

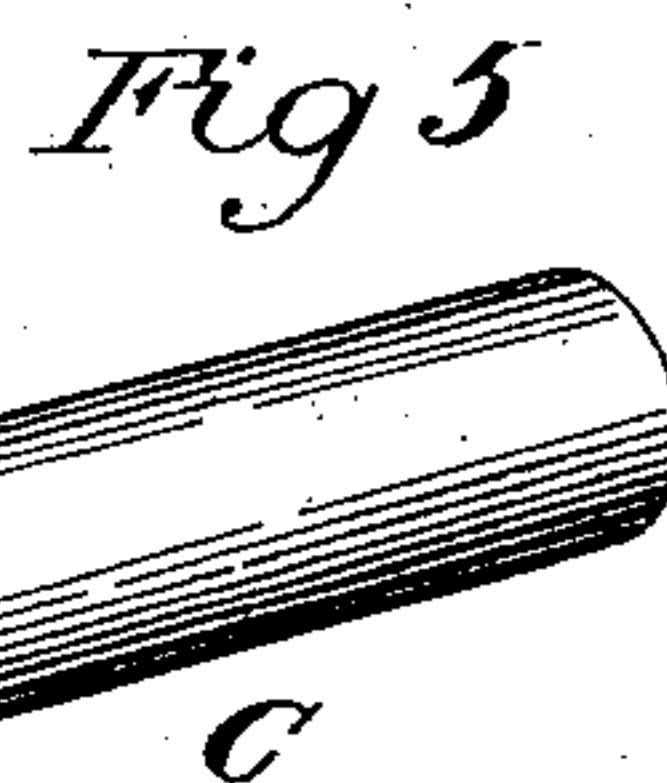
