H. ALLEN.

MACHINE FOR INSERTING STOP COCKS.

No. 3,348. Patented Nov. 21, 1843.

Fig: 2.

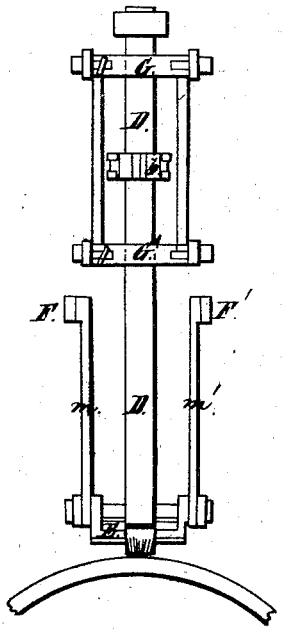


Fig: 1.

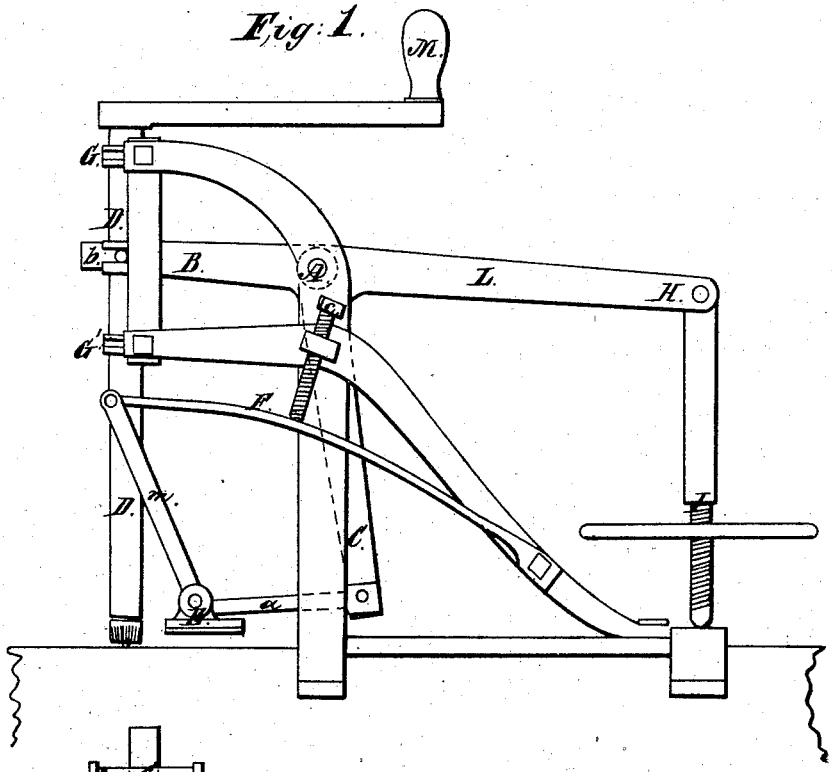


Fig: 3.

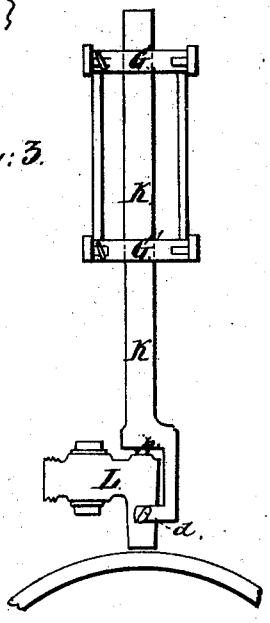
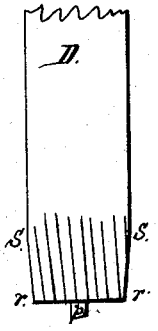


Fig: 4.



UNITED STATES PATENT OFFICE.

HORATIO ALLEN, OF NEW YORK, N. Y.

MACHINE FOR TAPPING AND INSERTING STOP-COCKS IN PIPES UNDER HYDROSTATIC PRESSURE.

Specification forming part of Letters Patent No. **3,348**, dated November 21, 1843.

To all whom it may concern:

Be it known that I, HORATIO ALLEN, of the city and county of New York, have invented a new and useful machine called, "A Machine for Inserting Stop-Cocks," of which the following is a full and exact description.

