

(No Model.)

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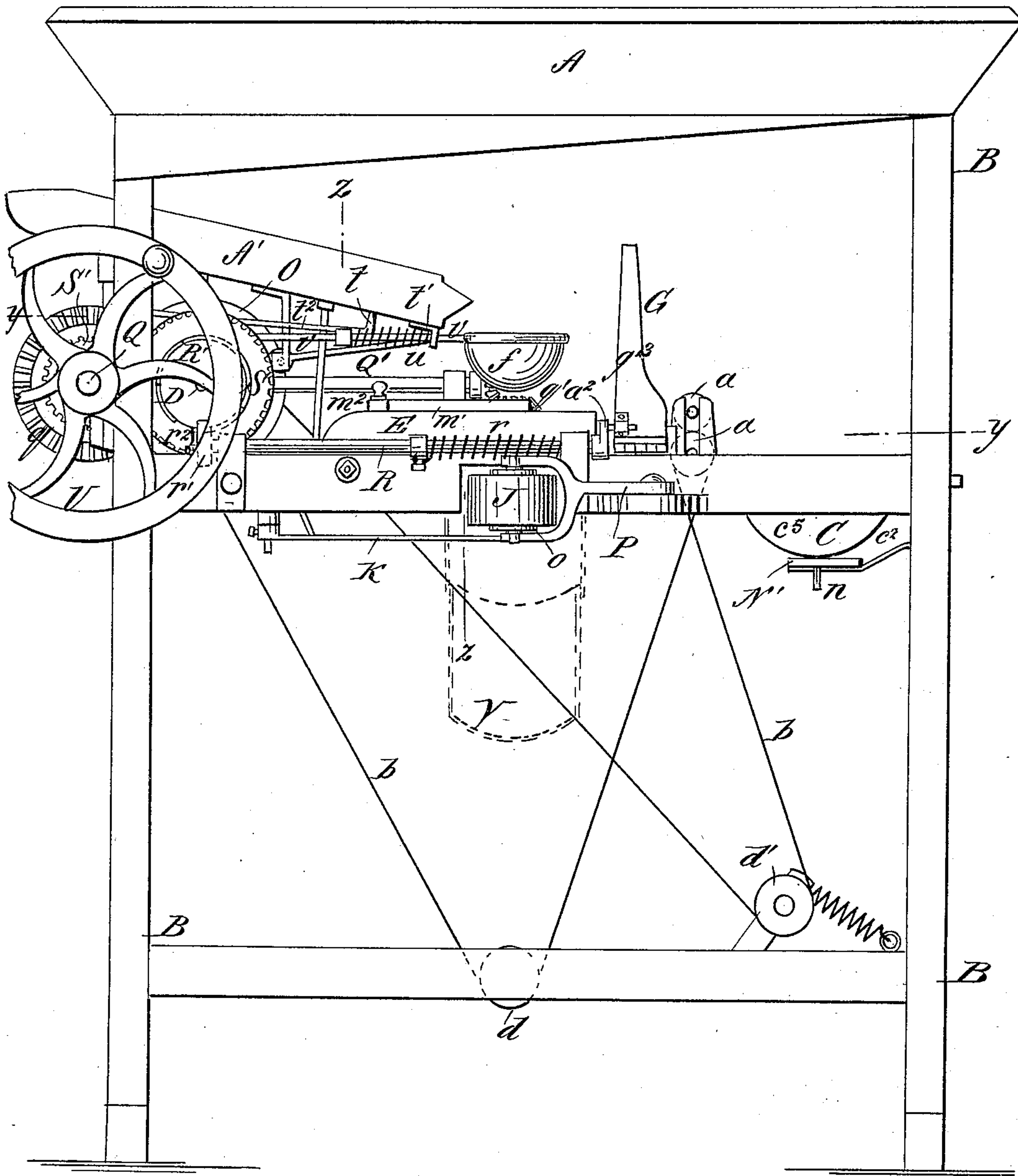
H. J. WILLIAMS.

MACHINE FOR WRAPPING ORANGES, &c.

No. 398,015.

Patented Feb. 19, 1889.

Fig. 1.



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4 Sheets—Sheet 2.

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Fig. 2.

