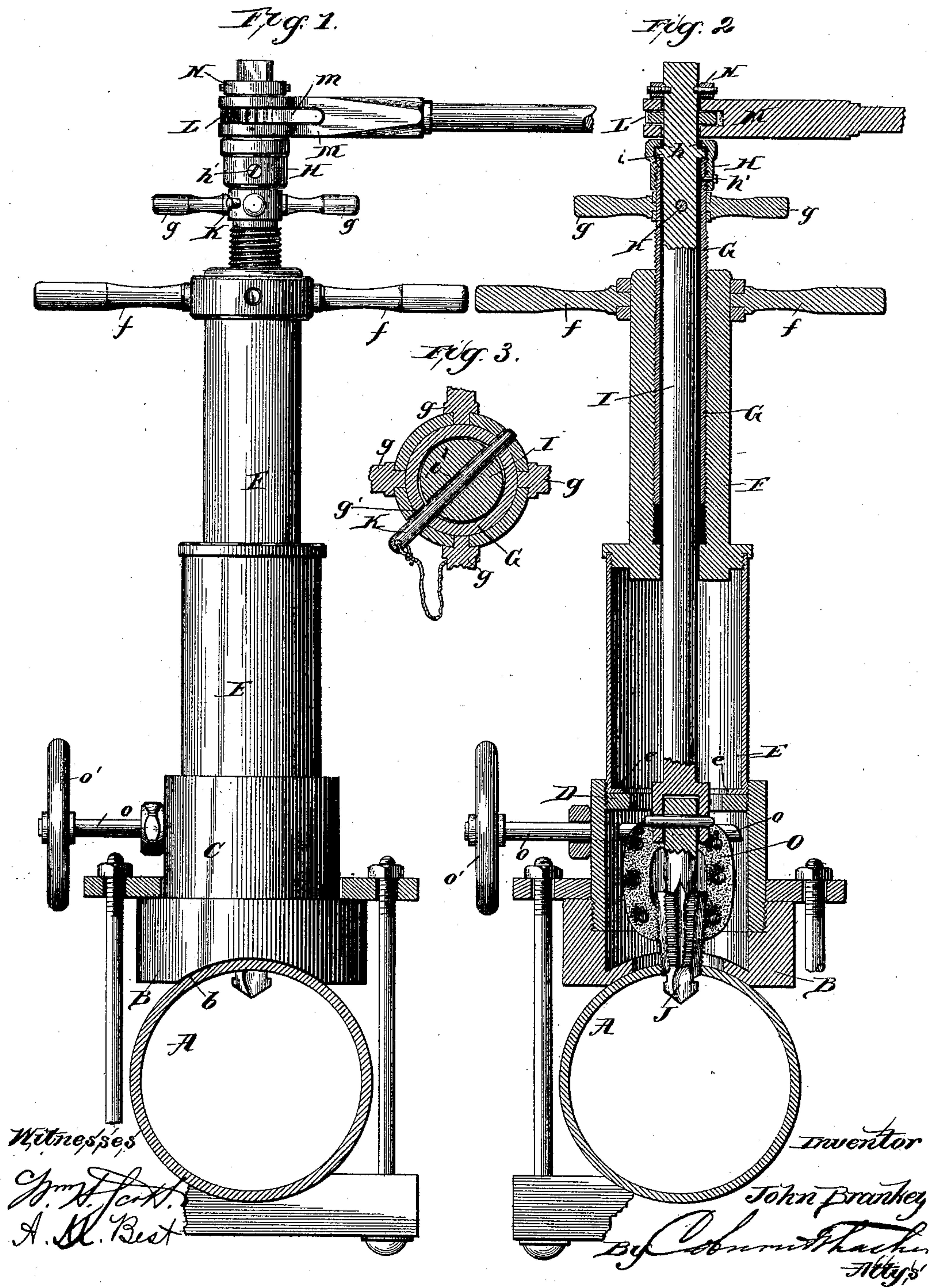


(No Model.)

J. BRANKEY.
MACHINE FOR TAPPING MAINS.

No. 447,001.

