(No Model.) 6 Sheets—Sheet 1.

R. L. & H. F. WIGHT.

CAN LABELING MACHINE.

No. 463,607. Patented Nov. 17, 1891.

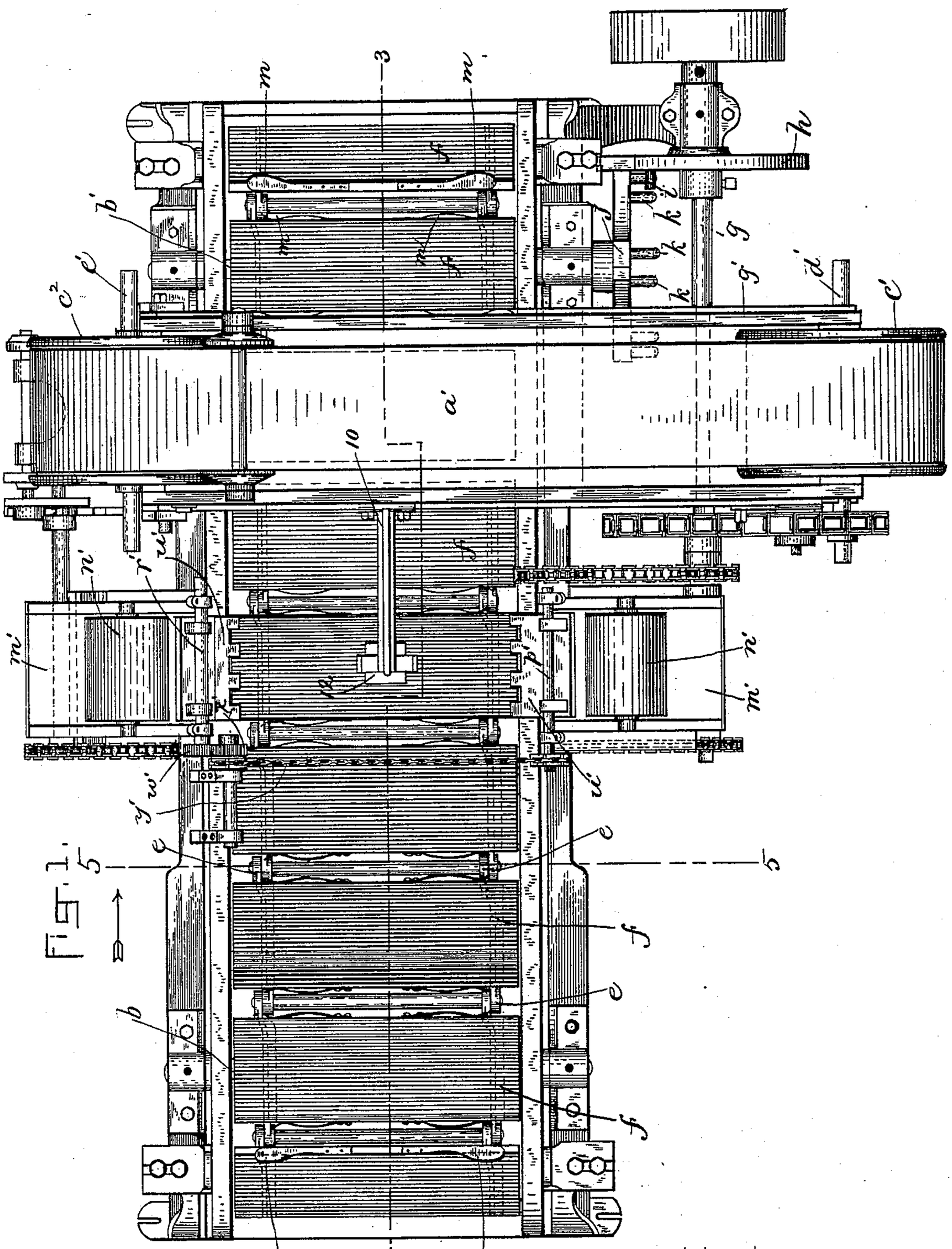

Fig. 1.

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CAN LABELING MACHINE.

No. 463,607. Patented Nov. 17, 1891.

