

No. 620,332.

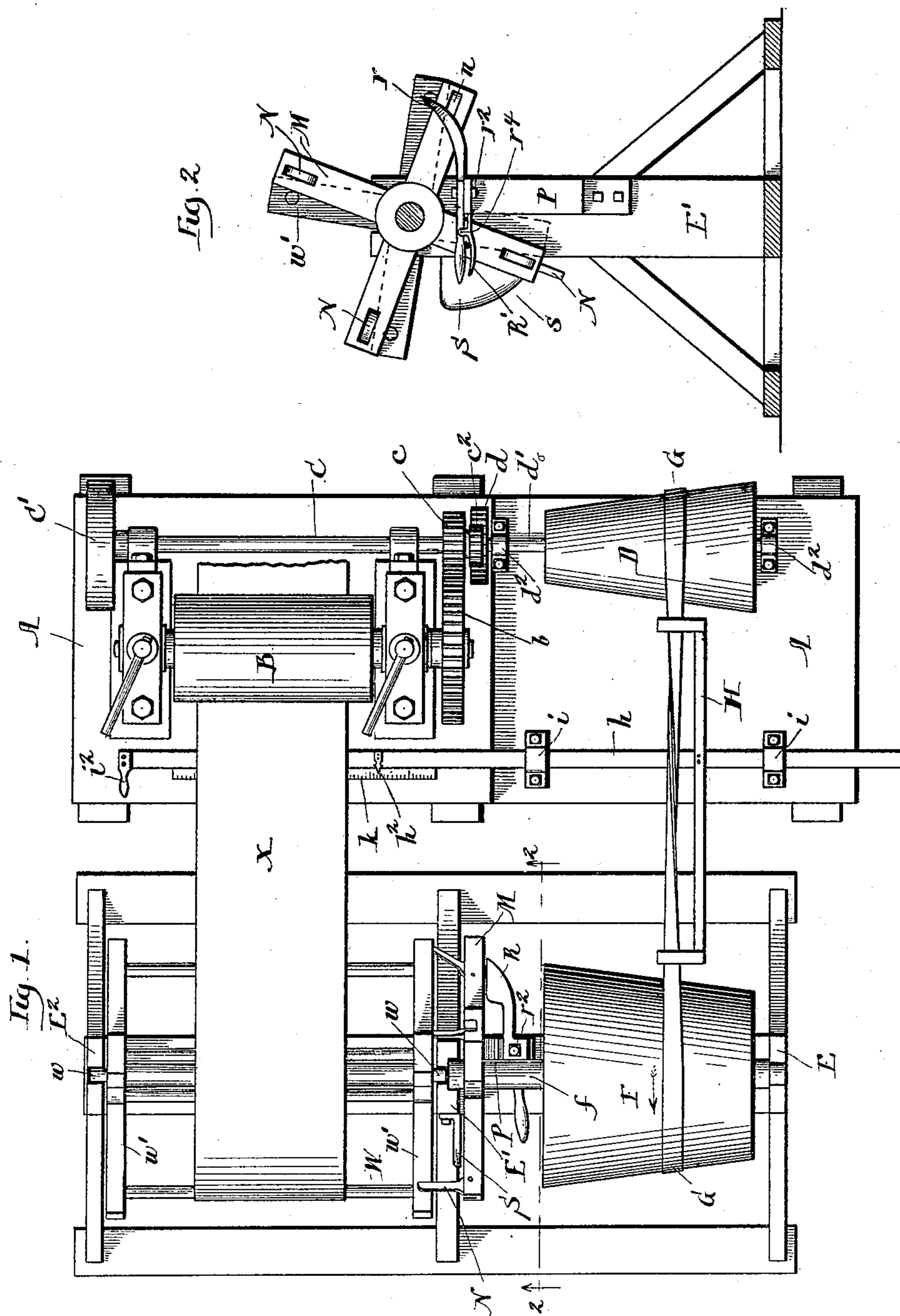
Patented Feb. 28, 1899.