Patented Feb. 24, 1891.



UNITED STATES PATENT OFFICE.

JOHN BRANKEY, OF LEMONT, ILLINOIS.

MACHINE FOR TAPPING MAINS.

SPECIFICATION forming part of Letters Patent No. 447,001, dated February 24, 1891.

Application filed October 22, 1889. Serial No. 327,775. (No model.)

To all whom it may concern:

Be it known that I, JOHN BRANKEY, a citizen of the United States, residing at Lemont, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Tapping Mains, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents an elevation of a tapping-machine embodying my improvements; Fig. 2, a vertical section of the same, and Fig. 3 a plan section taken on the line 1 1 of Fig. 2 and on an enlarged scale.

My invention relates to machines for tapping mains of all kinds without disturbing them in position.

The invention relates to certain improvements in the operative devices of machines of this description, as will be hereinafter pointed out.

I will describe in detail the construction and operation of a machine in which I have practically embodied my improvements, and will then point out definitely in claims the special improvements which I believe to be new and desire to secure by Letters Patent.

In the drawings, A represents the main, and B a cylindrical hollow base or support, the bottom of which is concave to fit the main, and has an opening *b* through it. The upper edge of this support is internally threaded to accommodate the lower section or chamber C of the tapper, which has an external thread upon its lower edge adapted to connect with the base, and an internal thread at its upper edge, as seen in Fig. 2 of the drawings. A ring D, externally threaded, is fitted in the upper portion of the section C, and above it is fitted to the same section the upper chamber or section E of the tapper, this section being cylindrical and having an external thread at its lower end for the purpose of making the connection with the section below, and also provided at this end with an inwardly-projecting horizontal flange *e*, which is seated on the ring. The head F is secured to the upper end of this section by a threaded connection, as seen in Fig. 2 of the drawings. This head is tubular and is threaded internally; it is also provided with handles *f* projecting from its upper end. A feed-tube G is

threaded externally and adapted to be fitted into the tubular portion of the head F, the pitch of the screw-threads in the two parts being the same as the pitch of the threads on the screw-threaded portion of the tap below. Above this threaded portion of the tube are handles *g*; but the tube projects a little distance above the handles, and this upper end is suitably threaded to provide for the attachment of a cap H, which is internally threaded to fit upon this extreme upper end of the feed-tube and is slightly enlarged in its upper portion above the end of the tube. The cap is perforated, the opening being the same size as the opening of the feed-tube; and hence, because of the enlargement of the cap heretofore mentioned, there will be an inward flange *h* at the top of the cap, so that when the latter is screwed upon the upper end of the feed-tube there will be an annular space between this flange and the top of the tube, as seen in Fig. 2 of the drawings. A set-screw *h'* is also passed through this cap into the feed-tube, so as to prevent the former from turning when it is once fixed in position. The drill rod or shaft I is fitted within the feed-tube passes down through the lower end of the head F, where a suitable stuffing-box is provided, and thence through the chambers below, and the tap or drill J is fastened in any suitable manner to its lower end. A collar *i* is provided on this shaft near its upper end, which is somewhat larger than the opening in the feed-tube and the top of the cap H. When the drill-rod is placed in position, this collar will therefore rest on the upper end of the feed-tube, and the cap H being then slipped over the extreme upper end of the drill-rod and turned into place upon the upper end of the feed-tube, the flange in the cap will be drawn down upon the upper face of the collar on the drill-rod. It will be seen, therefore, that the drill-rod must move lengthwise with the feed-tube. The drill-rod is also perforated horizontally at some convenient place, the aperture *i'* being shown in the drawings in about the same plane as the handles on the tube. Apertures *g'* are made in the feed-tube to correspond with the aperture in the drill-rod, being arranged between the handles of the feed-tube, as shown in the drawings. A pin K is provided, which is fit-

ted to these apertures in the feed-tube and drill-rod, and by passing it through them, as shown in Fig. 3 of the drawings, it is evident that the drill-rod and tube will be fastened together, so that the turning of the drill-rod will also turn the feed-tube and so effect the proper feed of the drill automatically, as the threads of the feed and of the tap are of the same pitch, as stated above.

