

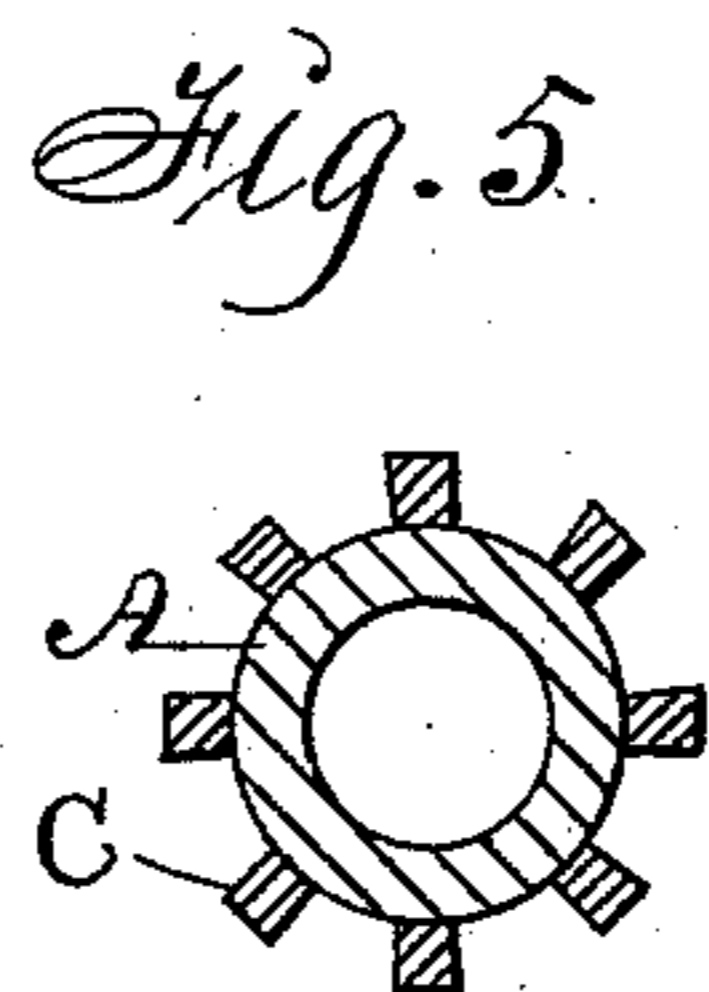
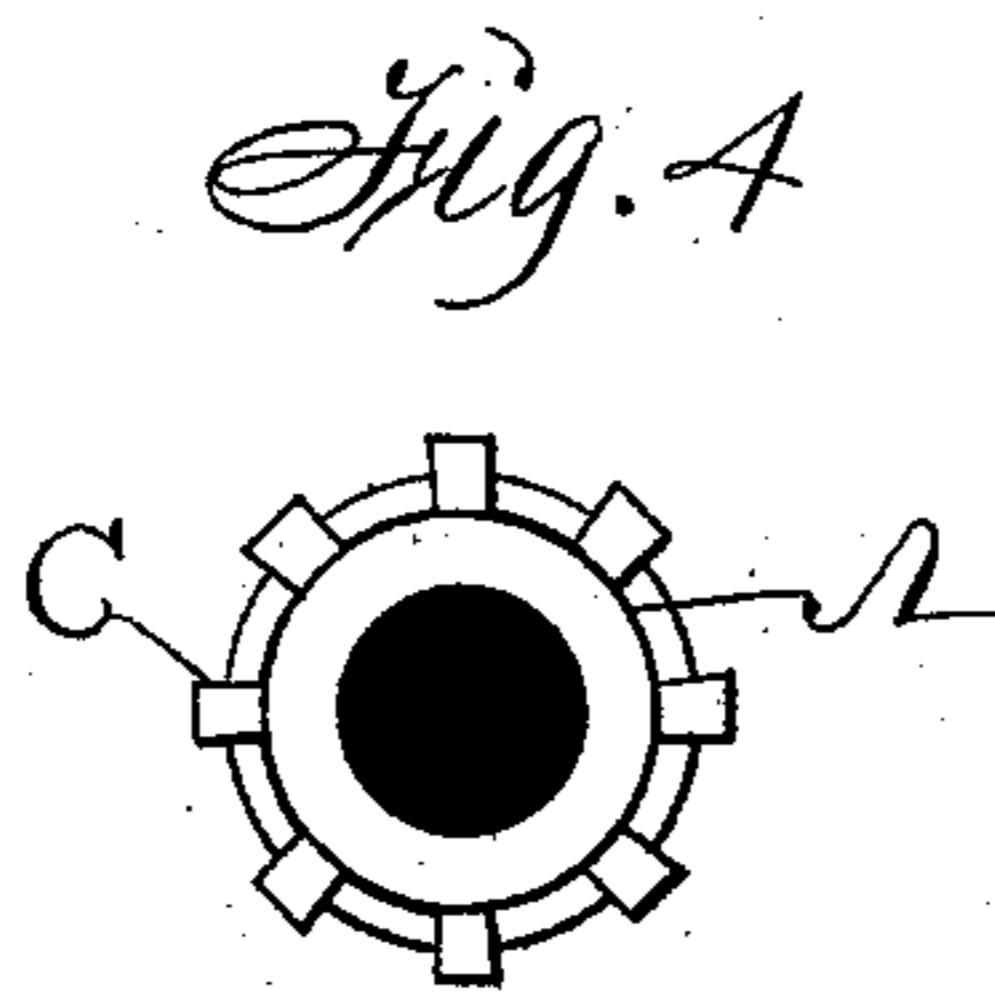
