No. 677,270.

Patented June 25, 1901.

A. E. RHOADES.

SPOOLER.

(Application filed Oct. 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.

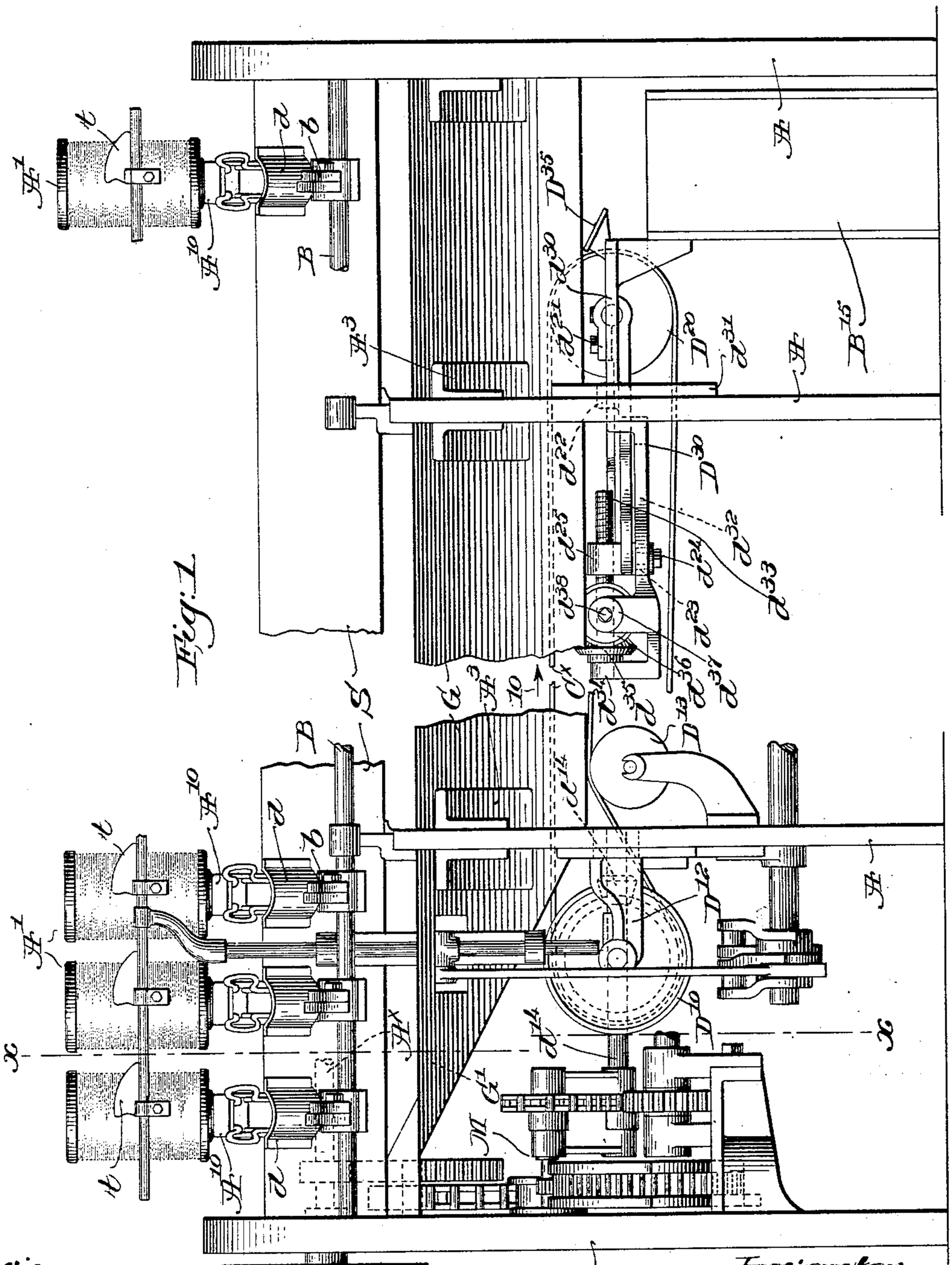

Fig. 1.

