(No Model.) 4 Sheets—Sheet 1.

W. W. FRANTZ.

LABELING MACHINE.

No. 547,777. Patented Oct. 15, 1895.

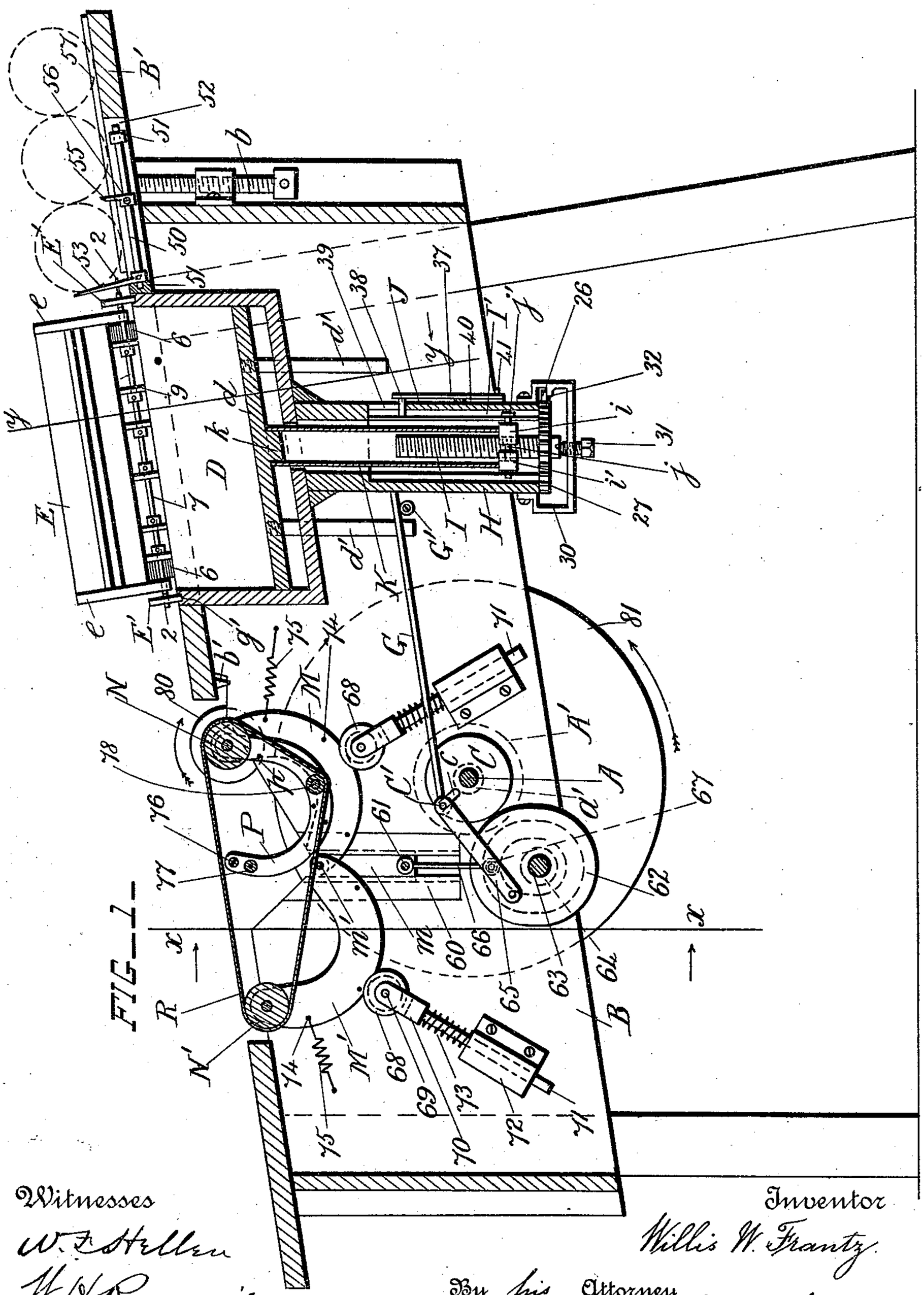


FIG. 1.

Witnesses
W. F. Stellen
H. H. Roncaville

Inventor
Willis W. Frantz.
By his Attorney
Herbert W. Jenner.

