

(No Model.)

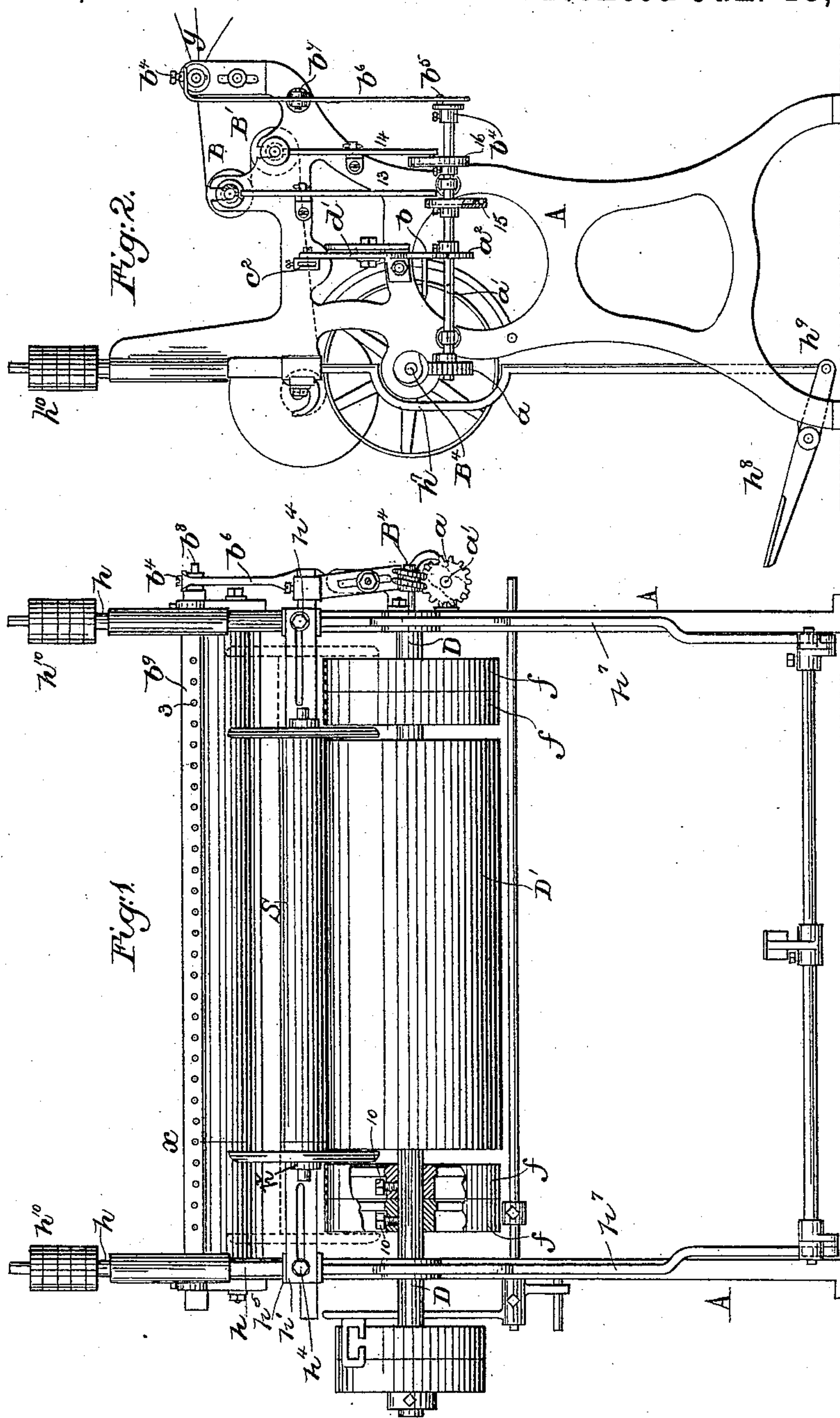
2 Sheets—Sheet 1.

G. O. WICKERS & J. H. STONE.

YARN SPOOLER.

No. 444,562.

Patented Jan. 13, 1891.



Witnesses:
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Inventor:
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