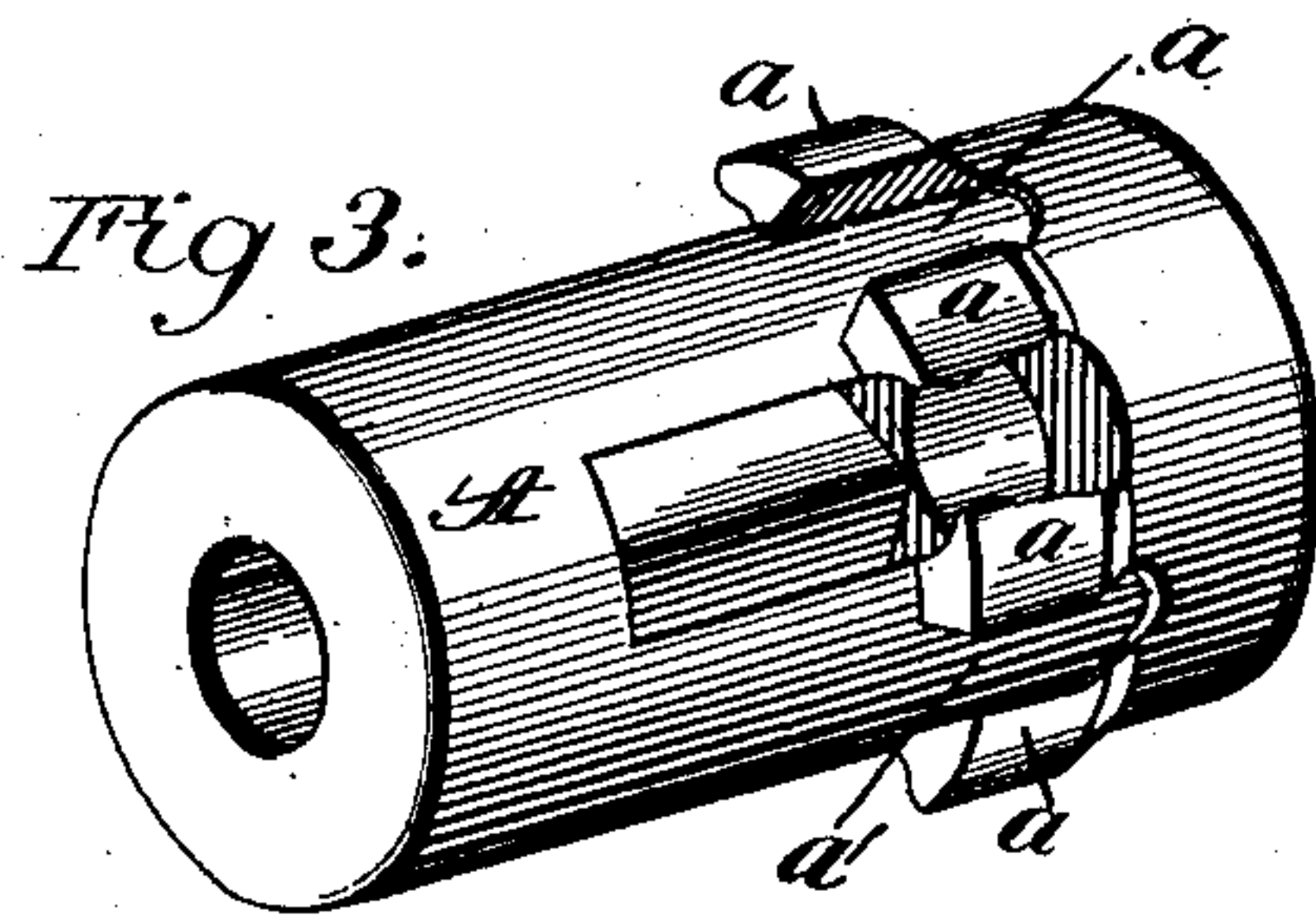
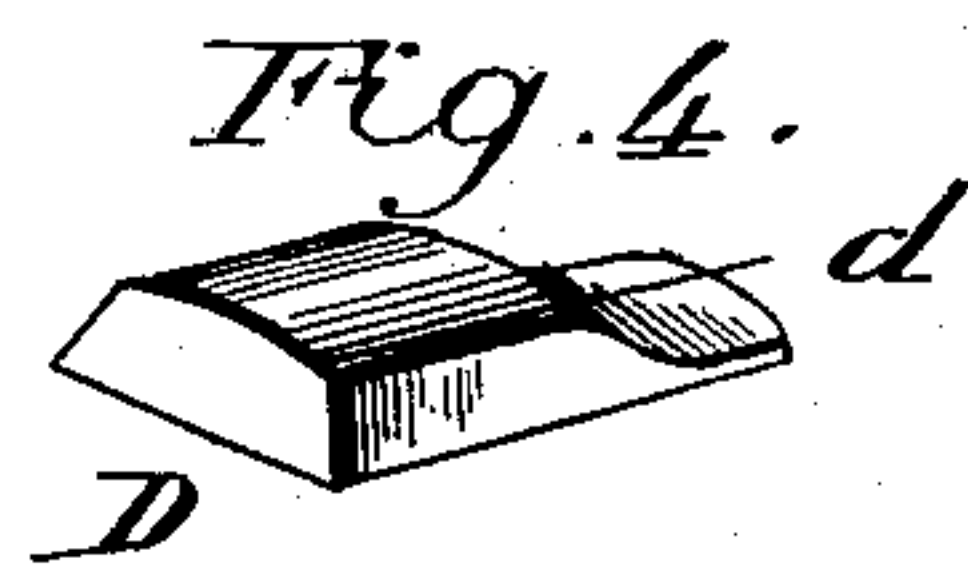
