

(No Model.)

3 Sheets—Sheet 1.

C. R. FRAZER.
CAN LABELING MACHINE.

No. 529,257.

Patented Nov. 13, 1894.

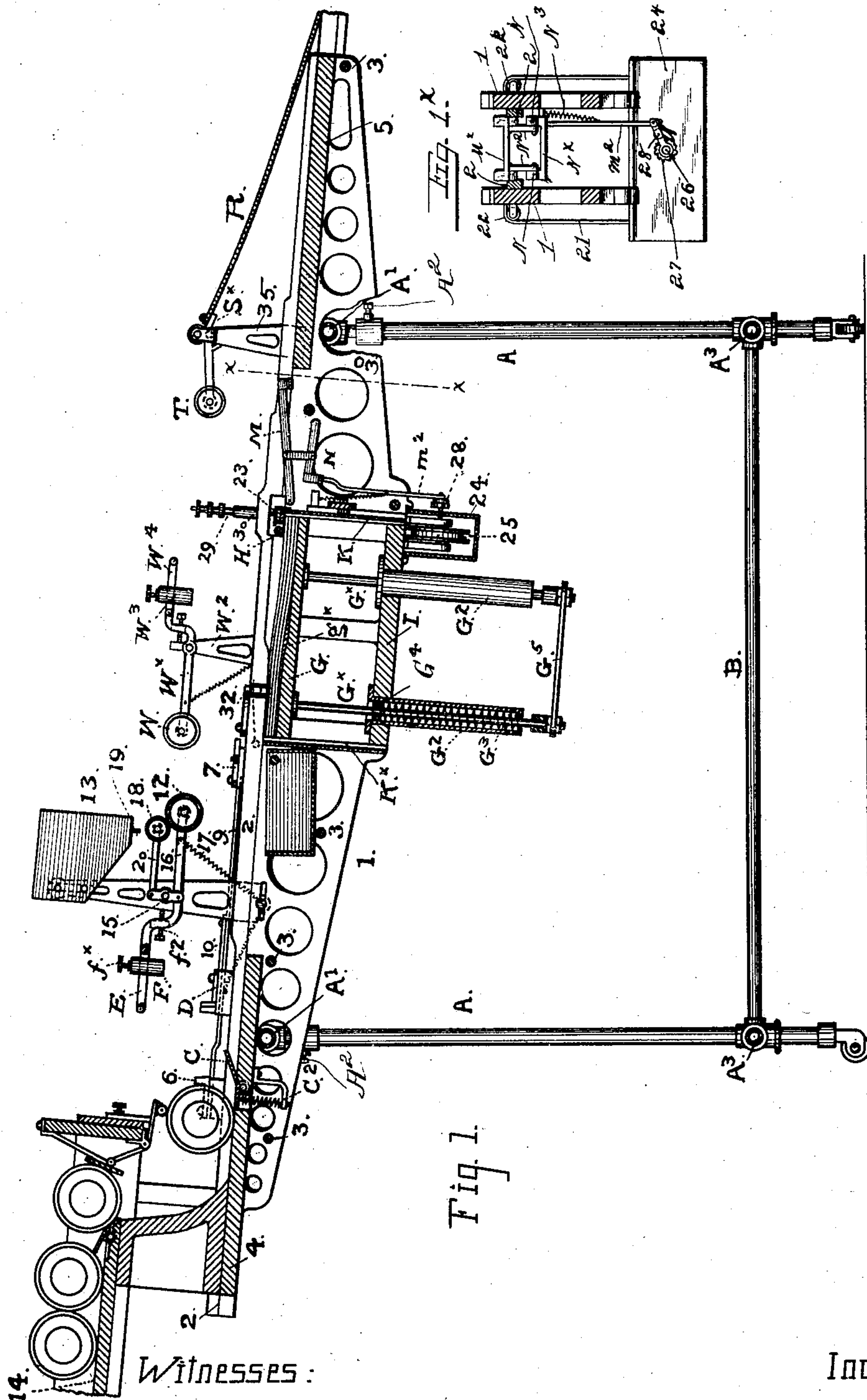


Fig. 1.

Witnesses:

Wm. Franklin

A. Regner

Inventor:

Charles R. Frazer

By Smith & Osborn
his Attys.

