

(No Model.)

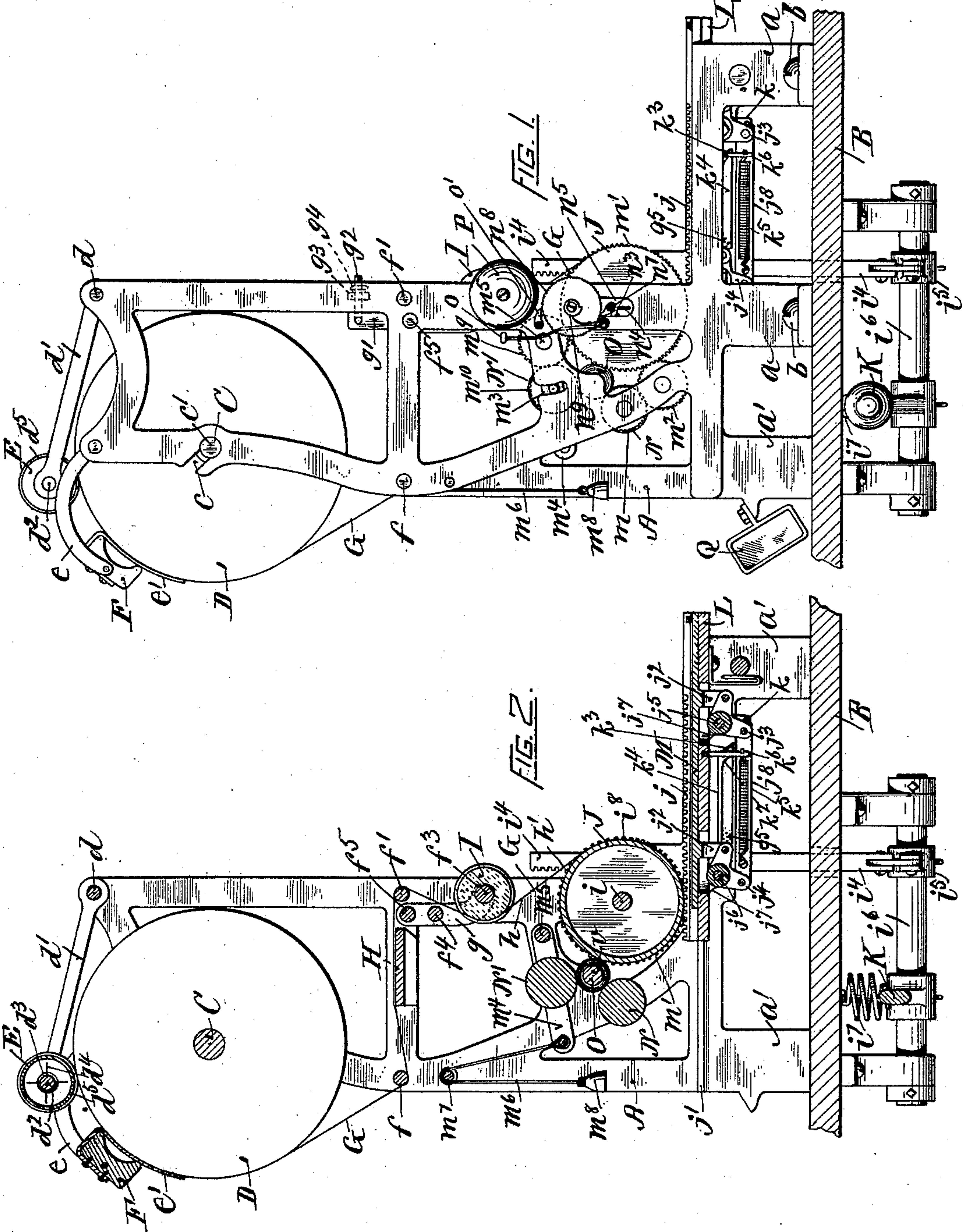
3 Sheets—Sheet 1.

W. H. COE.

MACHINE FOR PACKAGING DECORATIVE FILMS.

No. 580,817.

Patented Apr. 13, 1897.



WITNESSES:

Harry J. Garceau.
James M. Beaman.

INVENTOR:

Walter H. Coe
By S. Scholfield
ATTY.

(No Model.)

