

No. 622,399.

Patented Apr. 4, 1899.

G. SHELLEY.

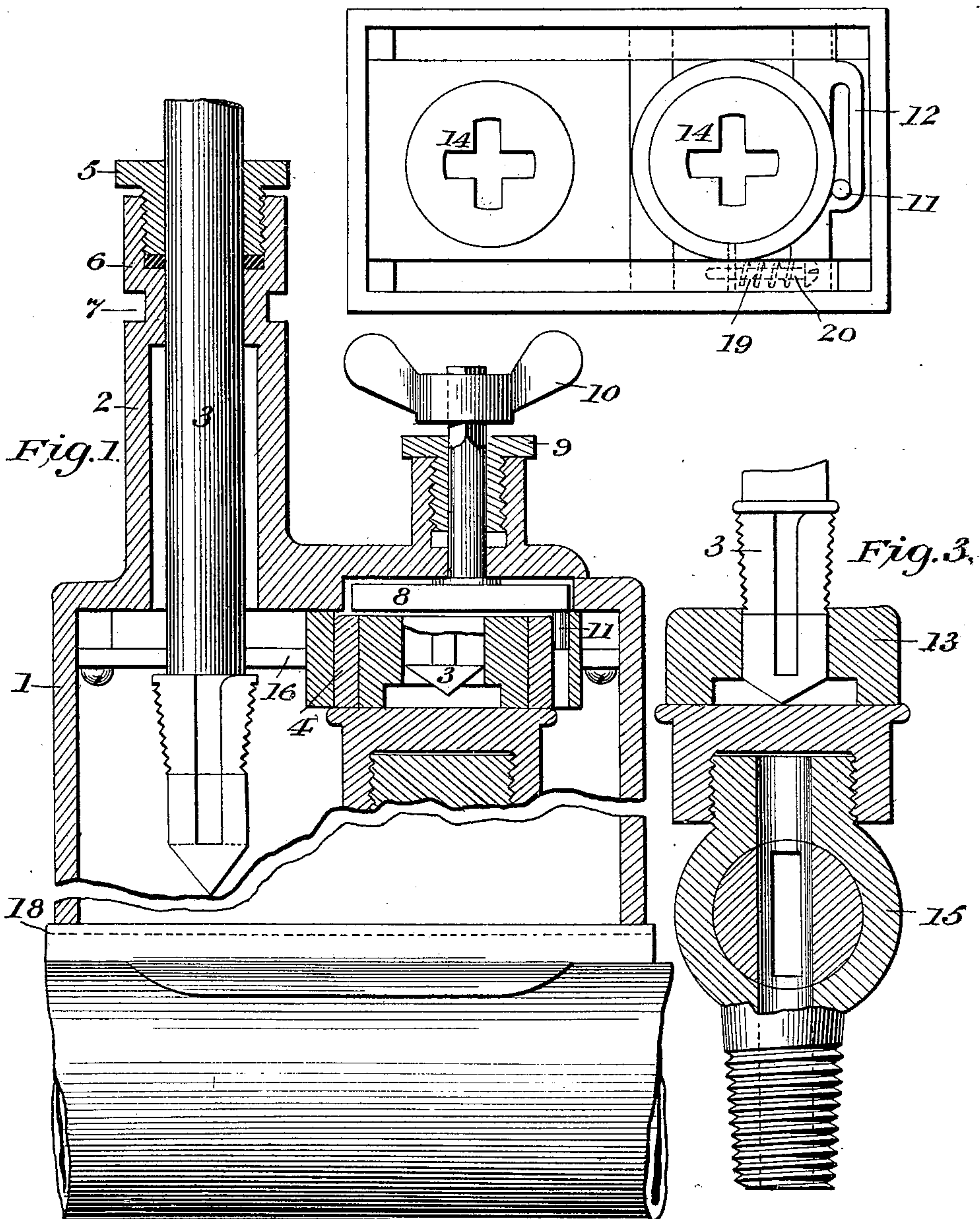
MACHINE FOR TAPPING WATER OR GAS MAINS.

