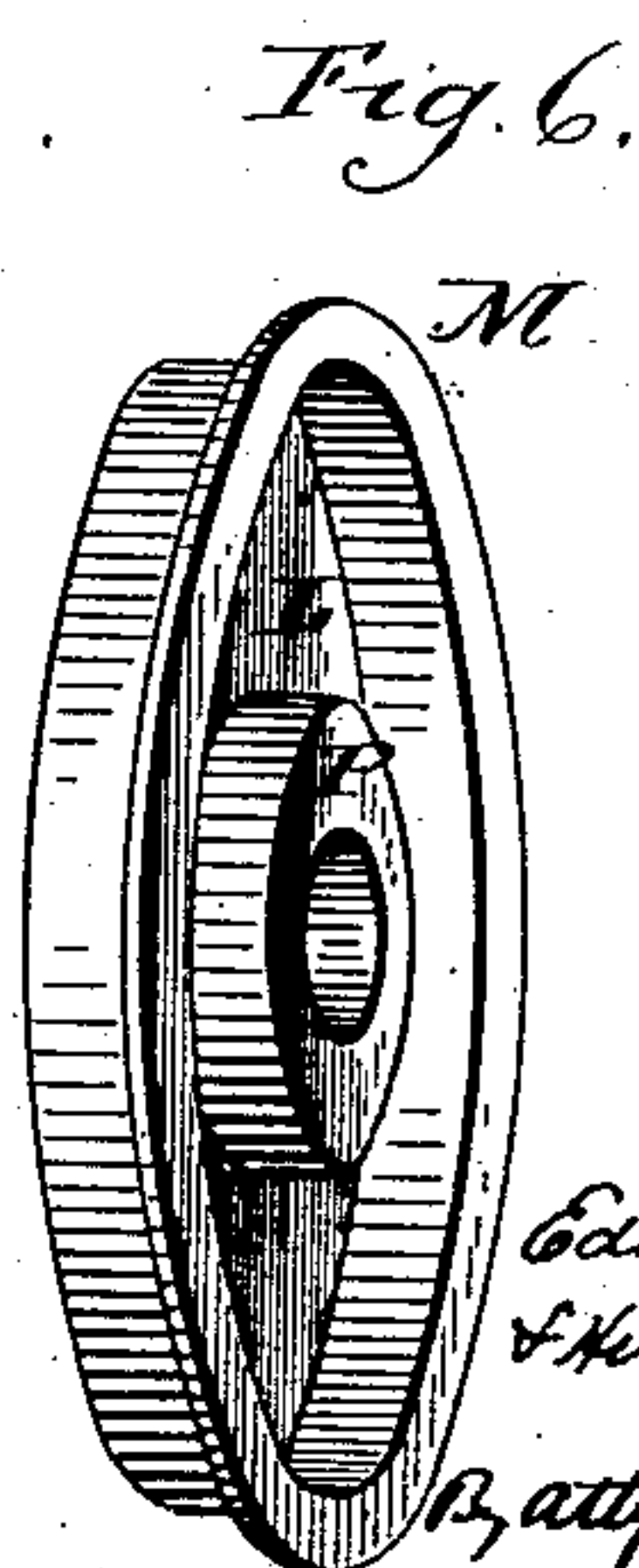
