IMPROVED PIPE AND BOLT THREADER, CUTTER, AND NUT TAPPING MACHINE.

The accompanying engravings illustrate an improved machine, intended to perform the work enumerated in the title of this article, the nature and advantages of which are specified in the following description:

A is the frame which supports the entire machine. In this frame slides a vise holder, B. The shape of the vise holder is a parallelogram, except at the top, which is slightly arched. It slides in ways formed on the inside of the vertical part of the frame. On the inside of the vertical part of the vise holder, B, are formed ways which guide the movement of the upper half of the vise, C. The lower half of the vise, D, is fastened in the lower part of the vise holder, B. In the arched top of the vise holder is formed a threaded hole for the upper part of the differential screw, E. A thread is also formed in the upper part of the frame, A. The end of the differential screw plays freely in a step socket in the upper part of the vise, C. The pitch of the screw in the upper part of the frame is twelve to the inch, and in the upper part of the vise holder, B, it has a double thread, six to the inch. The turning of the screw, therefore, causes the lower part of the vise holder, B, to rise, while the upper part of the vise, C, descends, or *vice versâ*. The purpose of this movement is not only to gripe the pipe or bar to be threaded or cut off with great firmness, but also to make the apparatus self-centering. To the front side of the wheel, F, is attached the casting, G, which forms ways upon which the die carriage, H, travels. By this means the dies are carried forward constantly parallel to themselves and the work, thus obviating friction from any deviation from the parallel motion, and preventing stripping of the thread—a difficulty heretofore encountered in many pipe cutting machines. The die carriage is forced forward at the commencement of the operation by means of the left hand lever screw, I, the purpose of which is to make the dies engage the work at the beginning. As soon as the thread is started, the carriage, H, traverses of itself, at a rate corresponding to the pitch of the screw cut, in the same way as a chaser follows the thread in cutting a screw in a hand lathe. The carriage, H, the casting, G, and the wheel, F, are all caused to rotate by means of bevel gearing actuated by means of the balanced lever handle, J, which is shown broken away in the engraving, to avoid unnecessary space. K, Fig. 2, represents the cutting device, by which pipes or bars are cut off. This consists of a pivoted tool holder, which is fed by the ratchet headed screw, M, which turns in the threaded hole formed in a lug.

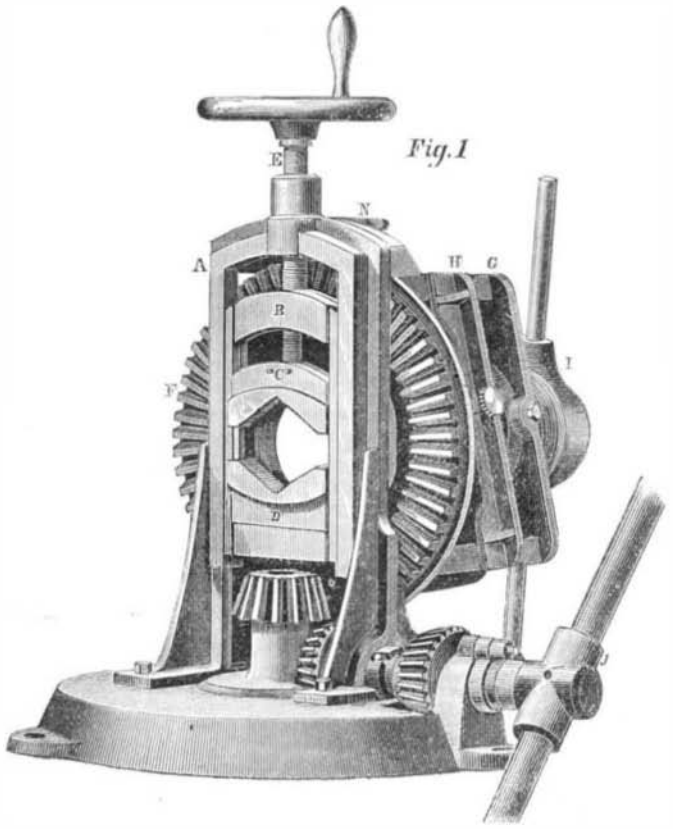
Motion is imparted to the screw, M, by coming in contact with the pawl, N, at every revolution of the wheel, except when the pawl is turned up out of the way in cutting threads. In this way, an automatic intermittent feed is obtained, which is considered of great advantage, as, in machines with automatic continuous feed, the contact of the tool with a high spot in the iron often results in splitting the pipe, owing to the increasing depth of cut consequent upon the nature of the feed and upon the suddenly increased depth of the cut caused by the lump. The reason for this is that, with the continuous automatic feed, the tool is constantly entering deeper and deeper into the material, while with the intermittent automatic feed it can be so set as to cut only to such a depth as ensures safety to the tool and to the material itself, according to the nature of the work to be performed. In the performance of most kinds of work, a deeper cut can be taken, and the cutting can be performed faster than with machines having automatic continuous feed. By sliding the handle, J, in or out, so that a pin on the shaft engages with the inner or outer pinion of machine, the speed of machine is increased or lessened as desired.

