

D. ACKERMAN.  
Wrench for Inserting Bung-Bush.

No. 213,026

Patented Mar. 11, 1879.

Fig. 1.

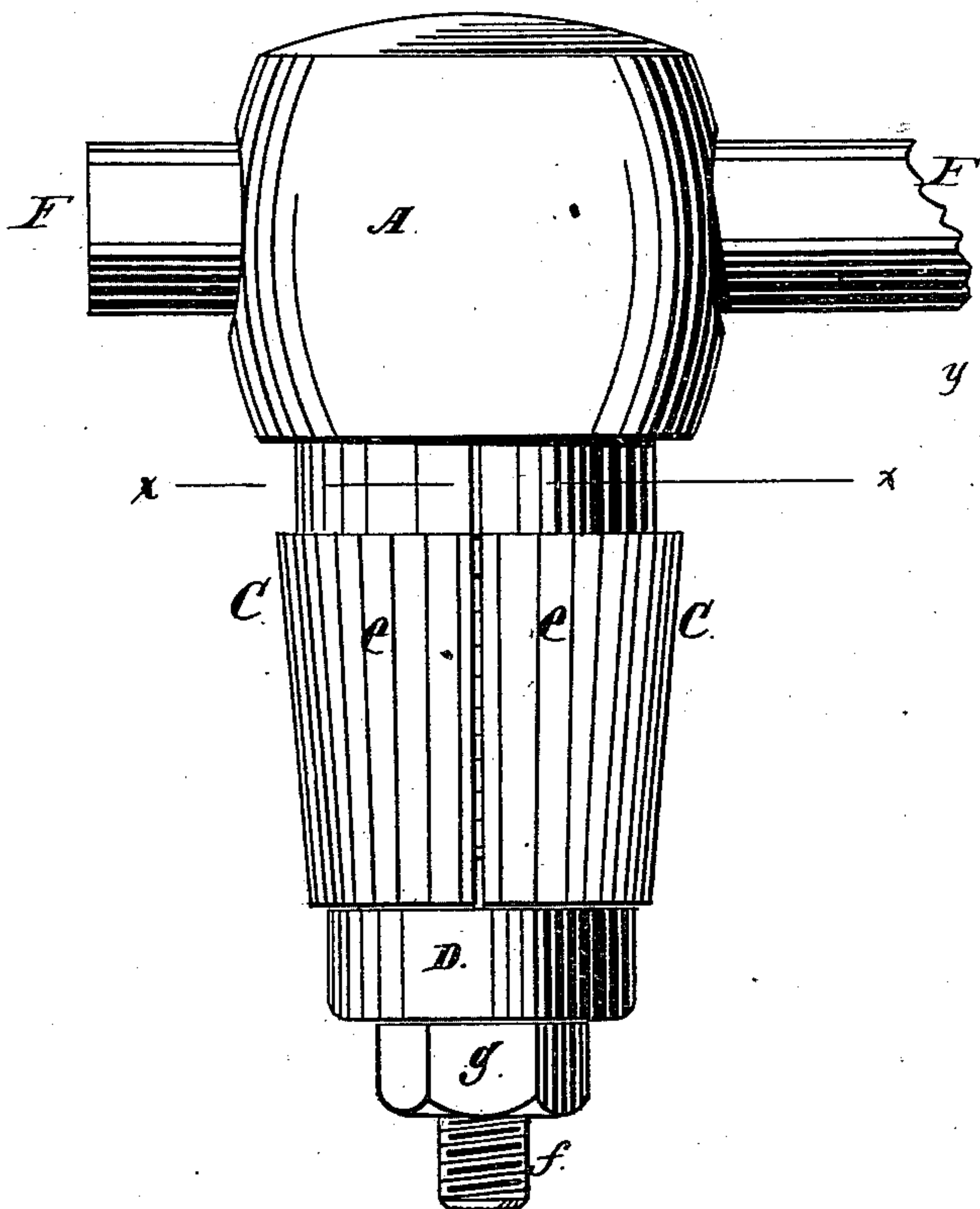


Fig. 3.