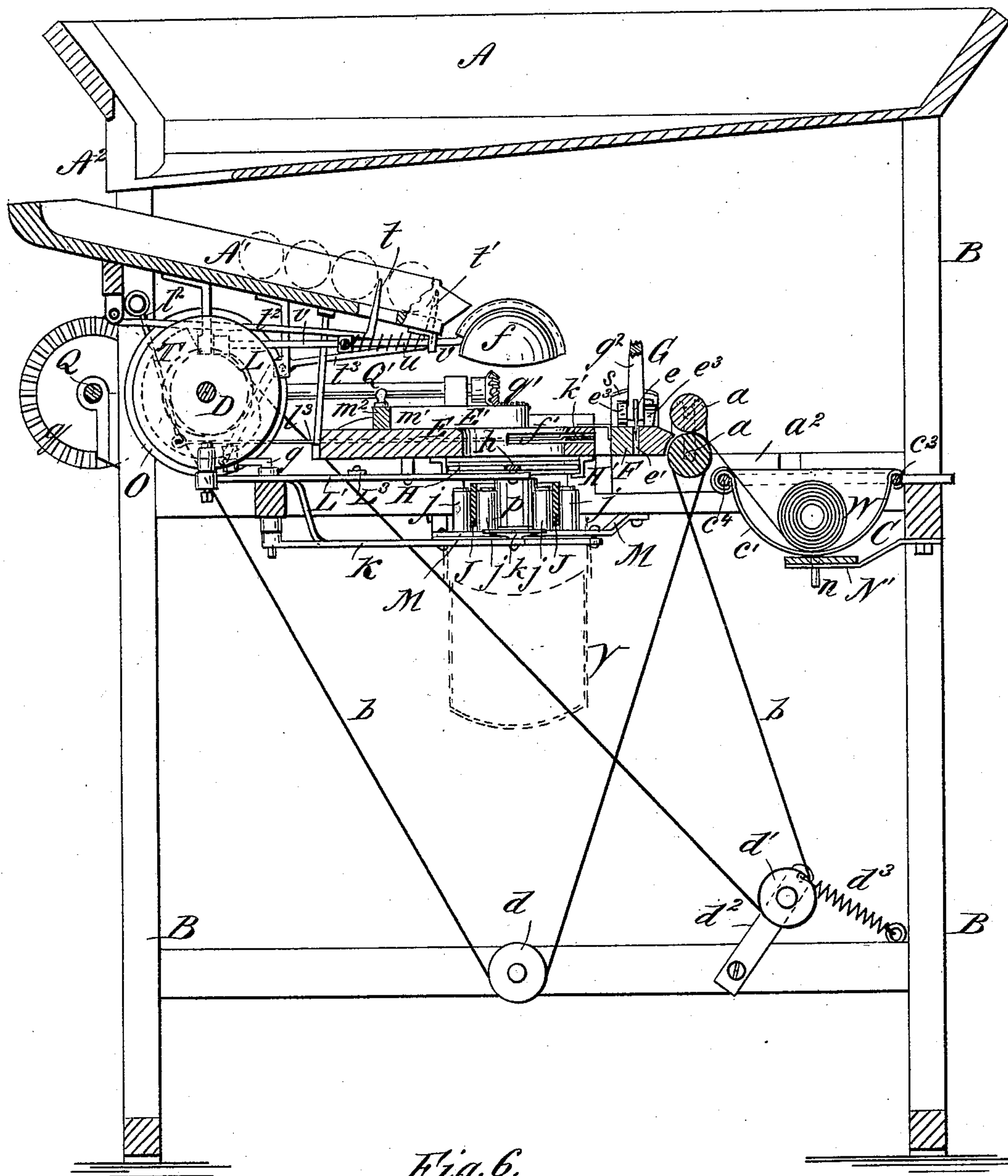


Fig. 6.

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(No Model.)

