D. ACKERMAN.

Bung-Bush Wrench.

No. 218,106. Patented Aug. 5, 1879.

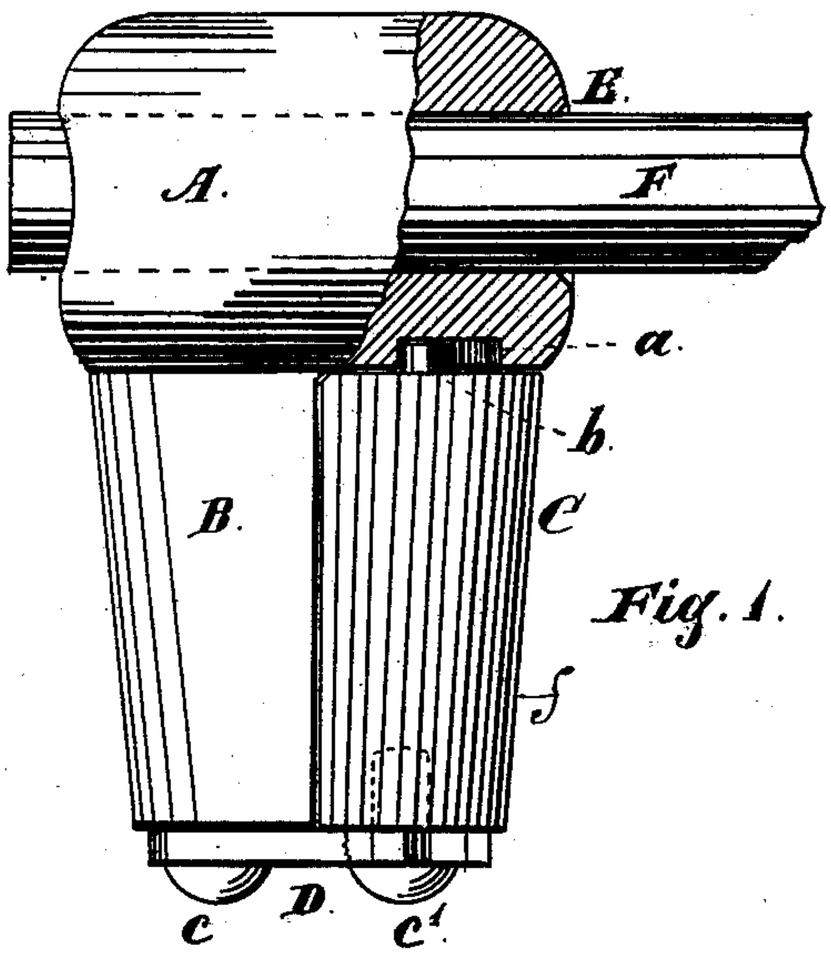



Fig. 1.

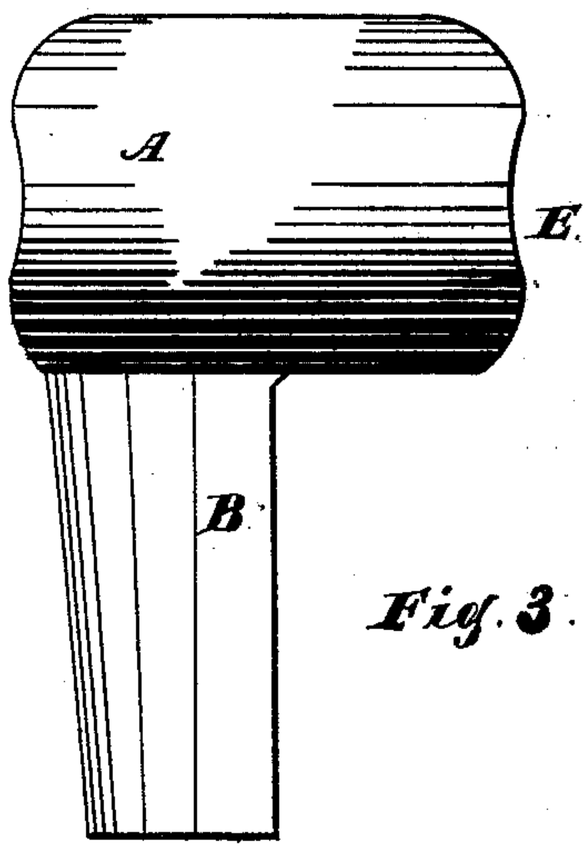



Fig. 3.

