No. 654,269. Patented July 24, 1900.

H. MUELLER.

TAPPING MACHINE.

(Application filed Jan. 20, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

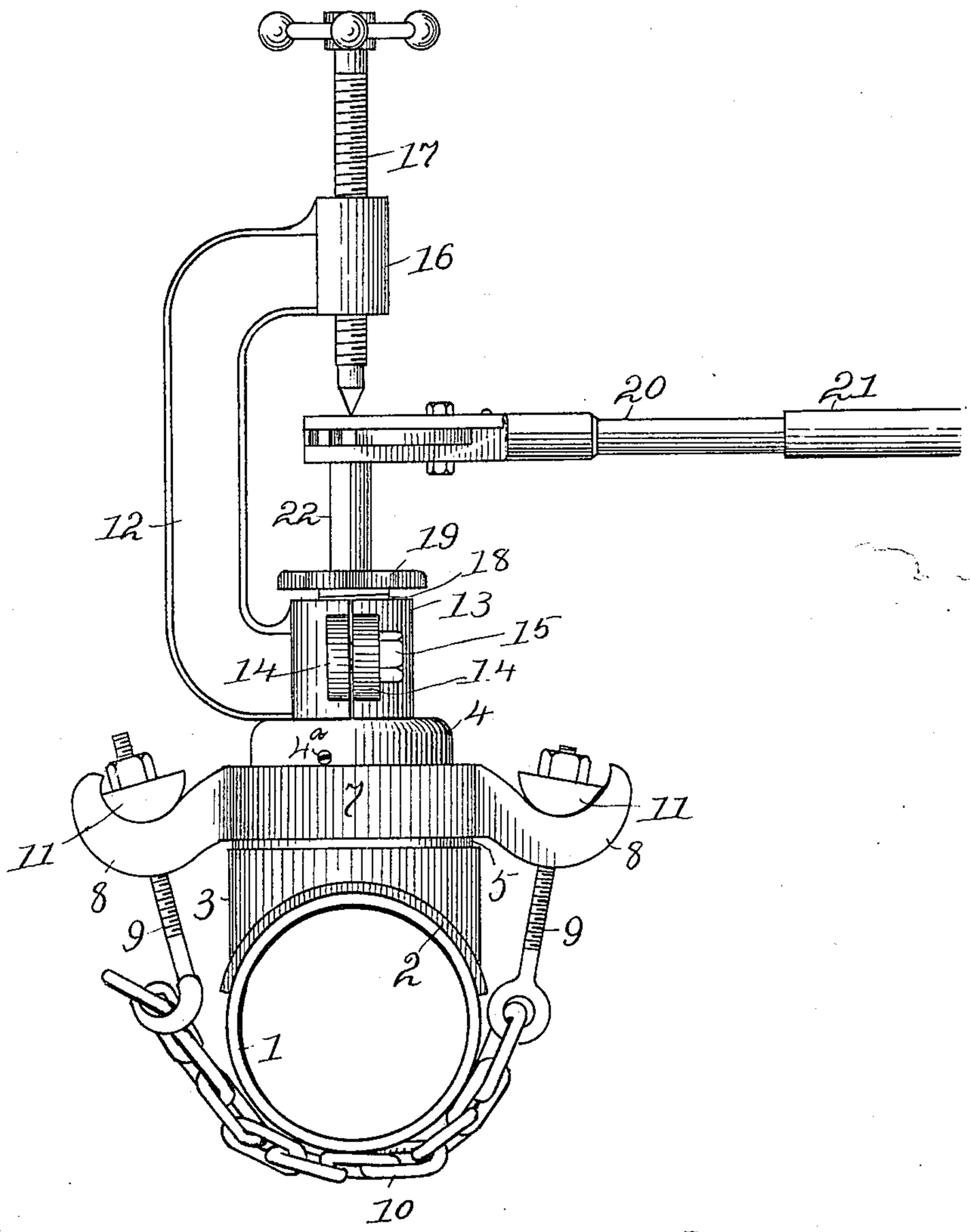