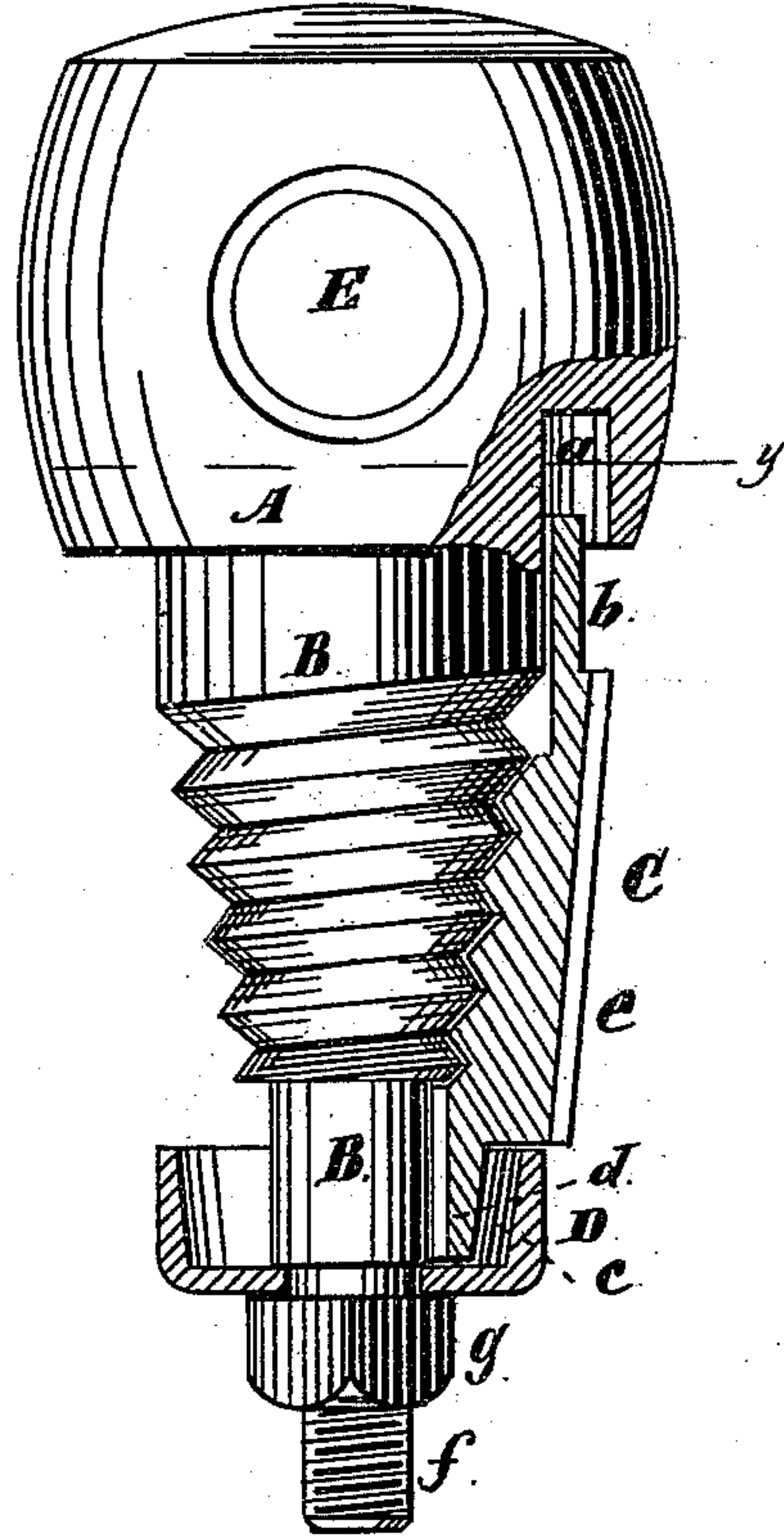


Fig. 2.

