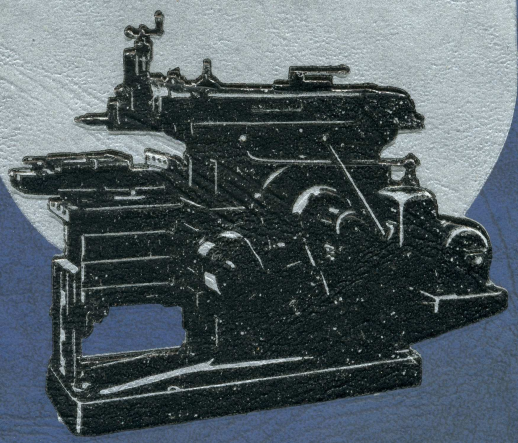
"AMERICAN"

The New "AMERICAN" AUTO-OILED SHAPERS



THE AMERICAN TOOL WORKS COMPANY

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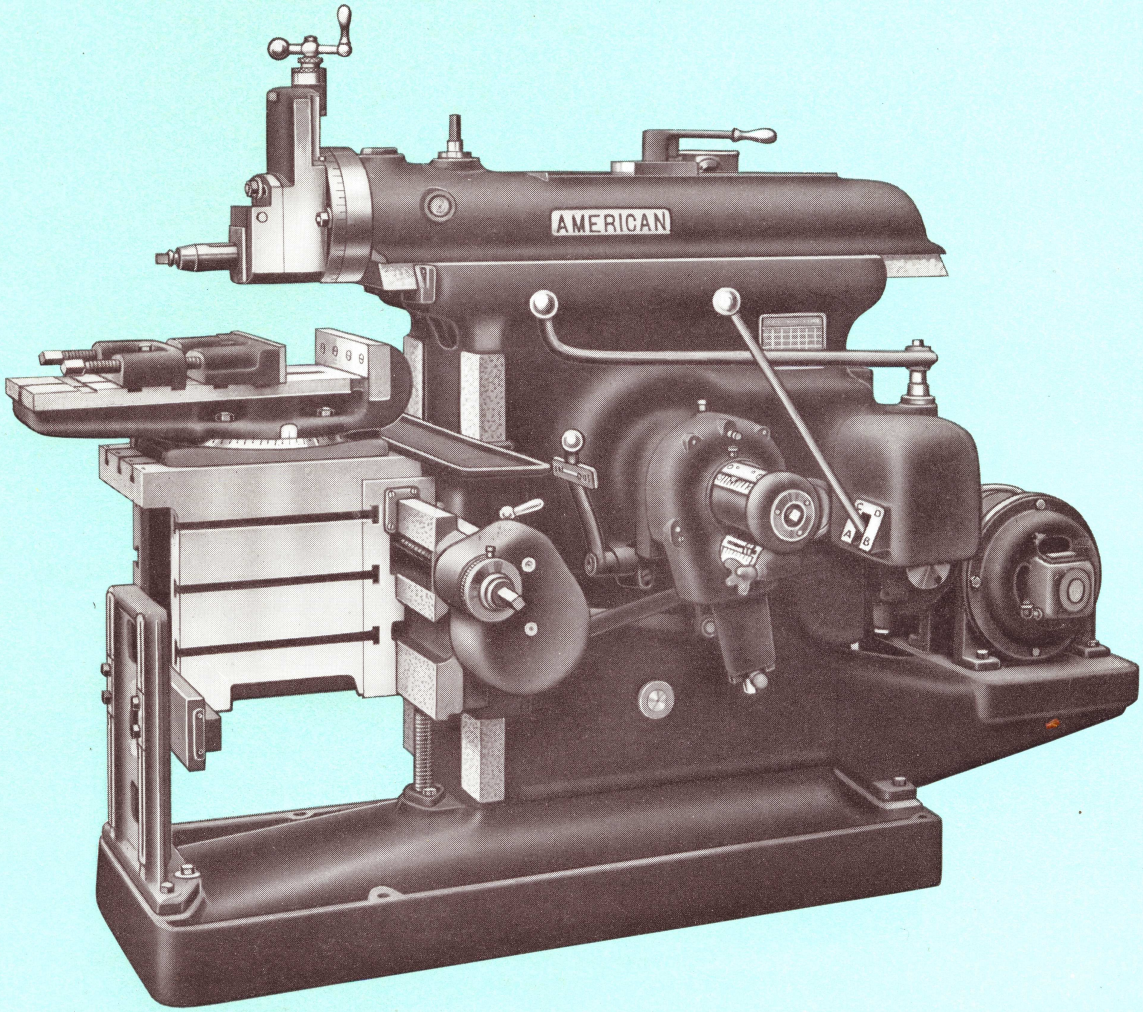

AMERICAN

The New "AMERICAN" AUTO-OILED SHAPER

PROGRESS in industry is measured by development and improvement. That the shaper industry has progressed during the past few years is evidenced by the many new designs that have appeared on the market. Not merely to keep pace with this development, but to lead in this progressive movement, the new "American" Auto-Oiled Shaper has been designed and is now being offered as the most highly developed mechanism of its kind in existence. It is truly the last word in shaper design, combining many new features of unmistakable merit with a quality of workmanship and a sensitiveness of control unsurpassed in any shaper the world over. Thoroughly modern in design, increased in both weight and power, with tapered roller bearings for all high-speed shafts, and an automatic oiling system for perfect lubrication, the new "American" Auto-Oiled Shaper is unquestionably the surest, the safest, and the most profitable investment for the shaper purchaser.

The working efficiency of any shaper depends primarily upon its ability to perform all classes of work at the highest speeds and coarsest feeds practicable, and at the same time to produce a finished product of dependable accuracy.

To obtain these results a shaper must combine ample power, rigidity, and a suitable range of cutting speeds and feeds with a high standard of workmanship. The relative or comparative value, therefore, of a machine of this type must be determined by a careful consideration of these features, both individually and collectively, the ultimate decision being given the machine in which these points are developed to the highest degree.

When designing the new "American" Auto-Oiled Shaper special consideration was given to these features, with the result that this new machine is the embodiment of all that is modern and best in shaper design—a machine in which the objectional features of former designs have been superseded by new features of proven efficiency.

The workmanship is of the same high standard that has characterized "American" products for many years past, a complete system of jigs and templets being used, which insures accuracy of the highest standard as well as the absolute interchangeability of parts. We unqualifiedly guarantee the workmanship and accuracy of "American" shapers, the limit of error allowed being .001 of an inch up to the full capacity of the machine.

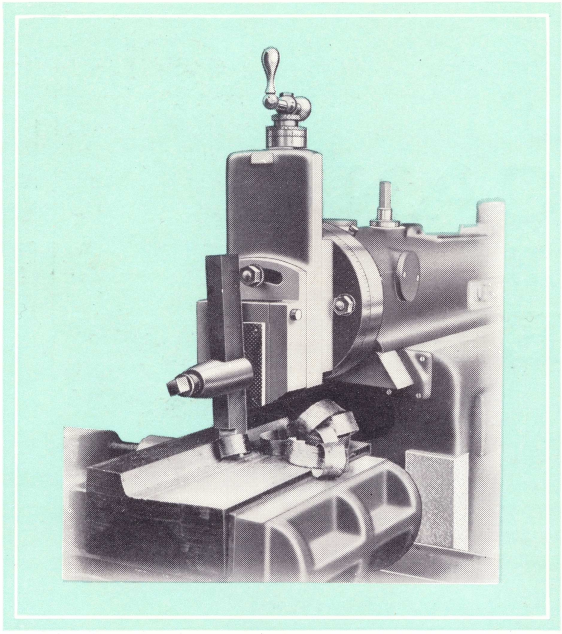
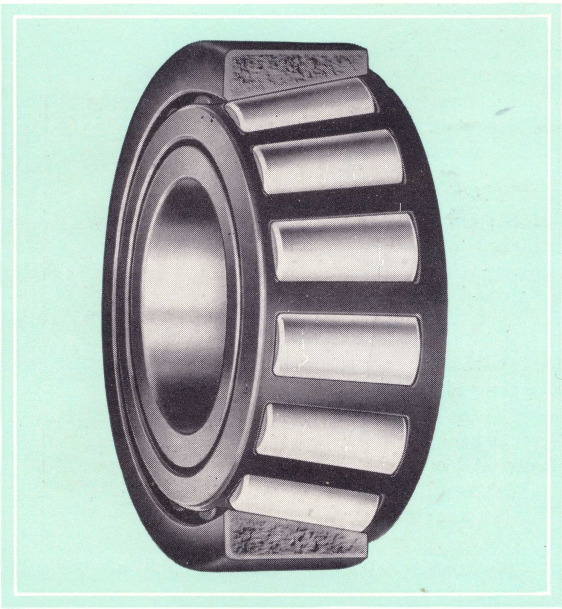


ILLUSTRATION OF POWER—A 1″ DEPTH OF CUT WITH .050″ FEED IN DIE-BLOCK STEEL



TIMKEN TAPERED ROLLER BEARINGS FOR ALL SHAFT MOUNTINGS

The following description is devoted to the more important and essential points in the construction of "American" Auto-Oiled Shapers, which merit the most careful consideration. It will show conclusively that neither expense nor intelligent effort has been spared to produce a design that is not only efficient, powerful, and substantial, but one that is also so conveniently arranged that it may be operated with a minimum of effort and loss of time.

Power

It would be folly to design a shaper with such great possibilities as this new "American" without endowing it with ample power to realize the full benefit of its improved design. Consequently the power factor has been given the most careful and scientific study, resulting in a power input commensurate with the capabilities of the other factors, and far in excess of that of the average shaper.

To transmit this power to the best advantage the number of elements involved, such as the gears, shafts and bearings, has been reduced to a minimum, while the tapered roller-bearing mounting of the high speed shafts combined with the highly efficient automatic lubricating system reduces the frictional loss to a very small percentage.

The drive is through a four-speed gear box built as a complete unit with the gears running in oil, which is securely and neatly attached to the shaper column at the rear. This gear box produces 4 speed changes through the manipulation of but one long lever, and provides the connection to the back gears located inside the column. All gears are cut from chrome-manganese forgings, heat-treated, oil-tempered and hardened, and are mounted on multiple splined shafts. The shafts are made of heat-treated alloy steel, multiple splined and mounted in substantial tapered roller bearings. The bearings and gears are flooded with filtered oil by the automatic lubricating system, in addition to which the gears run in an oil bath.

The power is delivered to the gear box through a multiple disc clutch. This clutch is composed of hardened steel discs running in oil. It is not only tremendously powerful, but extremely sensitive, contributing greatly to the ease of operating the machine. A powerful brake, also located in the initial drive unit, operates in conjunction with the multiple disc clutch, providing an instantaneous

stop to the ram. A unique feature of this brake is the use of a toggle lock, which holds the brake in engagement, thus guarding against ram movement when the clutch is disengaged. The clutch-brake unit operates in unison, and is controlled by one long lever extending to the front of the machine, where the operator can reach and operate it without leaving his natural working position.