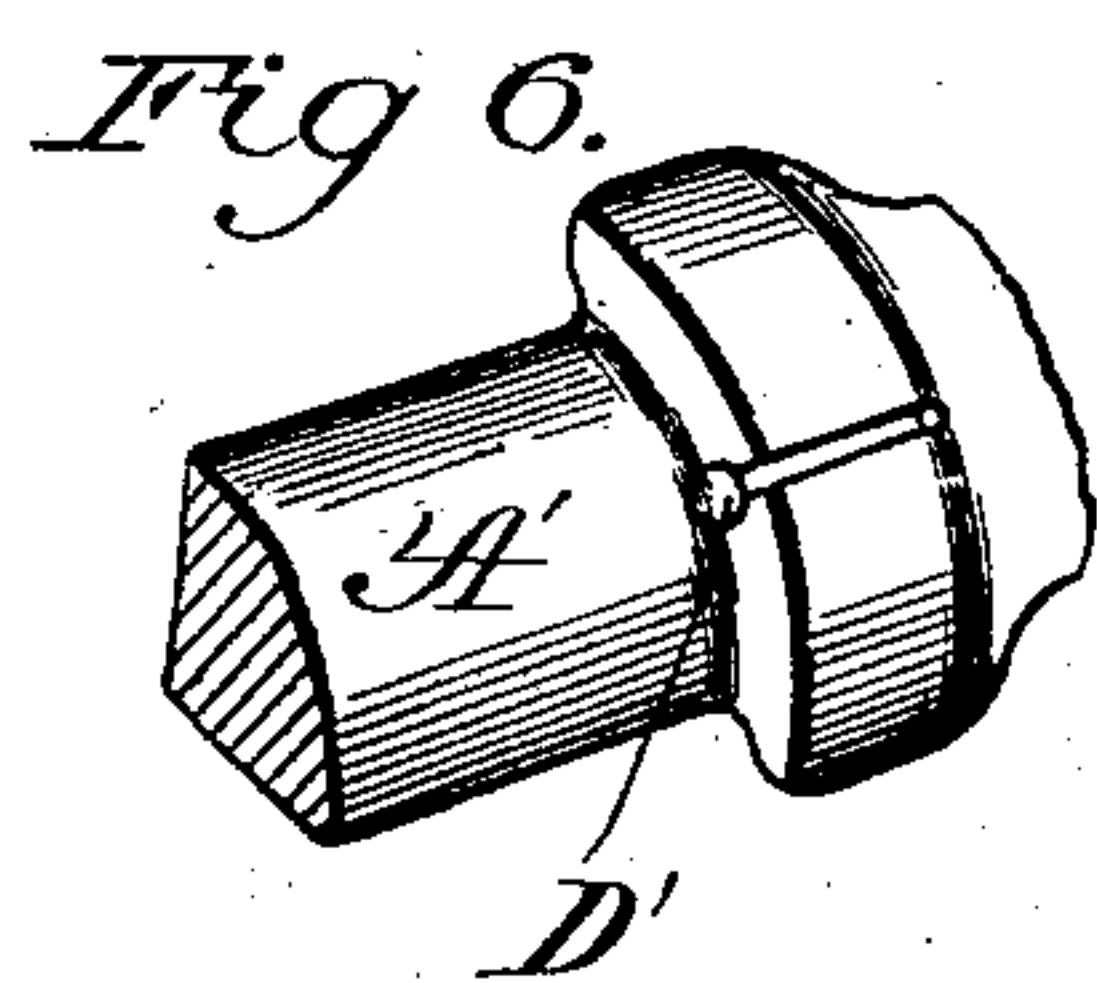
