

No 632,983.

Patented Sept. 12, 1899.

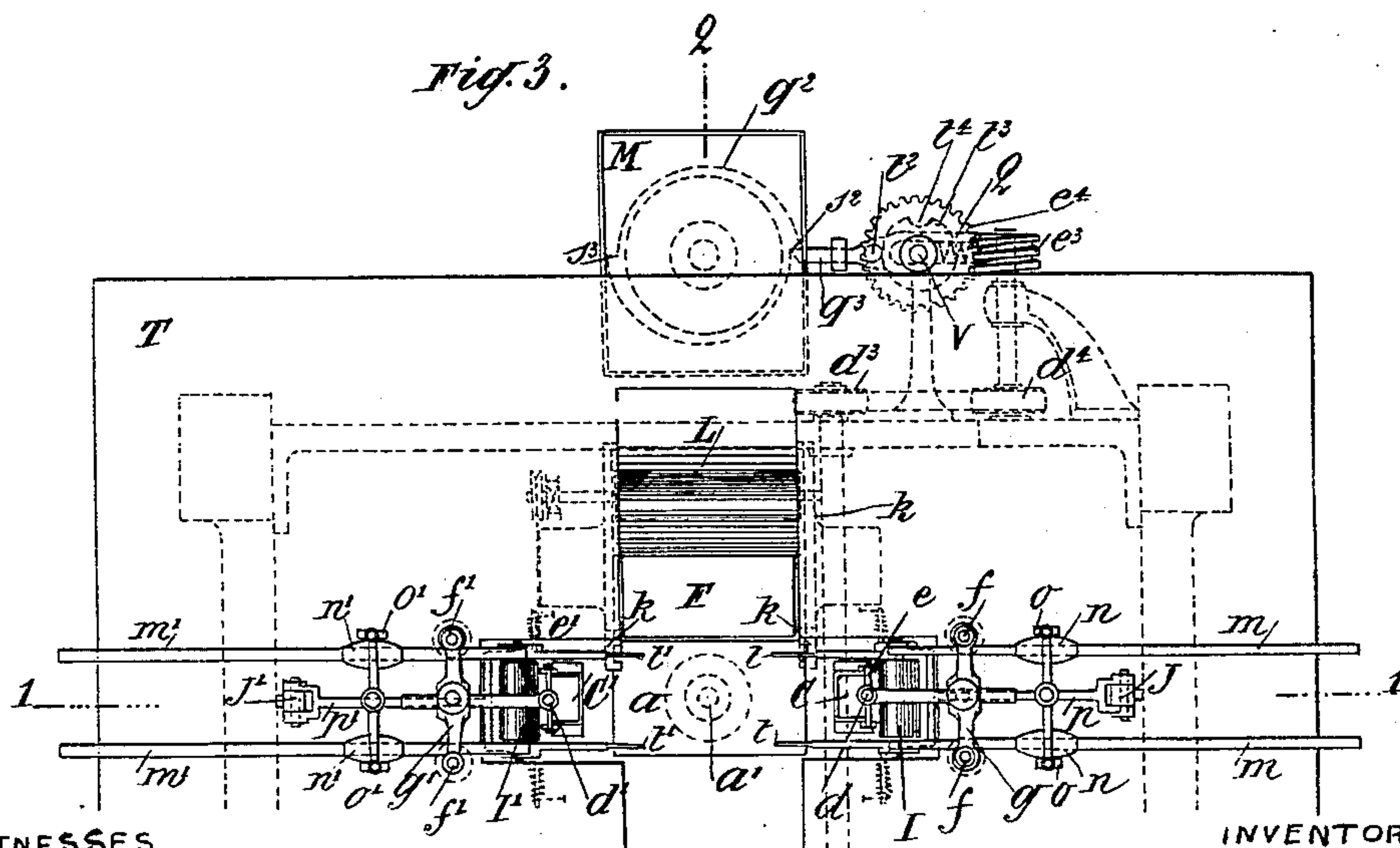
