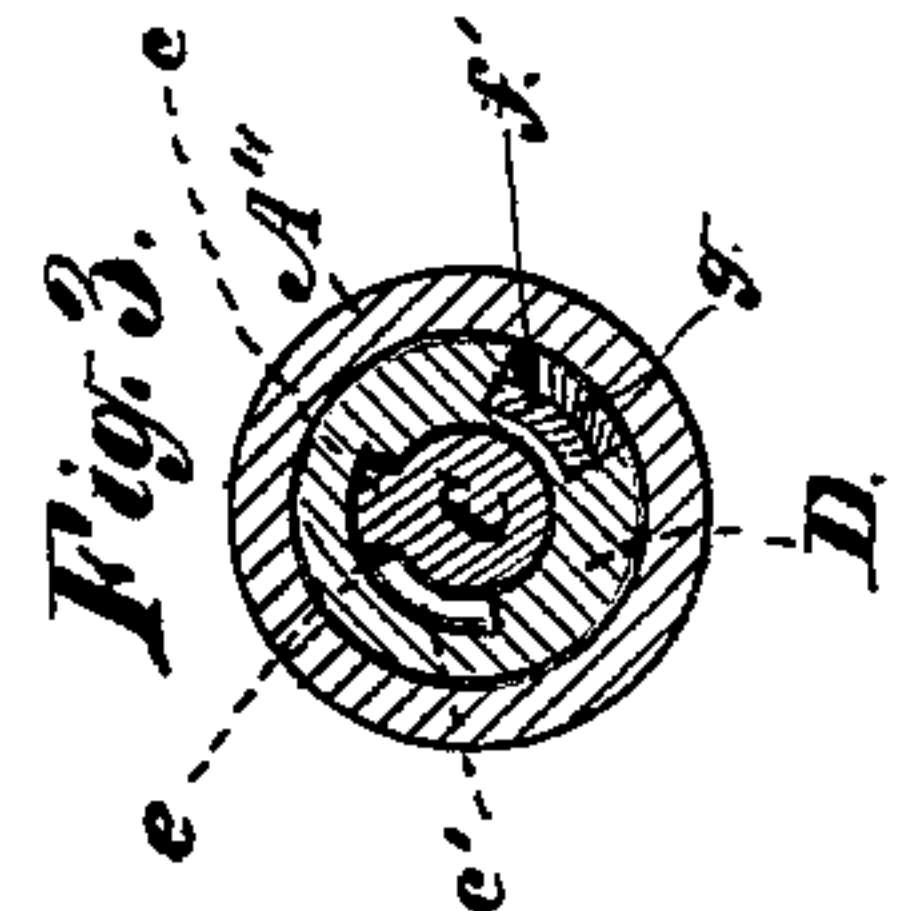
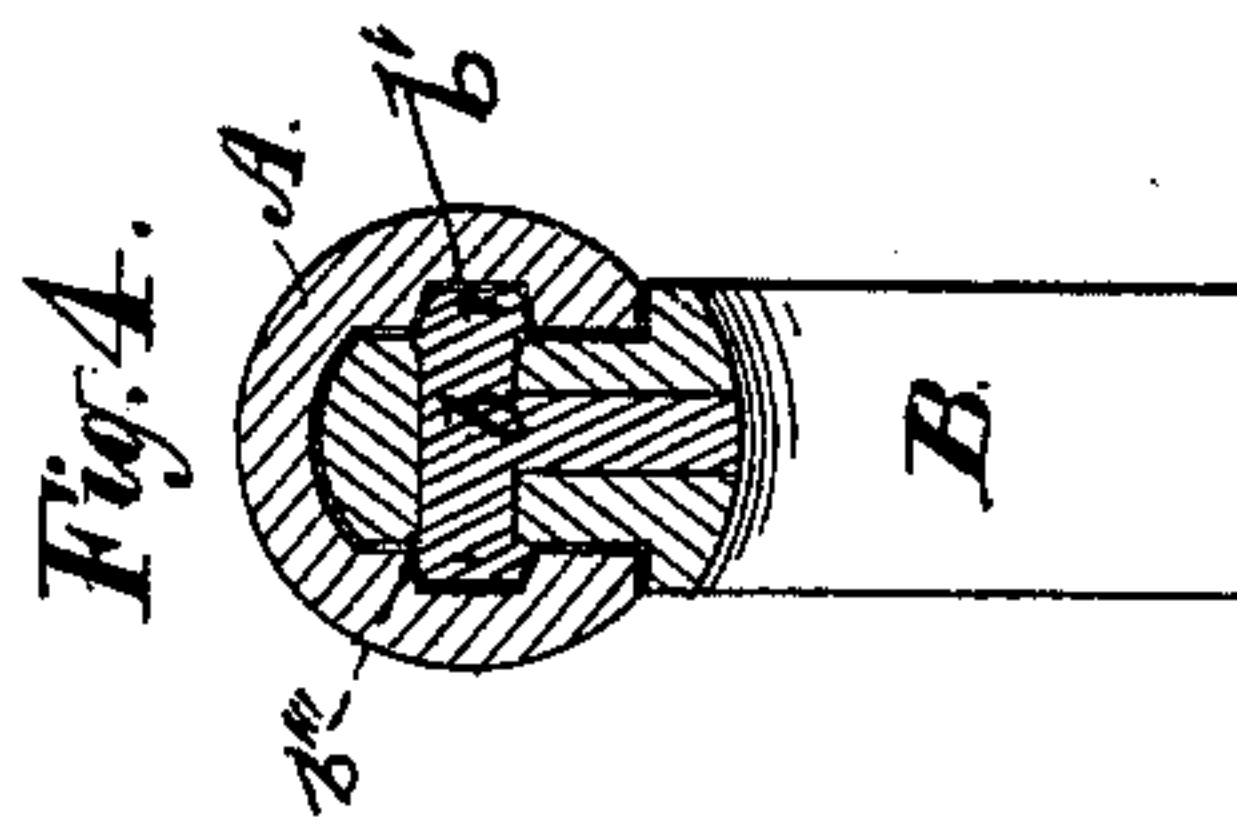