O. J. KÜSTNER.
REEL MECHANISM.

(Application filed July 11, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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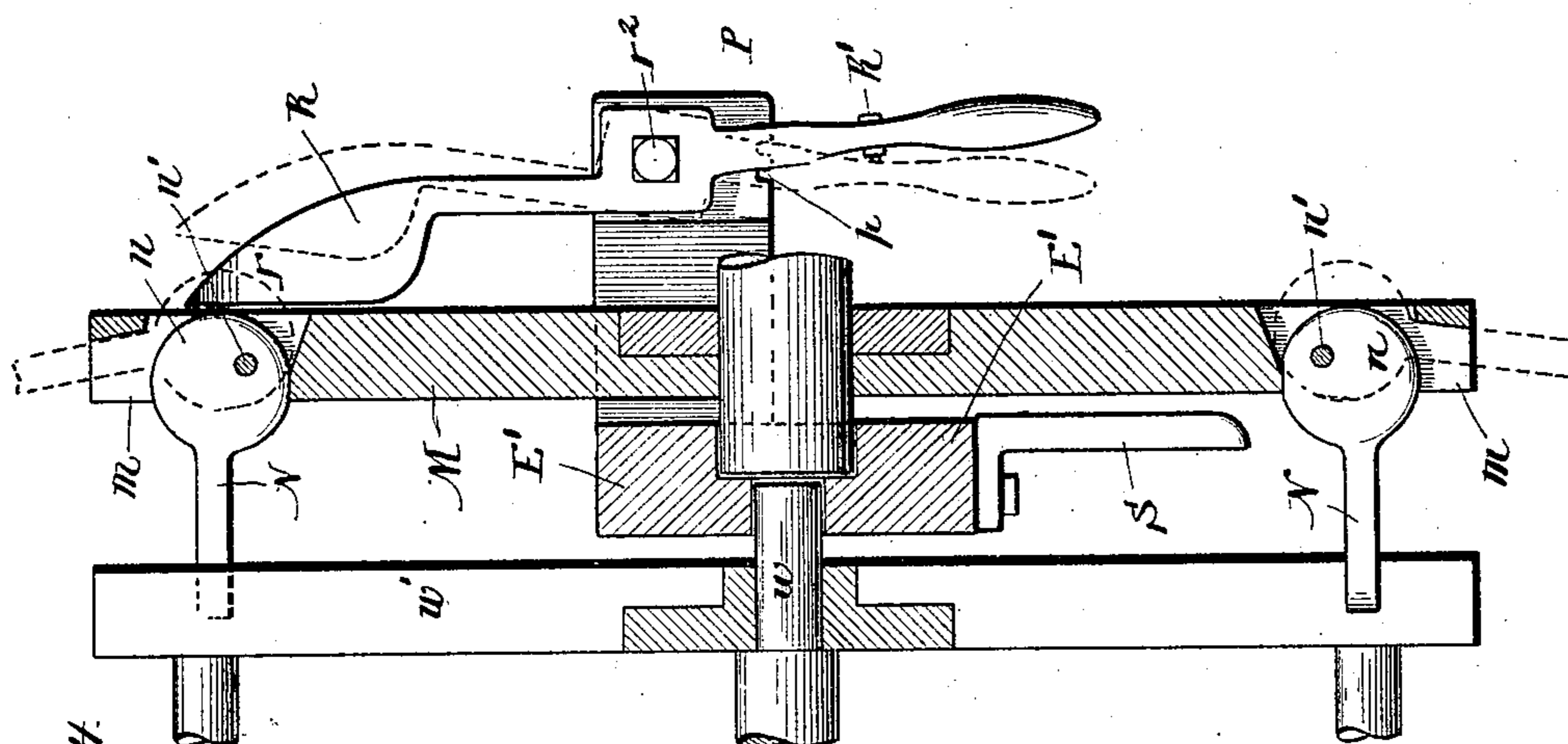


Fig. 4.

