

No. 683,891.

Patented Oct. 8, 1901.

W. S. ARMSTRONG.
WRENCH.

(Application filed Oct. 26, 1900.)

(No Model.)

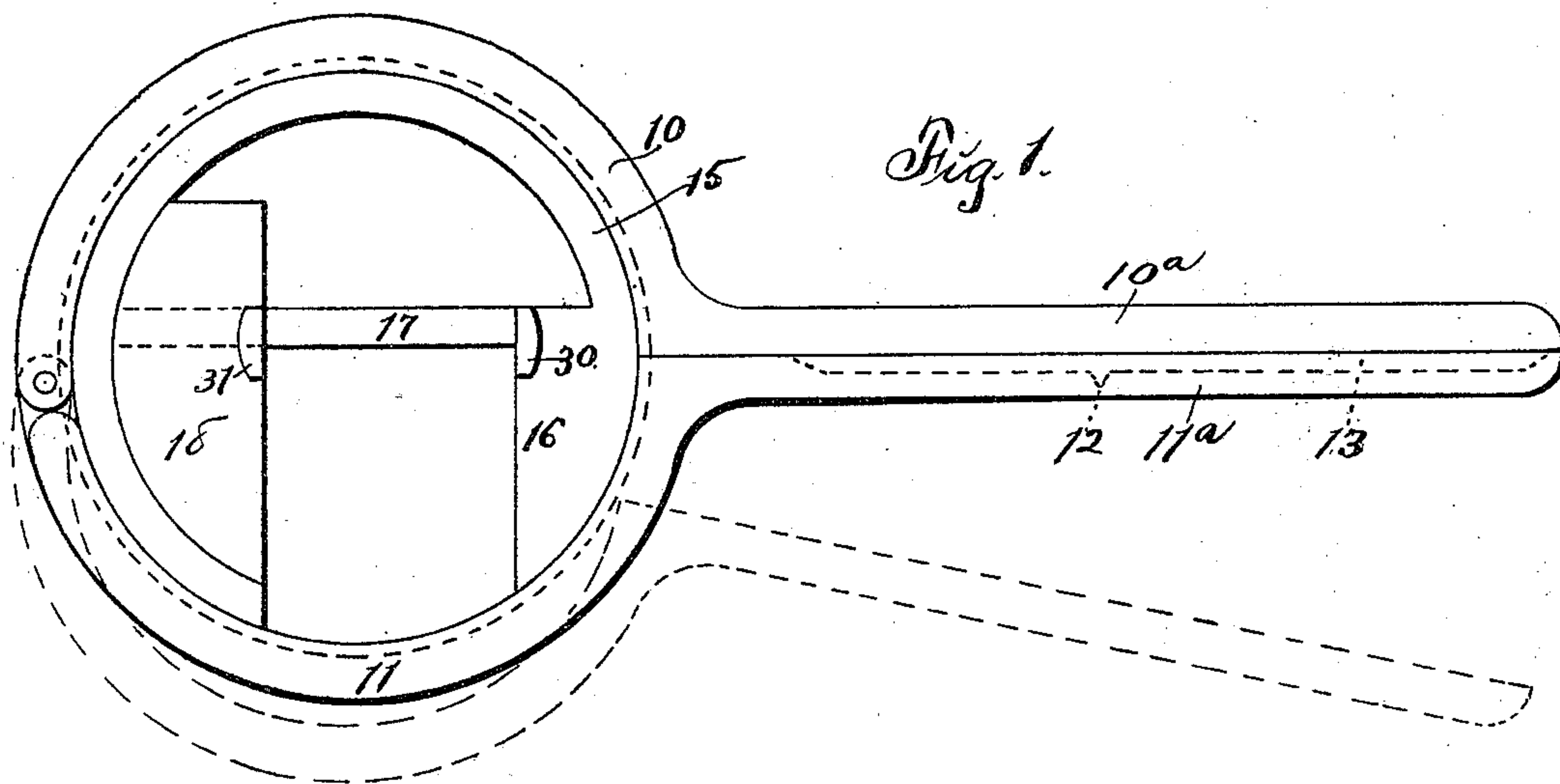


Fig. 1.