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Fig: 2.

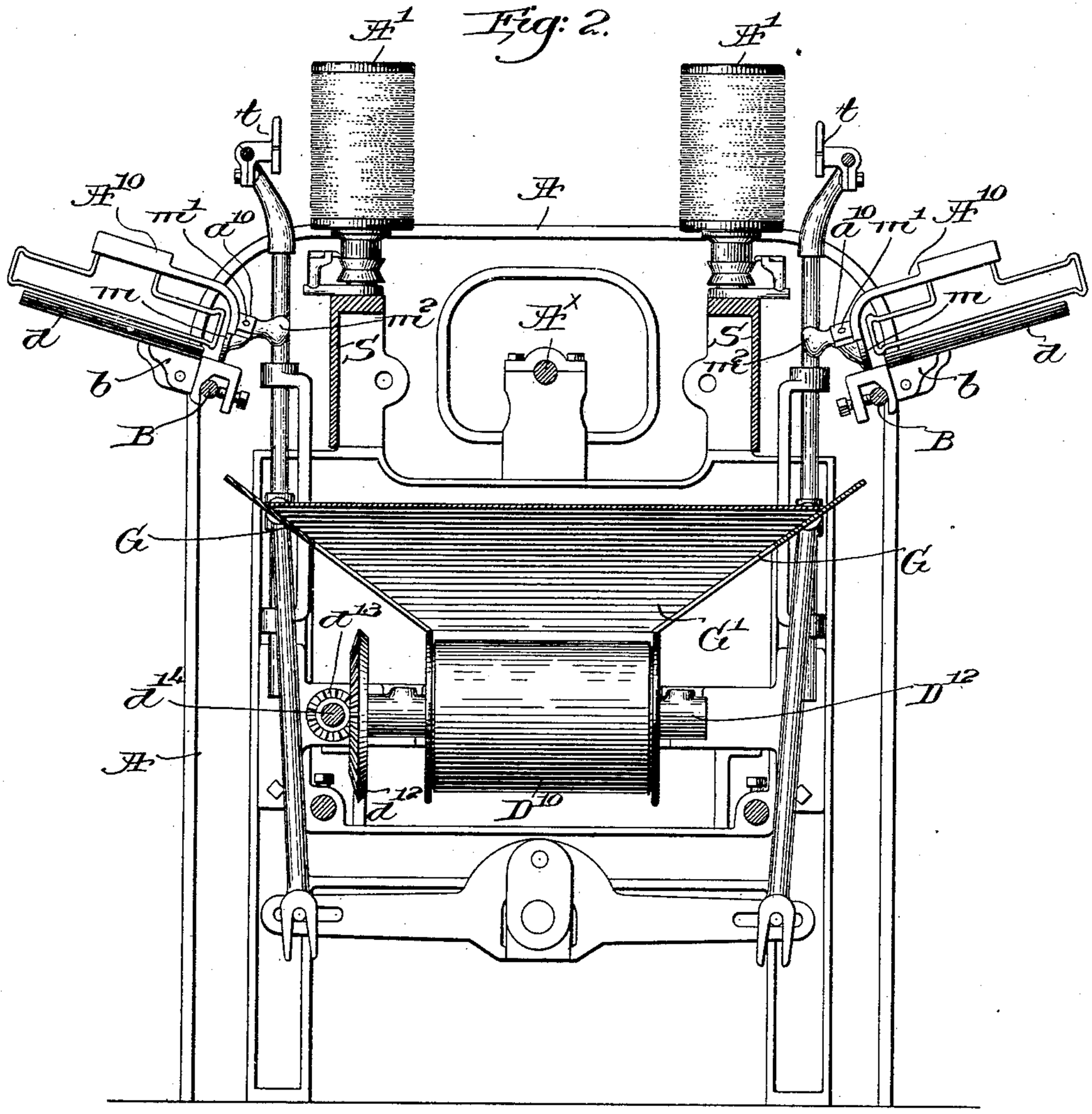

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Fig: 3.