10 A ratchet-wheel L is fixed upon the upper end of the drill-rod, and a ratchet-lever M is mounted in the usual way on the drill-rod, so as to be free to turn upon it and arranged so that the pawl *m* will engage with the ratchet-teeth, this being an ordinary device for turning the tap in this kind of machine. The ratchet-lever is held in place by any suitable device, and, as shown in the drawings, a collar N is fastened to the upper end of the drill-rod just above the ratchet-lever, and the latter is located between this collar and the top of the cap.

In the lower tubular section of the machine there is a swinging valve O, which is fastened to a horizontal shaft *o*, mounted just below the ring D, and provided with a hand-wheel *o'*, or any other suitable device on its outer end outside of the section, so that the shaft may be oscillated to open or close the valve from the exterior of the machine. This valve is adapted to close the opening in the ring above, so that when thrown up into place no fluid can escape into the tubular chamber above.

35 In working this machine the operation is as follows: The machine is first fastened to the main in any of the ordinary ways. There are several well-known devices for this purpose, and there is no necessity of a special description here. All the parts are of course mounted in place and secured together as above described, except that at first the drill-rod and feed-tube are not fastened together by the pin mentioned above. The drill-rod is then rotated by means of the ratchet-lever, the required feed being effected by turning the feed-tube by hand through the handles attached thereto until the drill has cut through the main. Then, for the further boring of the main the feed may be more rapid; and the drill-rod and feed-tube are fastened together by the pin, as already described, and the further working of the ratchet-lever will then not only turn the drill-rod but also the feed-tube with it, thereby effecting the proper feed automatically and by the same device that turns the drill-rod. The operation of the other parts of the machine are the same as usual. When the boring of the main is completed, the drill is withdrawn by turning the feed-tube in the proper direction, and when drawn up into the upper tubular portion E the valve O is closed to prevent the flow of fluid into this chamber. The handles on the head F are for the purpose of readily adjusting the several sections of the machine into proper position and fastening them to-

gether by their several screw-threads. Some device other than the cap may be provided for fastening the drill-rod to the feed-tube lengthwise, and some other device may be substituted for the pin for connecting these two parts together, so that they will turn together. Hence I do not wish to be understood as limiting myself in all respects to the particular devices herein shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for tapping mains, the tubular head F, internally threaded, in combination with the feed-tube G, externally threaded to fit the head F, the drill-rod I, inserted in the feed-tube and provided with a collar *i* just above the upper end of the latter and extending over the same, and the screw-cap H, secured upon the upper end of the feed-tube and fitting upon the upper face of the collar on the drill-rod, whereby the latter is secured to the feed-tube so as to be moved both up and down by the movement of said tube, substantially as and for the purposes specified.

2. In a machine for tapping mains, the tubular head F, internally threaded at a pitch the same as the threads on the tap, in combination with the feed-tube G, externally threaded at the same pitch to fit said head, and provided with a lever for rotating it, and a device whereby the said tube and drill-rod may be connected and disconnected at pleasure, whereby the drill-rod may be either rotated independently of the feed-tube or connected thereto and rotated with said tube, substantially as and for the purposes specified.

3. The tubular head F, internally threaded, in combination with the feed-tube G, externally threaded, the drill-rod I, tap J, threaded at a pitch the same as the feed-tube, and the pin K, adapted to pass through suitable apertures in said tube and rod, whereby they may be fastened together or disconnected at will, substantially as and for the purposes specified.

4. In a machine for tapping mains, the tubular section C, internally threaded at its upper end, in combination with the threaded ring D, fitted to the interior thereof, and the upper tubular section E, threaded at its lower end and provided with an inwardly-projecting flange *e*, whereby it is seated on the said ring, substantially as and for the purposes specified.

5. The tubular section C, in combination with the threaded ring D, the upper tubular section E, and the valve O, adapted to be closed upon the under side of said ring, substantially as and for the purposes specified.

JOHN BRANKEY.

Witnesses:

A. M. BEST,
H. D. HOLLISTER.