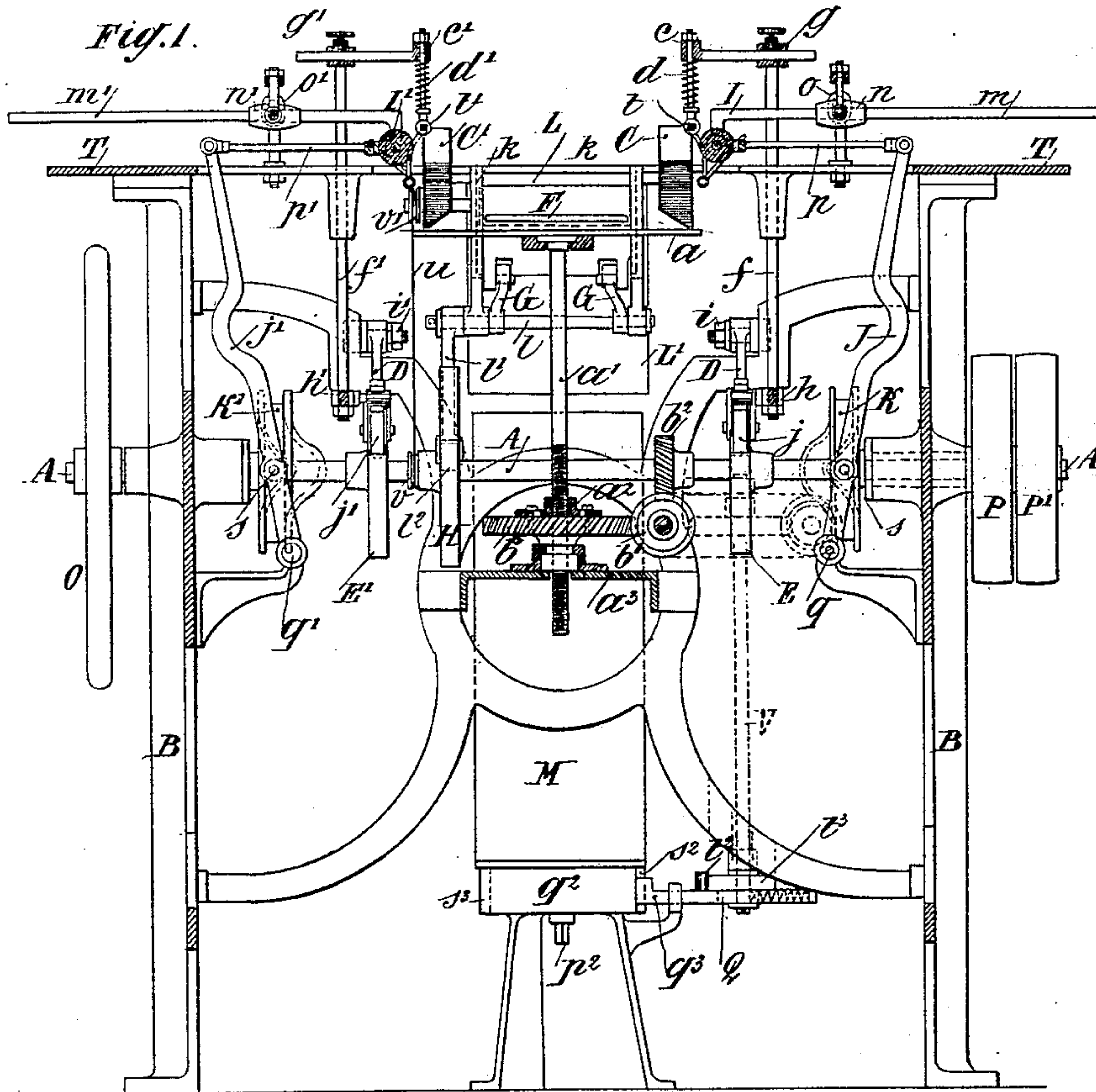
J. A. L. BARBIER-DUROZIER.

