(No Model.) 2 Sheets—Sheet 1.

W. S. PAYNE.

MACHINE FOR TAPPING MAINS.

No. 478,711. Patented July 12, 1892.

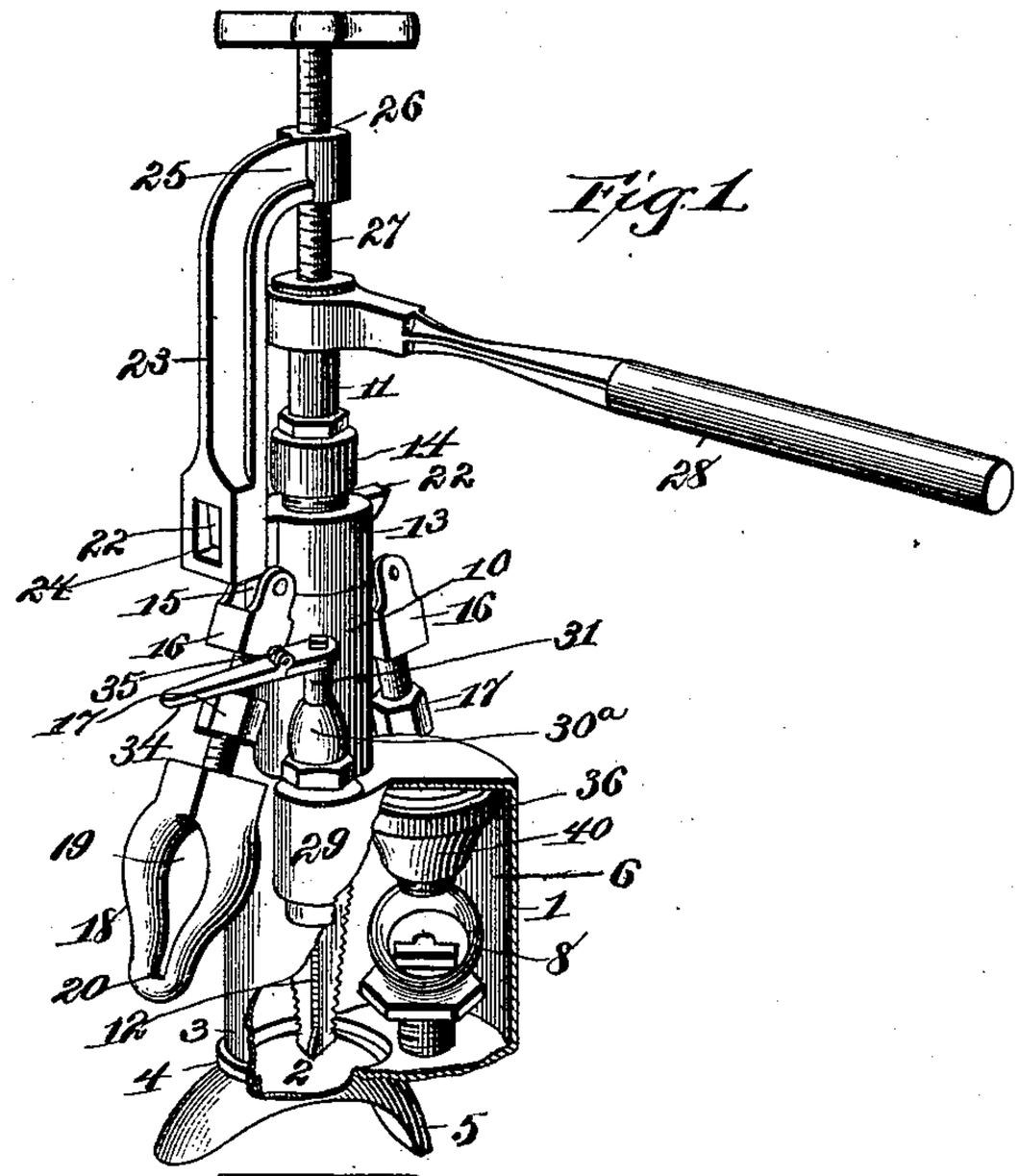

Fig. 1

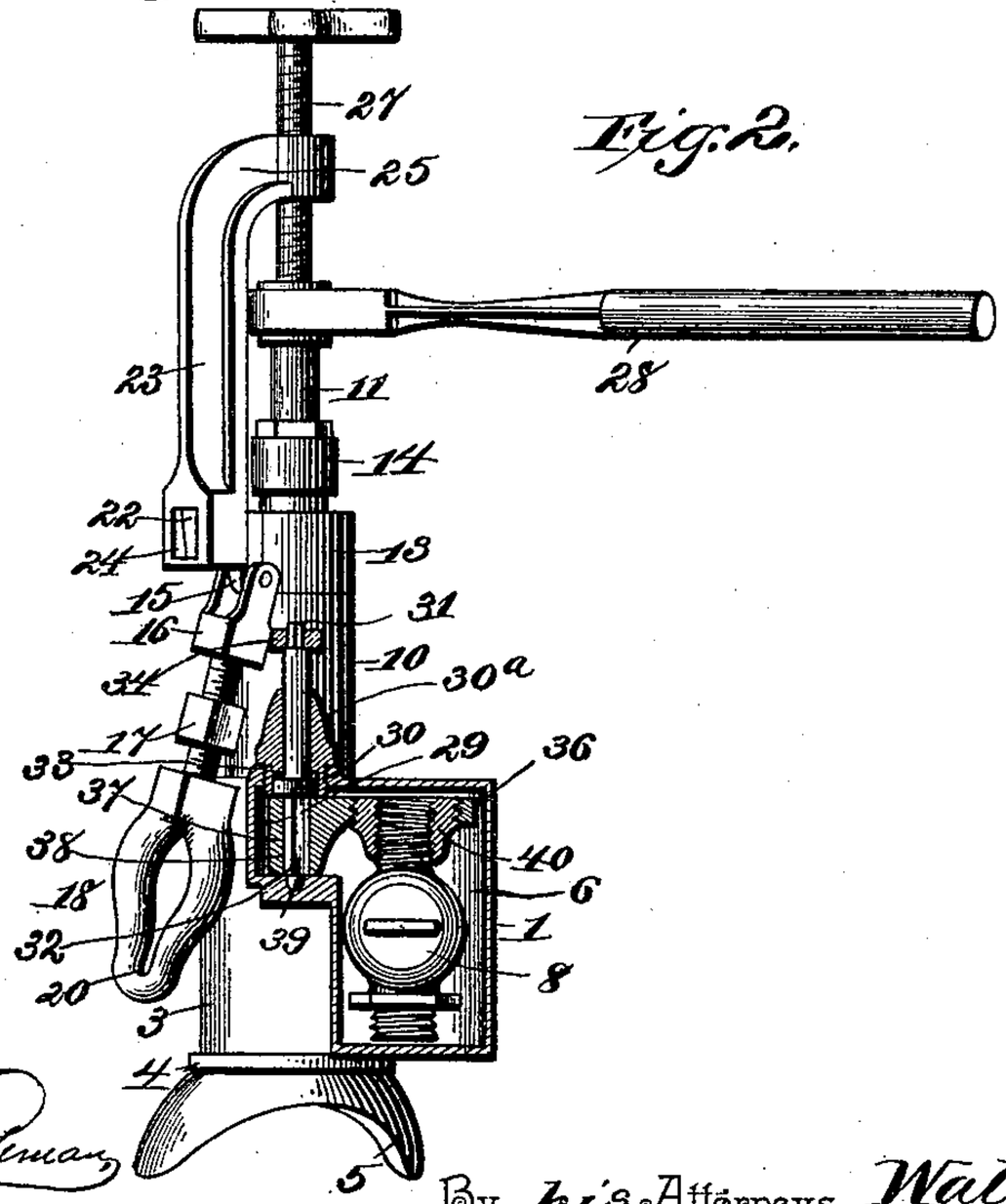

Fig. 2.

Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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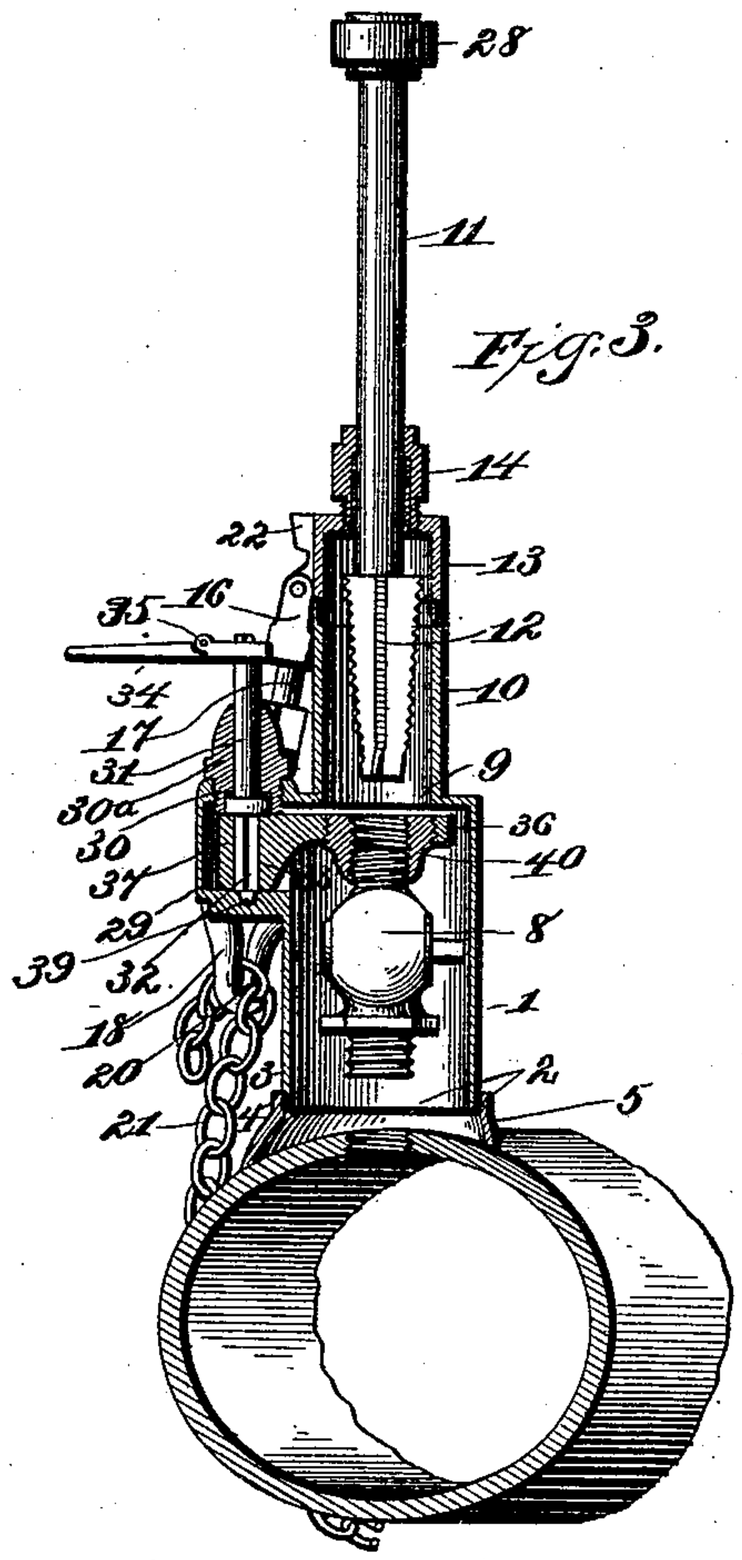

Fig. 3.