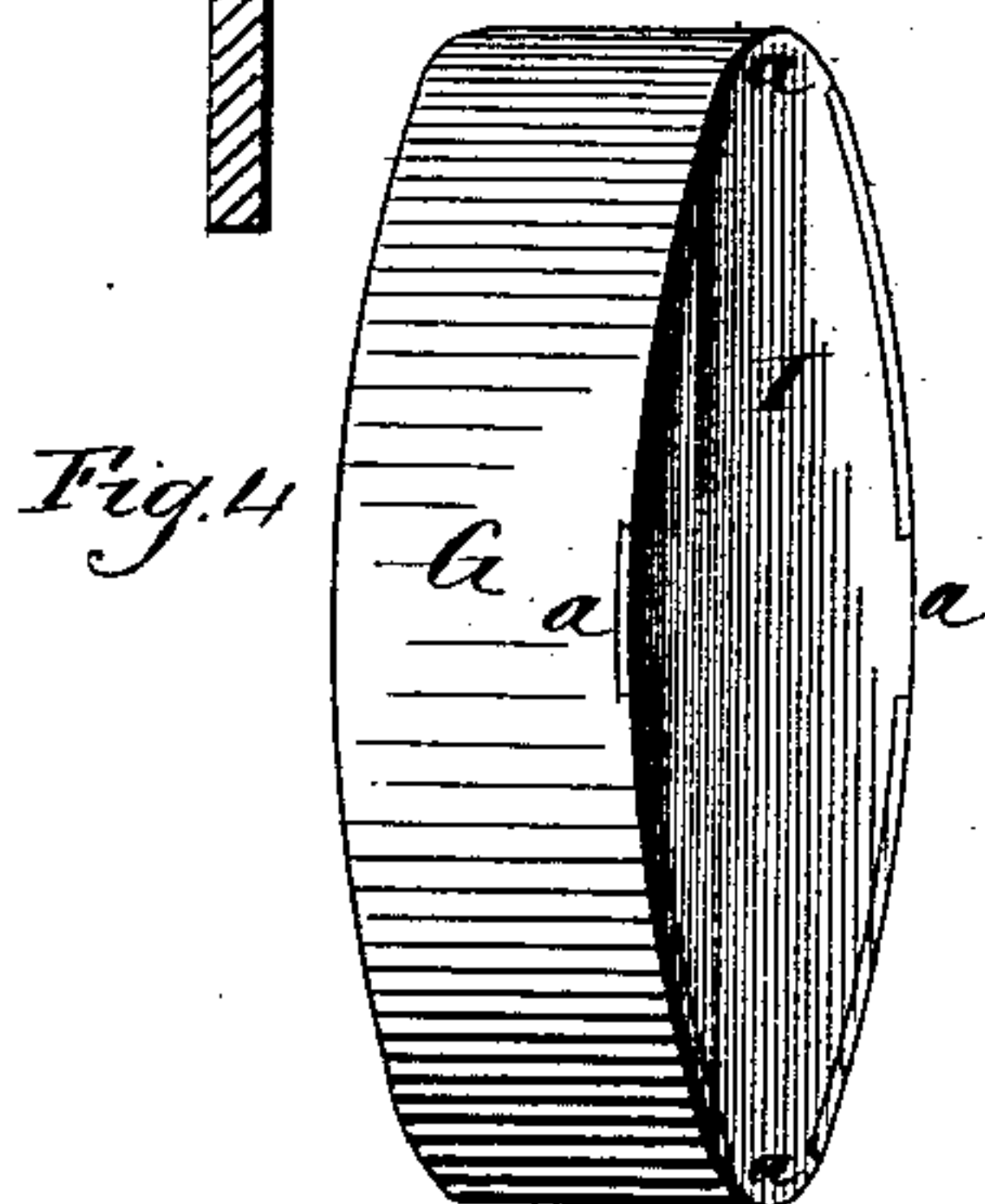
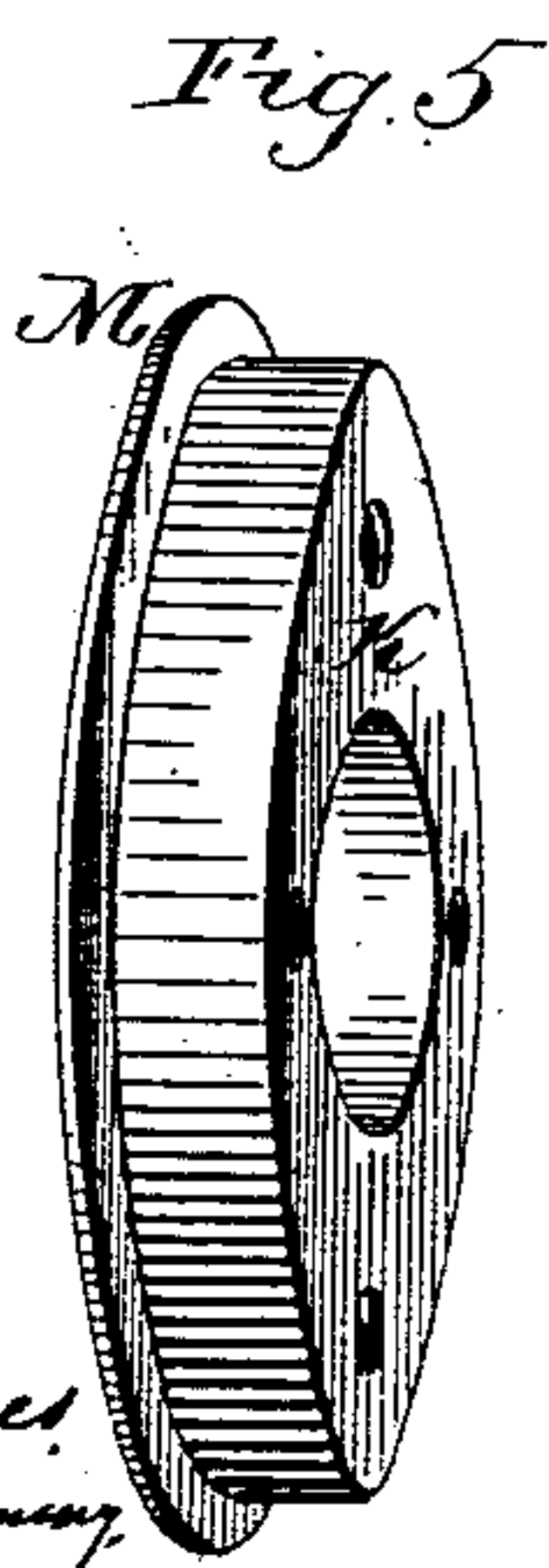