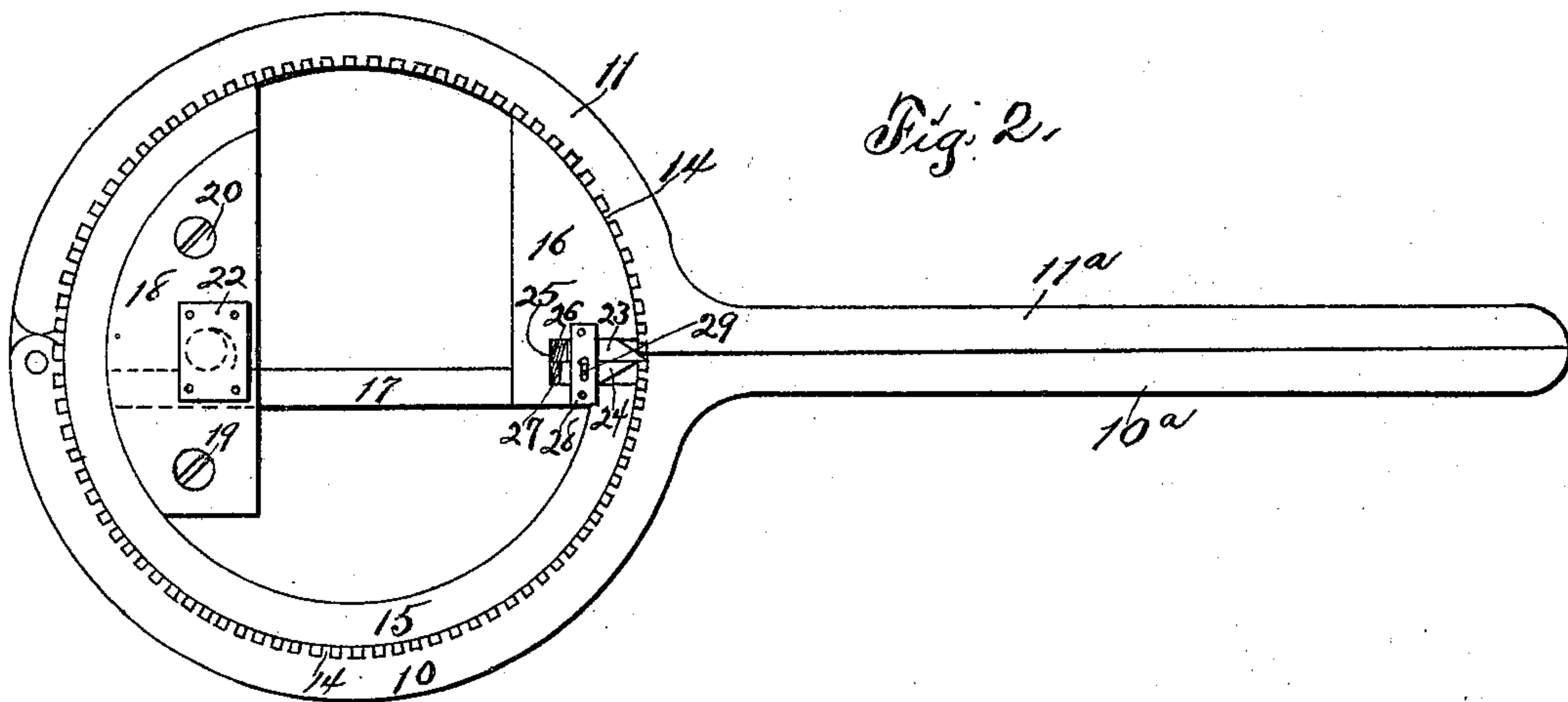


Fig. 2.