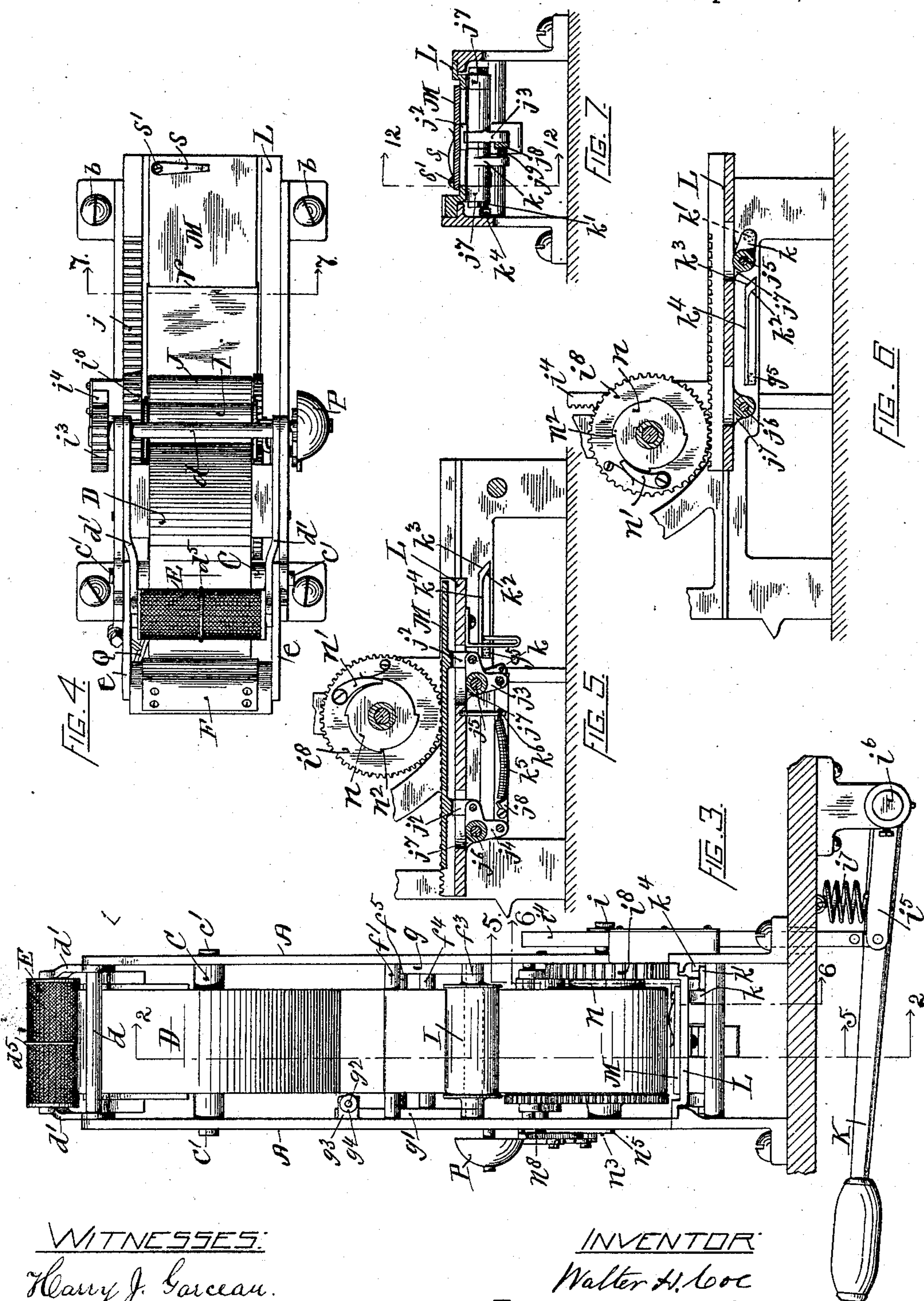
3 Sheets—Sheet 2.