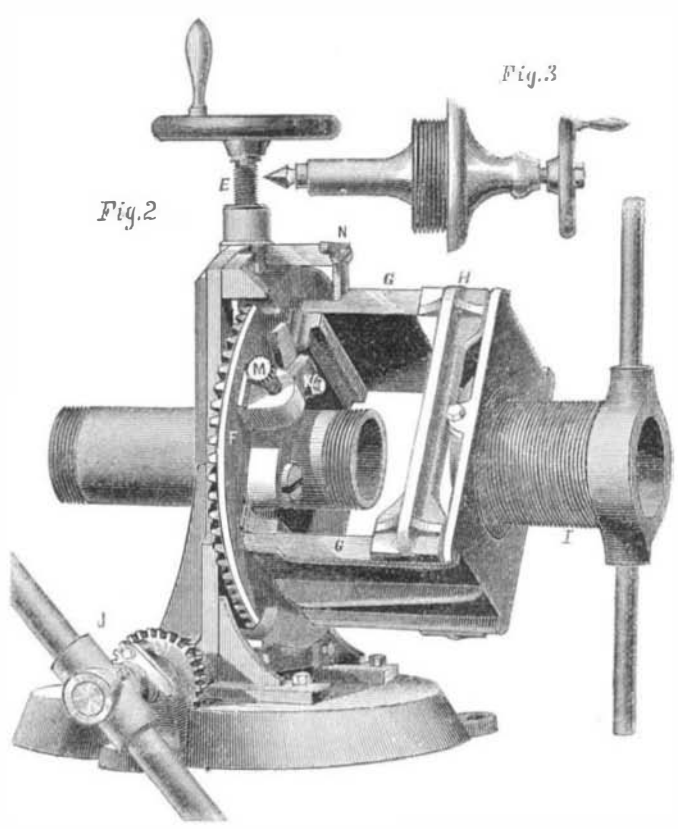
Fig. 2 represents the machine in the operation of cutting off a piece of pipe. The machine can also be used for tapping nuts, the tap being held in the vise and the nut in the carriage, H, or *vice versâ*.

Fig. 3 shows a centering device, which is put in place of the screw, I, for centering bars after they have been cut off, and to prepare them for turning in the lathe. Either square or round iron may be thus cut off and centered, the screw, I, being removed, and the centering device in Fig. 3 being substituted.

It will be seen that the capacity of this machine is unusual. It cuts and threads pipes and bolts, taps nuts, and cuts off and centers bars to fit them for the lathe. It is extremely compact, weighing only one hundred and eighty pounds, and can be run either by hand or power. A power attachment is supplied with a backward and forward fast and slow motion, so that the machine can be driven by power by merely throwing the belt over the main shaft, without putting up a counter shaft. The machine is therefore portable, and its convenience is greatly enhanced. It can be used in any part of the shop where it is most convenient. All the parts are interchangeable, and may be replaced when damaged by any accident.

Patents for this machine have recently been obtained. Further particulars may be obtained by addressing Mr. C. T. Litchfield, General Manager of the Empire Manufacturing Company, 18 William street, New York city.

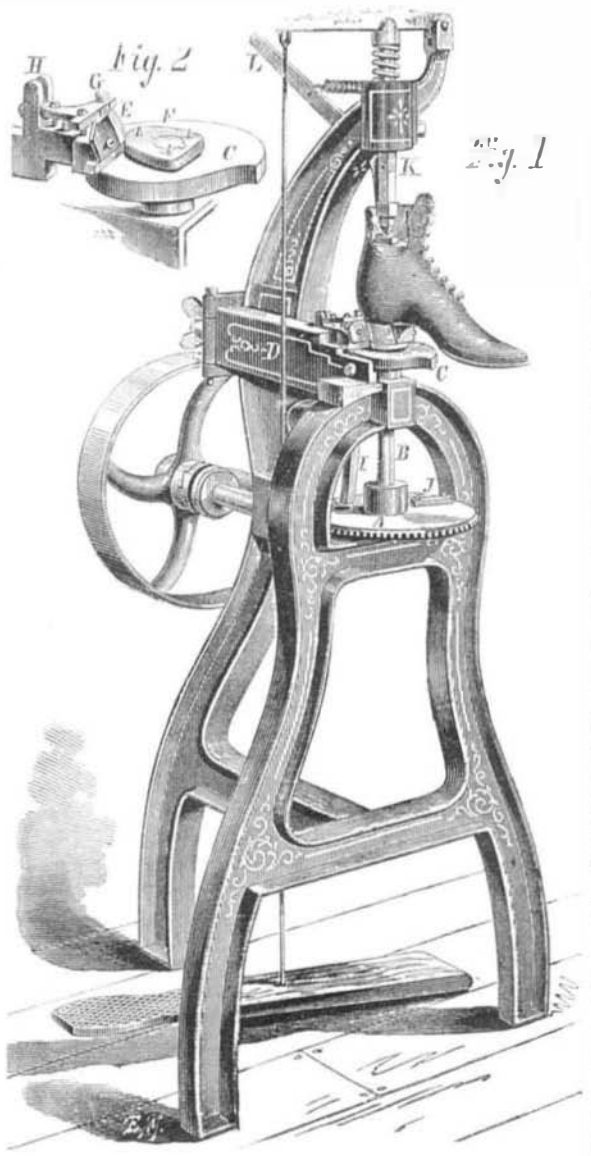




PIPE AND BOLT THREADER, CUTTER, ETC.

