

No. 755,466.

PATENTED MAR. 22, 1904.

J. H. DUNDON.
RATCHET WRENCH.

APPLICATION FILED JULY 2, 1903.

NO MODEL.

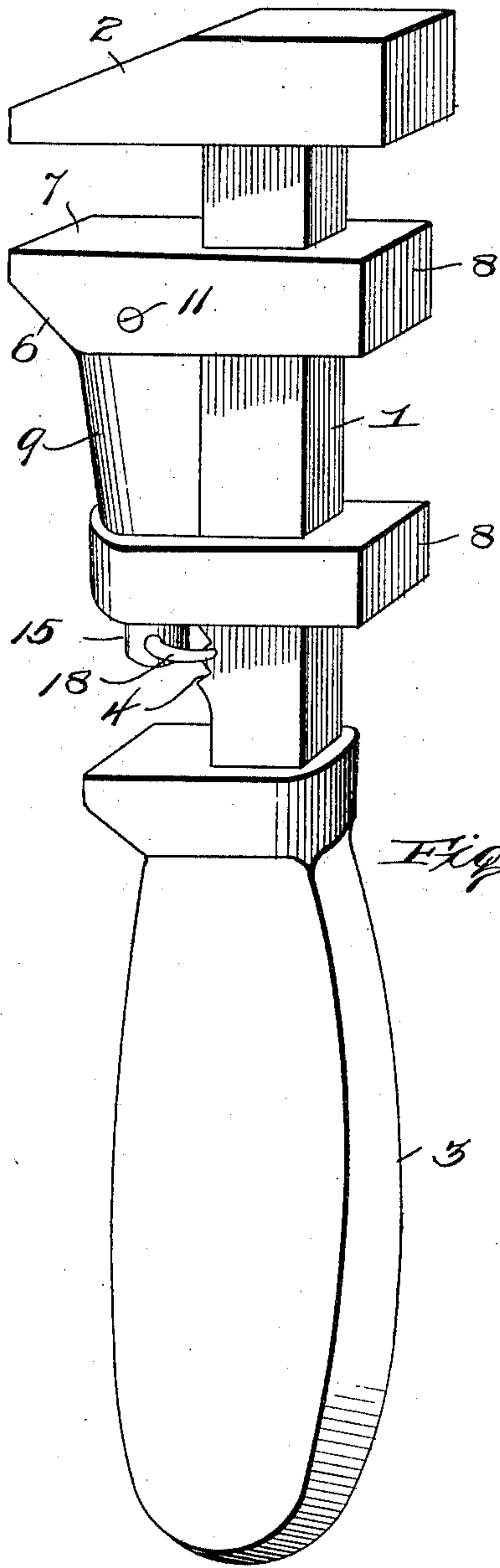


Fig. 1.