The back gears located inside the column, through which the two back geared speeds are secured, are the single helix type, providing a very smooth, quiet drive. The back gear shaft is mounted in tapered roller bearings, which take the thrust of the helical gear drive. The gears, like those in the gear box, are hobbed from chrome-manganese forgings, and are heat-treated, oil-tempered and hardened.

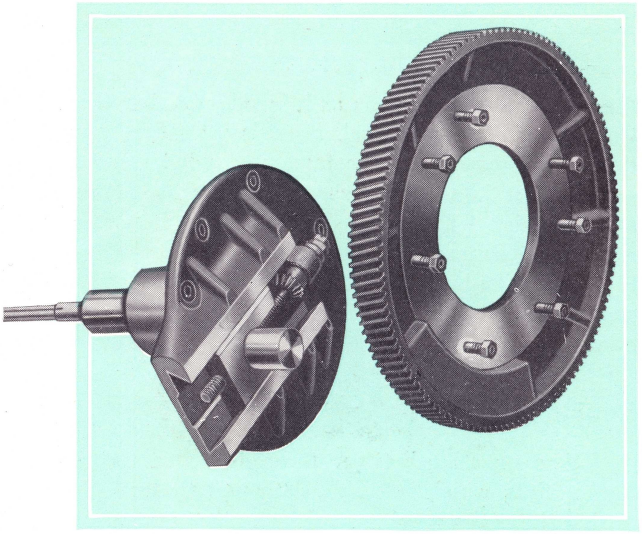
Balanced Bull Wheel

The bull wheel is carefully balanced so as to produce a smooth, even drive to the rocker arm. It is the only gear of the whole driving train that is not hardened. This gear, owing to its size, is made from a semi-steel casting with a tensile strength of about 30,000 lbs. The pinion that drives it is hardened, and both gears are of the helical type, resulting in a smooth, quiet, steady drive, free from chatter and back-lash.

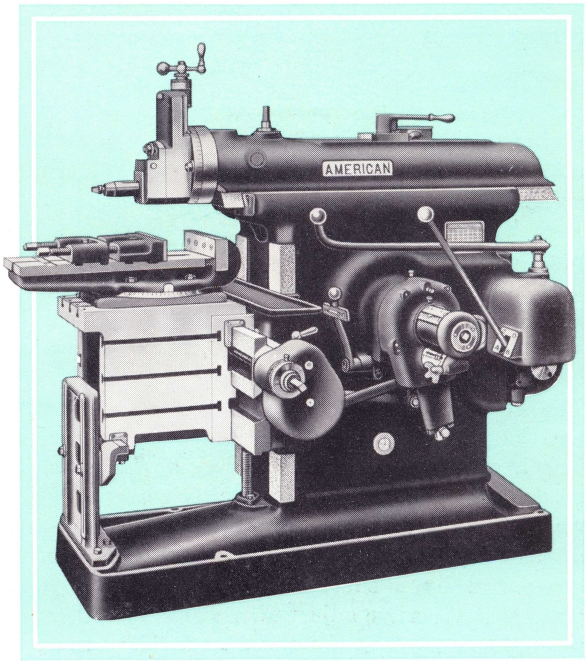
The bull wheel is built in two pieces, the gear portion being securely fitted and bolted to the large hub or disc. This is done to facilitate repairs, if or when necessary. The bull wheel is a very large, expensive unit, and if made in one-piece, a whole new unit would be required if the gear portion should wear or the teeth break. With our two-piece construction only the gear portion would have to be renewed in case of wear or accident. Moreover, in order to minimize the chance for accident, a gear guard is provided for the bull wheel, which covers the teeth, preventing chips and foreign matter getting into the gear teeth.

An extra large hub is provided on the bull wheel unit to give this unit a substantial mounting in the column bearing. This hub runs in a renewable bushing, and is flooded with filtered oil by the automatic lubricating system.

The mounting of the bull wheel unit is unusually high up and close to the column wall, bringing the power application as close as possible to the ram and giving the greatest possible resistance to the bull wheel unit.



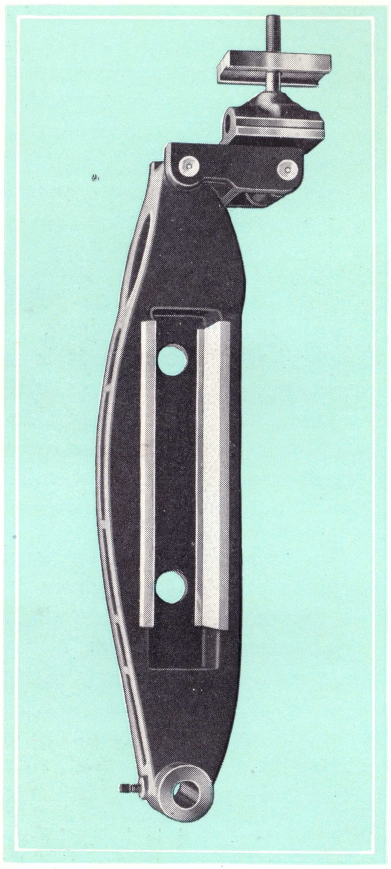
TU-PIECE BALANCED BULL WHEEL



"AMERICAN" AUTO-OILED SHAPER ARRANGED FOR BELT DRIVE

Rocker Arm

Perhaps the most important member in the driving mechanism is the rocker arm, inasmuch as it is this member that actuates the ram. On this new shaper the rocker arm is not only of very massive construction, with heavy ribs of box form, properly located to resist the greatest stresses, but, in addition, is made of a 25% steel mixture, close grained, and of a high tensile strength. It is also important to note that this rocker arm is mounted on a fulcrum or pivot shaft at the bottom, which is journaled in both of the column walls. This mounting supports the weight of the rocker arm and its parts, relieving the ram of this additional burden.



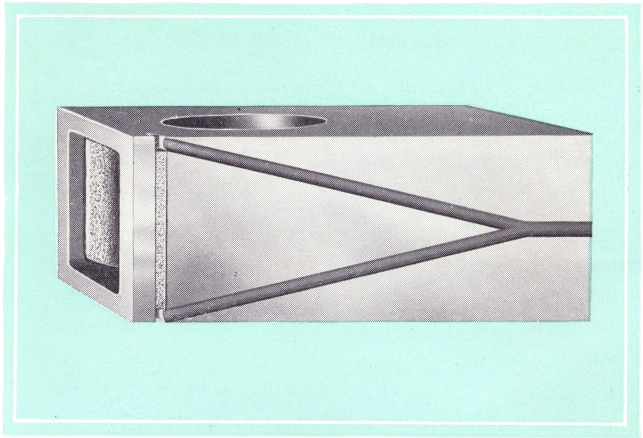
ROCKER ARM AND DOUBLE LINK

Double Link

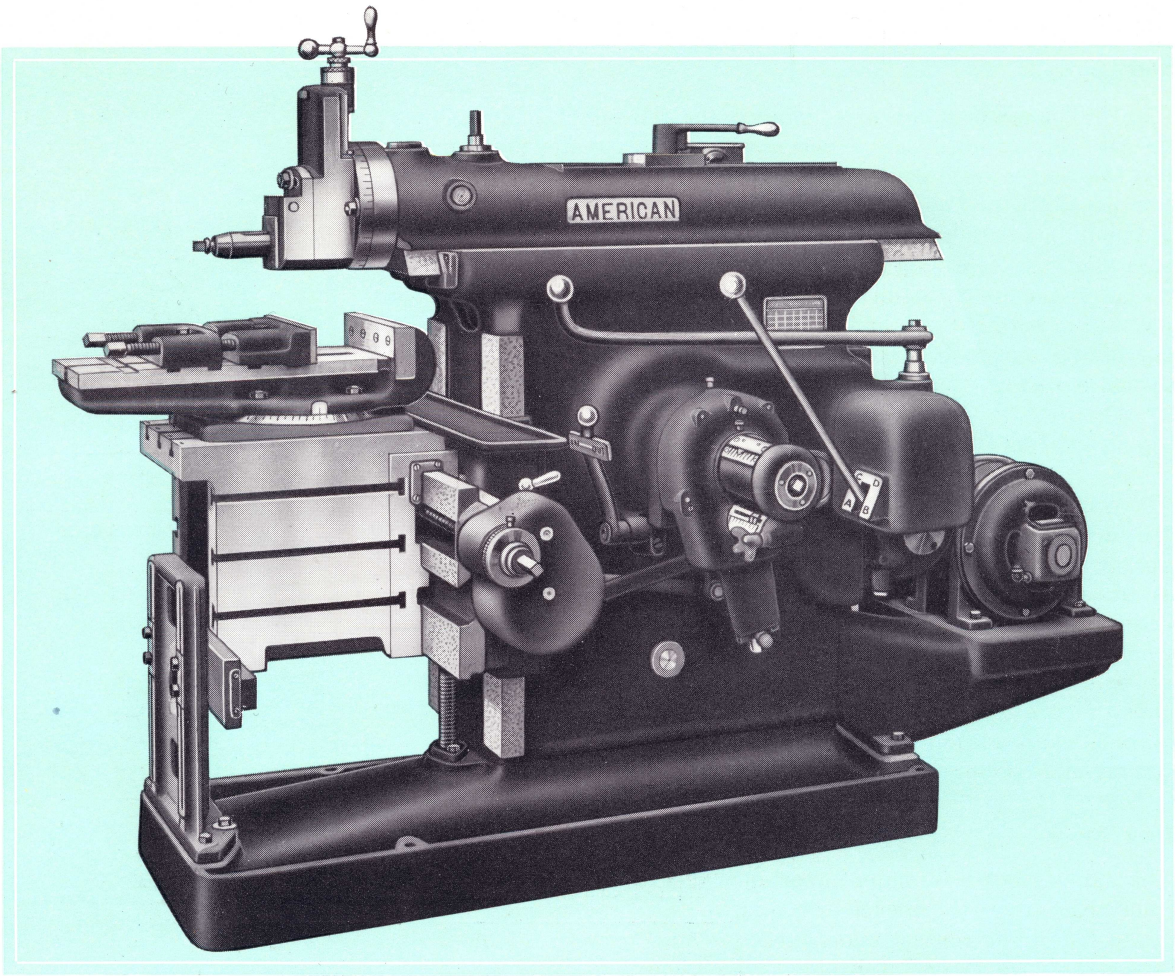
The connection between the rocker arm and the ram is through a double link, which is designed to pull the ram down on its bearings during the entire cutting stroke, thus tending to neutralize the upward thrust of the tool. This construction is in our opinion far superior to that used on other designs in which the rocker arm is attached directly to the ram, for with the latter construction the rocker arm tends to lift the ram during the first half of the cutting stroke, and, moreover, requires the ram to carry the dead weight of the rocker arm and its parts, thus causing more rapid wear on the ram bearings, besides consuming more power.

