

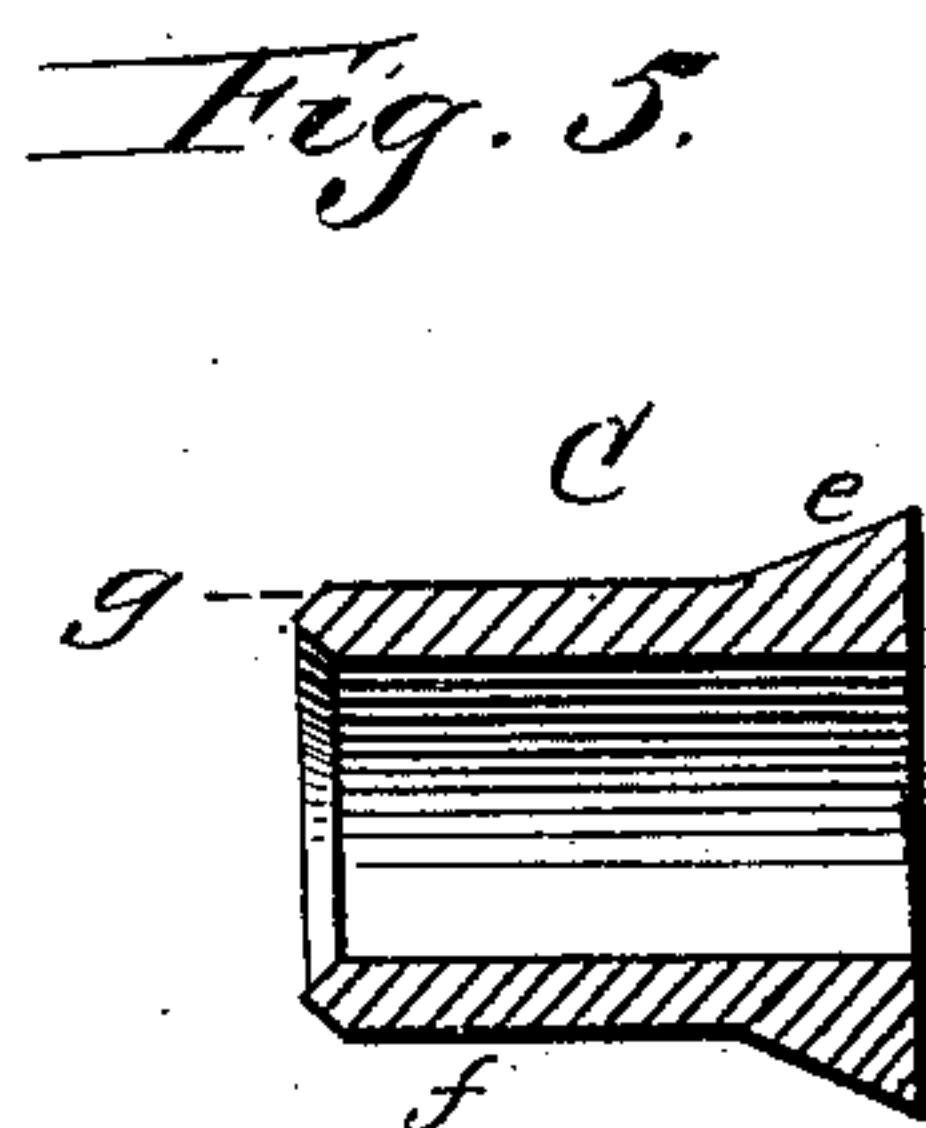