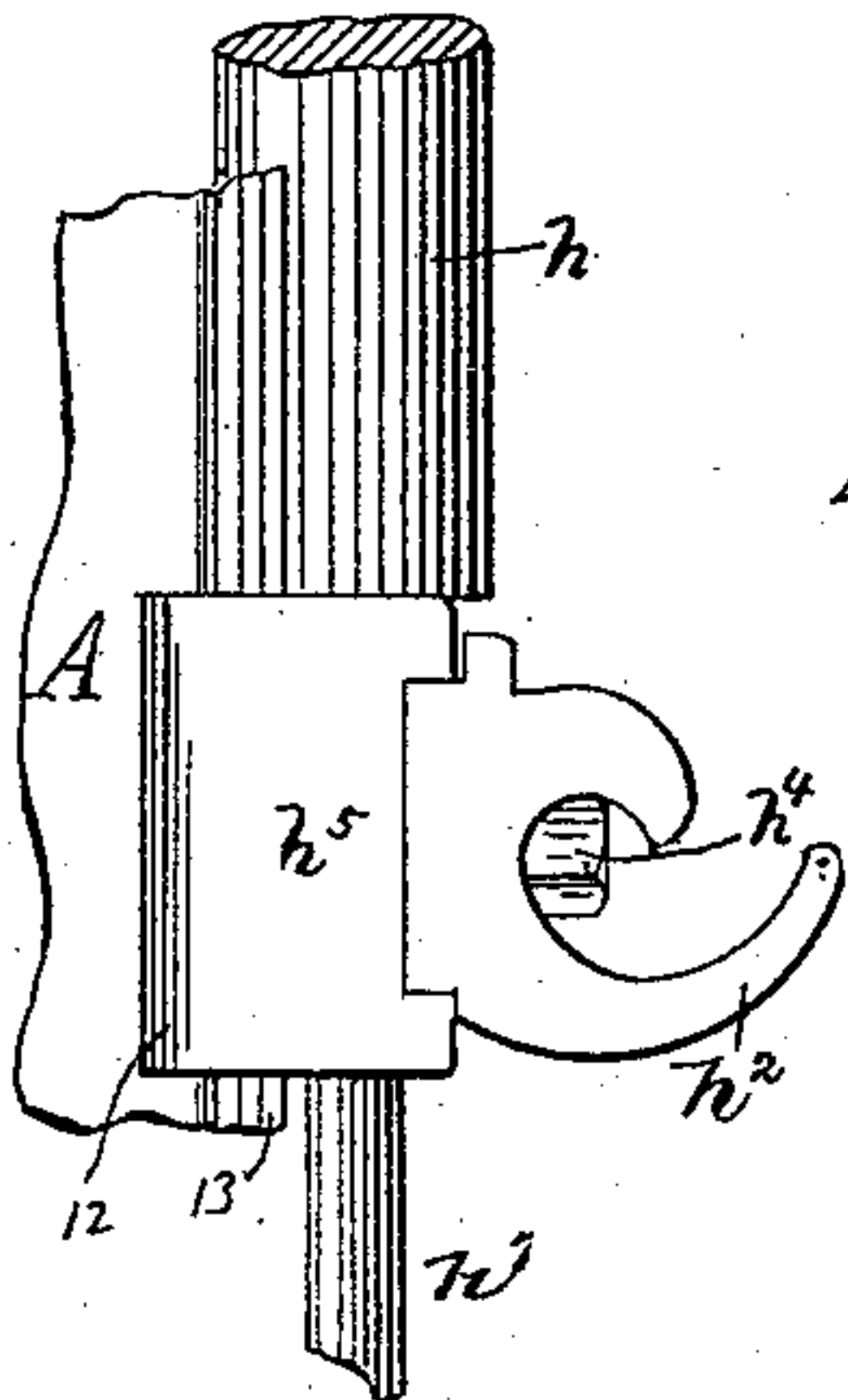


Fig. 4.