WRAPPING MACHINE.

(Application filed Oct. 18, 1898.)

(No Model.)

3 Sheets—Sheet 1



WITNESSES

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3 Sheets—Sheet 3.

Fig. 5

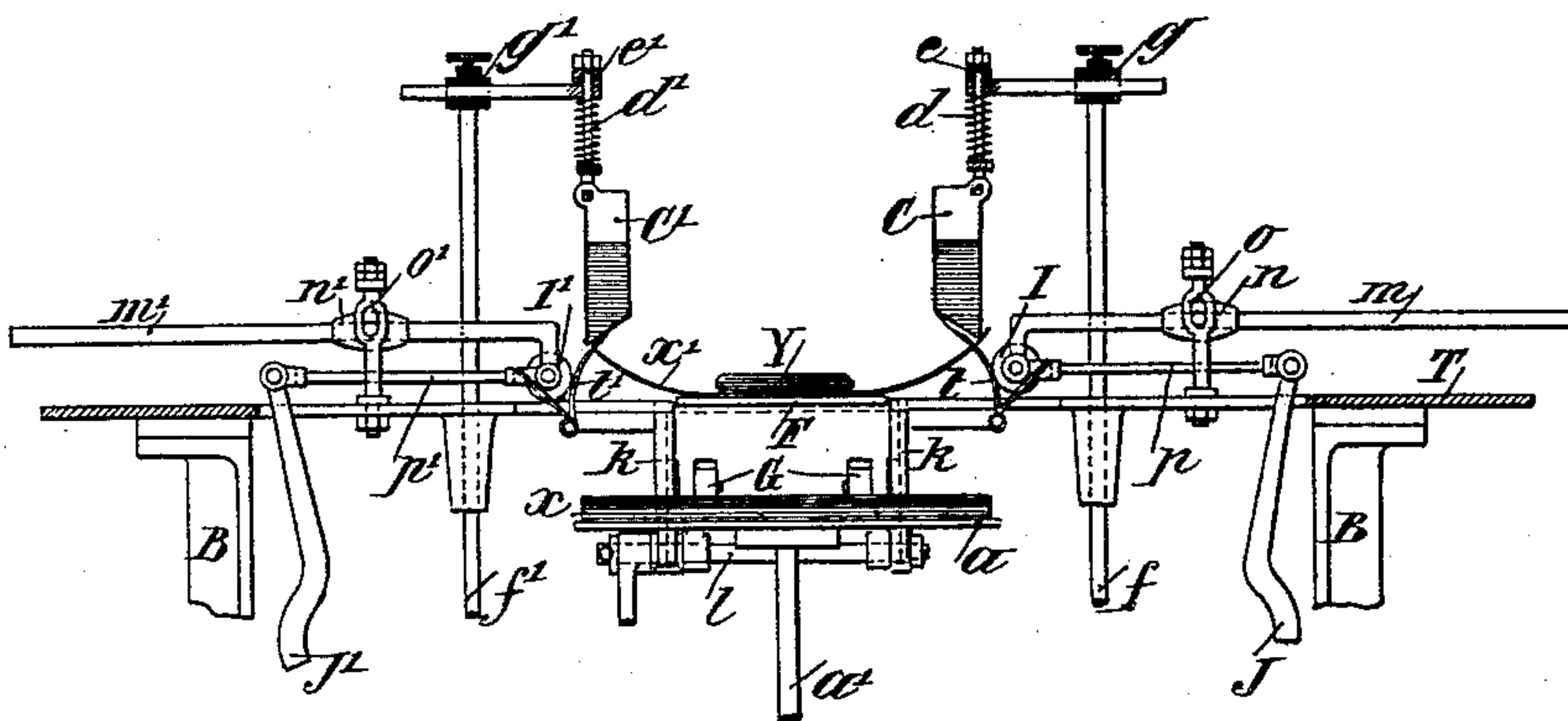


Fig. 6.