Sliding Block

The sliding block is of major importance in shaper design, for it is the unit that drives the rocker arm and, in turn, the shaper ram. Owing to the sliding contact under great pressure between the block and the rocker arm "ways", this block has a tendency to wear excessively unless special care is given to its design. Many experiments have been made in an effort to develop some practical method of compensating for the wear between the block and the rocker arm, but it is obviously impossible to compensate for wear between sliding members when the wear on either one or both of the members is unequal. The location of the wear on the rocker arm ways and the sliding block of a shaper depends upon the length of the ram stroke. When a shaper is used mostly on short stroke work the wear will be confined to a small area, or vice versa, consequently if adjustment were made for wear occasioned by a short stroke, it is perfectly plain that the same adjustment would be either too tight or too loose for the wear incident to a long stroke. Furthermore, even if means could be provided through gibs or otherwise to adequately take up the wear between the rocker arm and the sliding block, what operator



LARGE TOOL STEEL SLIDING BLOCK



"AMERICAN" AUTO-OILED SHAPER ARRANGED FOR MOTOR DRIVE

would go to the trouble of getting inside of his machine to make such an adjustment when needed?

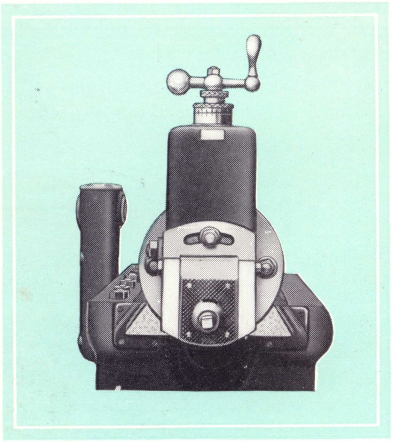
On the "American" shaper we have discarded all attempt to compensate for wear between these members, and, instead, have bent our energies toward minimizing this wear to an inconsequential point.

To accomplish this the size of the sliding block has been increased far beyond that of the average, in order to provide a much greater area of contact between the rocker arm guides and the sliding block. Furthermore, the block is made of a very high grade of hardened alloy steel, and is ground to fit the scraped ways of the rocker arm, which are condensed by a chilling process in the sand to produce a hard, close-grained surface to contact with the hardened steel block. These parts are continuously flooded with oil by the forced lubricating system, insuring an ever-present oil film to minimize friction between the contacting surfaces. This construction is no experiment on the "American" shaper. It has been used for years with absolute and perfect success.

In connection with the design of the sliding block it might be of interest to mention the fact that the wrist pin that fits into and revolves in the sliding block is made of alloy, heat-treated steel, and is supplied with a renewable hard bronze sleeve to contact with the sliding block. Flooded lubrication to these members is a feature that should not be overlooked.

"V" Type Ram

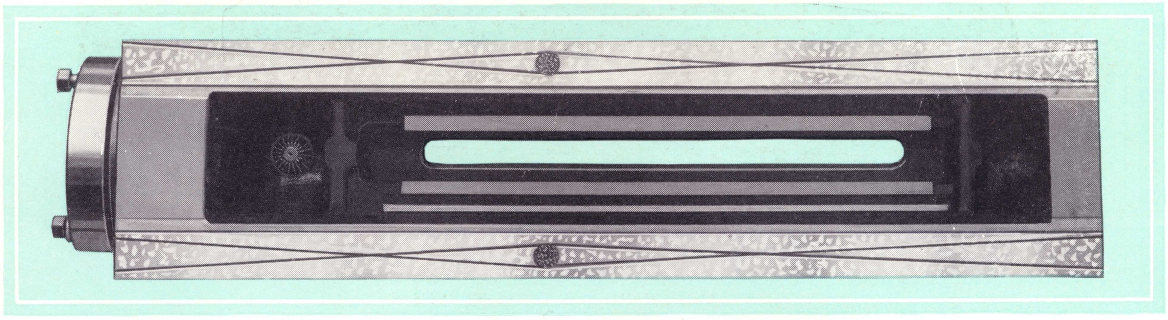
The "V" type ram has been adopted for the new "American" Auto-Oiled Shaper with wide guides providing an exceptionally large area of bearing contact with the column ways. The forced lubricating system floods the ram and column bearings with filtered oil, insuring a minimum of wear between the respective parts, while whatever wear does take place can be taken up by the combined clamp and gib provided for that purpose. The gib is fitted between the ram and a heavy vertical wall for absorbing thrusts, and is adjusted by a series of adjusting screws, which control the clamp tension, while any lifting tendency or end motion under a cut or when adjusting the tension is prevented by two large studs. The ram itself is made unusually wide and deep, with heavy internal ribbing to insure rigidity.



"V" TYPE RAM

Column

There is nothing more essential to the satisfactory operation of a shaper than a good, heavy, rigid column, properly proportioned to resist the severest stresses. One glance at the "American" Shaper will convince anyone of the massiveness and stability of the column. Not only is the column unusually wide and deep, but heavy circular and radial ribs augmented by wide lateral ribs tie the walls so rigidly together that there is no possibility of deflection under the most severe stresses imposed.



UNDER SIDE OF RAM SHOWING WIDE BEARING SURFACES AND HEAVY RIBBING

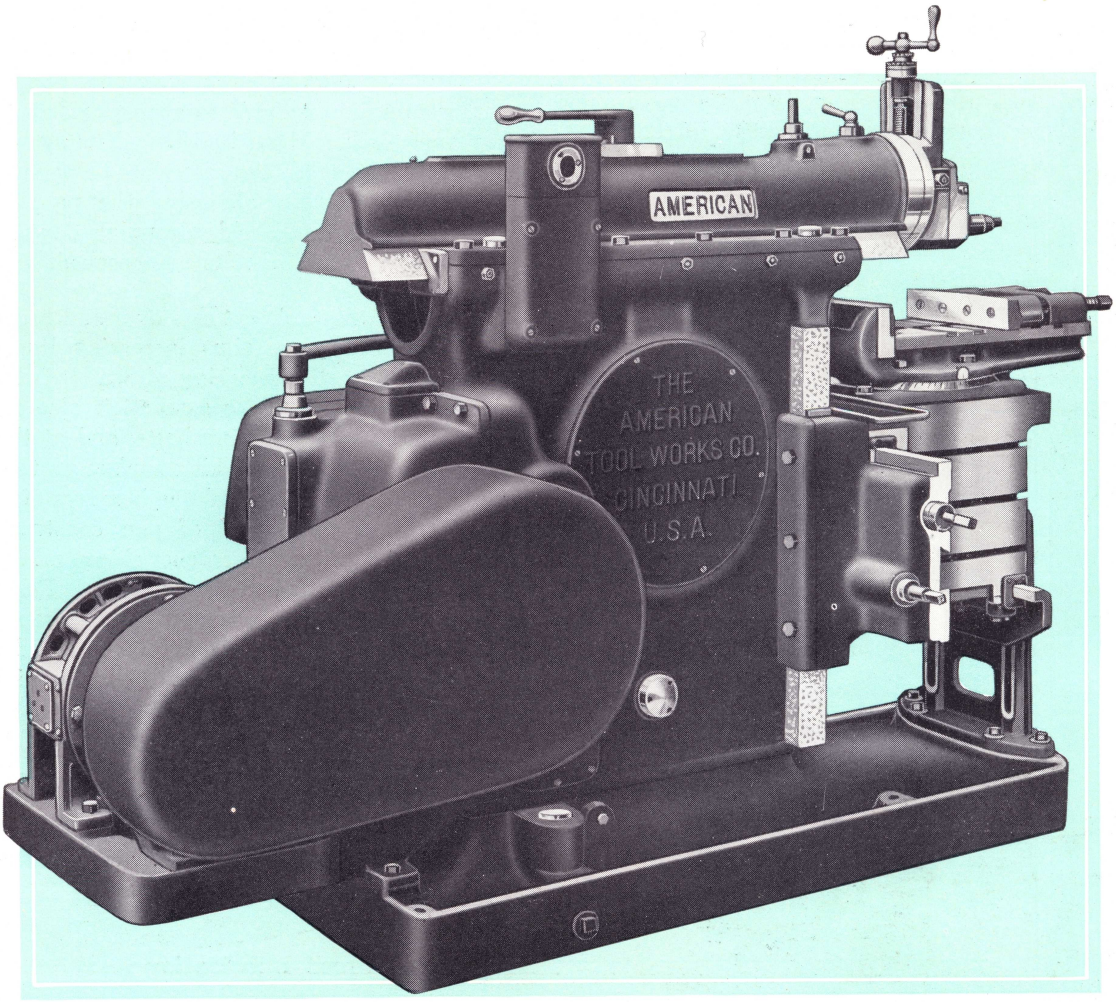
The ram ways are also heavily reinforced, while the bearing surfaces are chilled to provide a hard close-grained bearing surface for the ram. The guide ways are fitted with felt inserts connecting with the automatic lubricating system, through which the oil is forced to the bearings, insuring abundant and filtered lubrication. At each end of the guide ways is located a felt wiper, which prevents the oil escaping from the guide ways, and wipes any grit or dirt from the ram bearing.

Base

The base is almost extreme in its proportions. It is unusually heavy and deep, forming a most excellent foundation for the machine. It is of the extension type, with a pad at the outer end for the table support. It is also designed so that the portion beneath the column forms the reservoir for the lubricating system. This reservoir is, of course, completely covered and dust-proof.

Cross Rail

The cross rail is of box form, very heavy, and strongly ribbed, and, being of exceptional length, gives the table a long horizontal range of travel.



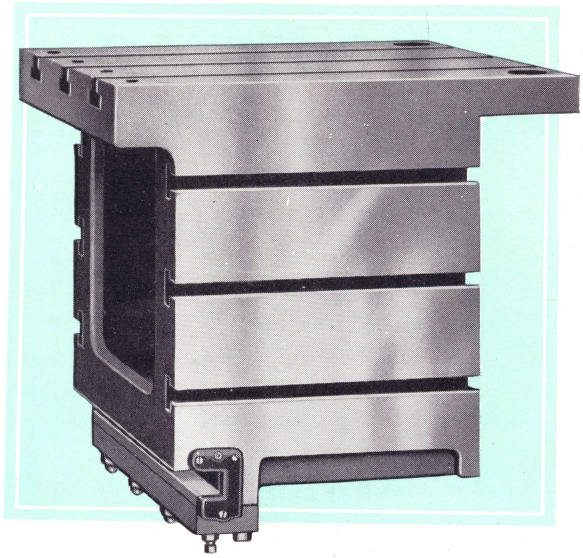
"AMERICAN" AUTO-OILED SHAPER, REAR VIEW SHOWING MOTOR APPLICATION AND GUARD FOR DRIVING BELT

Three extra wide bearings for the saddle are provided, which insure rigidity at that point. The rail is bolted to the column by clamps and bolts of improved design, which prevent its dropping away when the binder bolts are loosened. A stationary elevating screw of large diameter is employed, a ball thrust bearing being provided on the elevating nut for facilitating the elevation of the rail. This screw eliminates the necessity of a hole in the foundation to accommodate its travel.