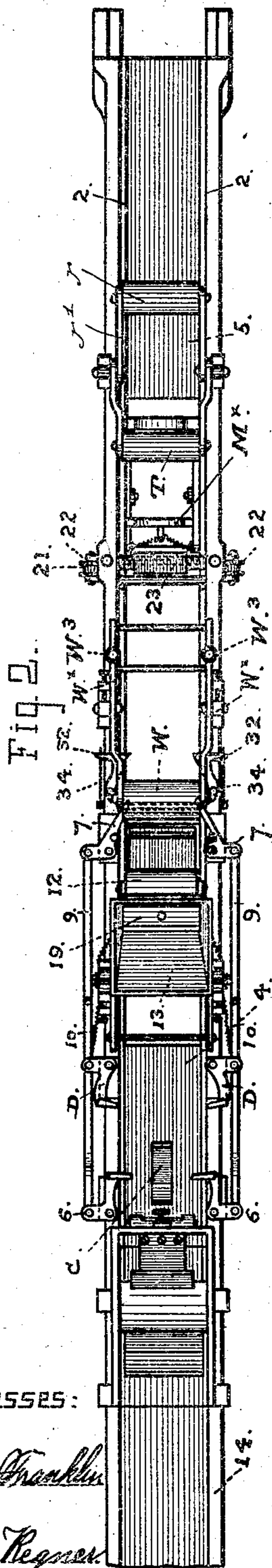
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3 Sheets—Sheet 2.

C. R. FRAZER.
CAN LABELING MACHINE.