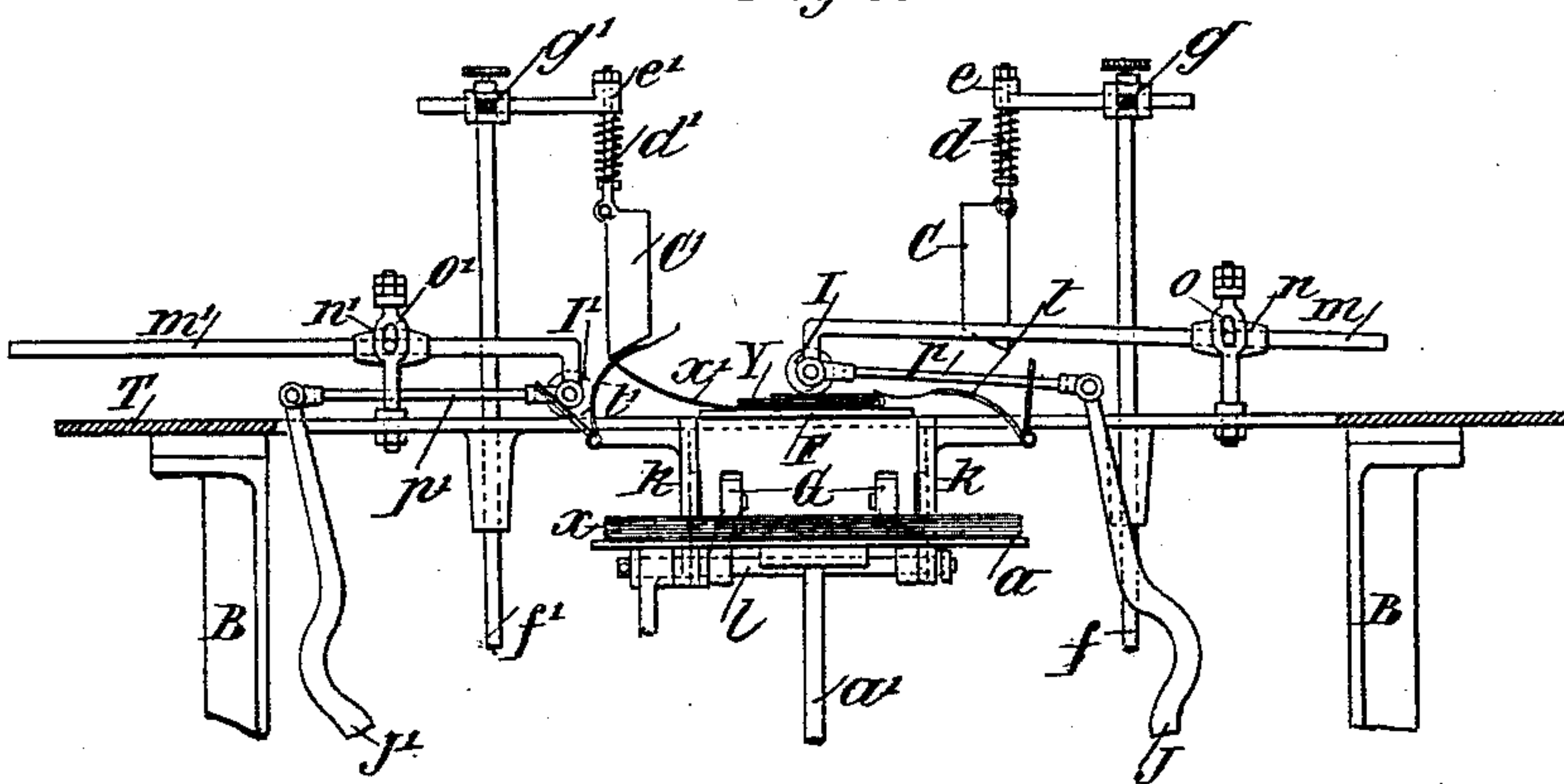
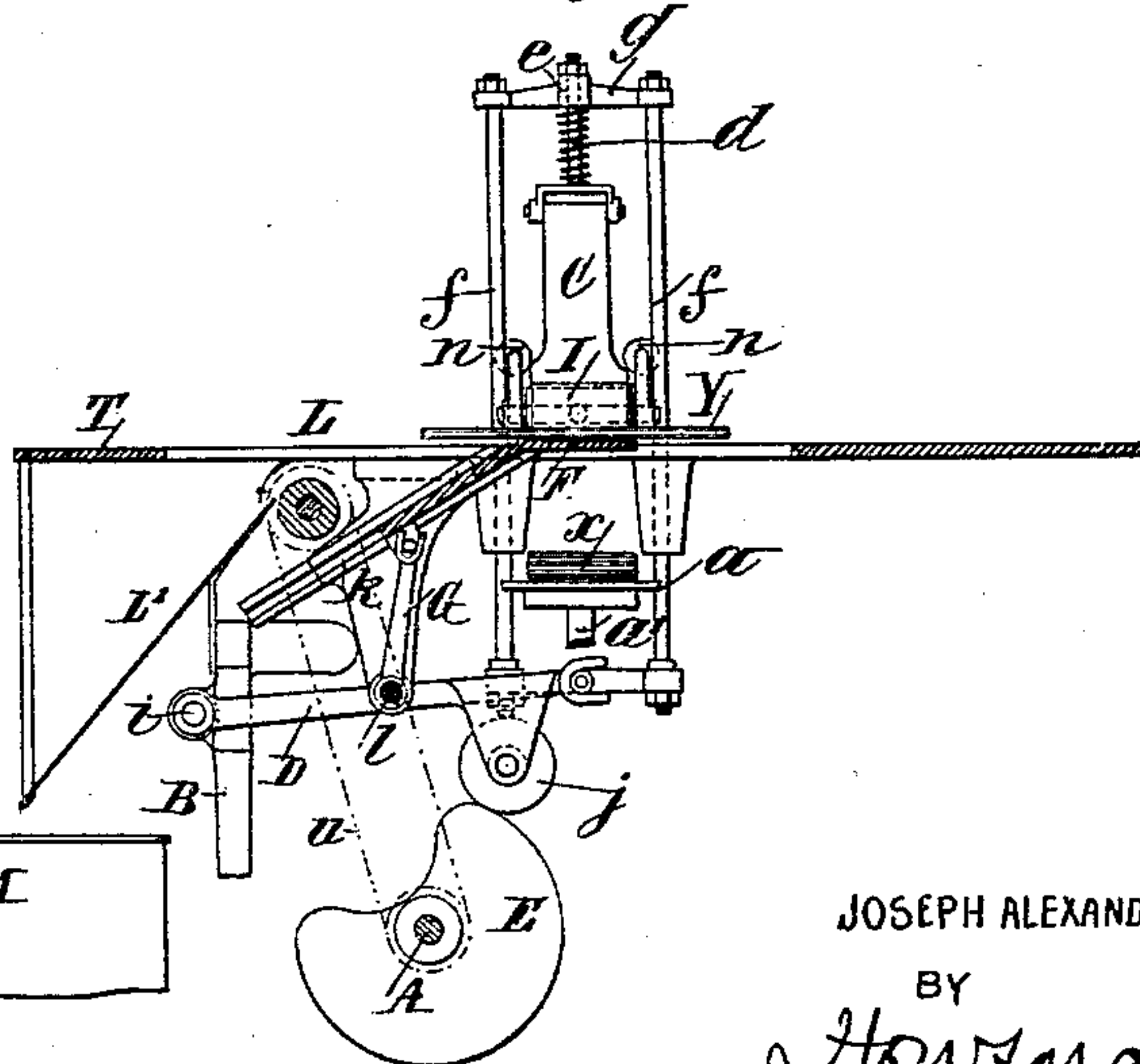
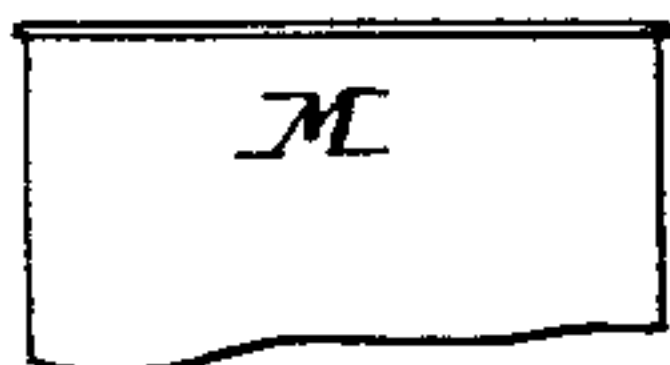