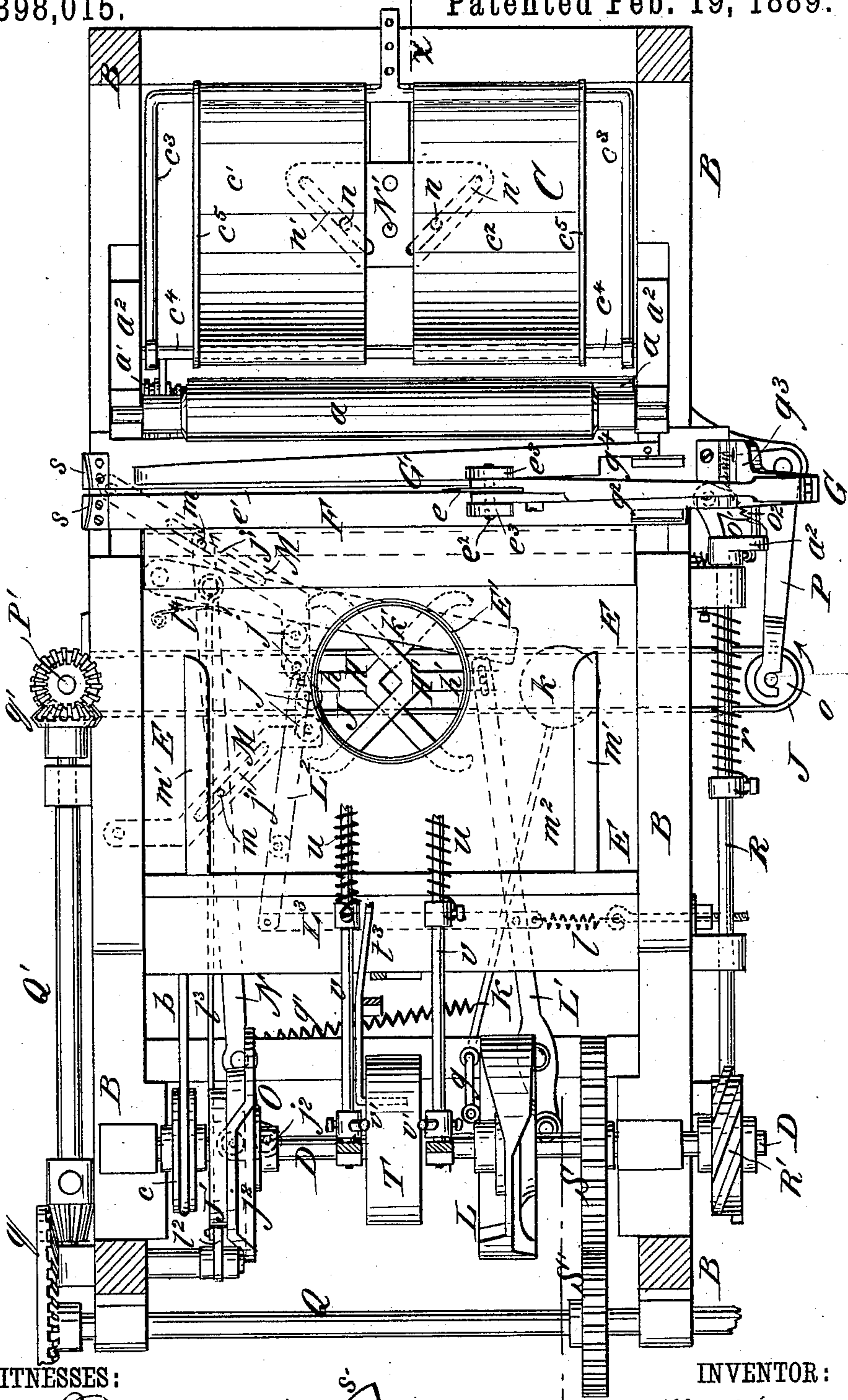
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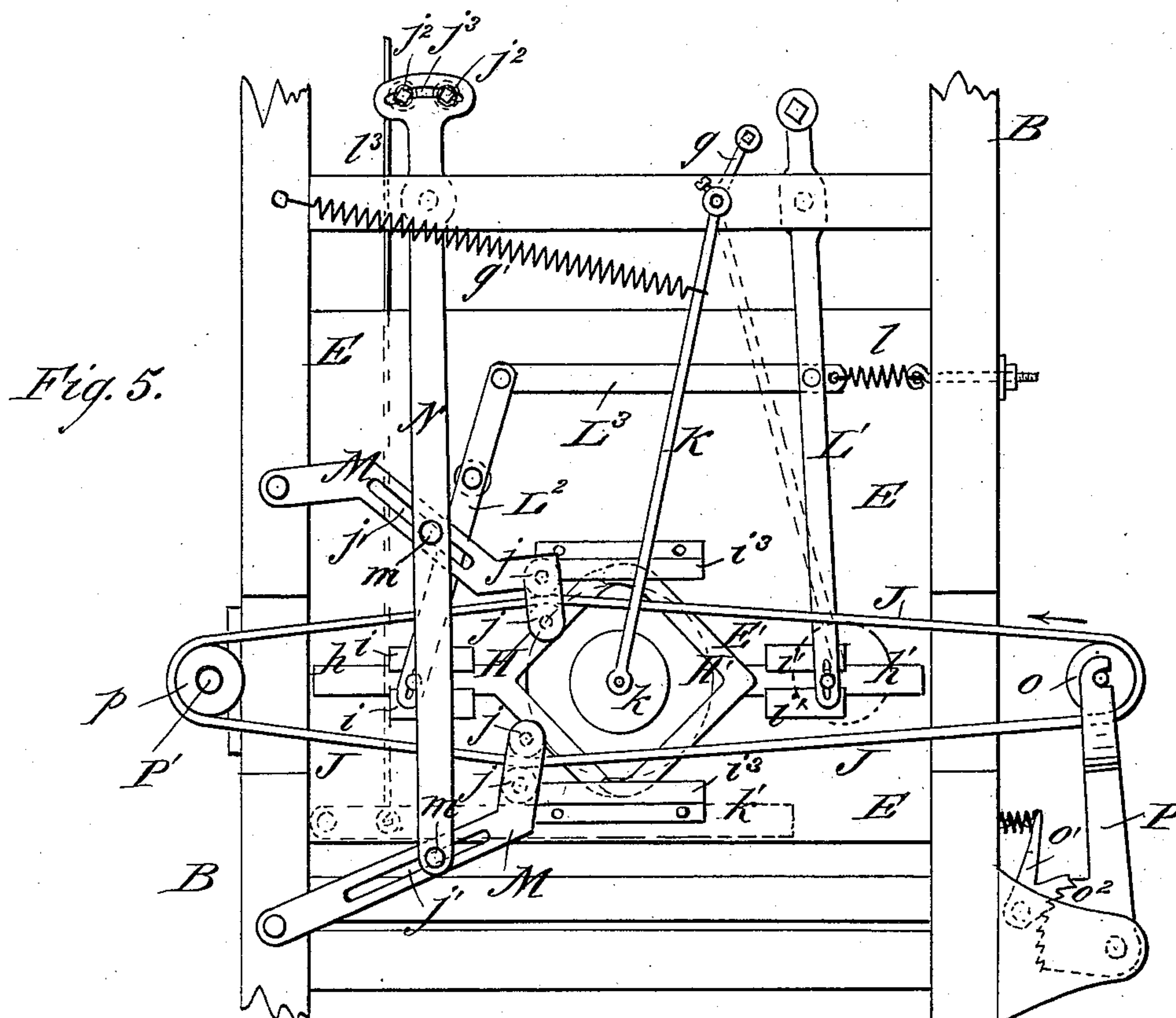
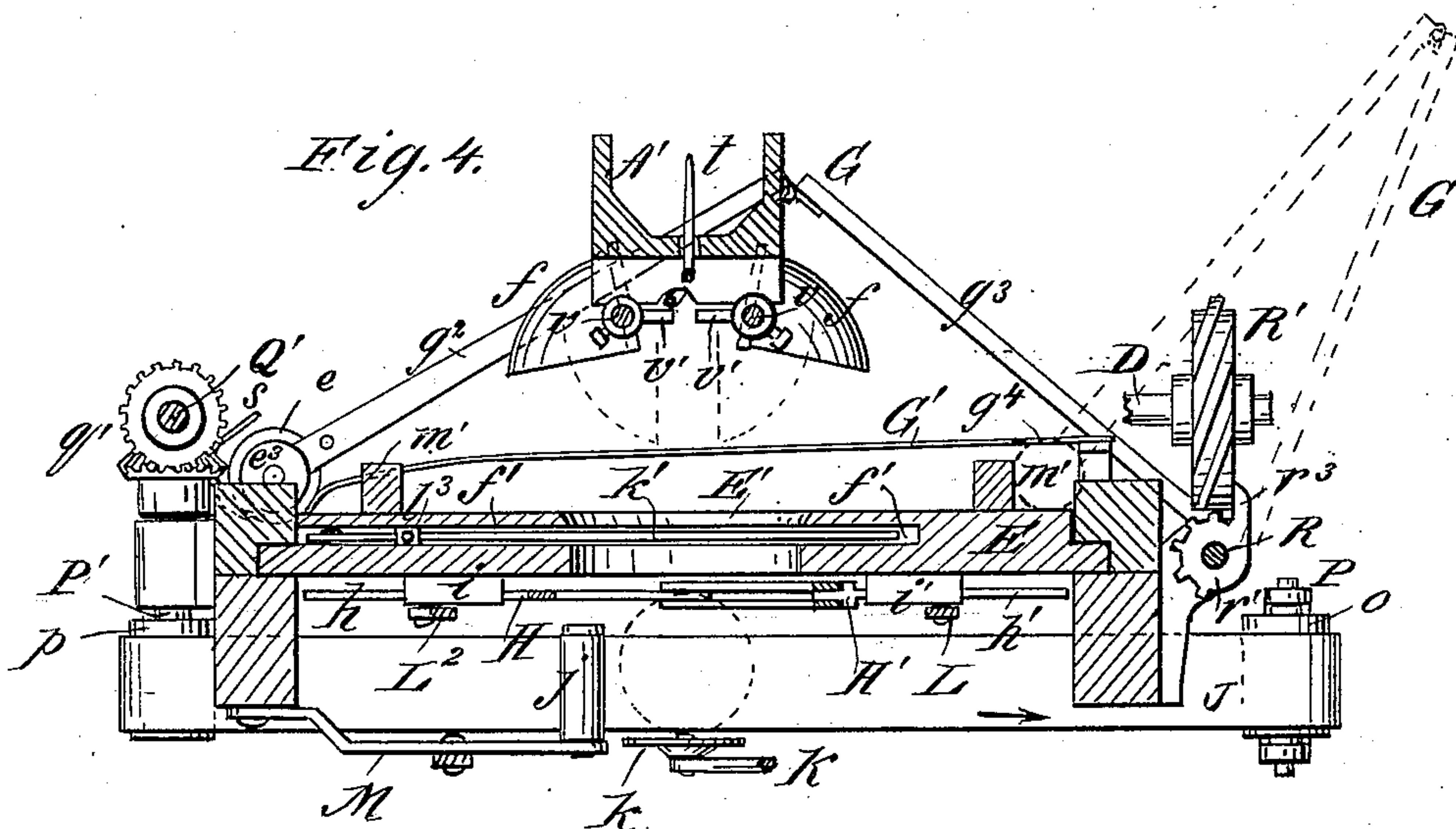
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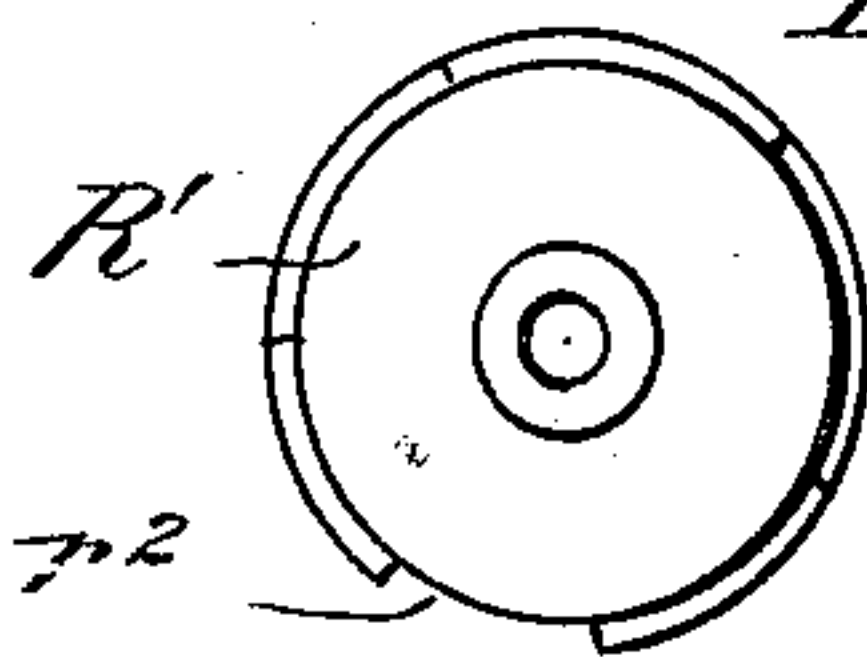