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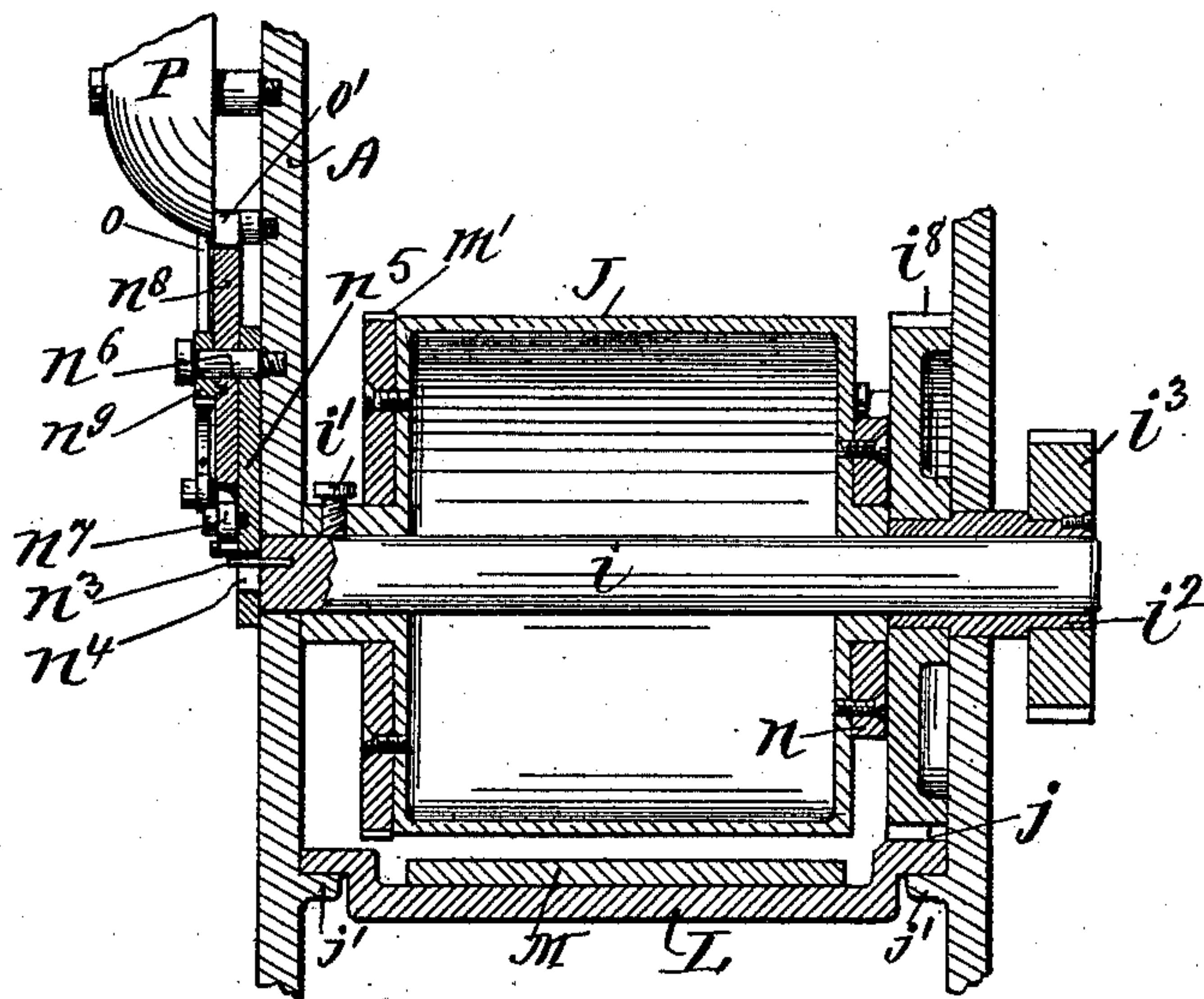
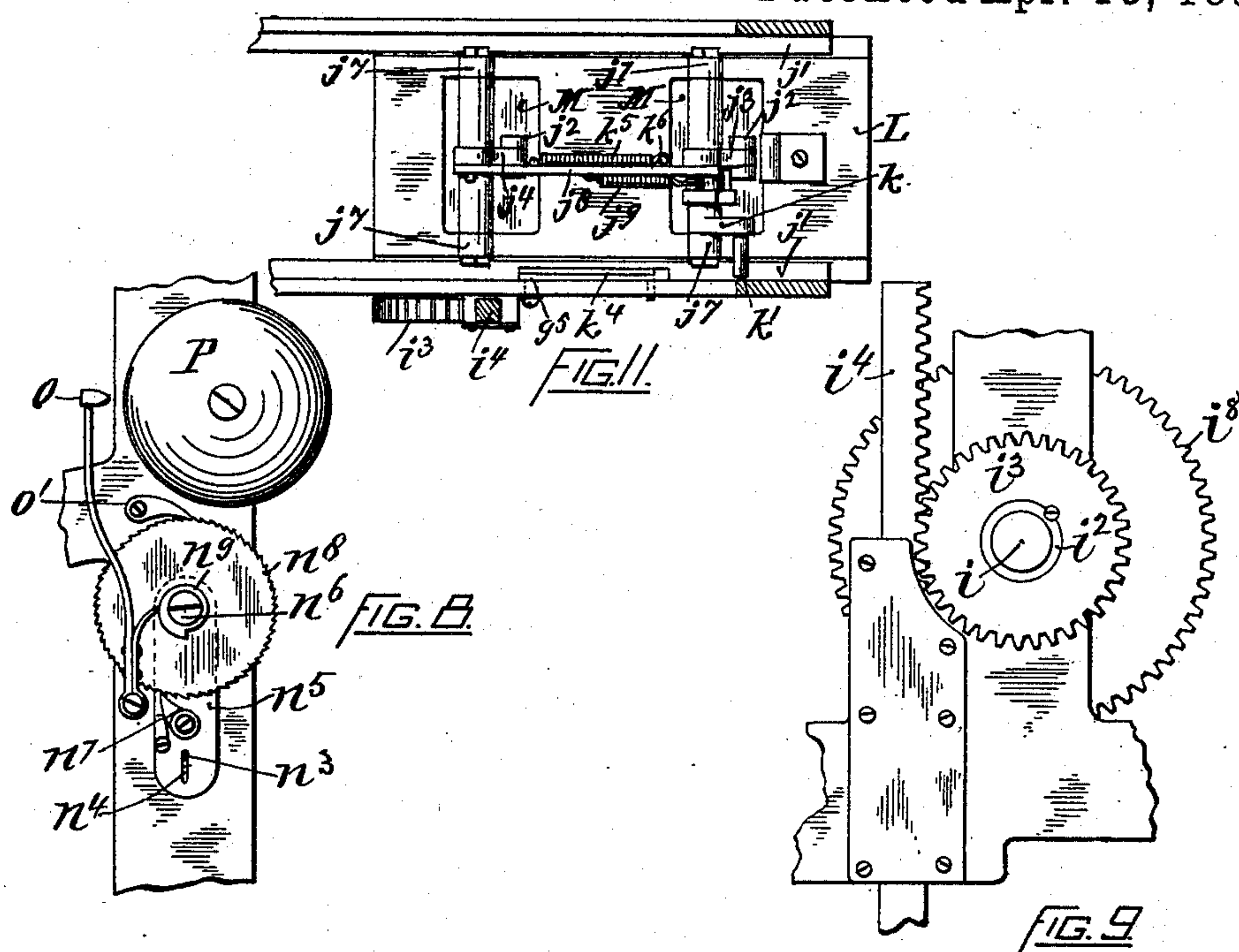