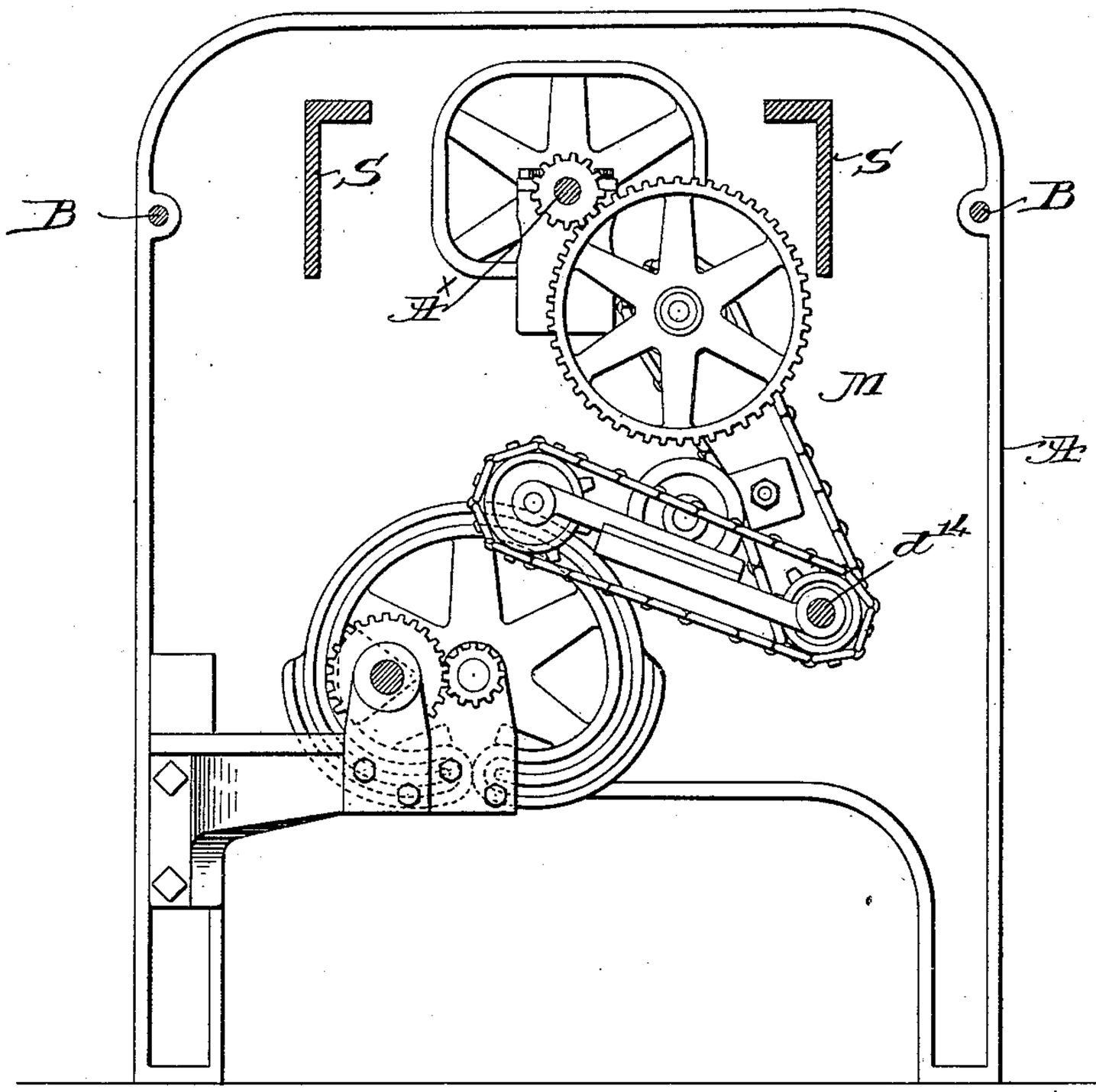
