Bechtel, Strahan & Hardy.

Metal Reamer.

No. 67,708. Patented Aug. 13, 1867.

Fig. 1.

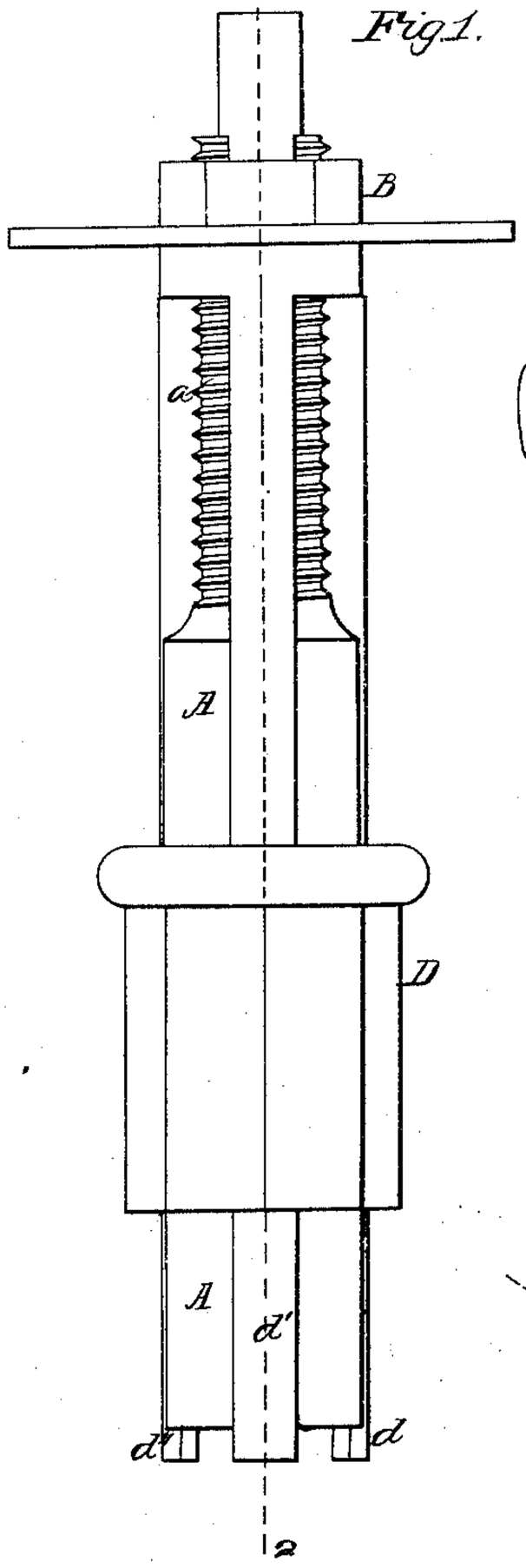


Fig. 2.

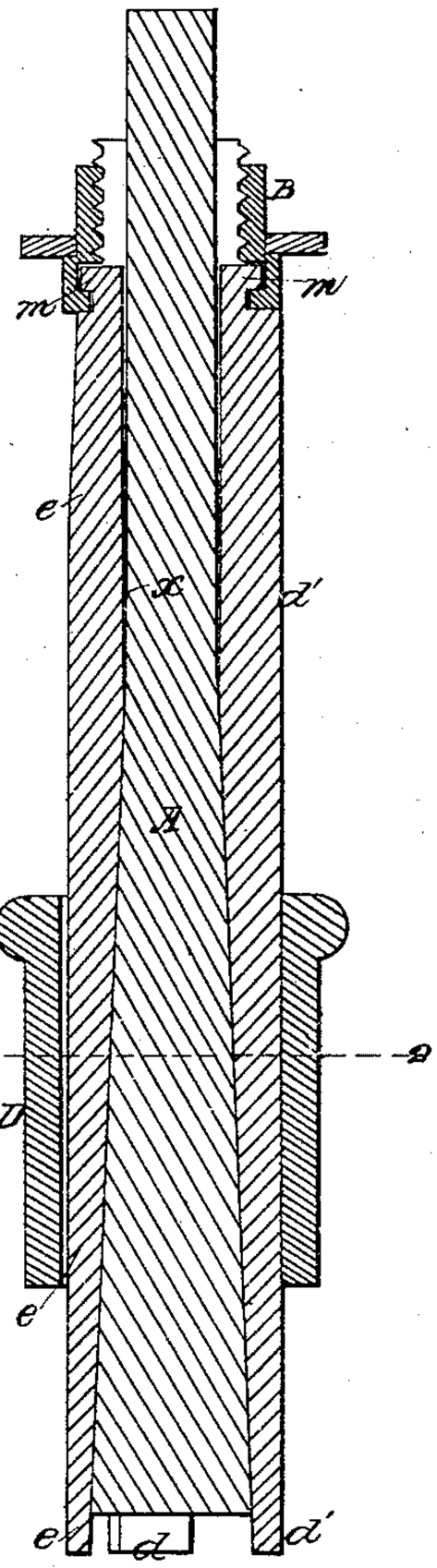


Fig. 3.