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Fig. 2

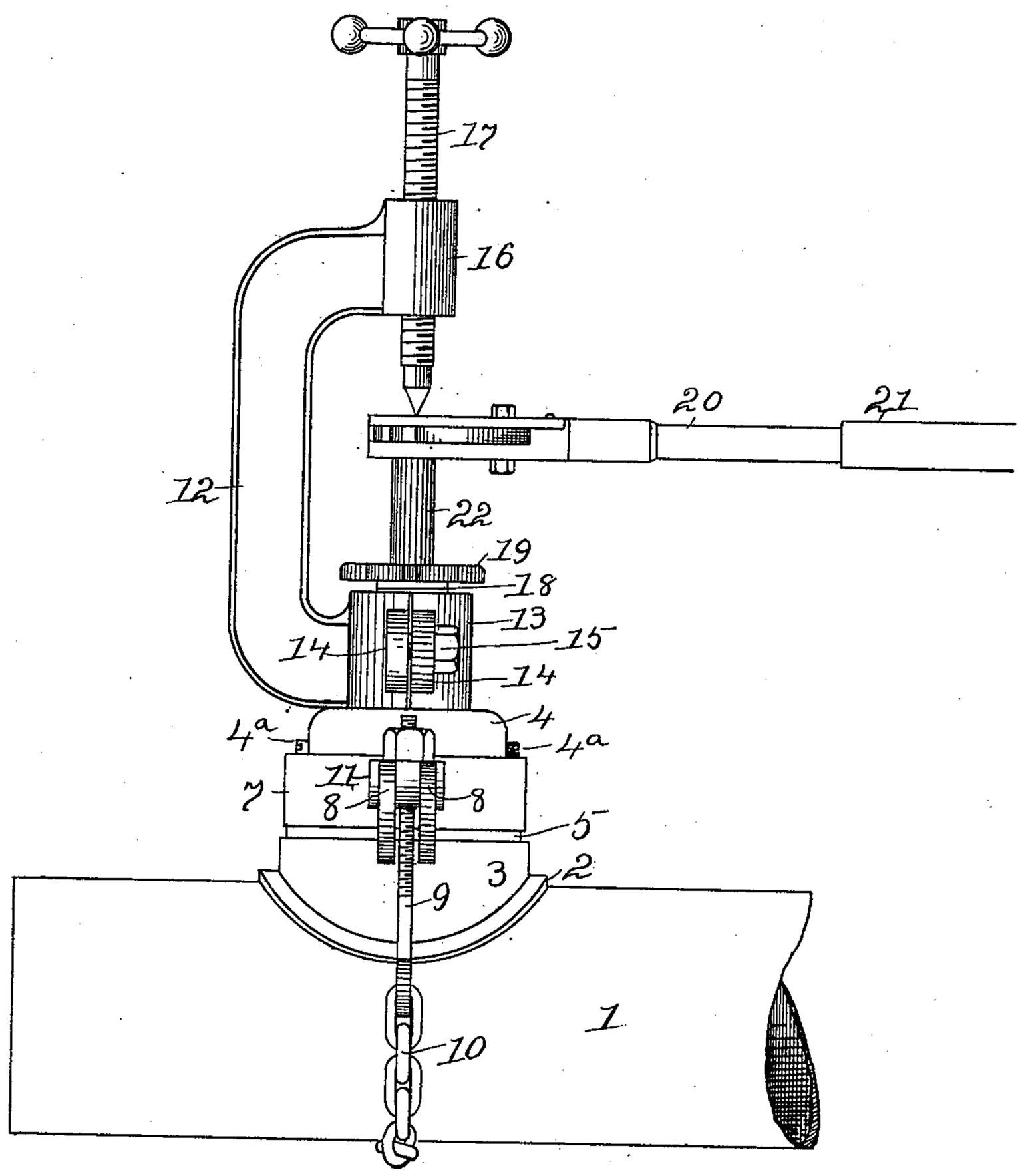

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Fig. 3.