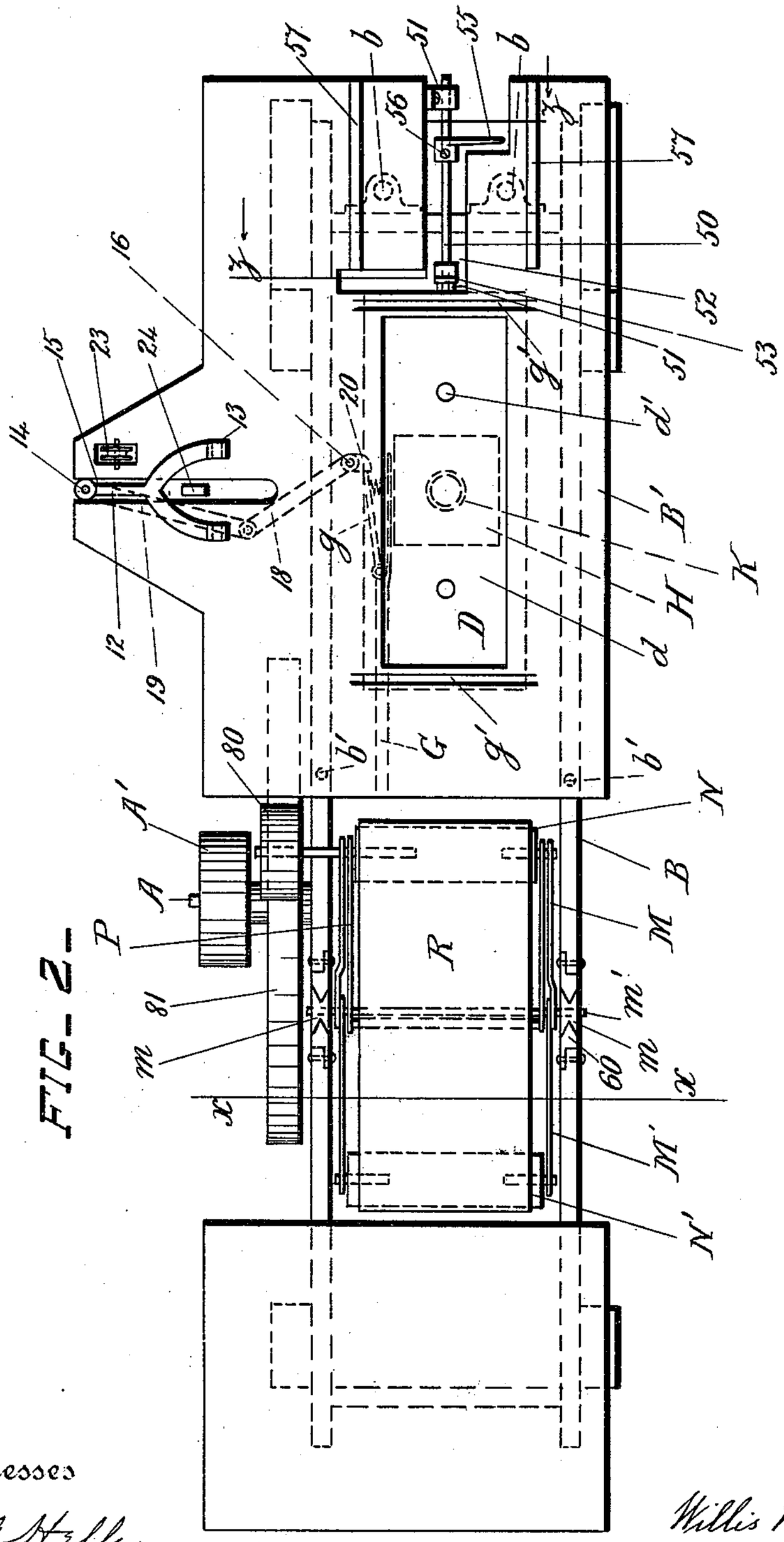
(No Model.) 4 Sheets—Sheet 2.

W. W. FRANTZ.

LABELING MACHINE.

No. 547,777. Patented Oct. 15, 1895.

FIG. 2.



Witnesses

W. F. Hellen

H. A. Rowailey

Inventor

Willis W. Frantz

By his Attorney

Herbert W. Jenner.

(No Model.) 4 Sheets—Sheet 3.

W. W. FRANTZ.

LABELING MACHINE.

No. 547,777. Patented Oct. 15, 1895.

FIG. 4.