FIG. 10.

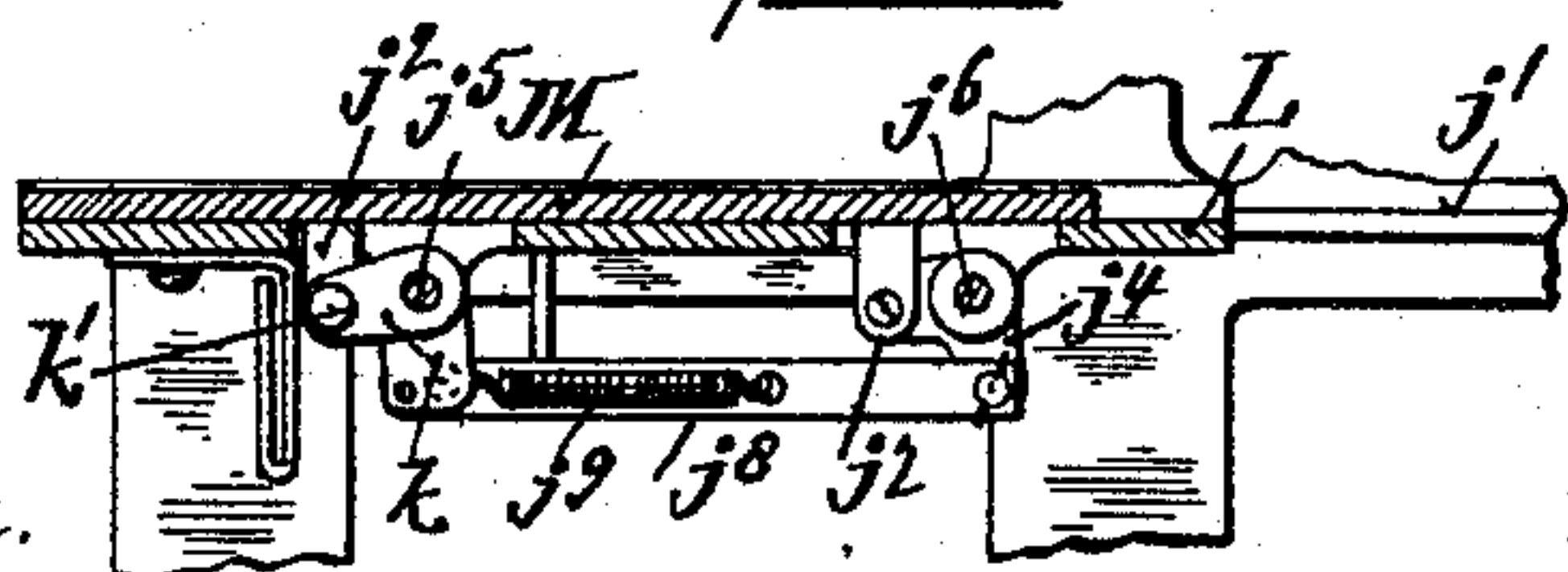


FIG. 12.

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UNITED STATES PATENT OFFICE.

WALTER H. COE, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR PACKAGING DECORATIVE FILMS.

SPECIFICATION forming part of Letters Patent No. 580,817, dated April 13, 1897.

Application filed October 15, 1894. Serial No. 525,970. (No model.)

To all whom it may concern:

Be it known that I, WALTER H. COE, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Machines for Packaging Decorative Films, of which the following is a specification.

My invention relates to a machine for winding decorative films of metallic leaf, with an accompanying strip of paper or other suitable material, to form a package-roll from which the film is to be subsequently unwound and deposited upon the surface to be decorated; and it consists in means for producing the desired uniform lap of the edges of the film and for the proper treatment of the surfaces of the accompanying strip and in the details of construction, as hereinafter set forth.

Figure 1 represents a side elevation of the machine. Fig. 2 represents a central vertical section taken in the line 2 2 of Fig. 3. Fig. 3 represents a front end view. Fig. 4 represents a top view. Fig. 5 represents a detail section taken in the line 5 5 of Fig. 3, showing the film-supporting table when near its extreme rearward position. Fig. 6 represents a detail section taken in the line 6 6 of Fig. 3 with the table removed and the table-holding bed in its extreme forward position. Fig. 7 represents a transverse section taken in the line 7 7 of Fig. 4. Fig. 8 represents an enlarged detail side view showing the bell-ringing mechanism by means of which the proper length of the wound strip and film is indicated to the operator of the machine. Fig. 9 represents an enlarged detail rear view showing the rack and gear for actuating the pressing-roller for the films and paper strip. Fig. 10 represents an axial section of the pressing-roller. Fig. 11 represents an under view of the sliding bed, which carries the lifting-table. Fig. 12 represents a vertical section taken in the line 12 12 of Fig. 7.

In the accompanying drawings, A represents the frame of the machine, the said frame being provided with the front legs *a a* and the rear legs *a' a'*, which are secured to the bench B by means of the screws *b*. The upper end of the frame A is provided at its opposite sides with the open journal-bearings *c*, adapted to receive the journals *c'* of the mandrel C, upon which is placed the paper-strip-supply

roll D, from which the paper strip is to be drawn in the operation of the machine.