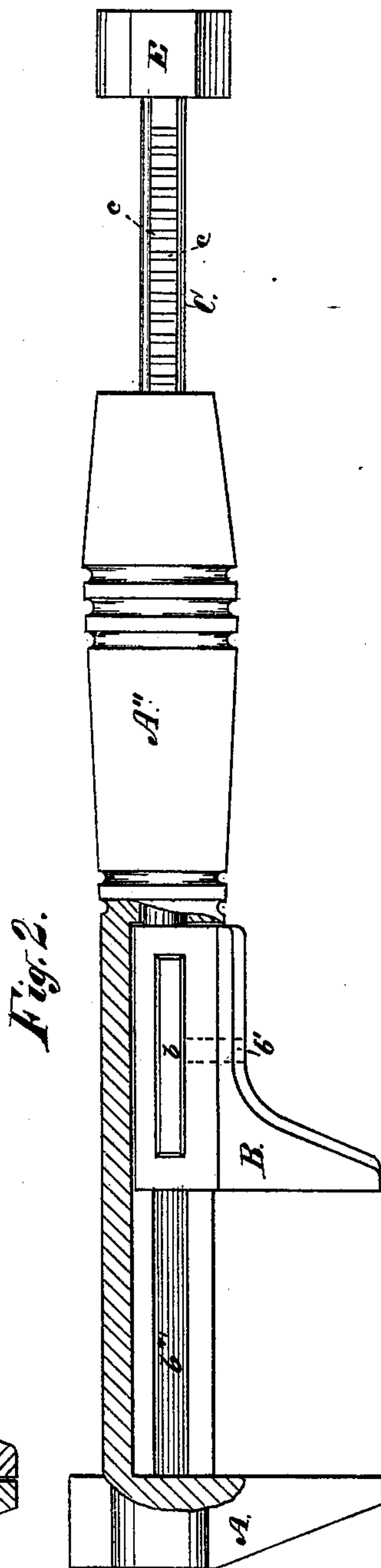
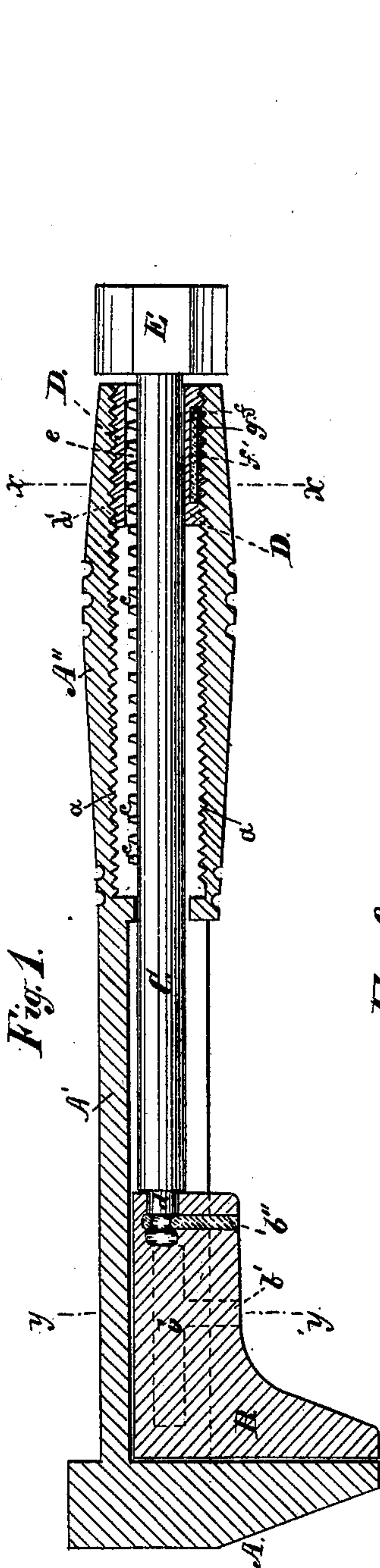