WITNESSES:

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UNITED STATES PATENT OFFICE.

HUMPHREY J. WILLIAMS, OF NEW YORK MILLS, NEW YORK, ASSIGNOR, BY
MESNE ASSIGNMENTS, OF ONE-HALF TO GRACE C. WARNER, OF PENN,
FLORIDA.

MACHINE FOR WRAPPING ORANGES, &c.

SPECIFICATION forming part of Letters Patent No. 398,015, dated February 19, 1889.

Application filed May 13, 1884. Serial No. 131,404. (No model.)

To all whom it may concern:

Be it known that I, HUMPHREY J. WILLIAMS, of New York Mills, in the county of Oneida and State of New York, have invented
5 a new and Improved Machine for Wrapping Oranges, &c., of which the following is a full, clear, and exact description.

The object of my invention is to provide a practical machine for wrapping oranges, lemons, and other fruit or spherical objects with tissue-paper; and the invention consists, principally, of means or devices for folding the paper over the orange or other object to be wrapped and holding the paper, and of a
10 twister or revolver for revolving the orange while the paper is thus held for forming a twist in the paper, the holding and twisting devices being adapted to be opened and closed for receiving and discharging the orange.

The invention also consists of means for feeding the paper over the twisting and holding devices and of means for cutting the paper into sheets of proper length; also, of means for dropping the oranges one by one into the
15 sheets of wrapping-paper and down between the paper holding and twisting devices; also, of an adjustable tray for holding the roll of wrapping-paper; and, finally, the invention consists of the construction, arrangement, and
20 combination of parts, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my new orange-wrapping machine. Fig. 2 is a sectional elevation thereof, taken on the line *xx* of Fig. 3. Fig. 3 is an enlarged sectional plan view of the machine, taken on the line *yy* of Fig. 1. Fig. 4 is a transverse sectional elevation taken on the line *zz* of Fig. 1. Fig. 5 is a detail inverted plan view of a part of the machine, showing the paper holding and twisting mechanism and other parts working in connection therewith. Fig. 6 is a side elevation of the revolving circular knife for cutting the wrapping-paper into sheets. Fig. 7 is a side elevation of the cam *T*, which opens and closes
45 the dropping-cups *ff*; and Fig. 8 is a side

view of the worm-wheel *R*, which operates the paper-cutter *G*.

