(No Model.) 2 Sheets—Sheet 1.

# C. H. ALAPAW.

## WRENCH.

No. 341,986. Patented May 18, 1886.

Fig. 1.

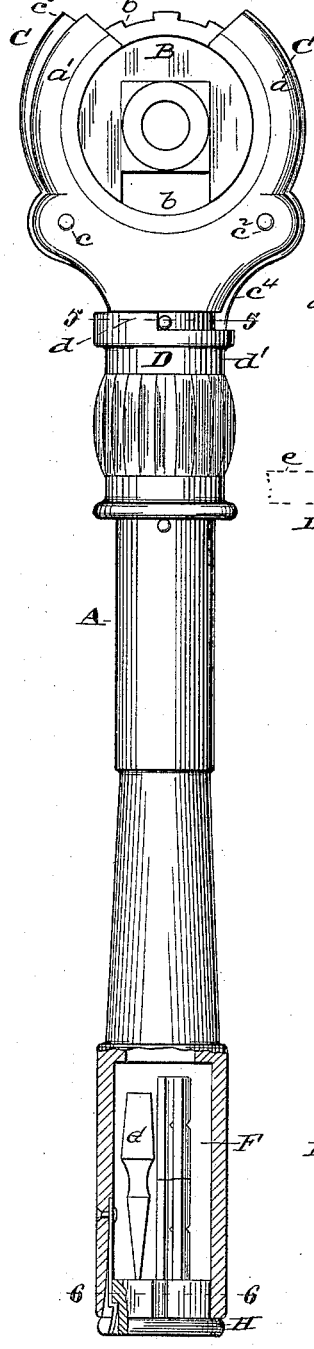



Fig. 2.

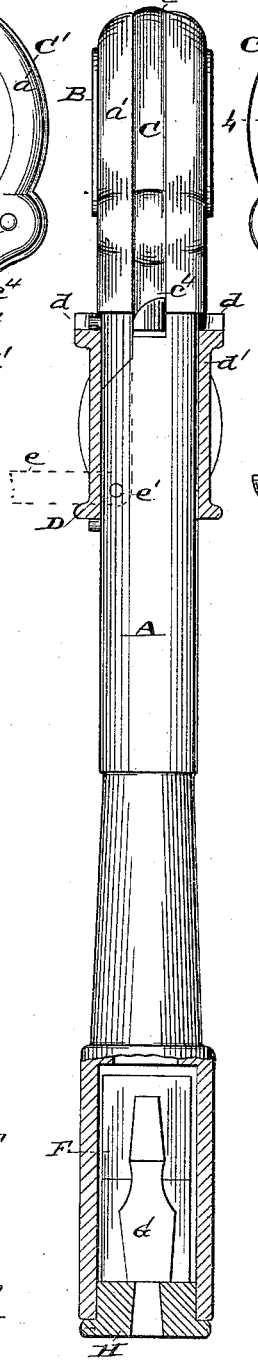



Fig. 3.

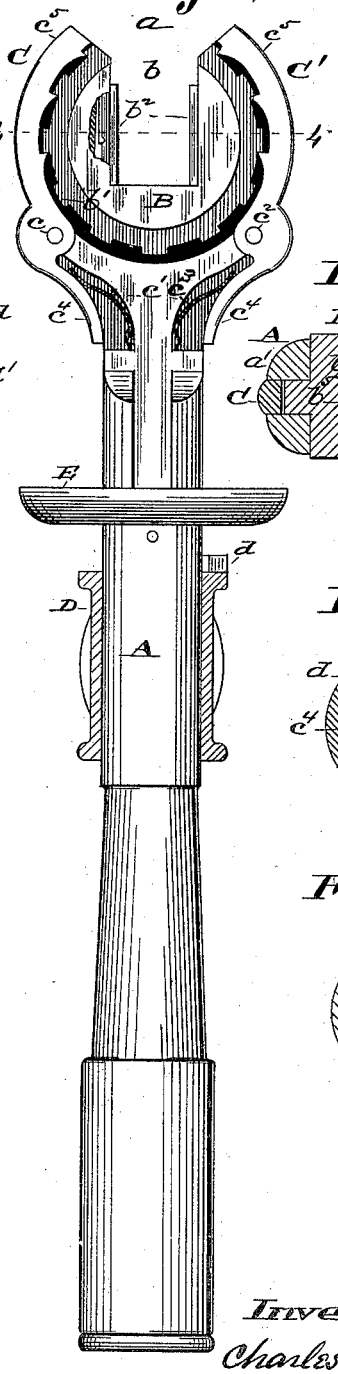



Fig. 4.