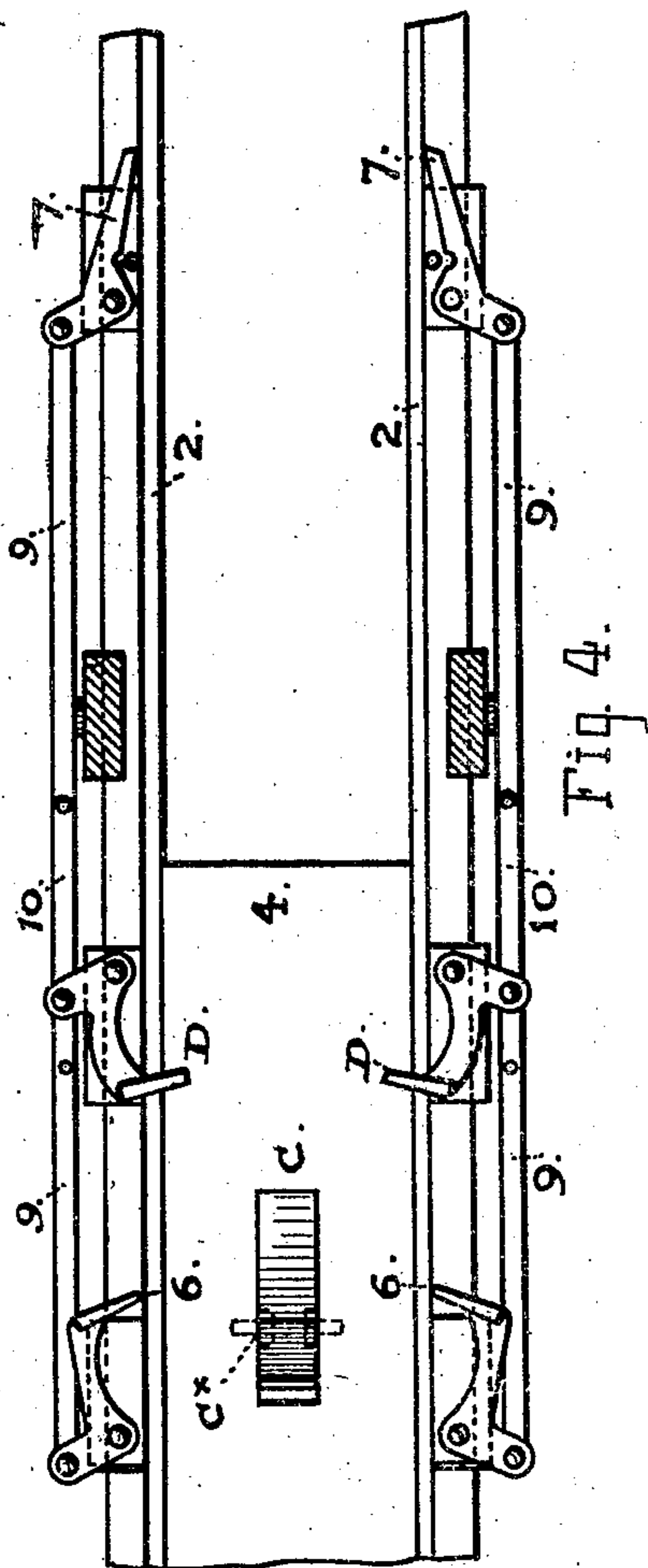
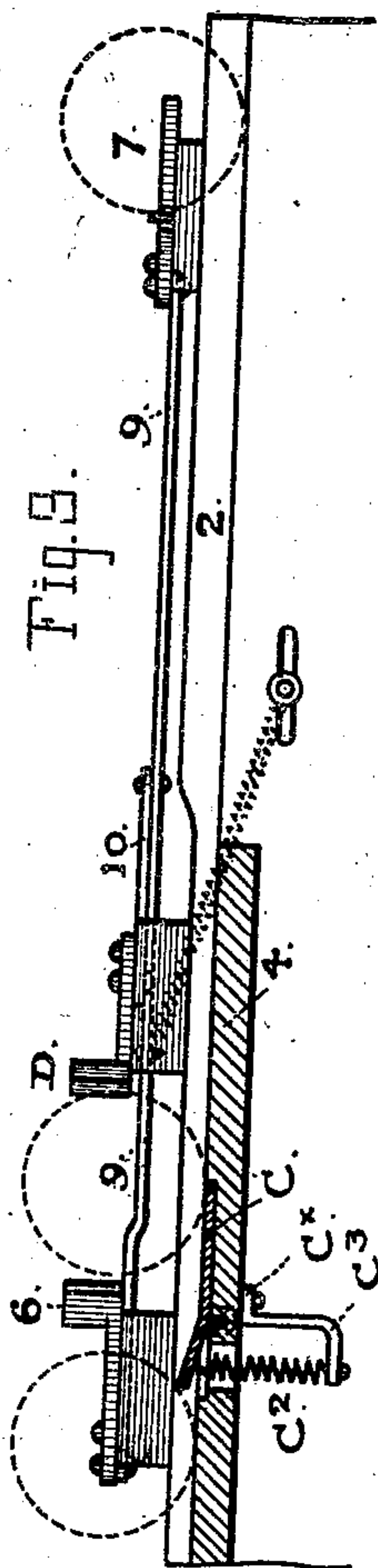
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Witnesses:

