

No. 822,433.

PATENTED JUNE 5, 1906.

E. B. CROCKER.
SPOOL OR REEL.

APPLICATION FILED JUNE 26, 1905.

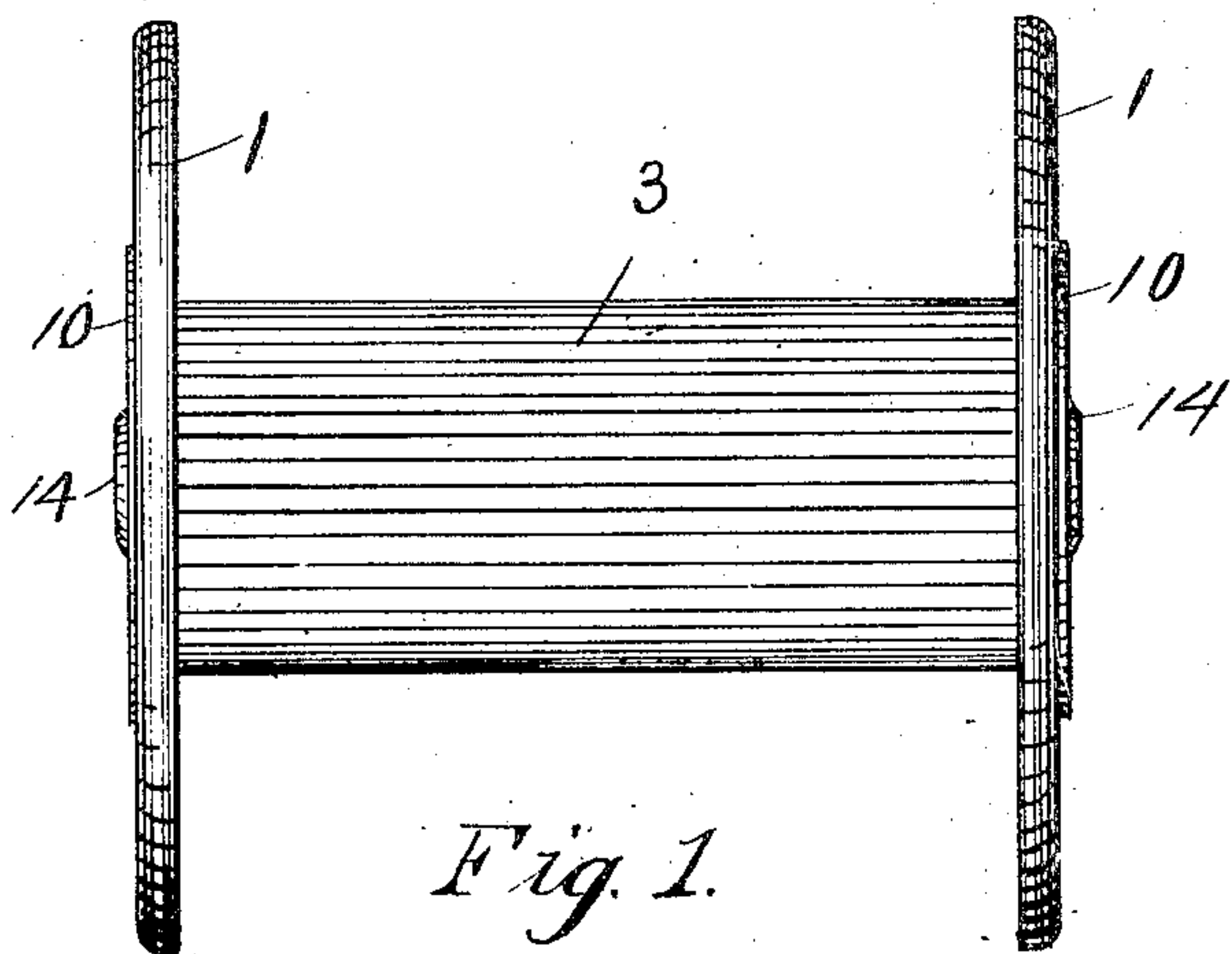


Fig. 1.

