

(No Model.)

2 Sheets—Sheet 1.

M. P. MADDEN.
DEVICE FOR TAPPING MAINS.

No. 463,524.

Patented Nov. 17, 1891.

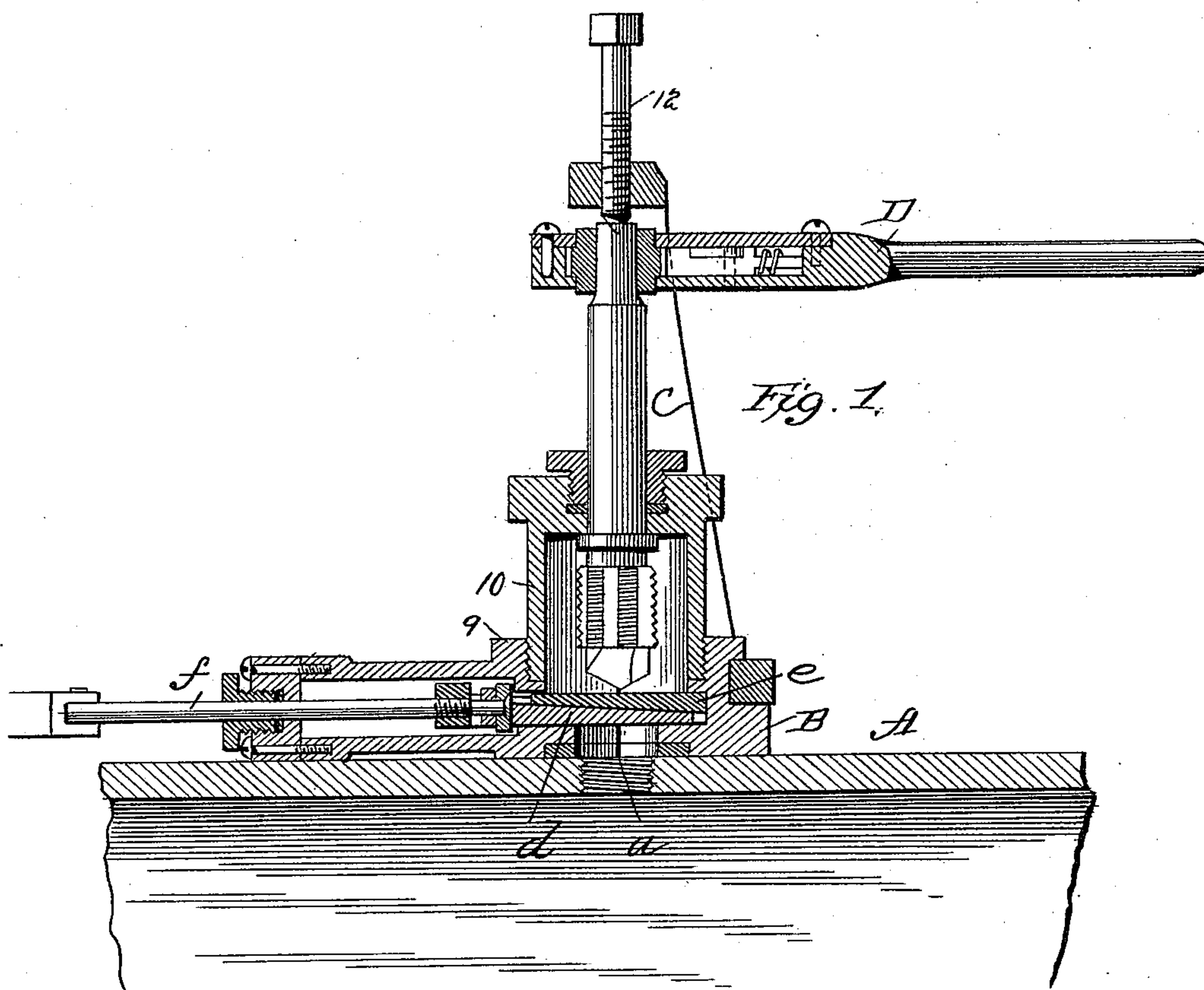
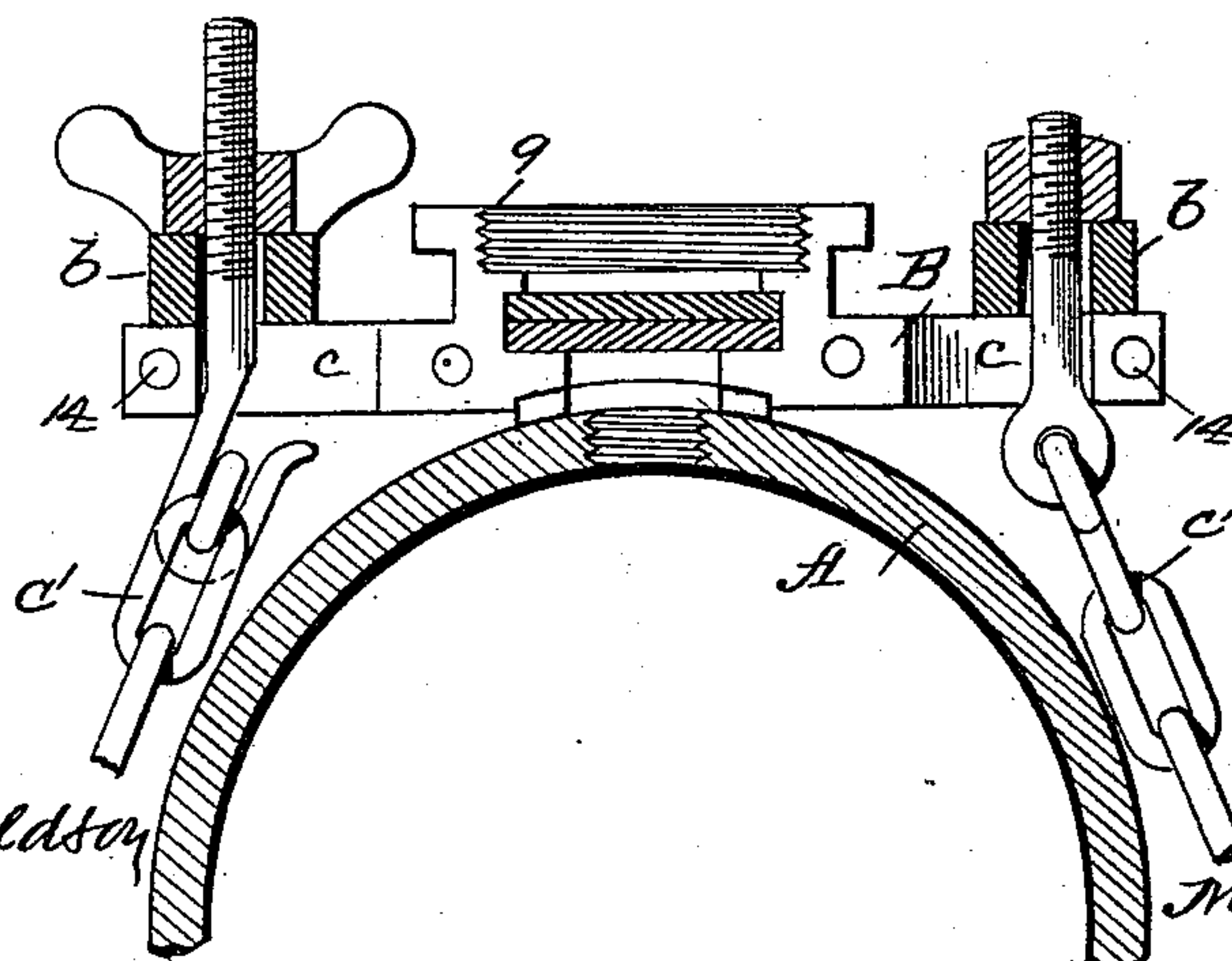