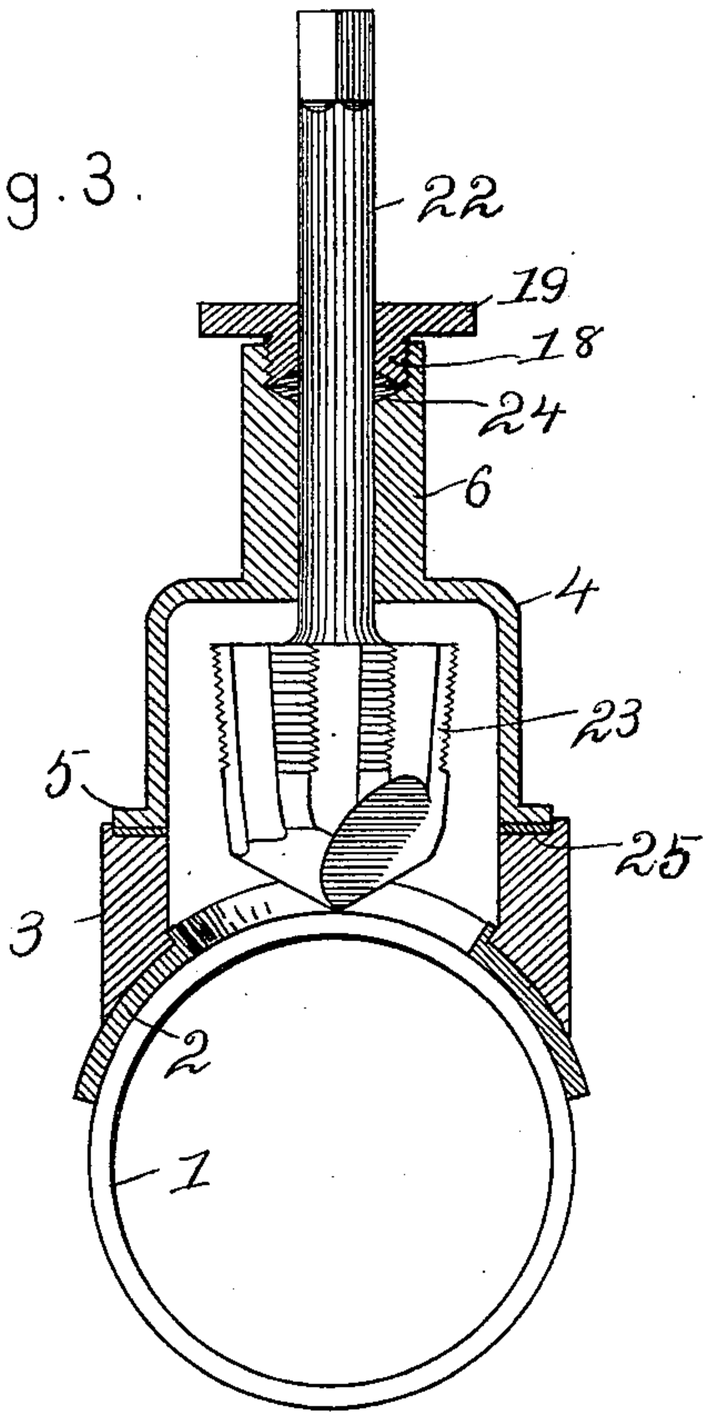


Fig. 4.

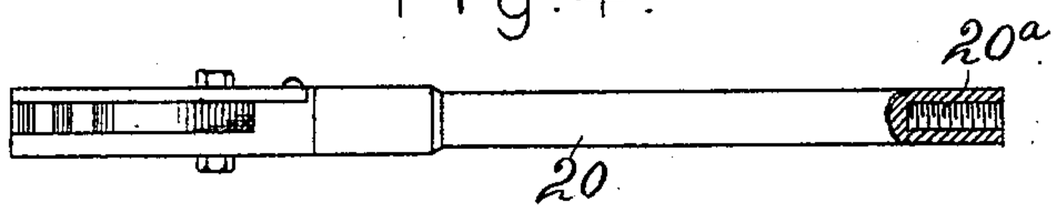
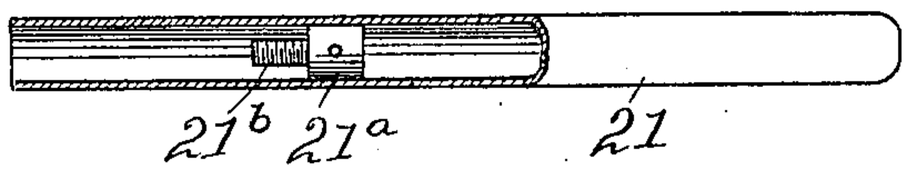


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY MUELLER, OF DECATUR, ILLINOIS.

TAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,269, dated July 24, 1900.

Application filed January 20, 1900. Serial No. 2,219. (No model.)

To all whom it may concern:

Be it known that I, HENRY MUELLER, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Tapping-Machines, of which the following is a specification.

This invention relates to machines for tapping gas-mains containing gas under pressure. It is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is an elevation of my invention as it appears when viewed lengthwise of the pipe with which it is connected. Fig. 2 is an elevation showing the machine as it appears when viewed crosswise of the pipe. Fig. 3 is a central vertical section through the closure-cap in which the tool operates. Fig. 4 is a detail of the ratchet-wrench handle. Fig. 5 is a detail of a detachable extension of the wrench-handle.

