

(No Model.)

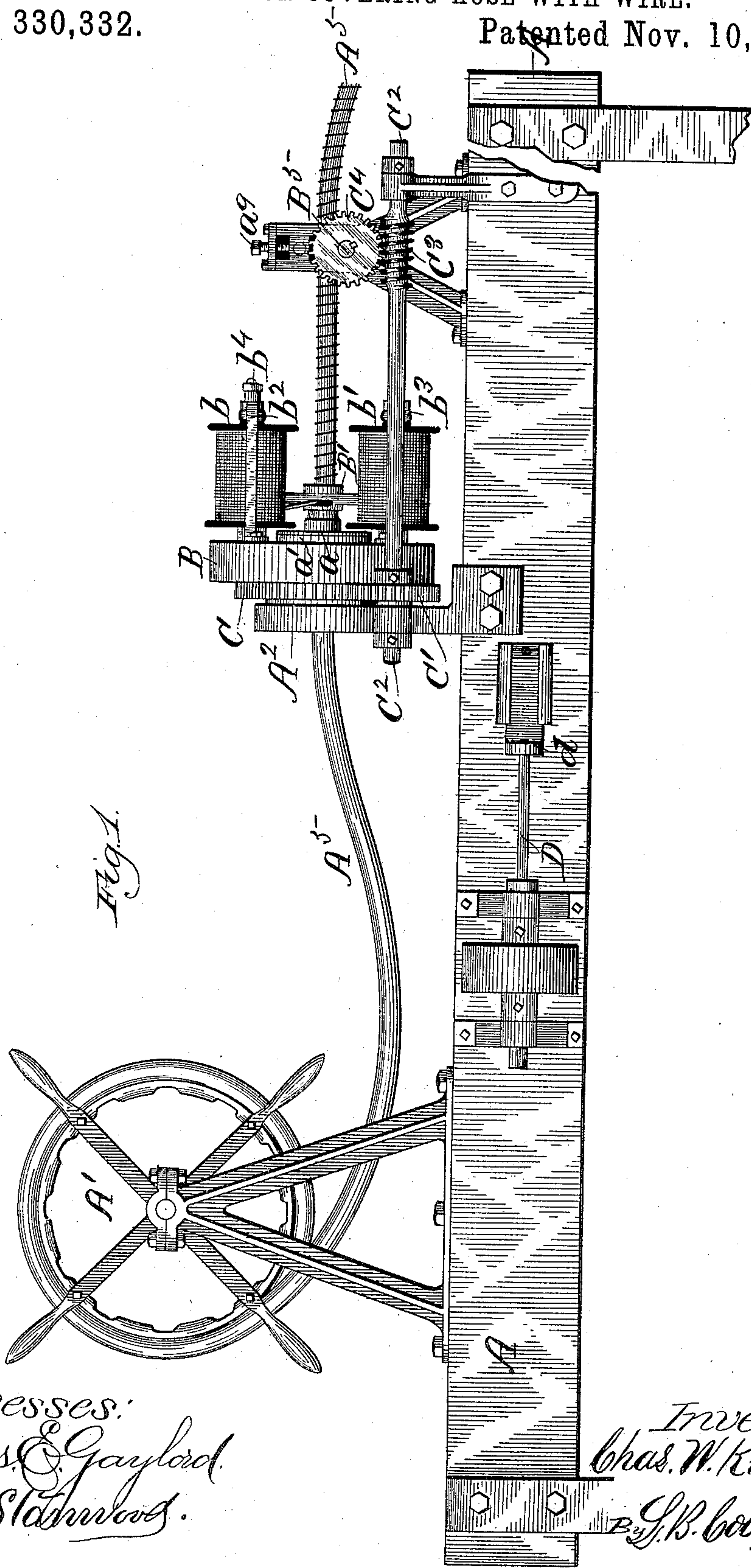
3 Sheets—Sheet 1.

C. W. KIMBALL.

MACHINE FOR COVERING HOSE WITH WIRE.

No. 330,332.

Patented Nov. 10, 1885.



Witnesses:
Chas. E. Gaylord.
V. Starnwood.

Inventor:
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Fig. 2.