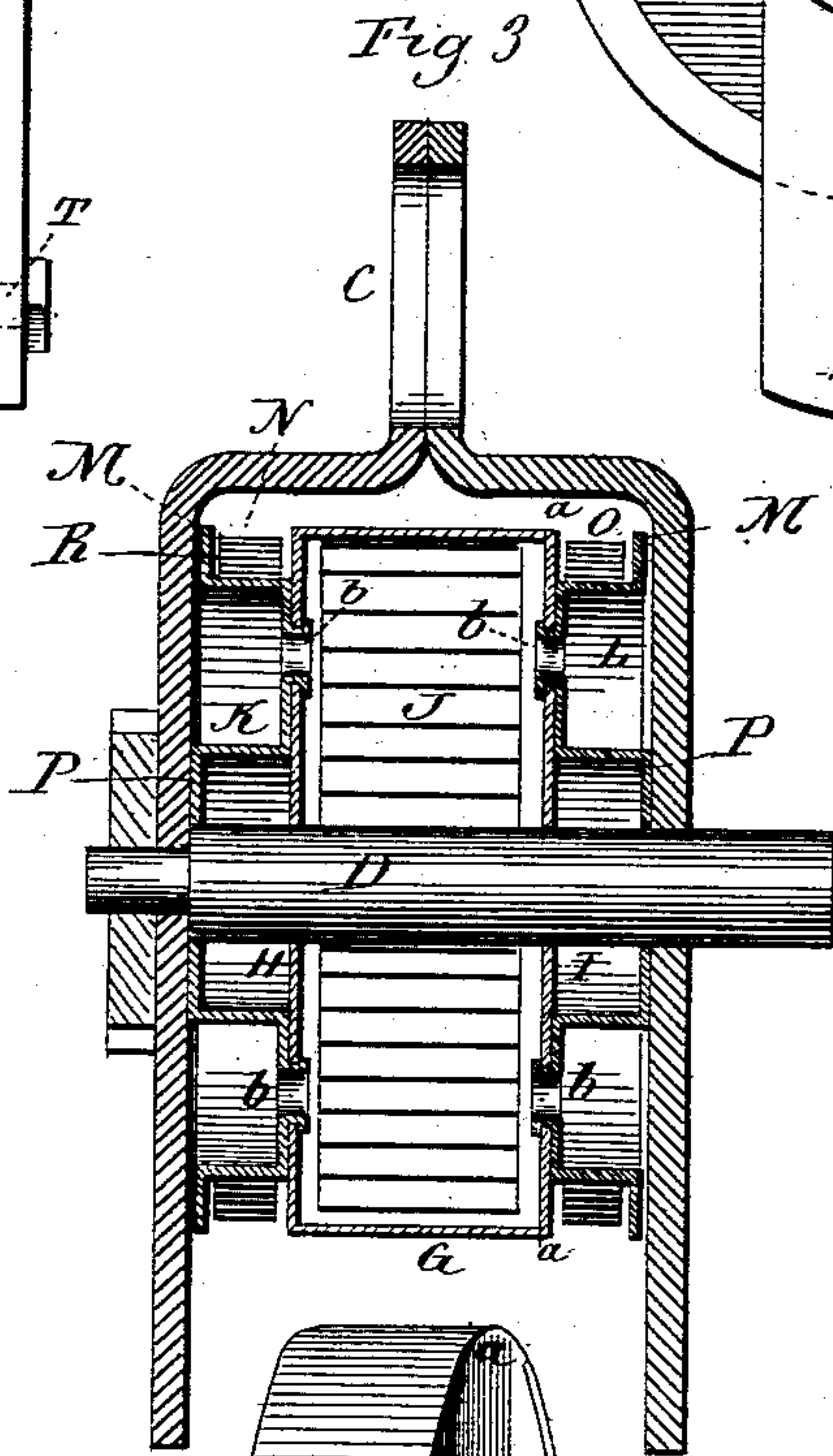