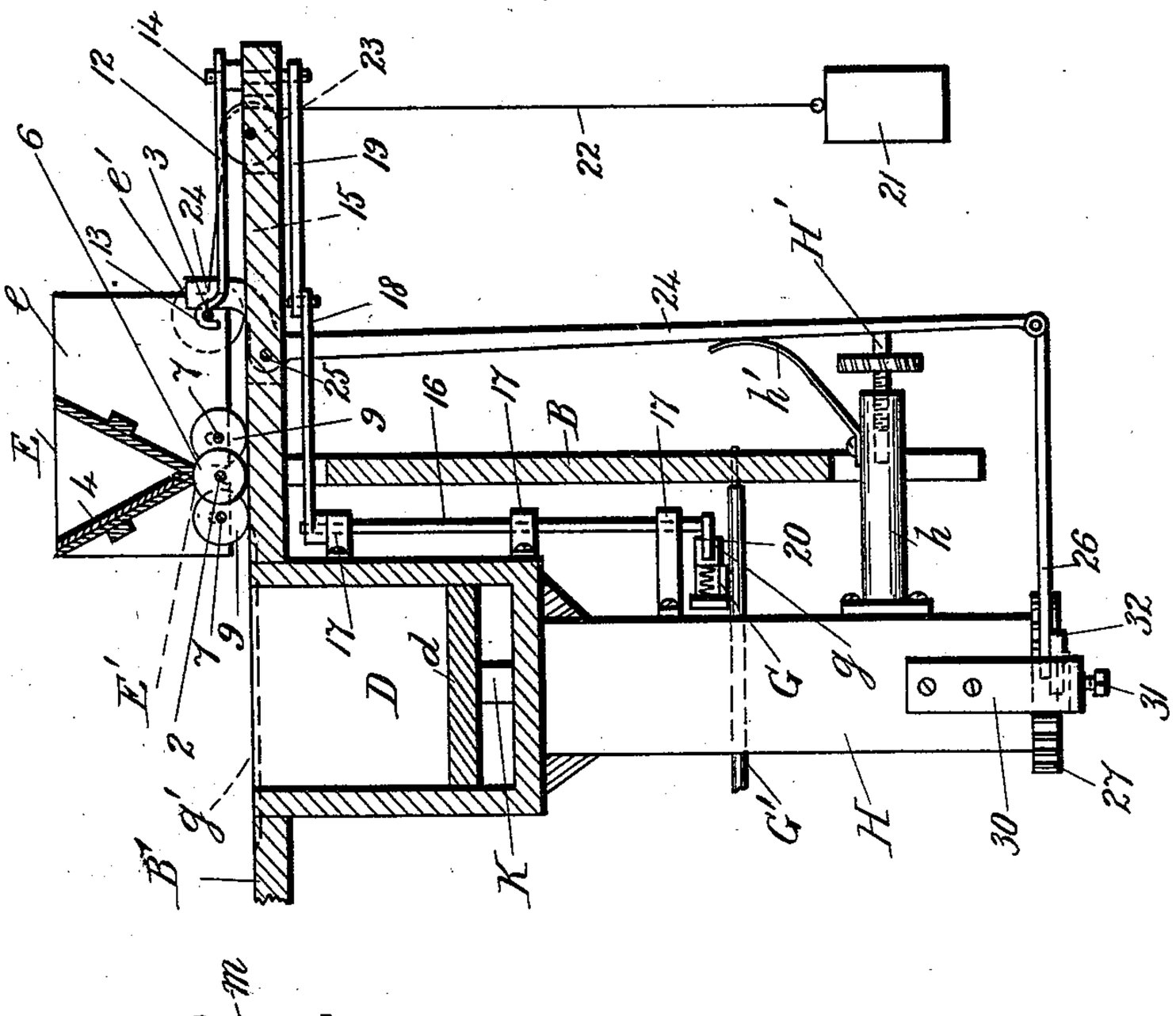
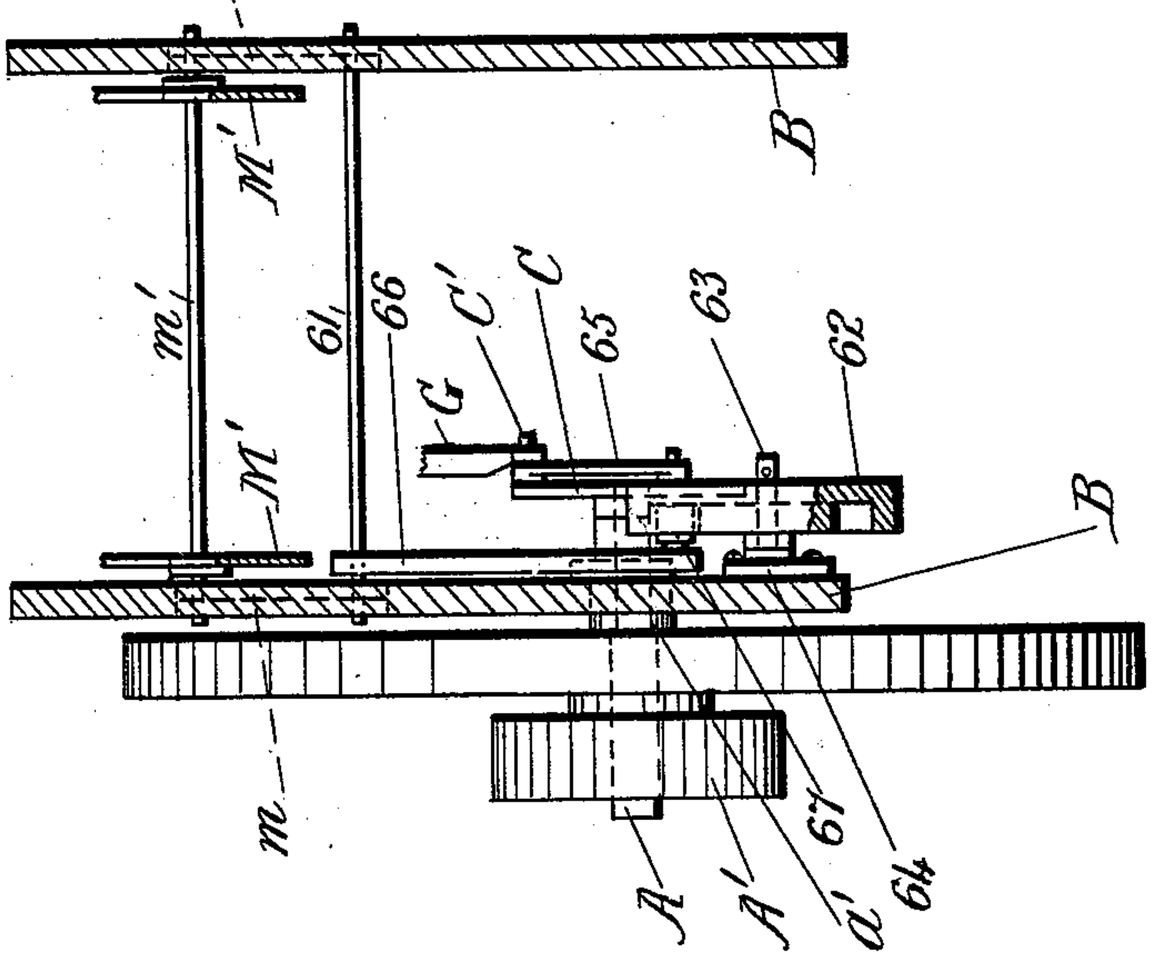


FIG. 3.