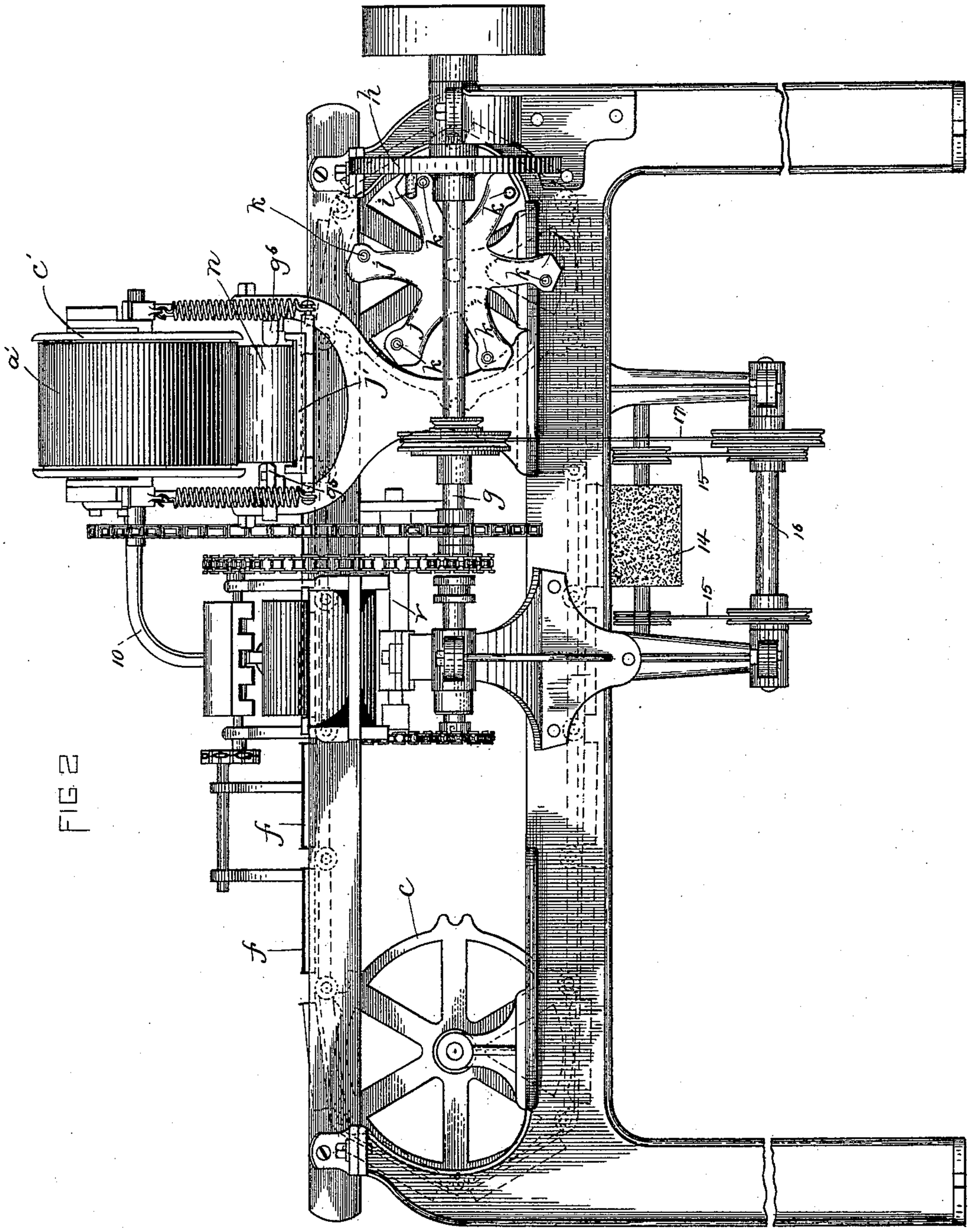

FIG 2

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CAN LABELING MACHINE.

No. 463,607. Patented Nov. 17, 1891.