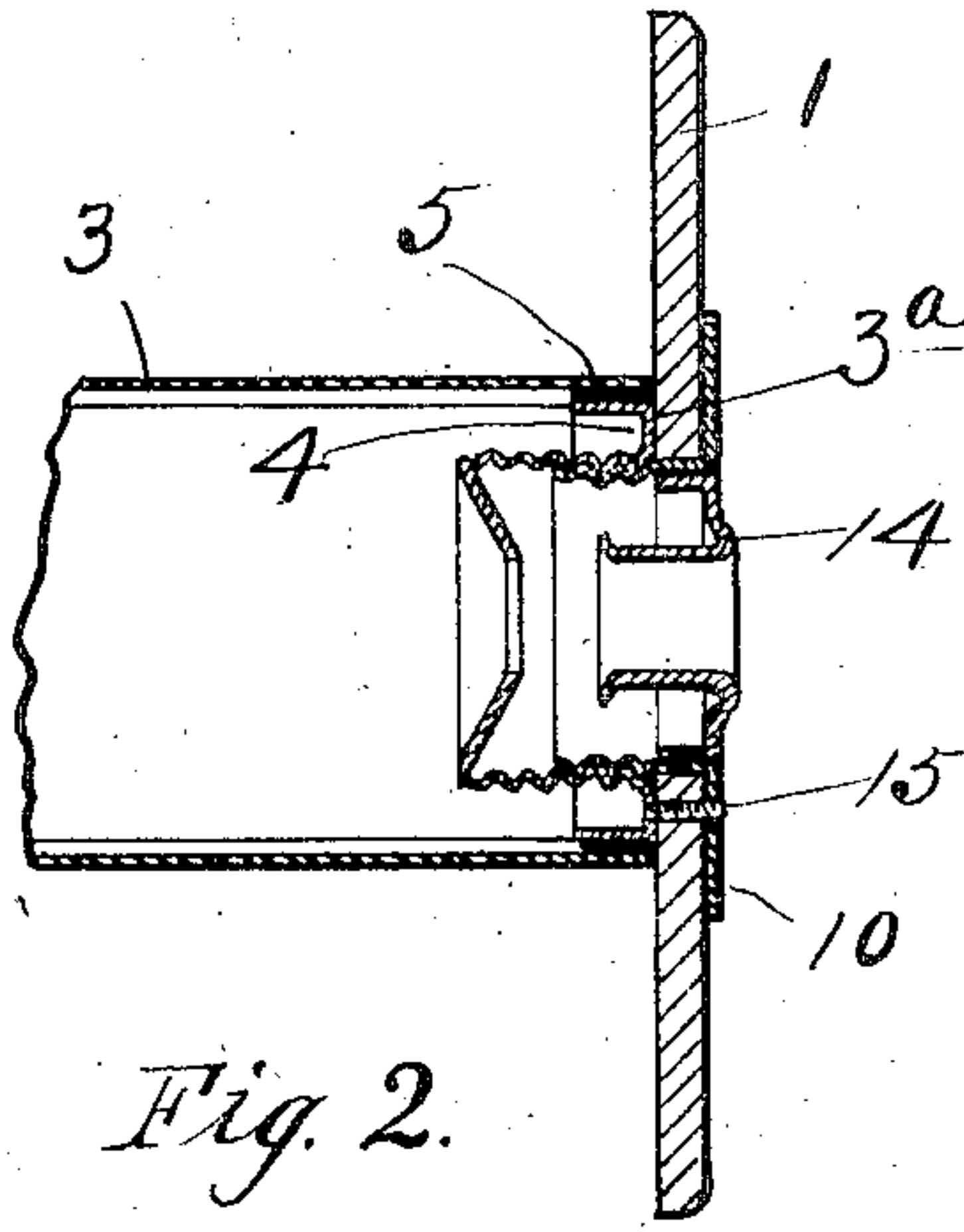


Fig. 2.

Fig. 5.

Fig. 4.