G. V. SHEFFIELD.  
Screw-Wrench.

No. 214,057.

Patented April 8, 1879.



Witnesses:  
Henry Eichling  
Edw. Meyer.

Inventor:  
George Valentine Sheffield  
per John Francis Meyer,  
Atty.



# UNITED STATES PATENT OFFICE.

GEORGE V. SHEFFIELD, OF NEW YORK, N. Y., ASSIGNOR TO JOHN  
FREDERICK MEYER, OF SAME PLACE.

## IMPROVEMENT IN SCREW-WRENCHES.

Specification forming part of Letters Patent No. **214,057**, dated April 8, 1879; application filed  
December 31, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE VALENTINE SHEFFIELD, of the city of New York, State of New York, have invented certain new and valuable Improvements in Screw-Wrenches, of which the following is a specification.

My invention is designed to afford a screw-wrench of comparatively light weight, great strength, rapid adjustability, and powerful gripe without backlash.

My invention is fully illustrated in the accompanying drawings, which are made part of this specification, in which the same letters indicate the same parts, and in which—

Figure 1 is a longitudinal central sectional view of my wrench, in which A is the fixed jaw, A' the body or shank, and A'' the handle. The body and handle are made cylindrical and tubular, and these, together with the fixed jaw, are cast in one piece. The body A' is open on its upper side to admit of the operation of the sliding jaw, and is provided with a way, b''', in either side for the lugs described farther on to slide in. The handle A'' is interiorly threaded at a.

B is the sliding jaw. This descends into the body of the wrench, and is provided on either side with a recess, (designated by the letter b.) These recesses are connected with each other by one or more gates. The letter b' indicates the lugs which are formed in these recesses. b'' is an opening for pouring molten metal into the recesses b b, in order to form the lugs b' b'.

C is a rod, designed to operate the sliding jaw B, to which it is swiveled at d. This rod is provided with a rack, c, and enlarged end E. This rod passes through a sleeve, D, which plays in the handle A'', being exteriorly threaded at d', to engage in the inner surface, a, of the handle. This sleeve is provided with a recess, f, on its exterior surface, into which is compressed a thick piece of rubber or other elastic material, f', and this is protected from wear by a thin piece of sheet metal, g. This device is designed to secure the engagement of the sleeve in the handle. The sleeve is interiorly provided with a semicircular geared rack, e, and slot c'.