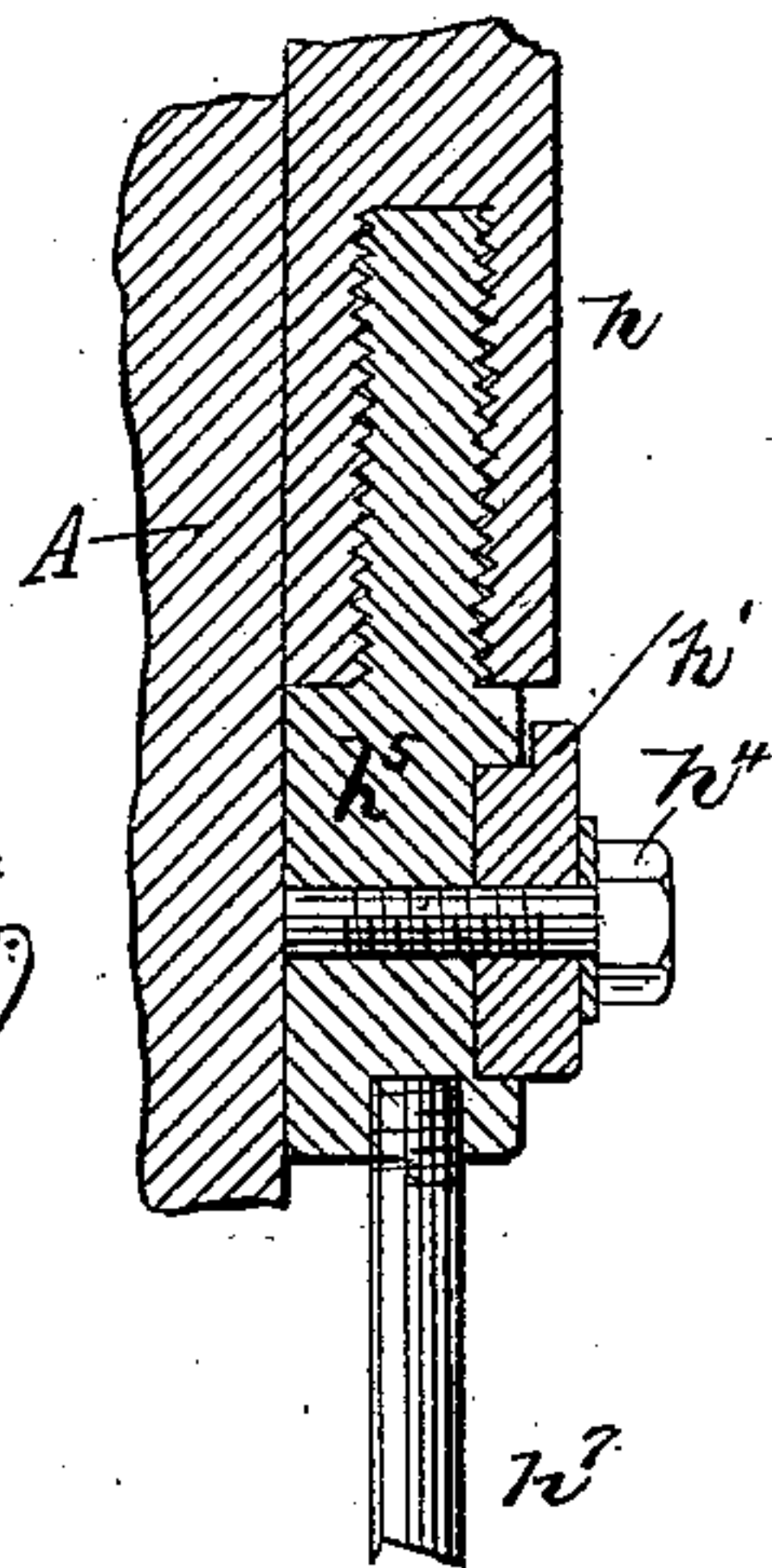


Fig. 5.

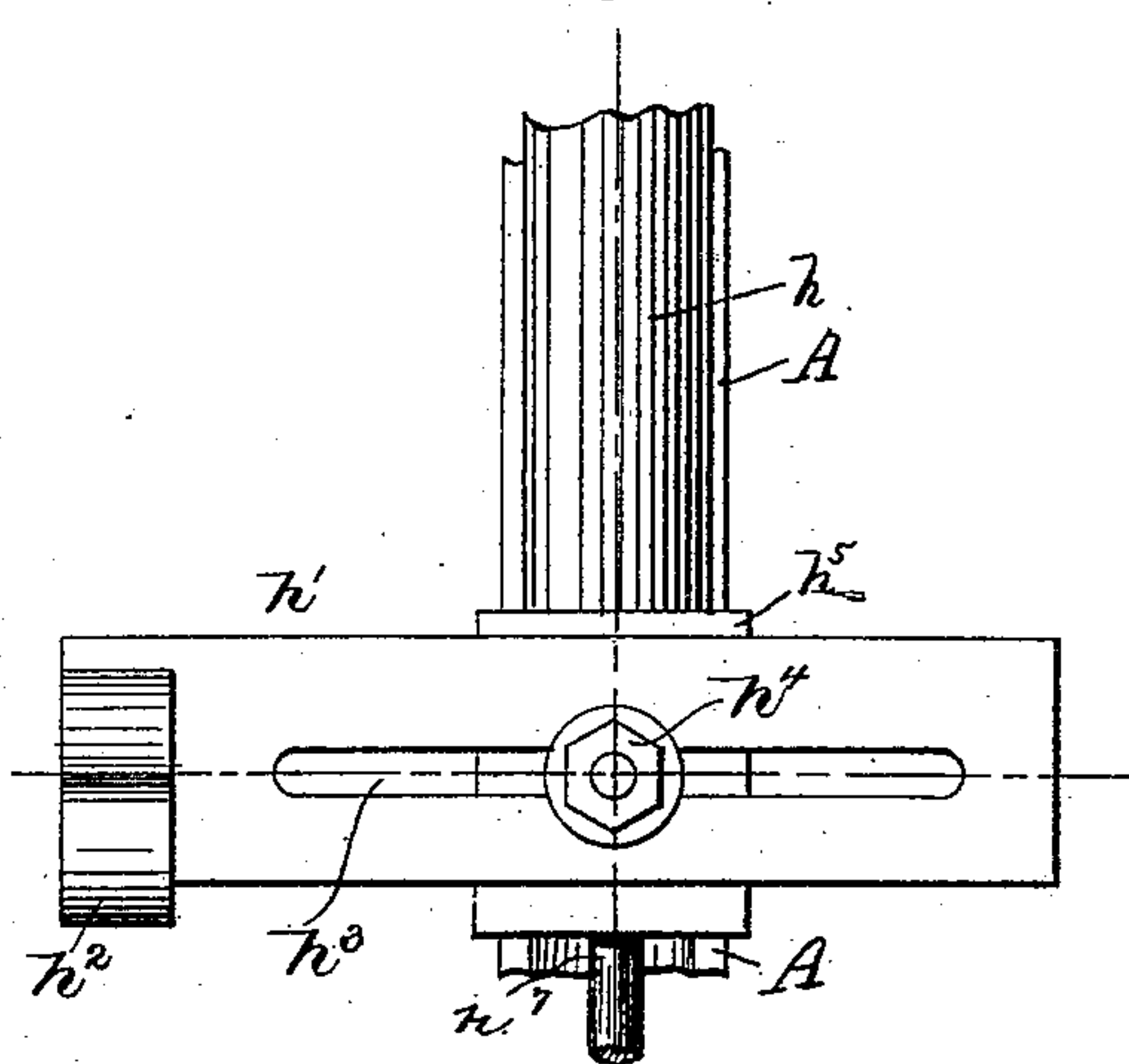


Fig. 6.

