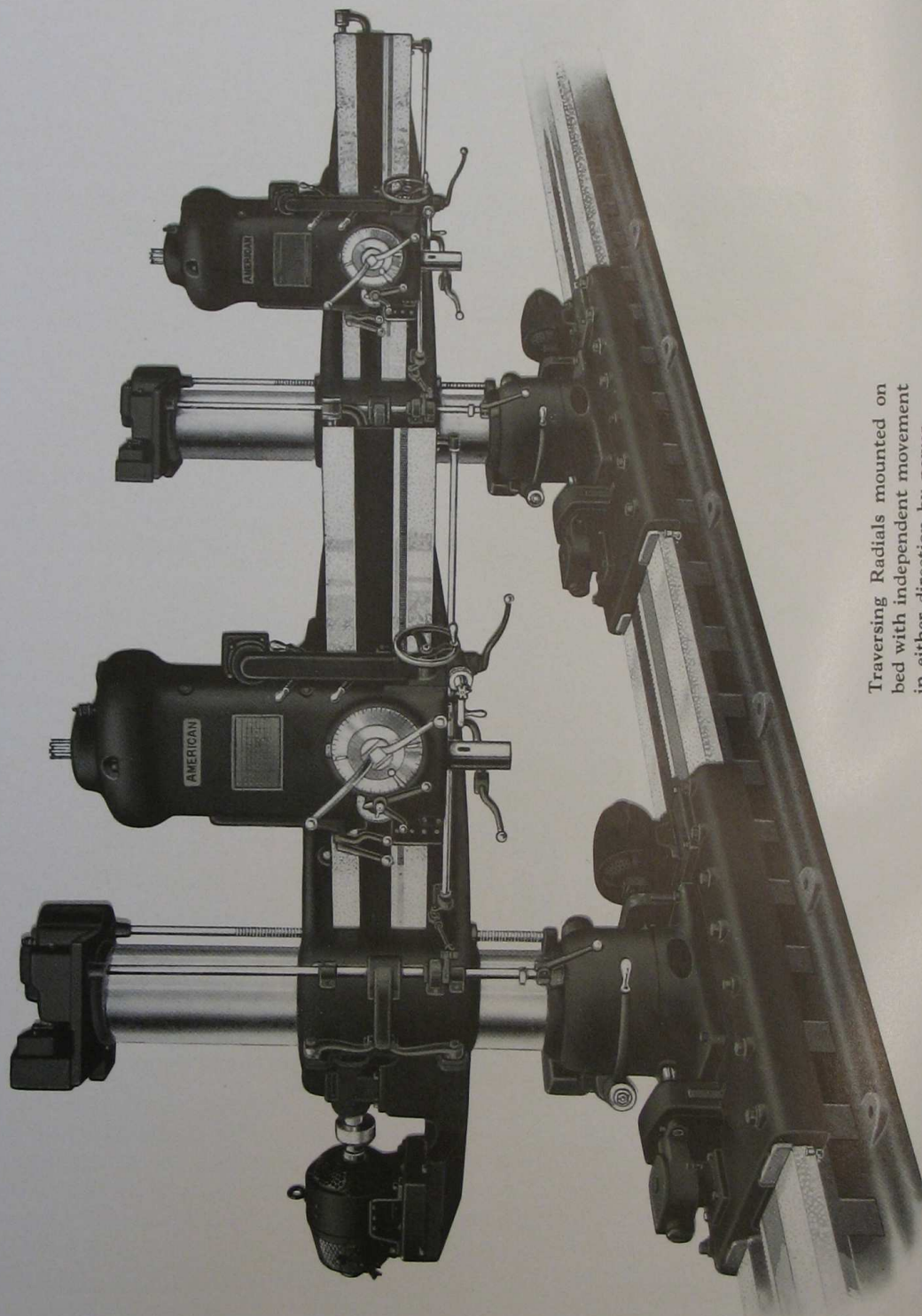


Portable Radial with short base and lifting eye. Several styles of portable radials are available.



Traversing Radial on track with either hand or power traverse along track.