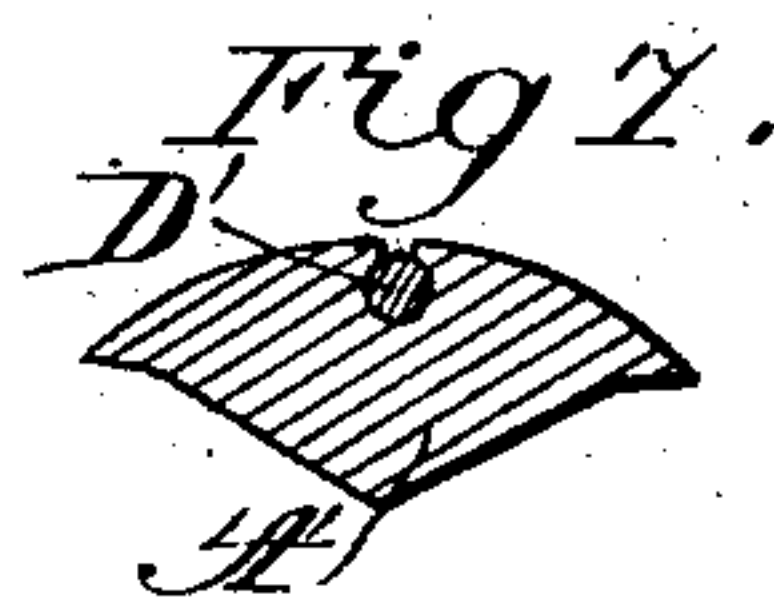
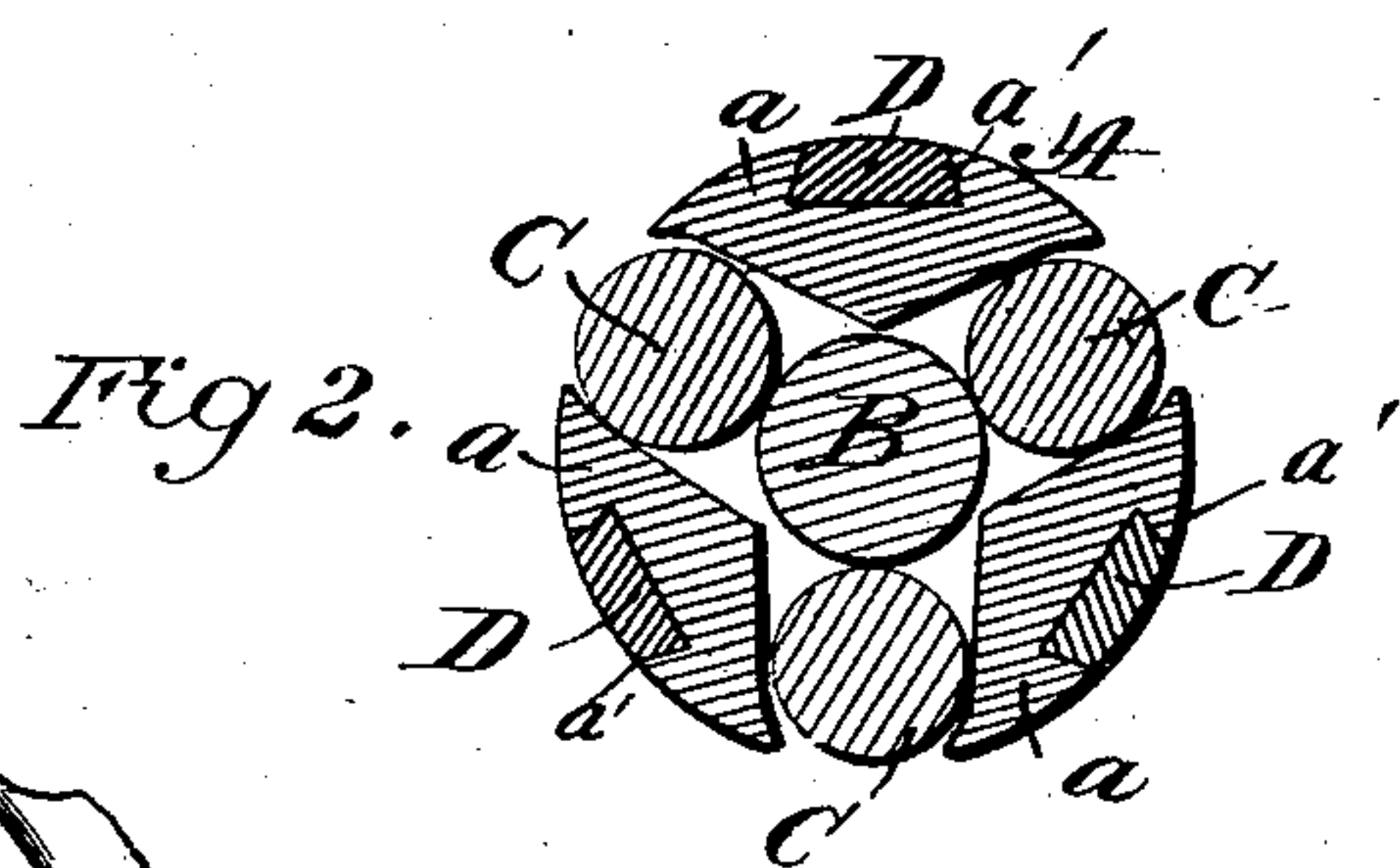