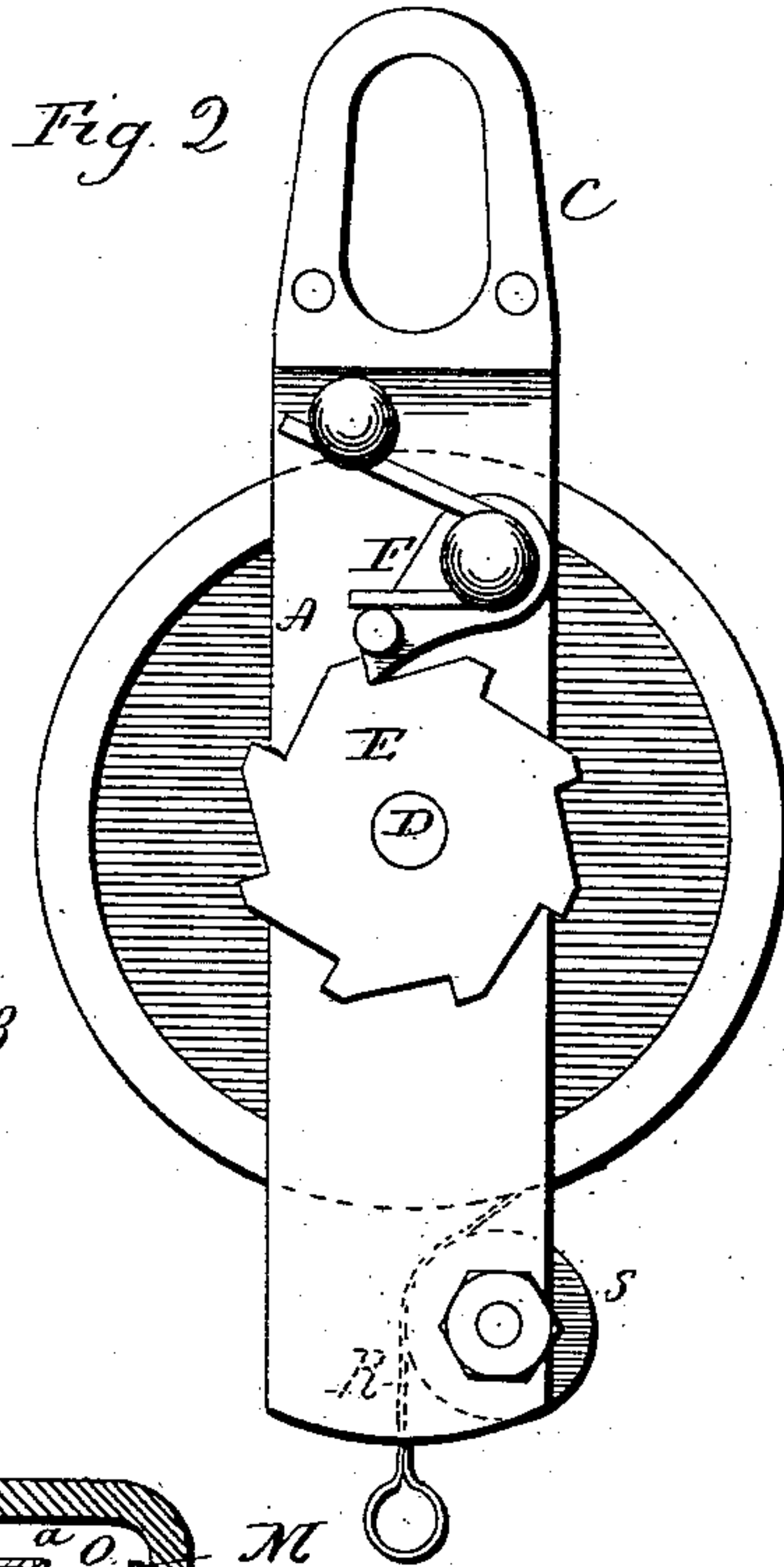