Fig. 2.



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M. P. Madden
J. P. Madden

Inventor
M. P. Madden
by J. P. Madden
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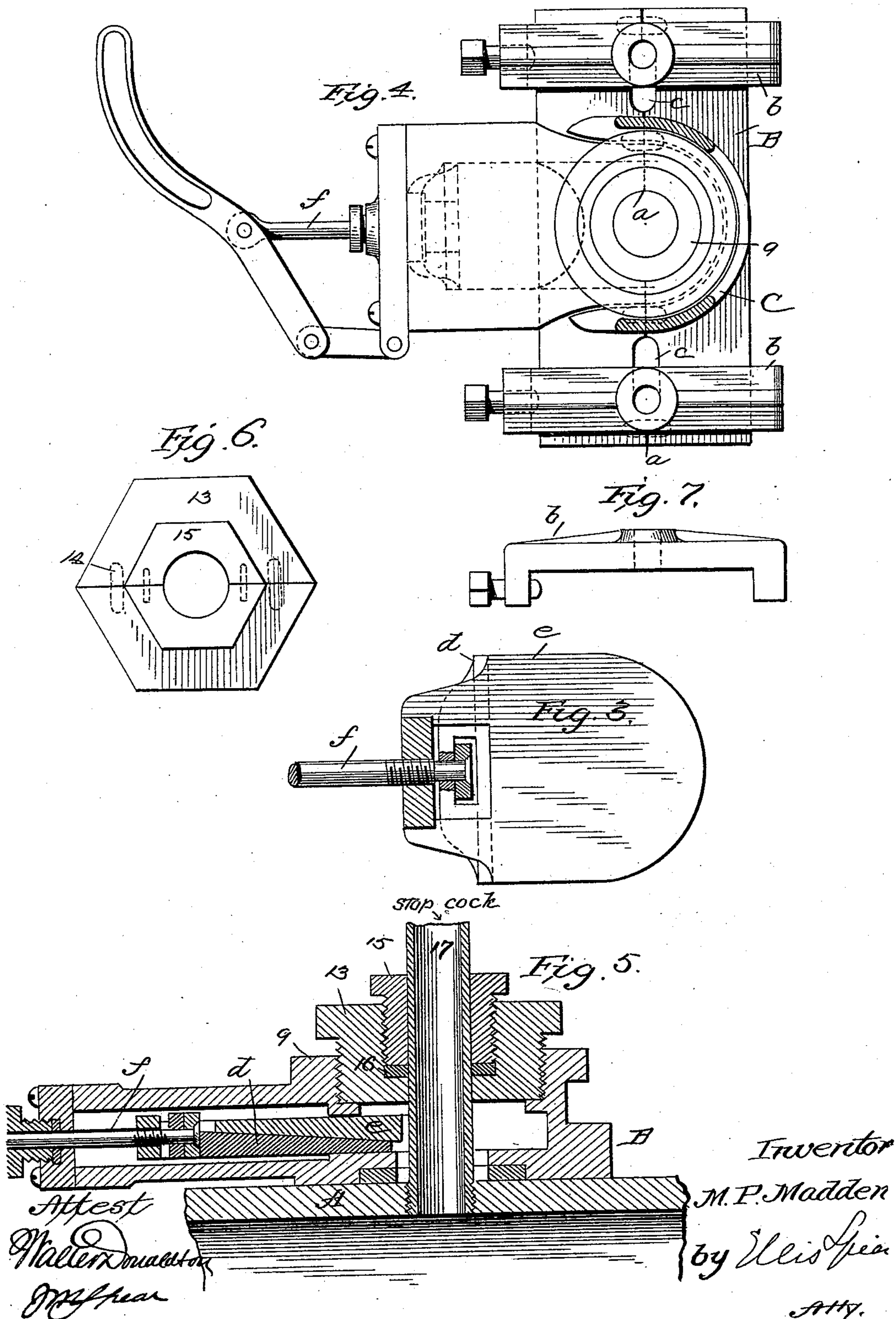
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

MARK P. MADDEN, OF CORONADO, CALIFORNIA.

DEVICE FOR TAPPING MAINS.

SPECIFICATION forming part of Letters Patent No. 463,524, dated November 17, 1891.

Application filed July 17, 1891. Serial No. 399,862. (No model.)

To all whom it may concern:

Be it known that I, MARK P. MADDEN, a citizen of the United States of America, residing at Coronado, in the county of San Diego and State of California, have invented certain new and useful Improvements in Devices for Tapping Mains, of which the following is a specification.

My invention is an improved device for drilling and tapping water-mains; and its principal object is to provide means by which a hole may be drilled through the main and threaded at the same time without requiring the cutting off of the water from the main, and to enable the operator to insert into the opening thus made a service-pipe without undue loss of water.

The invention consists in the devices and combination of devices hereinafter more fully set forth.

In the accompanying drawings, Figure 1 represents in section my device as applied to a main. Fig. 2 is a sectional view taken vertically across the main with a portion of my device in place. Fig. 3 is a detail view of the valve for closing the opening made in the main. Fig. 4 is a plan view, partly in section. Fig. 5 is a sectional view showing the manner of applying the service-pipe to the main. Figs. 6 and 7 are views of details.