The front and rear portions of the frame A are connected by means of a rod *d*, to which are pivoted the arms *d' d'*, which at their outer ends are rigidly connected by means of the rod *d²*, and loosely upon the rod *d²* is placed the cylindrical receptacle E for the crocus or other powder employed for providing the paper strip with a surface non-adhesive to the film, the said cylindrical receptacle being provided with the central tube *d³*, arranged loosely upon the rod *d²* and provided with the longitudinal wings *d⁴ d⁴*. The periphery of the said receptacle is formed of wire cloth or other foraminous material, through which the desired quantity of powder may be made to pass upon the revolution of the said receptacle upon the rod *d²*.

The narrow rubber band *d⁵*, which is placed over the periphery of the powder-receptacle E, serves by frictional contact with the periphery of the supply-roll D to cause the proper revolution of the powder-receptacle E and the sprinkling of the powder in suitable quantity upon the surface of the paper strip G, the wings *d⁴* serving to maintain the proper loose condition of the powder in the powder-receptacle during the rotation of the same with the receptacle E. At the opposite corners of the upper portion of the frame A are pivoted the arms *e e*, which are also pivoted to the opposite ends of the block F, preferably hollowed upon its bearing-surface and provided with the attached woolen flap *e'*, which serves to properly distribute the powder previously sprinkled upon the surface of the paper strip from the powder-receptacle E. The properly prepared and powdered paper strip G passes from the supply-roll D under the tie-rod *f* of the frame, thence over the pad H, by means of which any surplusage of the powdering material may be removed to fall into a suitable receptacle, thence over the tie-rod *f'* and downward to contact with the inner side of the cylindrical bar of wax I, the said bar of wax being arranged at the side of the paper strip opposite to the powdered surface and held upon a stationary rod *f³*, to the opposite ends of which are attached the arms *g g'*, which arms are connected to each other by means of the rod *f⁴* and are pivoted to the

tie-rod f^5 of the frame. The bar of wax I is made adjustable to expose a greater or less surface of wax to the paper strip by means of the screw g^2 , pivoted to the arm g^1 and passing loosely through a perforation in the inwardly-extending ear g^3 of the frame and provided with the milled nut g^4 , by means of which the desired adjustment is effected. The oppositely powdered and waxed paper strip thence passes to the periphery of the pressing-roller J, the powdered surface h of the paper strip being on the inner side in contact with the roller and the waxed surface h' of the same being upon the outer side.

The pressing-roller J is secured upon a shaft i by means of the set-screw i^1 , held in a hub at the forward end of the roller, the opposite end of the shaft i passing through the loose sleeve i^2 , upon the outer end of which is secured the gear i^3 , which engages with the teeth of the rack i^4 , by means of which the gear i^3 may be actuated in opposite directions, the said rack i^4 being jointed to the arm i^5 , which is secured to the loosely-journaled bar i^6 , provided with the outwardly-extending hand-lever K, by means of which the machine is operated, the said hand-lever being held in its upward position by means of the spiral spring i^7 , secured at its upper end to the under side of the bench B. To the inner end of the sleeve i^2 , at the inner side of the frame A, is secured the gear i^8 , which engages with the rack-teeth j of the sliding bed L, the said sliding bed being supported between the parallel sides of the frame A upon the parallel ways $j' j'$. The downward and upward movement of the hand-lever K by the operator of the machine will cause a rocking movement of the sleeve i^2 and the gear i^8 and a corresponding reciprocating movement of the sliding bed L.

The sliding bed L carries the table M upon which the book of prepared decorative films is to be placed in proper position for the attachment of the films singly and properly lapping each other upon the waxed side of the paper strip, the said table M being provided with the downwardly-extending lugs j^2 , to which are pivoted the bell-crank levers $j^3 j^4$, which levers are loosely held upon the stationary bearing-rods $j^5 j^6$, held in the downwardly-extending lugs $j^7 j^7$ of the sliding bed L. The said bell-crank levers $j^3 j^4$ are connected with each other, so as to move in unison, by means of the connecting-link j^8 , to the rearward side of which is secured the spiral spring j^9 , (shown in Figs. 11 and 12,) the opposite end of the said spiral spring being secured to the loose bell-crank lever k , which is held, together with the loose bell-crank lever j^3 , upon the stationary bearing-rod j^5 . At the rearward side of the forwardly-projecting horizontal arm of the bell-crank lever k is secured the stud k' , which engages with the upper surface of the latch-cam k^4 , the said latch-cam being pivoted to the inner side of the frame at the point g^5 and held by a suitable