The oranges to be wrapped are to be placed in the hopper *A*, held upon the main frame *B* above the operative parts of the machine. 55 The wrapping-paper *w*, to be wrapped around the oranges, is placed in the form of a roll in the tray *C*, from which the paper is gradually drawn by the rollers *a a*, the lower one of which is revolved by the belt *b*, passing over cone-pulley *a'* and coming from the pulley *c*, Fig. 3, fixed upon the shaft *D*, the belt passing over the pulleys *d d'* before reaching the roller *a* to give the belt the proper direction. The rollers *a a* gradually force the wrapping-
60 paper *w* over the platform *E* and cross-piece *F*, upon which latter the paper is cut into sheets of suitable length for wrapping the oranges by the reciprocating cutter *G*, the revolving circular knife *e* of which enters the
65 slot *e'* of the said cross-piece *F*.

The platform *E* has the large aperture *E'* formed in it immediately under the opening and closing dropping-cups *ff*, and the sheets of wrapping-paper as they are fed upon the platform *E* and cut by the action of the cutter *G* are centered immediately over the opening *E'*, so that the oranges as they come from the hopper *A* down the trough *A'* and enter one by one the dropping-cups *ff* and are
80 dropped by them will each drop first into the center of a sheet of wrapping-paper, and then through the aperture *E'*, carrying the sheet of paper with it, the edges of the paper being turned upward around the orange in passing
85 through the aperture *E'*.

Immediately below the platform *E* and aperture *E'* are placed the reciprocating devices *H H'*, preferably in the shape of forks, for folding and holding the upturned edges
90 of the wrapping-paper over the orange and holding it while the orange is revolved for twisting the paper; and immediately below the forked devices *H H'* is placed the revolver or twister *J*, preferably in the form of a traveling
95 belt of rubber or other flexible material, which revolves the orange, and immediately below the twister or orange-revolver *J* is placed the arm *K*. This is provided at one end with the plate *k*, and is reciprocated by
100

the cam L on shaft D, acting through crank g and spring g' , and it is so reciprocated as to stand immediately below the dropping-cups $f f$, as shown in Figs. 4 and 5, at the time each orange is dropped, and then moved to one side, to the position shown in dotted lines in Fig. 5, while the orange and wrapping-paper are being revolved by the orange-revolver or twisting-belt J for forming the twist in the paper. In this manner the orange and wrapping-paper are prevented from dropping through the machine until after the paper has been folded over and twisted upon the orange.

The holding device or fork H' is made double to receive the prongs of the opposing forked device, H , as shown in Fig. 4, so that the forks serve as guides to each other; and the stem h' of the device H' is held by the cleats $i' i'$, secured to the under surface of the platform E, while the stem h of the fork H is held by the cleats $i i$, also secured to the under surface of the platform E in line with the cleats $i' i'$, and the devices $H H'$ are also guided by the cleats $i'' i''$, and forked devices $H H'$ are simultaneously reciprocated to and from each other by the action of the above-mentioned cam, L, acting through the lever L' , attached to the stem h' of the fork H' , and the lever L^2 , attached to the stem h of the fork H and connected at its rear end to the lever L' by the rod L^3 , the spring l being provided for holding the said levers $L' L^2$ (when the cam L will permit) so as to open the forks $H H'$ to the position shown in Fig. 5. The forks $H H'$ assume this open position at the time each orange is dropped from the cups $f f$, and then they are forced by cam L and levers L' and L^2 and connecting-rod L^3 to closed position, (the position shown in Fig. 3,) which movement causes the forks to fold or gather the upturned corners and edges of the wrapping-paper up over the orange, and causes them also to grasp and hold stationary the gathered corner and edges of the wrapping-paper, while the twisting-belt J is closed upon and revolves the orange and wrapping-paper, causing the edges and corners of the wrapping-paper to be twisted, as above intimated, thus securing the paper to and upon the oranges.

At the time each orange is dropped into the sheet of wrapping-paper and into the machine upon the plate k the orange-revolving device or twisting-belt J is held open, as shown in Fig. 5, to receive the orange by the outward movement or reciprocation of the pivoted horizontal arms $M M$, between the upright short studs or rollers $j j$ of which the twisting-belt passes, as shown clearly in Fig. 2, and by the action also of these arms M and studs j the twisting-belt J is at the proper time closed to the position shown in Fig. 3 after the dropping of each orange, so as to hold the orange snugly, so that the motion of the belt, traveling in the direction of the arrows, will cause the orange to be revolved,

twisting the wrapping-paper, as just mentioned.

In order to reciprocate the arms M to and from each other for opening and closing the revolving or twisting belt J for receiving and discharging the oranges, I arrange the arms $M M$ diagonally opposite to each other, as shown in Fig. 5, and slot them, as shown at $j' j'$, and provide the reciprocating lever N, the studs $m m$ of which enter the slots $j' j'$. The lever N is reciprocated by the wave-cam O, fixed upon the shaft D, which cam moves between the studs $j^2 j^2$, secured in the slot j^3 , made in the outer end of the lever N, as shown in Fig. 5. By adjusting the studs j^2 in the slot j^3 the arms M may be made to open and close the belt J a greater or less distance, according to the size of the oranges or other objects being wrapped.

The orange-revolver or twisting-belt J is drawn taut in the machine by being passed over the pulley o , held in the pivoted arm or bracket P, which is held swinging outward as far as the belt J will permit by the pawl o' engaging with the segmental ratchet o^3 , formed at the heel of the arm P, as will be understood clearly from Fig. 5, and the belt J is caused to travel by the vertical pulley p , over which the belt passes, which pulley is secured upon the vertical short shaft P' , which is revolved from the main power-shaft Q through the medium of the shaft Q' and the sets of beveled gear-wheels $q q'$. (Shown clearly in Fig. 3.)