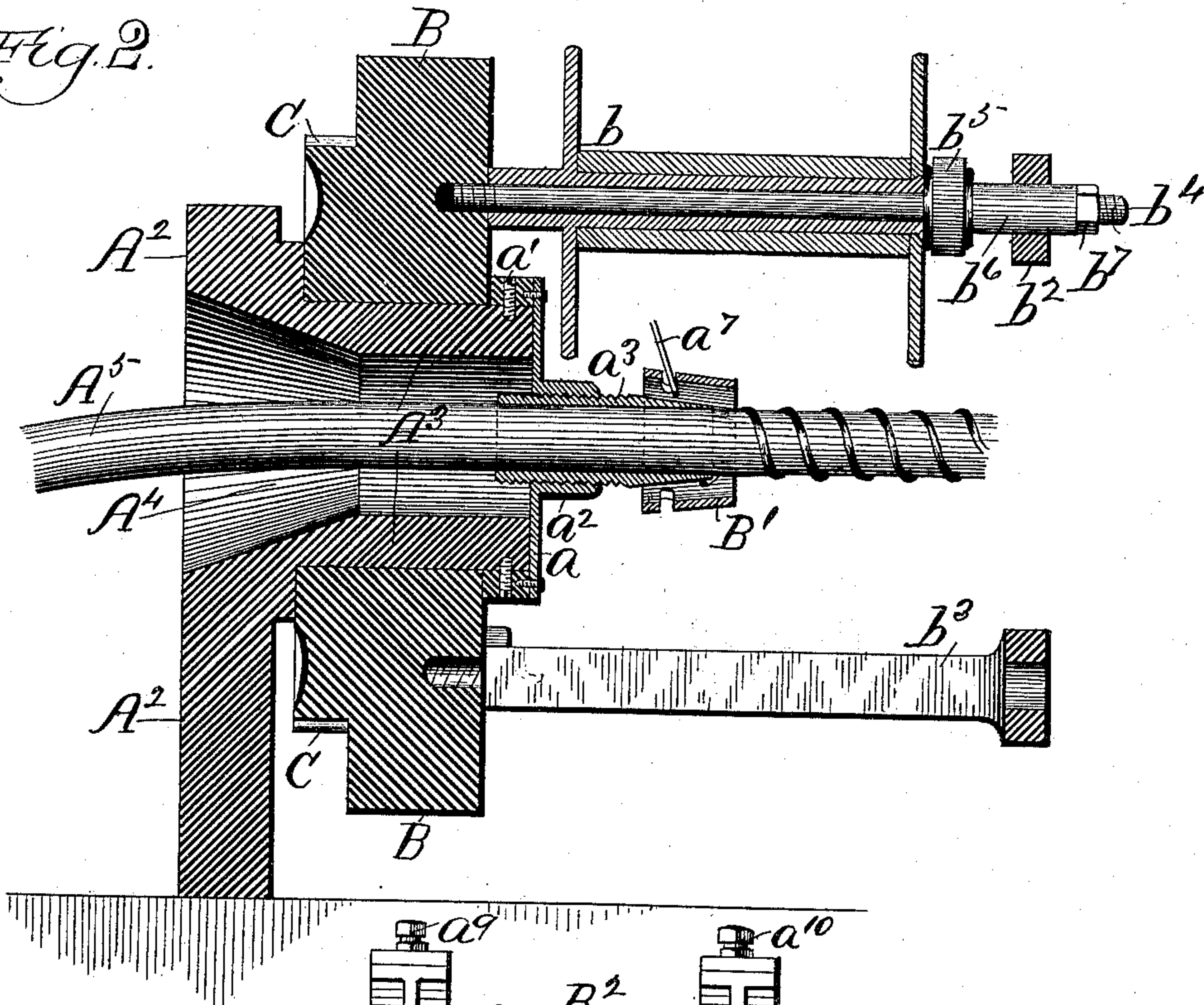
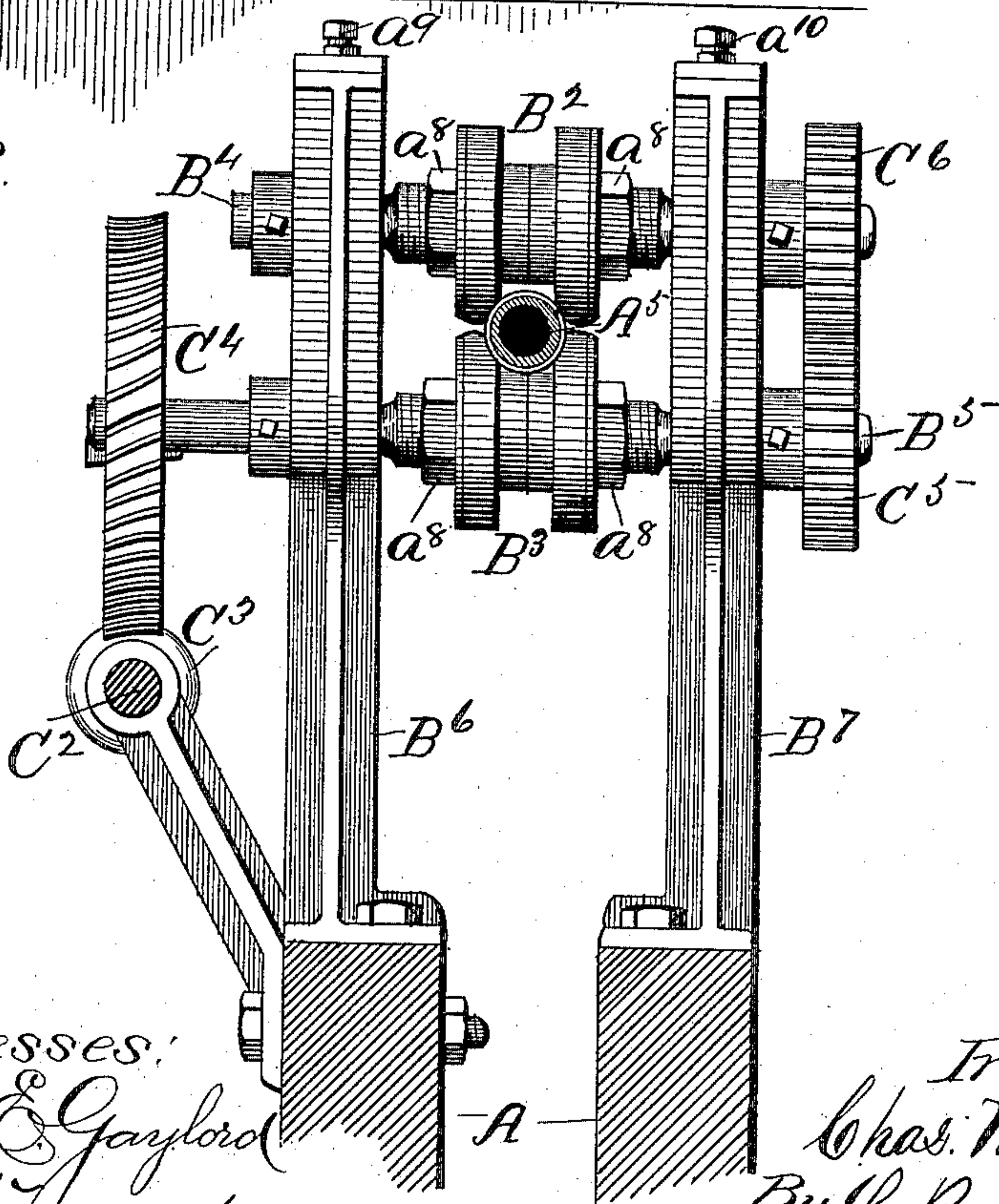