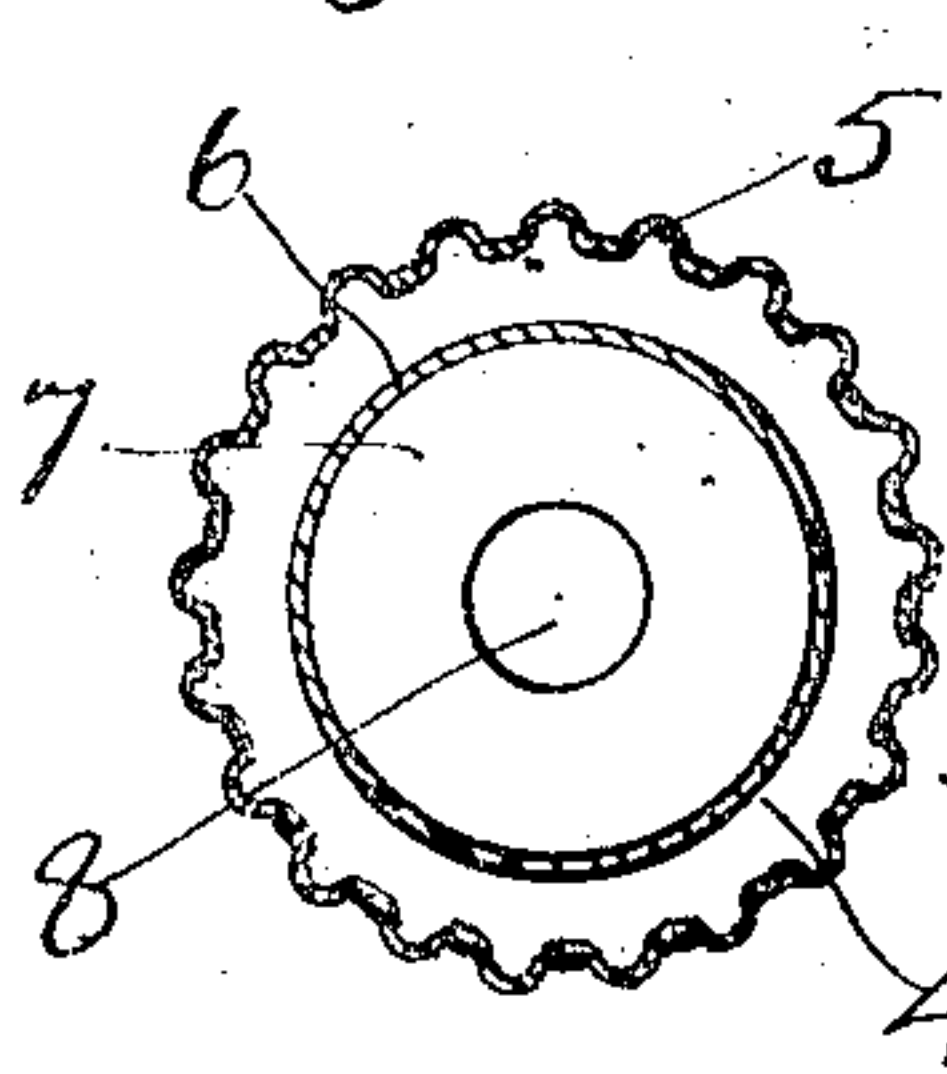


Fig. 3.