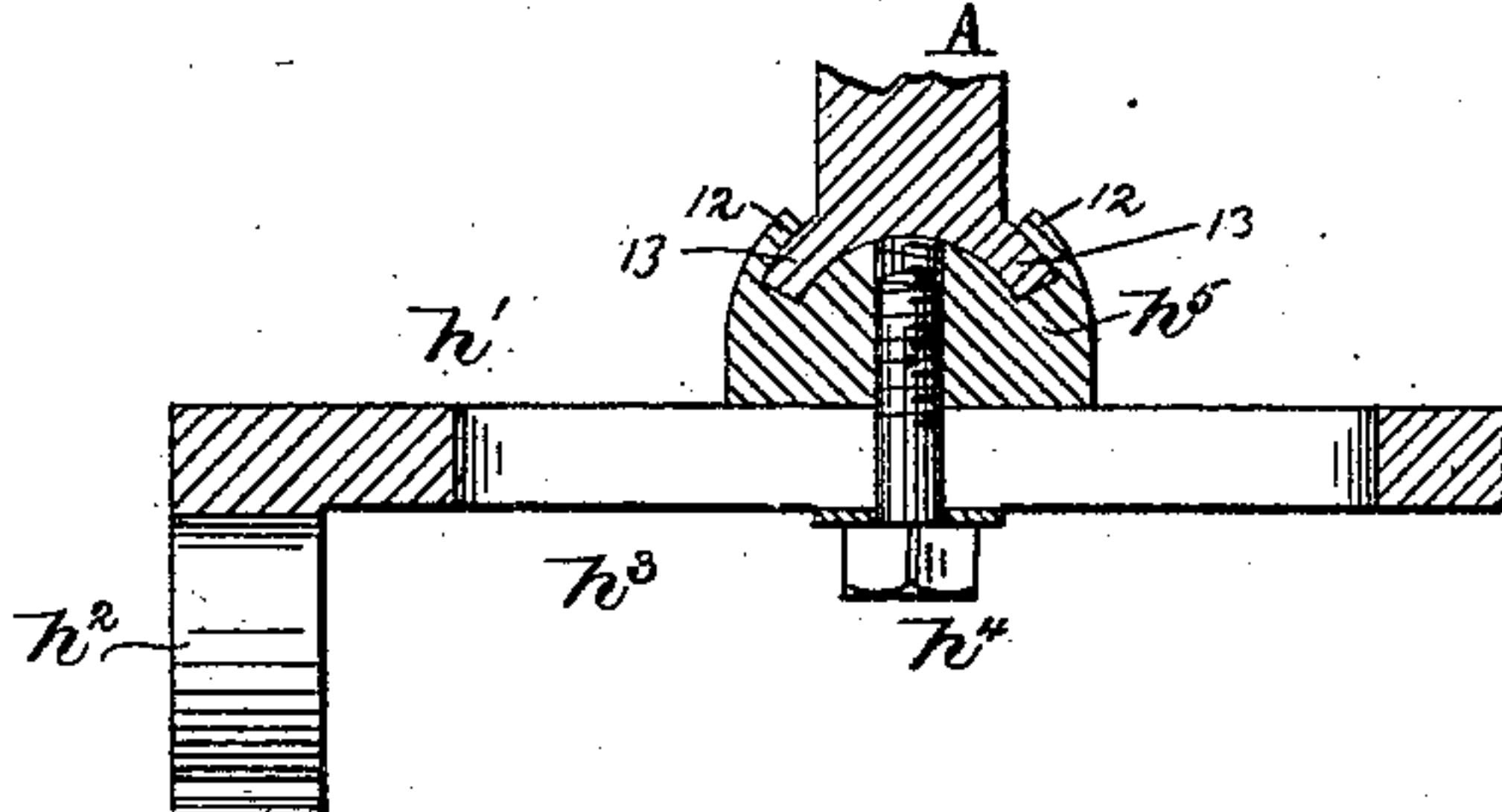


Fig. 9.