Fig. 3.



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Fig. 4.

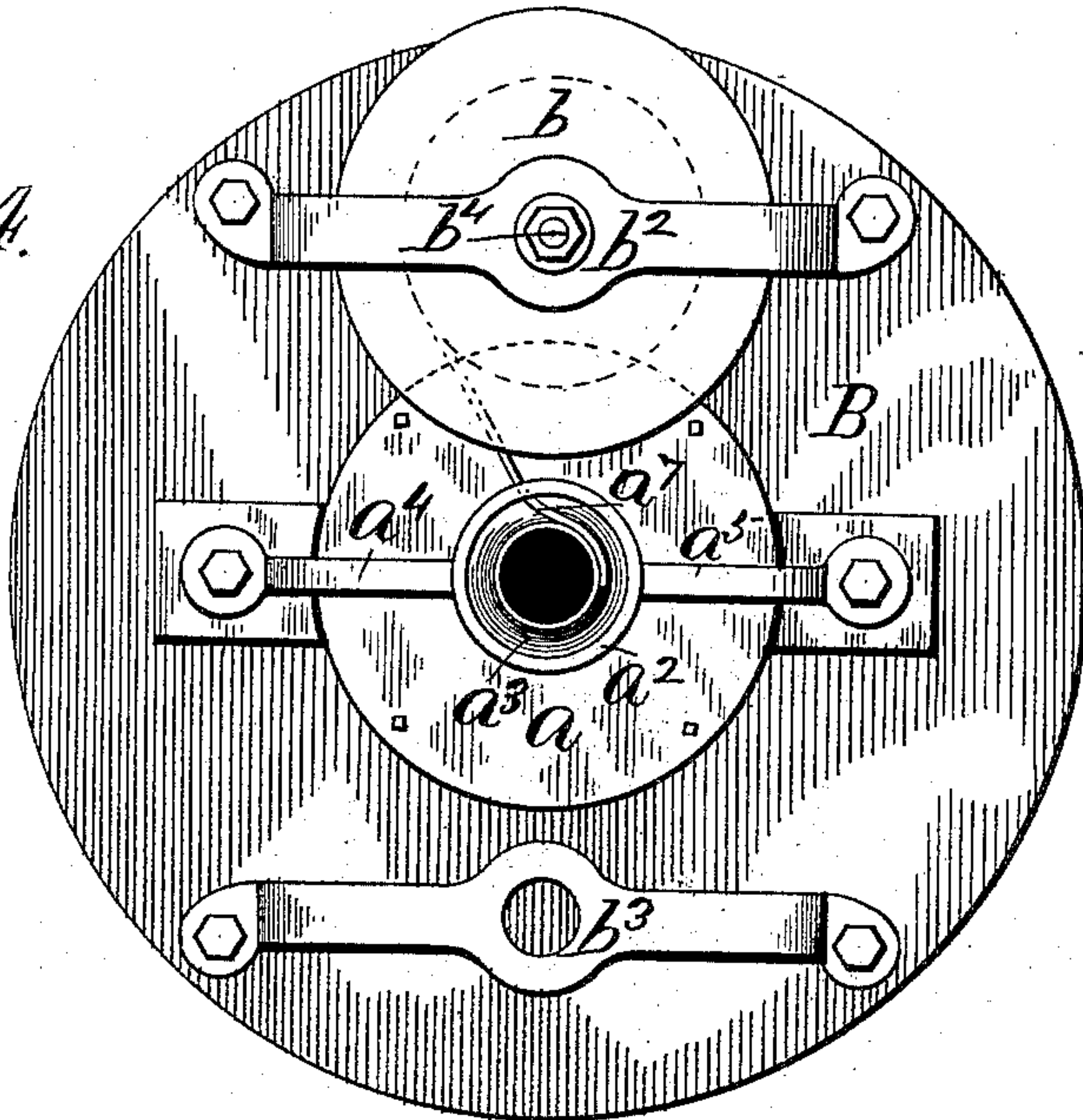


Fig. 5.