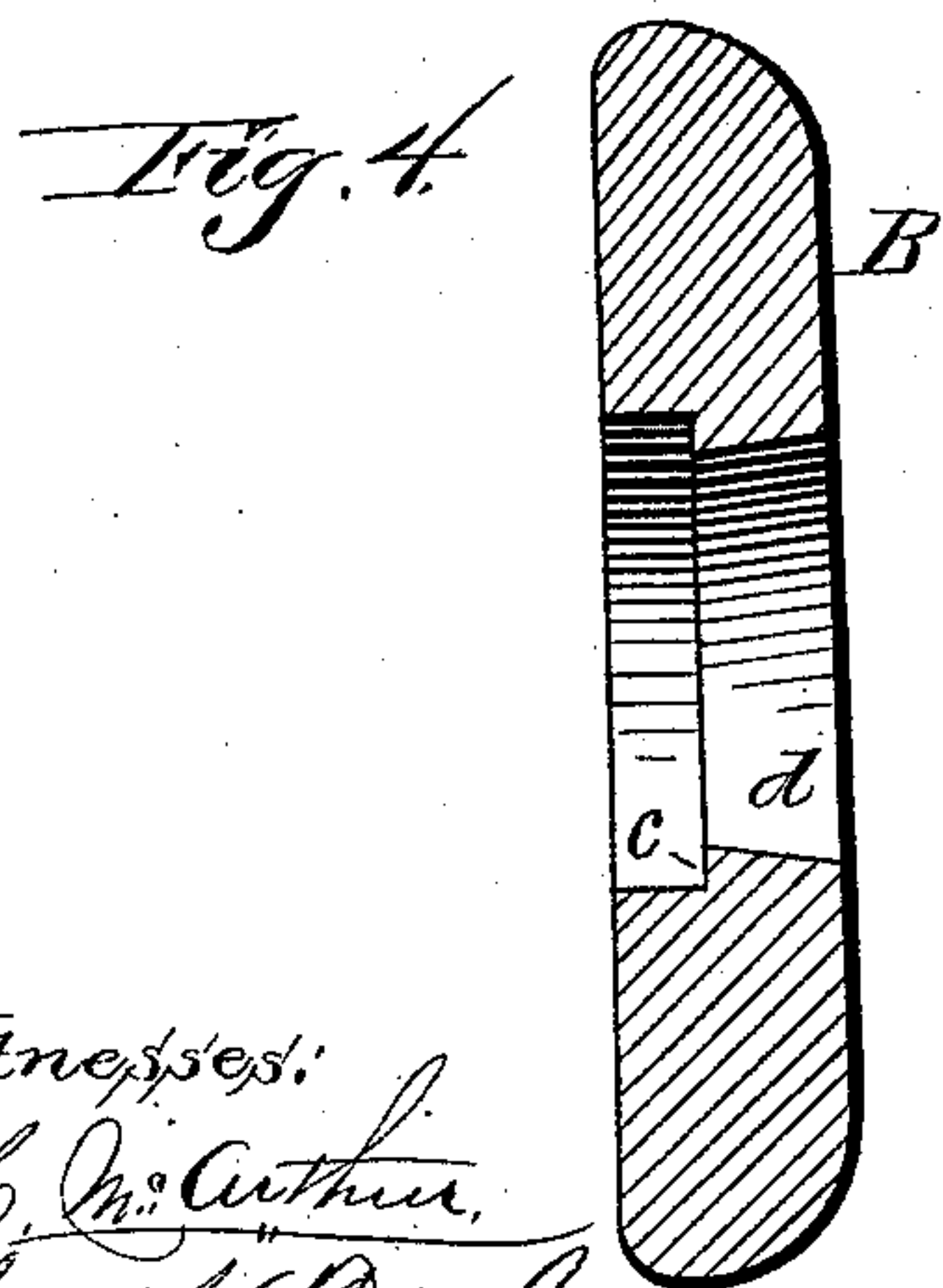
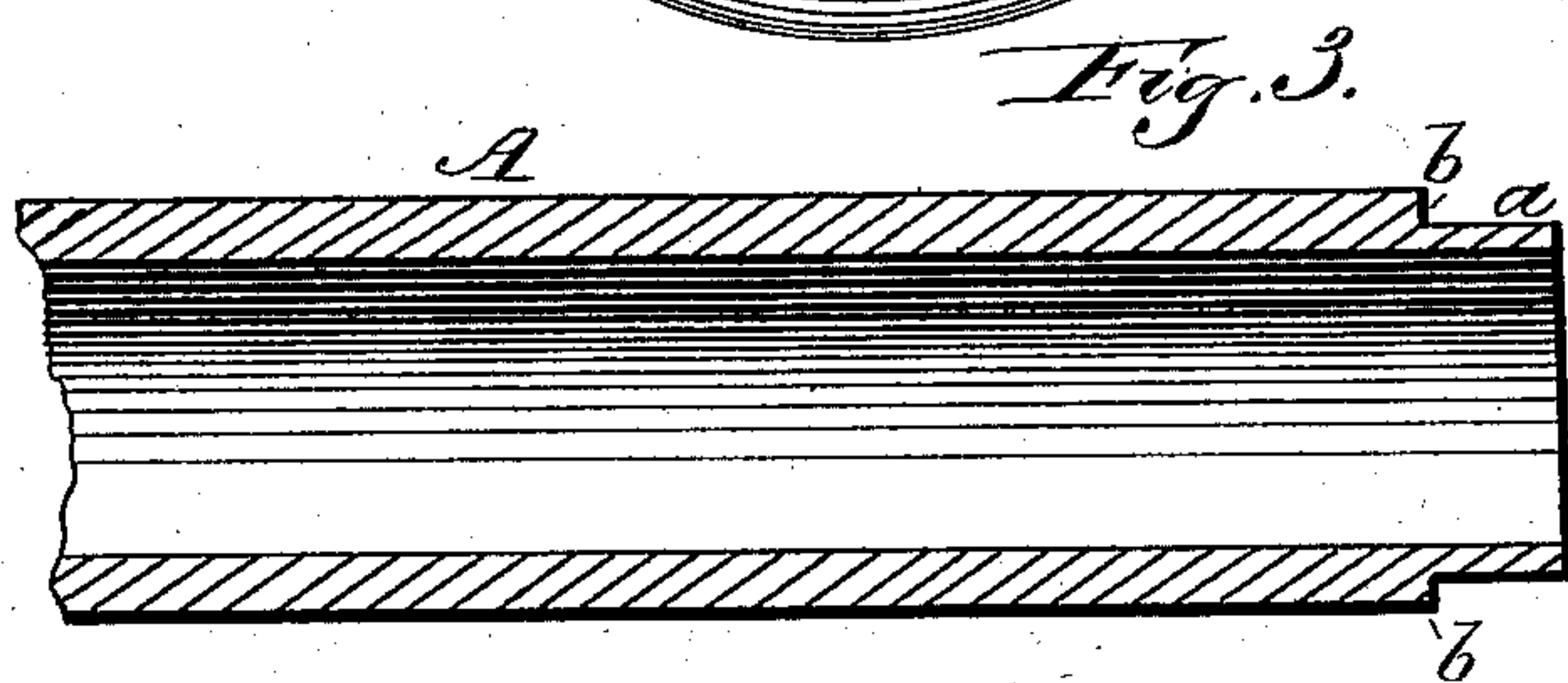