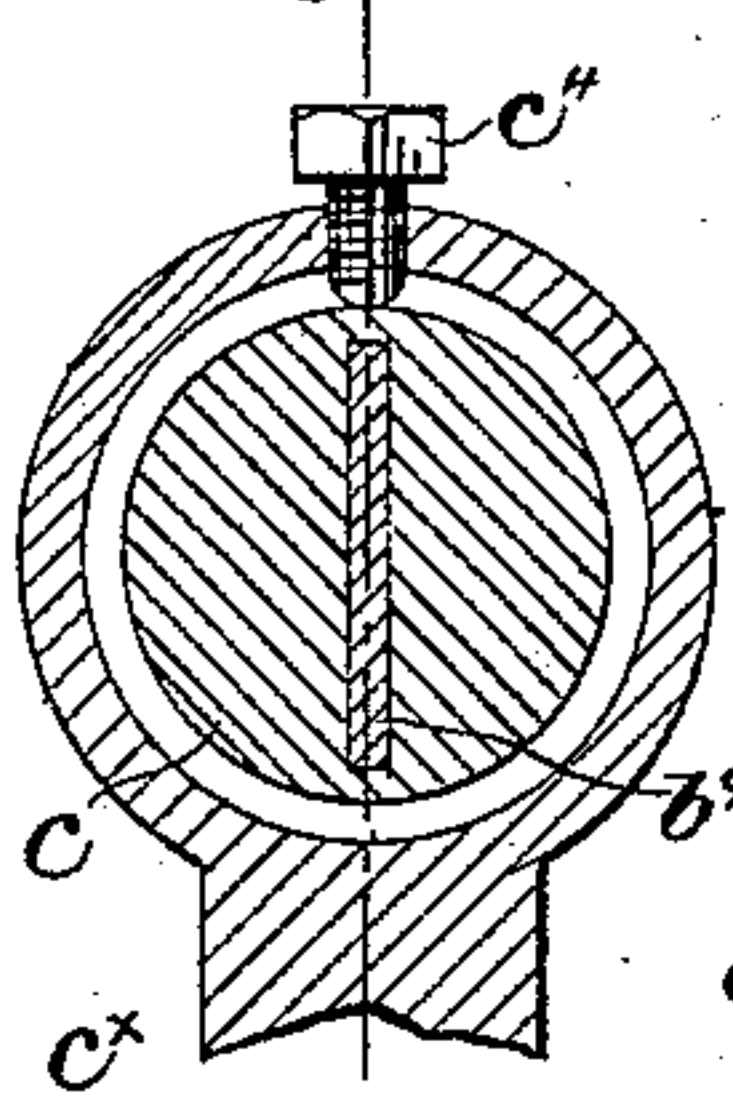


Fig. 7.

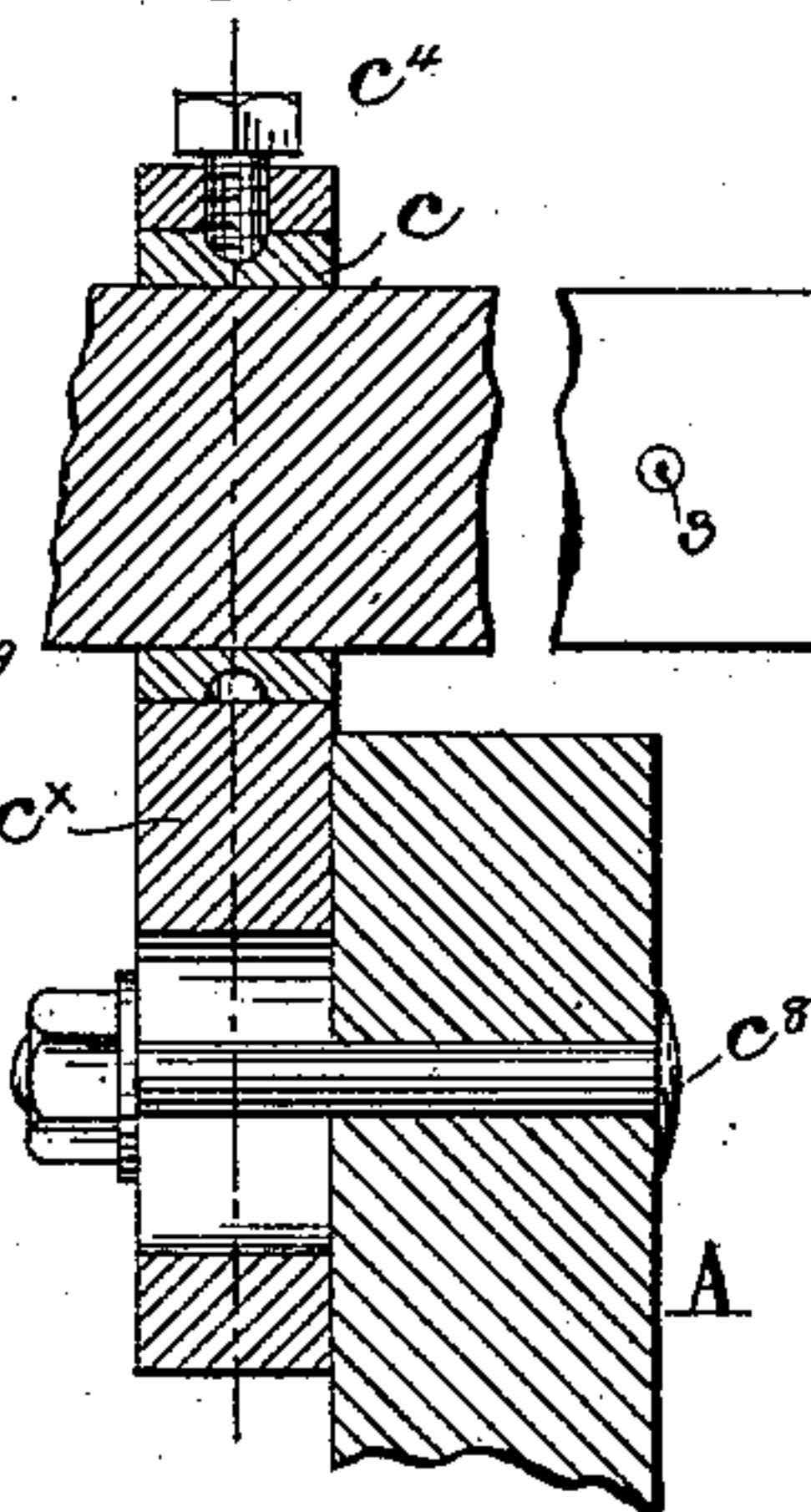


Fig. 8.