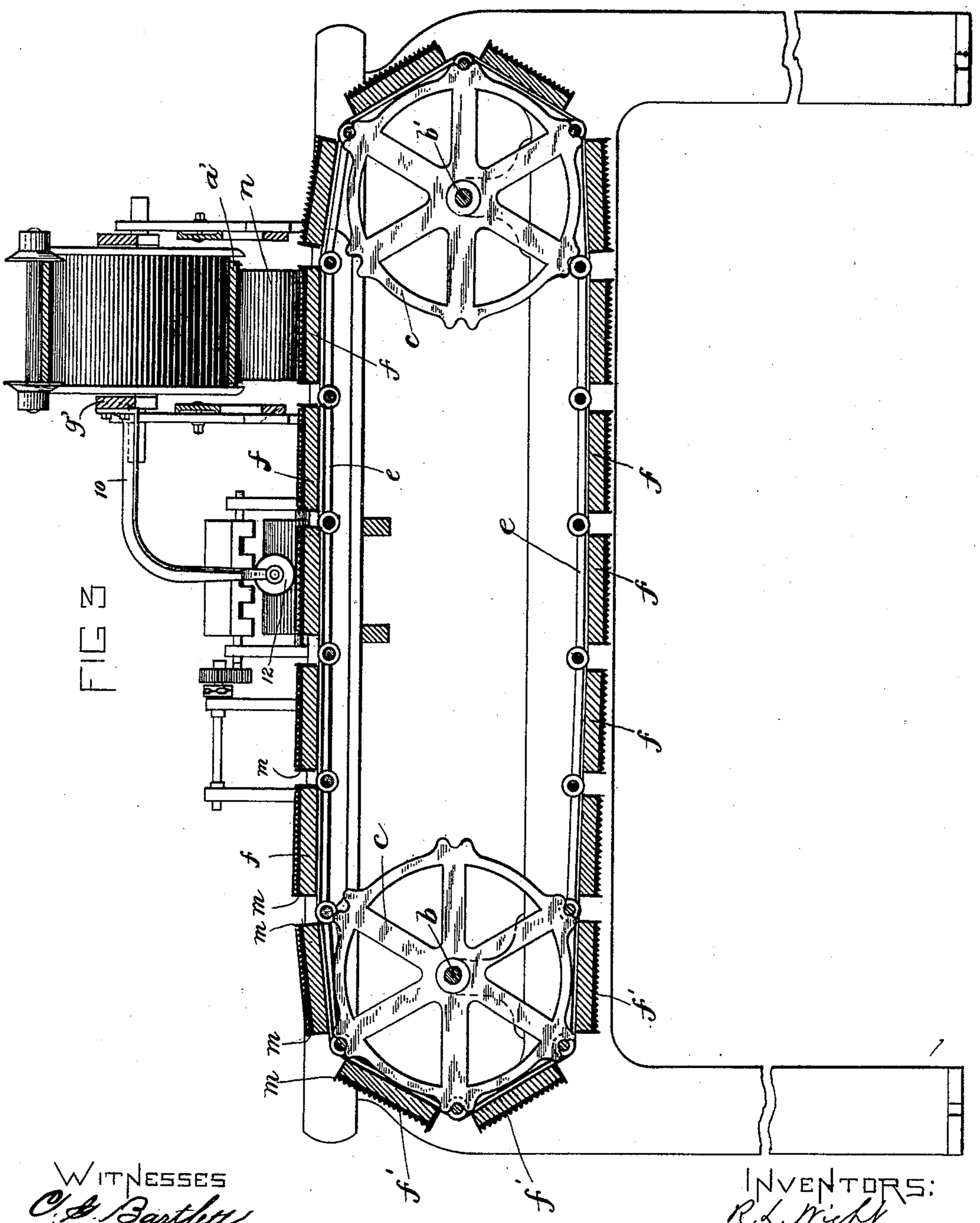

FIG 2

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(No Model.) 6 Sheets—Sheet 4.

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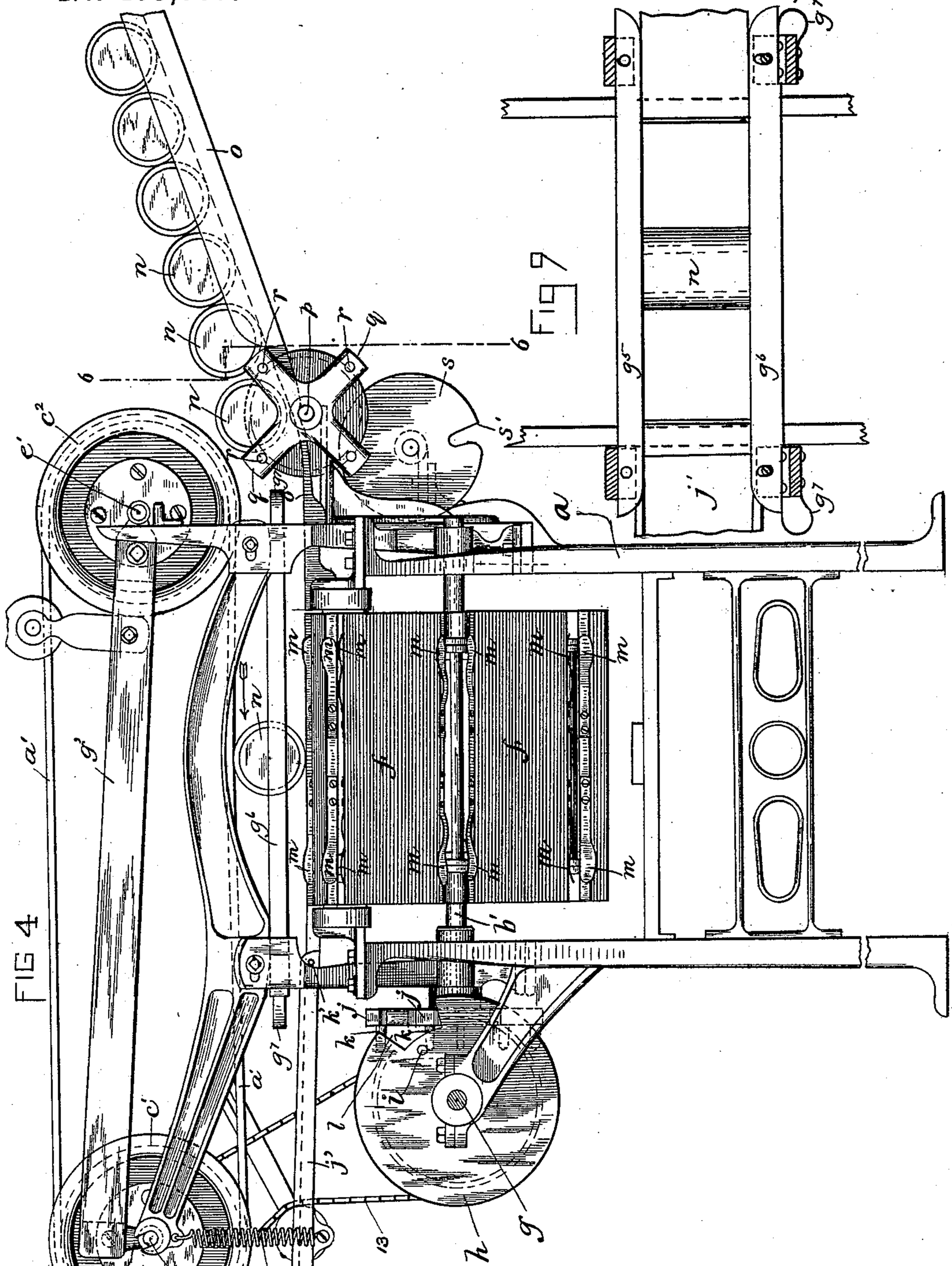
CAN LABELING MACHINE.

No. 463,607. Patented Nov. 17, 1891.



(No Model.) 6 Sheets—Sheet 5.

R. L. & H. F. WIGHT.

CAN LABELING MACHINE.

No. 463,607. Patented Nov. 17, 1891.