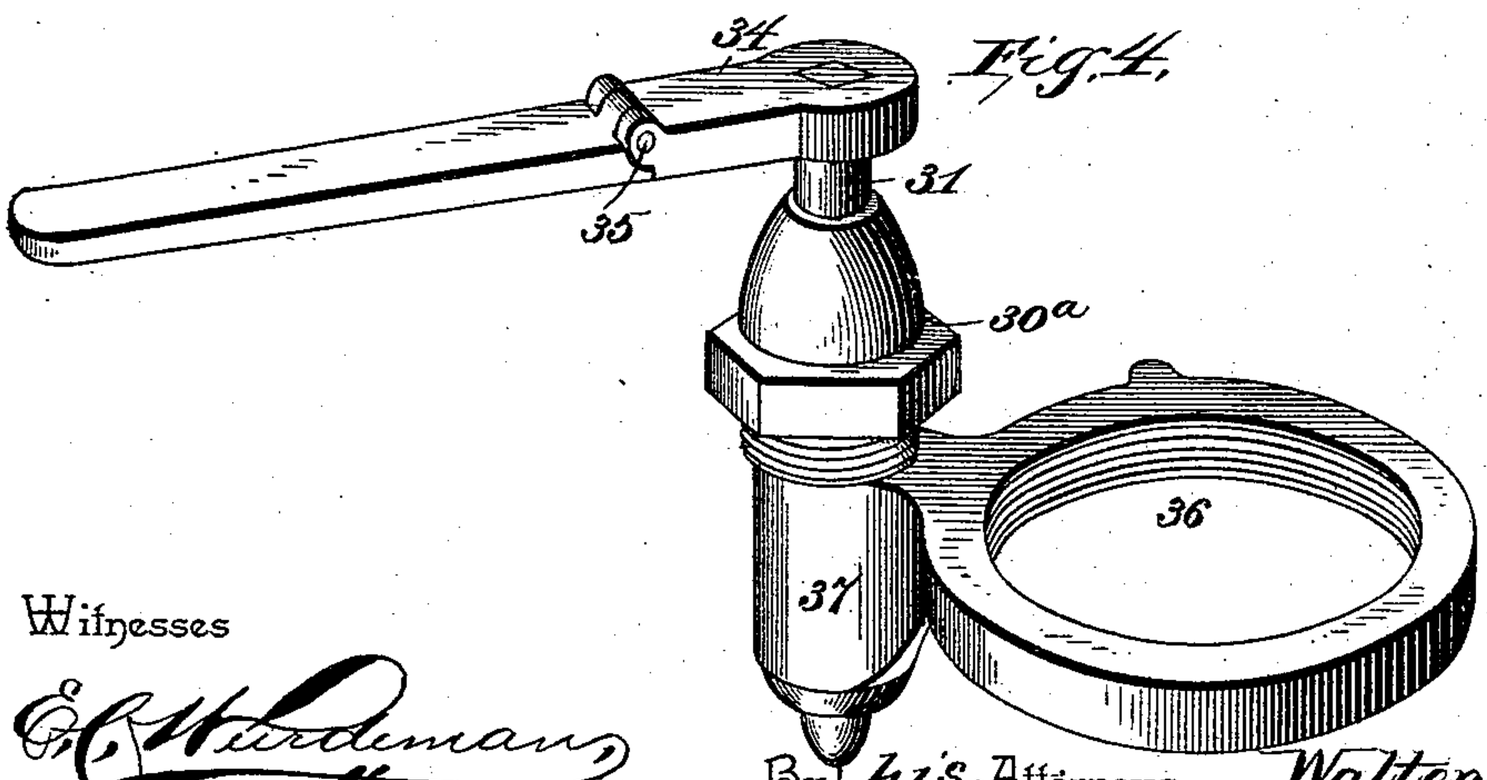

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

WALTER S. PAYNE, OF FOSTORIA, OHIO.

MACHINE FOR TAPPING MAINS.

SPECIFICATION forming part of Letters Patent No. 478,711, dated July 12, 1892.

Application filed August 28, 1891. Serial No. 403,998. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. PAYNE, a citizen of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented a new and useful Machine for Tapping Mains, of which the following is a specification.