(Application filed May 4, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.



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Fig. 5.

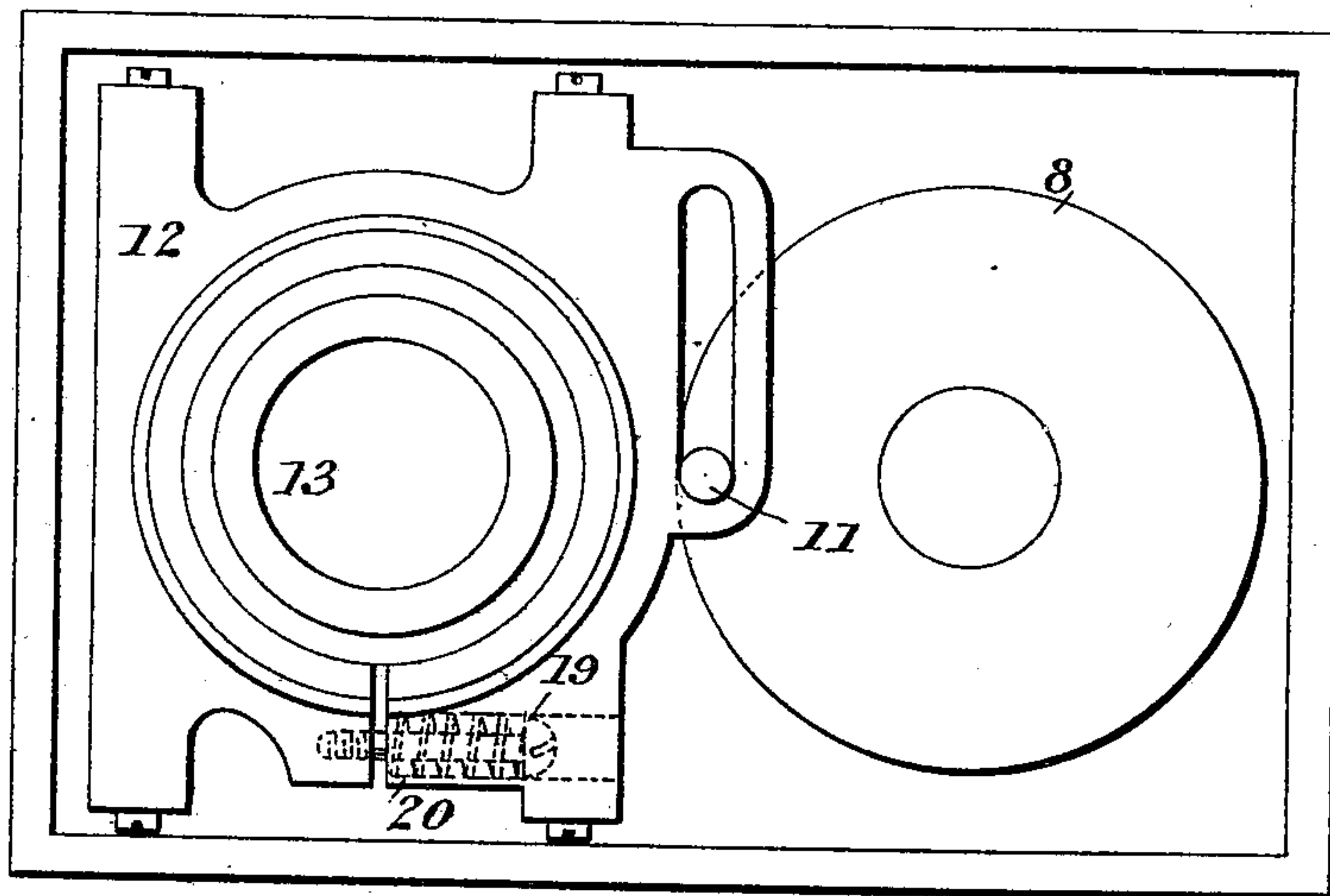
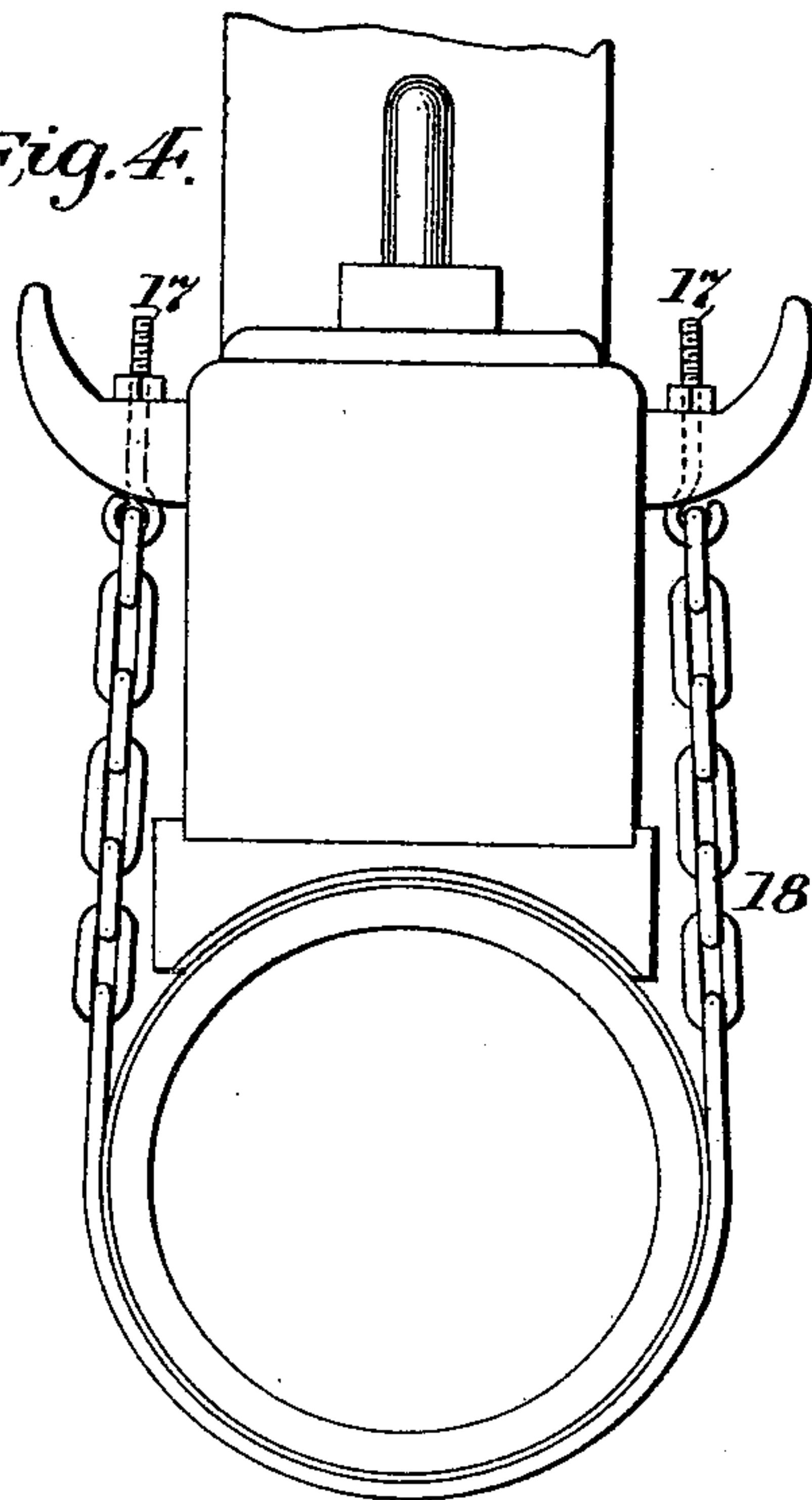


Fig. 4.