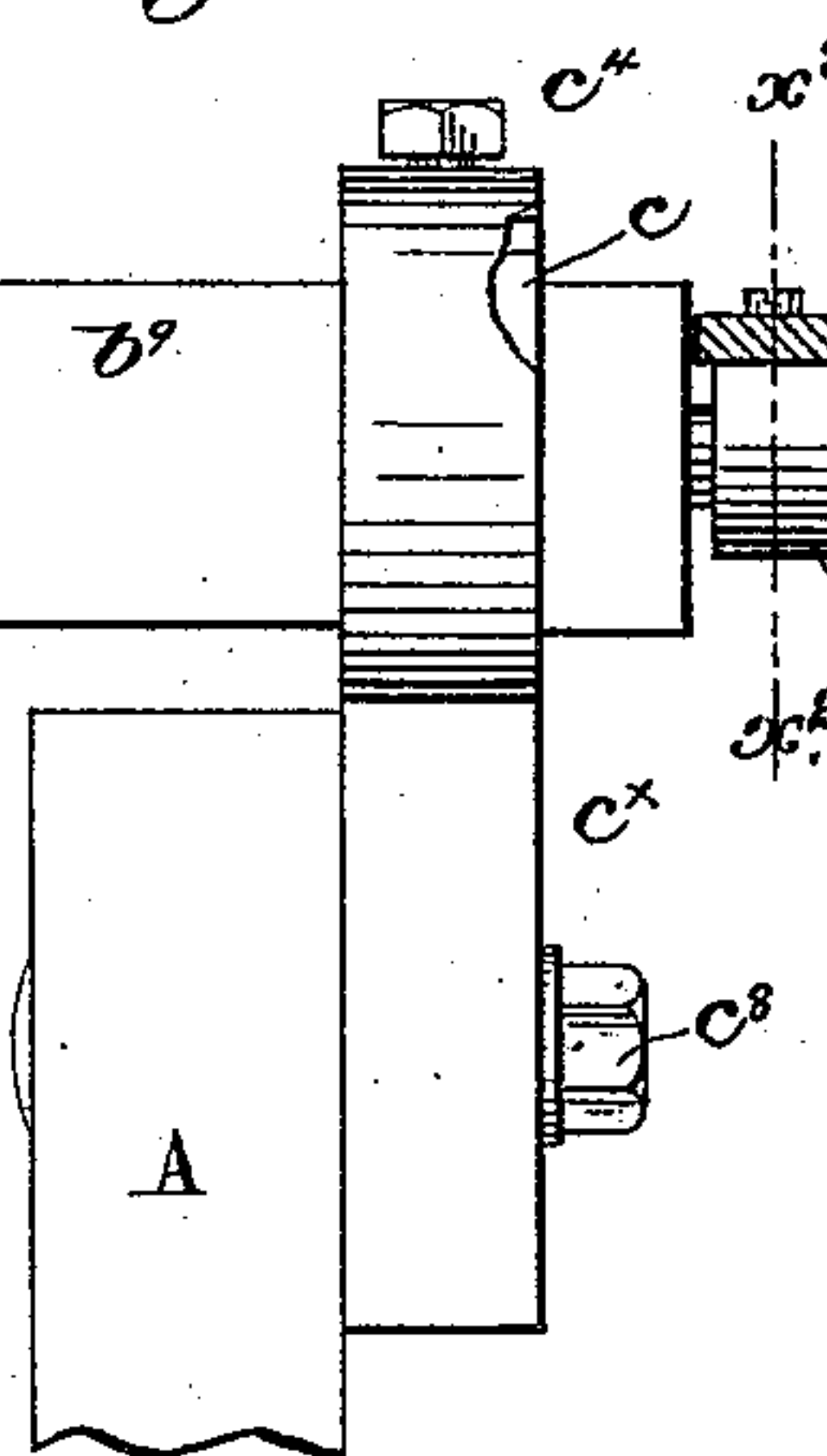
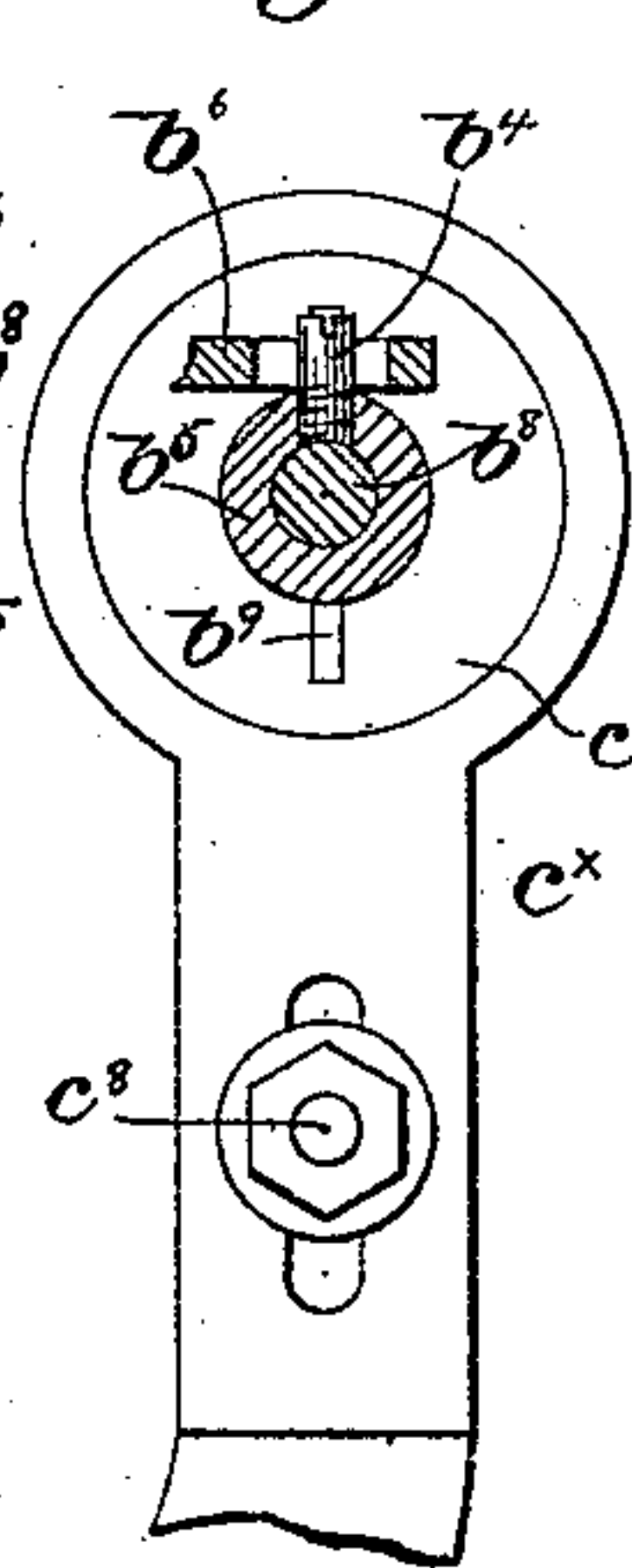