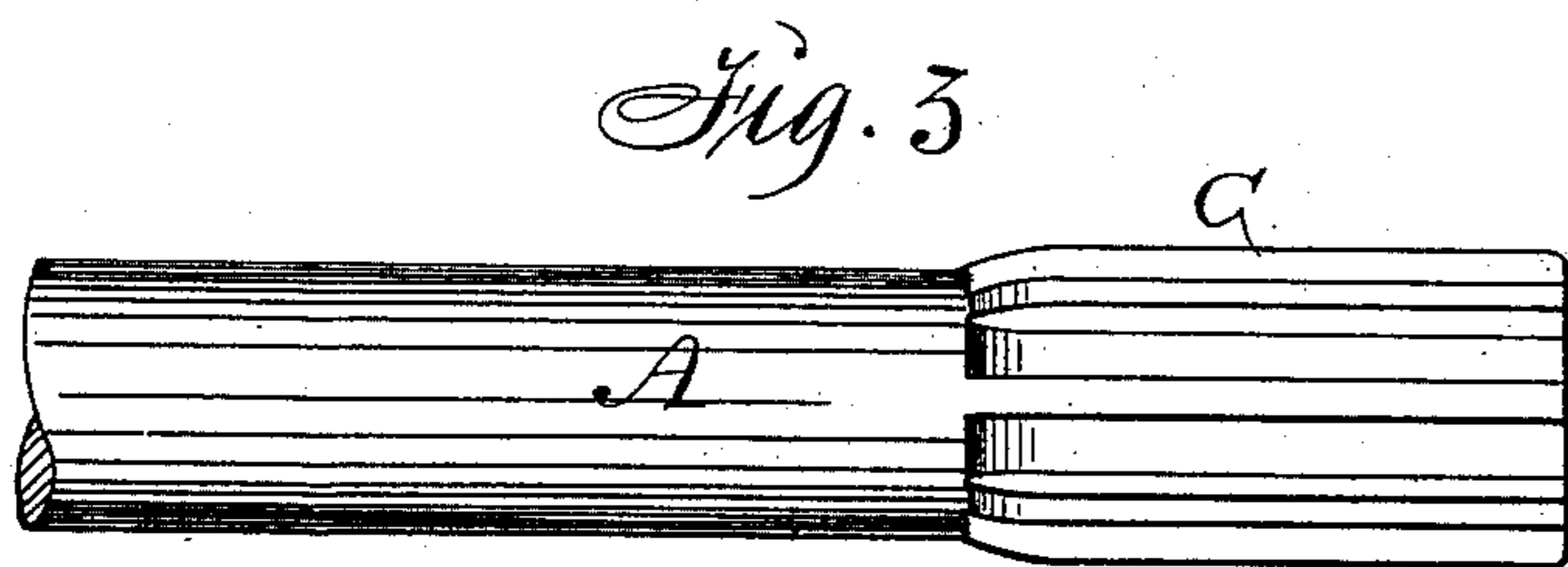
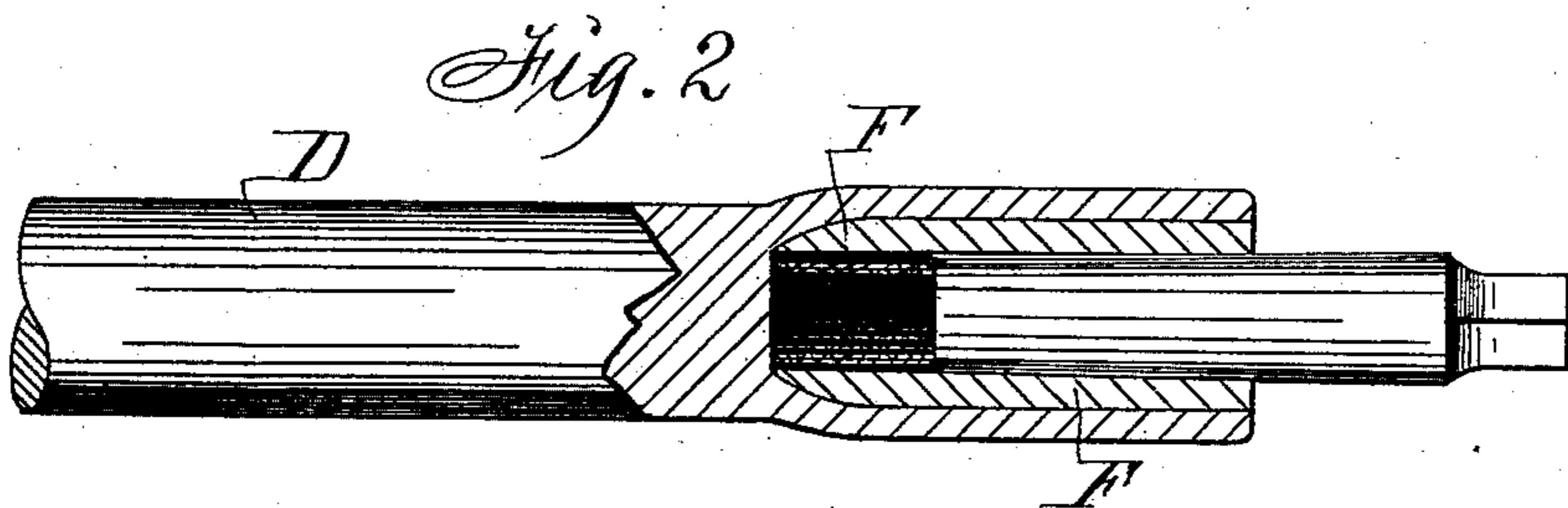