Witnesses
W. E. Stellin
H. N. Ronsaville

Inventor
Willis W. Frantz.
By his Attorney
Herbert W. Jenner.

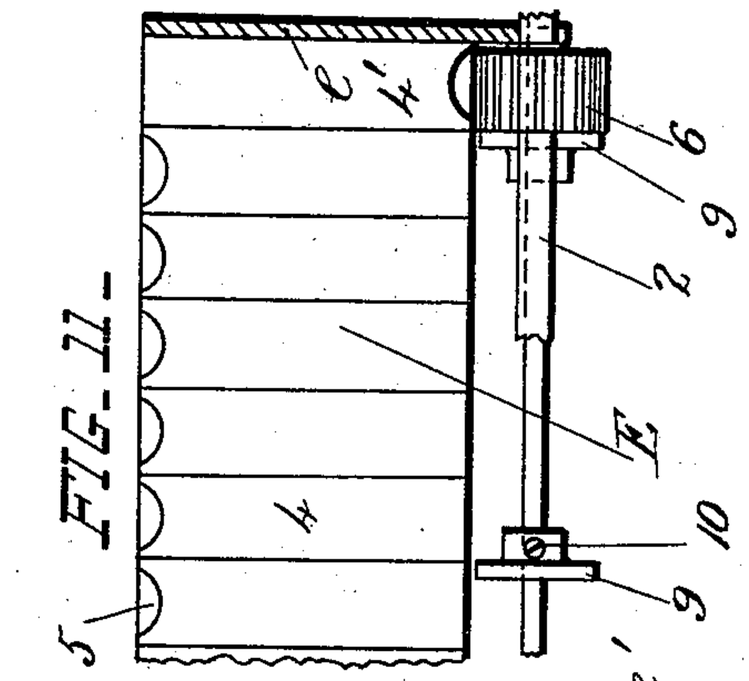
(No Model.)

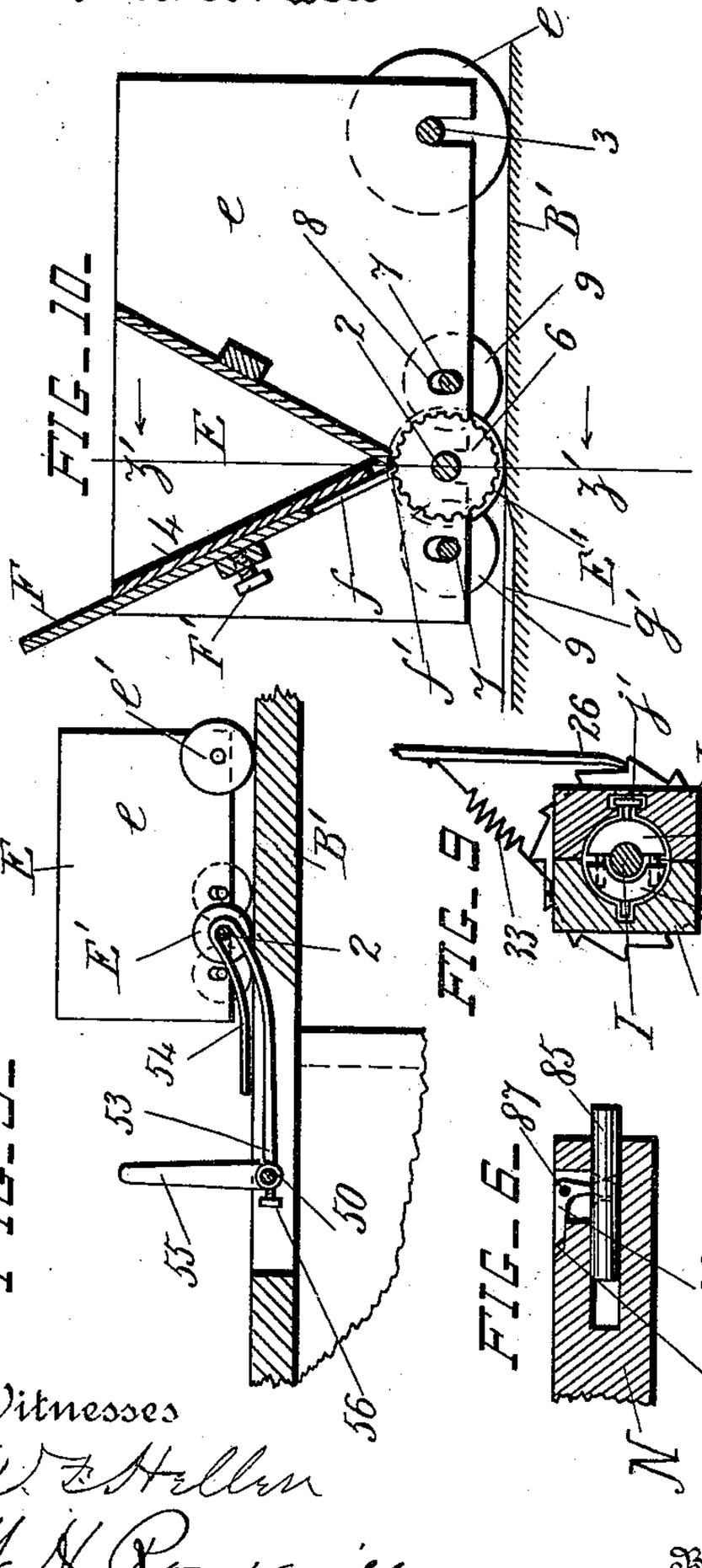
4 Sheets—Sheet 4.