Fig. 2.

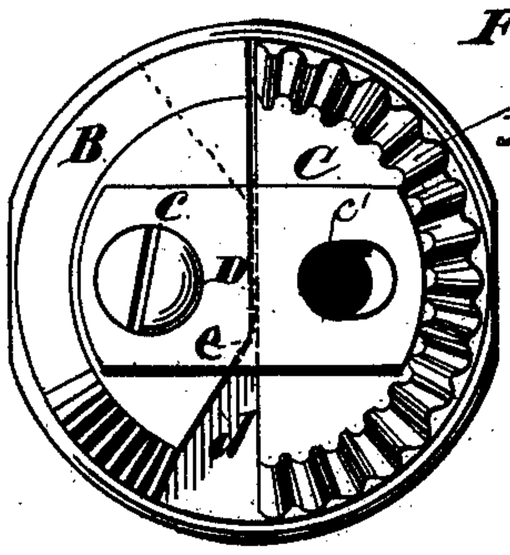
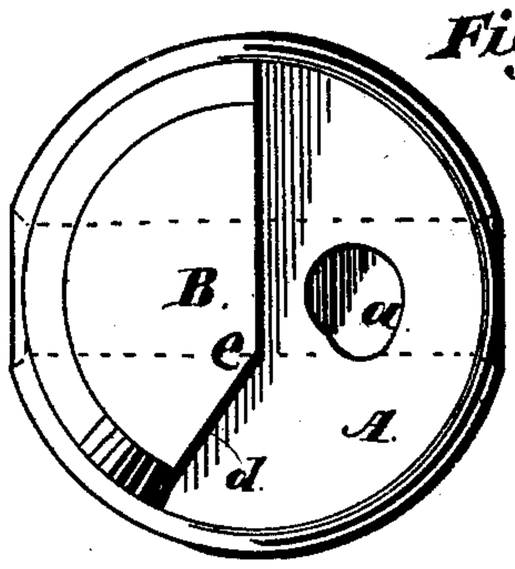



Fig. 4.




Witnesses:

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# UNITED STATES PATENT OFFICE.

DAVID ACKERMAN, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN BUNG-BUSH WRENCHES.

Specification forming part of Letters Patent No. **218,106**, dated August 5, 1879; application filed December 12, 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 a new and useful Improvement 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 a side elevation showing the wrench in position for insertion, a portion of the head being in section to show the upper bearing or connection of the loose or movable section of the wrench; Fig. 3, a side elevation of the head and stationary section; Fig. 2, a bottom view of the complete wrench; Fig. 4, a bottom view with the movable section removed.

This invention relates to that class of wrenches designed for the insertion of hollow screw-plugs or metal facings into openings, and is primarily designed to be used with bung-bushings.

Its objects are to simplify the construction, lessen the cost of manufacture, and improve the construction of that portion of the wrench which is inserted in the opening in the bushing, so that in the operation of inserting the bushing the strain will be distributed around the entire circumference of the bush instead of being located at a single point; and its nature consists in providing a head with a support adapted to enter the opening in the bush, consisting of a stationary section and a movable section, each section consisting of a half-circle, except that a small portion of the corner face of the stationary section is cut away to form a fulcrum to engage with the movable or loose section and force it against the face of the bush-opening, and in the devices for securing the movable or loose section in place.