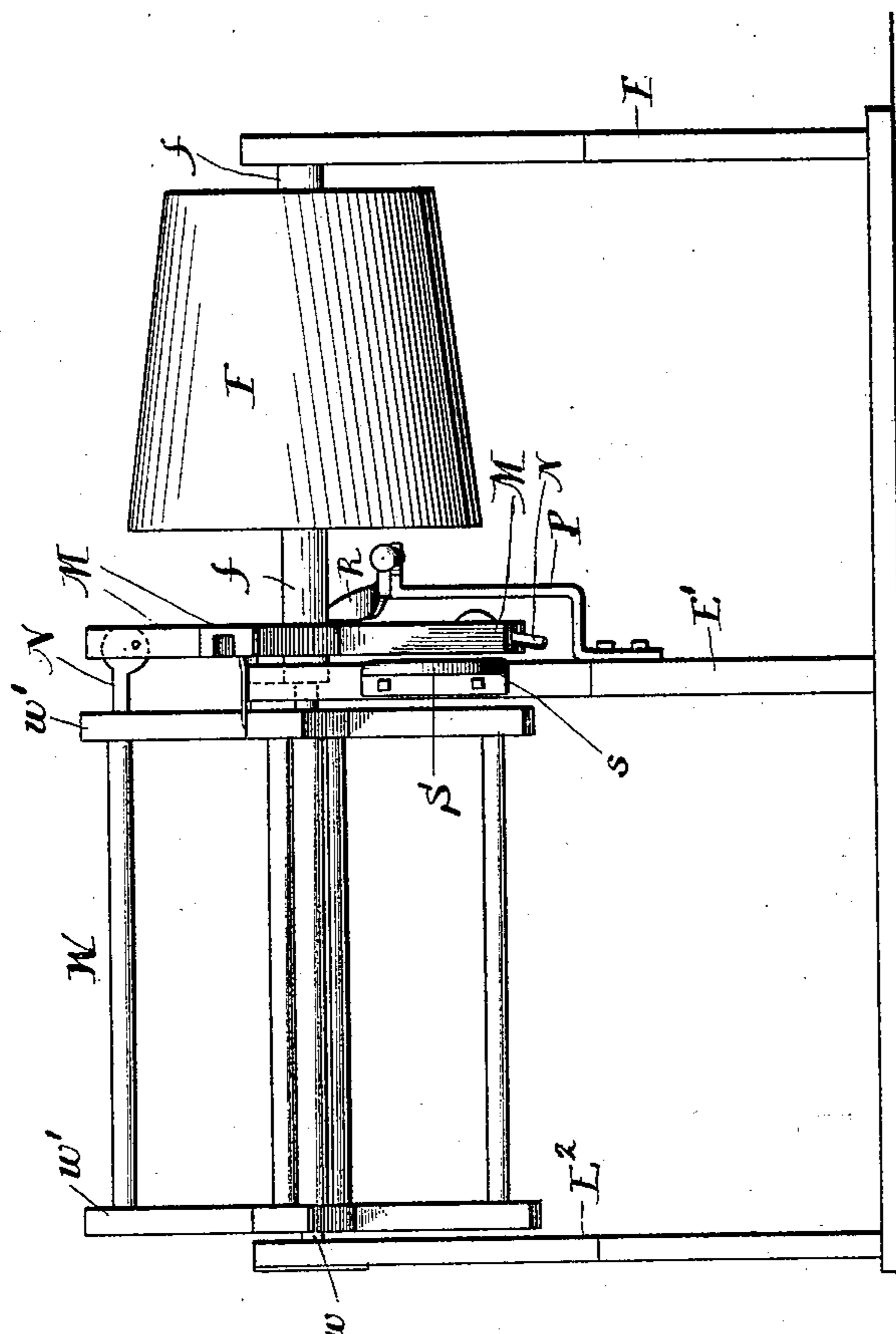


Fig. 3.

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UNITED STATES PATENT OFFICE.

OTTO J. KÜSTNER, OF CHICAGO, ILLINOIS.

REEL MECHANISM.

SPECIFICATION forming part of Letters Patent No. 620,332, dated February 28, 1899.

Application filed July 11, 1898. Serial No. 685,576. (No model.)

To all whom it may concern:

Be it known that I, OTTO J. KÜSTNER, a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Reel Mechanism, of which the following is hereby declared to be a full, clear, and exact description.

The present invention is designed more particularly to provide improved means for reeling webs of tin-foil as they issue from the reducing-rolls; but it will be readily understood that the improvements hereinafter set forth will be found susceptible of use in a great many other situations, and it will be understood also that modifications of the invention may be made by the skilled mechanic within wide limits without departure from the spirit of the invention. Therefore I do not wish the invention to be understood as restricted to its use in the reeling of webs of tin-foil nor as restricted to the precise details of construction hereinafter described.

In reeling webs of tin-foil or like material it is the present practice to receive the web as it issues from the reducing-rolls upon a skeleton reel that is usually of such size that by transversely cutting the coil of web at one or several points the sheets of tin-foil of required lengths will be attained. In order to prevent undue variation in the lengths of the sheets, it is customary to wind the web upon the reel until a coil of approximately one inch in thickness is produced, after which a new reel is substituted and the reeling operation is resumed. Heretofore the operation of reeling tin-foil has been effected by hand, the operator turning the reel fast enough to take up the web as it issues from the rolls. The reeling apparatus heretofore employed is objectionable for various reasons, but notably for the reason that the turning of the reel requires the constant attendance and care of an operator, so that one operator can serve but a single machine.