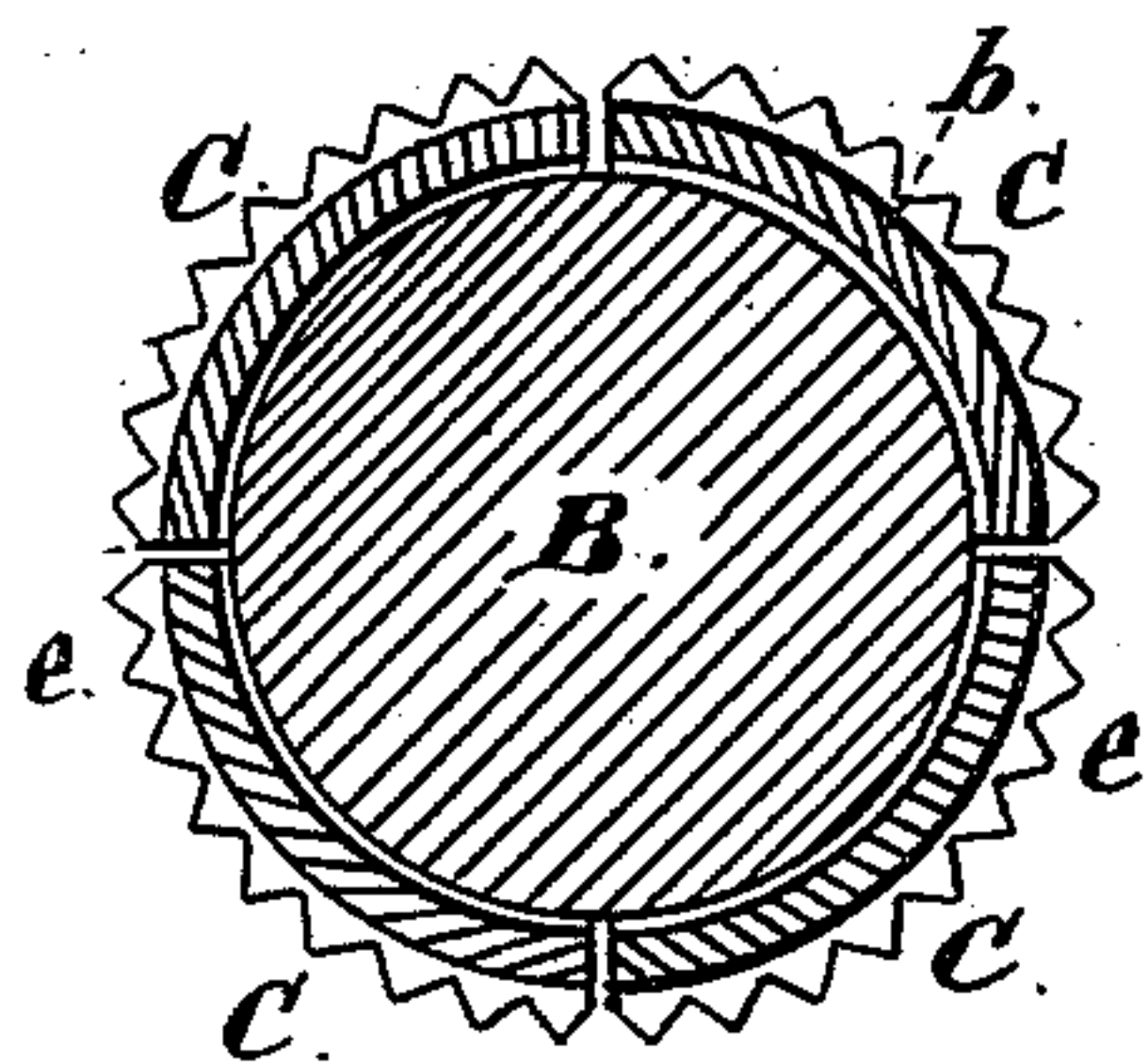