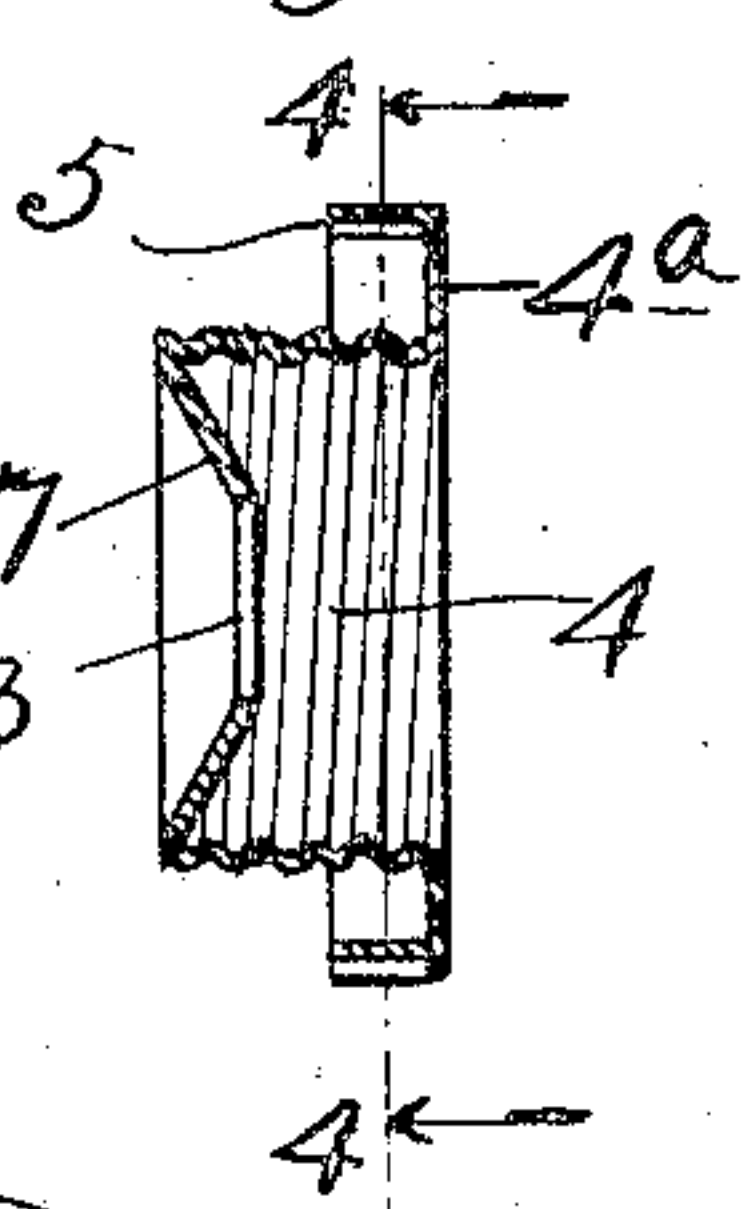


Fig. 6.

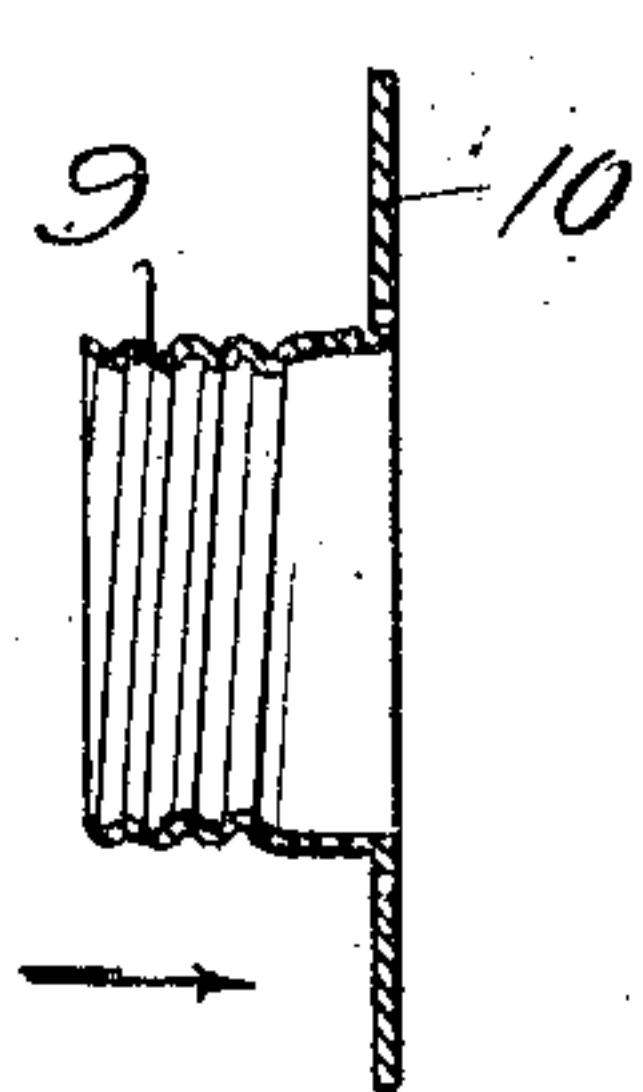


Fig. 8.