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH A. L. BARBIER-DUROZIER, OF ST. MARCELLIN, FRANCE.

WRAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 632,983, dated September 12, 1899.

Application filed October 18, 1898. Serial No. 693,895. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ALEXANDRE LOUIS BARBIER-DUROZIER, a citizen of the Republic of France, and a resident of St. Marcellin, (Isere,) France, have invented certain new and useful Improvements in Machines for Wrapping Up Circulars, Books, &c., of which the following is a specification.

This invention relates to a machine for wrapping up newspapers, books, circulars, and the like.

The improved machine is represented, by way of example, in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section taken upon the line 1 1 of Fig. 3. Fig. 2 is a vertical cross-section taken upon the line 2 2 of Fig. 3. Fig. 3 is a plan view as seen from above. Fig. 4 is a detail view of one of the parts of the machine. Figs. 5, 6, 7, and 8 are detail views intended to explain the method of operation.

Upon a plate *a* is arranged a pile of wrappers *x*, of suitable size for the printed matter which they are intended to surround individually. This plate is mounted upon the upper portion of a screw-threaded rod *a'* entering a nut *a''*, which is supported by a cross-piece *a'''* of the flange B of the machine. The said nut, which is free to rotate upon itself but not to become displaced vertically, comprises at its periphery a toothed crown *b*, which gears with an endless screw *b'*, to which motion is imparted from the main shaft by means of helicoidal gear-wheels *b''* and *b'''*, or in any other suitable manner. Owing to this the plate *a* is constantly raised, and this vertical movement is regulated according to the thickness of the wrappers and also according to the rapidity of the operations to which the said wrappers are submitted.

Above the plate *a* and toward its extremities are provided two boxes C and C', filled with an adhesive substance, the oblique bottom *c* of which, in the form of a register capable of regulation, Fig. 4, allows a certain quantity of such adhesive substance to pass or ooze through. Normally these boxes bear lightly upon the pile of wrappers *x*, and the adhesive substance which they allow to pass causes the upper wrapper on the heap to adhere thereto in such a manner that when they

are subsequently raised they carry with them the said top wrapper and separate it from the remainder of the pile. Each of the boxes C C' is suspended from a rod *d* or *d'* passed through a cross-piece *e* or *e'*, which is rigidly connected with a frame formed of two rods *f f* or *f' f'* and two cross-pieces *g h* or *g' h'*. The rods *f f* and *f' f'* pass through the sockets *f''*, which serve as guides for them. The cross-pieces *g g* are attached to the cross-pieces *e e'*, respectively, by means of a sleeve which enables the interval between the boxes C C' to be regulated as desired, and each of the lower cross-pieces *h h'* comprises a roller engaging in the fork of a lever D, pivoted at *i* and provided with a roller *j*, in contact with a cam E or E', Figs. 1, 2, and 7, rigidly fixed upon the principal shaft A. Under the influence of the cams E E' the two boxes C and C' are raised simultaneously and carry with them, Fig. 5, the paper wrapper *x'*, which adheres thereto as above stated. It should be noticed that the boxes C C' in redescending in the manner hereinafter explained rest upon the heap of wrappers, while compressing to a greater or less extent spiral springs passed upon the rods *d d'*, which have free play in the respective cross-pieces *e e'*. The spiral springs serve as regulators.

Upon one side of the plate *a* is arranged a tablet F, comprising a horizontal portion and an inclined portion, which latter is adjusted in obliquely-arranged slides *k k*. This tablet is supported by the levers G G, which are rigidly connected with an axis *l*, provided with an arm *l'*, furnished with a roller *l''*, resting upon a cam H, Figs. 1 and 8, rigidly fixed upon the main shaft A. Under the influence of this cam H and of the inclination of the slides *k k* the tablet F passes from its position of repose, Fig. 2, to its operative position, Figs. 7 and 8—that is to say, it enters between the heap of wrappers *x* and the wrapper *x'*, raised by the lifter-boxes C C'. In this position it serves as a support for the lifted wrapper *x'*, and thus enables the package *y*, which it is desired to surround with a wrapper to be placed upon this latter. It should be noticed that the upward displacement of the boxes C C' is such that the lifted wrapper *x'* extends slightly beyond the level of the tablet F and that it will fall under the weight of the printed matter