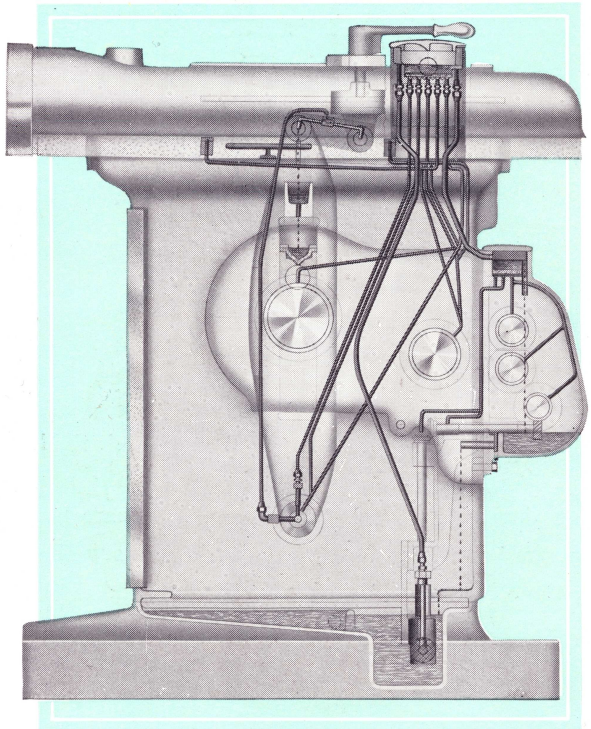
Saddle

This unit is proportionately heavy and rigid, and is fitted to the narrow guide-way on the rail, with a dovetail fit at the bottom and a square box fit at the top. The face of the saddle is supplied with three horizontal tee slots for holding the table.

Felt wipers clean and lubricate the top bearing between the saddle and the rail, while a full length taper gib with end screw adjustment provides means for maintaining an accurate fit between these two members.



PLAIN BOX TABLE



OILING DIAGRAM

Table

The table is made in a complete box section, and therefore, is not liable to spring or deflect when heavy work is bolted on its side. The slots are all planed from the solid, the side slots being set in the horizontal plane, thus obviating the possibility of the work bolted to the side dropping down on the base when the clamping bolts are loosened.

The top of the table extends over and bears upon the top of the apron, thus increasing its rigidity and preventing dirt working down between the table and saddle. This construction also removes the strain from the clamping bolts, and at the same time adds considerable working surface to the table. In order to further safeguard the bearings of the rail and column, a dirt guard of pan construction is fastened to the rail, which catches chips and dirt that might otherwise work into the bearings. Felt wipers are provided on both ends of saddle, which remove the dirt and chips from the top of the rail and at the same time lubricate the surface. This table is firmly fitted to the apron by means of 5 bolts, 3 at the top and 2 at the bottom. The rigidity of this connection is further materially increased by 2 dowel pins extending through the top of the table into the saddle. These pins permanently locate the table in its proper position on the saddle, also greatly increase its rigidity by preventing vibration under a cut.

Automatic Forced Lubrication

The lubrication of the new shaper is perfect. Every bearing, every gear, the bull wheel and rocker arm, and all their parts, the ram guide ways and the multiple disc driving clutch are constantly flooded with filtered oil—not merely lubricated, but flooded in such volume as to carry away bearing heat and foreign matter that might be deposited.

The oiling system consists of a large oil reservoir in the base, under the column, with a settling compartment where the heavy sediment is deposited. From a second compartment into which the settled oil flows, a plunger pump forces the oil to the filtering and distribution tank at the top of the column. In this tank the oil is forced by pump pressure through felt pads, which remove every bit of dirt or foreign matter. This clean oil is then distributed under pressure to all the bearings, gears, and moving parts in the machine.

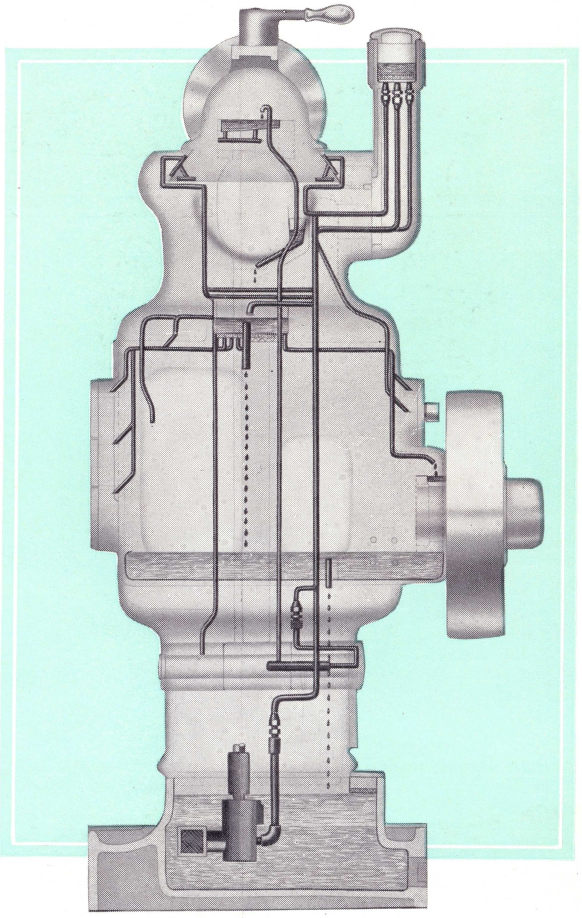
A clearer understanding of this highly efficient system can be obtained from the accompanying diagram.

Centralized Control

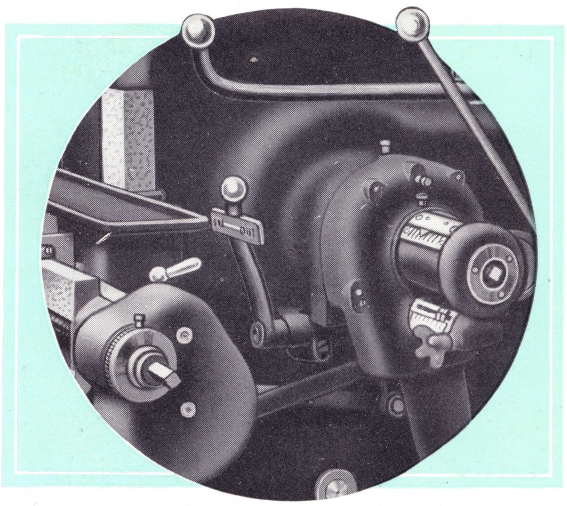
If there is any one feature that has been particularly emphasized in the new "American", it is centralized control. Convenience of operation is perhaps just as essential to the producing ability of a shaper as the factors of power and rigidity. If a machine is unhandy, if the controls are difficult and levers hard to reach, the operator not only cannot, but will not work with enthusiasm and efficiency. A machine that is sluggish and difficult of operation has a retarding effect upon the operator both mentally and physically, resulting in decreased output and lack of interest, both in his machine and in his work.

One thing is absolutely certain—no one can ever criticize the new "American" Shaper for lack of operating convenience. There is no shaper built today that can equal the "American" in this respect. From his natural working position the operator has but to lay his hand upon the primary control lever, which starts and stops the machine. From the same position he can easily reach the speed change lever which controls the speeds in the gear box—4 changes of speed thru one lever. The back gear lever, which engages and disengages the back gears, is brought to the front, where it can also be conveniently reached from the working position. Last, but not least, the feed control lever located at the operating end of the cross rail is at hand for instantly engaging, disengaging, or reversing the feed. The operator does not have to move from his tracks to start or stop the machine, to change speeds, to engage or disengage back gears, or to control the feed.

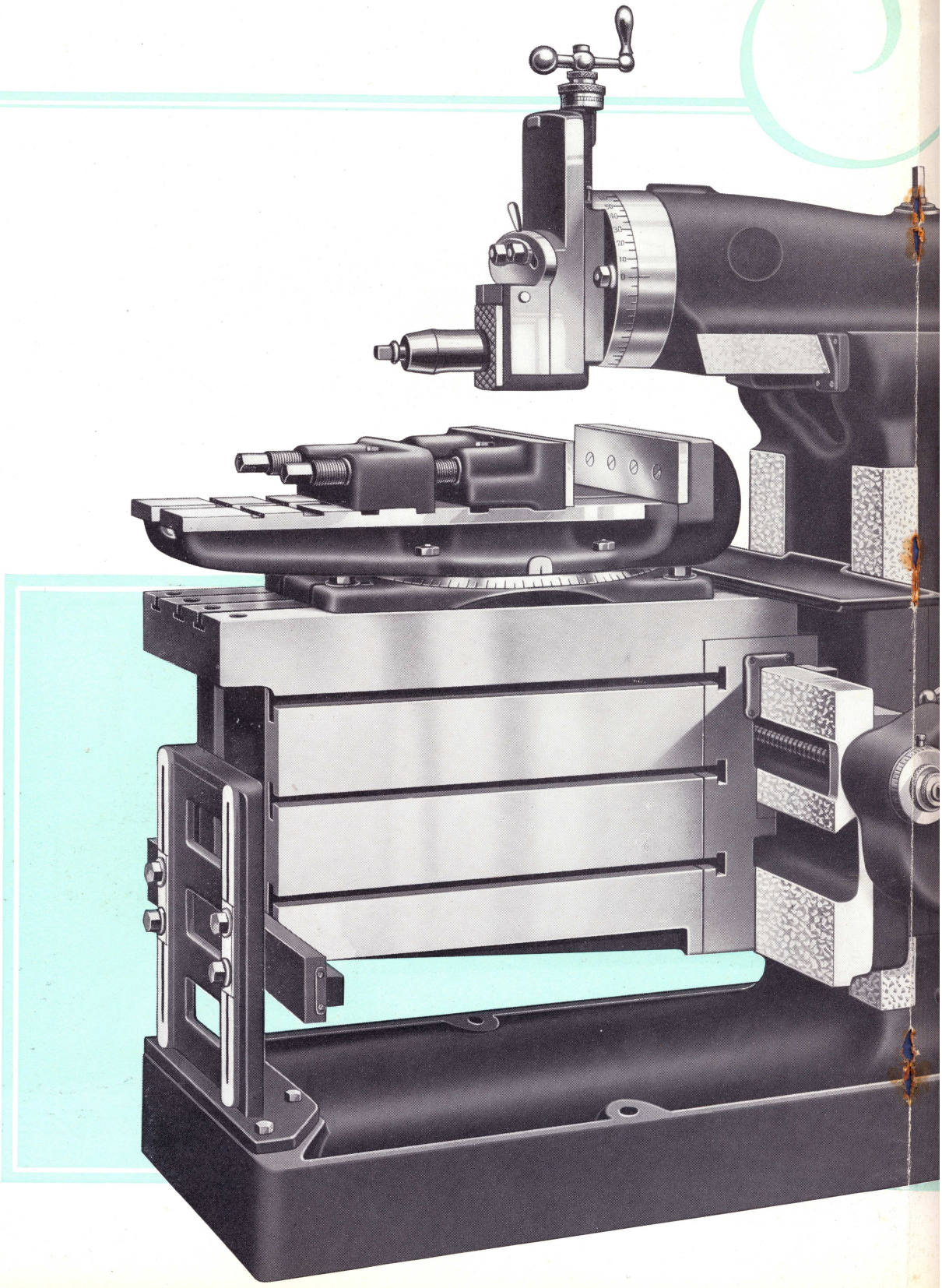
Such convenience is of real, practical value, and can be found in such a highly developed degree in no shaper but the "American".