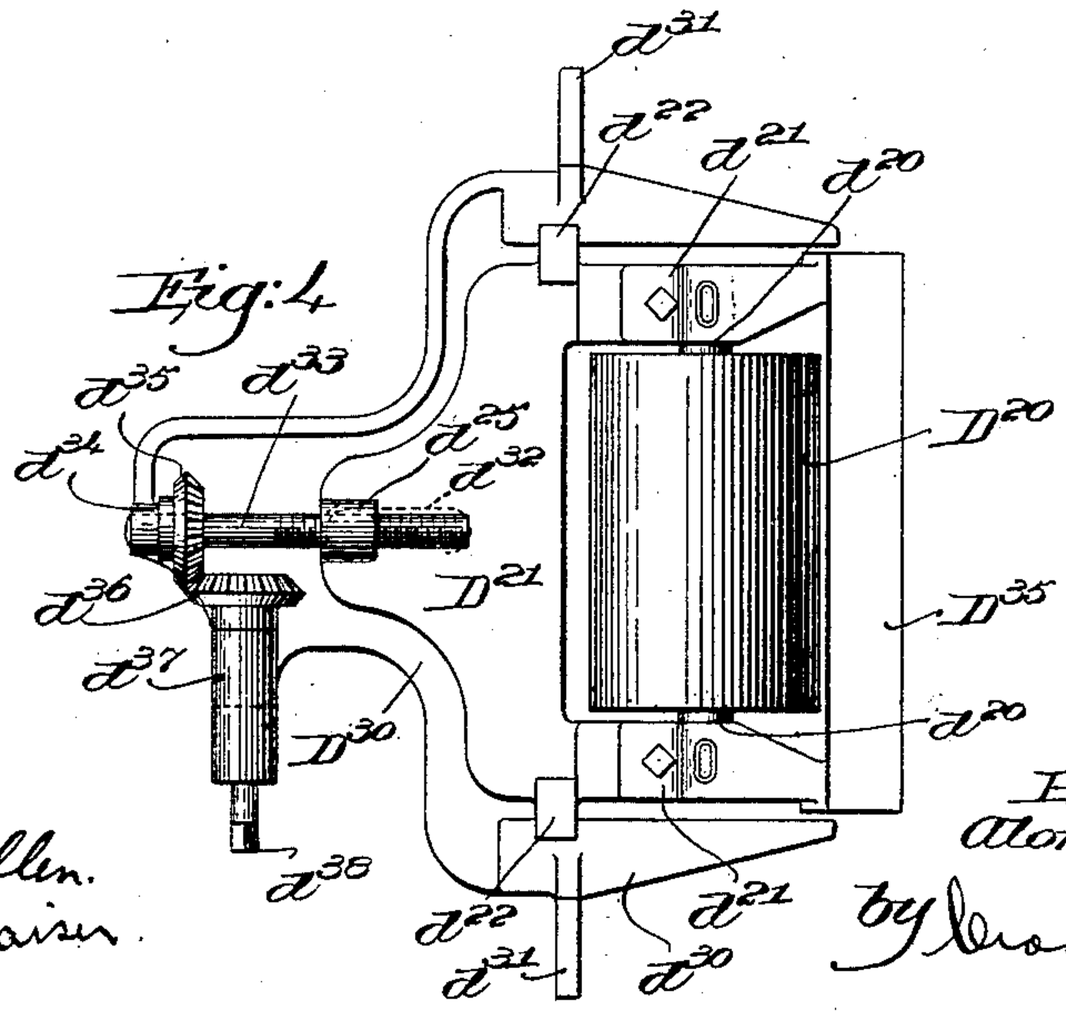