Fig. 2 is a side view of my wrench, with the body partly in section, showing the way b'''.

Fig. 3 is a sectional view through the handle, rod, and sleeve, taken at the point indicated by the letter x in Fig. 1, and shows the relative positions of the handle A'', sleeve D, and rod C. This figure further shows the exteriorly-threaded surface d' of the sleeve engaged with the interiorly-threaded surface a of the handle, and the rack c on the rod engaged with the rack e on the interior surface of the sleeve.

Fig. 4 is a cross-section view through the sliding jaw and body of the wrench, taken at the point indicated by the letter y in Fig. 1, and shows the position of the sliding jaw in the body of the wrench, and of the lugs b' b' in the ways b''' b'''.

To put my wrench together I run the sleeve D into the handle A'', and pass through it the rod C. I place the sliding jaw B in position in the body A', and connect with it the rod C by introducing the smaller end d of the rod into an opening in the end of the jaw. The recesses b b of the jaw fall opposite to the ways b''' b'''. To unite the sliding jaw to the body of the wrench and at once form the lugs b' b', I pour molten Babbitt or other metal into the opening b''. The metal flows into recesses b b and the adjacent portions of the ways b''' b''', and, being confined to its proper limits by stopping up the recesses at the ends of the sliding jaw, and also the corresponding portions of the ways, forms the lugs b' b'. The same molten metal may be allowed to flow by means of a gate around the shouldered end d of the rod C, and thus swivel the rod to the jaw; or the connection between the rod and jaw may be effected by means of a pin or screw passing through the sliding jaw to a neck or recess provided near the end d of the rod.

The lugs above described form the supporting-surface of the sliding jaw, and by their confinement in the ways serve to retain it in position when under strain.

Now, to use the wrench, turn the rod C so that the rack c upon it is brought opposite to the slot c' of the sleeve. The rod, and with it the sliding jaw, may now be moved rapidly forward and back. When the sliding jaw is brought approximately into position, the rod may be turned so that the rack c engages with the rack e within the sleeve. Thus the jaw

may be locked where it is desired to hold it. Or, by continuing to turn the rod to the right or the left, the engagement of the sleeve in the handle produces a slow motion of the jaw forward or back, according to the direction in which the rod is turned.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The herein-described wrench, consisting of the fixed jaw A, body A', with the ways  $b''' b'''$ , the handle A'', having the threaded inner surface,  $a$ , the sliding jaw B, having the lugs  $b' b'$ , and the rod C, having the rack  $c$ , the sleeve D, exteriorly threaded at  $d'$ , and provided with the device  $f, f'$ , and  $g$ , to secure the engagement of the sleeve in the handle, and interiorly provided with the geared rack  $e$  and slot  $e'$ , substantially as set forth.

2. In a wrench, the concave body A', provided with recesses  $b''' b'''$ , the movable jaw B, provided with recesses  $b b$ , and the packing or lugs  $b' b'$ , combined to operate as and for the purpose set forth.

3. The method of at once forming the lugs

in a jaw and uniting the jaw to the ways of the body—namely, placing between the ways of the body a jaw having recesses communicating with the ways, and pouring molten metal therein and against the ways, substantially as set forth.

4. The tubular handle A'', interiorly threaded, the sleeve D, exteriorly threaded, and provided with the device  $f, f'$ , and  $g$ , to secure the engagement of the sleeve in the handle, the said sleeve being interiorly provided with the rack  $e$  and slot  $e'$ , all combined with the rod C, which is provided with the rack  $c$  and swiveled to the sliding jaw B, substantially as set forth.

5. The device set forth for securing the engagement of the sleeve D with the handle A'', consisting of the elastic material  $f'$  and shield  $g$ , placed in the recess  $f$ , as and for the purpose described.

GEORGE V. SHEFFIELD.

Witnesses:

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