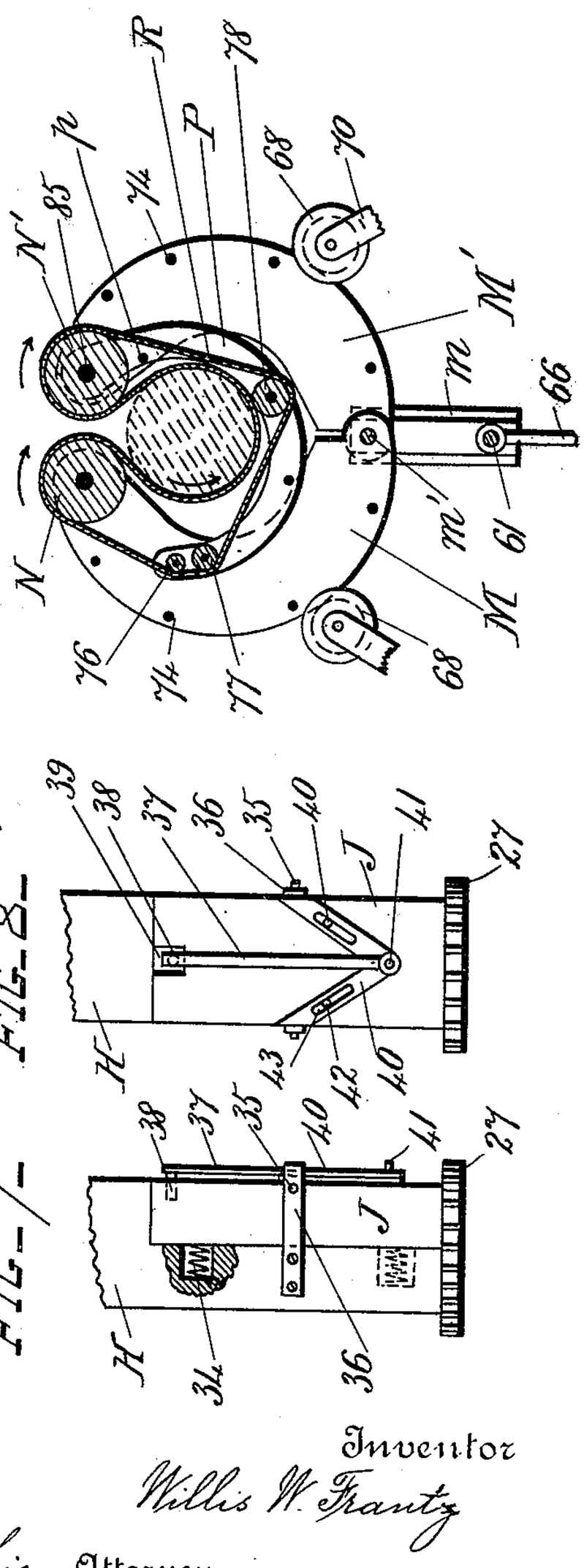
W. W. FRANTZ.

LABELING MACHINE.

No. 547,777. Patented Oct. 15, 1895.







Witnesses

W. E. Hellen

H. K. Ponsonby

Inventor

Willis W. Frantz

By his Attorney

Herbert W. J. Jenner.

UNITED STATES PATENT OFFICE.

WILLIS W. FRANTZ, OF WAYNESBOROUGH, PENNSYLVANIA.

LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,777, dated October 15, 1895.

Application filed January 16, 1895. Serial No. 535,133. (No model.)

To all whom it may concern:

Be it known that I, WILLIS W. FRANTZ, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Labeling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machines for attaching labels; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a longitudinal section through the machine. Fig. 2 is a plan view. Fig. 3 is a cross-section taken on the line *x x* in Figs. 1 and 2. Fig. 4 is a cross-section taken on the line *y y* in Fig. 1. Fig. 5 is a cross-section taken on the line *z z* in Fig. 2. Fig. 6 is a longitudinal section of a portion of one of the rollers of the tightening device, showing the means for sliding back its pivot. Figs. 7, 8, and 9 are respectively a side view, a front view, and a sectional plan view of the lower portion of the mechanism for feeding the labels. Fig. 10 is a detail cross-section of the paste-holder. Fig. 11 is a part longitudinal section taken on the line *z' z'* in Fig. 10. Fig. 12 is a section through the tightening device similar to that shown in Fig. 1 but showing it in its lowered and closed position.

A is the driving-shaft of the machine, and A' is its belt-pulley. The machine may be actuated by hand or by foot power or by any approved motor. The shaft A is journaled in the bearing *a'*, secured to one side of the machine-frame.