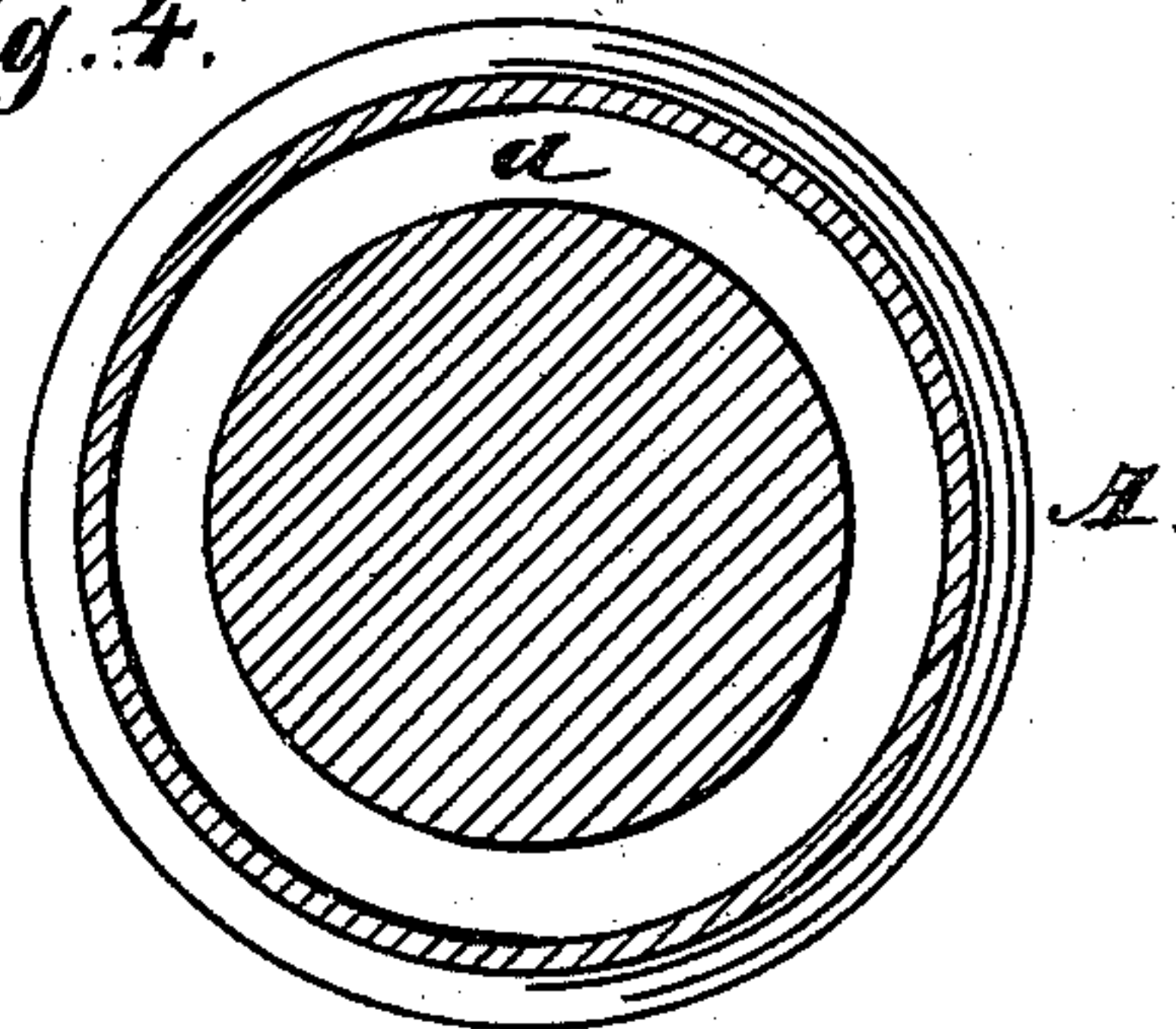