2/2, which has been placed in position. The
 extremities of the wrapper which adhere to
 the boxes C C' remain raised—that is to say,
 in a suitable position for being finally turned
 5 down upon the printed matter which the wrap-
 per is to surround. Behind the boxes C C'
 are arranged rollers I I', intended to approach
 each other toward the center of the machine,
 the effect of these rollers being to produce
 10 the turning down in question. Each of these
 rollers is passed upon an axis supported by
 rods $m m$ or $m' m'$, capable of sliding in sock-
 ets $n n$ or $n' n'$, which are adapted to oscillate
 upon supports $o o$ or $o' o'$. The axis of each
 15 of the rollers I I' is in addition attached by
 a connection p to the upper extremity of a le-
 ver J or J', pivoted at q or q' and provided
 with a roller s , which is in contact with a cam
 K or K', rigidly fixed upon the main shaft A.
 20 Under the influence of the cams K K' the
 rollers I I' advance toward the center of the
 machine while remaining free to oscillate
 around the pivot of the sockets $n n$ and $n' n'$.
 This oscillation is necessary by reason of the
 25 various thicknesses of the packets of printed
 matter which may be required to be wrapped
 up. The cams K K' are attached in such a
 manner that the roller I advances first and
 the roller I' advances only at the moment at
 30 which the roller I retires. The roller I in its
 advance detaches from the box C, the pro-
 jecting extremity of the wrapper which is ad-
 hering thereto turns it down upon the packet,
 Fig. 6, and sticks it slightly upon the same,
 35 owing to the point or strip of adhesive sub-
 stance which it carries with it. The roller I'
 produces the same effect upon the extremity
 of the wrapper which is adhering to the box
 C', with this difference that it sticks this ex-
 40 tremity upon that previously turned down.
 The pressure of the turning down and stick-
 ing rollers I and I' is exerted upon the tablet
 F, which serves as a support both for the
 wrapper and the packet. In their travel to-
 45 ward the center of the machine the rollers I I'
 act, respectively, upon fingers or clips $t t$ and
 $t' t'$, which they press down upon the packet
 Y for the purpose of retaining it in position,
 while the extremities of the wrapper x' are
 50 being turned down and stuck. The fingers
 in question are arranged upon each side of
 the lifting-boxes C C', and under the action
 of small springs tending to turn them down
 constantly toward the center of the machine—
 55 that is to say, upon the packet—each of the
 fingers is provided with a tail, with which the
 axis of the corresponding roller I I' engages,
 of which axis they follow the movement.
 When these rollers advance toward the cen-
 60 ter of the machine, the fingers being acted
 upon by their springs are applied upon the
 packet and maintain it upon each side of the
 wrapper. When upon the other hand these
 rollers recede from the center, they act upon
 65 the said tails and the fingers are raised. In
 any event it follows from the foregoing that
 the packet is perfectly wrapped up and that

the wrapper is at the same time stuck and
 adheres to the packet in such a manner as
 not again to become detached. It is then 70
 necessary to remove the packet so made up
 in order to enable the operation above de-
 scribed to be repeated. It is at this moment
 that the cam H allows the tablet F by its own
 weight to again resume its initial position. 75
 In this movement the tablet F carries with it
 the wrapped-up packet, and the boxes C C'
 under the influence of their respective cams
 E E', are depressed in the direction of the pile
 of wrappers x , so as to remove the top wrap- 80
 per, as above described. One of the extremi-
 ties of the made-up packet conveyed upon
 the tablet F comes into contact with the feed-
 roller I, which rotating in the direction of
 the arrow, Fig. 7, feeds the packet Y over 85
 onto the inclined plane L', which conducts it
 toward a receptacle M, provided for the re-
 ception of the made-up packets. The roller
 L is caused to rotate by means of a small end-
 less cord u , passing over the grooved pulleys 90
 v and v' , arranged upon the main shaft A
 and the axis of the said roller L, respectively.