stop in its normal position, as shown in Figs. 5 and 6, and adapted to be raised at its outer end upon the engagement of the stud k' with the incline k^2 at the backward movement of the sliding bed L. The pressing-roller J is operated intermittently by means of the ratchet-wheel n , which is secured to the rearward end of the said pressing-roller and the spring-actuated ratchet-catch n' , the notches n^2 of the ratchet-wheel being so arranged that upon the downward movement of the hand-lever K by the operator of the machine the pressing-roller J will be turned, so that the periphery of the said roller will be moved forward for a space equal to the length of one of the sheets of decorative film less the distance required for the lapping contact of the edges of the said sheets upon the paper strip G.

When the operator of the machine depresses the hand-lever K, the sliding bed L and the table M will be carried forward under the pressing-roller J until the stud k' engages with the incline k^3 at the outer end of the latch-cam k^4 , thus causing the said stud to rise to the top of the said latch-cam, thereby causing the angular movement of the bell-crank lever k , which, through the spiral spring j^9 , connected with the link j^8 , serves to lift the book of films held upon the table M to contact with the paper strip G at the underside of the pressing-roller J. At the back of the pressing-roller J and at a certain distance therefrom is placed the stationary roller N, provided at its forward end with a gear m , which is connected with the gear m' upon the forward end of the pressing-roller J by means of the intermediate gear m^2 . The movable roller N' is journaled in the opposite arms $m^3 m^4$, which are rigidly secured to the rod m^5 , the said rod being loosely journaled in the sides of the frame A, so that the roller N' may have an up-and-down movement in the arc of a circle whose center is the axis of the rod m^5 . To the outer end of the arm m^4 is attached the cord m^6 , which passes over the pulley m^7 , and to the pendent end of the cord m^6 is attached the weight m^8 , by means of which a portion of the weight of the movable roller N' may be balanced, so as to secure the required degree of pressure upon the package-roll O, which is held for winding revolution between the said roller N', the stationary roller N, and the pressing-roller J. The peripheries of the rollers N and N' are preferably made to move at a slightly greater rate of speed than that of the periphery of the pressing-roller J in order to wind the package-roll O tightly. The movable roller N' is provided at its forward end with the gear m^{10} , which is connected with the gear m' upon the forward end of the pressing-roller J by means of the intermediate gear m^9 , held upon the rod m^5 , which forms the pivoting-point of the movable roller.

The forward end of the shaft i is provided with the eccentric-pin n^3 , which extends outwardly into the slot n^4 of the ratchet-lever n^5 , the said ratchet-lever being pivoted upon the

stud n^6 , secured to the frame A and carrying at its outer end the spring-actuated ratchet-catch n^7 , which engages with the teeth of the ratchet-wheel n^8 , turning loosely upon the stud n^6 , and upon the outer side of the ratchet-wheel is secured the cam n^9 , which serves to actuate the hammer o of the bell P, the said ratchet-wheel being prevented from retrograde movement by means of the gravitating pawl o' , and the ringing of the bell P will serve to give notice to the operator of the proper filling of the package-roll O. At the rear of the machine is placed the mirror Q, which may be set at the proper angle to reflect the under side of the strip and film to the eye of the operator, so that upon the occurrence of any imperfection in the attachment of the film to the surface of the paper strip G the operator of the machine may readily detect the same and make suitable correction thereto without being obliged to stoop and look under the strip and film at each operation of the machine, and the application of the said reflecting-mirror to the machine for the necessary inspection of the condition of the film, whereby a great saving in time is effected, constitutes an important feature of the invention.