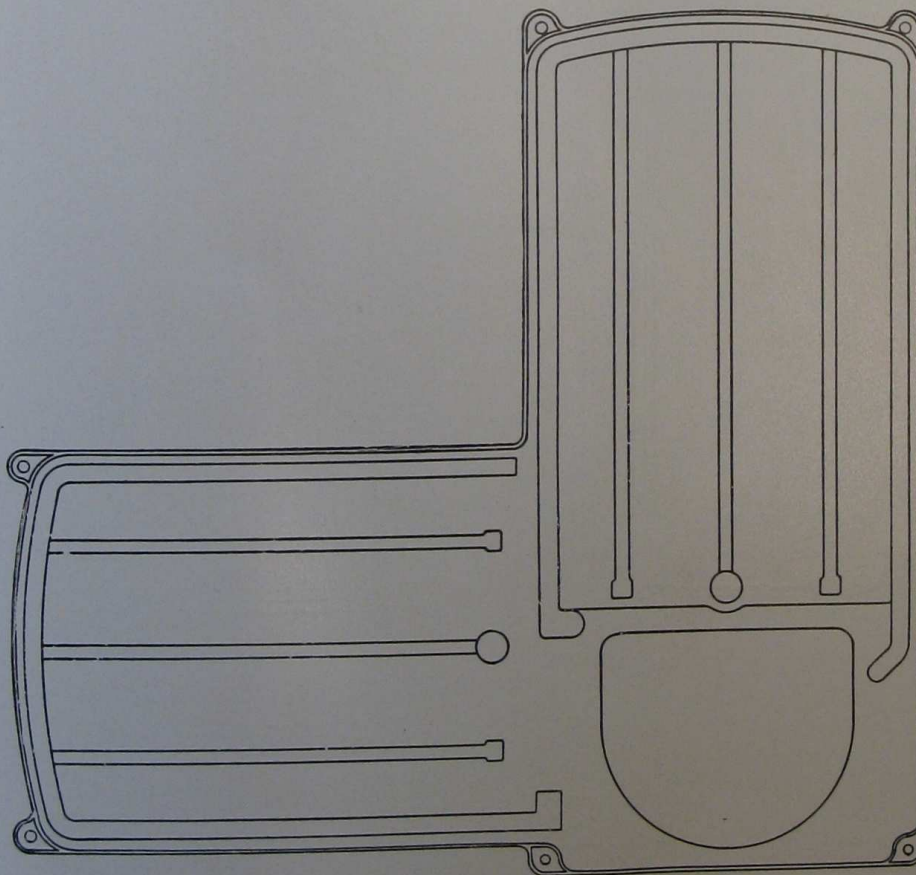
American



Traversing Radials mounted on bed with independent movement in either direction by power.

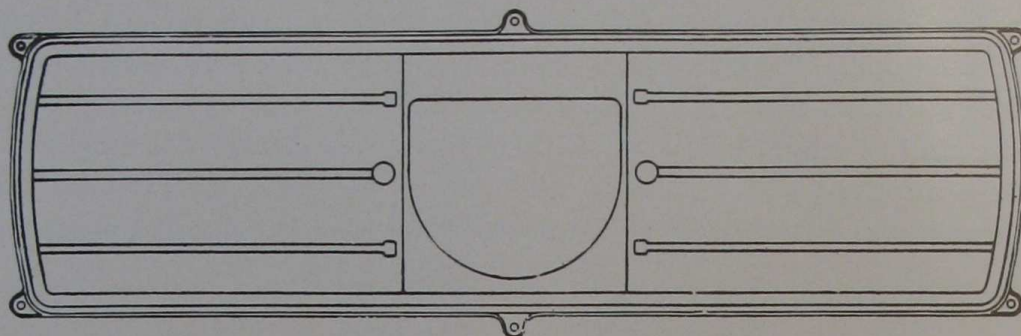
Special Bases

It is often possible through the use of special bases to materially increase radial drill operating efficiency. Frequently the work is of such a nature that continuous drilling can be accomplished by setting up one job on a double end, a right angle or a three-way base while the operator is drilling another. In this way idle machine hours are reduced to a minimum and a greater return upon the machine investment is assured.