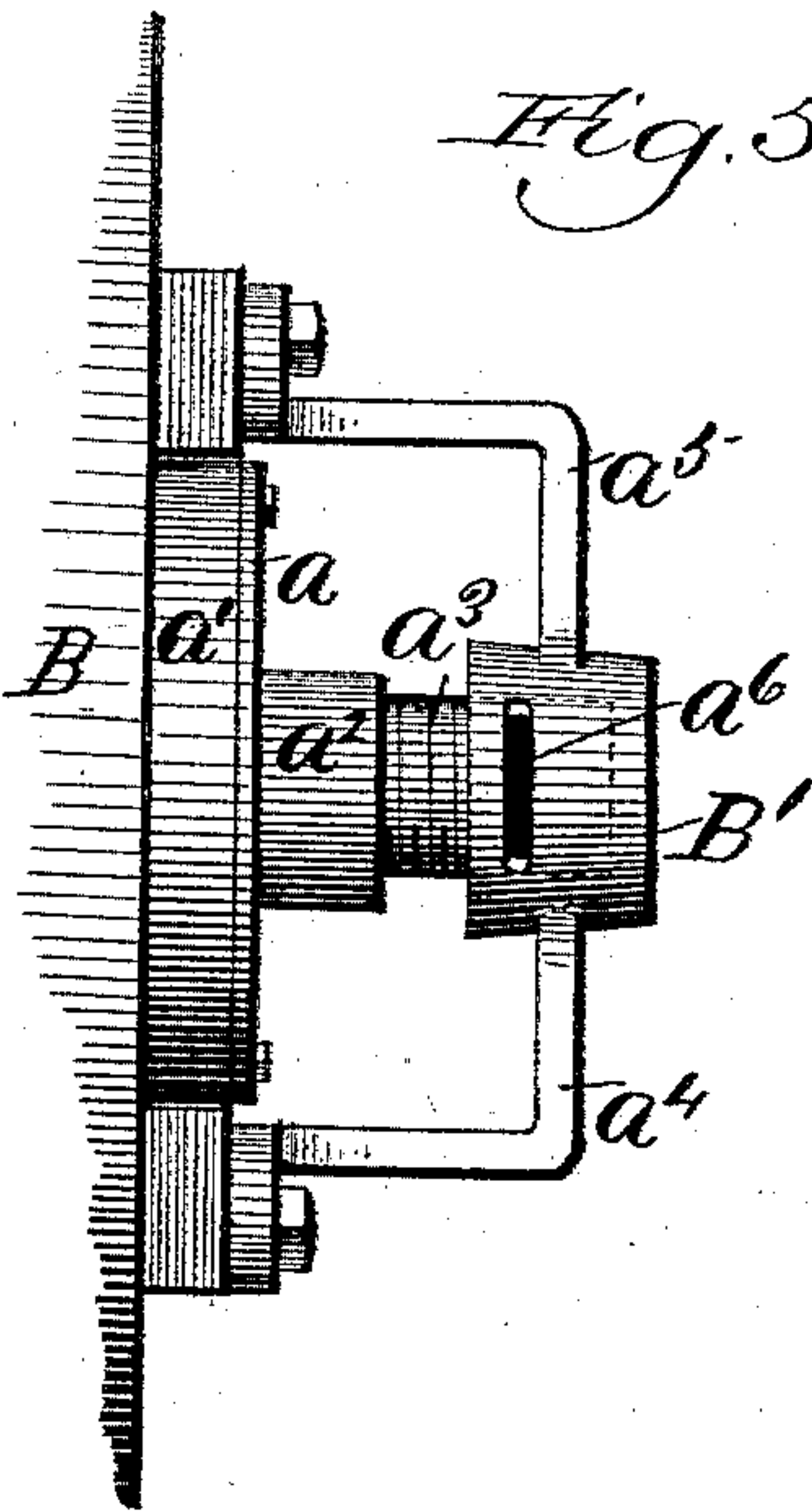