Wm. Franklin
H. Regner



Inventory:

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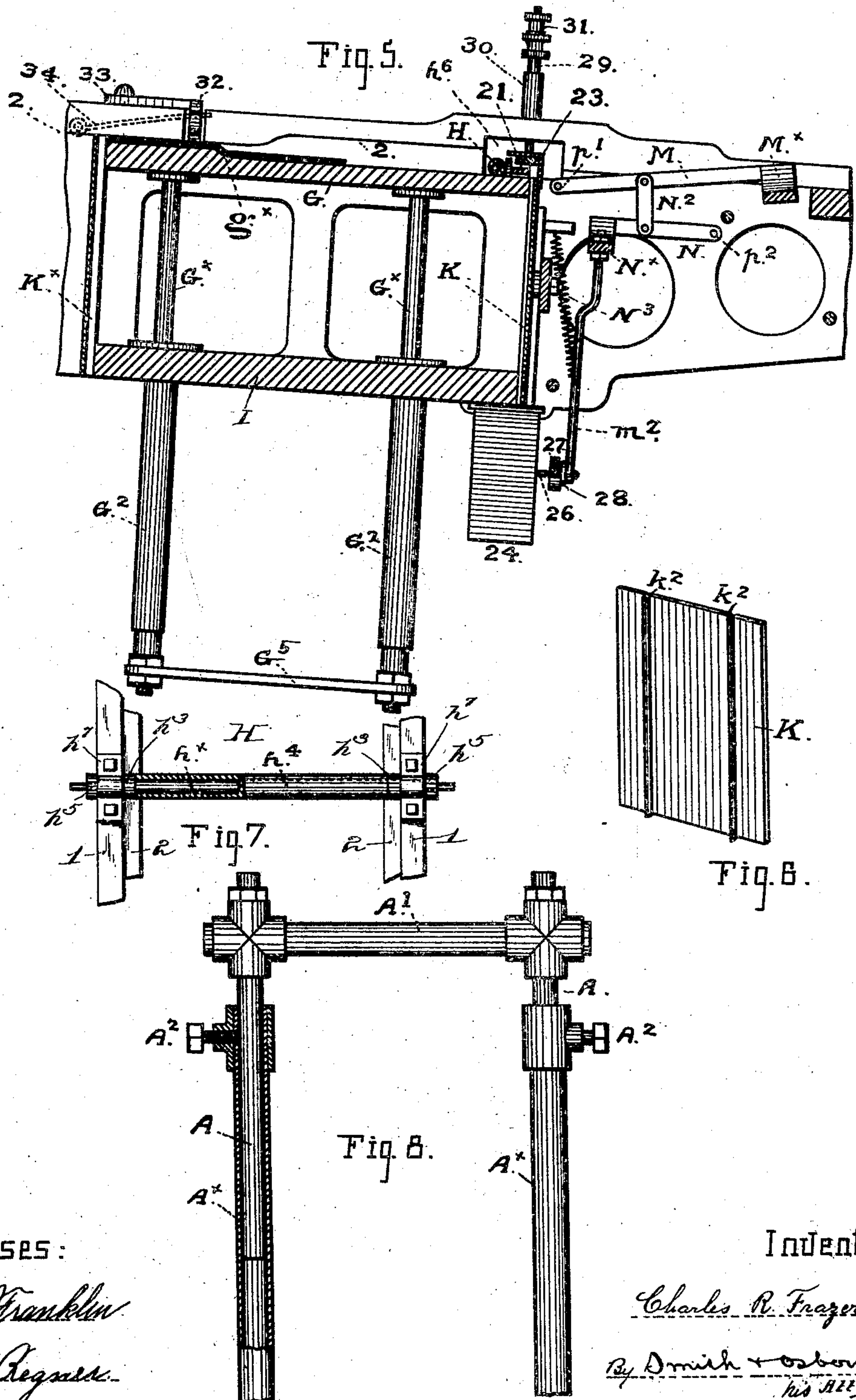
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3 Sheets—Sheet 3.

C. R. FRAZER.
CAN LABELING MACHINE.

No. 529,257.

Patented Nov. 13, 1894.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES R. FRAZER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE
PACIFIC LABELING COMPANY, OF CALIFORNIA.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 529,257, dated November 13, 1894.

Application filed April 27, 1892. Renewed July 31, 1894. Serial No. 519,077. (No model.) Patented in England May 11, 1892, No. 8,976.

To all whom it may concern:

Be it known that I, CHARLES R. FRAZER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Can-Labeling Machines, (patented in England, May 11, 1892, No. 8,976,) of which the following is a specification.

This invention relates to improvements in can labeling machines of that class or description in which cylindrical cans are caused to take up, wrap and fix the labels to their bodies by rolling down an inclined track or run-way, the various devices and parts of the machine being set in motion or operated chiefly by the rolling motion and the momentum acquired by the cans in their descent.

These improvements are applicable more especially to the Newell labeling machine or apparatus described in Letters Patent of the United States, Nos. 470,165 and 470,166, dated March 1, 1892, and in the following description of the present invention the improvements are explained and illustrated with special reference to their application and combination in and with the said Newell machine.

One of the novel points or features in these improvements relates particularly to the automatic stops or releasing devices that control and regulate the run of the cans down the incline from the higher end of the machine and the same consists in the arrangement and combination of a third, or intermediate, set of pivoted stops or fingers between the head-stops that hold the can at the head of the inclined run-way and the releasing fingers or stops below that operate the first mentioned stops; also, in the addition of a spring operated check-plate in the path of the rolling can below the first set of stops, to momentarily check the momentum of the can as it passes the head-stops and to hold back the following can until those stops return to position in front of the following can.

The object of this construction is to regulate more exactly the head-way or intervals between the cans in their run through the machine.