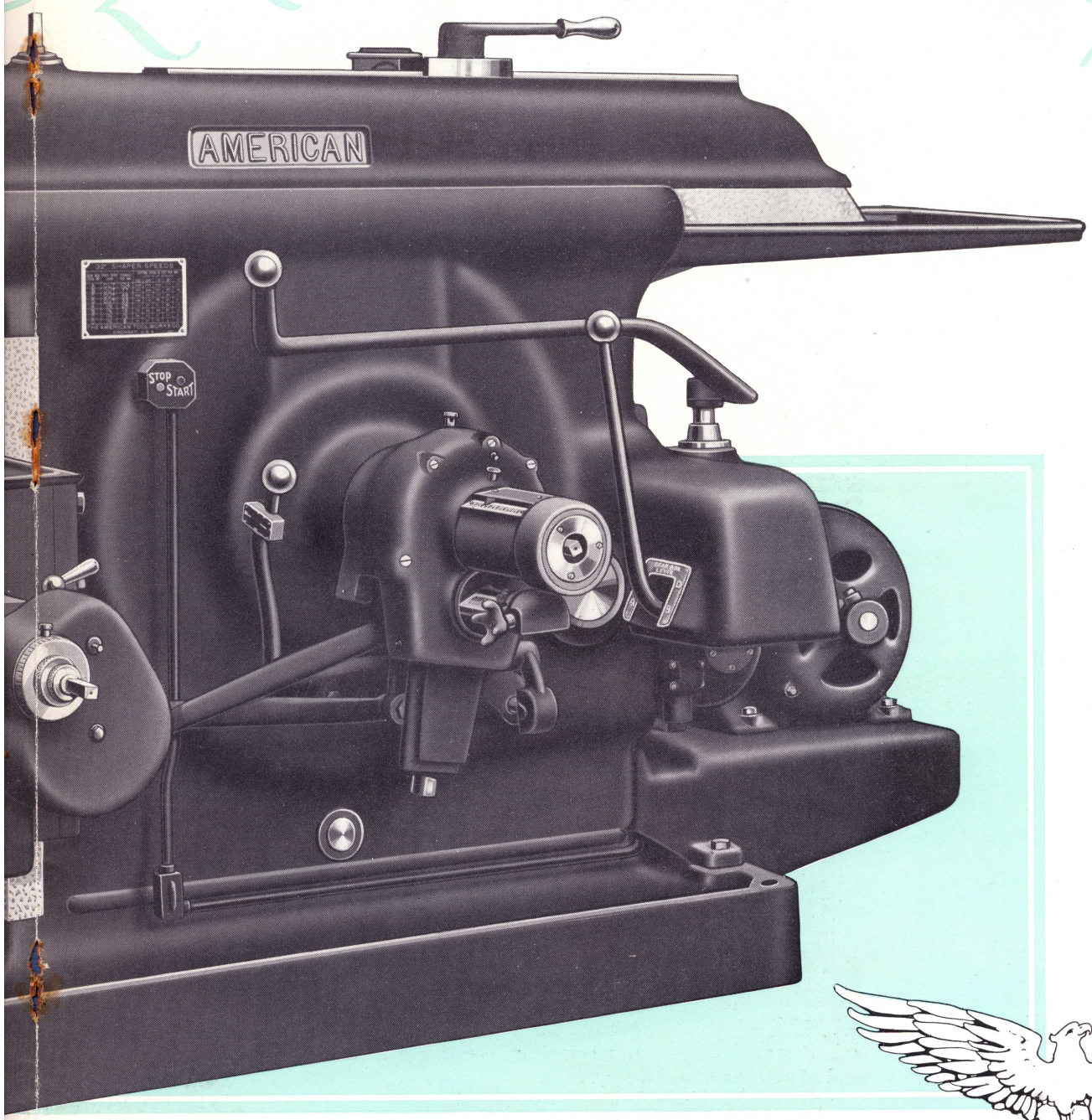
OILING DIAGRAM

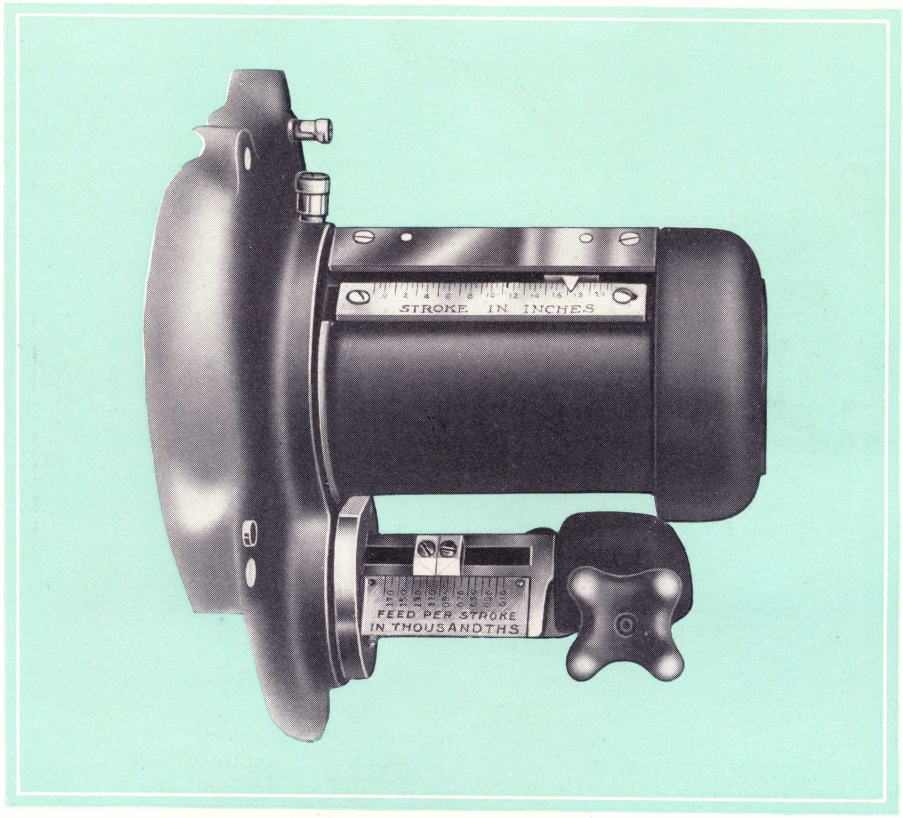


CENTRALIZED CONTROL—ALL CONTROL LEVERS BROUGHT TO OPERATING POSITION



"American" Auto-oiled Shapers are built in sizes 16" to 36" inclusive





STROKE LENGTH AND FEED ADJUSTMENT SHOWING GRADUATED SCALES

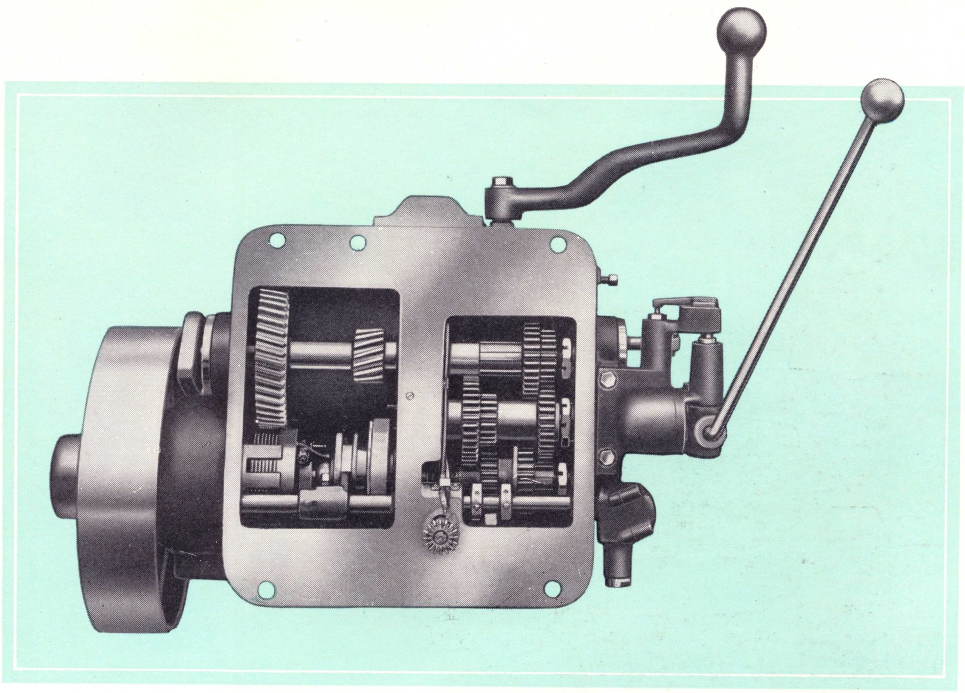
Stroke Range

Owing to the importance of the stroke range to efficient shaper operation, guess work was entirely dispensed with in determining the range for the new "American". Instead, a careful study was made of the correct cutting speeds for metals of various kinds and lengths, resulting in a range of strokes per minute calculated to give the best results on all classes of work. It would, of course, have been an easy matter to have supplied this shaper with a wider stroke range, but since both slower speeds and faster speeds than those furnished are impracticable and would only serve to widen the gaps between the speeds, it was decided to hold the range within practical limits, with close speed increments, and in that way provide only speeds that could be used effectively.

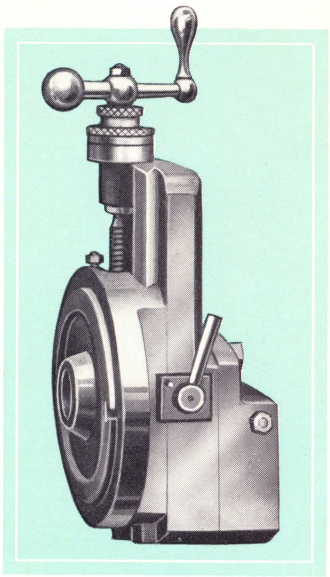
Novel Method of Changing Stroke Length

A feature of unusual convenience is the new method of changing the stroke length. Instead of the three operations of unclamping, setting the stroke and then reclamping formerly required to change the stroke, only one operation is necessary on the new "American." An automatic clutch lock is released by the application of the stroke crank to the end of the stroke adjusting shaft. The adjustment is made and the mechanism again automatically locked by the removal of the stroke crank. This mechanism is so arranged that the stroke adjusting crank will not stay on the shaft unless held there; consequently, the locking device cannot be left open through carelessness.

Another feature that will appeal to every shaper operator is the use of a straight scale along which a pointer travels indicating the stroke length as the adjustment is being made. This is so much simpler and so much easier to read than a graduated dial or a scale on the column and a pointer traveling back and forth with the shaper ram, that it simply can't help from creating a favorable impression on the operator.