3 Sheets—Sheet 1.

Patented Dec. 27, 1887.



Witnesses
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 & Henry D. Richardson
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 By atty.

John C. E. L.

(No Model.)

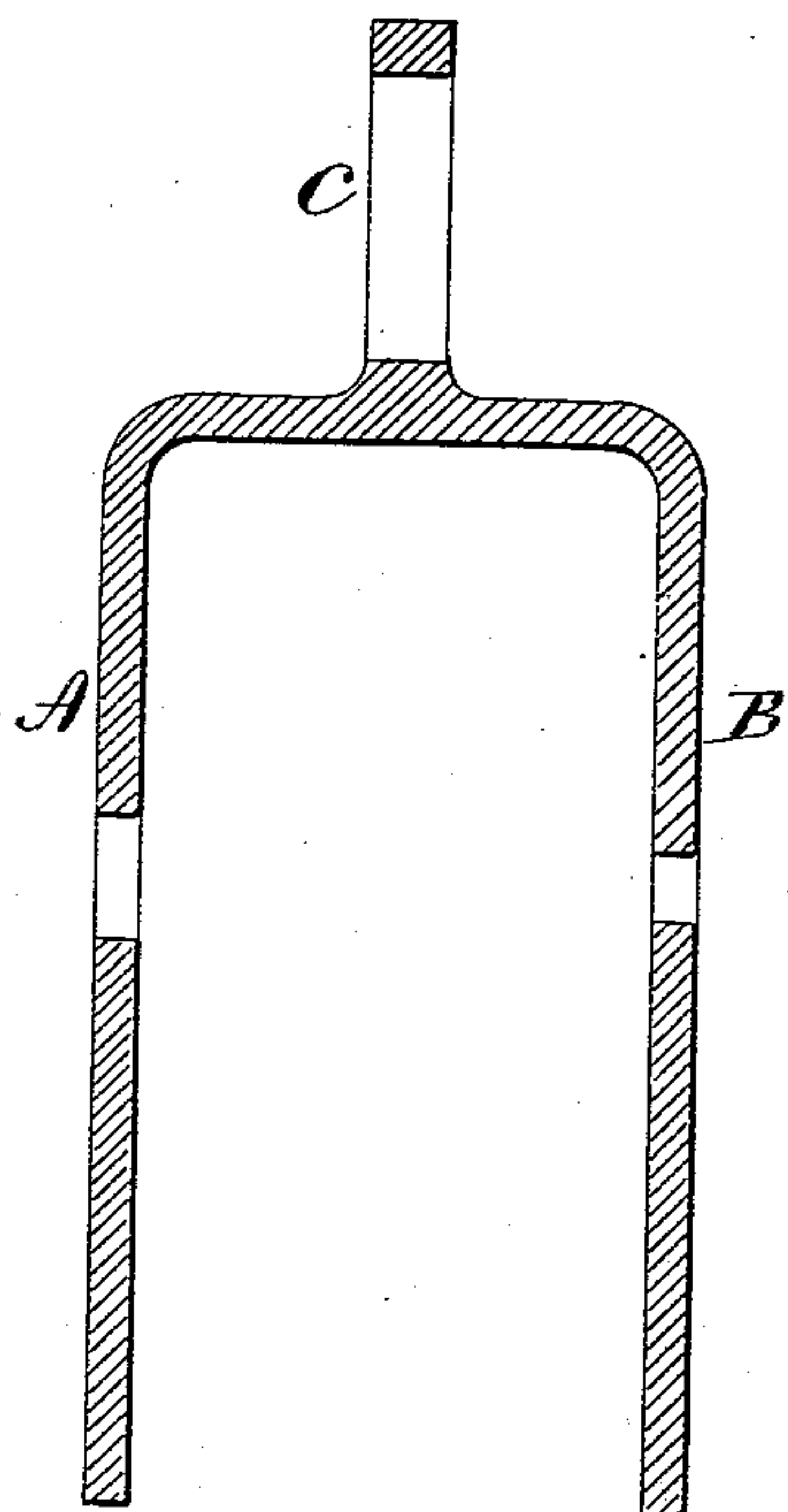
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SUSPENSION DEVICE FOR LAMPS.