By my present invention the reel whereon the web of tin-foil or the like is wound is mechanically driven in unison with the reducing-rolls, so that the attention of the operator is required only when full reels are to be removed and empty ones placed in the machine.

My invention also provides driving mechanism that can be adjusted so that reels of

any desired size may be driven at proper speed to take up the web as it issues from the reducing-rolls.

A further feature of my invention resides in the employment of a driving clutch mechanism adapted to be thrown into and out of action, so as to permit the reels to be driven uniformly while in the machine and to be readily removed therefrom when filled.

The invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a view in vertical section on line 2 2 of Fig. 1. Fig. 3 is a view in rear end elevation. Fig. 4 is an enlarged detail view in horizontal section through the end of the reel adjacent the driving clutch mechanism and through such mechanism.

A designates the bed of that part of the machine whereon is mounted the final set of rolls B, these rolls being journaled in suitable pillar-blocks, the upper roll having keyed to its journal a gear-wheel b , that meshes with the corresponding gear c , keyed to a shaft C. The opposite end of the shaft C is provided with the belt-pulley C' , by which power may be applied, or the power may be applied to the rolls B in any suitable manner. To the shaft C is also keyed a pinion c^2 , that meshes with a gear-wheel d , keyed to the end of the shaft d' whereon is fixed the cone-wheel D, the shaft d' being journaled in suitable bearings d^2 . Within posts E and E' is journaled the shaft f of a cone-pulley F, that is connected by a belt G with the cone-pulley D, the belt being preferably twisted, as shown, so as to impart rotation to the cone-pulley F in the direction of the arrow, Fig. 1. With the belt G engages a belt-shifter H, the shifting-rod h of which passes through guides i and is provided at one end with a handle i^2 , whereby the shifter can be manually operated. To the rod h is fixed an indicator-pointer h^2 , adapted to travel over a scale or index-plate k , the pointer and index-plate serving to enable the operator to set the belt G at such position that the pulley D shall impart to the pulley F such speed that the reel, regardless

of its size, shall be caused to revolve at the proper speed for taking up the web of tin-foil as it issues from the rolls B.

To the shaft *f* of the cone-pulley F are fixed
 5 the arms M of the driving clutch mechanism, whereby revolution is imparted to the reel W, on which the web X of tin-foil will be wound. Each of the driving-arms M is slotted, as at
 10 *m*, as clearly shown in Fig. 4 of the drawings, and within each slot *m* is mounted a driving-dog N, the inner portion *n* of which is preferably of circular outline and is eccentrically mounted upon a pivot-stud *n'*. The reel W
 15 comprises the arms *w'* at its ends, these arms being united by rods whereon the web X of tin-foil or the like will be wound. At the ends of the reel W project its journals *w*, the journal at the inner end of the reel being
 20 mounted in a suitable bearing at the top of the post E', while the opposite journal of the reel is sustained in a bearing at the top of the post E². The journal-bearings for the reel at the tops of the posts E' and E² are open, so as
 25 to permit the reels to be quickly introduced and withdrawn therefrom.

In order to transmit motion from the driving-arms M to the reel, it is necessary that provision be made for throwing the driving-dogs N into position to engage the arms *w'* of
 30 the reel and to withdraw said dogs from the engagement position before they would contact with the post E' in the course of the revolution of the arms M. For this reason I prefer to employ the following mechanism for
 35 throwing the dogs N into and out of operative position: Upon a suitable bracket P, attached to the post E', is mounted a shifter-arm R, having a curved or cam-shaped end *r*, as clearly seen in Fig. 2 of the drawings, the
 40 curved or cam-shaped end *r* serving to engage the eccentrically-pivoted circular portion *n* of the driving-dogs N and throw them from the position shown by dotted lines to the position shown by full lines in Fig. 4
 45 of the drawings. Preferably the shifter-arm R is pivoted, as at *r*², upon the top of the bracket P, and the edge of the bracket P is formed with notches *p*, with which will engage the ends of a latch R', that is piv-
 50 oted, as at *r*⁴, to the shifter-arm R. By reference to Figs. 2 and 4 of the drawings it will be seen that when the shifter-arm R is in the position shown by full lines the circular por-
 55 tions of the driving-dogs N will contact with the curved or cam-shaped end *r* of the shifter-arm R as the driving-arms M are revolved in the direction of the arrow, Fig. 2, and by this means the driving-dogs N will be turned from
 60 the position shown by dotted lines to the position shown by full lines in the drawings, and when in such position the dogs N will engage with the arms *w'* of the reel and will cause the reel to move in unison with the arms M. If, however, the shifter-arm R, by releas-
 65 ing the latch R', is moved to the position seen in dotted lines in Fig. 4 of the drawings, it will not contact with the dogs N, and revolu-

tion will no longer be imparted by the driving-arms M to the reel W.