The other points or features in the improve-

ments relate mainly to the pasting apparatus that applies paste to the body of the can to prepare it for picking up and fixing the label; also, to the construction of the label-bed and mechanism that presents the labels to the rolling cans; and finally, to the lap-finishing devices. These improved parts and the mechanism by which they are connected and combined for operation are explained at length in the following description in which reference is had by figures and letters to the accompanying drawings that form part of this specification.

Referring to the said drawings:—Figure 1 represents in side elevation and generally in longitudinal section a labeling machine constructed according to the Newell patents before mentioned with these improvements applied to it. Fig. 1^x is a section on the line $x-x$ of Fig. 1. Fig. 2 is a plan or top view of the machine. Fig. 3 is a side view in longitudinal section and on an enlarged scale of the can-controlling stops or fingers at the head of the run-way, and Fig. 4 is a top view of the same parts. Fig. 5 is a longitudinal section also on an enlarged scale of that part of the frame and run-way where the label-bed and the lap-pasting devices are located; the said parts being shown principally in section. Fig. 6 is a perspective view of the head-plate at the lower end of the label-bed. Fig. 7 is a view in detail of the tension-roller that holds down the lower end of the top-most label. Fig. 8 is a front view of the top and upper portion of the adjustable legs or standards that support the ends of the inclined track and regulate the degree of inclination.

In all cases the sections in the principal figures of the drawings are taken in vertical planes running longitudinally through the center of the machine.

The parts that pertain more particularly to the present improvements are indicated by letters, while the other and well known or patented parts of the machine are referred to by numerals.

The side-plates 1 1 and the standards A A form the frame upon which are mounted the paste-fountain and its rollers near the head of the machine, the label-bed and lap-paster

at a point lower down, and the finishing roller and apron at the lower end. The side-plates are cast with openings for lightness, and on the inner faces projecting ledges 2 2 for the ends of the cans to run on are cast integral with the sides or are separate pieces secured to them. The sides are held by tie-rods or long bolts 3 3, and the space between the can-tracks or ledges is closed by bottom boards 4 5 at the upper and lower ends of the run-way, but is left open along the middle portion where the can takes paste and picks up the label. This form and arrangement of run-way, can-pasting devices, label and lap-paster are found in the Newell patented machine already referred to; but heretofore no provision has been made for regulating by adjusting devices at both ends the pitch of the inclined run-way to give the cans more or less momentum during their run, and the supports of the run-way have no adjustability in that machine. In the present improvements the standards are formed of tubular sections A A^x (Fig. 8) sliding into each other and held by set screws A², the upper section telescoping into the lower section and having a horizontal cross-bar A' at the top to take the side frames, while the rods of the lower section are joined by cross-bars A² and by a long tie rod B extending from one standard to the other.

The side frames rest on the cross-bars A', and the length of the standard is changed by loosening the set screws and sliding the movable section up or down. By this means the bed of the machine can be raised or lowered at either end to change the degree of inclination as the work is found to require it.

The improvement relating to the can-controlling stops comprises the check-plate C set in the bottom of the run-way at the head of the machine, and the intermediate fingers, or stops D D placed between the head-stops 6 6 and the releasing dogs 7 7 below the can-pasting rollers. The check-plate is pivoted at C^x and is bent across the line of the pivot so that the front half will stand at an angle above the bottom of the run-way when the rear half is pressed down flush with the bottom. The spiral spring C² is attached to the rear end of the check-plate and to the bracket C³ below to draw down that end and hold up the front end in the path of the can. This elevated end of the plate is set in the run-way just in front of the stops D D in such position that the can held at the stops and resting on the end of the check-plate will hold up by its weight the rear end of the plate against the tension of the spring. Both sets of stops 6 6 and D are connected with the releasing stops 7 by rods 9 and 10, to throw in alternate manner across the run of the cans; that is, the intermediate stops throw across the path of the can just as the head stops draw back, and afterward as the can is released by the intermediate stops the following can is caught by the head-stops just as the check-

plate is drawn down by its spring, C². The stops and this check-plate are adjusted to act and be acted on by the cans as follows.