The cutter G is composed of the jointed arms or sections $g^2 g^3$, the former of which carries the knife e , the latter of which is hinged to one end of the above-mentioned cross-piece F and is attached to the crank a^2 of the horizontally-placed shaft R. Upon the shaft R is placed the coiled spring r , which is so held as to tend constantly to turn the shaft R toward the cutter G. At the end opposite to that to which the crank a^2 is secured the shaft R is provided with the small spur-wheel r' , which meshes with the worm-wheel R' , which is attached to the shaft D, and is mutilated at r^2 , as shown clearly in Fig. 8, so that when the machine is in motion the shaft R will be slowly turned outward, causing the crank a^2 to draw the cutter G to the position shown in dotted lines in Fig. 4, which turning of the said shaft will be against the tension of the spring r . This outward turning of the shaft R will continue until the mutilation r^2 of the worm-wheel R' reaches the pinion r' , whereupon the spring r will act to reverse the revolution of the shaft R, which will cause crank a^2 to suddenly force the cutter G along the cross-piece F to the position shown in full lines in Fig. 4, thus causing the knife e to cut the wrapping-paper. The cog-wheel r' has the toe r^3 formed upon it, which acts as a stop against the worm-wheel R' to prevent the shaft R from being turned too far by the action of the spring r ,

and the outward movement of the cutter G is limited by the stop-plates s , secured to the opposite end of the cross-piece F, as shown clearly in Fig. 3. The cutting-knife e is circular in form, and is attached to the arm g^2 of the cutter G by the pin e^2 , to the outer ends of which are secured the small wheels e^3 , which run upon the cross-piece F at the sides of the slot e' and cause the knife e to revolve, so that it is caused to cut the wrapping-paper by a revolving instead of a thrust motion. In the backward movement of the cutter G one of the wheels e^3 runs upon the curved spring-plate G' , (shown clearly in Figs. 3 and 4,) which serves to elevate the lower end of the arm g^2 of the cutter G, so that the knife e will not interfere with the feeding of the wrapping-paper upon the platform E. The spring-plate G' is curved downward at its free end, so as to drop behind one of the rollers e^3 at the time or just before the lower end of the arm g^2 reaches the limit of its outward movement, thus causing the said arm in the backward movement of the cutter G to ride upon the plate G' , as will be understood from Fig. 4. At g^4 the plate G' is cut away, as shown clearly in Fig. 3, to permit the arm g^2 and rollers e^3 to drop below the plate G' to run again upon the cross-piece F for cutting the next sheet of paper.

The oranges in rolling down the trough A' are caused to drop one by one into the dropping-cups $f f$ by means of the alternately-reciprocating fingers $t t'$, which reach up through the bottom of the trough A', as shown clearly in Fig. 2. The finger t is attached to the pivoted rod t^2 , which rests upon the cam T, secured to the shaft D, while the finger t' is secured to the pivoted rod t^3 , which is bent downward and to one side at its lower rear end, and the bent portion reaches under the said cam T, as shown clearly in Fig. 3, so that this cam T serves to reciprocate both fingers $t t'$ alternately, the finger t serving to retain the oranges in the trough A' at the time the finger t' descends for permitting the orange below the finger t to drop into the dropping-cups $f f$, and the fingers $t t'$ are made adjustable upon the rods $t^2 t^3$ to suit large and small oranges. The cam serves also, in combination with the springs $u u$, placed upon the rods $v v$, to which the dropping-cups $f f$ are secured, to open and close the cups $f f$ for receiving and at the proper time dropping the oranges. The springs $u u$ are so held upon the rods $v v$ that they tend constantly to turn the rods $v v$ to open the cups $f f$ —that is, to hold them in the position shown in full lines in Fig. 4.

The closing of the cups is effected by the short pins or arms $v' v'$, secured upon the rods $v v$, against which the edges of the cam T come, so that the cam acts to carry them upward and outward, turning the rods $v v$ against the tension of the springs $u u$ until the cups $f f$ are brought to closed position, (the position shown in dotted lines in Fig. 4,) where they will be held until the toe s' of the cam T passes the pins or studs $v' v'$, whereupon the springs $u u$ will instantly reverse the revolution of the rods $v v$ and open the cups $f f$ and let drop the orange, as above stated.

After the orange has been dropped into the wrapping-paper and through the aperture E' in the platform E, which, as above described, carries the wrapping-paper down and folds the paper up around the orange, in order that no part of the sheet of paper shall remain above the upper surface of the platform E to interfere with the feeding of the paper over the platform E, I slot the platform E horizontally, as shown at f' , Figs. 2 and 4, and in this slot I place the pivoted arm or plate k' , which is adapted to be drawn forward to sweep down below the platform E the edges of the paper just after the dropping of each orange by the eccentric J' on shaft D, which eccentric acts against the pivoted arm k' , which is connected by rod k^2 to the said plate k' . The plate k' is returned and the arm k^2 held constantly in contact with the eccentric J' by the action of the flat spring k^4 , placed in the slot f^2 , so as to press against the plate k' , as shown in dotted lines in Fig. 3.

The tray C, in which the roll of wrapping-paper w is held, is made in two parts, $c' c^2$, which are attached to the frame c^3 and bar c^4 , which latter is made fast at its ends to a sliding frame composed of the side bars, $a^2 a^2$, secured together by the cross-piece F. The side bars, $a^2 a^2$, have the bearing for the rollers $a a$ secured to them, and the cutter G is, as above described, hinged to the cross-piece F, so that all of these parts may be moved to or from the platform E, according to the length the sheets of paper are to be cut, and upon the under side and near their adjacent edges the parts $c' c^2$ of the tray C are provided with the pins or studs $n n$, which are adapted to enter the diverging slots $n' n'$, made in the plate N', held below the tray C, so that the edges of their slots will act as cams upon the studs or pins $n n$ and draw the parts $c' c^2$ nearer to each other or force them farther apart, according to the distance the bars $a^2 a^2$ may be moved. In this manner the act of moving the bars $a^2 a^2$ at the same time adjusts the parts $c' c^2$ of the tray C, and they should be so arranged with reference to the length of the rolls of paper to be used that the proper adjustment of the bars $a^2 a^2$ will cause the side piece, c^5 , to come against the ends of the roll of wrapping-paper, thus forming a tension for the roll of paper for holding the paper from unrolling of its own accord and becoming folded between and drawn irregularly forward by the feeding-rollers $a a$.