My invention relates to apparatus for tapping mains; and it has for its object to provide a machine which will effectively attain the objects for which such devices are used, and particularly to provide a device of this character which can be readily and quickly adjusted upon saddles of different sizes, according to the size of the main to be tapped, and which will not only drill and tap against or under the pressure of water or other liquid or gas pipes, but will also provide a support and guide for the drill-shank and tap and the cock to be secured within the tapped main after the drilling of the hole therein has been completed, and means whereby said cock may be easily thrown into position over the drilled hole and held in such position while being screwed therein; and with these objects in view the invention consists of the improved construction hereinafter more fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view, partly in section, of a tapping-machine constructed in accordance with my invention. Fig. 2 is a vertical sectional view taken diagonally across the casing and the swinging crane located therein. Fig. 3 is a similar view, partly in elevation, with the device secured upon a main and the swinging crane holding the cock over the drilled hole and in position for being screwed therein. Fig. 4 is a detail in perspective of the swinging crane and the operating-handle.

Referring to the accompanying drawings, 1 represents the inclosing casing of my device, and the same consists of a hollow casting somewhat elliptical in shape and constructed to accommodate the parts of the machine, which will be hereinafter described. The said casing is provided with a bottom eccentrically-located opening 2, from which depends the downwardly-extending flange 3. The downwardly-extending flange 3 is designed to be secured within the collar 4 of the saddle 5 by the pressure secured by the chain and tightening-bolts, said saddle being made of a size to accommodate the size of the main upon which the same is designed to be seated and between which and said saddle suitable gaskets are interposed, when the device is clamped upon the main, for the purpose of insuring a perfect water-tight joint, in order that there may be no escape or leak between the jointed parts. The construction of the elliptical casing having an eccentrically-located bottom opening forms a chamber 6, which is designed to accomodate the cock 8 in position and out of the way while the main is being tapped. Directly over the bottom opening 2 in the bottom of said casing the same is provided with a top opening 9, from which the upwardly-extending neck 10 extends and is designed to accommodate the movement of the drill-rod 11, working therein and provided at its lower end, within the casing, with the ordinary tapered screw-threaded tap 12, which after drilling the hole in the main is designed to be withdrawn up within said neck and out of the way, while the cock 8 may be swung into position over the opening. Secured to the top of said neck is the malleable clamp extension 13, above the top of which is screwed an ordinary stuffing-box 14, having an interior bore of the same diameter as the drill-rod 11, which slides and works therein, and thus insures a water-tight joint. The said clamp 13 is provided with the opposite lateral ribs 15, to which are pivotally secured the clevises 16, internally threaded to accommodate one end of the right-and-left screw-threaded adjusting-bolts 17, which engage said clevises and the inner ends of the chain-harps 18, provided with enlarged openings 19, terminating in reduced elongated openings 20, that are designed, after the links of the chain 21 are inserted in the enlarged openings of the harps, to receive the said links edgewise and thus securely hold the chain in position beneath the main which the same encircles and prevents the same slipping, while the adjusting-bolts secure the device upon the main as tightly as may be desired. The said clamp 13 is further provided with the laterally and oppositely extending engaging-lugs 22, upon which the feeder-yoke 23 may be removably