B is the frame of the machine, which may be of any approved construction, and B' is a table attached in an inclined position to the top of the frame B. The inclination of the table is preferably adjustable, and in order to facilitate such adjustment the front end of the table is provided with screws *b*, and its rear end is supported on the pivot-pins *b'*; but any equivalent means may be used for adjusting the inclination of the table.

C is a crank-plate secured on the driving-shaft A, and C' is a crank-pin, which is adjustably secured in the slot *c* of the said crank-plate.

D is the label-box secured under the table B'. This box is opon at the top and is provided with a platen *d*, upon which the labels rest. The platen is provided with vertical guides *d'*, which slide in holes in the bottom of the box. When the labels are smaller than the box, a smaller platen can be inserted, and the guides *d'* then keep it from turning in the box.

E is the paste-holder, which is preferably trough-shaped in cross-section, and is provided with end plates *e*.

E' represents the front rollers, which support the paste-holder, and *e'* represents the rear rollers. The rollers E' and *e'* are secured, respectively, on the shafts 2 and 3, which are journaled in the end plates *e* and permit the paste-holder to be moved back and forth crosswise of the table B' over the label-box. One side F of the paste-holder is slidable in grooves *f* of the end plates, so that an adjustable aperture or slit *f'* may be formed at the bottom of the paste-holder for its full length.

F' is a screw for securing the side F after it has been adjusted; but any equivalent fastening device may be used. A series of gates 4 is provided for permitting the paste or other adhesive material to pass out of the paste-holder at any point of its length. Each gate is provided with a notch 5 at one end and its other end is plain. When the plain ends all rest on the bottom of the paste-holder, no paste can pass out of it, but when any gate is reversed, as shown at 4' in Fig. 11, the paste can pass out through the notch 5 and through the adjustable aperture *f'*. Fluted rollers 6 are journaled on the shaft 2 under the aperture *f'*. Additional rollers 6 are put on the shaft when desired to paste broader bands or more bands upon the backs of the labels. Shafts 7 are journaled in the vertical slots 8 of the end plates *e*, one on each side of the shaft 2. Adjustable disks 9 are secured upon the shafts 7 by set-screws 10. The disks 9 serve to prevent the fluted rollers from sliding longitudinally on the shaft 2, and they also prevent the label when being pasted from being displaced. The paste-holder is moved forward over the label by means of the rod 12, which is provided with a hooked

end 13, engaging the shaft 3. The rod 12 is pivoted to the vertical pin 14, which slides in the slot 15 of the table, as shown in Figs. 2 and 4. A vertical shaft 16 is journaled in the bearings 17, secured to the label-box, and is connected to the pin 14 by means of the jointed links 18 and 19. An arm 20 is secured on the lower end of the shaft 16.

G is a rod pivoted to the crank-pin C′ and supported on the roller G′. (Shown in Fig. 1.) The front end of the rod G is provided with a spring-actuated push-piece *g*, which is pivoted to it and is arranged to press against the arm 20. When the arm 20 is forced back, it turns the shaft 16 and moves the paste-holder across the top of the label-box. Grooves *g′* are cut in the surface of the table at the ends of the label-box for the rollers E′ to drop into. When the rollers E′ enter the grooves *g′*, the fluted rollers 6 bear upon the back of the label and the paste is transferred by them from the paste-holder to the label. The label is preferably pasted at each end only; but additional bands of paste can be placed on it, if desired; or the label can be pasted all over, according to the positions of the gates 4 and the number of fluted rollers on the shaft 2. As soon as the push-piece *g* is pushed past the arm 20 the paste-holder is pulled back suddenly to its original position by means of the weight 21. The weight 21 is attached to one end of the cord 22, which passes over the pulley 23, and the other end of the said cord is fastened to the shaft 3 or to any other convenient part of the paste-holder. When the paste-holder runs back, the shaft 3 strikes the upper end of the stop-lever 24, which is pivoted to the table by the pin 25. A pawl 26 is pivoted to the lower end of the stop-lever and engages with the teeth of a ratchet-wheel 27, which works the label-feed mechanism.

H is the guide for the label-feed mechanism. This guide is secured to the bottom of the label-box.

H′ is an adjustable stop-screw for the stop-lever to strike. This stop-screw engages with a bracket *h*, secured to the guide H, and *h′* is a spring for forcing the lower end of the stop-lever backward, so that the pawl 26 may engage with another notch of the ratchet-wheel. The ratchet-wheel 27 is secured on the lower end of the feed-screw I. A half-nut *i* engages with the screw-threads of the screw I, and *i′* is another half-nut, which is blank and is connected to the half-nut *i* by the pins *j*. The half-nut *i* has a pin *j′*, which slides in the groove I′ of the sliding block J, which forms a portion of the guide H, and the half-nut *i′* can be provided with a similar pin, if desired.

K is a tube which rests on the half-nuts *i* and *i′* and engages with the boss *k* on the bottom of the platen. A bracket 30 is secured to the guide H, and 31 is a pivot-screw engaging with the bracket 30 and supporting the feed-screw. A projection 32 is formed on the bracket 30 for taking the weight of the pawl 26, and 33 is a spring for holding the pawl in engagement with the teeth of the ratchet-wheel. The ratchet-wheel is partially revolved and the platen is raised for the thickness of a label each time the paste-holder runs back and actuates the stop-lever. When the platen arrives at the top of the label-box, the feed mechanism is disengaged automatically. The block J is free to slide laterally and is pressed away from the stationary part of the guide H by the springs 34. Pins 35 project from the sides of the block J, and 36 represents spring-catches secured to the guide H and engaging with the pins 35.