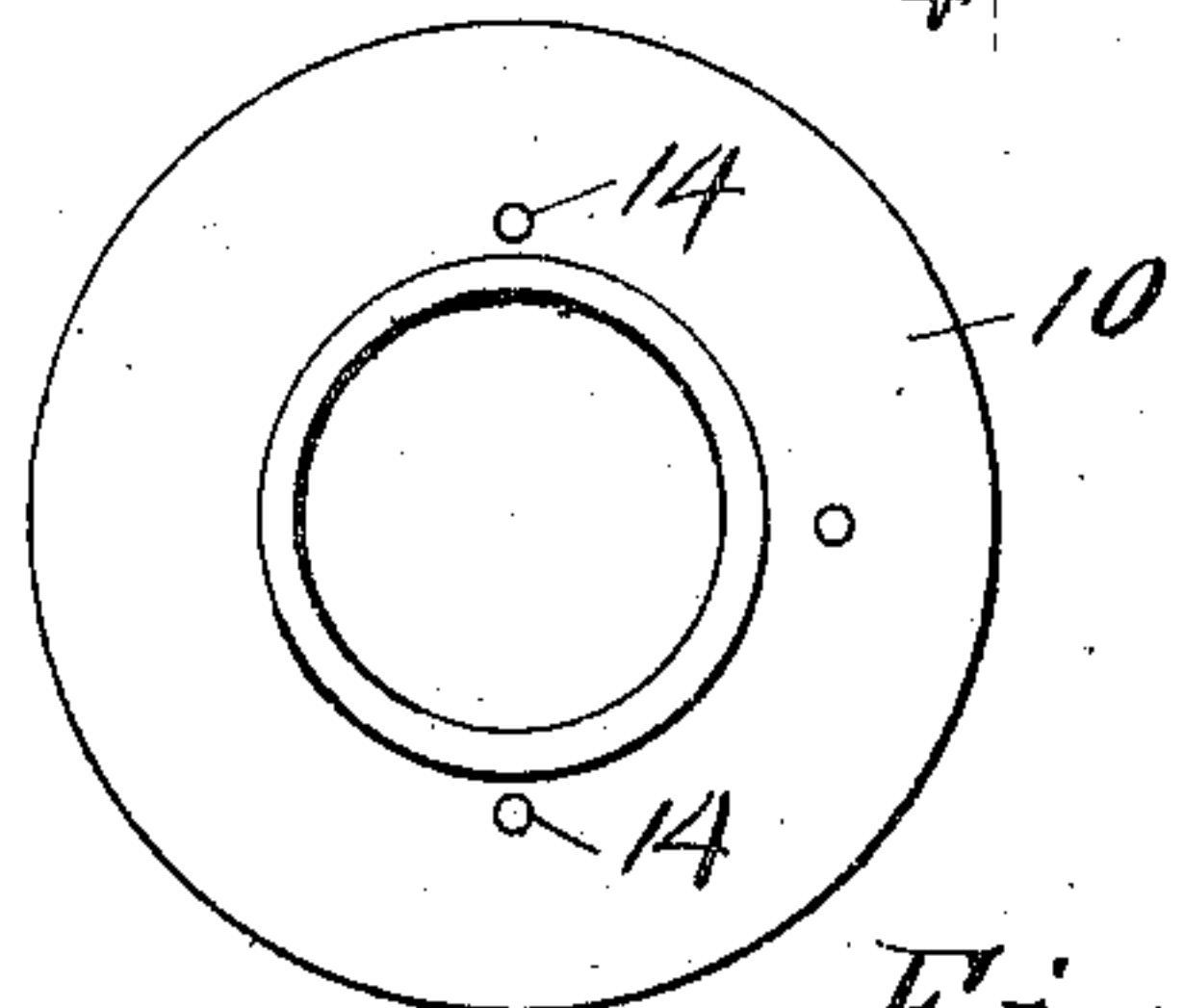
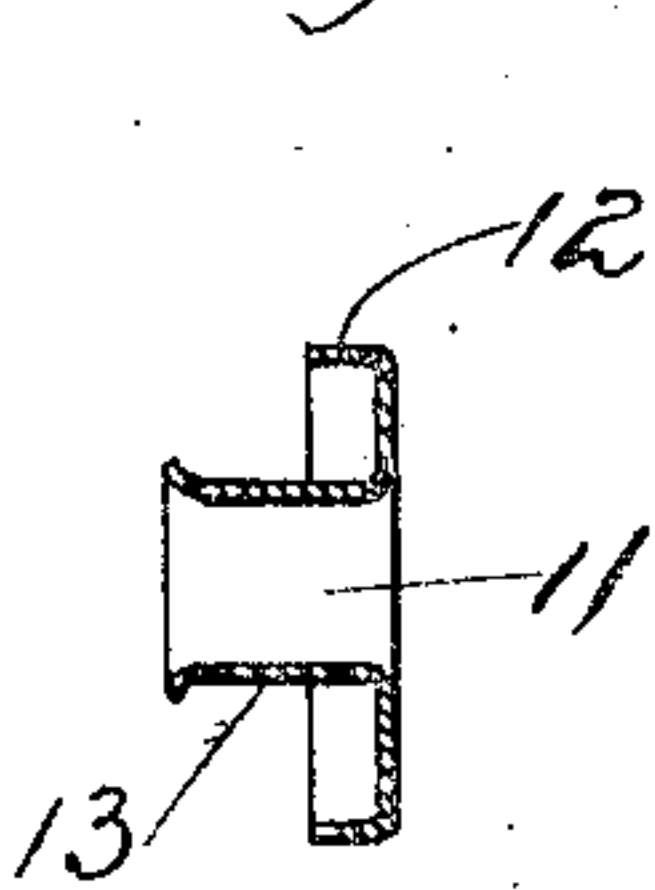


Fig. 7.