The receptacle for the made-up packets con-
 sists of a prismatic box M, which is rigidly
 fixed upon a pivot p^2 , upon which is attached 95
 the internal extremity of a spiral spring R,
 the outer extremity of which is attached to a
 fixed barrel p^3 , mounted upon a suitable sup-
 port. Tension is produced in the spring R
 in the ordinary manner by acting upon the 100
 square portion of the pivot p^2 . To the box
 M is rigidly fixed a crown q^2 , which fits upon
 the barrel p^3 , and the exterior of which is pro-
 vided with two projections $s^2 s^3$, arranged di-
 ametrically opposite one to the other. One 105
 of the projections strikes against a finger q^3
 and serves to maintain the box or receptacle
 M in a fixed position. The finger q^3 forms
 one with a slide Q, provided with a stud t^2 ,
 which is applied under the influence of a 110
 spring against the edge of a disk t^3 , provided
 with a notch t^4 and keyed to the lower ex-
 tremity of a vertical shaft V, which is driven
 in a predetermined ratio by the main shaft A
 by means of transmission-gear $b^2 b^3 d^3 d^4 e^3 e^4$. 115
 The ratio of these parts is such that the shaft
 V completes one revolution for each twenty-
 five revolutions, for example, of the main
 shaft A. It results from this that upon each
 twenty-fifth revolution of this shaft the notch 120
 t^4 of the disk t^3 is presented to the finger q^3 ,
 which engages therein, thus releasing the pro-
 jection s^2 of the crown q^2 or the box M, which
 under these conditions and under the influ-
 ence of the spring R turns upon itself to be 125
 again locked by the finger q^3 . This box after
 having effected a half-revolution upon itself
 continues to receive the made-up packets and
 then again effects a half-revolution, and so
 on in succession. It follows from this that 130
 the packets are piled one upon the other in
 heaps of twenty-five, and that the pile formed
 by them is absolutely regular. It should be
 understood that the figure twenty-five is taken

by way of example only and that the box may be caused to oscillate when twenty, thirty, forty, or any other desired number of packets have been made up. The disengagement of the finger q^8 may be utilized for actuating a device registering the number of packets made up. When the box M is filled to the desired extent, the packets are withdrawn, and to effect this it is only necessary to turn down one of its sides, which is hinged and provided with a catch with this object.

Such is the construction and operation as a whole and in its details of the machine for wrapping up circulars or the like which I have devised and which it will of course be understood may be constructed in all dimensions and without any exact limitation as to the arrangement of details and accessories or with respect to any of the methods of transmission, which have been described with the sole object of rendering the fundamental principle of the said machine comprehensible. It should finally be stated that the frame B of the machine somewhat closely resembles that of a sewing-machine; that upon this frame is arranged a table-top T, in which are formed suitable apertures for the movements of the parts and of the wrappers and circulars or the like, and that the main shaft A is provided with fast and loose pulleys P and P' for the purpose of driving from the motor and with a hand-wheel O for starting and regulating the machine.

I claim as my invention—

1. In a machine for wrapping up circulars or other printed matter, the combination with a plate for the piled-up wrappers and means for imparting a uniform ascending movement thereto, of boxes filled with adhesive substance and adapted to allow the same to ooze out at their lower portions, said boxes adapted to be applied to the pile of wrappers and lift the top wrapper therefrom, a tablet adapted to slide beneath the lifted wrapper to serve as a support for the said wrapper and for the circular to be wrapped up, and rollers adapted to move in succession in the direction of

the said supporting-tablet, as and for the purpose described.

2. A machine for wrapping up circulars, &c., having rollers for turning down the ends of the wrapper, a plate a to support a pile of wrappers, boxes C C' containing an adhesive substance, frames carrying said boxes and adapted to move vertically to the plate a , and adapted to lift the topmost wrapper of the pile and hold its ends in a curved position to permit the roller to act upon it, as and for the purpose set forth.

3. A machine for wrapping circulars, &c., having rods, pivoted sockets, in which said rods can slide, and turning-down rollers I I' mounted on the rods, with actuating-levers for the latter and means to cause said rollers to alternate in their movements, substantially as described.

4. A machine for wrapping up circulars, &c., having a tablet and oblique slides therefor, in combination with means for lifting one wrapper of a pile, a suitable mechanism for raising said tablet and interposing it between the pile of wrappers and the lifted wrapper, substantially as described.

5. In a machine for wrapping circulars, &c., the combination of the turning-down levers I and I' with spring clips or fingers unattached to but operated by said levers and adapted to bear on the packet while the extremities of the wrapper are being turned down, substantially as described.

6. A machine for wrapping up circulars, &c., having a tablet F, inclined sides upon which it is mounted, a cam H upon the shaft A to actuate said tablet, in combination with a roller L, an inclined plane L' and a stacking-box M, substantially as described.

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

J. A. L. BARBIER-DUROZIER.

Witnesses:

VALLIE EDOUARD,
G. MARWIME.