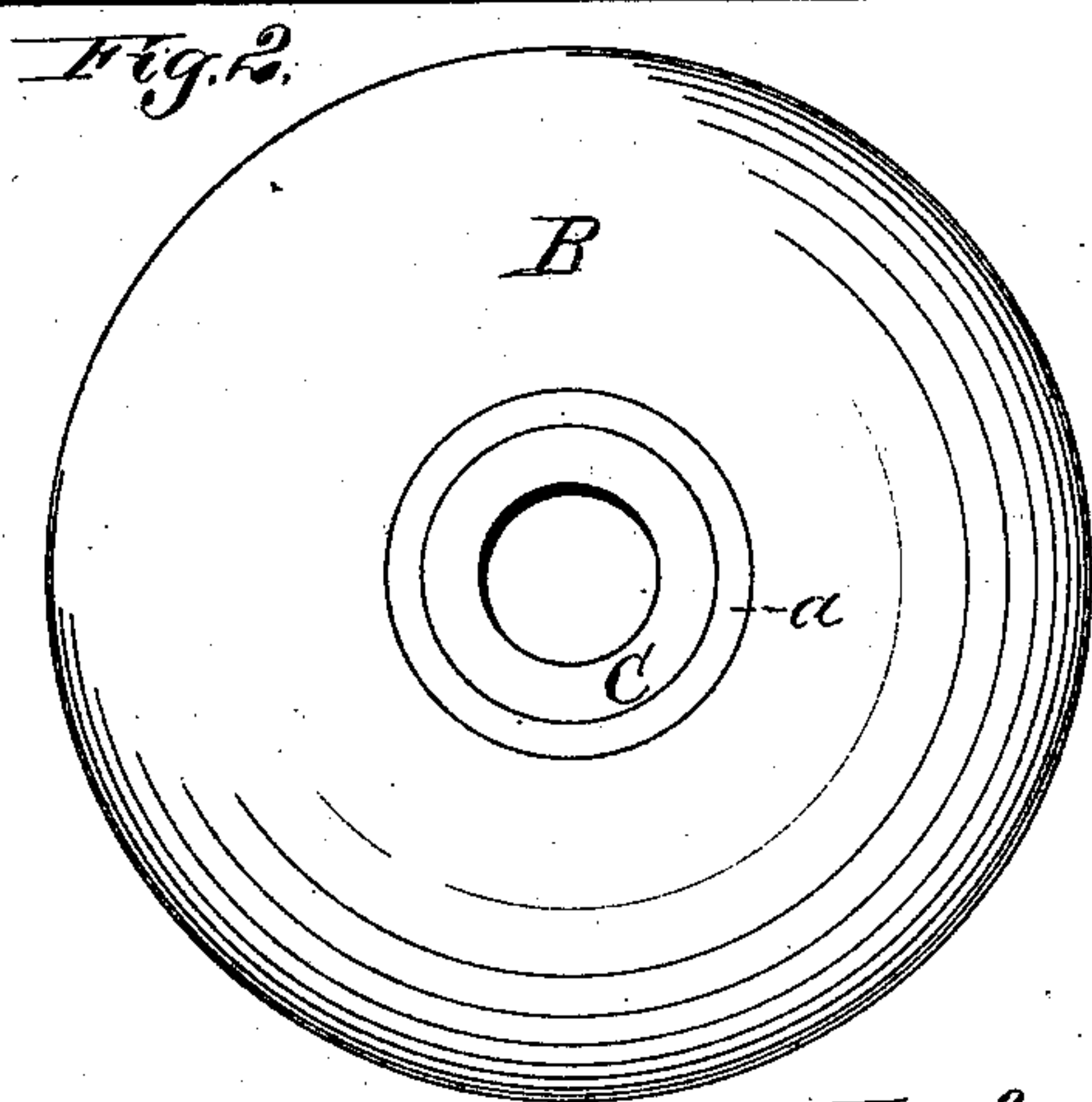