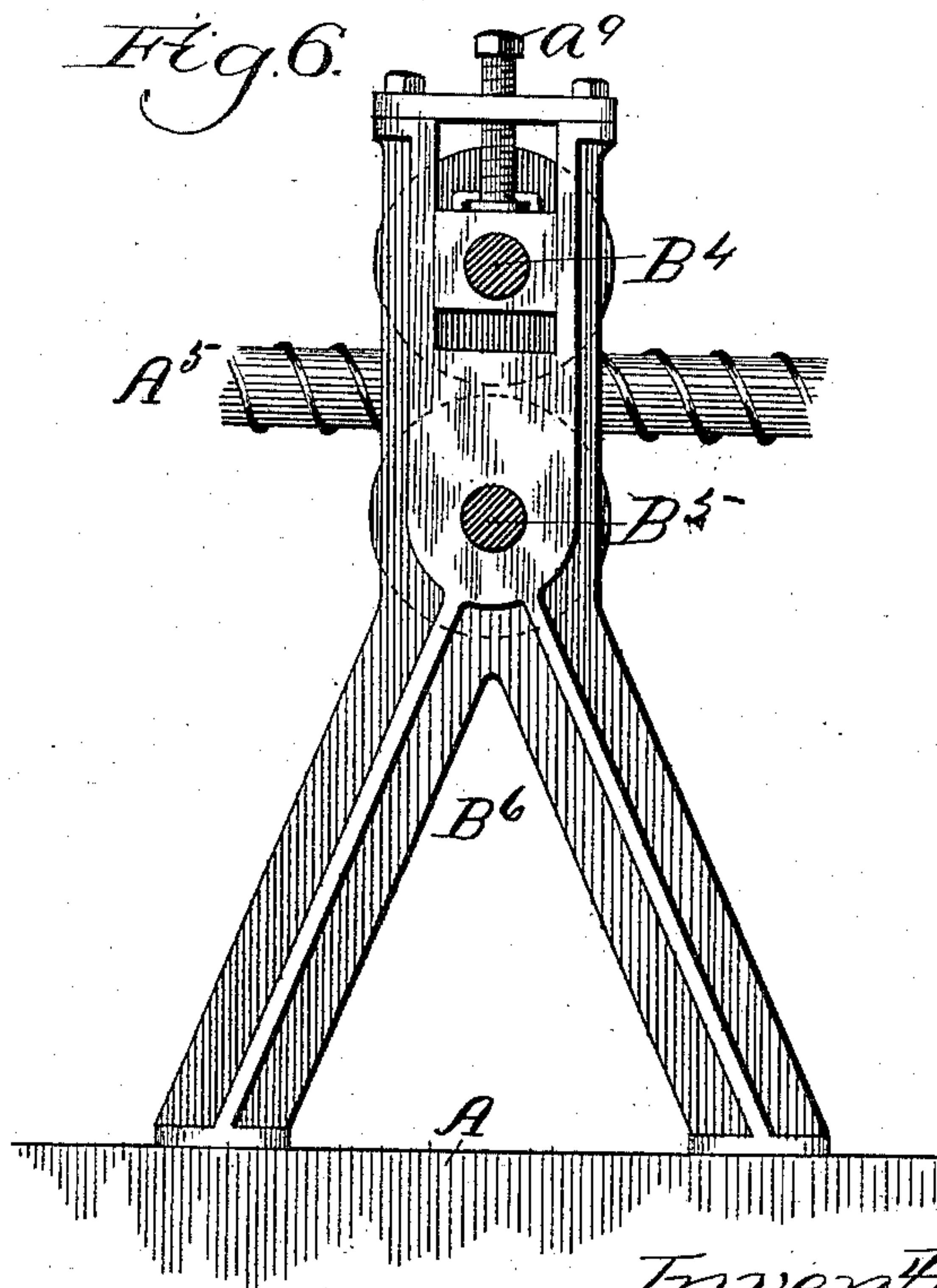