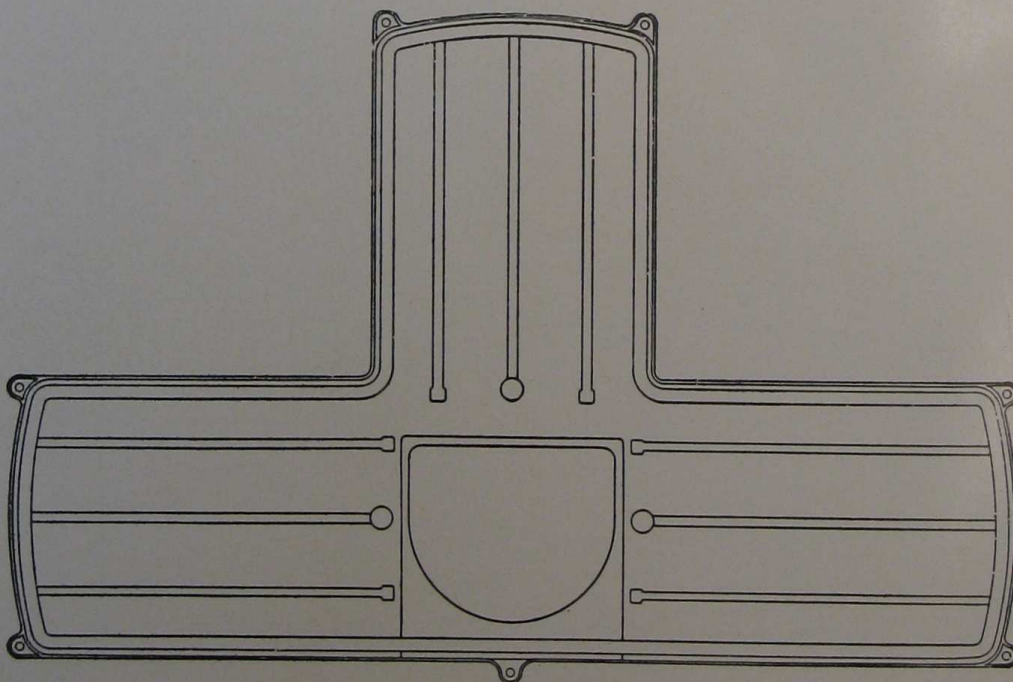


Right Angle Base

American

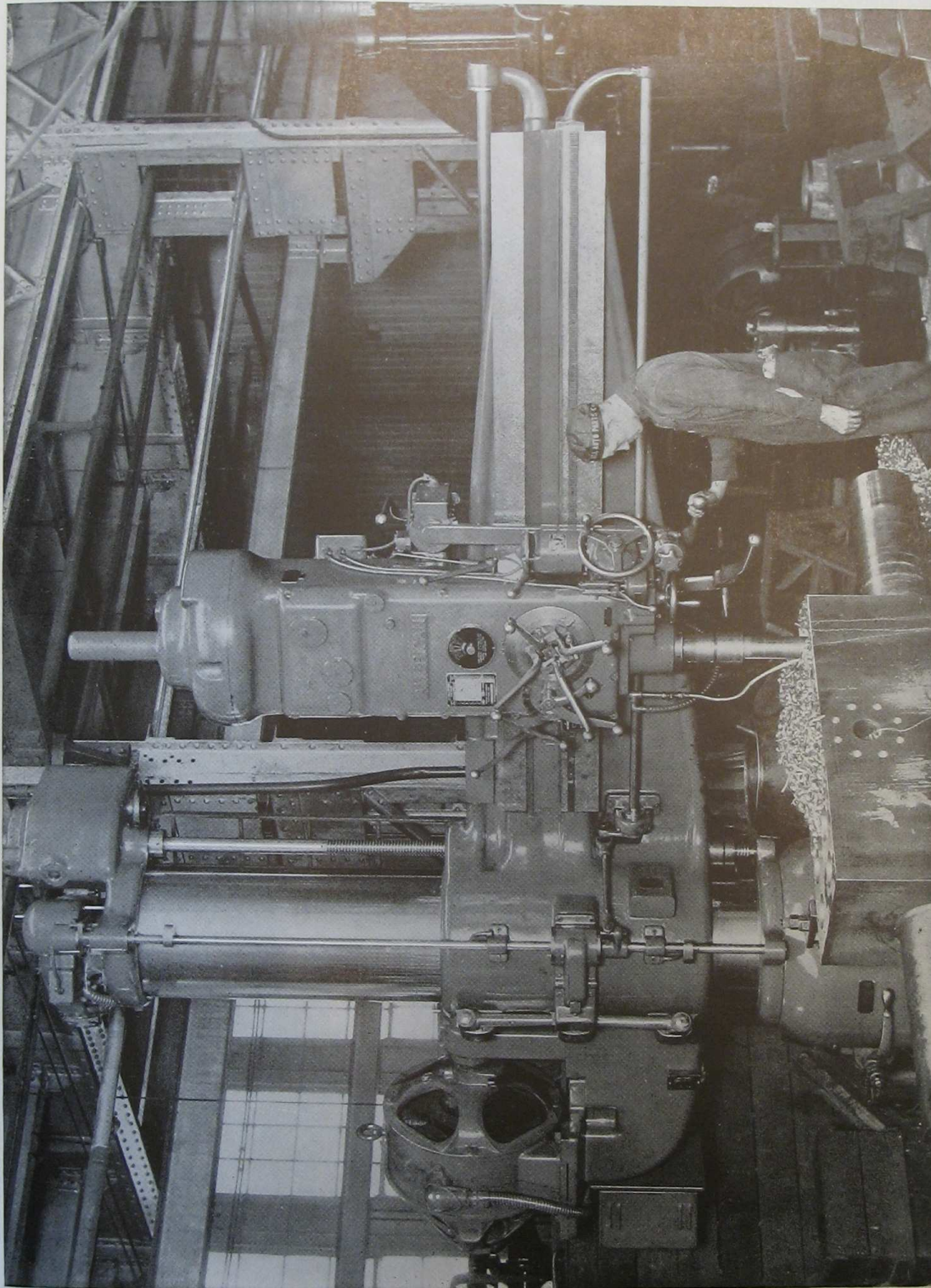