attached. The said feeder-yoke is provided with a squared perforation 24, that is adapted to take over either of said lugs, as may be desired, while the upper curved end 25 of the same is provided with an interiorly-threaded perforation 26, which is designed to accommodate the feeder-screw 27, which bears upon the top of the drill 11, which is rotated under the action of the ordinary pawl-and-ratchet lever 28, which is of the usual construction and forms no part of the present invention. A semicircular enlargement 29 is formed upon one side of the casing 1, near the top edge thereof and intermediate of the chamber or recess 6 therein and the portion of the casing in which the combined tap and drill works. The upper end of said enlargement is provided with a screw-perforation 30, that is designed to receive the stuffing-box 30ª, which receives a rotating stem or shaft 31, which revolves therein. The lower end of the said stem is provided with a squared portion 32, while its upper end, without the stuffing-box 30ª, secured in the perforation 30, is provided with the operating handle or lever 34, hinged near its connection with said stem at 35, whereby the same when not in use may be folded over upon itself and out of the way when not in operation, and this handle, touching the outside of the neck 10, prevents the cock from swinging back in the way of the drill. An interiorly-threaded ring or crane 36 is provided with an extended perforated lug 37, having a squared perforation 38 therein, that is designed to receive the squared end 32 of the rotating shaft or stem 31 within said semicircular enlargement or recess 29, which is of sufficient size to accommodate the enlarged perforated lug 37 of the said threaded ring or crane and is provided in the bottom thereof with a bearing-recess 39, that is adapted to receive the lower end of said operating stem or shaft just referred to. In its normal position the said crane or ring is adapted to be located near the top of the inclosed recess or chamber 6 of the casing of the machine and is adapted to receive and hold the internally and exteriorly threaded mandrel 40, within which is screwed the cock 8, which is adapted to be held vertically within said recess 6 and supported therein by said mandrel. After having drilled the hole in the main and tapped the same the combined tap and drill is drawn up into the machine as far as possible through the neck and stuffing-box, through which the same works. The operating handle or lever is then opened and the crane or ring is swung around over the opening 2 in the bottom of the casing, so that the cock and the mandrel carried thereby comes immediately under the tap and drill. The said tap and drill is then pushed down and screwed into the mandrel until it becomes tight therein, and by continuing the screwing of the tap and drill the mandrel carrying the cock is screwed out of the crane. When it is thus released, the cock is pushed down into the opening in the main and screwed therein by means of the tap, using, of course, the ratchet to turn it with. Having now loosened up the chain and taken the machine off the main, a wrench is then put onto the cock to screw the same securely into the main, after which the tap and mandrel may be readily unscrewed from the top of the cock.

The construction and operation of the herein-described device for tapping mains is now thought to be apparent without further description.

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

1. In a machine for tapping mains, the combination, with a casing and the tapping mechanism working therein, of a swinging threaded ring-crane adapted to be independently oscillated horizontally within said casing and carrying the cock, and means for removing said cock from the ring-crane by the tapping mechanism, substantially as set forth.

2. In a machine for tapping mains, a casing having an eccentrically-located bottom opening, an offstanding chamber and an upwardly-extending neck directly over said opening, the tapping mechanism working in said neck and carrying the threaded tap, an independent swinging ring-crane mounted in said offstanding chamber and adapted to work independently of the tapping mechanism below and away from said neck, and a cock-mandrel removably engaging and carried by said crane, said mandrel accommodating the cock and receiving the threaded tap, substantially as set forth.

3. In a machine for tapping mains, the combination, with the casing and the tapping mechanism carrying a threaded tap, of an oscillating stem or shaft secured within said casing and rotated entirely independent of the tapping mechanism, a threaded ring-crane connected with and swung within the casing by said shaft, and an interiorly and exteriorly threaded cock-mandrel removably engaging and carried by said crane, said mandrel accommodating the cock and receiving the threaded tap, substantially as set forth.

4. In a machine for tapping mains, a casing having a semicircular enlargement upon one side thereof, an oscillating shaft supported and journaled within said enlargement, a hinged handle or lever secured to the upper and outer end of said shaft, an interiorly-threaded ring-crane having an enlarged perforated lug adapted to engage said shaft within said enlargement, and an externally and interiorly threaded cock-carrying mandrel removably engaging said ring-crane and itself engaged by the tapping mechanism which removes the same from the crane and screws the cock into the main, substantially as set forth.

5. In a machine for tapping mains, a casing having an eccentrically-located bottom opening and an upwardly-extending neck directly

over said opening, a clamp secured upon said neck and having opposite ribs and engaging-lugs, clevises pivoted to said ribs, chain harps adjustably connected with said pivoted clevises, a feeder-yoke having an upper curved threaded end adapted to receive the feeder-screw and an enlarged opening at its lower end adapted to removably engage said engaging-lugs, and a swinging threaded cock-carrying ring-crane located within said casing and adapted to work horizontally therein and be relieved of the cock by the tapping mechanism, substantially as set forth.

6. In a machine for tapping mains, the combination, with a casing and the tapping and drilling mechanism working therein, of the screw-threaded clevises pivotally secured to opposite sides of said casing, harp-shaped chain clamps having threaded perforations, and right-and-left screw-threaded adjusting-bolts adjustably engaging the threaded perforations of said clevises and harps, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WALTER S. PAYNE.

Witnesses:
FRANK STOUT,
MAHLON CARR.