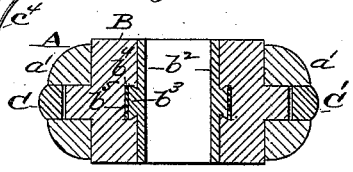



Fig. 5.

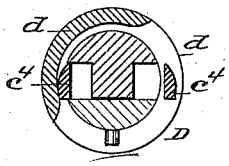
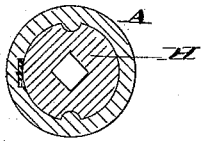



Fig. 6.




Attest;
J. W. Hoke.
N. B. Anderson.

Inventor;
Charles H. Alapaw
by C. Dlloody
atty

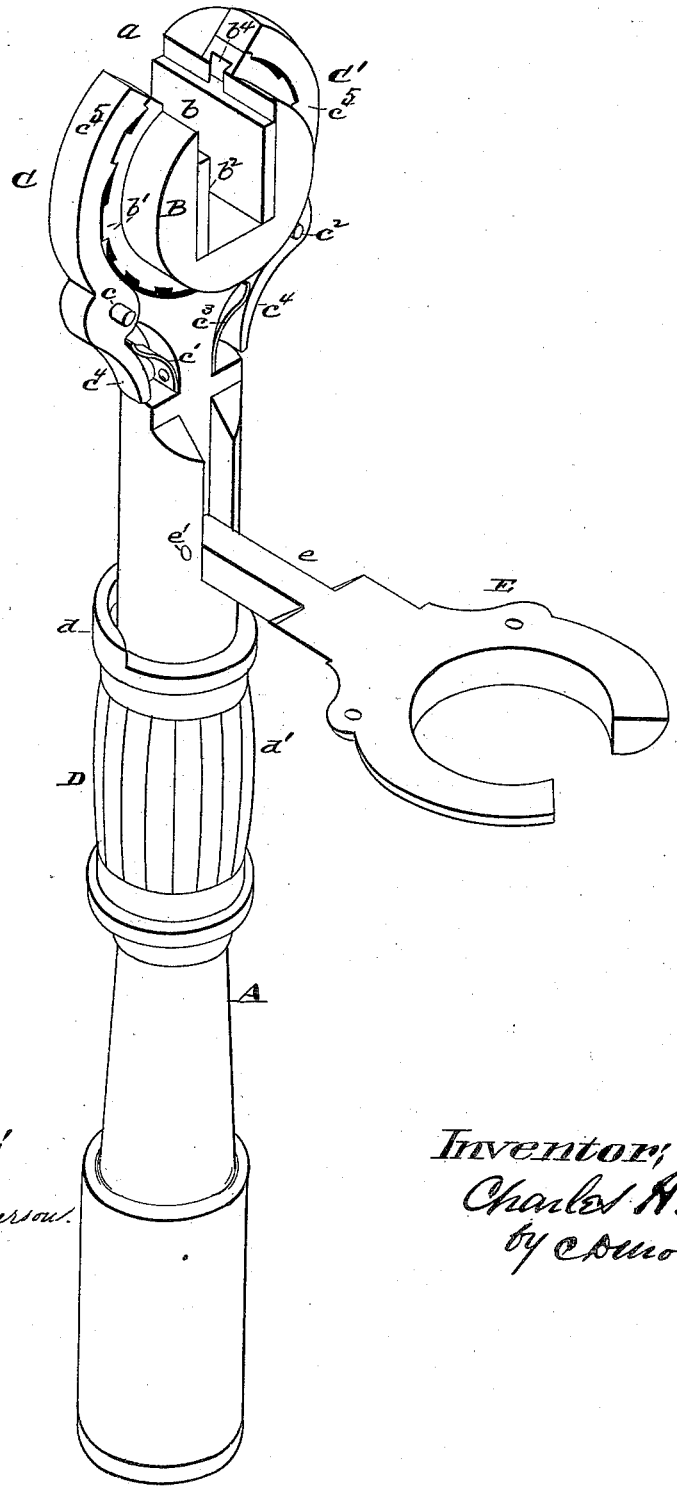
(No Model.) 2 Sheets—Sheet 2.

# C. H. ALAPAW.

## WRENCH.

No. 341,986. Patented May 18, 1886.

Fig. 7.




Attest;
J. W. Hoke;
N. B. Anderson.

Inventor;
Charles H. Alapaw
by Edmonds
atty

# UNITED STATES PATENT OFFICE.

CHARLES H. ALAPAW, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO JOHN G. BRINKMEYER, OF SAME PLACE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 341,986, dated May 18, 1886.

Application filed March 20, 1886. Serial No. 196,002. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. ALAPAW, of St. Louis, Missouri, have made a new and useful Improvement in Wrenches, of which the following is a full, clear, and exact description.