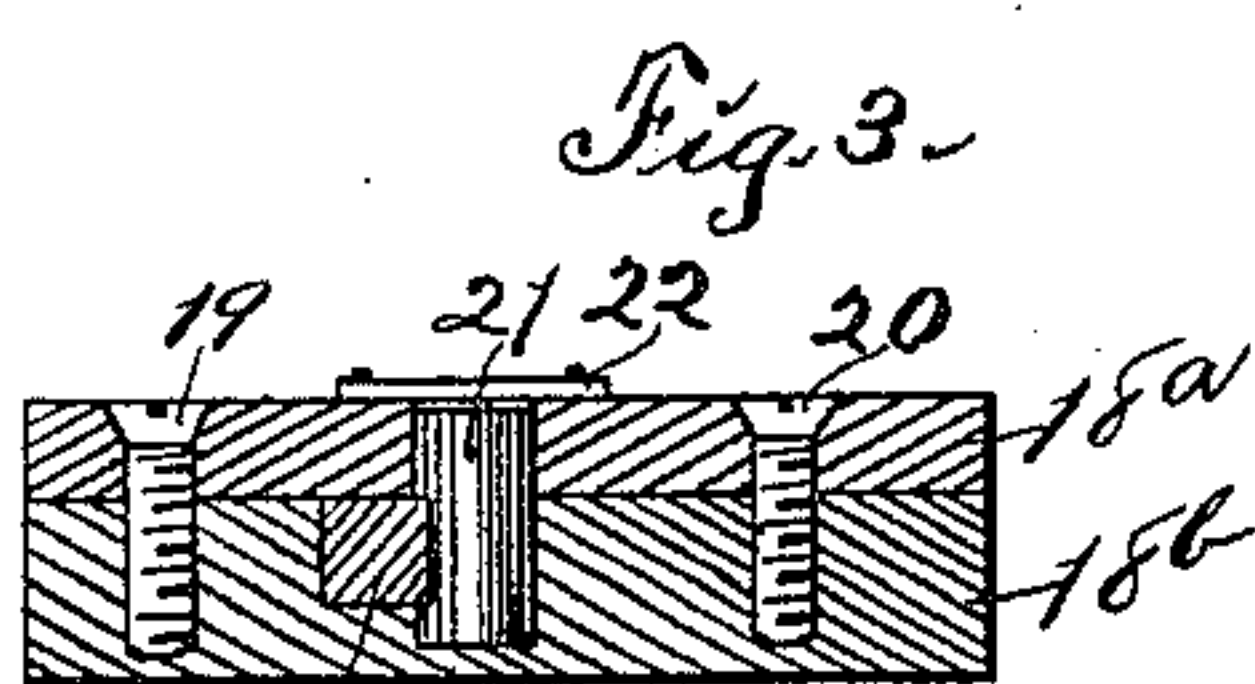


Fig. 3.