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MACHINE FOR TAPPING WATER OR GAS MAINS.

SPECIFICATION forming part of Letters Patent No. 622,399, dated April 4, 1899.

Application filed May 4, 1898. Serial No. 679,726. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SHELLEY, a citizen of the United States, and a resident of Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Tapping Water or Gas Main Pipes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable other persons skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to machines used in tapping water and gas mains; and its object is to provide more suitable apparatus for doing the same by the least loss of water or gas during the operation and by so constructing the carrier as to be free from pressure during the operation of tapping.

The invention consists in a novel construction of the device used in conveying the corporation stop-cock within the chamber from one side to immediately under the drill, which is used to screw the said stop-cock into the main pipe after being drilled, also providing a means for holding the stop-cock firmly in place by means of said movable device, while admitting its easy removal therefrom when desired.

In the drawings, Figure 1 is a longitudinal sectional side elevation cutting the machine in the middle thereof. Fig. 2 shows a view from the top, supposing the upper portion of chamber removed. Fig. 3 is a half-sectional view showing corporation stop-cock, the socket portion of the carrying device, and the fluted and threaded lower end of the tapping-drill inserted into the same. Fig. 4 is an end elevation of the machine placed upon the water or gas main and chained thereto, as used in tapping, except the portion holding the drill, which is not shown. Fig. 5 is a view of the shifting device, looking into the chamber from the bottom side.

In Fig. 1, 1 is the metal box or chamber inclosing all the parts necessary to the machine on a line cutting it exactly in the middle thereof. A large stem or sleeve 2 is a part of the same extending upward and holding the drill 3, which is formed into a right-angled

fluted and threaded bottom end, provided with lips to form the cutters for drilling the holes. The drill thus fluted is threaded only a part of the way, which allows it to be used upon and within the head of the carrier 4 when needed to screw the stop-cock into the pipe after it has been drilled. At the top of said long stem or sleeve is a stuffing-box 5, which is threaded and screwed into it and has a packing 6, which is made to press against the stem of the drill 3 and prevent the loss of water or gas while being used. Near the upper end of said sleeve or stem a recess 7 is formed for the purpose of holding a yoke and the usual attachments necessary to operate the drill, fully explained in my former patent and not shown here for the reason that it is a device common to most drilling-machines. (See Patent No. 585,124 of June 22, 1897.)

Within the chamber 1 and at the right-hand side is placed a circular disk 8, having a rigid stem passing upward through a sleeve or projection forming a part of the chamber 1 and having a threaded packing 9. The disk 8 is turned off, forming a recess between itself and the inner side of chamber 1 to admit the fluid and its pressure on all sides except a small portion near its stem, where it is forced against the said upper part, as shown. The disk is turned by means of a thumb-lever 10, which will move it under pressure, owing to the fact that the water or gas is thereby permitted to bear upon all sides of the said disk nearly equally.

From the edge of the circular disk 8 a pin 11 passes into a slot of the movable frame 12. (More fully seen in Fig. 5.) Within this frame 12 is secured the head of the carrier 13, which has a doubled or single slot 14, formed to admit the fluted portion of the drill-bottom 3. This carrier is provided with a threaded bottom to admit and secure the stop-cock 15.

Within chamber 1 at each corner is a metal projection, upon which the guides 16 are secured by means of screws, which guides allow the carrying device to move, holding it in place and preventing the stop-cock from getting out of position. Figs. 2 and 5 illustrate the operation more fully.

In order to bore and tap a pipe, the contact must be gas and water tight as well as rigid. Upon the chamber 1, at both sides, are cast

lugs. (Shown on Fig. 4.) A chain is passed around the pipe to be tapped, or it may be partly chain and partly a steel strap, as seen, having bolts 17 passing upward through said lugs. The proper link of the chain is adjusted to suit the length required and is hooked into the bolt 17, which may be tightened by means of the nuts, and thus rigidly secured to the pipe to be bored. Upon the pipe is placed a curved plate 18, resting upon a packing and having a projecting rim on its upper side, also for the placing of similar packing between it and the chamber 1.