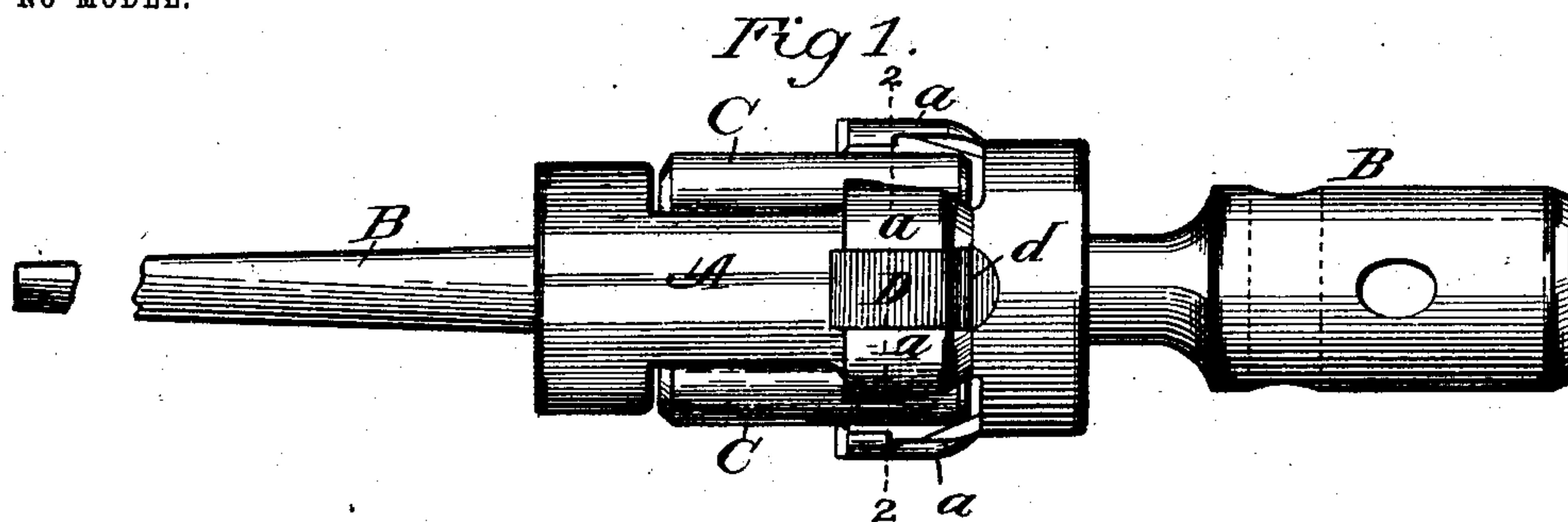
No. 750,177.