Fig. 9.

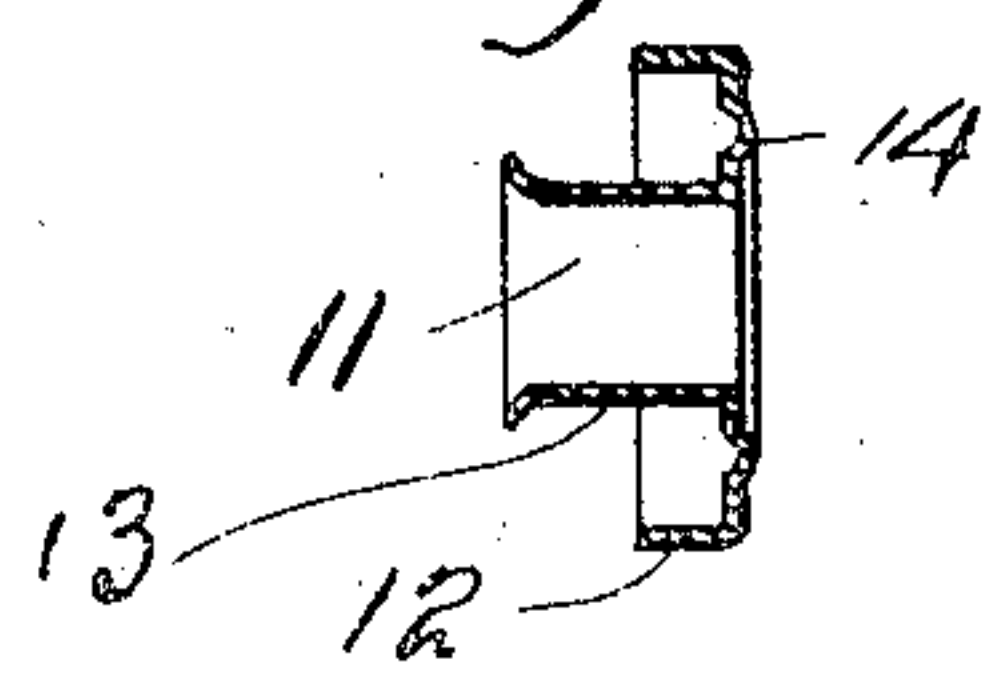
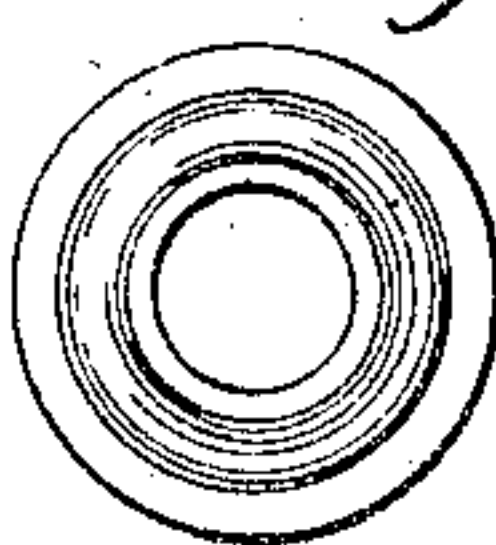


Fig. 10.



Witnesses

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SPOOL OR REEL.

No. 822,433.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed June 28, 1905. Serial No. 266,927.

To all whom it may concern:

Be it known that I, EUGENE B. CROCKER, a citizen of the United States, residing at the city of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Spools or Reels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to spools, on which may be wound wire, yarn, or silk, and is principally for use in the wire trade or textile-mills.

The object of my invention is to provide a spool of simple and inexpensive construction that will be practically indestructible and extremely light in weight. Spools for this purpose are obliged to be very strong and durable in order to withstand the rough usage they receive at the hands of careless mill operatives. When heavily laden with wire or yarn, they are often dropped or thrown around, and if not practically indestructible the heads soon become loose or broken and the spool destroyed.

In addition to the strength required to withstand the rough handling it is also found in practice that great pressure is brought to bear against the heads in winding, having a tendency to crowd or force them from the ends of the barrel.