SPEED BOX WITH STARTING CLUTCH AND BRAKE



HEAD

Cross Feed

The cross feed is absolutely new and possesses advantages found only on this particular design. It is automatic, simple and fool-proof in operation, and provides nine nicely graduated feeds through a convenient star knob located on the bull wheel unit which moves a pointer along a graduated scale—no difficult reading dials being used. The scale is so located that it is in plain view of the operator at all times and provides a most convenient means for selecting the feed desired. The feed is engaged, disengaged, or reversed through a lever on the cross rail unit. The feed itself takes place during the entire return stroke of the ram, without shock or impulse, insuring freedom from breakage or damage to the actuating mechanism. All parts in the feed mechanism are compact and present a neat and symmetrical appearance, while all gears in this mechanism are securely covered.

An automatic safety mechanism is provided, which protects the feed works against damage should the tool accidentally be fed into the cut, or the apron fed into either end of the cross rail. This automatic safety device is positive in its action and is not subject to atmospheric conditions, temperature or the action of oil. Furthermore, it requires no adjustment.

Speed Box

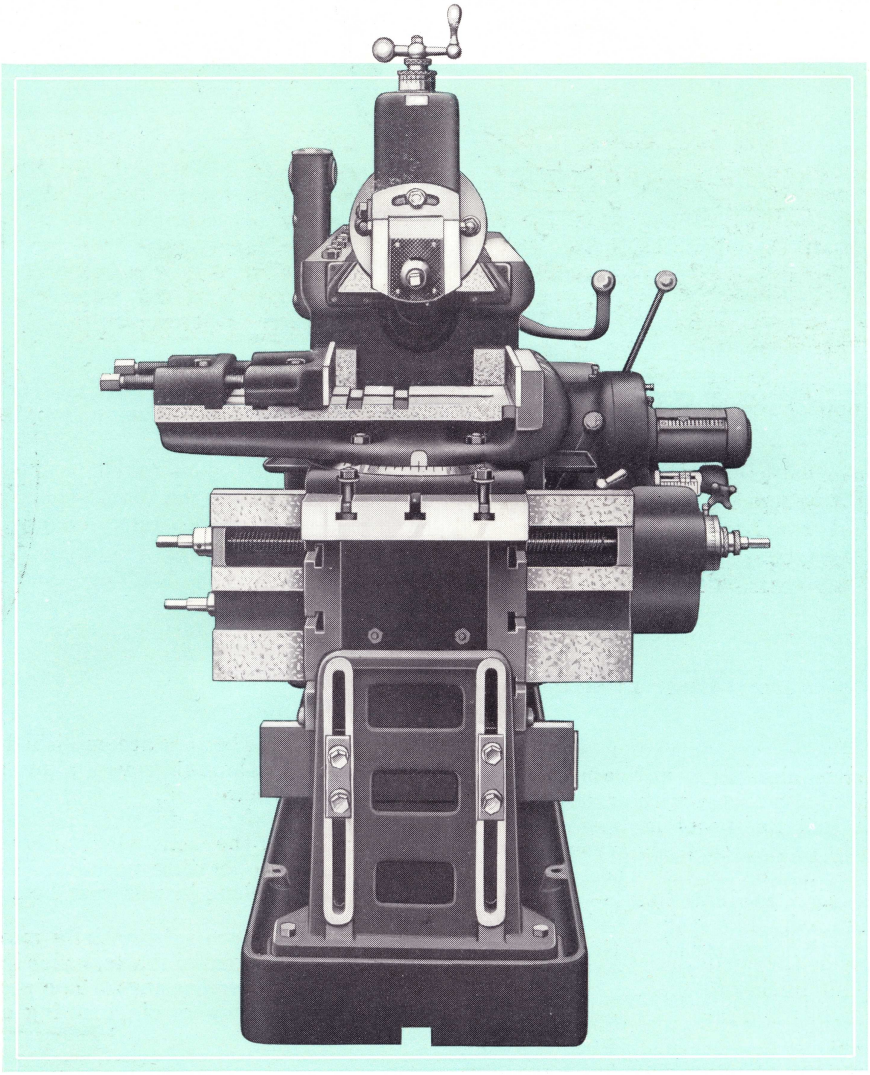
The speed box, as shown by the illustration, is a complete unit, bolted and dowelled to the shaper column. It provides four changes of speed, which, combined with the back gear drive, produces a total of eight cutting speeds for the ram. The speed changes in the box are accomplished while the machine is running, through seven alloy steel gears, heat-treated and hardened, the teeth of which are machine rounded to facilitate meshing and one long lever extending to the front where it can be operated from the natural operating position. There are no loose running members in this gear box.

The gears are substantially mounted on multiple splined, heat-treated shafts, which in turn are mounted in tapered roller bearings. The gear box is oil-tight, all gears running in oil, insuring a long-lived, quiet drive.

A long friction lever extending well to the front of the machine for operating convenience controls the multiple disc clutch incorporated in the speed box for starting and stopping the machine. Acting in unison with the clutch is a friction brake, which stops the ram instantly when the clutch is disengaged.

Head

The head is very massively constructed, and proportioned to effectively resist the tool thrust from the heaviest cuts the motor or belt will pull. It is operative at any angle and is supplied with a very substantial locking mechanism. The tool slide is made in the solid type, with the male dovetail for the connection between the slide and swivel cast integral with the tool slide, instead of with the swivel, thus presenting a much more rigid construction, which is considerably less liable to spring and breakage under heavy thrust than the open-head type.

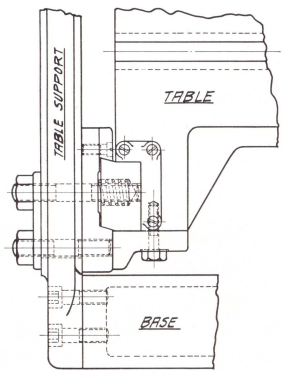


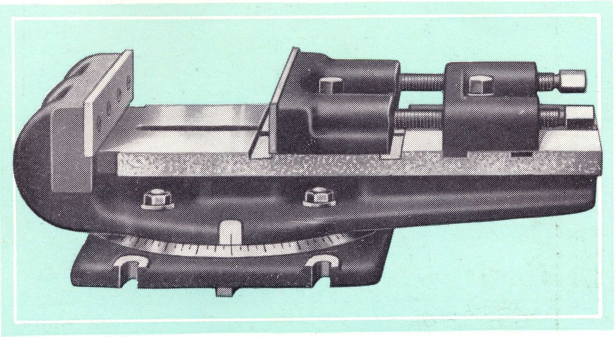
"AMERICAN" AUTO-OILED SHAPER—FRONT VIEW SHOWING THE AUTOMATIC COMPENSATING TABLE SUPPORT

The tool slide is fitted with a full length taper gib with single screw adjustment for taking up the wear, and has an unusually large diameter feed screw fitted with a micrometer collar graduated in .001 inches. The tool post is of ample proportions to accommodate tool holders with inserted bits, and is made of high-quality steel, carbonized and hardened.

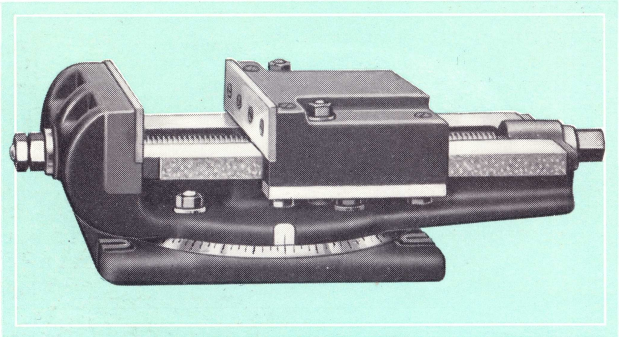
Table Support

The table support automatically compensates for the sag of the table and work. It is completely new in design, and represents a great improvement over other mechanisms designed for the same purpose. On this new unit the supporting housing for the adjustable support block is firmly bolted to the shaper base. The support block is always in contact with the table, giving it a bearing even when fed to either extreme. A gib is furnished in the support block for maintaining the proper contact with the table. Felt wipers are supplied to lubricate and cleanse the contacting surfaces of the table and support block.





DOUBLE SCREW VISE



SINGLE SCREW VISE

The three principal advantages of this type of table support are: first, it provides a support for the table directly under the cutting tool at all times, regardless of the position of the table; second, it does not impart inaccuracies in the base alignment to the table, and in turn to the work; third, it compensates for the sag of the table and thus insures greater accuracy of the work produced.

Vise

Either a double screw vise or a single screw vise is furnished as regular equipment. Our preference is for the double screw vise, which is regularly supplied, unless customer expresses a preference for the single screw type. Our preference is based on the ability of the double screw vise to hold taper work without the use of additional jaws; also it provides two heavy screws for holding adjustable jaws against the work However, some prefer the single screw vise because it is a little simpler and quicker to operate, consequently we furnish either type, as desired. The jaws of both vises are deep and wide, are faced with annealed tool steel, and provide an unusually large opening. The vise body of both types is clamped by four heavy bolts to the swivel base, which is graduated in degrees. The screw of the single screw type has a bearing at both ends, and is always in tension when holding work. The top of the movable jaw provides a surface plate for the use of measuring instruments.

Motor Drive

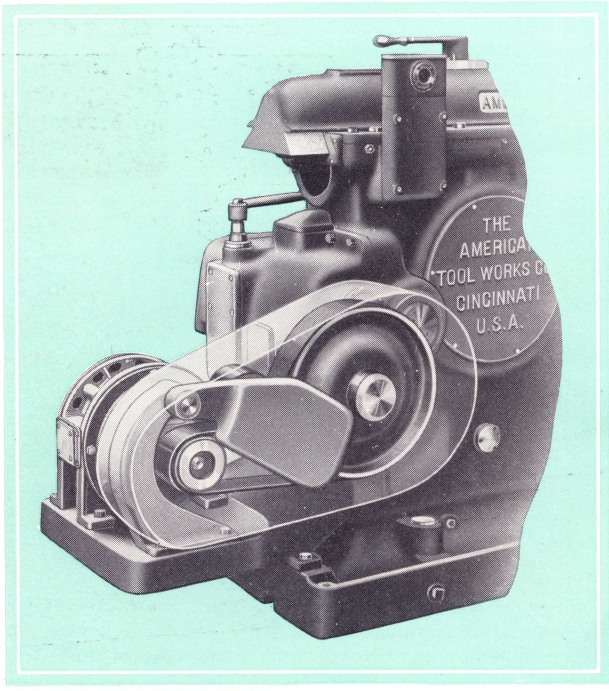
The belt connected motor drive is the type adopted, after careful consideration, for this new shaper. It is proportioned so the belt will deliver the full horse-power capacity of the motor recommended, and at the same time provides a quiet, smooth-running drive.

A constant speed motor of approximately 1800 r.p.m. is recommended, inasmuch as an 1800 r.p.m. motor is less expensive and smaller than motors of slower speed.

The motor is mounted on a substantial bracket or base bolted to the shaper column and is connected to the driving pulley by an endless belt with an anti-friction bearing idler, counterweighted to maintain constant belt tension. The whole motor drive unit, except the motor itself, is completely enclosed in a neat, dirt-proof housing.