Fig. 10.



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UNITED STATES PATENT OFFICE.

GEORGE O. WICKERS, OF LAWRENCE, AND JOSEPH H. STONE, OF NORTH ANDOVER, ASSIGNORS TO THE DAVIS & FURBER MACHINE COMPANY, OF NORTH ANDOVER, MASSACHUSETTS.

YARN-SPOOLER.

SPECIFICATION forming part of Letters Patent No. 444,562, dated January 13, 1891.

Application filed June 4, 1890. Serial No. 354,230. (No model.)

To all whom it may concern:

Be it known that we, GEORGE O. WICKERS and JOSEPH H. STONE, of Lawrence and North Andover, respectively, in the county of Essex and State of Massachusetts, have invented an Improvement in Yarn-Spoolers, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve and simplify the machine described in United States Patent No. 376,834, dated January 24, 1888, one part of our improvement relating to the construction of the drum, whereby it is adapted to spools of varying length.

Another part of our invention comprehends horizontally-adjustable bearings on the spool-lifter to adapt the machine for the reception of spools of different length.

Another feature of our invention relates to the combination, with the spool-lifting mechanism, of a treadle by which to lift it, instead of a rack, pinion, or chain.

Another feature of our invention relates to an improved construction of guide-bar, whereby the same may be adjusted to the particular work to be done.

In the machine herein to be described the yarns taken from suitable spools or bobbins in a creel-frame are led through the eyes of a yarn-guide, thence over feed-rolls through a guide-bar and to the spool on which the yarn is to be wound, the said spool being supported to be resting with its weight on a drum, the latter being composed, as shown, of a main drum and a series of supplementary drums adjustably mounted on the shaft of the main drum, the main drum being preferably of a length equal to the barrel of the shortest spool to be wound, the shaft of the drum being equal to or a little in excess of the length of the longest spool to be wound.

Figure 1 represents in front elevation a spooling-machine embodying our present invention, the means for reciprocating the guide-rolls being, however, omitted; Fig. 2, a right-hand end view thereof with the means for reciprocating rolls B B' in place. Figs. 3, 4, 5,

and 6 are details of the adjustable bearing on the spool-lifting device; Figs. 7, 8, 9, and 10, details of the back guide-bar, Fig. 10 being a section in the line x^2 , Fig. 8.

The frame-work A, the yarn-guide bar c^2 , the lever b , connected to it, the cam a^2 , to move the said lever, and the rotary shaft a' , having the worm-gear a and engaged and rotated by the worm B^4 on the drum-shaft D, are and may be constructed as shown in the said patent. The shaft a' at its end opposite the said worm-gear has a crank b^4 , provided with a crank-pin b^5 , which enters a slot in the lower end of the lever b^6 . This lever is pivoted at b^7 and bent, as best shown in Figs. 1 and 2, and slotted (see Fig. 10) to embrace a stud b^4 , the said stud, as shown, serving also to secure a collar b^5 to the reduced journal-like end b^8 of the yarn-guide b^9 , made as a flat bar having a series of holes 3 for the guidance of the yarn y passing to the usual feed or guide rolls B B', the said yarns in practice coming from suitable spools or bobbins in any usual creel. (Not shown.) The flat guide-bar b^9 is adapted to be slid horizontally or longitudinally in sleeves c , each adjustably held by a set-screw c^4 in a stand c^x , shown as adjustably attached by a bolt c^8 to the frame A, the said sleeves being adapted to be rotated in the said stand when the said set-screws c^4 are turned out slightly, to thus enable the bar to be adjusted so that it may stand with its sides in a vertical plane, as in Fig. 9, or to be tipped from a vertical plane, according to the position of the bobbins supplying the yarn, so as to obviate cutting friction between the yarns and bar.

Referring to Fig. 9, it will be noticed that the guide-bar c^9 is shown as in one of the sleeves c , the section of Fig. 9 being in the dotted line, Fig. 7, and this bar may be slid longitudinally in the sleeves which support it by the action of the lever b^6 as the latter is vibrated about its pivot, as before described.

The sleeves are shown as provided externally with annular grooves, into which the points of the set-screws c^4 enter, the said annular grooves enabling the set-screws therein to hold the sleeves in any position in which

they may be adjusted. Figs. 7 and 9 clearly show one of these annular grooves.