JONES' HEEL TRIMMING MACHINE.

In the invention represented in our illustration are combined a variety of novel and ingenious devices which, together, form an improved machine for trimming shoe heels.



The motive power may be steam, in connection with a pulley, or hand labor, employed through a crank. Upon a horizontal shaft is a bevel gear wheel, A, which rotates the vertical shaft, B. At the upper end of the latter is a double cam plate, C, the edge of which is suitably shaped to allow the arm which carries the knife to move onward at the proper time. The arm works in the casing, D, and its outer end is pivoted to a plate attached to the rear part of the frame. Upon its inner side is formed a socket to receive the knife bar, into which is adjusted a screw rod (operated by a thumb nut, shown at the rear) which limits the movement of the knife, and also serves as a guide for a coiled spring, by which the latter is held out to its work.

In Fig. 2 the cam plate and cutting mechanism are represented on a larger scale. E is the knife, in front of the right hand lower corner of which projects a finger, which rests against the guide, F. The latter is secured detachably to the shaft, B, above the cam plate, as shown. It is of the exact form of the required heel, and must be changed for differing sizes of the same. On the upper side of the knife bar, at G, is a gage, which presses against the counter, and, projecting a little in front of the edge of the knife, keeps the same evenly around the rest of the heel. It may be raised or lowered to suit various highs of heels, and may be moved nearer to or further from the work by means of the screw operating in the slotted projection, H. There is also a washer under the guide, F, which varies the same so that the knife may rest against it for a distance of an eighth of an inch or more, as desired.

To the forward end of the knife arm is attached a hook rod, which enters a groove under the cam plate. This portion of the device is necessarily hidden by other parts in the engraving. The object, however, is to cause the knife to move forward quickly to cut the elongated sides of the heel, and slowly while cutting the short curve of the rear portion of the same. At I is shown the lower extremity of a drop or clutch, which is hinged to the frame at or near its middle, so that its upper end enters a socket on the under side of the knife arm. At a certain point of the revolution of the gear wheel, A, a stud, J, thereon comes in contact with the drop and carries the same partially around, thereby relieving the strain on the hook pin when it enters the short curve of the slot of the cam plate, at the same time serving as a brake.

The rear leg of the frame projects upward and curves forward, so that its upper extremity is directly over the vertical shaft, B. Through this upper end passes a shaft, K, which connects with a spring lever above. The latter is operated by the treadle shown, and the device serves to hold the shoe down upon the guide. Near the lower end of the shaft, K, is a joint worked by the lever, L, the object of which is to trip the shoe, when it becomes necessary to give one part of the heel more bevel than another. The knife, besides, has a spring upon its inner side which will allow of its conforming to all ordinary styles of heels without requiring the employment of the tripping lever.

The mode of adjusting the shoe to be operated upon is already shown in Fig. 1. The pulley is operated over about 2½ revolutions to trim the shoe, and the speed required is some fifty revolutions per minute.

Patented through the Scientific American Patent Agency, July 1, 1873. For further particulars relative to sale of rights, etc., address the inventor, Mr. E. U. Jones, Woodhaven, Queen's county, N. Y.

A sample machine may be seen at the office of Messrs, William Butterfield & Co., 6 Murray street, New York city or at the Bay State Shoe Works, King's County Penitentiary, L. I.

REMARKABLE FALL OF A RESERVOIR.—A reservoir to supply Conshohocken, Pa., was built last fall at a cost of $72,000, and is an excellent piece of workmanship. Its supply was pumped from the Schuylkill river, and throughout the past year the town of Conshohocken has been plentifully supplied with water, to the gratification of the citizens. Recently the reservoir was discovered to be empty, and the keeper, in making his morning inspection, discovered that a portion of the embankment had dropped straight downward for 25 feet, and resolved itself into an enormous hole, the sides of which are precipitous rock.

THE VICISSITUDES OF MINING.—It is bad enough for miners to be deluged with cold water; but to be drenched with the hot article is rather trying. This is what recently happened to the Gould & Curry people in California. A large body of hot water was struck in the 1,465 foot level of the Consolidated Virginia mine. From this level a drift extends into the Gould & Curry, with a downward slope, and the water runs into the latter mine. The Gould & Curry pump is a foot in diameter, and it requires its utmost capacity to control the water.