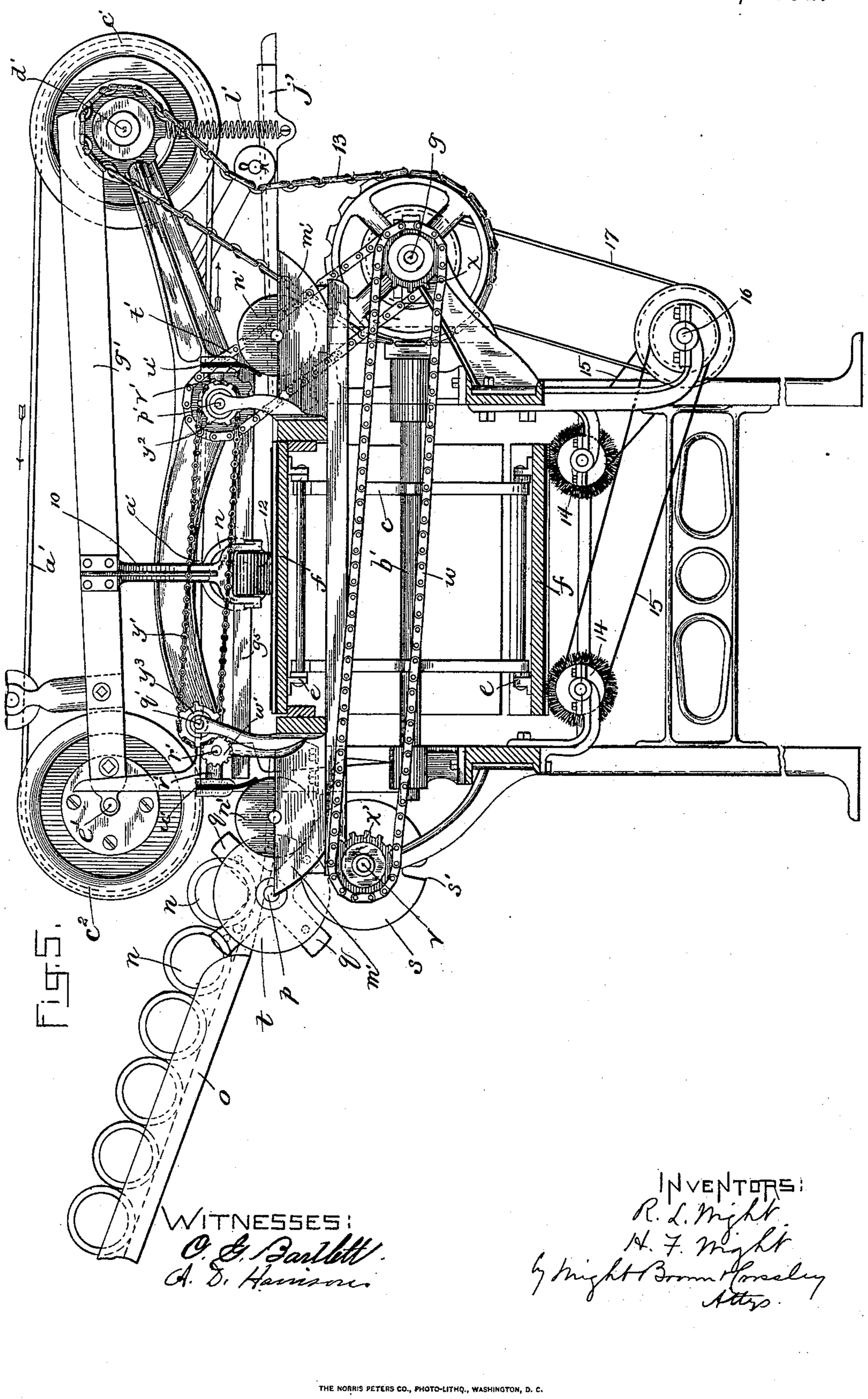


Fig. 5.

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(No Model.) 6 Sheets—Sheet 6.

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CAN LABELING MACHINE.

No. 463,607. Patented Nov. 17, 1891.

Fig. 6.