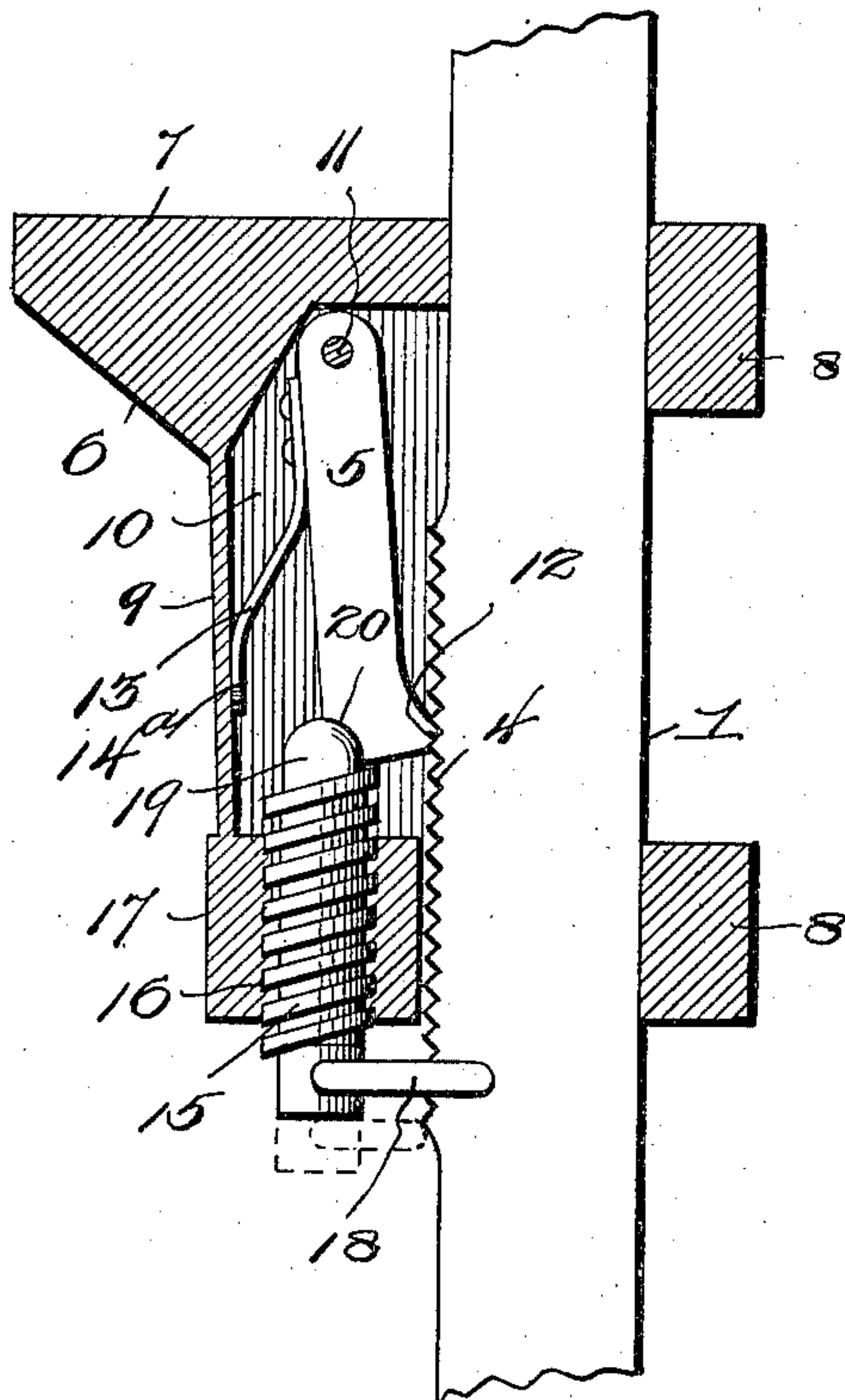
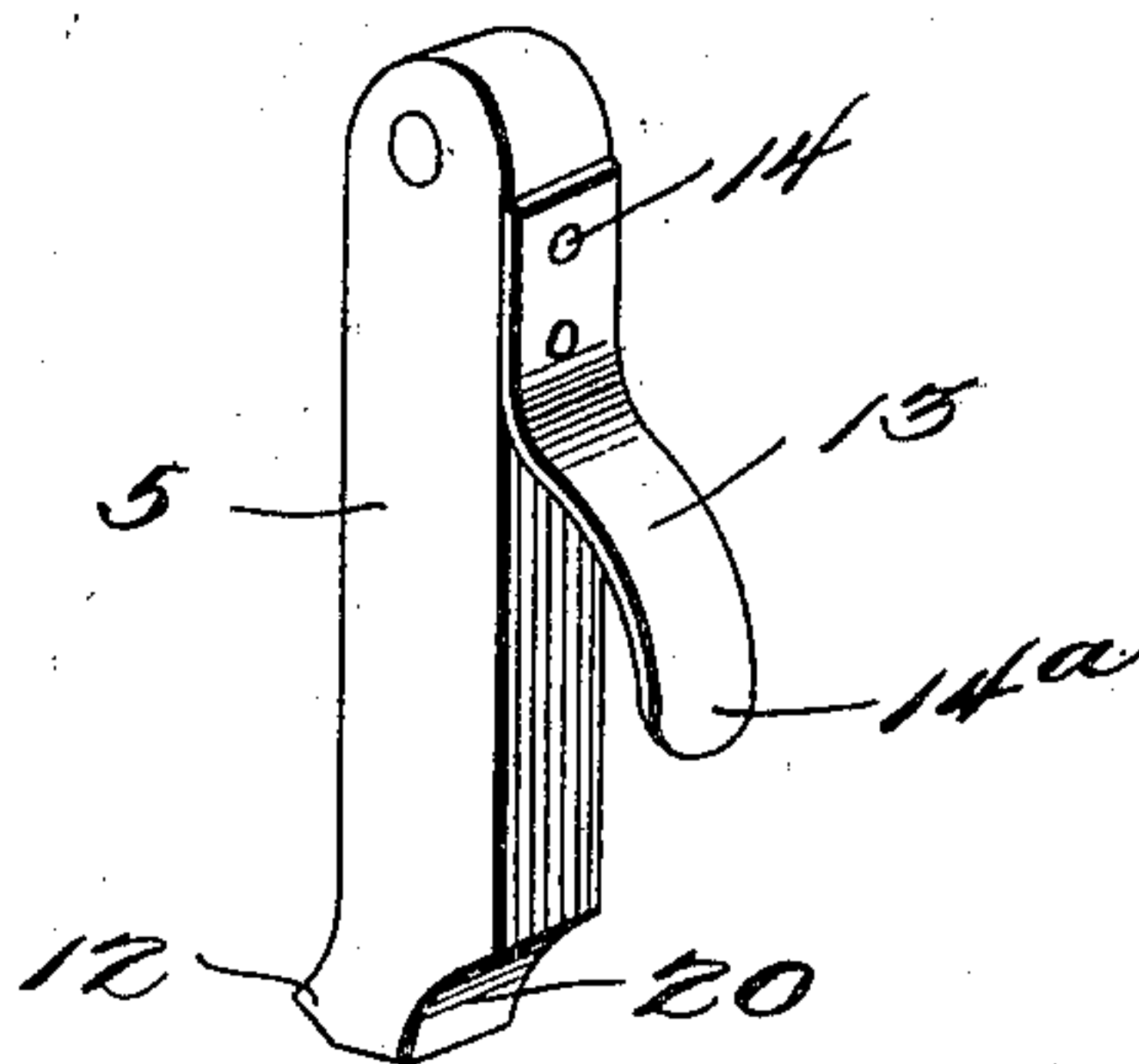