To the post E' is fixed a releasing plate or
 70 device S, with the curved edges *s* of which (see Fig. 2) will engage the driving-dogs N, and as the curved edge *s* of the releasing-plate S is eccentric with respect to the shaft *f* it will
 75 be seen that as the dogs N pass along the edge *s* of the plate S these dogs will be turned from the position shown by full lines to the position shown by dotted lines in Fig. 4. In
 80 other words, each of the dogs N will be thrown from engagement with the reel W before the dogs reach the vertical post E', and consequently all danger of the breakage of the dogs from contact with the post E' is avoided. After
 85 the dogs N have passed beyond the post E' (being at such time in the retracted position shown by dotted lines in Fig. 4) the circular portion *n* of each dog will ride against the cam-shaped end *r* of the shifter-arm R and will be thereby thrown into position to
 90 engage the corresponding arm *w'* of the reel W. It will thus be seen that the reel W will be constantly driven in unison with the rolls B, from which the web X, of tin-foil or like
 95 material, issues, and by means of the cone-pulleys and the belt-shifter the operator can impart to the driving-arms M a speed of revolution corresponding exactly to the size of the
 100 reel W that it is desired to use. When the reel is full, the operator will move the shifter-arm R from the position shown by full lines to the position shown by dotted lines in Fig.
 105 4, so that the driving-arms M will cease to impart revolution to the reel W, and the reel W will then be removed from its journal-bearings, the web X being first severed, and a new
 110 reel will be substituted, after which the shifter-arm R will be restored to the position shown by full lines in Fig. 4, thus serving to cause the fresh reel to be driven after the end of the web X has been attached thereto.

From the foregoing description it will be seen that by my present invention the attendance of the operator to manually turn the reel in order to take up the web as it issues
 115 from the machine is unnecessary, it simply being required that the operator shall remove the reels as rapidly as they are filled and substitute fresh reels therefor. One operator is thus enabled to attend several
 120 machines, and a very material saving in labor thereby results.

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

1. The combination with a winding-reel and
 125 suitable supports whereby said reel is movably sustained, of means for driving said reel comprising a revoluble shaft, a driving clutch mechanism connected to said shaft at one
 130 side of one of the reel-supports, said clutch mechanism being provided with dogs adapted to drive the reel and suitable devices arranged to automatically throw said dogs into and out of engagement with the reel whereby

the contact of the dogs with the reel-support is avoided.

2. The combination with a winding-reel having journals at its ends, of vertical end supports whereby said reel is movably sustained, and means for driving said reel comprising a revoluble shaft having fixed thereto a driving clutch mechanism, said clutch mechanism being provided with pivoted dogs, a device located at one side of the reel-support for automatically throwing said dogs into engagement and means located at the opposite side of said reel-support for automatically throwing said dogs out of engagement with the reel.

3. The combination with a winding-reel and supports whereby said reel is suitably sustained, of means for driving said reel comprising a revoluble shaft and means for driving the same, and a driving clutch mechanism mounted upon said shaft and having a series of pivoted dogs, a shifter for throwing said dogs into engagement with the reel and a releasing device for disengaging said dogs from the reel.

4. The combination with a winding-reel having journals at its ends and with supports

wherein said journals are removably sustained, of mechanism for driving said reel comprising a revoluble shaft and means for driving the same, a driving clutch mechanism carried by said shaft and provided with dogs, a shifter located at one side of the reel-support for throwing said dogs into engagement with the reel and a release-plate located at the opposite side of the reel-support for disengaging the dogs from the reel.

5. The combination with a winding-reel and supports whereby said reel is suitably sustained, of means for driving said reel comprising a revoluble shaft and means for driving the same, a clutch mechanism mounted upon said shaft and having a series of pivoted dogs, a shifter for throwing said dogs into engagement with the reel, said shifter being movably supported whereby it can be moved out of the path of said dogs and a releasing-plate for effecting the disengagement of said dogs from the reel.

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