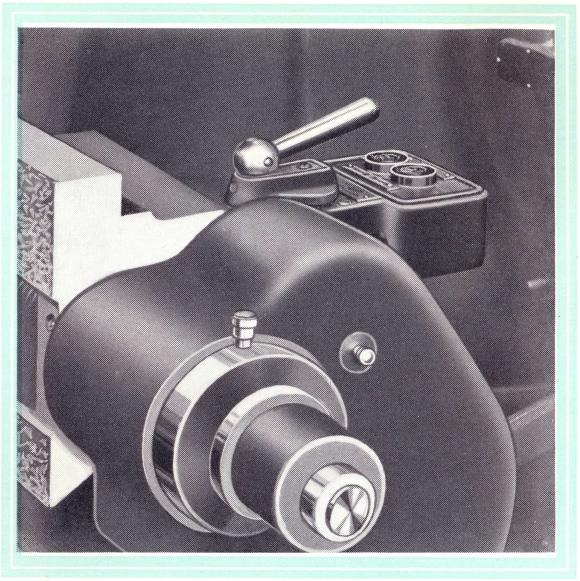
Keyseating

On all sizes below the 24-inch Heavy Pattern the rocker arm is made with a double section at the top,



BELTED MOTOR DRIVE WITH IDLER

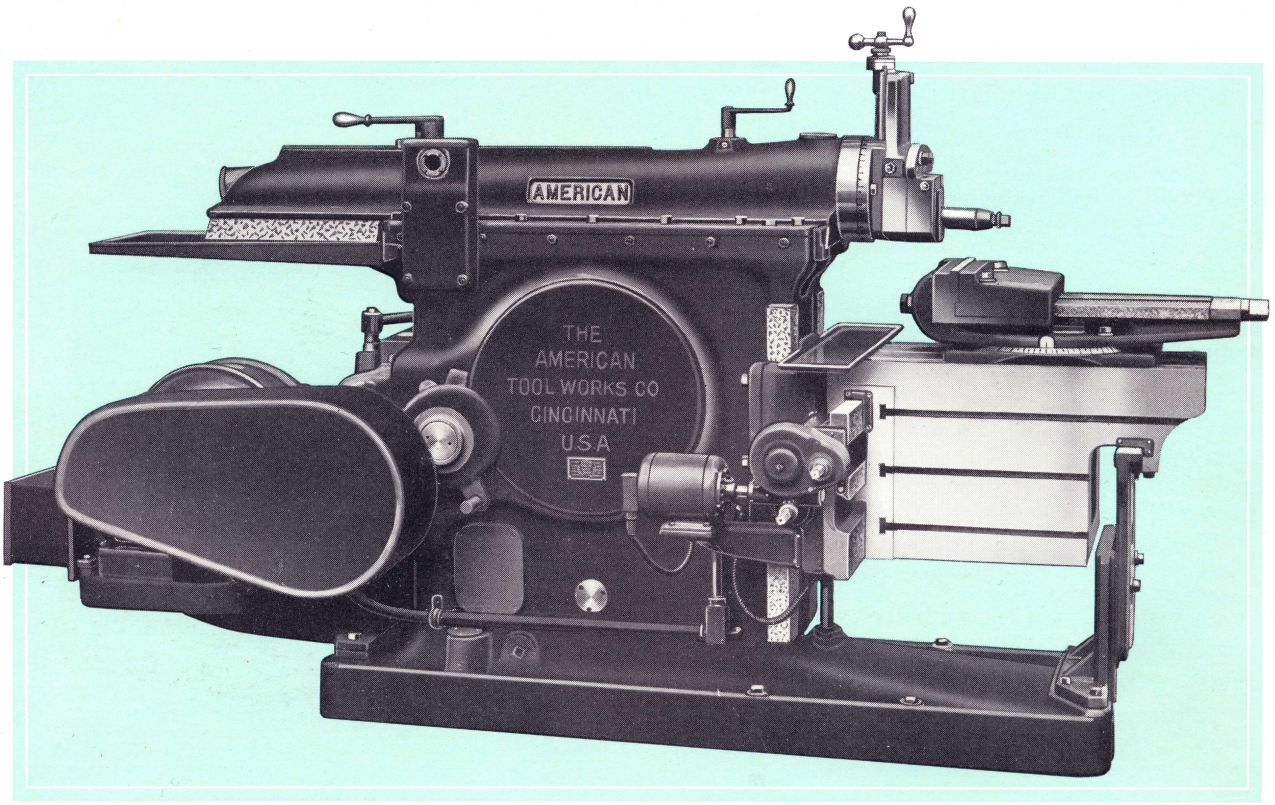
which in connection with the large opening in the column permits fairly large diameter shafts to be passed under the ram for keyseating. On the larger sizes, 24-inch and up, the rocker arm is closed to give greater rigidity, which is more essential on the larger sizes. To permit keywaying on the large sizes the column is designed so the shaft can be passed along the front of the column, so the operator can watch his work and control the machine from his natural position, instead of having to pass the work along the rear or far side, as on other designs. This is one of the prominent and exclusive features of the new "American" Auto-Oiled Shaper.



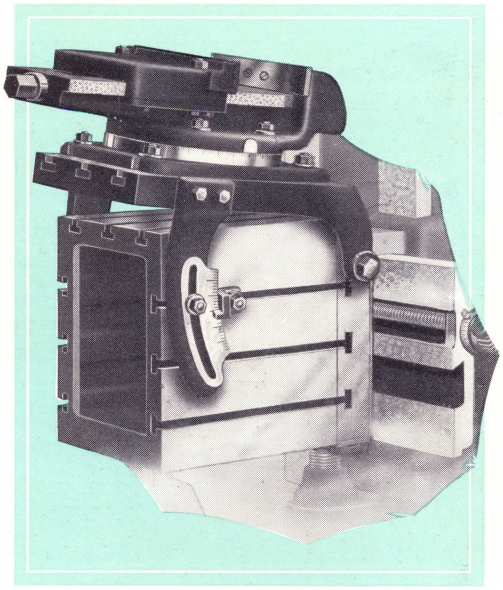
Power Traverse for Table

The power traverse for the table, which can be supplied on order for all sizes of "American" Auto-Oiled Shapers, is a most efficient and dependable mechanism. It is a self-contained, motor driven unit, entirely independent of the operating mechanism of the shaper itself, consequently is never idling, and is in action only when the table is traversed along the rail by power.

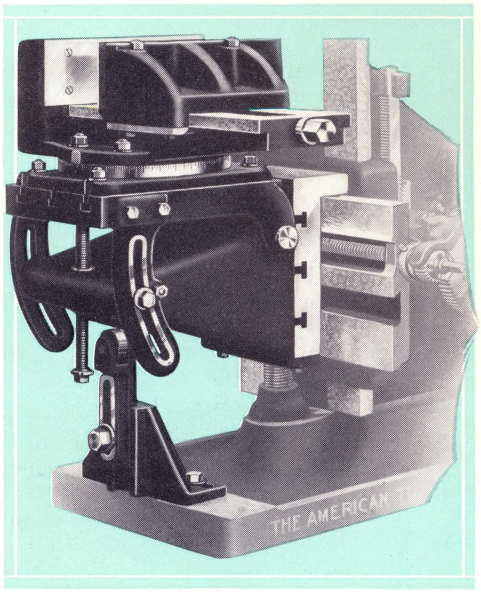
The power traverse is driven by a small motor neatly mounted on the "off" side of the column, and connected to the cross feed screw thru a worm and worm gear. The control is thru a forward and reverse push button conveniently located at the operating end of the rail, thru which the table may be traversed in either direction by simply pushing the button for the forward or reverse movement, as desired. It may be operated while machine is at rest.



POWER TRAVERSE FOR TABLE SHOWING MOTOR MOUNTING AND CONNECTION TO CROSS FEED SCREW



TILTING TOP FOR BOX TABLE



MOLD MAKER'S VISE AND TABLE

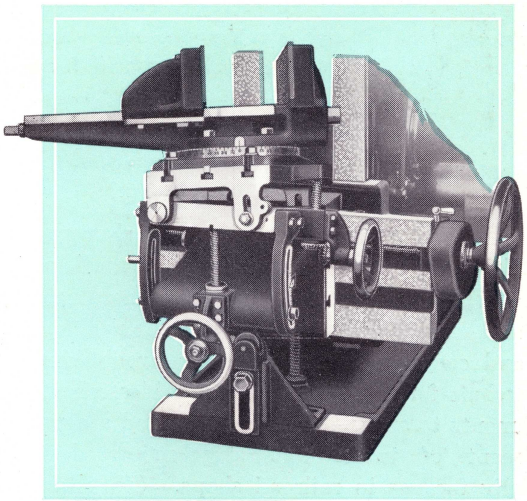
A very valuable safety feature is provided thru the power feed engaging lever, which controls an automatic lockout for the power traverse, preventing the power traverse being engaged while the power feed is functioning. This lever must be set central, thus disengaging the power feed before the power traverse for the table will function.

Owing to the simplicity of the power traverse mechanism and the fact that none of its elements are in operation except when in actual use, the life of this mechanism is greatly prolonged and its maintenance reduced to a negligible factor.

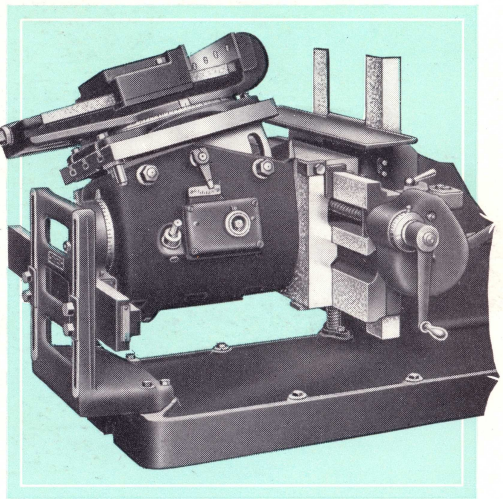
Special Tables and Vises

In order to adapt the new "American" Auto-Oiled Shaper most effectively to certain specific classes of work, a wide variety of tables and vises has been developed. The use of especially designed tables and vises for certain specific work will oftimes increase the productivity and usefulness of the machine many times.

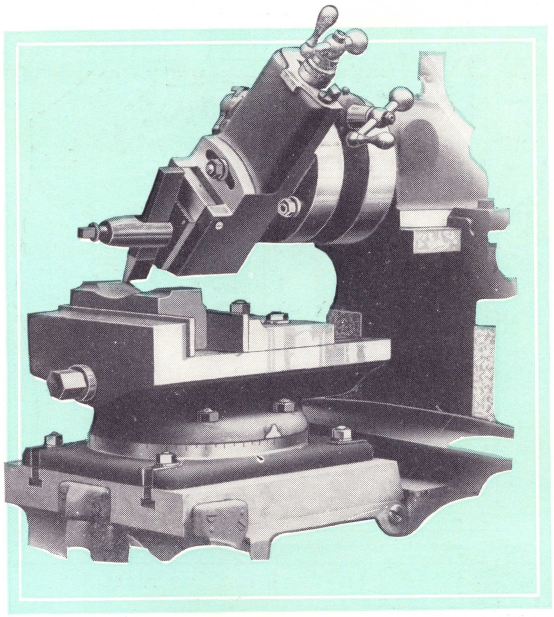
It is well, therefore, for the purchaser to carefully consider the character of his work and then purchase the equipment best suited to it.