When wooden plugs are employed for holding these heads in place on the barrel, it is found almost impossible to fasten and hold them in position, as they are bound to shrink or swell with the heat or moisture, and the heads soon become loosened by rough usage and come off. Then, again, in the use of wooden plugs it is difficult to drill the bearing-hole exactly in the center, thereby causing the spool to "run out" and break the yarn or cause the same to be wound unevenly on the spool. To obviate all of the above difficulties, I have arranged to use a metal barrel, to each end of which is permanently secured a fiber head, said heads being held in position by metal plugs and bushings, which are soldered or otherwise permanently fixed to the barrel, thereby making the head practically to all intents and purposes integral with the body portion of the spool.

The spool is preferably constructed with a tubular barrel of corrugated metal; but I do not limit myself in this particular. By this construction a number of important advantages are obtained, the principle of which being that the strength and rigidity of the barrel are greatly increased, thereby allowing a much thinner stock to be used and the weight proportionally to be reduced.

With these and other advantages in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 shows a side elevation of the spool. Fig. 2 is a sectional view showing one end of the spool and illustrating my improved manner of holding the heads in place. Fig. 3 is a sectional view of the bushing that is inserted into the barrel, showing the inwardly-projecting central threaded hub. Fig. 4 is a front elevation showing a section on line 4-4 of Fig. 3 looking in the direction of the arrows. Fig. 5 is a sectional elevation of one of the heads, showing the central opening through it. Fig. 6 is a sectional side elevation of the head-retaining bushing. Fig. 7 is an end elevation of the bushing shown in Fig. 6. Fig. 8 is a sectional elevation of the center bearing-bushing that is fixed into the head-retaining bushing. Fig. 9 is a bushing similar to that shown in Fig. 8 with the exception of having a circular raised shoulder on its face. Fig. 10 is a front elevation of the bushing shown in Fig. 9.

Referring to the drawings, at 1-1 are circular disks which form the heads or ends of the spool. These disks may be constructed of any suitable material, but paper fiber is preferably used, as it is found to be much more satisfactory for withstanding the shocks and strains these heads are subjected to without splitting, bending or breaking. Each disk has a hole 2 through its center for the reception of the retaining-bushing. The barrel or body portion 3 is preferably constructed of metal and made in a tubular form, and I preferably employ the corrugated barrel illustrated in the drawings for reasons herein explained, except where the same is used for spooling silk.

In the ordinary spools the bearing-surface for the head is altogether too limited and allows the head to easily become loose therefrom. To remedy this difficulty, I have provided a thin metal bushing 4, (see Fig. 4,) that is preferably stamped up out of sheet

stock with a broad face 4^a, against which to rest the head and a turned-back flange 5 of a size to fit within the barrel and offer a surface by which it may be soldered or otherwise secured into the end of said barrel. (See Fig. 2.) This flange may be corrugated to better fit the barrel, if desired. The bushing is also provided with an inwardly-turned threaded hub 6, said screw-thread being preferably rolled or pressed therein. The end of this hub is partly covered by an inwardly-beveled head 7, that is provided with a central bore 8, through which the spindle may pass. The beveling of the head inwardly is to facilitate the guiding of the spindle through the hole.

The head-retaining bushing (see Fig. 6) is provided with a hub or trunnion 9, that passes through the central hole of the head 1. This hub preferably has a screw-thread rolled or pressed therein to engage that on the inner surface of the hub of bushing 4. The outer edge of this trunnion is provided with a broad-faced flange 10, that engages and supports the outer surface of head 1. Fixed into the outer end of this bushing, either by solder or otherwise, is the metal centering-plug 11. This plug has an inwardly-turned flange 12, by which it is soldered to the retaining-bushing. It also has a hollow center hub portion 13, that serves as a bearing for the spindle (not shown) that passes through it to retain said spool in position on the machine when in operation. At 14 is a raised circular shoulder that is sometimes required on the ends of the spools.

The assembling of the parts of this spool or reel is extremely simple and can be done very rapidly and without the aid of machinery or skilled labor. In assembling the parts the operator takes a prepared tube or barrel portion, inserts therein the bushing 4 and solders the same around the outer edge 5. The head-retaining bushing, to which the center bearing-bushing has been previously soldered, is then inserted through the hole in the head 1 and screwed into the threaded bushing 4 and preferably set up with a spanner-wrench, which engages the holes 14 14 in the face thereof. After the whole has been tightly set together a small screw or pin 15 (see Fig. 2) is inserted into the head through the flanges of the two bushings and the whole is locked securely together.