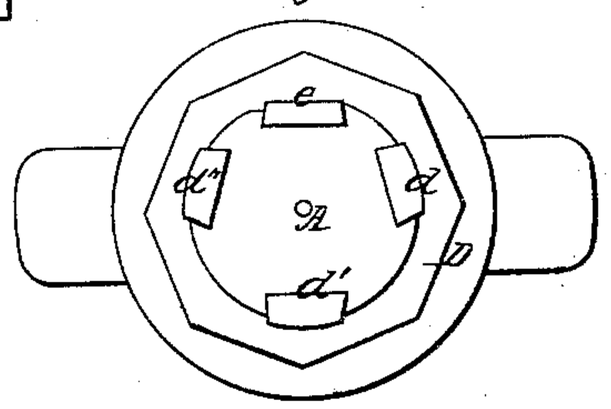


Fig. 4.

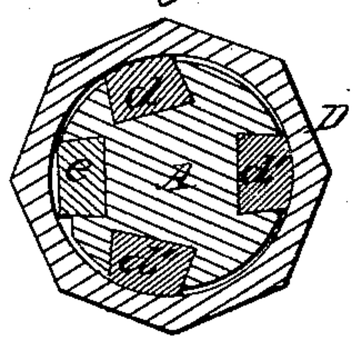
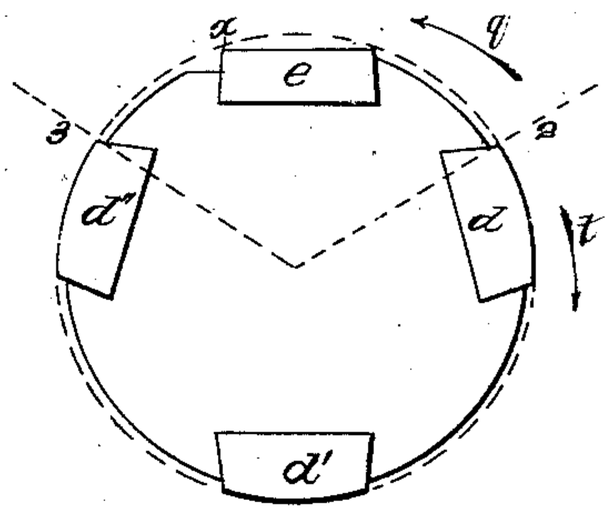


Fig. 5.



Witnesses:
Wm. Albert Steel
S. H. Hoxie Godwin

Inventors:
W. H. Bechtel
W. H. Strahan
T. P. Hardy
By their Atty
H. C. Hoxie

United States Patent Office.

WILLIAM H. BECHTEL, WILLIAM H. STRAHAN, AND THOMAS HARDY, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 67,708, *dated August* 13, 1867; *antedated August* 1, 1867.

IMPROVED REAMER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM H. BECHTEL, WILLIAM H. STRAHAN, and THOMAS HARDY, of Philadelphia Pennsylvania, have invented an Improved Reamer; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

Our improved reamer consists of three tapering guiding-strips and a cutting strip arranged on the body of the reamer and controlled by a nut, as described hereafter.

In order to enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation. On reference to the accompanying drawing, which forms a part of this specification—

Figure 1 is an exterior view of our improved reamer.

Figure 2, a longitudinal section of the same on the line 1–2, fig. 1.

Figure 3, a view looking towards the lower end of the reamer.

Figure 4, a sectional plan on the line 1–2, fig. 1; and

Figure 5, a view of the lower end of the reamer drawn to an enlarged scale.

Similar letters refer to similar parts throughout the several views.

The body of the reamer consists of a solid cylinder, A, of iron or steel, the upper portion, *a*, of which is reduced in diameter, screw-threads being formed on this reduced portion, to which is adapted a nut, B. Along the entire length of the body of the reamer are cut four longitudinal dove-tailed grooves for the reception of the four strips, *d*, *d'*, *d''*, and *e*. Each strip is of the tapering form represented in fig. 2, being inclined on one side from the lower end, where it is thinnest, to the point *x*, beyond which point each strip is of uniform thickness, the bottom of each groove having a corresponding inclination from the lower end of the body of the reamer to about the same point *x*, beyond which point the groove is of uniform depth. In the nut B is an annular recess for the reception of a projection, *m*, on the upper end of each of the strips, the whole of which can, by turning the nut, be depressed, so as to increase the diameter of the reamer, or elevated, so as to decrease the diameter.

Of the four strips, those marked *d*, *d'*, and *d''* are rounded on the outer surface, and serve as steadying-strips only, the remaining strip *e* being the cutter. The peculiar arrangement of the strips will be best observed on reference to fig. 5, where the red circle represents the extreme diameter of the reamer measured over the strips. The distance in the direction of the arrow *q*, measured on the red circle, from the edge 2 of the strip *d* to the edge 3 of the strip *d''* is less than one-half the distance between the same points measured in the direction of the arrow *t*; hence in reaming a hole in any object, as, for instance, the object D, the position of the reamer in the hole must be entirely under the control of the three guiding-strips, which must consequently control the action of the cutting edge of the strip *e*. The reamer must therefore make the hole in the metal acted on perfectly true. The reamer may be expanded in diameter from time to time during its action by turning down the nut B.

We claim as our invention, and desire to secure by Letters Patent—

1. The three tapering guiding-strips *d*, *d'*, and *d''* and cutting-strip *e*, in combination with the body A of the reamer, all constructed and arranged substantially as described.

2. We claim the above in combination with the nut B.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM H. BECHTEL,
WM. H. STRAHAN,
THOMAS HARDY.

Witnesses:

JAS. C. SITTERMARY,
JAS. M. SIEMERS.