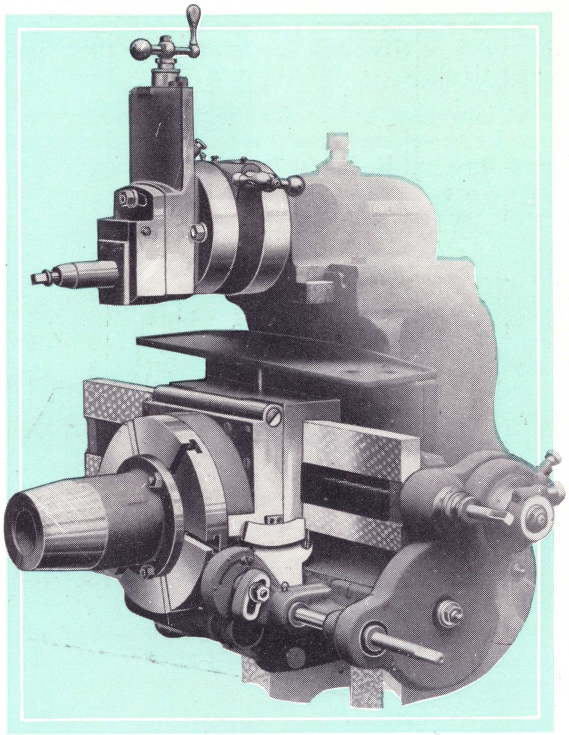
COMPOUND TILTING TABLE FOR MOLD SHOP WORK



UNIVERSAL TABLE AND PLAIN VISE



CONCAVE ATTACHMENT



CONVEX ATTACHMENT

Automatic Power Feed to Head

This is a unit supplied at extra cost designed to feed the tool slide down by power. All shaper rams are regularly arranged for application of this unit either before or after the machine is shipped. This mechanism provides ten rates of feed from 5 to 50 thousandths inches per stroke of ram. These feed rates are clearly indicated on the feed scale and can be changed while the ram is in motion. The power down feed mechanism can be quickly and conveniently engaged or disengaged through a lever located on the ram just back of the head. One of the features of this mechanism is its simplicity and freedom from trappy construction. It is also protected against serious accident by a shearing pin located in the feed pawl. No locking mechanism is required for the down feed screw or nut, consequently, the power down feed is always ready to be put into use without any adjustments other than throwing the control lever from the "off" to the "on" position.

Countershaft

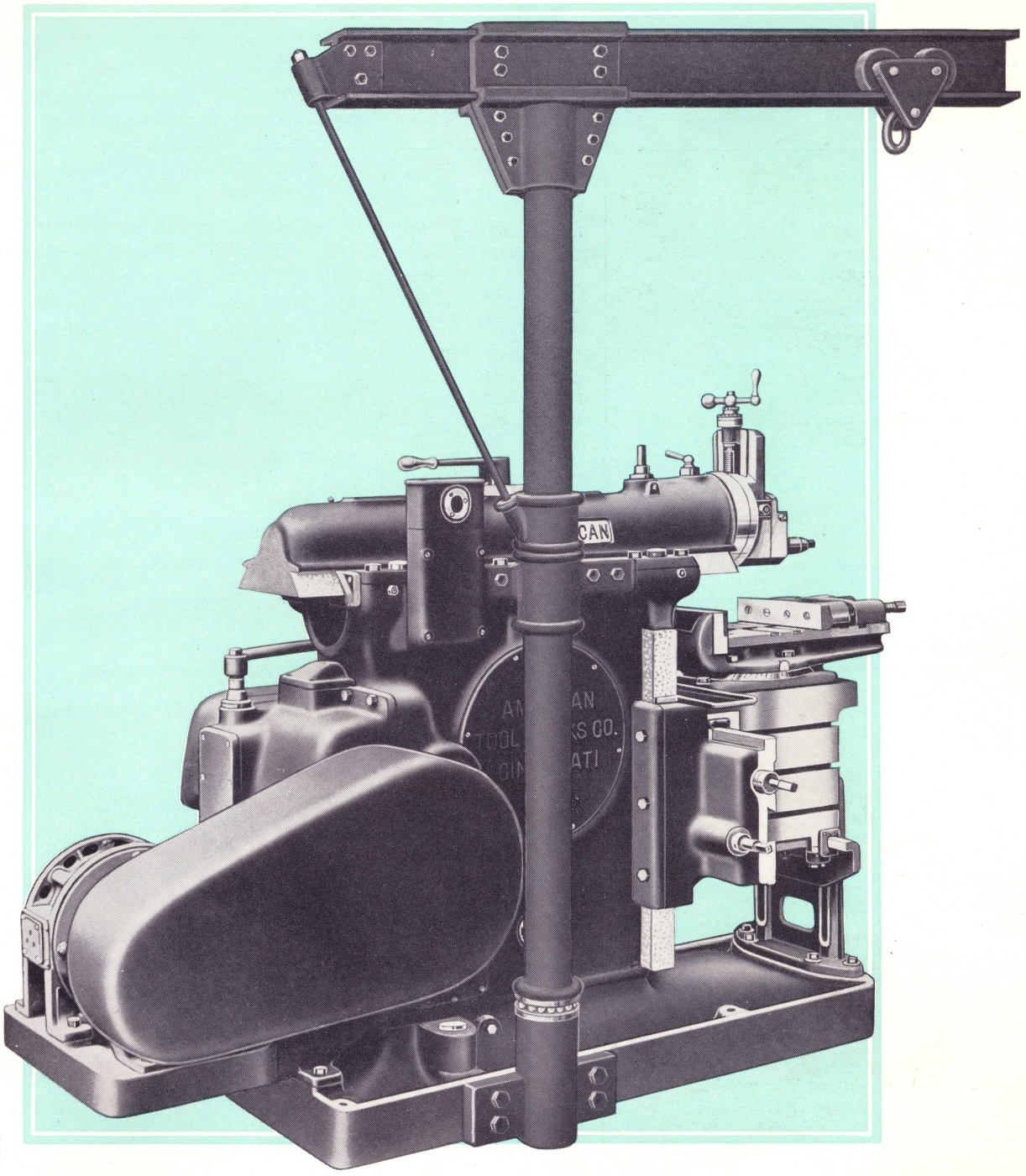
Tight and loose pulley countershaft, with roller bearing mounting for the loose pulley, is furnished as an extra when wanted.

Regular Equipment

The base price includes the following equipment: Either double or single screw vise, table support, automatic forced lubricating system, roller-bearing mounting for high speed shafts, belt guard for belt driven machines, and necessary wrenches.

Extra Attachments

At extra cost we can equip all sizes of shapers with motor drive, power traverse for table, automatic power feed to head, universal table and vise, mold maker's table and vise, tilting top for regular box table, concave and convex attachments, circular attachment, countershaft for belt drive, special tables, vises, and attachments to suit customer's work, and a complete assortment of tables and attachments designed especially for use in railroad shops. (See Railroad Shaper Catalog.)



BOOM CRANE ATTACHMENT FOR HANDLING HEAVY PIECES

DIMENSIONS

	16″ Heavy Pattern	20″ Standard Pattern	20″ Heavy Pattern	24″ Standard Pattern	24″ Heavy Pattern	28″ Standard Pattern	32″ Standard Pattern	32″ Extra Heavy	36″ Heavy Pattern
Ram									
Length of stroke	16¾	20¾	20¾	24¾	24¾	28¾	32½	32¾	36¾
Bearing in column	32x10⅜	32x10⅜	36x11¼	36x11¼	41½x12	41½x12	41½x12	47x13	47x13
Keyway capacity	3	3	3½	3½	.....	.....	.....	.....	.....
Adjustment	15	19	19	23	23	27	31	31	35
Table									
Horizontal travel	24	24	24½	24½	30	30	30	35	35
Vertical travel	11⅞	11⅞	12	12	12⅜	12⅜	12⅜	12⅜	12⅜
Maximum distance, table to ram	16⅞	16⅞	18¼	18¼	17⅞	17⅞	17⅞	17½	17½
Length of top	16	20	20	24	24	28	32	32	36
Width of top	14	14	14	14	16	16	16	20	20
Depth	15	15	16½	16½	18	18	18	20	20
Head									
Diameter of head	9½	9½	9½	9½	10	10	10	11	11
Vertical travel	7	7	7	7	9¼	9¼	9¼	9¼	9¼
Size of tools	⅞x1¾	⅞x1¾	⅞x1¾	⅞x1¾	1x2	1x2	1x2	1x2	1x2
Number of speeds to ram	8	8	8	8	8	8	8	8	8
Range of cutting strokes per minute	10–138	10–138	9½–132	9½–132	8½–120	8½–120	8½–120	8–104	8–104
Number of cross feeds	18	18	18	18	18	18	18	18	18
Range of cross feeds	.010–.180	.010–.180	.010–.180	.010–.180	.010–.180	.010–.180	.010–.180	.010–.180	.010–.180
Diameter of pulley	16	16	16	16	16	16	16	16	16
Width of belt	3½	3½	3½	3½	4	4	4	4	4
R. P. M. of pulley	500	500	550	550	550	550	550	600	600
Gear ratio, maximum	50÷1	50÷1	57.8÷1	57.8÷1	65÷1	65÷1	65÷1	75÷1	75÷1
Gear ratio, minimum	3.62÷1	3.62÷1	4.16÷1	4.16÷1	4.6÷1	4.6÷1	4.6÷1	5.77÷1	5.77÷1
R. P. M. of countershaft	444	444	489	489	489	489	489	533	533
Double Screw Vise									
Size jaws	12x2½	12x2½	12x2½	12x2½	15x3	15x3	15x3	18x3¾	18x3¾
Jaws open	12	12	12	12	15	15	15	16¾	16¾
Single Screw Vise									
Size jaws	12x2½	12x2½	12x2½	12x2½	15x3	15x3	15x3	16x3¾	16x3¾
Jaws open	13	13	13	13	16	16	16	16	16
Countershaft tight and loose pulley	14x5¼	14x5¼	14x5¼	14x5¼	14x5¼	14x5¼	14x5¼	14x5¼	14x5¼
Net weight, belt drive	4000	4100	4800	4900	6300	6400	6800	7900	8300
Net weight, motor drive, without motor	4200	4300	5100	5200	6600	6700	7100	8200	8600
Crated weight, belt drive	4200	4300	5000	5100	6600	6700	7200	8400	8900
Crated weight, motor drive, without motor	4400	4500	5200	5300	6800	6900	7600	8800	9400
Motor horse-power for heavy service	5	5	7½	7½	10	10	10	15	15
Motor speed—R. P. M.	1800	1800	1800	1800	1800	1800	1800	1800	1800
Floor space—belt drive	53½x79	53½x79	53⅝x87	53⅝x87	59x99¾	59x99¾	59x108	62x123½	62x123½

THE BOHNETT CO., CINCINNATI, O.

Catalogue "D"

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