The improvement in question may be termed a "socket-ratchet" wrench, combining as it does the advantages and features of both a socket and a ratchet wrench.

The improvement also relates to the special means employed in carrying out the improvement.

In the annexed drawings, making part of this specification, Figure 1 is a side elevation, the handle in section, of the wrench. Fig. 2 is an edge elevation, the handle in section. Fig. 3 is a side elevation showing the die-confining cap turned back and the handle-sleeve in section. Fig. 4 is a cross-section on the line 4 4 of Fig. 3. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a section on the line 6 6 of Fig. 1; and Fig. 7 is a view in perspective of the wrench, the cap being opened.

The same letters of reference denote the same parts.

A represents the handle of the wrench. It is made open at its outer end, *a*, to enable it to be used as a socket-wrench or spanner. To enable it to be used as a ratchet-wrench, it is provided with a wrench-holder, B, which is confined within a cavity in the handle A, between the parts *a' a'* at the sides, respectively, of the opening *a*. The wrench-holder is also made open at *b* to enable it to be used, in conjunction with the other parts of the construction, as a socket-wrench.

The holder B is provided with a ratchet, *b'*, which is operated in connection with a suitable pawl pivoted to the wrench-handle, and preferably in connection with the two pawls C C', as thereby, and as hereinafter described, the wrench as a ratchet-wrench can be worked in either direction, to the right or to the left, as desired. The pawl C is pivoted at *c*, and is actuated by the spring *c'* to engage with the ratchet *b'*. The pawl C', upon the opposite side of the wrench-holder, is pivoted at $c^2$, and the spring $c^3$ acts to engage it with the ratchet *b'*. When both of the pawls are in engagement with the ratchet, the holder B cannot be rotated in the wrench-handle, and when one of the pawls is in engagement the holder can be rotated in one direction, and when that pawl is disengaged and the opposite pawl engaged the holder can be rotated in the opposite direction, and when both pawls are disengaged the holder can be rotated freely in both directions. To carry out this feature of the improvement, the following means are employed: The pawls are each extended at $c^4$ below the point at which the pawl is pivoted. D represents a sleeve upon the handle A, and adapted to be slipped thereupon toward and from the pawls C C'. It is furnished with a flange, *d*, extending longitudinally in advance of the main portion *d'* of the sleeve. By slipping the sleeve outward and turning it around upon the handle, so as to bring its flange *d* over one of the pawl-extensions, $c^4$, to which end the pawls, sleeve, and other parts of the construction are properly relatively constructed, that pawl whose extension $c^4$ is depressed by the flange *d* is disengaged from its ratchet *b'*, and by reversing the sleeve upon the handle and causing the sleeve-flange *d* to come over and depress the extension $c^4$ of the other pawl the first-named pawl is brought, by means of its spring, into engagement with the ratchet and the second-named pawl is disengaged therefrom, and by rotating the sleeve so that its flange *d* does not bear upon either of the pawl-extensions, both pawls are disengaged. As the holder B in use has to be rotated in its cavity in the handle A, so as to carry the holder-opening *b* out of coincidence with the opening *a*, the pawls C C' are each extended at $c^5$ sufficiently to pass the opening *b*, and to engage upon the opposite or farther side of the opening before becoming disengaged from that part of the ratchet at the near side of the opening.

To enable the holder B to be taken laterally out of the handle A, a portion, E, of the handle is made to open away from the remaining portion of the handle, and thereby leave the holder B free to be withdrawn from its place in the handle. The portion E, by means of the arm *e*, is hinged to the handle A at *e'*, and by

slipping the sleeve D over the arm *e* the part E is held against the holder B, and the last-named part thereby confined in the handle.

The holder B may be diminished by inserting the linings $b^2$, as in Fig. 7. The lining has a dovetail, $b^3$, which slips into the groove $b^4$ in the holder, and the lining is prevented from being displaced by means of the spring $b^5$, Fig. 4.

The handle A may have a chamber, F, to hold tools—such as the screw-driver G—which, when needed, can be inserted and held in the cap H at the end of the handle.

I claim—

1. The combination of the wrench-handle, open at *a*, the holder B, open at *b*, and provided with the ratchet *b'*, and a pawl pivoted to the handle and engaging with the ratchet, as described.

2. The combination of the handle, open at *a*, the holder B, open at *b*, and provided with the ratchet *b'*, and the pawl C, extended at $c^5$, as and for the purpose described.

3. The combination of the handle, open at *a*, the holder B, open at *b*, and provided with the ratchet *b'*, the pawls C C', and the sleeve D, as described.

Witness my hand this 5th day of March, 1886.

CHAS. H. ALAPAW.

Witnesses:
C. D. MOODY,
J. W. HOKE.