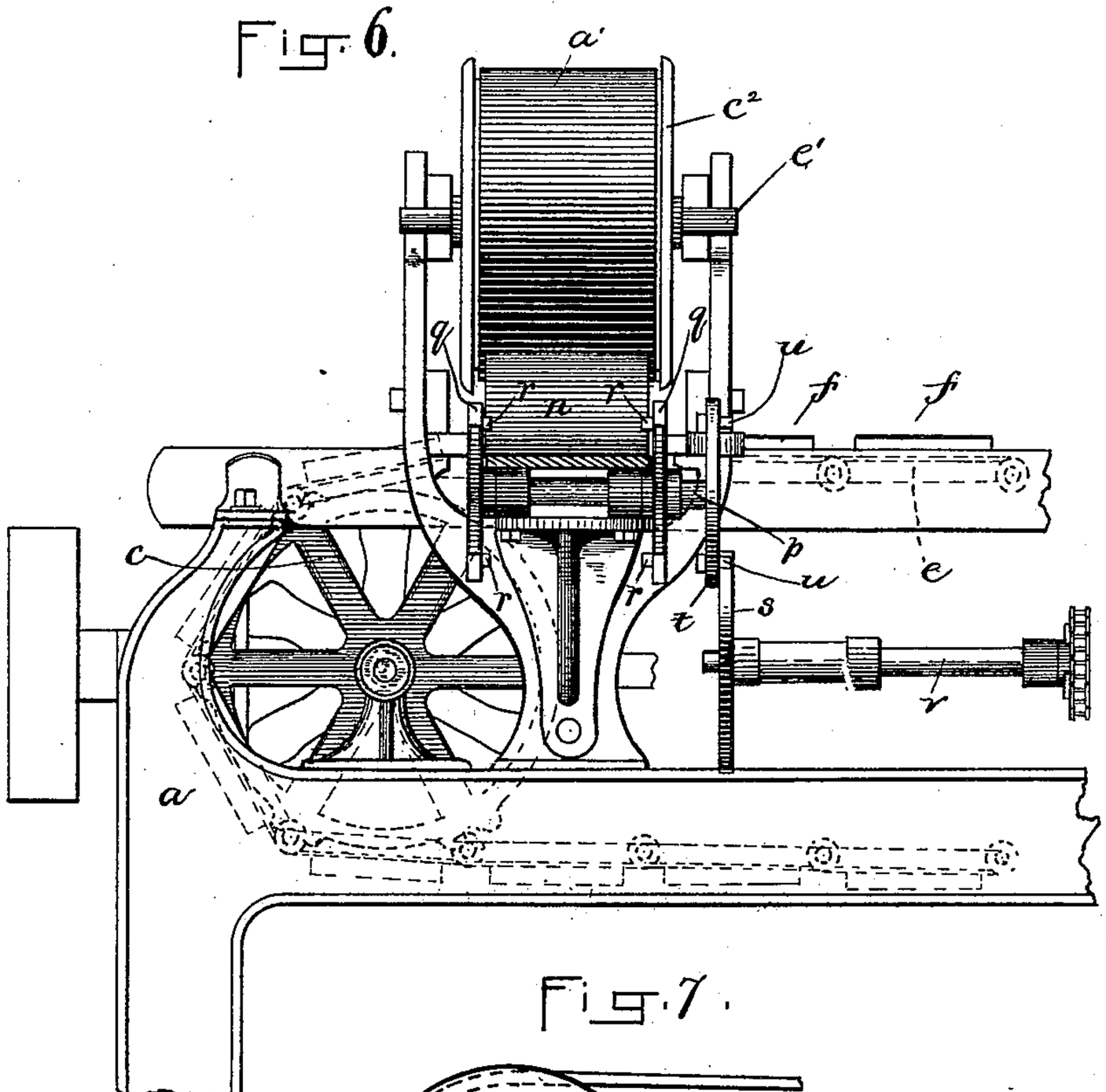

Fig. 7.