Fig. 5 more fully shows the device for holding and conveying the carrier and stop-cock into alinement with the drill during the operation of tapping the pipe. Looking into the bottom of chamber 1 we see a circular disk 8, having a pin 11 and slot of movable frame 12, which holds the carrier 13 and stop-cock 15 in place. The carrier-frame, Fig. 5, is made by cutting it longitudinally to allow it to spring and enlarge the opening into which the head of carrier is placed, so that when the carrier is made slightly larger than the opening in this frame it will expand and hold it by a sufficient pressure from falling out of place. In order to produce any required amount of pressure upon the carrier-head, this flexible rim is regulated by means of a small spiral spring 19 and screw 20, placed within the rim of frame 12. It is done by drilling a suitable hole into the side for the frame and extending a portion of the threaded screw into the solid portion of frame and placing the spiral spring upon the screw, so as to act in regulating the amount of pressure and preventing an over amount, which might break the frame 12 if too much were allowed. It is not essential that this expansion-regulating device shown in frame should be made with a screw and spring, as a simple pin-bent at one end to a right angle and driven into the frame in place of said screw will answer the same purpose; nor is a spiral or other spring essential, as the elasticity of the frame will cause it to assume its former position when the pressure of the expanding force is removed. Having secured the chamber 1 to the pipe intended to be drilled, and having placed the drill into position and having secured the corporation stop-cock within to the frame and carrier and moved it by means of the disk and thumb-lever to the right-hand side of the machine, the drill may be operated and the hole bored into the pipe and the hole tapped to receive the stop-cock. When the drill is turned out of the hole thus formed, the water or gas will force it up and out of the way to allow the carrier containing the stop-cock to be moved to the left-hand side immediately under and in alinement of the drill and the hole thus tapped. When thus in position, the point of the drill is lowered,

which point will follow into the cross-section or other formed opening of the carrier-head 13 and opening 14 and permit it to be turned in order to screw the stop-cock firmly into the pipe. The frame of the machine is then released from the pipe, and the operation will be found to be complete.

Having thus fully explained the construction and operation of my invention, what I claim as new in tapping-machines, and desire to secure by Letters Patent of the United States, is—

1. In a tapping-machine, a movable frame within a chamber, said frame provided with a flexible rim and regulating device in combination with a disk having a recess upon its upper side and having a projecting stem passing from said chamber to be operated in the manner and for the purposes specified.

2. In a tapping-machine a disk having a projecting stem and a recess upon its upper side, and having a pin upon its lower outer side and provided with a lever in contact with a movable frame in the manner and for the purposes named.

3. In a tapping-machine the combination of a disk having a projecting stem, a turned-out recess upon its upper side in contact within a chamber and having a pin upon its under side in contact within a slot of the movable frame which frame is cut longitudinally and is provided with an expansion-regulating device, the said disk and frame operating in the manner and for the purpose specified.

4. In a tapping-machine a movable frame provided with a flexible rim and regulating device and having a carrying-head, said head having an opening in its upper side composed of a cross-shaped slot and having a threaded recess on its under side, said cross-shaped slot or other suitable opening, holding a tap and drill, in combination with a disk having a recess upon its upper side and a projecting stem from within the chamber in the manner specified.

5. In a tapping-machine a disk having a projecting stem and a recess formed upon its upper side within a chamber having a projecting pin upon its outer edge and provided with a lever in combination with a flexible frame cut longitudinally and having for said flexible frame a regulating device and a slot, said frame having a carrying-head said head having an opening in its upper side composing a cross-shaped slot adapted to receive a cross-shaped drill and tap, and having a threaded recess on its under side holding a corporation stop-cock, all in combination and for the various purposes specified.

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Witnesses:

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