No. 375,600.

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Fig. 7



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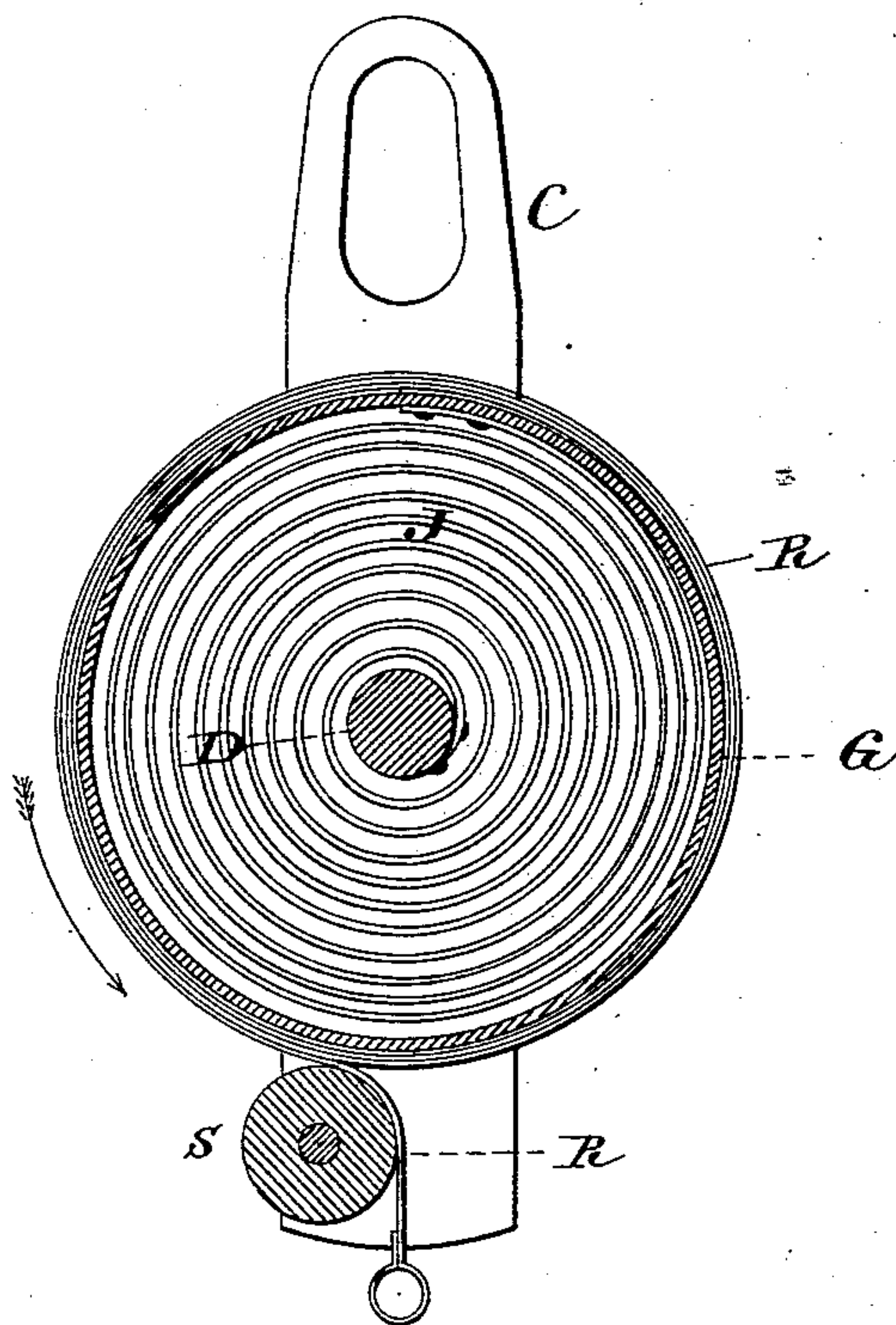
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Fig 8