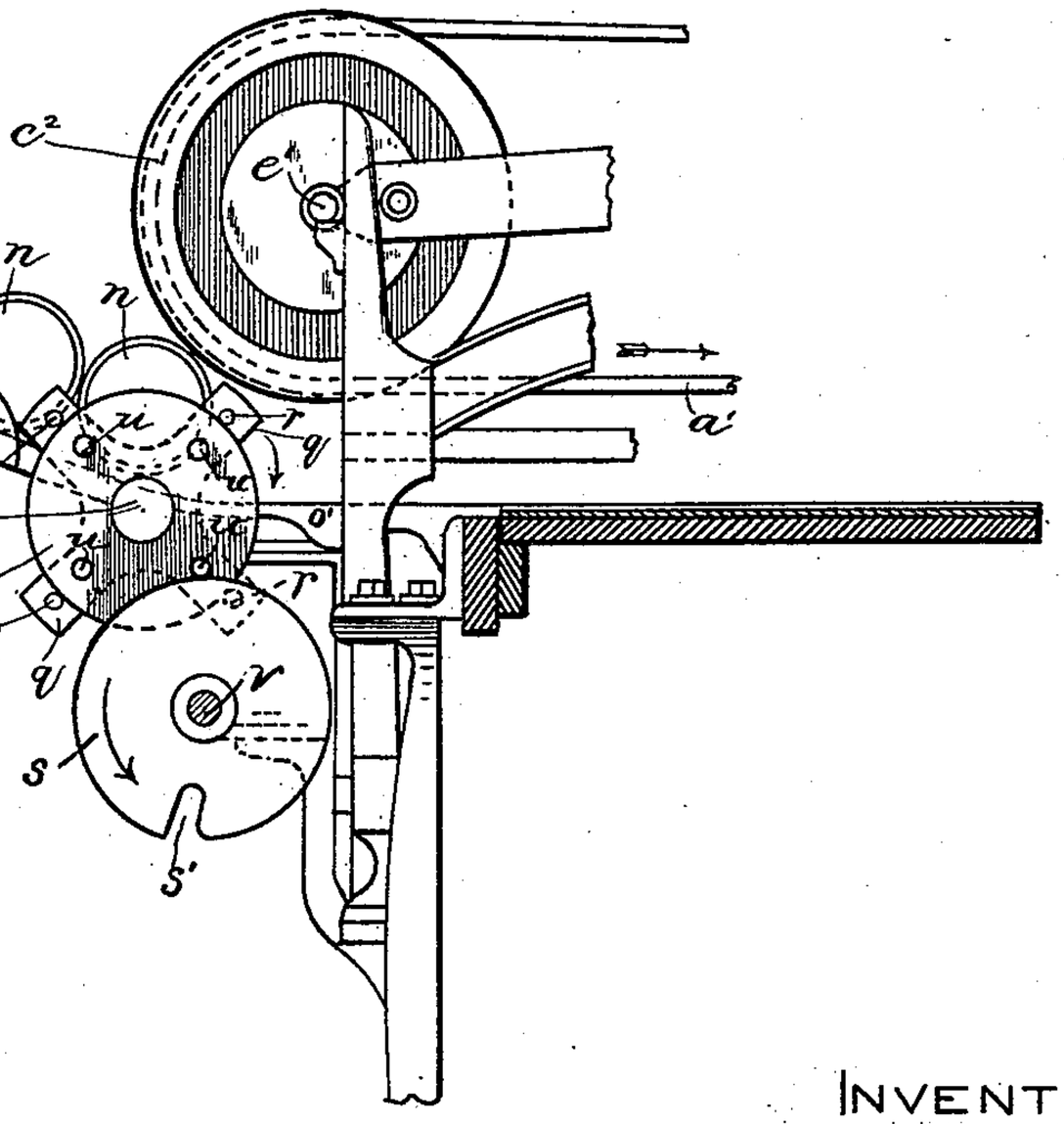

Fig. 8.

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UNITED STATES PATENT OFFICE.

RONELL L. WIGHT, OF BRIDGTON, MAINE, AND HENRY F. WIGHT, OF MALDEN, MASSACHUSETTS, ASSIGNORS OF ONE-THIRD TO WILLIAM M. McDONALD, OF SOMERVILLE, MASSACHUSETTS.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 463,607, dated November 17, 1891.

Application filed September 26, 1890. Serial No. 366,196. (No model.)

To all whom it may concern:

Be it known that we, RONELL L. WIGHT, of Bridgton, county of Cumberland, and State of Maine, and HENRY F. WIGHT, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Can-Labeling Machines, of which the following is a specification.

This invention has for its object to provide an automatic machine adapted to apply gum or paste to can-labels and to apply the gummed labels to the cans; and it consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top plan view of a can-labeling machine embodying our invention. Fig. 2 represents a side elevation of the same. Fig. 3 represents a section on line 3 3, Fig. 1. Fig. 4 represents an end elevation. Fig. 5 represents a transverse section on line 5 5, Fig. 1. Fig. 6 represents a section on line 6 6, Fig. 4, looking toward the left. Fig. 7 represents an end elevation of a part of the end of the machine opposite the end shown in Fig. 4. Fig. 8 represents a detached view of the separator shown in Fig. 7. Fig. 9 represents a top view of a portion of the machine below the belt a'.

The same letters of reference indicate the same parts in all the figures.

In the drawings, $f\,f\,f$ represent a series of flat beds or label-carriers, which are secured at their ends to the links of sprocket-chains $e\,e$, and are supported by sprocket-wheels $c\,c$ on shafts $b\,b'$, journaled in the supporting-frame a. Each bed f is preferably provided with a facing f', Fig. 3, of corrugated rubber, said facing constituting a slightly-yielding surface for the labels to rest upon, the yielding nature of said surface enabling the label upon it to conform to slight inequalities in the surface of the can that is being rolled along the bed, as hereinafter described. The shaft b' is rotated step by step, each partial rotation being of such length as to move the chains e so that each bed will be advanced and occupy the space which before was occupied by the next preceding bed, each bed being moved forward one step and then held stationary.

The means employed to move the chain of beds step by step are as follows: A shaft g, Figs. 1, 2, and 4, journaled in bearings on the frame a and driven by power applied in any suitable way, is provided with a disk h, having a laterally-projecting pin or tooth i. The shaft b', having one set of the bed-supporting sprocket-wheels, is provided with a series of arms j, Fig. 2, each having a laterally-projecting pin k. The pins k are arranged in the path in which the pin i travels, and once in each revolution of the pin i it strikes a pin k and gives the shaft b' a partial rotation of the extent required to give the desired movement to the chain of beds. The disk h has a recess l cut in its periphery, Fig. 4, and said recess receives the arm j, which carries the pin k, with which the pin i is engaged, during the described movement of the chain of beds. One edge of the recess l bears on the said arm j and assists in rotating the shaft b', as will be readily seen. The labels are placed on the beds that are at the upper side of the series, each bed having one label. Any suitable means may be employed to deposit the labels on the beds, and they may be deposited either by hand or by automatic means.

Edgewise movement of the labels upon the beds while they are being carried forward to the point where they are applied to the cans, as hereinafter described, may be prevented by springs m, Figs. 3 and 4, at the edges of the beds, said springs being formed to project slightly above the upper surfaces of the beds and bear on the edges of the labels.

The cans n, to which the labels are applied, are rolled along over the label on the surface of each bed f when the bed reaches the point where it coincides with an inclined chute o, through which the cans pass to receive their labels. The lower portion of the chute o is curved, and terminates in a substantially horizontal table o', Figs. 4 and 7, the upper surface of which is flush with the bed f, which is in position to receive a can from the chute. The cans are moved by gravitation down the chute, and the lower can is detached from the

procession in the chute and the others held back by a separating device, hereinafter described, at the lower end of the chute, so that but one can is allowed to pass onto the horizontal table o' and from thence to the label-supporting bed coinciding with said table after each step or forward movement of the series of beds, the separating device being timed to prevent the passage of a can after each of said steps or forward movements.