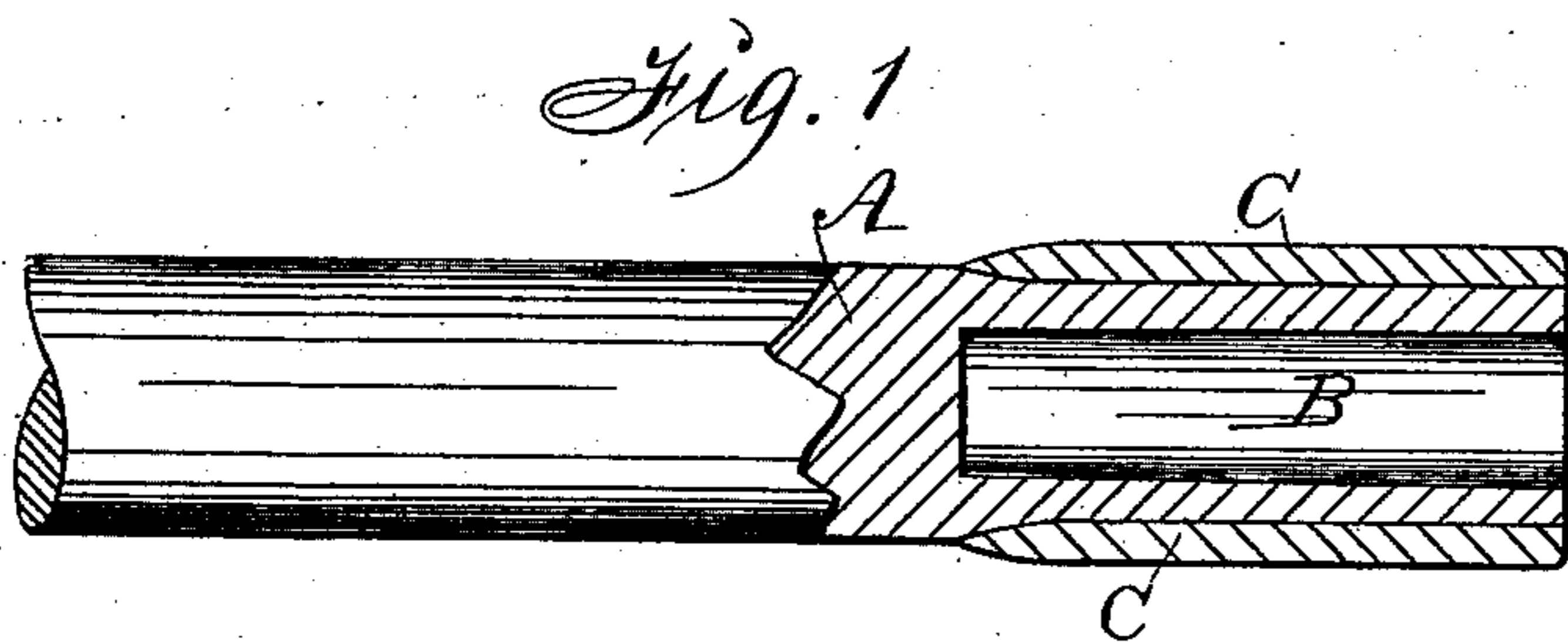
(No Model.)