Double End Base



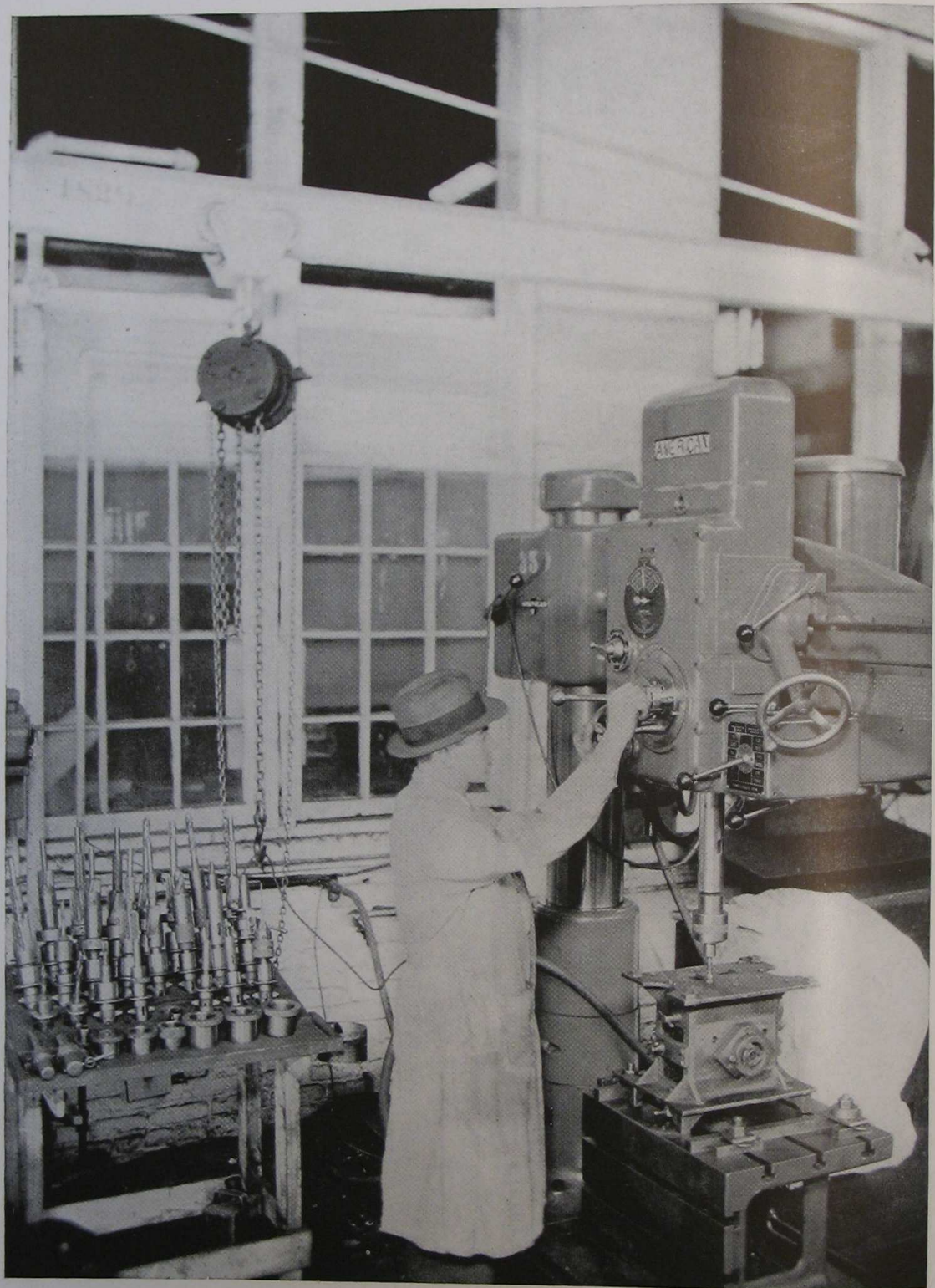
Three-Way Base

American

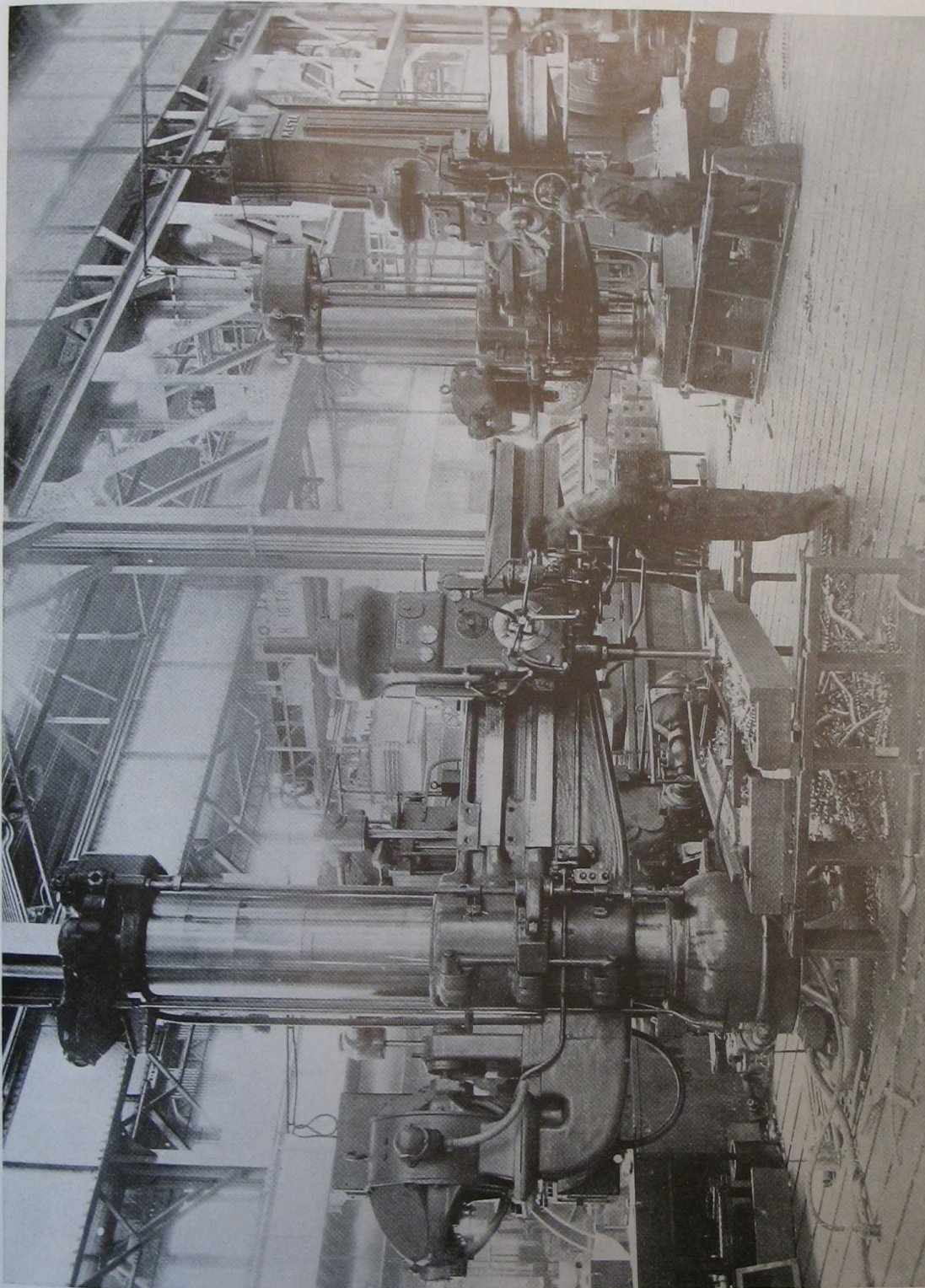


8-ft. 22-in. Column "American" Radial drilling 5" diameter holes in solid forging
27 inches deep with .014" feed.