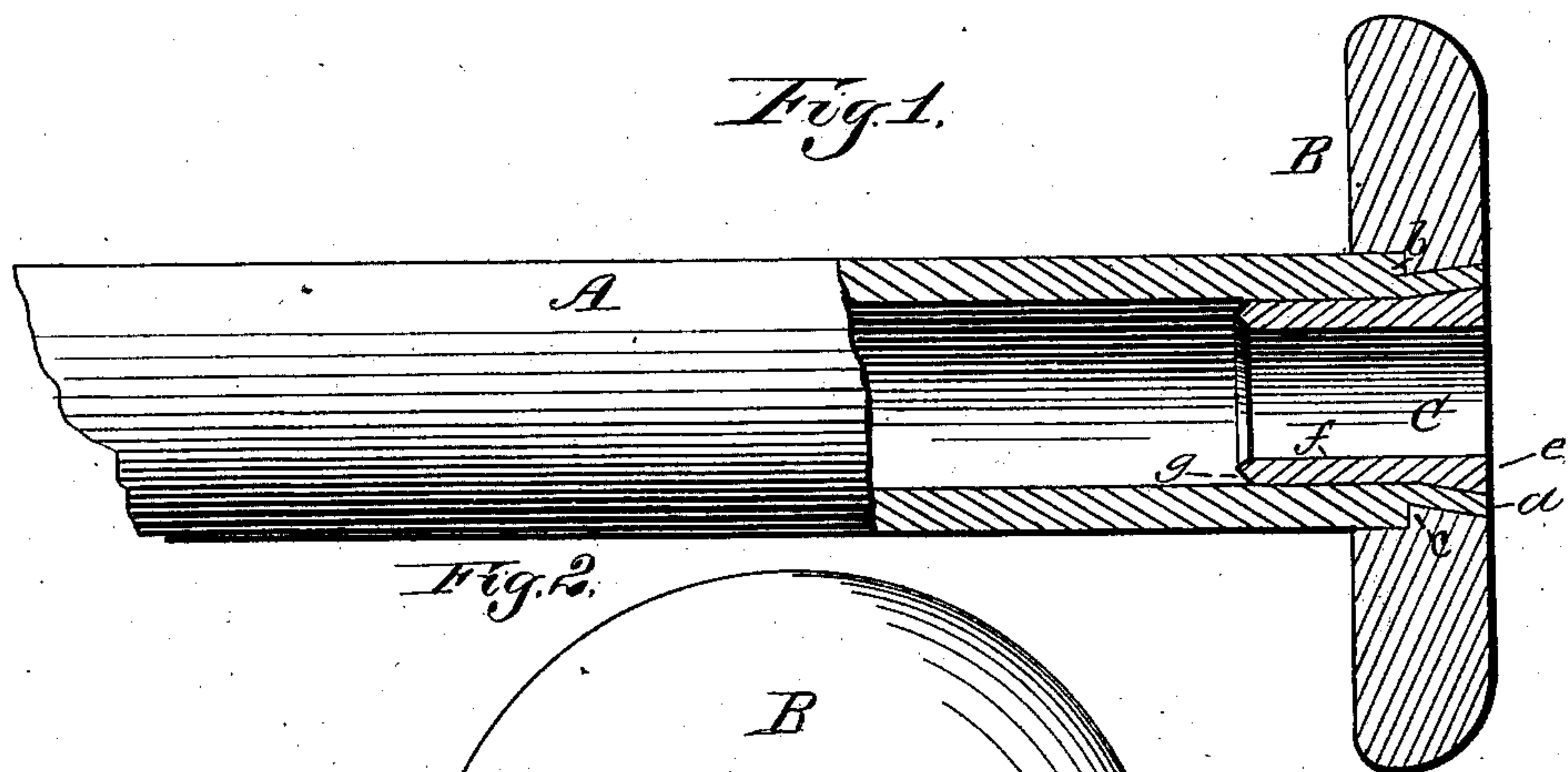
(No Model.)