J. E. McCONNELL.

REAMER AND METHOD OF CONSTRUCTING THE SAME.

No. 393,775.

Patented Dec. 4, 1888.



Witnesses:
M. P. Smith,
A. H. Orrig.

Inventor:
John E. McConnell,
By Thomas G. Orrig, atty.

UNITED STATES PATENT OFFICE.

JOHN E. McCONNELL, OF DES MOINES, IOWA.

REAMER AND METHOD OF CONSTRUCTING THE SAME.

SPECIFICATION forming part of Letters Patent No. 393,775, dated December 4, 1888.

Application filed September 10, 1888. Serial No. 285,096. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. McCONNELL, a citizen of the United States of America, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Improvement in Reamers and Methods of Constructing the Same, of which the following is a specification.

My object is to provide reamers that can readily be expanded to compensate for wear by simply driving in a tapering plug.

Heretofore expansible reamers have been made by connecting cutters with the shank or body of the tool in such a manner that the cutters could be adjusted and moved outward relative to the axis as required to compensate for wear and to operate in bores differing in diameter. Stationary cutters have also been formed on the outside of a round bar and body by planing or milling parallel longitudinal grooves in the surface; but when the tool became worn it could not be expanded to compensate for wear.

My invention consists in constructing and combining steel cutters with a tubular and expansible piece of metal, preferably wrought-iron, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a section of the body of a reamer made of iron and provided with a longitudinal bore and steel cutters fixed around the tubular end. Fig. 2 is a modification of my invention in which the body and cutters are integral parts, formed from a piece of steel, and a tubular piece of iron is fixed to the inside faces of the steel cutters. Fig. 3 is an outside view of the cutters on the body that can be readily concentrically adjusted as required to compensate for wear. Fig. 4 is an end view, and Fig. 5 a transverse section, of my tubular and expansible reamer.

A in Fig. 1 is an iron bar, that has a bore, B,

in one end, and that end is reduced in diameter as far as the bore extends. C represents a tubular piece of steel welded to the iron.

In Fig. 2, D represents a steel bar that has a bore in its end and a piece of tubular iron, F, welded to the inside surface of the tubular part of the bar, which tubular part has a larger diameter than the remainder of the bar and body D.

In both instances the iron and the steel are in concentric position at the tubular end of the bar and solidly united, the steel on the outside, and by simply milling or planing longitudinal grooves through the tubular steel I produce a series of steel cutters that project radially from the outside surface of the expansible tubular iron.

To expand the reamer thus constructed, I simply drive a tapering plug into the bore in the end of the reamer, as shown in Fig. 2, to stretch the tubular iron as required to increase its diameter and circumference and to set outward the steel cutters that are rigidly and solidly fixed to the outside surface of the tubular iron portion of the tool.

I claim as my invention—

1. The herein-described method of constructing an expansible reamer, which consists in combining a tubular piece of iron and a tubular piece of steel of larger diameter than the tubular iron by placing one within the other and firmly welding their overlapping surfaces together and then cutting longitudinal grooves through the steel to the iron, in the manner set forth, for the purposes stated.

2. An improved reamer composed of steel cutters integral with a tube of wrought metal on the end of a solid bar, for the purposes stated.

JOHN E. McCONNELL.

Witnesses:

M. P. SMITH,

THOMAS G. ORWIG.