It is obvious in my improved construction that by soldering the metal bushing into the end of the barrel portion and then screwing and otherwise securing the head therein that it is absolutely impossible for the same to be inadvertently removed from the barrel, and as this head is supported by a broad shoulder or face on the inside and by the broad flange of the retaining-bushing on the outside it is practically impossible for said heads to break away therefrom. Then, again, by stamping up metal bushings by the use of dies they are

made absolutely perfect and the bearing-holes are bound to come central, so the reel will run true on its spindle.

The spool is exceedingly simple and practical in its construction and very durable.

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

1. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body and having a flange turned back upon itself and inclosed within said body, a head-retaining bushing passing through each head, and means for securing said retaining-bushing to said first-named bushing to hold the heads firmly in place.

2. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body portion, and having a flange turned back upon itself and inclosed within said body, a head-retaining bushing having a hub to pass through the head, a flange on said retaining-bushing for supporting the outer face of said head, and means for securing said retaining-bushing to said first-mentioned bushing.

3. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body portion, and having a flange turned back upon itself and inclosed within said body, a central hub in said bushing, a head-retaining bushing also provided with a hub, and means whereby said latter hub may be passed through said head and secured to the hub of said first-mentioned bushing to secure said head in position.

4. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body portion, and having a flange turned back upon itself and inclosed within said body, an inwardly-projecting central hub in said bushing, a head-retaining bushing also provided with a hub to fit into said first-mentioned hub, and means whereby said latter hub may be passed through said head and secured to the hub of said first-mentioned bushing to secure said head in position.

5. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body portion and having a flange turned back upon itself and inclosed within said body, an inwardly-projecting screw-threaded central hub in said bushing, a head-retaining bushing having a hub also screw-threaded and arranged to be passed through said head and screwed into the hub of said first-mentioned bushing to secure said head in position.

6. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body, and having a flange turned back upon itself and inclosed within said body, a central hub in said bushing, a head-retaining bushing also provided with a hub arranged

to pass through said head and fit into the head of said first-mentioned bushing to secure said head in position and a spindle bearing or sleeve projecting centrally within the hub of said retaining-bushing.

7. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body portion, and having a flange turned back upon itself and inclosed within said body, an inwardly-projecting screw-threaded central hub in said bushing, a head-retaining bushing having a hub also screw-threaded and arranged to be passed through said head and screwed into the hub of said first-mentioned bushing to secure said head in position, and a spindle-bearing hub or sleeve projecting centrally within the hub of said retaining-bushing.

8. In a spool or reel, a body portion, two heads, a bushing inserted into each end of said body and having a flange turned back upon itself and inclosed within said body, said bushing being provided with an inwardly-beveled head, a head-retaining bushing, and means for uniting said bushings.

9. A spool or reel comprising a body portion, two heads, a bushing inserted into each end of said body and having a flange inclosed within and secured to said body, a head-retaining bushing provided with a hub passing through each head, means for uniting said bushings, and a plug secured within said retaining-bushing and provided with a spindle-bearing sleeve extended centrally within the hub of said retaining-bushing.

10. A spool or reel comprising a body portion, two heads, a bushing inserted into each

end of said body and having a flange inclosed within and secured to said body, a head-retaining bushing provided with a hub passing through each head, means for uniting said bushings, and a plug provided with a flange turned back upon itself and secured within said retaining-bushing, said plug being also provided with a centrally-projecting spindle-bearing sleeve.

11. A spool or reel comprising a body portion, two heads, a bushing inserted into each end of said body and having a flange inclosed within and secured to said body, a head-retaining bushing, means for uniting said bushings, and a plug secured within said retaining-bushing and provided with a centrally-arranged bearing-sleeve, said plug being also provided with a raised annular shoulder surrounding said sleeve.

12. A spool or reel comprising a body portion, two heads, a bushing inserted into each end of said body and having a flange inclosed within and secured to said body, said bushing being provided with an inwardly-beveled head having a central opening, a head-retaining bushing, means for uniting said bushings, and a plug secured within said retaining-bushing and provided with a bearing-sleeve terminating adjacent said inwardly-beveled head, the bore of said sleeve coinciding with the opening in said beveled head.

In testimony whereof I affix my signature in presence of two witnesses.

EUGENE B. CROCKER.

Witnesses:

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E. I. OGDEN.