37 is a rod provided with a pin 38, which projects through a slot 39 in the front of the block J into the upward path of the pin *j′*. The lower end of the rod 37 has two inclined arms 40 pivoted to it by the pin 41, and 42 represents guide-pins projecting from the front of the block J. The arms 40 are provided with slots 43, which slide over the pins 42, so that the ends of the arms bear against the ends of the spring-catches 36 when the rod 37 is raised. When the pin *j′* strikes the pin 38, it raises the rod 37 and pushes the ends of the spring-catches 36 clear of the pins 35. The block J is then forced away from the guide H by the springs 34 and moves the half-nut *i* clear of the feed-screw. When the half-nut *i* is clear of the screw-threads, both half-nuts drop to the bottom of the guide H and the half-nut *i* re-engages with the screw-threads, when the spring-catches are again caused to hold back the block J, as shown in Fig. 7. The cans to which the labels are to be attached are placed upon the front and upper end of the table B′, as indicated by the dotted lines in Fig. 1. A shaft 50 is journaled in the bearings 51 longitudinally of the table, in the slot 52 therein, at about the middle of the label-box. An arm 53 is secured upon the shaft 50 next to the label-box, and this arm is operatively connected with the paste-holder by means of the loop 54, which encircles the end of the shaft 2, or by any other approved connecting mechanism. A second arm 55 is adjustably secured to the shaft 50 by the set-screw 56, and is preferably arranged at a right angle to the arm 53. The ends of the cans are between the guide-strips 57 on the table, and the foremost can rests against the arm 53 when the paste-holder is pushed forward and is pasting the back of the label at the top of the label-box. When the paste-holder is pulled back, it moves the arm 53 to the position shown in Fig. 5, releases the foremost can, and raises the arm 55 between the foremost can and the can next behind it. The foremost can on being released rolls over the back of the label, which adheres to its periphery, and the can with the label wrapped around it passes over the middle part of the table to the tightening and smoothing device.

The tightening and smoothing device is provided with two jaws M and M′, which are pivoted together and to the guide-blocks *m* by

the rod *m'*. The guide-blocks *m* slide in the vertical guides 60, which are let into the frame of the machine, and the lower ends of the said guide-blocks are connected by the rod 61. The tightening-jaws M M' are moved vertically by means of the cam 62, which is mounted upon a pin 63, carried by a bracket 64, secured to the frame of the machine. The cam is operatively connected with the crank-plate C by means of the coupling-rod 65, so that they revolve together; but the said cam may be revolved by any other equivalent means, such as toothed wheels. A rod 66 is pivoted to one end of the rod 61 and carries a roller 67, which engages with the groove of the cam, so that the guide-blocks *m* are raised and lowered as the cam revolves. The jaws M M' rest upon grooved rollers 68. Two such rollers are shown in Fig. 1 and there are two similar rollers on the other side of the frame. These rollers may be journaled on pins projecting from the frame; but they are preferably supported in the following manner: Each roller 68 is journaled on a pin 69, carried in the forked end 70 of a rod 71. Each rod 71 is carried by a bracket 72, secured to the side of the frame, and 73 is a spring which presses the roller 68 against the side of the jaw to which it pertains. The rods 71 are arranged in inclined positions, so that the jaws are supported when raised and open, as shown in Fig. 1, and are pressed together when lowered and closed, as shown in Fig. 12. The jaws M M' are provided with distance-pieces 74, and 75 represents springs for holding the jaws open when raised. The jaws open by gravity when raised and are assisted by the springs 75.

N and N' are two similar rollers journaled in the tops of the jaws M M', and P is a cradle pivoted to the top of the jaw M concentric with the roller N. The cradle P is shaped like a hook and is provided with distance-bars *p*. The cradle has two rollers 76 and 77 for tightening the belt near its free end and a roller 78 near its middle.

R is an endless belt of flexible material, such as canvas. This belt passes over the rollers N, N', and 78, as shown in Fig. 1. When a can rolls onto the belt R from the middle part of the table, the tightening and smoothing device is commencing its downstroke. The weight of the can causes it to drop into the cradle, forming a bight in the belt R. A friction-pinion 80 is secured upon the projecting end of the spindle of the roller N of the jaw M, and 81 is a friction-wheel secured upon the driving-shaft A under the said pinion. As the tightening and smoothing device descends, the jaws and cradle gradually assume the positions shown in Fig. 12, and the friction-pinion is pressed against the friction-wheel. The friction-wheel causes the belt R to revolve in the direction of the arrows, and the rollers 76 and 77 tighten the belt upon the periphery of the can. The can is revolved in the bight of the belt, which grips the label, stretches it upon the periphery of the can, smooths out all its creases, and squeezes out all the air between it and the can. When the cam raises the tightening-jaws, the can is released and rolls off the belt and over the rear end of the table. The tightening and smoothing device is quickly changed to suit cans of different diameters by removing the cradle and belt, and putting in a larger or smaller cradle and belt, as required, to suit the new size of can. The rollers N N' of the jaws M M' are provided with retractive pivots 85, as shown in Fig. 6, in order that they may be quickly released from the jaws. Each pivot 85 slides in a hole in the roller, and is normally held pushed out by the bell-crank lever 86, one arm of which engages with a slot in the said pivot. The bell-crank lever 86 is pivoted to the roller by the pin 87, and its other arm lies in a groove 88 on the periphery of the roller and is held therein by the pressure of the belt R. When the pivot is to be retracted to free the roller from its jaw, the bell-crank lever is raised out of the groove 88 and is turned upon its pivot, thereby forcing the pivot 85 backward into the hole in the roller.