At the beginning of the operation the foremost can of the number fed into the machine rests against the head-stops and in that position the fingers 7 7 also lie across the track below; but the stops D D set back clear of the run-way. Now drawing back the fingers 7 7 with his hands the attendant sets the machine in operation by releasing the can from the head-stops and allowing it to run down against the intermediate stops. In that manner the releasers are thrown across the run-way and the can rests upon the front end of the check-plate and holds up the rear end to catch the next can; but the return of the head-stops across the track cannot take place however until the releasers return to position and the intermediate stops are drawn back. As soon as the attendant allows the releasers to spring across the track, however the foremost can at the stops D is set free and begins its run down the machine. At the same time the head stops are thrown across the track and catch the next can released by the check-plate. This takes place as soon as the can set free at the intermediate stops rolls off the end of the plate. By the acquired momentum the foremost can rolls under and raising the pasting roller 12 receives a coating of paste in a narrow strip along the body. In that movement the can presses back the releasers and sets free the can next above to act in the same manner in its turn. The distance between the upper stops and the releasers below determines the amount of head-way or interval between the rolling cans, or the standards can be adjusted to regulate this headway when desired.

The mechanism shown in Fig. 1 at the head of the machine is an automatic attachment for feeding down a considerable number of cans from a long line or row from a trough 14 over the end of the run-way. It is no part of the present invention however, and does not require to be specially described in order to explain the operation of these improvements or make the same clearly understood. It is, besides covered by an application for Letters Patent filed by Parker Crittenden, of San Francisco, California, on the 30th day of October 1891, Serial No. 410,313, which has already been allowed.

The improvement relating to the can-pasting device consists of the arm E extending backward from the point or center 15 on which the roller-carrying frame 16 oscillates and a sliding weight F on the arm having a set screw f^x to fix it at any point along the arm. An adjustable stop screw f² on the arm regulates the height of the pasting roller 12 from the bottom of the run-way when at rest and a spiral spring 17 is attached to one of the roller-carrying arms and to a fixed point below to bring the roller down quickly each time after it is lifted by the rolling can. The

spring and the adjustable weight act together to regulate the touch of the pasting-roller on the can and produce a light but at the same time a perfect contact of the paste-covered surface of the roller with the body of the can. In adjusting these parts to the work, it is important to secure this contact with the least degree of pressure of the roller upon the can, and in constructing this part of the labeling apparatus it has been found necessary to reduce the weight of the pasting-roller itself as much as possible in order that the additional weight imposed by the layer of paste on its surface and the roller that supplies paste from the trough above may not arrest or materially check the rolling can. By shifting the counter-weight on the arm E the pasting roller can be balanced to its work with considerable delicacy of touch and this adjustment can be readily made from time to time as any variation in the size of the cans being operated on may be found to require.

The pasting roller is supplied from the trough 13 by the small roller 18 mounted in loosely swinging arms 20 and resting in contact with the pasting roller. The can passing under the pasting roller and lifting it perpendicularly brings the supply roller up against the outlet valve 19 in the bottom of the paste trough and at each movement the roller thus takes through the opened valve a small quantity of paste which it distributes on the surface of the pasting roller. This is the construction of paste trough and feeding device employed in the Newell labeling machine.

My present improvements in the label-bed and adjacent parts have for their object to secure an even play or movement of the label-bed in the surrounding box, and produce such tension and pulling action between the rolling can and the label that all wrinkles and loose portions in the wrapped label shall be effectually prevented and the label shall be laid smoothly and evenly.

The label-bed G is mounted on two rods G^x working through tubular guides G^3 G^2 containing spiral spring G^5 bearing under fixed collars G^4 on the rods and against the closed bottoms of the tubes. The upper ends of the tubes are fixed in the bottom board I, and the rods extending through the tubes are joined at the lower ends by the cross-bar G^6 . The collars on the rods have a close sliding fit in the tubes, and the rods slide in the same manner through holes in the bottoms of the tubes. By this construction the label-bed is kept true and even in its movements between the upright sides and ends of the surrounding box and always perpendicular with the run of the can. The side-frames and the end-plates K K^x form the label-box but set clear of the edges of the bed chiefly to avoid friction between the bed and its surrounding box and prevent uneven movement as the bed is pressed upward by the springs. The edges of the pile of labels are therefore out of con-