The main shaft D has secured to it a rotating main drum D', which is as long as the shortest dresser-spool S to be supplied with yarn. The shaft D between the side frames is somewhat longer than the barrel of the longest spool to be wound, and between the end of the main drum and the interior of the frame sides A we mount on the said shaft supplementary drums *f*, one or more, which may be of greater or less length, the said supplementary drums being adjustable on the said shaft toward and from the main drum by the set-screws 10. The said drums *f* may be constructed in any manner usual to belt-pulleys, so as to be readily adjusted upon or be applied to or removed from the said shaft.

In order to further adapt the machine to dresser-spools of different length, we have provided the lifting-rods *h* with adjustable brackets *h'*, having open bearings *h²* to receive the journals of the dresser-spool. Each bracket *h'* is slotted at *h³* to receive through it a screw *h⁴*, which, as herein shown, is screwed into a block *h⁵*, interposed in or forming part of the lifting-rod. The said block is recessed at its front side to receive and guide the bracket or bearing-bar *h'*, the screw *h⁴* clamping it in place when in adjusted position. The rear side of the block *h⁵* has lips 12 to embrace ears 13 on the frame A, so that the frame A guides the blocks *h⁵*. The rods *h⁷*, extending below the blocks *h⁵*, are bent outward and then extended downward and connected to the treadle *h⁸* at *h⁹*, so that the operator with his foot on the treadle may raise the lifting-rods, and with them the bearings and the dresser-spool, the said treadle and rods obviating the employment of the rack and pinion, as in the aforesaid patent, or of a chain. If desired, the rods *h* may be weighted, as at *h¹⁰*, that depending upon the class of yarn being wound.

In Fig. 1 the supplementary drums *f* are shown as separated from the ends of the main drum, thus leaving slots or spaces into which enter the flanges of the dresser-spool, and it is obvious, if the spool be longer by the length of one or more of the supplementary drums, that by adjustment of the supplementary drums the drum-surface may be made to correspond with the length of the spool.

In practice there are usually two lengths of spools employed—viz., thirty-two and forty inches long—and the main and supplementary drums are so proportioned that by adjustment of the supplementary drums the machine may be readily adapted to spools of different length, and in all instances the surface of the drum in contact with the yarn to be wound will be of uniform diameter throughout the length of the dresser-spool, which is essential for correct and proper winding.

We do not desire to limit our invention to the exact construction of the bearing-brackets *h'* or to the particular manner of connect-

ing them to the rods *h* in an adjustable manner.

By being able to adjust the guide-bar *b⁹*, which receives the thread direct from the spool of the creel, it is possible to reduce to a minimum the wear of the yarn upon the guide-bar.

We herein denominate the rods *h*, which support the spool-bearings, as the spool-lifting rods.

The feed or guide rolls B B' (herein shown only in Fig. 2 to avoid confusion of the drawings) are adapted to be reciprocated as well as rotated, so as to prevent the threads or yarns from cutting into them. To give to the said rolls a reciprocating movement, we have added two like levers 13 and 14, each actuated by a suitable cam 15 or 16 on the shaft *a*, the upper ends of the said levers being forked to embrace the ends of the journals of the rolls. We have shown both the rolls and the guide-bar as adapted to be reciprocated; but, if desired, the guide-bar may remain at rest while the rolls are reciprocated, or the rolls may be given only a motion of rotation and the guide-bar be reciprocated.

Prior to our invention we are not aware that longitudinally-adjustable bearings have ever been employed in connection with winding machinery to enable spools of different lengths to be used in connection with a winding-drum. So this invention is not limited solely to the application of the longitudinally-adjustable bearings to the spool-lifting rods, as the said bearings would be of utility when applied to any machine for winding wherein it was desired to use at times spools of different lengths upon which the material—yarn, &c.—is to be wound. So it will be understood that the lifting-rods, as herein represented, constitute supports for the said bearings, and, as represented, the said supports are weighted in order that the bearings may rise and fall in order to adapt them to the varying diameter of the mass of material upon the spools.

We claim—

1. A winding-drum, combined with spool-lifting rods and connected horizontally-adjustable bearings to receive the journals of the spool upon which the yarn is to be wound, the said bearings enabling spools of different lengths to be used, substantially as described.

2. In combination, in a spooling-machine, the bearings for the spool and the drum composed of a main cylinder and independent adjustable supplementary drums of like diameter, substantially as described.

3. The yarn-guide *b⁹*, composed of a bar, combined with sleeves through which the said bar slides and with means to adjust the said sleeves about the longitudinal center of the bar, as and for the purpose set forth.

4. The drum and horizontally-adjustable bearings for the spool-journals, combined with and attached to vertically-movable supports for the said bearings, whereby the spool having its journals in the said bearings is

adapted to be rotated by the said drum, substantially as described.

5 5. The drum and horizontally-adjustable bearings for the spool-journals, combined with and attached to vertically-movable supports for the said bearings, whereby the spool having its journals in the said bearings is adapted to rest and run upon the said drum, and with a treadle to lift the said rods and
10 their attached bearings, as and for the purpose set forth.

6. The drum and the horizontally-adjustable bearings for the spool-journals, combined

with a vertically-movable support for the bearings and weights to keep the spool held 15 in the said bearings pressed toward the said drum, the combination being and to operate substantially as described.

In testimony whereof we have signed our names to this specification in the presence of 20 two subscribing witnesses.

GEORGE O. WICKERS.

JOSEPH H. STONE.

Witnesses:

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JAMES L. BRACKETT.