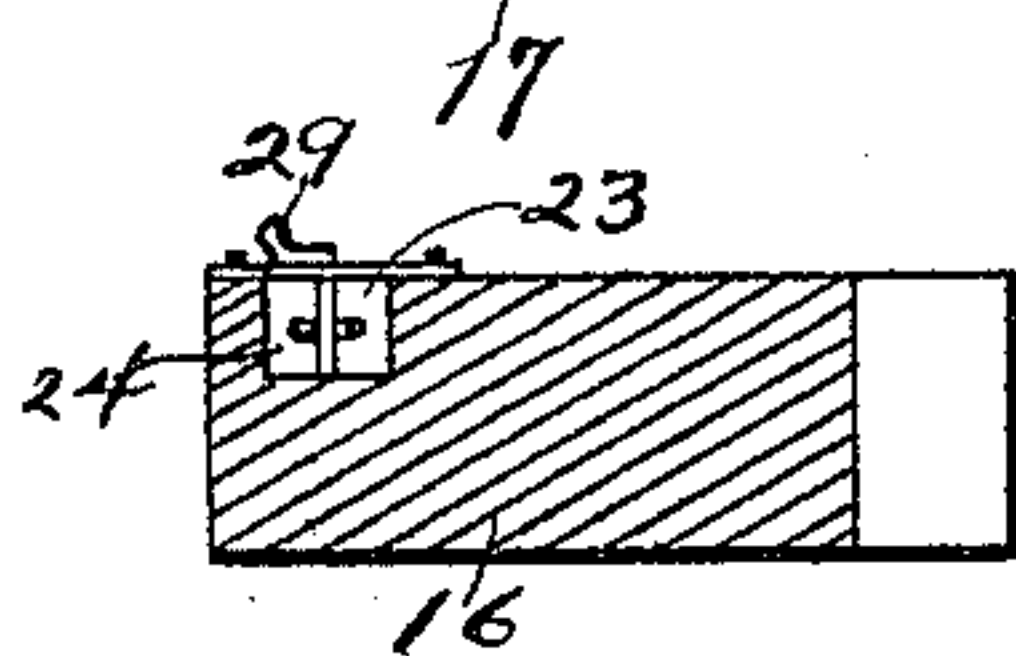


Fig. 4.

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UNITED STATES PATENT OFFICE.

WALTER S. ARMSTRONG, OF RUTHVEN, IOWA, ASSIGNOR OF ONE-HALF TO
HERBERT M. HUSTON, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 683,891, dated October 8, 1901.

Application filed October 26, 1900. Serial No. 34,437. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. ARMSTRONG, a citizen of the United States of America, and a resident of Ruthven, Palo Alto county, Iowa, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The object of this invention is to provide improved means to be employed in revolving or rotating or holding nuts, bolts, rods, pipes, or similar articles.

My invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a plan of the complete device, one member thereof being shown open by dotted lines. Fig. 2 is a plan of the device opposite to Fig. 1. Fig. 3 is a detail cross-section of the device on the indicated line 3 3 of Fig. 2. Fig. 4 is a detail cross-section of the device on the indicated line 4 4 of Fig. 2.

In the construction of the device as shown the numeral 10 designates one member and 11 the other member of a two-part handle or wrench-frame. The body portions of the members 10 11 are semicircular in form and hinged together to form a complete circle and are formed with parallel extensions 10^a 11^a, rounded on their outer surfaces and arranged to be grasped by the hand of the operator for the manipulation of the members. A stud 12, dotted lines in Fig. 1, is fixed to the member 10^a and extends within a notch in the extension 11^a, and a rib 13, also shown by dotted lines, extends either way from the stud 12 and enters a slot in the extension 11^a. It is the function of the stud 12 and rib 13 to interlock with the notch and groove and hold the members 10 11 in proper relations to each other. An annular groove is formed in the inner face of the circular portions of the wrench-frame, and a rack 14 is formed adjacent thereto. A wrench-head 15 of circular form and provided with a rib on its periphery is mounted within and surrounded by the circular portions of the wrench-frame, and said rib slidingly engages in the groove of the frame. The wrench-head 15 is notched at one side for the reception of a nut or other object by lateral movement therein, and a