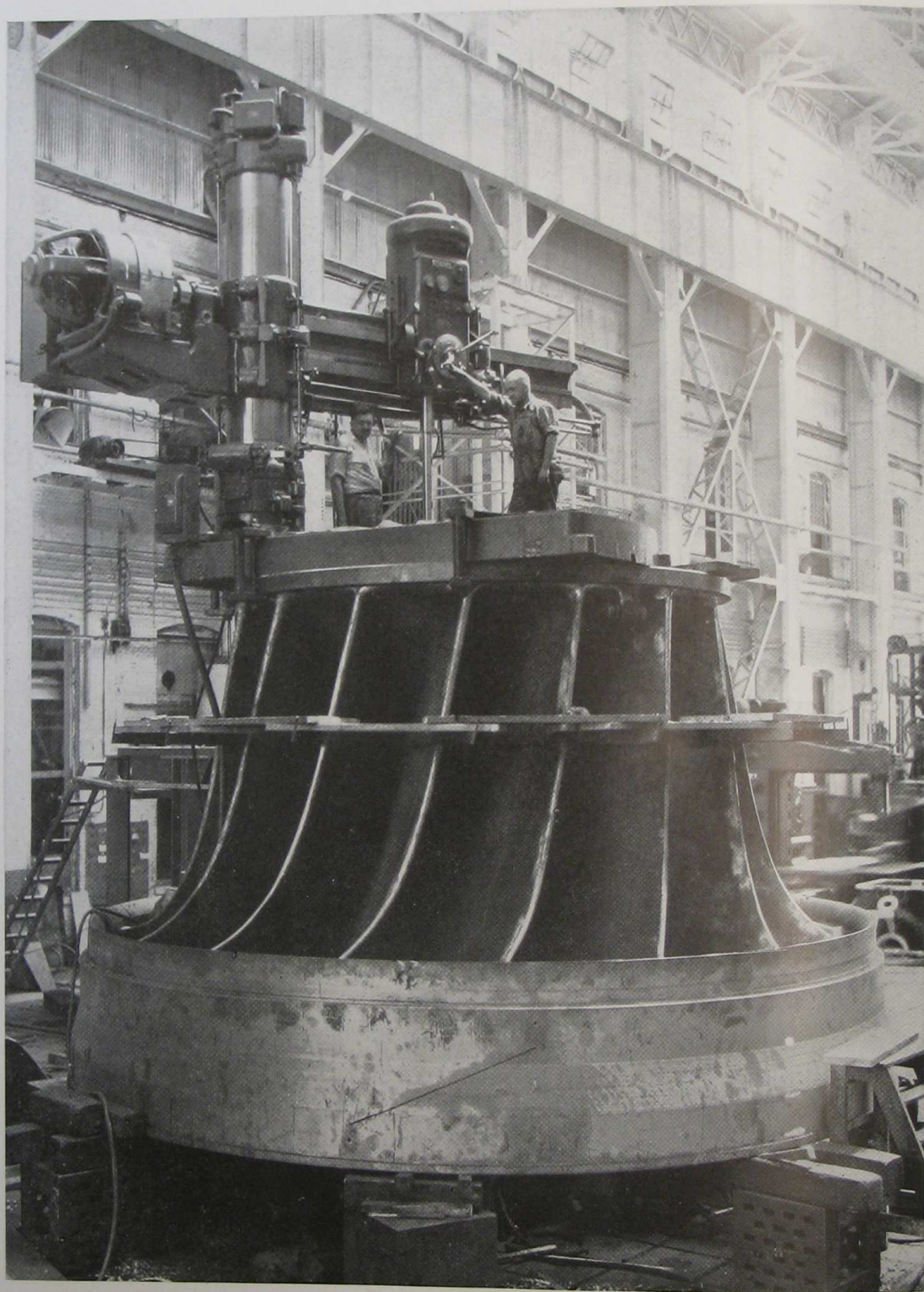
American



"American" Hole Wizard drilling, tapping, boring and spot facing in the plant of the Whiting Corp., Harvey, Ill.



Battery of 8-ft. 22-inch Column "American" Radials in the plant of the
Mesta Machine Co., Homestead, Pa.



"American" Radial doing an unusual job in the plant of the
Newport News Shipbuilding and Dry Dock Co., Newport News, Va.

Catalog "D"