In the figures the main is shown at A and the saddle or support for the operating parts of the device at B, this saddle being made in two parts, which separate on the central longitudinal line, as shown at *a*, the two parts being held together by angular clamps *b*. The under face of the saddle about its center is made slightly concave to fit the convex surface of the main. The angular clamps are provided with central openings, which register with slots *c* in the ends of the saddle proper, through which project bolts provided with nuts on their upper ends, their lower ends terminating, respectively, in a hook and eye, which engage with a chain *c'* or other connection passing under the main, and by means of which the saddle is held securely in place upon the main. On the upper face of the saddle a nipple 9 is formed with an opening through the same, this opening being screw-threaded for a part of its length, and into this opening is screwed a cylindrical casing 10,

having a stuffing-box at its upper end, through which passes the drilling-tool. This drilling-tool is supported at its upper end by means of a pressure-screw, which passes through an opening in the upper end of a bracket C, which is forked at its lower end and adapted to fit within a recess formed between the nipple on the saddle and the upper face of the same, so that this bracket is easily removed when desired. The boring-tool is given any amount of pressure by the pressure-screw 12, and it is rotated to penetrate the main by means of a ratchet-lever D, which is fitted to the squared upper part of the tool.

In order to provide for the cutting off of the water through the opening made by the tool, I have provided a valve, which is carried in a chamber secured to or forming a part of the saddle. This chamber opens into the openings extending through the nipple and the saddle, and the valve located within the chamber is adapted to close the opening leading to the main and shut off the flow of water into the casing after the drilling-tool has penetrated the main and been withdrawn from the opening formed thereby. This valve is a compound valve and consists of a lower part *d*, which has a perfectly plain lower face with an inclined upper face, and a part *e*, which has an inclined lower face and a plain upper face. The operating-rod *f* has its end swiveled in the part *d* and is threaded into the overhanging part of the upper valve, so that, while in the horizontal movement of the rod the two parts will slide together, by turning the rod a wedging action may be secured and a very close fit effected. After the opening has been made in the main the pressure-screw is removed from contact with the drilling-tool and this tool is lifted, as it is permitted a limited vertical movement, and as this movement withdraws the tool, as shown in Fig. 1, above the line of movement of the cut-off valve the said valve is then pushed forward and the exit of water from the main prevented. The cylindrical casing containing the drilling-tool is then removed from the nipple, as is also the bracket, leaving the upper part of the saddle free from obstructions. I then screw into the nipple a cap-plate 13, which is divided centrally, the parts being held together by pins 14 upon one half entering openings in the

other half. This cap-plate has a central opening and the opening is reduced near the bottom of the plate, and into the recess on the upper face I screw a washer 15, which holds
5 in place a gasket 16, of rubber or like material, which is provided with an opening conforming to the opening through the washer and cap-plate, but of slightly less diameter, so that the edges of the gasket project slightly
10 into the opening, which forms a packing. The washer is also divided centrally in precisely the same way as the cap-plate. The cap-plate is screwed into place until the division-line in the cap-plate and washer are in line with
15 the division-lines of the saddle. A short section of service-pipe 17, having a cock or valve connected therewith, is then forced down past the rubber packing, which makes a tight fit. The valve is then withdrawn and the service-
20 pipe screwed into the threaded opening in the main. The chain around the main is then loosened and withdrawn, the clamps which hold the parts of the saddle together are removed, and the saddle, cap-plate, and washer
25 separated on a line of their division, leaving the service-pipe in the screw-threaded opening and permitting of the use of the tapping devices in any other situation.

I claim as my invention—

30 1. A tapping device for mains and other pipes, consisting of a supporting-saddle, a boring-tool carried thereby, a ratchet for operating the boring-tool, and a valve for closing the opening between the casing and the main,
35 said valve being composed of two parts adapted to move together horizontally and having a wedging action in relation to each other, substantially as described.

2. In combination with a supporting-saddle,

a cylindrical casing carried thereby, a vertically-movable boring-tool in said casing, and a valve between said casing and the main, substantially as described.

3. In combination with a supporting-saddle, suitable boring devices, and a valve consisting of two parts, with a single rod or stem for imparting to said valve a sliding movement and a wedging action in relation to each other, substantially as described.

4. In combination with a supporting-saddle 50 having a threaded nipple, and a cap-plate adapted to replace the boring devices, said saddle and cap-plate being divided centrally and adapted to be used in connection with a pipe inserted through the cap-plate into the opening made in the main, substantially as described.

5. In combination with the divided saddle, a valve carried by one part thereof, a divided cap-plate adapted to be secured to the saddle 60 above the line of the valve, and a gasket carried by the cap-plate and extending within the line of its central opening, substantially as described.

6. In combination with a divided saddle, 65 clamps for holding the divisions together, an extension on one part carrying a valve, a divided cap-plate fitted to a nipple forming a part of the saddle, a gasket, and a divided washer for securing the gasket in place, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

M. P. MADDEN.

Witnesses:

WM. WORDIE,
JAMES THOMSON.