The pulley d' , over which the belt b passes before passing over the lower feed-roller a , is journaled upon the pivoted arm d^2 , which is constantly drawn backward by the spring d^3 , thus serving to always keep the belt b drawn tight, and by changing the belt b upon

the cone-pulley a' the feeding of the wrapping-paper may be increased or diminished in speed, as desired.

Upon the platform E are placed the bars m' 5 m' and m^2 , the two former being placed at right angles to the bar m^2 , so as to guide and properly place the wrapping-paper over the opening E' , made in platform E, as the paper is fed forward upon the platform by the 10 feed-rollers a , and the bars m' are made laterally adjustable to suit paper of different widths, and the bar m^2 may be moved forward or backward upon the platform E for receiving sheets of different lengths in such 15 a manner as to center the sheets over the aperture E' in the platform E, and the upper feeder a is adapted to be removed from the machine for convenience in placing the wrapping-paper between the feeding-rollers.

20 The shaft D, which communicates motion to all of the operative parts of the machine except the twisting-belt J, is revolved from the main power-shaft Q by the cog-wheels S S', secured upon the shafts D Q, respectively, 25 as shown clearly in Figs. 1 and 3, so that by applying hand or other power to the crank-wheel U and revolving it the whole machine will be set in operation.

The machine being supplied with wrapping-paper and the oranges to be wrapped 30 being placed in the hopper A and the machine set in motion, the oranges will drop through the opening A^2 in the bottom end wall of the hopper A into the trough A' , and the alternate action of the fingers t' , caused 35 by the action of the cam T, will cause the oranges to be dropped one by one from the trough A' into the cups $f f$, the finger t' descending just at the time the cups $f f$ are brought to closed position to receive and hold 40 the orange. While the cups $f f$ hold the orange, the finger t' will be raised and the finger t lowered and also raised, which will bring another orange in position against the finger 45 t' , ready to be dropped, while the finger t holds the row of oranges back in the trough A' , and while the cups $f f$ hold the orange the wrapping-paper will be fed forward by rollers a upon the platform E, and the cutter 50 G thrown forward across the machine, cutting off a sheet. At this time the holding-forks H H' and twisting-belt J will be brought to open position, as shown in Fig. 5, and at this time also the arm K is brought forward by 55 the action of the cam L to bring the plate k immediately under the dropping-cups $f f$, as shown clearly in Fig. 5. While these parts are in this position, the cam T will open the cup $f f$ and drop the orange into the sheet of 60 wrapping-paper and down through the opening E' in the platform E between the folding and holding devices H H' and the sides of the orange-revolver or twisting-belt J upon the plate k . The folding and holding devices 65 H H' and revolver or twister J will now be brought to closed position, (the position shown in Fig. 5,) closing the paper over the orange

and revolving the orange, as above described. While the orange is being revolved by the belt J, the arm K and plate k will be moved 70 by cam L to the position shown in dotted lines in Fig. 3, away from under the orange. The orange will be revolved by the revolver or twister J, and the wrapping-paper will be held by the folding and holding devices H H', 75 while the cams L O make a complete or nearly a complete revolution, when these cams, acting through the levers, as above described, will open the holding devices or forks H H' and twister J and permit the wrapped orange 80 to drop out of the machine upon the trough V, which will conduct it to a suitable receptacle.

While the orange is being revolved by the twister J, the action of the upper part of the 85 machine will be repeated, bringing another orange into the dropping-cups $f f$, and another sheet of paper upon the platform E ready to receive the next orange, which in turn will be dropped as before, when the operation of 90 the lower part of the machine will be repeated, thus making the action of the machine continuous, so that it is very rapid in its operation and practical for its purpose.

It will be readily understood from the foregoing description that the folder and holder, 95 which consists of the fork devices H H', automatically contracts and expands while the machine is being operated. It will also be understood that the twister, which in this instance consists of a belt, J, also contracts and 100 expands automatically as it receives, twists, and releases the article to be wrapped.

Having thus described my invention, I claim as new and desire to secure by Letters Patent— 105

1. In a wrapping and twisting machine, a contracting and expanding folder and holder, in combination with a contracting and expanding twister for twisting and releasing the 110 article wrapped.

2. In a wrapping and twisting machine, an automatically contracting and expanding folder and holder, in combination with an automatically contracting and expanding 115 twister for twisting and releasing the article wrapped.

3. In a wrapping and twisting machine, the platform having an aperture, in combination with a contracting and expanding folder and holder and a contracting and expanding 120 twister for twisting and releasing the article wrapped.

4. In an orange-wrapping machine, the folding and holding devices H H' and an orange revolver or twister, J, arranged below the folding and holding devices H H' in combination 125 with means, substantially as described, for reciprocating the folding and holding devices for gathering the paper over the orange and holding the folded portions of the paper, 130 and means, substantially as described, for revolving the revolver or twister J while the wrapping-paper is so held for forming the twist to the paper, substantially as described.

5. The combination, in an orange-wrapping machine, of an apertured table for supporting the wrapping-paper, folding and holding devices $H H'$ below the table, revolver or twister J , arranged below the folding and holding devices $H H'$, and a support, k , below the revolver or twister J , substantially as and for the purpose set forth.