PATENTED JAN. 19, 1904.

J. W. FAESSLER.
FLUE EXPANDER.

APPLICATION FILED NOV. 7, 1903.

NO MODEL.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JOHN WILLIAM FAESSLER, OF MOBERLY, MISSOURI.

FLUE-EXPANDER.

SPECIFICATION forming part of Letters Patent No. 750,177, dated January 19, 1904.

Application filed November 7, 1903. Serial No. 180,186. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILLIAM FAESSLER, a citizen of the United States, residing at Moberly, in the county of Randolph and State of Missouri, have made certain new and useful Improvements in Flue-Expanders, of which the following is a specification.

My invention is an improvement in that class of flue-expanders which are composed of a cylindrical body having a longitudinal bore to receive the expanding-mandrel and longitudinal slots to receive antifriction-rollers and are further provided with an enlarged circular collar, the latter forming a circumferential shoulder which in practice works in contact with the end of a boiler-flue when the same is being expanded. Such collar being made, like the body proper, of soft machinery steel it is subject to rapid wear. I provide such shoulder or collar with transverse slots and insert removable wear-pieces therein, the same abutting shoulders at the rear ends and projecting on the front side of the collar, so as to work in contact with the end of a flue when the tool is used for expanding the latter.

The details of construction and arrangement of parts are as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is a side or plan view of my improved tool-expander. Fig. 2 is a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of the roller-box constituting the body of the tool. Fig. 4 is a perspective view of one of the removable wear-pieces. Fig. 5 is a perspective view of one of the antifriction-rollers with which expanders of this class are commonly provided. Fig. 6 is a perspective, and Fig. 7 a sectional, view of a modification.

A indicates the roller-box constituting the body of the tool, the same being provided with a longitudinal bore to receive the tapered mandrel B and also with longitudinal slots which receive the cylindrical antifriction-rollers C. There is nothing new in the construction, arrangement, and operation of these parts, which are employed in the flue-expander for which Letters Patent No. 270,770 were granted to J. Faessler. In the former invention

and in others of this class the roller-box is provided with an enlarged collar *a*, which forms a circumferential shoulder, the front side of the same being vertical or at right angles to the axis of the roller-box. In using the tool the roller-box A is inserted in the end of a flue which has become worn or defective in use. To prevent wear of the shoulder, which would otherwise occur by contact with the end of the flue, I employ hardened-steel wear-pieces D, which are so arranged in connection with the collar *a* that their inner ends project forward of the vertical edge of the latter, as shown in Fig. 1. These wear-pieces D are made detachable, so that they may be replaced by others when required. Their rear ends abut shoulders that form the rear ends of the sockets *a'*, so that the wear-pieces are held firmly against pressure applied to their front ends.

As shown in Figs. 2 and 4, the wear-pieces D have inclined sides and are relatively thin and preferably rounded on the outer side to conform to the circumferential line of the collar *a*. The sockets formed in the latter have correspondingly-sloping sides or are, in other words, dovetailed, so that when the wear-pieces are inserted, as shown in Figs. 1 and 2, they retain their position by friction. The rear or outer end of the wear-piece is reduced, as shown at *d*, whereby a shoulder is produced which conforms to the slope of the rear edge of the collar *a*. This construction, however, provides a shoulder against which a pressure or blows may be applied for driving the wear-pieces forward out of their sockets when it is required to remove them for the substitution of new ones. As will be seen in Fig. 1, the inner or front ends of the wear-pieces D project slightly beyond the vertical edge of the collar *a*, and hence in the use of the tool they take all the wear due to contact with the ragged edge of a flue and prevent any wear of the collar proper. They thus form a highly useful, but comparatively inexpensive, adjunct or attachment of the flue-expander proper.

In Figs. 6 and 7 I illustrate an arrangement of cylindrical wear-pieces or hard-steel pins D', the same being inserted and held by friction in slots formed in the collar of the roller-box A. The front ends of the pins D' are

flush with the shoulder of the collar, so as to take the wear when the tool is in use. Their other ends are exposed and accessible, so that the pins may be driven out when required.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a flue-expander of the type specified, the combination, with the roller-box having a
10 radial circumferential shoulder provided with transverse sockets terminating at their rear ends in shoulders as stated, of the removable wear-pieces adapted to fit in said sockets, their rear ends abutting the rear shoulders of the
15 sockets, and made accessible for the purpose of facilitating removal, as described.

2. In a flue-expander of the type specified, the combination, with a roller-box having a radial circumferential shoulder provided with
20 transverse sockets of dovetail form, terminating at their rear ends in shoulders as specified, of the removable steel wear-pieces having a dovetail shape corresponding to the sockets and their rear ends abutting the shoulders of

the sockets, while their front ends project on
the front of the collar, substantially as described. 25

3. In a flue-expander of the type specified, the combination, with the roller-box having a circumferential collar provided with trans-
30 verse dovetail sockets that extend through said collar, of hardened wear-pieces having a dovetail shape corresponding to the said sockets and also provided with a shoulder which appears on the rear side of the collar, as de-
scribed. 35

4. In a flue-expander of the type specified, the combination, with the roller-box having a circumferential collar provided with dovetail longitudinal sockets, of hardened wear-pieces
40 having a dovetail shape corresponding to the said sockets and also provided with a shoulder on the rear or outer end, substantially as described.

JOHN WILLIAM FAESSLER.

Witnesses:

W. A. WIGHT,
G. P. EDDINGS.