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES W. KIMBALL, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF
TO RICHARD Y. WHELPLEY, OF SAME PLACE.

MACHINE FOR COVERING HOSE WITH WIRE.

SPECIFICATION forming part of Letters Patent No. 330,332, dated November 10, 1885.

Application filed July 21, 1885. Serial No. 172,180. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. KIMBALL, of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in a Machine for Covering Hose with Wire, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in that class of machines that are more especially used in providing rubber or other flexible hose with a covering or continuous coil of wire laid on spirally; and the same consists of certain novel features in the construction, arrangement, and combination of parts, as will be hereinafter set forth.

Figure 1 is a side elevation of a machine embodying my improved features; Fig. 2, a vertical longitudinal section of the winding mechanism; Fig. 3, a side elevation of the feed mechanism. Fig. 4 shows the front side of a face-plate and parts attached thereto; Fig. 5, an enlarged side view of the wire-guide, and Fig. 6 an end view of the feed mechanism.

Referring to the drawings, A represents the supporting frame-work, which may be of any desired form, and A' a reel mounted upon the back end of the frame and adapted to receive the hose preparatory to being operated upon.

The face-plate B is supported by and provided with a suitable journal-bearing in the standard A², as shown in Fig. 2. This standard and the hub A³, forming part of the same, is provided with the opening A⁴ for the passage of the hose A⁵. This opening is made sufficiently large to permit of the passage of hose of different sizes. The annular plate a is removably secured to the collar a', encircling the front end of the hub A³, as shown in Fig. 2. The plate a is provided with the central projection, a², having a passage through the same, and threaded on the interior surface for the reception of the sleeve a³, having the exterior surface correspondingly threaded. The diameter of the passage through the sleeve will correspond to the diameter of the hose, so as to allow a full rounded expansion of the same.