jaw 16 is formed on one end portion of said head. A stem 17 is formed on and extends across the wrench-head 15 at the rear end of and at right angles to the face of the jaw 16. A jaw 18, formed of two members 18^a 18^b, securely connected by screws 19 20, is slidably mounted on the stem 17 in opposition to the jaw 16. An aperture is formed in the member 18^b and through the member 18^a of the jaw 18 adjacent and at right angles to the stem 17, and said aperture is oblate in cross-section and tapers slightly transversely. A hardened-steel pin 21 is mounted loosely in the apertures just described and contacts with one edge of the stem 17. The pin 21 is circular in cross-section and the periphery thereof is serrated longitudinally. A cap-plate 22 is fixed to the outer face of the member 18^a of the jaw 18 and covers the aperture therein, thereby confining the pin 21 in its seat. A notch 25 is formed in and radially of the wrench-head 15 and may extend within the jaw 16. Pawls 23 24 are slidably mounted in the notch 25, and the outer ends of said pawls are beveled in opposite directions and may extend to and engage the rack 14. Springs 26 27 are mounted at the rear of the pawls 23 24 and tend to push said pawls outwardly. A bar 28 is mounted across the notch 25 and a trigger 29 is fulcrumed on said bar and arranged to engage one or the other of the pawls 23 or 24 and hold the one engaged away from the rack 14. Ears 30 31 are formed on and extend laterally from the jaws 16 18 and may be employed to embrace and engage a nut or other object in an obscure place not readily reached by the jaws of the wrench-head.

In practical use the jaws are opened for the reception of a nut by manual movement of the jaw 18 outwardly along the stem 17. The nut or other object is introduced between the jaws and abutted to the stem 17. The jaw 18 is then adjusted by inward manual movement into contact with the nut or other object and the wrench-frame oscillated by manual force applied to the extensions 10^a 11^a. In the oscillation of the wrench-frame the rack 14 is engaged with one or the other of the pawls 23 24, said pawls being adjusted through the medium of the trigger 29 in accordance with the direction of rota-

tion it is desired to give to the nut and the wrench-head 15 rotated in the desired direction. In the rotation of the wrench-head 15 the nut is rotated and applies a strain to the
 5 jaw 18, which strain is resisted by engagement of the serrated periphery of the pin 21 with one edge of the stem 17, the pin rolling laterally into the narrower portion of its seat and engaging the wall thereof. To rotate a
 10 nut or other object in the opposite direction, the pawls 23 24 are placed in reverse positions through manual adjustment of the trigger 29, and the handle or frame is manually oscillated, as above described.

15 Sometimes it is desirable to apply a wrench by lateral movement relative to an object, and in such instance the wrench-frame should be opened by swinging one of the members 10 or 11 relative to the other member in such
 20 a manner as to expose the opening of the wrench-head for the reception of the object between the faces of the jaws.

I claim as my invention—

1. A wrench comprising the two-part frame
 25 having the circular portions grooved on their inner faces, the wrench-head mounted within the circular portions of the frame and having a rib slidably engaged in said groove, the fixed jaw on the wrench-head, the movable jaw on the wrench-head in opposition
 30 to the fixed jaw and pawl-and-rack connections between the head and frame.

2. A wrench comprising two members formed with circular portions hinged together
 35 and provided with parallel extensions radially thereof, the wrench-head mounted within the circular portions of the frame and open at

one side, the jaws mounted in said head and communicating with the opening thereof and pawl-and-rack connections between the head 40 and frame.

3. A wrench comprising the two-part frame having the circular portions grooved on their inner faces, the wrench-head mounted within the circular portions of the frame and 45 formed with a rib slidably engaging in the grooves, the fixed jaw on the wrench-head, the movable jaw on the wrench-head in opposition to the fixed jaw, the serrated pin arranged to lock the movable jaw and pawl- 50 and-rack connections between the head and frame.

4. In a wrench of the class described, the hinged member formed with parallel extensions having mating ribs and grooves, the 55 wrench-head mounted within the frame, the rack on the hinged members and the pawls mounted on the head and arranged for adjustment into or out of engagement with the 60 rack.

5. In a wrench of the class described, the combination of the stem, the jaws formed of two members respectively, rigidly connected and slidably mounted on said stem, one of which jaws is apertured adjacent to and at 65 right angles to the stem, and a serrated pin mounted in said aperture and arranged to engage said stem.

Signed at Des Moines, Iowa, this 13th day of September, 1900.

WALTER S. ARMSTRONG.

Witnesses:

S. C. SWEET,
 C. E. BYRKIT.