Fig: 4.



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UNITED STATES PATENT OFFICE.

ALONZO E. RHOADES, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF SAME PLACE AND PORTLAND, MAINE.

SPOOLER.

SPECIFICATION forming part of Letters Patent No. 677,270, dated June 25, 1901.

Application filed October 19, 1900. Serial No. 33,637. (No model.)

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, a citizen of the United States, and a resident of Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Spoolers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to spooling-machines; and it has for its object the production of means for readily removing the spent bobbins from the vicinity of the bobbin-holders and conveying them to a suitable receptacle.

In the apparatus forming the subject-matter of my present invention I employ bobbin-holders so constructed as to permit the automatic ejection of a spent bobbin by or through the insertion of a full bobbin, the spent and ejected bobbins being removed to a suitable point by means of an endless traveling conveyer, so that the attendant can give his whole attention to the insertion of full bobbins and piecing up broken ends.

Figure 1 is a side elevation, centrally broken out, of a spooler embodying one form of my invention. Fig. 2 is a transverse sectional view thereof on the line $x\,x$, Fig. 1, looking toward the right. Fig. 3 is a similar view looking toward the left, taken on the line $x\,x$, Fig. 1; and Fig. 4 is a top or plan view of the tension-regulating device for the endless conveyer.

Referring to Fig. 1, the main frame A, drum-shaft $A^{\times}$ for driving the spindles on which are mounted the spools A′ to receive the thread from the bobbins, the intermediate gearing M, Fig. 3, between the shaft $A^{\times}$ and the traverse mechanism, the rods or shafts B, upon which the bobbin-holders are secured, and the thread-guides t may be and are all of well-known or usual construction.

I have herein shown the bobbin-holders of substantially the construction illustrated in United States Patent No. 645,417, dated March 13, 1900, each comprising an overhanging arm A^{10}, clamped at its lower end to the rod B, a rest or pan d for the bobbin being secured to a bracket b on the arm, and, as in said patent, the upright part of the arm at the rear of the rest d is cut away to form a discharge-opening for the ejection of a spent bobbin, a gate or closure m being provided for the opening, pivoted at m' in ears a^{10} on the arm A^{10}. The fulcrum m' is inclined, and a weighted arm m^2 on the gate normally closes it until opened by a spent bobbin which is pushed out by the insertion of a full bobbin at the front of the holder. As is usual in spooling-machines, the spindles are herein shown as arranged in two series at the upper part of the machine, and at the front and back thereof, respectively, on suitable longitudinal spindle-rails S, and in the space below the spindle-rails and back of the bobbin-holders I have mounted a longitudinally-extended chute or trough composed of side pieces G, supported on brackets A^3, forming a part of the frame of the apparatus, the said sides being inclined downward and inward, as shown in Fig. 2, and at the left-hand side of the machine, viewing Fig. 1, an inclined end piece G′ is inserted between the sides of the chute, which is thus open at the top and bottom, the bottom, however, being constructed as an endless traveling conveyer. I have herein shown the conveyer as an endless flexible belt $C^{\times}$, which is mounted on drums D^{10} D^{20}, the upper run of the belt traveling in the direction of the arrow 10, Fig. 1, between the lower portions of the sides G of the chute, which sides constitute inclined guides to direct the spent bobbins upon the belt when they are ejected from the backs of the bobbin-holders. The drum D^{10} is mounted in a fixed bearing D^{12}, and its shaft has fast thereon a bevel-gear d^{12}, (see Fig. 2,) in mesh with a bevel-pinion d^{13}, fast on a shaft d^{14}, forming a portion of the train of gearing M, whereby the drum D^{10} is positively rotated to impart a longitudinal movement to the belt or conveyer $C^{\times}$. The lower run of the said belt passes over an idler-roll D^{13}, and in order to adjust the tension of the belt or conveyer I have so mounted the drum D^{20} that it also serves as a belt-tightener. The journals d^{20} of the said drum are mounted in bearings d^{21} of a frame D^{21}, (see Fig. 4,) which is provided with laterally-extended ears d^{22}, notched or recessed to embrace forwardly-extended guides d^{30} of a support D^{30}, the latter having at each side upright wings d^{31}, ex-