Fig. 2.

Fig. 3.



Inventor

John H. Dundon.

Witnesses

E. A. Armes
G. S. Roy

By

H. C. Carman
Attorney

UNITED STATES PATENT OFFICE.

JOHN H. DUNDON, OF YOUNGSTOWN, OHIO.

RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 755,466, dated March 22, 1904.

Application filed July 2, 1903. Serial No. 164,071. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DUNDON, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

This invention relates to wrenches of the sliding or "quick-adjustment" type, and has for its object to provide an improved wrench of this character embodying the necessary qualifications for a quickly-adjusted, powerful, and non-slipping tool.

Many types of ratchet-wrenches provide for a quick adjustment of the sliding member or jaw, but are of little use on account of the co-operating ratchet elements slipping when pressure is applied to the wrench upon an object by reason of the lack of adequate means for maintaining the ratchet elements in non-slipping locked engagement after the sliding member or jaw has been properly set to its adjusted position upon an object. Also in many types of ratchet-wrenches the construction is of such a character as to render it impossible to provide the ratchet action and at the same time secure a sufficiently-strong interlocked connection between the ratchet elements to withstand all uses of the wrench.

It is the purpose of the present invention to entirely obviate the foregoing and other objections to many of the ordinary types of ratchet-wrenches by providing an improved construction of ratchet-wrench wherein the sliding member or jaw may be freely and rapidly moved in either direction upon the shank or stem of the tool, while at the same time embodying simple and effectual means for locking the ratchet elements in positive engagement after the sliding member or jaw has been moved to a set position, thus rendering it impossible for the same to slip out of such position no matter what stress or strain is imposed upon the tool while engaged with the object. In this connection the invention contemplates a simple form of locking device associated directly with the catch-pawl and which is conveniently and quickly adjusted to locking and inactive positions by a

simple manipulation of the thumb or finger of the hand.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described, illustrated, and claimed.

The essential feature of the invention involved in the simple and novel relation between the spring-pressed catch-pawl and the screw-locking device carried by the sliding member of the wrench is necessarily susceptible to some structural modification without departing from the scope of the invention; but a preferred embodiment of the latter is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of an ordinary "monkey-wrench" embodying the improvements contemplated by the present invention. Fig. 2 is an enlarged detail sectional view of the sliding member or jaw of the wrench and a portion of the shank, said view exposing the novel relation and mounting of the catch-pawl and the locking device or screw. Fig. 3 is a detail in perspective of the preferred form of spring-pressed catch-pawl, which coöperates with the ratchet-face of the shank and also with the locking-screw.

Like reference-numerals designate corresponding parts throughout the several figures of the drawings.

In carrying out the invention the same may be applied to all types of wrenches embodying a sliding adjustment for one of the jaws thereof, thus being adapted not only to the ordinary forms of nut-wrenches, but also to pipe-wrenches and the like. However, as the improvement possesses special utility in connection with the usual form of monkey-wrench such embodiment of the invention is shown in the drawings for illustrative purposes.

Referring particularly to the drawings, the numeral 1 designates the shank of the wrench, carrying at the outer end thereof the fixed outer jaw 2 and having fitted upon its inner portion the ordinary handle 3. In the carry-

ing out of the present invention the shank 1 is provided, at the inner side thereof, with a ratchet-face 4 of suitable extent and consisting of a uniform series of ratchet-teeth similarly beveled upon both sides to permit the catch-pawl 5 to freely slip thereover in either direction when the sliding jaw member 6 is moved upon the shank in adapting it to any particular object. The said ratchet-teeth 4 are necessarily of a size in proportion to the size of the wrench and are arranged in close or wide spacing, according to the fineness of adjustment to be provided for the sliding jaw member, so in this respect considerable modification may be resorted to without departing from the spirit of the invention.