The separating device comprises a shaft p, which is journaled in fixed bearings at the lower end of the chute o, a series of arms q on said shaft, each arm having a stud r, said studs being arranged to bear on the lowest can in the chute, as shown in Fig. 7, and means for rotating the shaft and its arms step by step in the direction indicated by the arrow in Fig. 7, to cause the stud r, which is shown in said figure as holding the lowest can, to release said can and allow it to roll onto the table o' within the grasp of the feeding-belt hereinafter referred to. Each movement of the shaft p causes its arms to release the lowest can and engage the one next above, so that only one can can leave the chute at a time. The shaft p and its arms q are moved step by step by a continuously-rotated wheel s, having a recess s', and a wheel t on the shaft p, having a series of studs u, corresponding in position to the can-engaging studs r. When said recess s' reaches one of the studs u, as shown in Fig. 8, it engages said stud and gives a partial rotation to the shaft p and arms q, said motion stopping when the recess s' passes out of engagement with said stud. During the rotation of the wheel s after the separation of the recess s' from the stud u the perimeter of the wheel s bears against the stud, as shown in Fig. 7, and prevents further rotation of the shaft p and arms q, so that the cans are positively held in the chute. The recessed wheel s is affixed to a shaft v, which is continuously rotated by a sprocket-chain w, Fig. 5, connecting a sprocket-wheel x on the shaft g with a sprocket-wheel x' on the shaft v.

Each can when it passes onto the table o' is engaged by a feeding device, which rolls it along over the bed f, which coincides with said table, and thereby causes the can to take up the label on said bed, the said label, which has previously been gummed on portions of its upper surface at its ends, as hereinafter described, being wrapped around the can by the adhesion of the gummed forward end of the label with which the can first comes in contact to the periphery of can and the rolling motion of the can, said motion bringing the periphery of the can into contact with the gummed rear end of the label, so that before the can has rolled over the entire length of the bed the label is securely affixed to it. The said feeding device is a belt a', mounted on pulleys c' c^2. The pulley c' is on a shaft d', which is journaled in fixed bearings on the supporting-frame, while the pulley c^2 is on a shaft e', which is journaled in bearings on the swinging end of a frame g', the other end of which has bearings h', Fig. 4, which are fitted to turn on the shaft d'. The belt is therefore adapted to rise and fall, so that its lower portion, which is arranged over the table o' and over the bed f, which coincides with said table, bears with a yielding pressure on the can which is delivered to said table and bed and rolls said can over the bed, as above described, the belt being moved in the direction indicated by the arrows in Figs. 4 and 7. The pulley c^2 is arranged so that the belt will engage each can as it is delivered to the table o' by the separator, and the belt extends over the entire length of the bed, which coincides with said table and over a delivery-chute j' at the opposite end of the bed, so that each can is controlled and moved by the belt from the time it is separated from the procession in the supply-chute until it drops from the delivery-chute. The inner end of the said delivery-chute j' is pivoted at k', Fig. 4, to a suitable fixed part of the supporting-frame, and is normally pressed upwardly by springs l', connecting its outer end with another fixed part of the supporting-frame, the can being thus pressed with sufficient firmness against the belt while in the delivery-chute to insure its movement through said chute by the feeding-belt.

The belt a' is driven by a sprocket-chain 13, connecting a wheel or pulley on the shaft g with a wheel or pulley on the shaft d', as shown in Figs. 4 and 5.

The gum is applied to the labels by two sets of gumming devices arranged to act on the label on a bed near the one which is in position under the feeding-belt. Said gumming devices comprise two gum-troughs m' m', located at opposite ends of the bed which supports the label to be gummed, as shown in Figs. 1 and 5, rolls n' n', adapted to rotate in said troughs, their lower portions being submerged in the gum or paste therein, and two rotating shafts p' r', journaled in fixed bearings and provided with arms v' v', to which are attached brushes or pads u' u', which are preferably flexible strips of rubber, arranged when revolved by the rotation of the shafts p' r' to bear first on the rolls n' n' and then on the ends of the label on the bed f, said brushes being thus caused to receive gum or paste from the periphery of the rolls and to deposit the same on the portions of the label with which they come in contact, so that the label is gummed before it reaches the position it occupies when the can is presented to it.

The brush-carrying shafts p' r' are rotated to give the brushes the described revolving movement by means of a sprocket-chain y', connecting a wheel y^2 on the shaft p' with a wheel y^3 on a shaft q', which has a gear x', Fig. 1, meshing with a gear w' on the brush-carrying shaft r'. The shaft p' is driven by a chain t', connecting wheels on the shafts p' and g, as shown in Fig. 5. The described

connection of the brush-carrying shafts by means of the chain y', shaft q', and gears x' y' causes the brush-carrying shafts to rotate in opposite directions, so that the brushes move in opposite directions upon the label, each brush neutralizing the tendency of the other to move the label endwise. We prefer, however, to provide a clamping or holding device to bear on the central portion of the label while it is being gummed, and thus prevent endwise movement of the label in case one brush strikes it a little sooner than the other. Said clamping device is here shown as an arm 10, attached to the frame g', and a roller 12 on the outer end of said arm. The arm is bent and extended so that the roller 12 will bear on the label that is being gummed while the brushes are in contact with it. The roller is preferably elastic, to give it a good frictional bearing on the labels.

From the foregoing it will be seen that a series of labels are advanced step by step on a series of movable beds, and that each label on reaching a given point in its step-by-step movement is gummed on its upper surface and on reaching another point in said movement is taken up by a can, which is rolled over its gummed surface and from end to end of the bed on which the label rests.