tended above and below the support and which are fastened to one of the upright portions of the main frame of the apparatus to rigidly maintain the support D^{30} in fixed position, as shown in Fig. 1, the arms d^{30} being elevated above the plane of the main part of the support D^{30}. It will be seen that the frame D^{21} can slide back and forth on the support D^{32} in the support D^{30}, a set-screw d^{24} passing into the lug d^{23} and serving to clamp the sliding frame in position when adjusted. The said frame is provided with a threaded ear d^{25}, which engages a threaded shaft d^{33}, rotatably mounted in a bearing d^{34} and the support D^{30}, said shaft having fast thereon a bevel-pinion d^{35}, which meshes with a bevel-gear d^{36}, the shaft of the latter being rotatably mounted in a bearing d^{37} on the support D^{30}, the shaft having its outer end made square or polygonal, as at d^{38}, so as to be engaged by a suitable key or wrench.

By rotating the gear d^{36} in one direction or the other it will be manifest from the foregoing that the screw d^{33} will be rotated to slide the frame D^{21} in or out upon the support D^{30} to decrease or increase the tension of the belt $C^{\times}$.

Referring to Fig. 1, a box or other suitable receptacle B^{15} is mounted at or near the right-hand side of the apparatus and just beyond and below the drum D^{20}, said receptacle being designed to receive the spent bobbins as they leave the belt when the latter passes around the said drum, and in order to insure the displacement of the spent bobbins from the belt I have mounted upon forward extensions of the bearings d^{21} of the sliding frame a transverse clearer D^{35}, which is substantially a blade extended across and adjacent to the face of the belt as it passes around the drum D^{20}, the said blade being inclined, as shown in Fig. 1, and with its lower edge overhanging the open mouth of the box or receptacle B^{15}. As the spent bobbins reach the clearer they are slipped or scraped off, if necessary, thus preventing any sticking or accidental adhesion of the bobbin to the belt.

With the bobbin-holders herein described provided with means at their backs for the ejection of the spent bobbins, when the full bobbin is inserted at the front or outer end of the holder it will be manifest that the spent bobbins will fall into the chute described, and the inclined sides of the latter will guide the spent bobbins to the traveling conveyer $C^{\times}$, by which latter they will be conveyed to and deposited in the receptacle B^{15}. The attendant can thus direct his entire attention to the piecing up of ends and to maintaining full bobbins in the bobbin-holders, so that the highest production of which the apparatus is capable will be attained, because the time of the attendant is not taken up in taking out spent bobbins and conveying them to a box or receptacle.

The life of the bobbins themselves is enhanced by the apparatus herein shown, as the bobbins are not roughly tossed about from various parts of the apparatus to a box or trough, as is now the usual custom, such custom resulting in a large percentage of split, splintered, and broken bobbins.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same is changed and arranged in various ways without departing from the spirit and scope of my invention.

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

1. In a spooler, a series of bobbin-holders each provided with means to permit ejection of the spent bobbin, a chute to receive the spent bobbins from the holders, a traveling bottom for the chute to convey the bobbins therefrom, a clearer to positively remove the bobbins from said traveling bottom at a predetermined point, and a receptacle adjacent the clearer and into which the bobbins are directed thereby.

2. In a spooler, two oppositely-arranged series of bobbin-holders each provided at its inner end with means to permit the ejection of a spent bobbin, an endless, traveling belt between the series of holders, inclined guides to direct the spent bobbins to the belt and prevent their lateral removal therefrom, and a clearer to remove the bobbins from the belt at a predetermined point.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALONZO E. RHOADES.

Witnesses:
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ERNEST W. WOOD.