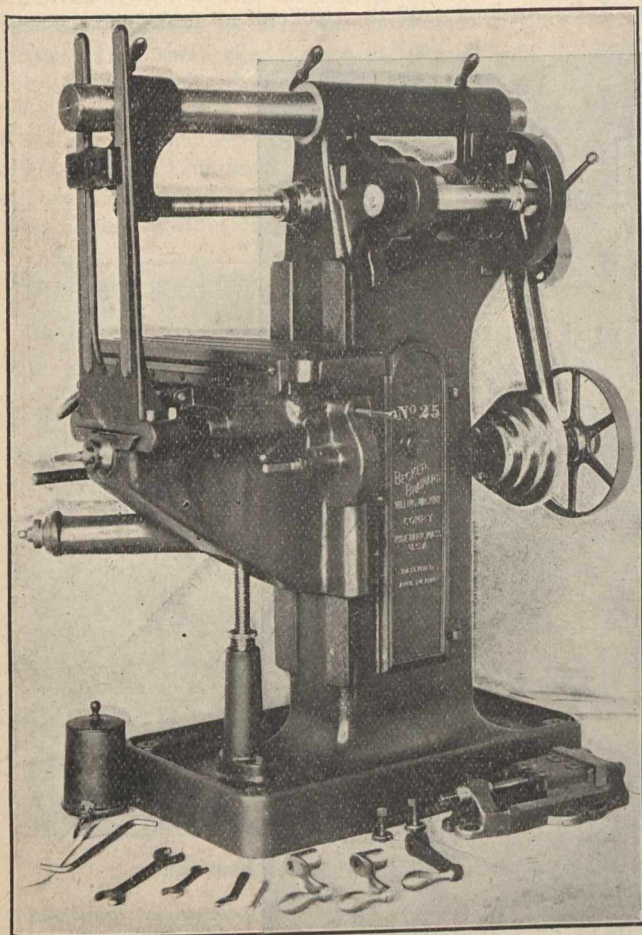


a new and novel worm mechanism by which the worm is thrown out of mesh with the gear, and leaves in a path at right angles with the axis of the same, overcoming the objection of the old style gravity drop worm of clinging to the gear by friction alone. It also equalizes the wear on the worm gear teeth. The worm is also engaged and thrown out of mesh by the same lever, making in all a neat, convenient and positive method of automatically disengaging the feed and stopping the travel of the table at a predetermined point. The table is also supplied with a hand quick return of 4 to 1 ratio, allowing it to be returned to the original position in the least possible time.

The knee of the new model has been lengthened sufficiently so that a harness may be used for the arbor, and still have a cross range for the table equal to that of the old style



machines. This harness is especially worthy of notice and makes for convenience as well as rapidity. It consists of a brace which is gibbed to the knee slide; a clamp that is fastened to the arbor support yoke in a manner that allows it to be swivelled around its center, allowing the brace to be removed without removing any bolts. This clamp is made fast to the brace by friction, which gives a more rigid hold than the old style bolt washer and slot arrangement, at the same time allowing of a much stiffer brace. The convenience of this device will be at once appreciated by the operator. The arm, which is a solid steel bar, is adjustable lengthwise.

These machines are equipped with a rigid box knee and with a telescopic elevating screw, allowing the machine to be set in any position without regard to beams on floor construction, as the screw does not project below the floor line.

The base of these new model machines is extra heavy, and has been designed on the same lines as the other, all built by the same manufacturers. The spindle cone and back gears are of the standard Becker Brainard design, the spindle bearing being cylindrical in form, the wear being taken up by concentric compensating bronze boxes. The appearance of the machine has in no way been neglected since new patterns were made throughout. Great care was given to the symmetrical appearance of the machines as a whole, all corners being well rounded.

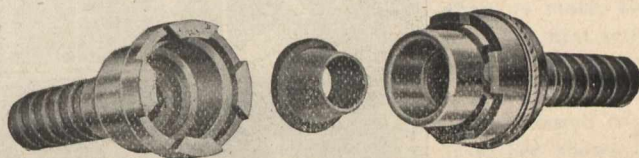
AUTOMATIC HOSE COUPLINGS.

Of late years compressed air has come into more or less general use; in fact to-day it is almost impossible to find an engineering establishment where it is not used. This has resulted in keen competition amongst the manufacturers of fittings used in connection with pneumatic tools, and among other pieces that have received particular attention is the hose coupling.

One of the latest and best couplings to be put on the market is that manufactured by the Thomas H. Dallett Company, of Philadelphia, Pa. This coupling stands in the front rank. It is a marked improvement over many of the hose couplings heretofore manufactured. The illustration herewith shows the two halves of the coupling together with the gasket used.

The gasket is of a rubber composition, not affected by oil or gasoline, and is held in the female half of the coupling by the flange around the larger end fitting into a recess. It is impossible for this gasket to fall out or be lost when the coupling is disconnected, and when necessary, a new gasket can be inserted in a few seconds.

When the coupling is connected, the tapering end of the gasket enters into the conical opening in the male part and is a loose fit therein. When pressure comes on the coupling this tapered end of the gasket is expanded against the wall of said conical opening, making a perfect joint, which the greatest



Automatic Hose Couplings.

pressure will only make the tighter, and as soon as the pressure is relieved, the gasket is again loose, so that no matter how long a coupling may remain connected, it will not adhere to the metal and be torn and ruined in the coupling being taken apart.

As will be noted, the male part of the coupling is provided with four locking-lugs, equally spaced around its circumference, and when the male and female parts are snapped together, these lugs insure their being held squarely, which obviates any tendency to leak.

To connect the coupling, it is only necessary to press the parts together, give one-eighth of a turn and the locking-ring will spring into place. It is then a physical impossibility for it to be pulled apart or accidentally disconnected. When the connection is to be broken, press back the locking-ring and give the coupling one-eighth turn.

The entire coupling is made of a very hard bronze composition, has no small parts to give trouble, and no projecting pieces to catch when the hose is trailed along the ground. The locking-ring is provided with a milled ridge around its circumference which affords a good grip for pressing it back when disconnecting the coupling and so stiffens and strengthens it that it requires extraordinary abuse to spring or bend it so as to impair the working of the coupling.

THE PUMPING PLANT OF THE OMAHA WATER COMPANY.

By Willis Collins.

From the standpoint of high economy continuously maintained throughout a long period of time, the central station of the Omaha water works system, equipped with Allis-Chalmers pumping engines, has a record of more than ordinary interest.

The construction of this system was begun in 1880, when the population of the city was only 30,000, and completed in 1883. When completed the system had 28 miles of water mains and 250 fire hydrants. The Missouri River was the source of supply. The water was first pumped up about 30