A section of pipe is shown at 1. At 2 is shown a gasket-ring fitting against the pipe. A saddle-ring 3 is shaped to conform to the circle described by the exterior of the pipe and it fits against the pipe, with the gasket-ring 2 intervening. A closure-cap 4 is seated in the upper surface of the saddle-ring on a gasket 25, (shown only in Fig. 3,) and such cap has an annular flange 5 on its lower end and a reduced neck 6 on its upper end. A clamp-ring 7 fits over the closure-cap and rests on the flange 5 thereof, and it has forked and hooked extensions 8 on opposite sides. Bolts 9 extend through bearing-blocks 11, which rest in the hooked extensions of the clamp-ring, and they are connected by a chain 10, which passes under the pipe. A gooseneck-arm 12 has on its lower end a split collar 13, which fits over the reduced neck of the closure-cap, and lugs 14 extend laterally from the split ring on opposite sides of the split. A bolt 15 is passed through one lug and screwed into the other, and it provides means for clamping the split ring immovably onto the neck of the closure-cap. On the upper end of the gooseneck is a bored and threaded head 16, the axis of which is coincident with the axis of the split ring, and in the head 16 is a feed-screw 17. The neck 6 of the closure-cap is bored to fit the stem 22 of the tapping-tool 23, and at the upper end of the neck the bore is enlarged to form a recess which is concaved or beveled in its lower end and screw-threaded along its sides. A set-collar 18 is bored to fit the stem of the tool, is exteriorly-threaded to screw into the recess in the upper end of the neck, and is dished in its lower end. For convenience in manipulation the upper end of the set-collar is provided with a hand-wheel 19. A washer 24 encircles the tool-stem and rests in the bottom of the recess in the upper end of the neck of the closure-cap, and such washer is thickest next the tool-stem and gradually reduced outward. The washer may be convexo-convex or reversely beveled, and it may be made in one or more layers.

The feed-screw 17 engages the upper end of the tool-stem in the customary manner, and a ratchet-wrench 20 fits over the tool and provides means for turning it. To provide a wrench-handle of extra length, the handle 20 is bored and threaded in its swinging end, as shown at 20^a in Fig. 4, and a tubular extension 21 is provided interiorly with a screw 21^b, which may be made to engage the threaded recess in the end of the handle 20. The internal diameter of the tube is the same as the external diameter of the handle, or approximately so, a plug 21^a is fastened in the tube some distance from its wide-open end, and the screw 21^b is formed on or fastened in the plug. The tube laps the handle to an extent to make a stiff connection between the two, and the threads of screw and of the recess are protected from damage by their locations when the tube is separated from the handle. The handle 20 may be used in the ordinary way when a tool of moderate size is employed, and whenever extra force is required on the wrench the handle may be lengthened by attaching the tube.

The clamp-ring 7 is preferably held in position on the closure-cap by set-screws 4^a. The screws permit the clamp-ring to turn freely on the cap, but prevent its detachment.

Preparatory to placing a tool-stem in the neck of the closure-cap the set-collar 18 is loosened until the washer 24 is relieved of all

pressure, and after the tool is in place the set-collar is screwed down against the washer until the inclined surfaces compel the washer to press against the tool-stem sufficiently close to form a gas-tight joint.

After the machine is fastened onto the pipe to be tapped the gooseneck is turned on the neck of the closure-cap until it is brought into the position to permit the most convenient swing of the wrench-handle and is then firmly clamped in place by bolt 15. The flange of the closure-cap is right against the saddle-ring, and therefore close to the pipe. The clamp-ring fits against the flange of the closure-cap, its hooked extensions are one directly opposite the other, the chain-hitch is central and low down on the machine, and so the machine is secured firmly to the pipe in a position to best maintain the connection against the strain incident to operating the tool.

The drilling and tapping operation is performed in the usual way and the closure-cap prevents the escape of gas during the operation. The machine is easily attached to the pipe by persons having no special skill in that direction, and it is practically impossible to get any of the parts out of place. The neck of the closure-cap forms a long true bearing for the tool-stem, and the set-collar extends the bearing and increases its efficiency.

I claim—

1. In a tapping-machine the combination of a cap or shell adapted to be secured to a pipe and having a flangeless cylindrical neck that forms a tool-guide, a collar embracing the neck and rotatably adjustable thereon, means for clamping the collar to the neck and a gooseneck extension for the feed-screw rigid with the collar.

2. In a tapping-machine, the combination of a cap or shell adapted to be secured to a pipe and having a flangeless cylindrical neck that forms a tool-guide, a split collar embracing the neck, a bolt for clamping the split collar onto the neck and a gooseneck extension for the feed-screw rigid with the collar.

3. In a tapping-machine, the combination of a cap or shell adapted to be secured to a pipe, such cap having a flange on its lower end and a flangeless cylindrical bored neck on its upper end, a clamp-ring resting on the flange of the cap, a split collar clamped onto the neck and a gooseneck extension for the feed-screw rigid with the collar.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

HENRY MUELLER.

Witnesses:
OSCAR MUELLER,
L. P. GRAHAM.