D. HAMBLETON.

BOBBIN.

No. 255,502.

Patented Mar. 28, 1882.



Witnesses:  
H. C. Arthur,  
Chas. H. Fowler.

Inventor,  
David Hambleton.  
per J. B. Parker  
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# UNITED STATES PATENT OFFICE.

DAVID HAMBLETON, OF NASHUA, NEW HAMPSHIRE.

## BOBBIN.

SPECIFICATION forming part of Letters Patent No. 255,502, dated March 28, 1882.

Application filed January 20, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID HAMBLETON, a subject of Great Britain, residing at Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Bobbins; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 is a side elevation of a bobbin constructed in accordance with my invention, one end of the bobbin being in section. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal section of one end of the barrel; Fig. 4, a detail view, in section, of the head; and Fig. 5, a similar view of the bushing.

Heretofore the class of bobbins to which my invention most nearly relates were constructed as follows: The barrel was formed at or near each end with an abutting shoulder, against which the heads of the bobbin were seated after being passed over the ends of the barrel. The heads were then permanently connected to the ends of the barrel by a tapering plug driven into each end thereof, which expanded them into close contact with the interior surface around the central openings in the heads, the abutting shoulders on the barrel preventing the heads from being driven inward, and the expanded ends of said barrel preventing the heads from becoming detached.

The object of the present invention is to improve the construction of the several parts of the bobbin, whereby the heads are more firmly and securely connected to the ends of the barrel, also obtaining a bobbin of superior strength and increased durability. These objects I attain by the construction substantially as shown in the drawings and hereinafter described.