The catch-pawl 5, coöperating with the teeth of the ratchet-face 4, is carried by the sliding jaw member 6. In the construction shown this sliding jaw member is of the usual form and includes the inner jaw proper, 7, the perforated cuffs or yokes 8, slidably embracing the wrench-shank 1, and the main slide-section 9, arranged in the interval between the cuffs or yokes 8 and disposed at one side of the wrench-shank.

The main slide-section 9 of the sliding jaw member is longitudinally chambered or recessed to provide a pawl-chamber 10 of sufficient length to freely accommodate the movement of the pawl 5 and open at the side next to the shank 1 to permit the point of the pawl to properly coöperate with the ratchet-face 4. The said pawl 5 essentially consists of a straight bar pivotally supported at what may be properly termed its "outer" end upon a transverse pivot-pin 11, mounted in the body of the sliding jaw member 6 and preferably of a large size, so as to withstand any extra strain or pressure that may be imposed upon the tool. The pivotal mounting at one end of the bar constituting the pawl 5 leaves the other or inner end of the same free to move. At such inner end the pawl is provided with a beveled engaging tooth or point 12, arranged at one side and adapted to ride over the beveled ratchet-teeth 4, besides having a locking engagement therewith in connection with the means to be presently referred to.

The beveled engaging tooth or point 12 at the free end of the pawl 5 is held in working relation to the ratchet face or teeth 4, preferably through the medium of an adjusting-spring 13, secured fast at one end, as at 14, to one side of the pawl 5 and arranged to have its free end 14^a bear against the outer side wall of the pawl-chamber 10, whereby the pressure of said spring will be exerted in a direction for normally thrusting the free end of the pawl toward the shank.

A distinctive feature of the present invention resides in the employment of a locking device coöperating with the pawl 5 for securing the point thereof in locked engagement with the ratchet-face at any point throughout

the extent thereof. This locking device consists of a screw rod or section 15, whose threads are preferably of a high pitch, whereby a slight turn of the screw or rod will impart thereto a quick adjustment in a longitudinal or axial direction. The threads of the screw-rod 15 engage correspondingly-pitched threads 16 of a nut element 17, provided at one end of the sliding jaw member 6 and preferably an integral part thereof. The threaded opening of the nut element 17 is disposed in parallelism to the shank 4, and consequently the screw or screw-rod 15 is likewise disposed in parallelism to the wrench-shank and longitudinally of the sliding jaw member 6. The outer end of the screw 15 projects below and beyond the nut element 17 and has fitted thereto an offstanding lever-handle 18, designed to be engaged by the thumb or finger of the hand for turning the screw-rod in either direction, according as it is desired to lock or release the pawl 5.

The inner end of the locking device or screw 15 projects into one end of the pawl-chamber 10 and is provided with a binding-nose 19, of round or other practical form, which is designed to have a movement into and out of a chamfered lock-seat 20, usually of rounded shape and formed at the free end of the pawl 5 in the side opposite the engaging tooth or point 12. When the locking device or screw 15 is turned to a position with the binding-nose 19 thereof projecting into the lock-seat 20, and therefore bearing against the free end of the pawl 5, the engaging tooth or point 12 of the latter is necessarily held bound or clamped in locking engagement with the ratchet-face 4, and consequently serves to secure the sliding jaw in its adjusted position and against any strain, pressure, or jerk that may be placed thereon. By turning the locking device or screw upon its axis in the nut element 17, so as to carry the inner binding-nose thereof out of engagement with the free end of the pawl, the latter becomes released, so as to permit of the sliding of the jaw member 6 freely in either direction upon the shank.

From the foregoing it is thought that the construction, action, and many advantages of the herein-described ratchet-wrench will be readily apparent without further description, and it will be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a ratchet-wrench, the combination with the shank having a ratchet-face, of the sliding jaw member having a nut element, a spring-pressed catch-pawl pivotally held at one end to the sliding jaw member, and a locking-screw mounted in the nut element and arranged to

have a binding engagement directly against the free end of the pawl in a direction for wedging the said free end in locked engagement with the ratchet-teeth, said screw being
5 provided at one end with an exterior operating-handle.

2. In a ratchet-wrench, the combination with the shank having a ratchet-face, of a sliding jaw member provided at one end with a nut
10 element, a spring-pressed catch-pawl pivotally mounted within the sliding member and provided at its free end with an engaging tooth or point and opposite the latter with a lock-

seat, and a locking device consisting of a screw-rod mounted in the nut element in parallelism
15 to the shank and provided at its outer end with an operating-lever handle and at its inner end with a binding-nose movable into and out of the said lock-seat.

In testimony whereof I have signed my name
20 to this specification in the presence of two subscribing witnesses.

JOHN H. DUNDON.

Witnesses:

E. W. BURRELL,
L. E. ANDERSON.