In the operation of the machine the book of films, such as now in use for holding metallic films for gilding and decorating, is to be clamped upon the table M so that the back of the said book will rest upon the table at about the line r in Fig. 4, the backwardly-thrown opened leaves of the said book being suitably clamped to the table by means of the spring-buttons, which is pivoted upon the screw s' , so as to be moved to the required position. Then as the hand-lever K is depressed by the operator the sliding bed L will be carried forward under the pressing-roller J, so that the stud k' will engage with the incline k^3 at the outer end of the latch-cam k^4 , thus causing the upward movement of the table, with the attached book of films, until the top film of the book strikes against the previously-waxed under surface of the paper strip G, the said book of films being then held against the said paper strip on the pressing-roller J, with a yielding pressure, the said yielding pressure being caused by the resilience of the spring j^3 , which serves to maintain the table M in its elevated position under the pressing-roller. The said top film of the book of films will be carried forward in contact with the paper strip and pressed thereon until the stud k' arrives at the pivoted end of the latch-cam k^4 and drops therefrom, thus releasing the table M and allowing it drop to its former position upon the sliding bed L, the rapidity of the downward movement of the said table being checked by means of the spiral spring k^5 , which is attached at one end to the connecting-link j^3 and at the other end to the downwardly-extending pin k^6 , which is secured to the under side of the sliding bed, the said spring k^5 thus serving to pre-

vent the rattling noise which would be otherwise caused by the falling movement of the table M. As soon as the table M has dropped to the supporting-surface of the sliding bed L the upward movement of the hand-lever K will cause the backward movement of the sliding bed L and the table M, the stud k' passing back under the latch-cam k^4 , which latch-cam will be lifted by the stud and then fall to its normal position after the passage of the said stud beyond the outer end of the said latch-cam, so that upon the return movement of the said stud it will again be raised by the incline k^3 at the outer end of the latch-cam. While the table is in its extreme backward position, as shown in Figs. 2 and 4, the operator turns another leaf of the book of films, thus exposing a new film, which will be properly applied to the paper strip G and lapped with the edge of the previously-applied film upon the succeeding depression of the hand-lever K, by means of which the exposed film will be first brought to the required point and then raised to contact with the paper strip, as before, with its forward edge lapped to the proper extent upon the rearward edge of the previously-applied film, and this operation will be continued until all the leaves of the said book of films have been turned and the exposed films attached to the under side of the paper strip G upon the pressing-roller J. The said lapped and attached films and the paper strip are wound into a package-roll O upon the core v , which is preferably made of wood or other similar light material, and while the machine is being operated as above described the paper strip G is being supplied with the crocus or other powder upon one of its sides and with the wax or other adhesive material upon the other, preparatory to the attachment of the films, and upon the attachment of the proper number of sheets of film upon the paper strip G the automatic ringing of the bell P will notify the operator that the package-roll has been properly completed and requires removal from the machine, which removal may be readily effected by raising the movable roller N'.

When an imperfection in the laying of the film upon the paper strip G is shown by means of the reflection in the mirror Q, the said imperfection may be readily repaired by the operator before it enters the package-roll O, and by means of the mirror the condition of each successively-attached sheet of film upon the paper strip at the under side of the pressing-roller J can be readily determined without obliging the operator to look under the pressing-roller at each operation of the machine.

I claim as my invention—

1. In a machine for winding decorative films into a package-roll, the combination with means for drawing the strip forward, of the pressing-roller, the table for holding the book of decorative films, and means for auto-

atically causing the lapping contact of the decorative films upon the strip, substantially as described.

2. In a machine for winding decorative
5 films into a package-roll, the combination with means for winding up the strip and film in a package-roll, of a bar of wax or other suitable material, in contact with which the strip is drawn, to receive a coating adapted
10 to secure the proper adhesion of the film to the strip, and means for applying the film to the strip, substantially as described.

3. In a machine for winding decorative
15 films into a package-roll, the combination with means for drawing the strip forward, of a pad for spreading the powder upon one side of the strip, and a bar of wax or other suitable material, in contact with which the strip is drawn to receive a coating upon the oppo-
20 site side of the strip, which is adapted to secure the proper adhesion of the decorative film thereto, substantially as described.

4. In a machine for winding decorative films into a package-roll, the combination

with the pressing-roller, the table for support- 25
ing the book of films, and means for automatically lapping the films upon the strip, of the stationary roller, and the movable roller, adapted to hold the winding package in contact with the pressing-roller and the station- 30
ary roller, substantially as described.

5. In a machine for winding decorative films into a package-roll, the combination with the pressing-roller, the table for support- 35
ing the book of films, and the movable bed for carrying the table, of the bell-crank levers and the link, connecting the table with the bed, the spring for actuating the bell-crank levers in one direction, the loose bell-crank lever connected with the spring, and 40
the latch-cam for actuating the loose bell-crank lever, to raise the table, substantially as described.

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Witnesses:

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