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UNITED STATES PATENT OFFICE.

EDSON L. BRYANT AND HENRY D. RICHARDSON, OF ANSONIA, CONNECTICUT, ASSIGNORS OF ONE-HALF TO WALLACE & SONS, OF SAME PLACE.

SUSPENSION DEVICE FOR LAMPS.

SPECIFICATION forming part of Letters Patent No. 375,600, dated December 27, 1887.

Application filed March 14, 1887. Serial No. 230,824. (No model.)

To all whom it may concern:

Be it known that we, EDSON L. BRYANT and HENRY D. RICHARDSON, of Ansonia, in the county of New Haven and State of Connecticut, have invented a new Improvement in Suspension Devices for Lamps, &c.; and we do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the suspension device complete; Fig. 2, an end view of the same; Fig. 3, a longitudinal central section with the frame in side view; Fig. 4, a perspective view of the drum detached; Fig. 5, a perspective view of one of the band-wheels detached; Fig. 6, a perspective view of the other band-wheel detached, said Figs. 5 and 6 showing opposite ends of the wheels; Fig. 7, a modification in the construction of the frame; Fig. 8, a vertical central section at right angles to the axis.

This invention relates to an improvement in that class of suspension devices designed to support a lamp so that it may be adjusted to various elevations, and particularly to that class in which a spring-drum is arranged upon a fixed arbor, the drum free to revolve, a spring within the drum, one end fixed to the arbor, the other to the drum, with a chain or equivalent device around the drum, and to which chain the lamp or thing suspended is attached, and so that in drawing down the lamp the chain causes the drum to revolve in one direction and wind the spring, then the reaction of the spring rewinds the chain upon the drum and aids in lifting, the object of the invention being a simple and cheap construction and one in which the friction upon the drum may be adjusted to adapt it for varying weights of lamps or things suspended—that is to say, if the drum be perfectly free it is adapted to support a certain weight at any point of elevation; but if the thing suspended be heavier, then it will overcome the power of the spring and unwind the chain, or if it be lighter, then the drum will rewind the chain, and in either of the last two mentioned cases the lamp would only be suspended at the

two extreme points, but by applying friction to the drum, which must be overcome in raising the lamp or drawing it down, there may be a very considerable degree of variation in the weight of the lamp.

The frame is made in two parts, A representing one part, and B the other part. The two parts come together at the top and form an eye, C, the two parts being riveted together, as shown, and so that the two parts A B extend downward, forming two sides of the frame. These parts may be made from sheet metal and should possess some degree of elasticity. They may, however, be made of any suitable material.

Centrally through the frame is an arbor, D, upon which is a ratchet, E, and on the frame a corresponding spring-pawl, F, the said pawl and ratchet serving to hold the arbor against rotation in one direction, but yet supported in the frame so as to leave the two sides free to approach each other—that is, so that one or both sides of the frame may move longitudinally on the axis. Upon this arbor the drum is concentrically arranged. The drum consists of a cup, G, struck from sheet metal, in diameter according to the size of the lifting device. One end, H, is formed with the sides, but the other head, I, is made separate and sets into the open side of the drum, and is there supported by lugs *a*, (more or less in number,) fitting into corresponding notches in the sides of the cup, as seen in Fig. 4. The spring J is arranged within the drum, one end fixed to the arbor D and the other end of the spring fixed to the drum in the usual manner, and so that the drum is turned in one direction opposed to the ratchet E, and so that the shaft D cannot revolve, and rotating in that direction the drum winds the spring. Then, if the drum be left free, the reaction of the spring will cause it to revolve in the opposite direction.