By employing a number of plates similar to

the plate a, and having central openings of different areas, and sleeves corresponding thereto, provision is made whereby hose of any desired diameter may be passed through.

The guide or thimble B' encircles the front or outer projecting end of the sleeve a³, but is of a somewhat larger diameter, so as to leave an annular space between the same and the sleeve. The guide B' is supported in position by means of the angular arms a⁴ a⁵, bolted to the face-plate B. This guide is provided with one or more elongated openings, a⁶, through which the wire a⁷ is led from the spools b b', supported in place by the brackets b² b³. The inner end of the spindle b⁴, around which the wire-carrying spool or spools revolve, is tapped into the face-plate, as shown in Fig. 2, while the outer end, projecting beyond the spool, is provided with the collar b⁵, the loose sleeve b⁶, and the screw-threaded nut b⁷, whereby the tension of the spool may be regulated; but one spool will be ordinarily used, two spools doubling the capacity of the machine.

The guide B' is so adjusted relative to the sleeve a³ that the required coil of the wire will be formed on said sleeve, thus relieving the hose of all exterior tension or pressure. Nearly one complete coil or turn of the wire is formed on said sleeve; the exterior surface of which is made tapering, as shown in Fig. 2, so that the coil of wire will be more easily and uniformly drawn off by the movement of the hose as it is fed through.

The feed device is placed in front of the coiling mechanism, and will now be described. The grooved feed-rollers B² B³ are arranged one above the other, and are mounted upon the shafts B⁴ B⁵, which are in turn provided with suitable journal-bearings in the supporting standards B⁶ B⁷, as shown in Fig. 3.

The feed-rollers are made in two parts, which may be drawn away from or toward each other on their respective shafts, for the purpose of widening or narrowing the groove between the same, as may be required for hose of different sizes. This lateral adjustment of the feed-rollers is accomplished by means of the nuts a⁸, having a threaded engagement on the feed-roller shafts. The upper feed-roller is adapted to have a vertical adjustment by

means of the screw-threaded bolts $a^9 a^{10}$, as shown in Figs. 3 and 6. By this arrangement the feed mechanism may be nicely and conveniently adjusted to have the required tension on the hose to maintain a proper feed.

The rear side of the face-plate B is provided with the gear-wheel C, adapted to engage with the pinion C', mounted on the back end of the shaft C², said shaft being provided near the opposite end with the worm-gear C³, into which meshes the worm-gear wheel C⁴, mounted on the lower feed-shaft, B⁵, the opposite end of said feed-shaft having the gear-wheel C⁵ mounted thereon, and which in turn engages with the companion gear-wheel C⁶, mounted on the upper feed-shaft. By this means the necessary power and motion are transmitted from the face-plate to the feed mechanism.

By this construction and arrangement very little space is required for the operation of the machine, and the hose is not subjected to injury by being stretched or strained over a mandrel, where it receives the whole tension of the wire as it is coiled around the same.

The machine is so constructed as to be easily adjusted to impart the required tension without danger of injuring or compressing the hose by drawing the wire coils too tight.

The wire-spooling shaft D is provided with suitable journal-bearings in brackets attached to the side of the frame-work, the slide-bearing d being made adjustable, so that the spool may be readily placed on the shaft and removed when filled with wire.

It is of course obvious that the plate and sleeve through which the hose is drawn may be cast or otherwise formed in one piece; and in some cases—for instance, when using light wire and heavy hose—the coil of wire may be formed directly on the body of the hose, instead of around the end of the sleeve.

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

1. In a machine of the character hereinbefore described, the combination, with a face-plate, of a standard provided with a hub having an opening or passage through the same, and forming a journal-bearing for said face-plate, an annular plate provided with an interiorly-threaded projection, and a sleeve adapted to have a threaded engagement with said projection, and provided with a passage for the hose during the process of covering the same with wire, substantially as herein set forth.

2. In a machine of the character hereinbefore described, the combination, with the sleeve a^3 , of the guide or thimble B', provided with one or more openings for the passage of the wire, as set forth.

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Witnesses:

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