tact with the sides of the label-box excepting at the lower end where the inclined position of the bed necessarily brings the lower ends of the labels against the end-plate K ; but the excessive friction which would arise from such contact is greatly reduced and practically overcome by forming perpendicular ribs or projections k^2 on the face of the plate K as illustrated in Fig. 6. The ends of the labels touch these two points only instead of the whole face of the plate, and consequently the friction is reduced below that amount or degree which would depress the pile of labels at that end during the upward feeding movement of the bed. Over this end of the label-bed is located the lap-paster which operates to apply across the extreme end of the labels a strip of paste for the lap. This part of the apparatus consists of the paste carrying belt 21 traveling on rollers 22 across the space between the side frames beneath a presser-plate 23 and downward through a paste trough 24. Intermittent movement is given to the belt by the flanged wheel 25 in the trough and a pawl and ratchet 27, 28 connecting the shaft 26 of the wheel with a compound lever composed of the parts M , M^x N N^x . The ratchet wheel 27 is fixed on the shaft of the wheel 25 outside the trough, and the pawl is attached to an arm 28 centered on the shaft and connected by the rod m^2 to the lower member of the compound lever. The upper member of this compound lever is formed of the two arms M , M , pivoted at p' p^2 on the side frames and connected together at the opposite ends by the cross-bar M^x . The lower member is formed of the arms N N vibrating in the contrary direction on the pivots p^2 p^2 and connected at the free ends by the cross-bar N^x . Links N^1 connect the two sets of levers together, and the rod m^2 from the pawl-carrying arm is attached to the cross-bar N^x . The levers M when at rest are inclined upwardly from their pivots p' in the path of the cans and move closely against the sides frame, so that in running along the tracks 2; the can depresses the series of levers and turns the wheel in the trough a step forward each time a can passes. This construction of levers enables the travel or feet of the belt to be produced by a longer lever than heretofore and consequently to move the same with much less check or resistance to the rolling can than heretofore.

The presser plate 23 sets over the paste-belt and is supported by rods 29 held up by spiral springs in the tubular posts 30 on top of the side frames. The upper ends of the rods are screw threaded and fitted with adjusting nuts 31 to regulate the tension of the springs according to the weight of the cans that are being run through the machine. To bring the top of the presser-plate on a level with the tracks 2 the surface of the label-bed is depressed from about the point g^x where the labeling holding fingers 32 are situated down to the lower end where the label sets under

the lap-paster, and the tracks 2 are elevated in about the same proportion above the level of the tracks at the higher end where the can first strike the label; and where the elevated surface of the label-bed and the track are about on the same level. The object of this construction, is chiefly to produce a condition or degree of tension or pulling force between the rolling can and the stationary label sufficient to prevent wrinkles and blisters or loose portions in the label and to lay it smoothly around the body of the can and to slightly retard the movement or progression of the can just at this time.

In Fig. 1 the label-bed is shown with a pile of labels in position, and in Fig. 5 the bed is shown without labels.

The fingers 32 that hold down the label on a level with the tracks 2 are attached to pivoted levers 33 and are held over the bed by springs 34. When the can reaches this point in its run it has acquired sufficient momentum to throw back the fingers and pick up the end of the label; but, after the can passes them, they spring forward into place over the top label before the bed rises. It should be mentioned that because of the peculiar construction of the label-bed and the can-tracks the can does not roll upon the label for the whole length but only at the beginning of its contact where the end of the label is attached to the can, and for the remaining distance the can is raised perpendicularly by the elevation in the track while the bed is dropped or depressed in the opposite direction. The amount of this change in the relation of the rolling-can and the stationary label to each other is sufficient to produce the desired tension. The rise in the tracks retard the forward movement of the can just at about the time that the depression in the bed becomes effective, and hence the can will not roll over the label without taking it up. As the can rises and continues to roll along the higher portion of the track, it rotates in a circle above the depressed portion of the bed, and hence the label is not only taken up by the can but it is applied thereto with some considerable tension since the roller H (to be presently described) will not permit its lower end to slide upwardly on the bed. The top-most label is pressed up against the tension roller H over the lower end of the label with sufficient degree of force to hold the end of the label until the can comes directly over the roller, at which point the can then draws away the pasted end from under the roller before striking the presser-plate of the lap-paster. To release the label at this moment with the least amount of resistance I provide a roller constructed substantially as represented in Fig. 7 of an axle h^x and a sleeve h^4 upon the axle fitted to turn loosely on it and confined by collars at the ends. Bearings h^7 are set in openings h^6 in the side-frames to receive the journaled portions of the roller and collars h^5 on the outer ends prevent the roller from mov-

ing longitudinally. This construction of roller allows the end of the label to draw out easily from under it when the can comes perpendicularly over it.