We preferably provide the drum with two band or chain wheels. These wheels K L are formed from disks of metal struck into shape, as seen in Figs. 5 and 6. The periphery of the band or chain wheels is somewhat smaller in diameter than the spring-drum, as seen in Fig. 3. The outer end of each of the wheels has an

annular outwardly-projecting flange, M, as seen in Figs. 5 and 6. The other ends of the chain-wheels are closed, and so as to fit against the corresponding head of the spring-drum, so that the space between the corresponding heads of the spring-drum and the corresponding flange of the chain-wheels will form, respectively, the grooves N O, upon which the chain or band may wind.

To form the hub of the wheels, a concentric outward projection, P, is formed in each of the chain-wheels, with perforations through them corresponding to the arbor, and so as to freely revolve on the arbor in the same manner as does the spring-drum. These chain-wheels are made fast to the respective heads of the spring-drum, and this is best done by forming tubular projections b on one part, with corresponding openings through the other part, through which the tubes extend and are closed down upon the reverse side, as seen in Fig. 3, thus firmly securing the chain-wheels to the drum, so that they become a permanent part thereof.

The hubs P P should project a little beyond the outer faces of the flanges M of the chain-wheels, as seen in Fig. 3, and so as to stand freely within the two sides of the frame, but come into contact therewith. On each of the chain-wheels a band, R, or chain or other suitable device, is fixed by one end, the other end of the chains extending downward. Both may pass over the same pulley S, arranged between the two sides of the frame, as seen in Figs. 1 and 2. The bands are wound upon the drum and the spring wound to the required tension in the usual manner. Then, if the bands be drawn from the drum, they will cause the spring to wind, and then, if the bands are left free, the reaction of the spring will rewind the bands upon the wheels in the usual manner.

It is, as we have before indicated, desirable to provide an adjustable friction for varying weights of things suspended. To do this we introduce a bolt, T, through the two sides of the frame and through the pulley, the head of the bolt being upon one side and a nut, U, upon the opposite side. The pulley is somewhat shorter than the normal distance between the two sides A B. If friction is required, the nut U is turned to draw the two sides together and cause them to bear with greater pressure against the ends of the hubs of the chain-wheels with greater or less force, according to the amount of friction required. Thus any desirable amount of friction may be applied to the drum.

The bands or chains may be run over any suitable pulleys, and as in other suspension devices the drums, instead of being upon a horizontal axis, may be upon a vertical axis, as in the usual construction, such change of posi-

tion of the axis not changing the mechanism of the device so far as this invention is concerned, and therefore requires no illustration.

If but a single band or chain is required, it will be understood that one of the chain-wheels may be omitted, and in case the pulleys over which the bands run are required in other positions the bolt will retain substantially the same position without prejudice to such change of position of pulleys.

While we prefer to make the two sides in separate pieces and rivet them together as we have described they may be made in a single piece, as seen in Fig. 7, but so as to possess a certain degree of elasticity, to enable the sides to be forced into frictional contact with the heads of the drum.

We claim—

1. In a suspension device, the combination of a frame composed of two sides, A B, the said two sides brought together at one end, the other ends of the said sides free, a fixed arbor in said frame, a spring-drum upon said arbor, a spring within the said drum, one end fixed to the arbor and the other to the drum, a band or chain secured by one end to said drum and wound thereon, and an adjustable connection between said two free ends of the sides of the frame, substantially as described, the said connection serving as a means to adjustably draw the said two sides of the frame into frictional bearing upon the drum.

2. In a suspension device, a spring-drum composed of a cup closed at one end, a cap or plate adapted to close the other end, one or more band or chain wheels made from sheet metal secured to the ends of said drum, the said wheels constructed with an outward projection to form the hub and with an annular flange around the periphery, substantially as described.

3. In a suspension device, the combination of a frame, an arbor fixed in said frame, a spring-drum made from sheet metal of cup shape, a cap adapted to close the open end of said drum, a spring arranged within said drum, one end fixed to the arbor and the other end to the drum, one or more band or chain wheels made from sheet metal, forming a periphery of less diameter than the drum, the said wheel or wheels secured to the head of the said drum, and the said wheels constructed with an annular flange upon the outer end of the periphery to form a groove between said flange and the head of the drum, substantially as described.

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