6. In an orange-wrapping machine, the combination, with the horizontally-placed twister J , of the support k and folding and holding devices $H H'$, the twister J being placed between the said support and folding and holding devices and held upon pulleys connected with the main shaft by shaft and gears for revolving the twister J , substantially as described.

7. In an orange-wrapping machine, the twister J , being a horizontally-placed elastic belt, in combination with opening devices M , applied to the twisting-belt, and means, substantially as described, for operating the devices M to and from each other, the twister being placed upon the vertically-arranged pulleys $o p$, substantially as described.

8. The folding and holding forks $H H'$, in combination with the cam L and intermediate levers and connections for reciprocating the forks simultaneously to and from each other, substantially as and for the purposes set forth.

9. The combination, with the twisting or traveling belt J , of the cam O , lever N , and arms M , connected to the lever N and to the opposite sides of the belt J , for opening and closing the belt, substantially as described.

10. The combination, with devices $H H'$, for folding and holding the wrapping-paper over the orange, and twisting-belt J , for revolving the orange, of the platform E , having aperture E' formed in it, through which the orange and wrapping-paper may be dropped, substantially as described.

11. The combination, with the paper-folding and orange-revolving mechanism, of the pivoted arm K , for receiving the oranges when dropped into the machine, substantially as described.

12. The combination, with the apertured platform E , paper-folding devices $H H'$, and traveling belt J , for revolving the orange, of feed-rollers a , for feeding the wrapping-paper upon the platform E , and paper-cutter G , for cutting the paper into sheets, substantially as and for the purposes described.

13. In an orange-wrapping machine, the apertured table E , through which the orange is dropped, and feed-rollers $a a$, arranged parallel with the table for feeding the wrapping-paper thereon, in combination with the jointed cutter G , blade e , and slotted bar or cross-piece F , arranged between the feed-rollers and the table E , substantially as and for the purposes described.

14. In an orange-wrapping machine, the apertured table E , through which the orange is dropped, the feed-rollers $a a$, for feeding the

wrapping-paper upon the table, and the jointed cutter G , in combination with the slotted bar or cross-piece F , arranged between the table E and rollers $a a$, the spring G' , attached to the bar F , the circular cutting-blade e , and the rollers e^3 , all arranged to operate substantially as and for the purposes set forth.

15. The combination, in an orange-wrapping machine, of the apertured platform E , rollers $a a$, pivoted cutter G , shaft R , crank a^2 , spring r , pinion r' , and mutilated worm R' , all arranged to operate substantially as and for the purposes described.

16. The combination, with the feed-rollers a and apertured platform E , of the reciprocating bar k' , for folding down the wrapping-paper below the upper surface of the platform E , substantially as and for the purposes set forth.

17. The bar k' , placed in the slot f^2 of the apertured platform E , in combination with the spring l^1 , rod l^3 , arm l^2 , and eccentric J' , all arranged to operate substantially as and for the purposes set forth.

18. The belt J , for revolving the orange placed upon vertically-pivoted pulleys, in combination with the pivoted arm P , holding one pulley, and pawl o' , adjusted to engage with ratchet o^3 , formed upon arm P , substantially as and for the purposes set forth.

19. The combination, with the feeding-rollers a and cutter G , of the apertured platform E , folding and holding forks $H H'$, traveling belt J , and reciprocating lever and plate $K k$, all arranged to operate substantially as and for the purposes set forth.

20. The combination, with apertured platform E , devices $H H'$, for folding and holding the wrapping-paper over the orange, and the device J , for revolving the orange, of the dropping-cups f , held above the platform E , for dropping the oranges one by one into the machine, substantially as described.

21. The dropping-cups f , arranged over the aperture E' and adapted to receive the oranges one by one from the trough A' , in combination with means, substantially as described, for opening and closing the cups, as and for the purposes set forth.

22. The cups $f f$, secured upon the spring-actuated rods $v v$, in combination with the cam T and the projections $v' v'$, secured upon the rods v to run against the edges of the cam, substantially as and for the purposes set forth.

23. The trough A' , to which the oranges are fed, in combination with the alternately-reciprocating rods $t^2 t^3$, provided with vertical fingers $t t'$, extending up through the trough one in advance of the other, and the cam T , the rods t^2 extending across the upper surface of the cam and the rods t^3 being bent to rest against the under side of the cam, substantially as set forth.

24. The trough A' , combined with the alternately-reciprocating fingers $t t'$ and the

opening and closing dropping-cups $f f$, arranged to operate substantially as and for the purposes set forth.

25. The cam T, formed with the toe s , and the rods $t^2 t^3$, having fingers $t t'$ and arranged to bear upon the upper and lower edges of the cam T, in combination with the spring-actuated rods $r r$, having cups $f f$ and pins $v' v'$, arranged to come against the cam T, whereby this cam operates both the fingers $t t'$ and the cups $f f$, substantially as described.

26. The tray C, formed of the two separate parts $c' c^2$, arranged adjustably upon the rod c^4 and frame c^3 , substantially as and for the purposes set forth.

27. The parts $c' c^2$, hinged upon the rod c^4 and formed with the pins $n n$, in combination with the plate N' , formed with the diverging slots $n' n'$, which act as cams for opening and closing the parts $c' c^2$, substantially as and for the purposes set forth.

28. The tray C, composed of the parts $c' c^2$ and frame c^3 , hinged upon rod c^4 , the parts $c' c^2$ being provided with the pins $n n$, in combination with the stationary plate N' , having the diagonal slots $n' n'$ formed in it, substantially as and for the purposes set forth.

29. The bars $a^2 a^2$, tied together by the cross-piece F and carrying the feed-rollers $a a$, and adapted to be moved to and from the platform E, in combination with the sectional tray C and plate N' , the plate being formed with the diagonal slots $n' n'$, in which the pins $n n$ move, substantially as and for the purposes set forth.

HUMPHREY J. WILLIAMS.

Witnesses:

SYLVANUS HOAG,
EVAN JONES.