In the accompanying drawings, A represents the wooden barrel of the bobbin, to the ends of which are connected the wooden heads B. The ends *a* of the barrel are turned smaller, which forms annular shoulders *b*, and also decreases the diameter of the ends sufficiently to enable them to enter the openings in the heads B. The heads B are of the same thickness throughout their diameter, with the exception

that their outer edges are beveled, both the inner and outer faces or sides being perfectly flat, so far as described, the form being that of the ordinary wooden bobbin-heads. The heads B are formed with annular seats *c*, against which the shoulders *b* abut when the heads are passed over the reduced ends *a*. From the annular seat *c* to the outer side or face of the head is a flaring opening, *d*, its diameter increasing in a direction toward the outer side or face of the head, and after the ends *a* have been inserted in the openings *d*, and the shoulders *b* abutting against the seats *c*, a bushing, C, is driven into each of the hollow ends of the barrel A, which locks the heads and barrel together similar to a dovetail connection. To successfully accomplish this, however, it is not only necessary that the openings *d* should be flaring in the direction as shown in Fig. 4, but the bushing C also be constructed with a flaring head, *e*, the shank *f* thereof being of equal diameter throughout its length. The barrel, heads, and bushing are all constructed of wood, their contacting faces being covered with glue before being joined together, as illustrated in Fig. 1.

Heretofore the opening *d*, extending from the outer face or side of the head to near the center, or entirely through the same, was of equal diameter throughout its length, and, although a tapering bushing was used to expand the reduced ends of the barrel against the interior sides of the opening, it would fail to successfully lock or fasten the heads to the barrel unless some additional means were employed. This, however, is overcome by not only forming a flaring head on the bushing, but forming the opening in the head also flaring, so that when the bushing is driven into the hollow end of the barrel it will wedge the reduced end *a* between two correspondingly-inclined surfaces, thereby perfectly and securely locking the head upon the end of the barrel without the necessity of further means other than gluing the parts together.

The shank *f* of the bushing C is of such length as to extend some distance into the barrel for strengthening it at the point of connection with the head where the greatest strain comes. It should be further noticed that the shoulder *b* enters and seats itself in the cen-



tral opening of the head, between its outer and inner sides or faces, and does not, as heretofore, simply abut against the inner side or face of said head. This also is considered an important feature in this class of bobbins, where the head is held onto the end of the barrel by a bushing, as the greatest diameter of the barrel, entering the head a considerable distance, and the shoulder *b* abutting against the seat *c*, gives increased strength at that point where there is the greatest strain. The bushing *C* at its shank *f*, has its diameter slightly greater than the diameter of the opening in the barrel, and to facilitate the end thereof entering the barrel it is beveled at *g*.

When the flaring head *e* is driven down flush with the outer surface or side of the head the fibers of the wood are compressed, as are also the fibers of the shank and reduced end of the barrel, so as to render them compact and tight with the addition of the glue, giving the same strength as if of one solid piece of wood.

It should be observed that the reduced end *a* of the barrel *A* is a continuous band or ring of wood, and the particular construction of the several parts of the bobbin does not render it necessary to form slots in the reduced end around its circumference and the head and bushing with webs to make a permanent fastening of the parts together, as my invention entirely removes the necessity of such construction.

With these differences and advantages it will be readily seen that a bobbin constructed in accordance with my invention not only possesses great strength and durability, as well as

lightness and uniform weight, but can be manufactured at a greatly reduced cost over the bobbins having metal heads and bushings.

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

1. In a bobbin, the barrel *A*, having reduced ends *a* and annular shoulders *b*, in combination with the heads *B*, formed with annular seats *c* and flaring openings *d*, the greater diameter of the barrel entering the head, so that the shoulders will abut against the seat between the sides of the head, and the bushing *C*, driven into the ends of the barrel to expand and force the ends thereof against the sides of the flaring openings, substantially as and for the purpose set forth.

2. The barrel *A*, having reduced ends *a* and shoulders *b*, in combination with the heads *B*, formed with seats *c* and flaring openings *d*, and the bushings *C*, having flaring head *e*, shank *f*, and bevel *g*, substantially as and for the purpose specified.

3. The combination, with the barrel *A*, having reduced ends *a* and shoulders *b*, and the bushings *C*, formed with flaring heads *e*, of the heads *B*, formed with annular seats *c* and flaring openings *d*, said openings increasing in diameter from the seats to the outer face or side of the head, substantially as shown, and for the purpose set forth.

DAVID HAMBLETON.

Witnesses:

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