In Figs. 2 and 5 we have shown two rotary brushes 14 14, arranged to act on the beds at the under side of the series, for the purpose of removing any gum that may have found access to the beds. Said brushes are driven by belts 15 15 from a shaft 16, which is connected by a belt 17 with a pulley on the shaft g.

We do not limit ourselves to the details of mechanism hereinbefore described for operating the essential parts of the machine, nor to the exact construction of said parts here described and shown, and the same may be variously modified without departing from the spirit of our invention.

The machine may be used for labeling jars, bottles, and other articles, as well as cans.

It is of course possible to gum each label before it is placed on the support which moves it step by step to the point where the can is rolled over its gummed surface. Hence we do not limit ourselves in all cases to the employment of gumming devices as an essential element, although the gumming devices are obviously advantageous in a machine organized to operate like the machine here shown and described.

g^5 represents a fixed guide-bar, which is arranged to bear against one end of each can while it is being moved by the belt a', and g^6 represents a movable guide, which is pressed by springs g^7 g^7 against the opposite ends of the cans. (See Fig. 9.) The guides g^5 g^6 keep the cans in proper position relatively to the beds f while they are passing over the latter.

Among the advantages of our intermittently-movable series of label-supporting beds, in combination with means for rolling a can over one of the beds while stationary and at a right angle to the direction of movement of said bed, are the convenience with which the cans may be supplied to and discharged from the series and the accessibility of all parts of the machine, owing to the location of all operating parts of the feeding and gumming devices at the sides of the traveling series of beds.

We claim—

1. In a can-labeling machine, the combination, with a series of label-supporting beds intermittently movable in a straight line, of can-feeding devices substantially at a right angle to the said series of beds.

2. The combination of means for moving a series of labels progressively step by step, gumming devices adapted to apply gum to each label when it reaches a given point in its step-by-step movement, and means for rolling a can over each gummed label when it reaches another point in said movement, said means being located substantially at a right angle to the direction of said movement, as set forth.

3. The combination of an endless chain, series of label-supporting beds, means for moving the same progressively step by step, gumming devices adapted to apply gum to each label when it reaches a given point in its step-by-step movement, and means for rolling a can over each gummed label when it reaches another point in said movement, said means being located substantially at a right angle to the direction of said movement, as set forth.

4. The combination of an endless series of label-supporting beds, means for moving the same progressively step by step, gumming devices arranged to apply gum to each label when it reaches a given point in its step-by-step movement, and a can-rolling belt arranged substantially at a right angle thereto to roll a can over each gummed label, as set forth.

5. The combination of means for moving a series of labels progressively step by step, gumming devices adapted to apply gum to each label at a given point in its step-by-step movement, a can-supplying chute arranged to deliver cans in a direction at right angles to the direction of the step-by-step movement of the labels, a separator to control the delivery of the cans, and a feeding device adapted to roll each delivered can across the path of movement of the labels, as set forth.

6. The combination of the endless series of label-supporting beds, means for moving the same step by step, two gumming devices located at opposite sides of said series of beds, and each comprising a gum-trough, and a revolving brush adapted to alternately receive gum from the trough and lay it upon a label on one of the beds, and means for rolling cans across the path in which the beds move and along the gummed labels, as set forth.

7. The combination, with the endless series of label-supporting beds, of the gum-troughs

at opposite sides of said series, the rolls in said troughs, the rotary shafts having brushes adapted to bear successively on the rolls and on a label on one of the beds, and means for rotating said shafts simultaneously in opposite directions, as set forth.

8. The combination, with the endless series of label-supporting beds, of the gum-troughs at opposite sides of said series, the rolls in said troughs, the rotary shafts having brushes adapted to bear successively on the rolls and on a label on one of the beds, and means for rotating said shafts simultaneously in opposite directions, and a clamp or holder adapted to prevent endwise movement of the labels by the brushes, as set forth.

9. The combination, with the endless series of label-supporting beds and means for moving the same step by step, of the can-rolling belt extending across the path in which the said beds move, the pulleys supporting said belt, the swinging frame supporting one of said pulleys, and means for rotating said pulleys and thereby moving the belt, as set forth.

10. The combination, with the endless series of label-supporting beds and means for moving the same step by step, of the can-rolling belt extending across the path in which the said beds move, the pulleys supporting said belt, the swinging frame supporting one of said pulleys, means for rotating said pulleys and thereby moving the belt, and the pivoted delivering-chute and its supporting-springs, as set forth.

11. The combination, with the intermittently-movable endless series of label-supporting beds, of the inclined can-delivering chute, the table at the lower end of said chute, the separator adapted to regulate the delivery of cans from the chute to the table, and the can-rolling belt and means to operate it, said belt being arranged to roll cans from the table along the bed coinciding therewith, as set forth.

12. The combination of the inclined chute, the separator composed of the rotary shaft having studs *u*, the arms on said shaft provided with can-engaging studs, the recessed wheel adapted to alternately engage and hold the studs *u*, as described, and means for rotating said wheel, all arranged and operated substantially as set forth.

13. The combination of the series of beds, the sprocket-chains supporting the same, the shafts having sprocket-wheels engaged with said chains, the series of arms and laterally-extending pins on one of said shafts, the driving-shaft, and the wheel on said shaft having a pin adapted to engage the pins on the said arms, and a recess adapted to receive the arm having the engaged pin, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

RONELL L. WIGHT.
HENRY F. WIGHT.

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Witnesses as to signature of Henry F. Wight:

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