Whenever vessels containing fluids have heretofore been tapped to insert a faucet or cock, it has been usual to perform the following operation: To bore the hole, to withdraw the gimlet or auger suddenly, and immediately cover the hole with the thumb. Then, having laid aside the tool used for boring, to take up the faucet or cock, and, holding it over the thumb which covers the hole, suddenly to uncover the hole, and immediately to introduce or insert the faucet or cock. These operations, heretofore performed separately and by hand, I have contrived a machine to perform in which a combined movement of its parts insures the accuracy, the rapidity of change, rise of stopper and force with which the stopper is kept down, that are necessary in tapping water-pipes containing water under great pressure. This combination consists, essentially, in connecting with a common shaft two levers, one of which forces down or raises the drill, the other of which carries forward or removes the stopper which is to cover the hole, the parts being so proportioned that as the drill leaves the hole the stopper is forced over it, while suitable side openings keep the stopper down.

Figure 1 is a side view, and Fig. 2 a front view, of the combination.

A is the shaft, supported by a suitable frame in a horizontal position, six to ten inches above the surface of the pipe. To this shaft is attached the horizontal lever B, the forked end of which receives the coupling *b*, which incloses and carries the drill D, but in which the drill is free to turn.

D is the drill, having a cutter and reamer at the lower end, and to the upper end of which the handle to turn it is attached. G G′ are the guides through which the drill passes. These guides are formed of two pieces, one of which is attached to the frame, and the other is connected to the first by a hinge. A suitable cavity, half out of each piece, receives the drill and guides it.

L is a lever attached to the same shaft A. At the end H is fastened on a joint one end of a female screw, into which enters the male screw I. The lower end of the male screw rests on the frame. By running the screw out the end H will be raised, and consequently the end of the lever B will be depressed, and the drill thus made to perform its office. Thus far it is a mere drilling apparatus. Now to the same shaft A is also attached a lever, C, which extends downward toward the surface of the pipe. At the end of this lever is attached a link, *a*. E is the stopper by which the hole drilled is to be covered. The under side of this stopper is covered with an elastic substance. This stopper is connected with the end of the lever C by the link *a*. Whatever movement, therefore, the end of the lever C has the stopper E has the same movement. To keep this stopper down when over the hole, two side springs, F F′, (one on each side of the frame,) are fastened to the frame. To the end of each spring, which is free to move, and which is opposite the drill, is attached a link, *m*, and to the lower ends of these links *m m′* is attached the stopper E. A set-screw, *c*, on each side gives any required tension to the springs.

The lower end of the drill is formed, as shown in the enlarged drawings, Fig. 4. *n* is the cutter. From *r* to *s* is the reamer, being of a conical shape to form the hole suitably for the reception of the stop-cock. The cuts on the conical surface are sufficiently deep to allow the water partially to escape, and thereby free the hole of its borings, but not sufficiently large to allow an escape of water that will inconvenience the operator.

Fig. 3: K is the shaft which carries the stop-cock L. The lower part of the shaft is formed to receive the stop-cock, and by a projecting point, *p*, which enters a center punch-cavity on the top of the shank of the stop-cock, and a set-screw, *d*, the cock is fastened in a position which places the axis of the shank on the same line with the axis of the shaft above.

The mode of using this machine is as follows: The drill, being in the guides, is turned by the handle M, and is forced down by running out the screw I. The hole being drilled and reamed, the screw I is turned up out of the way. The end H is then suddenly depressed, and as suddenly the end of the lever carrying the drill is raised, and with it the drill is raised. At the same time the end of

the lever C is forced toward the drill, and thereby the stopper is carried toward the hole until it is placed over the hole. The proportion of parts must be such that as the drill is raised and the stopper brought toward it by one motion, the drill will just keep out of the way of the stopper. The drill being taken out of the hole drilled, and the hole being covered by the stopper, the drill can be removed out of the guides by opening them. The shaft in which the stop-cock has been secured, as above described, must then be substituted in the guides for the drill, which being done, the lower part of the shank of the stop-cock will be in the place previously occupied by the drill. This change being made, the end H must be raised, and all the movements just described will be reversed—viz., the end of the lever E will recede from the hole, and thereby the stopper will be removed. At the same time the end of the lever B will be depressed, and thereby the lower end of the shank of the stop-cock will be forced into the hole. In practice the interval of time required for these changes is so short that a flask of water is all that escapes.

What I claim is—

The combination of the lever H B, which operates the drill-stock D or stop-cock shaft K, with the lever C and stopper E, as herein described, whereby the removal of the drill and the rapid and secure covering of the hole is effected by one operation, and in a similar manner, by a single reverse movement, the hole is uncovered and the cork inserted.

HORATIO ALLEN.

Signed in our presence:
C. E. DETMOLD,
ANDW. H. GREEN.