Fig. 4.



Witnesses:

W. Bond-  
H. L. Bruns.

Inventor:

David Ackerman.  
By Wm. & Bond Attys.



# UNITED STATES PATENT OFFICE.

DAVID ACKERMAN, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN WRENCHES FOR INSERTING BUNG-BUSHES.

Specification forming part of Letters Patent No. **213,026**, dated March 11, 1879; application filed November 7, 1878.

*To all whom it may concern:*

Be it known that I, DAVID ACKERMAN, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Wrenches for Inserting Bung-Bushes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation, showing the wrench ready for operation; Fig. 2, a cross-section on line *x x* of Fig. 1; Fig. 3, an elevation of the stem and head, a portion of the head being in section, showing also the retaining-cap and one of the plates in section, the remainder of the plates being removed; Fig. 4, a cross-section on line *y y* of Fig. 3.

This invention relates to wrenches for inserting hollow screw-plugs or metal facings for openings, and is primarily designed for the insertion of bung-bushes. Its object is to construct a wrench which, when in use, will bear uniformly in all directions against the face of the bush or facing, so as to prevent the breaking of the bush from uneven strain, and insure a more even insertion thereof in position; and its nature consists in providing a head with a stem having a conical portion provided with a screw-thread, in providing a series of plates or leaves arranged around the stem, so as to be capable of expansion through the medium of the screw-thread, and in securing such plates in position by a cap at their lower ends and a groove or recess in the head at their upper ends.

In the drawings, A represents the head; B, the stem or support; C, the expanding plates or staves; D, the retaining-cap; E, the opening for the insertion of a rod or lever; F, the rod or lever; *a*, the groove or recess in the head; *b*, the upper ends of the plates; *c*, the space or opening to receive the lower ends of the plates; *d*, the lower ends of the plates; *e*, the corrugations or teeth on the exterior face of the plates; *f*, the screw-threaded end of the stem; *g*, the securing-nut.

The head A may be cast or otherwise formed, and is provided with an opening, E, to receive a rod or lever, F, by means of which the wrench is operated, as shown. The stem or support B is formed with the head A, and has a conical portion, which is provided with a screw-thread, as shown in Fig. 2. The plates

C are cast or otherwise formed so as to have an interior face which will fit the conical portion of the stem, which face is provided with a corresponding screw-thread to that on the stem and exterior face, having a slight taper, which, as shown, is provided with corrugations or teeth *e*, to prevent slipping when engaged with the inner face of the bush. These plates C are located around the stem or shank B, so that they will be expanded or contracted by the action of the screw-thread when the head is revolved. The upper ends, *b*, of these plates C enter a groove or recess, *a*, formed in the under face of the head A, around the base of the stem, and their lower ends, *d*, enter an opening, *c*, between the flange of the cap D and the portion of the stem below the cone, so that the plates are held in position around the stem, and are free to be raised or lowered by the action of the screw-thread. The plate of the cap D is provided with a central opening to receive the lower end of the stem, over which it is slipped, and, as shown, is provided with an upward-projecting flange, to prevent the lower ends, *d*, of the plates or staves from being sprung out in operation. The lower end, *f*, as shown, is provided with a screw-thread to receive a nut, *g*, by means of which the cap D is held in position. The groove or recess *a* should be of a sufficient depth to allow the ends *b* to slide up therein when the plates are expanded.

In Fig. 1 the parts are shown in the position they occupy when the wrench is to be inserted in the bush, the plates being at their lowest point, in which position they will extend entirely around the stem, or nearly so, and will allow the wrench to be easily inserted in the bush and fill the opening therein, so that when expanded the leaves will be carried or pressed outward uniformly in all directions, thereby keeping the bush round, and preventing any uneven strain on the bush, which would be liable to break it.

In use, after the wrench is inserted in the bush, a slight turn in the direction required for inserting the bush will carry the stem B down, raising the plates C, which enlarges their diameter, and causes the wrench to engage firmly with the bush on all sides of its opening, which engagement will continue until the bush is inserted, when a slight reverse



movement can be given to the head, causing the plates to contract, and allowing of the easy withdrawal of the wrench from the bush.

The stem might be made conical its entire length, a corresponding shape being given to the inner faces of the plates, and instead of four plates, C, as shown, two or more might be used; but in either case the stem is to be provided with a screw-thread for raising and lowering the plates, so as to increase or diminish their diameter.

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

1. The head A, provided with a conical screw-threaded stem, B, and adapted to receive and operate two or more expanding

plates, substantially as and for the purposes specified.

2. The head A, provided with the conical screw-threaded stem B, in combination with the plates C and retaining-cap D, whereby the revolving of the head will expand or contract the plates, substantially as specified.

3. The head A, provided with the conical screw-threaded stem B, in combination with the plates or leaves C, cap D, and nut g, substantially as and for the purposes specified.

DAVID ACKERMAN.

Witnesses:

O. W. BOND,  
H. F. BRUNS.