The improvement in the lap-finishing part of the apparatus consists of a flexible apron R made of some heavy woven fabric such as a piece of Brussels carpeting or a strip of heavy canvas faced on the under side with felt or plush. It is attached at the upper end to a cross-bar S^x supported by the standards 35 carrying the presser roller T and from that point extends downward to the bottom of the can run-way 4 where it rests loosely upon that bottom. These parts sit over the run-way beyond the label-bed in such position that the pasted lap after it is drawn out from under the tension roller H comes in contact with the roller T and is pressed down by that roller against the body of the can and then passing under the apron the revolutions of the can bring the lapped edges of the label several times with a rubbing contact against the under surface of the apron. This action is similar to the rubbing operation of the hand and it has the effect to finish the lap closely and smoothly. In Fig. 2 I have shown a slight modification of this feature—that is to say, in place of the apron R I sometimes provide a roller r journaled in arms r' which are pivoted to the standards 35, and the face of the roller is preferably covered with some heavy woven fabric such as carpet or canvas faced with felt or plush.

A roller W is mounted in swinging arms W^x between standards W^2 over the higher end of the label-bed to bear upon the can at that point where the can takes the end of the label, the pressure of the roller being applied directly upon the rolling can at the time when the paste-coated portion of its body is brought over against the label. The degree of pressure is regulated by means of a sliding counter weight W^3 on an arm W^4 arranged in the same manner as the sliding weight on the pasting roller.

The several parts and mechanism as thus combined and arranged for operation enable the cans to be run rapidly through the machine and at the same time produce excellent quality of work.

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

1. In a can-labeling machine, the combination with an inclined run-way for the cans of the head stops 6 6, the releasing finger 7 7 and the intermediate stops D, D, the rods 9 10 connecting the said stops with the releasing fingers, and the spring check-plate C in the bottom of the run-way having an upwardly bent portion, substantially as described for operation as set forth.

2. In a can-labeling machine, the combination with an inclined run-way for the cans of the can controlling stops, the paste-trough, paste-supply roller 18, pasting roller 12, the

roller frame 16, in which said roller is mounted, the arm E, adjustable counter-weight F, stop-screw f^2 , and spring 17 applied for operation as set forth.

5 3. In a can-labeling machine, the combination with an inclined run-way, and a can-pasting apparatus; of the label bed G moving within and slightly smaller than the label box, rods G^x , long rigid tubular guides G^2
10 having reduced perforations in their lower ends through which said rods pass, springs G^3 within the guides, collars G^4 secured to the rods above the springs and sliding closely within said guides, and the cross-bar G^6 connecting the rods entirely below the tubular
15 guides, substantially as described.

4. In a can-labeling machine, the combination with an inclined run-way for the cans, a label-box or receptacle and a label-bed
20 mounted on springs therein to present the labels flat-wise in a pile to the rolling cans; of the lap-pasting belt 21, rollers 22 22, paste trough 24, pulley 25, pawl and ratchet mechanism, and the compound levers comprising the

members M M pivoted to the frame at one 25 end and their other ends connected by a cross-bar M^x setting in the path of the rolling can, the members N, N, pivoted to the frame at one end and having a cross-bar at their other ends connected with the pawl-carrying lever 30 28 and the links connecting said members together between their pivoted ends and their cross-bars, substantially as specified.

5. In a can-labeling machine of the kind having an inclined run-way for the cans, the 35 combination, of the side-plates 1 1 having tracks for the cans and supporting the can-pasting and labeling devices, and the adjustable standards formed of telescopic uprights A A^x , the cross-bars A' A^3 , brace B and set 40 screws A^2 substantially as described for operation as set forth.

In testimony that I claim the foregoing I have hereunto affixed my hand and seal.

CHARLES R. FRAZER. [L. S.]

Witnesses:

C. W. M. SMITH,

CHAS. E. KELLY.