In the drawings, A represents the head; B, the fixed or stationary section or half-circle of the support; C, the movable or loose section or half-circle of the support; D, the strap supporting the lower end of the loose section C; E, the opening in the head for the insertion of a bar or lever; F, the bar or lever; *a*, the opening or bearing for the upper end of the movable section; *b*, the pin on the upper end of the movable section; *c c′*, the screws for attaching the plate or strap D; *d*, the cut-away portion of the stationary section; *e*, the fulcrum; *f*, the serrations or teeth on the movable or loose section.

The head A may be cast or otherwise suitably formed, and may be of any desired shape, and, as shown, is provided with a hole, E, in which a bar or lever, F, is inserted for operating the wrench.

The half-circle or section B of the bush-support is cast or formed with the head, as shown, and is slightly tapered, and has a smooth outer surface. The inner surface or face of this section has a small portion, *d*, cut away at one corner, so as to leave a fulcrum, *e*, as shown in Fig. 4.

The loose section or half-circle C is cast or otherwise suitably formed, its outer surface, as shown, being provided with teeth or serrations *f* to engage with the face of the bush-opening, and its inner face being left flat and plain, and the outer face being given a slight taper. This section C lies loosely against the inner face of the section B, and, as shown, is held in place by the pin or projection *b* on the upper end of the section, which enters an opening, *a*, in the under face of the head A, suitably located and formed to receive the pin and form a bearing therefor, and the strap D, one end of which is secured to the under face of the section B, and the other to the under face of the section C, by means of screws *c c′*, or in any other suitable manner.

The diameter of the opening *a* is larger than the diameter of the pin *b*, and the opening in the end of the strap which is secured to the section C for the passage of the screw *c′* has a larger diameter than the screw, by which means the section C has considerable freedom of movement to insure its proper working.

The form of the taper and the circumference of the two sections when together are such as to permit the proper insertion of the wrench in the opening of the bushing.

In Figs. 1 and 2 the parts are shown in the position they occupy when ready for insertion, and, when inserted, by turning the head in the direction for inserting the bush to a slight extent, the stationary section B, by reason of its smooth outer face, will slip or

slide on the face of the bush-opening, while the movable section C, by reason of the teeth or serrations on its outer face, will engage with the face of the bush-opening, causing the fulcrum *e* on the section or half B to engage the face of the section or half C at a given point, and press or carry said section outward against the face of the bushing or opening, thereby engaging the wrench with the bushing, which engagement will continue until the bush is inserted, when a slight reverse movement can be given to the head A, which disengages the fulcrum *e* from its contact with the face of the loose section, allowing the section to fall back to its first position, when the wrench can be withdrawn.

A pin or projection might be formed on the lower end of the section C, and take the place of the screw *c'* for attaching the section to the strap D; and other means than the strap D can be used for supporting the loose section at its lower end.

By making the support for the bushing of two sections or half-circles, one stationary and the other loose, and providing the stationary section with a fulcrum, so that it will act as a lever to press or carry the loose section outward, it will be seen that the pressure on the bush will be pretty evenly distributed around its entire circumference, and thereby the insertion of the bush rendered more uniform, with less danger of breakage.

By using only two sections or half-circles, constructed and operating as described, a wrench is provided which does away with eccentrics, rollers, or other devices heretofore used for expanding outside pieces, arranged around a central core, in wrenches of this class, which devices, in practice, are found largely impracticable, by reason of the breakage of the outside pieces by the action of the eccentrics or rollers, and the forcing of the bushes out of shape and breaking them when inserting them in place from the undue strain in one place exerted by the action of these devices.

In the form shown the wrench is adapted for inserting bushes only; but, by cutting away the opposite corner of the section B, as shown by dotted lines in Fig. 2, it can be used for inserting and removing.

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

A bung-bushing wrench having the head A and the section B formed together, in combination with an expansible section formed with an arc of the same circle, and the expanding shoulder *c*, substantially as specified.

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