What I claim is—

1. In a labeling machine, the combination, with an inclined table; of a shaft arranged longitudinally of the table; two arms arranged at an angle to each other, and supported by the said shaft; and means for oscillating the said arms crosswise of the table, thereby permitting a can to roll past them at each oscillation, substantially as set forth.

2. In a labeling machine, the combination, with an inclined table; of a shaft journaled in bearings and arranged longitudinally of the table; an arm operating to retain the foremost can and projecting from the lower end of the shaft crosswise of the table; a second laterally-projecting arm adjustable longitudinally on the shaft and provided with a fastening device for securing it to the upper end of the said shaft, and means for oscillating the said shaft and arms, substantially as set forth.

3. In a labeling machine, the combination, with an inclined table provided with a label box, a paste holder provided with means for spreading the paste, and driving mechanism operating to slide the paste holder crosswise of the label box; of the pivoted arm 53, for the foremost can to rest against, said arm being provided with a loop engaging with a projection at the end of the paste holder, whereby the foremost can is released when the paste holder runs back, substantially as set forth.

4. In a labeling machine, the combination, with a table provided with a label box and having grooves in its surface at the ends of the label box; of a paste holder mounted on rollers and provided with pasting rollers held clear of the surface of the table, and driving mechanism operating to slide the front rollers of the paste holder into the said grooves thereby lowering the pasting rollers onto the

back of the top label in the label box, substantially as set forth.

5. The combination, with a slidable paste holder provided with an aperture *f*, and the rollers and shaft supporting the front part of the paste holder; of the pasting rollers mounted on the said shaft under the aperture *f*, and a vertically movable shaft provided with disks and supported in front of the aforesaid shaft, the said disks bearing on the label when being pasted and preventing it from being displaced, substantially as set forth.

6. The combination, with a slidable paste holder provided with the aperture *f* and the end plates *e*, and the rollers and the shaft 2 supporting the front part of the paste holder; of the pasting rollers mounted on the shaft 2 under the aperture *f*, the shafts 7 journaled in vertical slots in the end plates *e* one on each side of the shaft 2, and the disks 9 secured on the said shafts 7 and bearing on the label when being pasted, substantially as set forth.

7. The combination, with a paste holder provided with a slidable side F forming an adjustable aperture *f* across its bottom, of a series of reversible gates each provided with a notch at one end to permit the paste to pass through a portion of the aperture *f* when uncovered by the said notch, substantially as set forth.

8. The combination, with the paste holder provided with a slidable side F forming an adjustable aperture *f* across its bottom, of a series of reversible gates resting in the paste holder each gate being provided with a notch at one end for the paste to pass through, and fluted rollers journaled under the said aperture and notches and operating to transfer the paste from the paste holder to the label, substantially as set forth.

9. The combination, with the slidable paste holder provided with pasting rollers; of driving mechanism operating to slide the paste holder forward across the label to be pasted, said mechanism being provided with a spring-actuated connection—such as the push piece *g*—whereby the paste holder is automatically released when fully pushed forward; and a retracting device—such as a cord and weight—operating to suddenly slide back the paste holder when thus released, substantially as set forth.

10. The combination, with the slidable paste holder provided with pasting rollers; of the reciprocatory bar G provided with a spring-actuated push piece, the vertical shaft 16 provided with the arm 20 arranged in the path of the said push piece, the vertical pin 14 sliding in a guide groove, and intermediate rods and links operatively connecting the upper end of the said pin with the paste holder, and its lower end with the shaft 16, substantially as set forth.

11. The combination, with the label box, and the stationary guide secured to the bottom thereof; of the platen, the platen feed screw provided with means for revolving it, the nut formed in halves connected by pins and sliding in the said guide and engaging with the feed screw, and a tube interposed between the said platen and nut and encircling the feed screw, substantially as set forth.

12. The combination, with the label box, and the guide secured to the bottom thereof and provided with the laterally slidable block J having a guide groove I′; of the platen, the platen feed screw provided with means for revolving it, the half nut *i* engaging the feed screw and provided with a pin engaging with the groove I′, and the tube interposed between the said half nut and platen, the said half nut being moved out of engagement with the feed screw when the block J is drawn back, substantially as set forth.

13. The combination, with the label box, its platen, and the guide secured to the bottom of the label box and provided with the slidable block J having a guide groove I′ and springs for forcing it laterally away from the stationary part of the guide; of the feed screw provided with means for revolving it, the half nut *i* engaging with the feed screw and provided with a pin engaging with the groove I′, spring catches normally clamping the block J in position, and trip mechanism connected to the said spring catches and operated by the said pin when the platen is raised to the top of the label box, thereby automatically releasing the half nut *i* from the feed screw and permitting it to drop to the bottom of the guide, substantially as set forth.

14. The combination, with the label box, its platen, and the feed screw operatively connected with the platen and provided with a ratchet wheel for revolving it; of a paste holder, and means for moving it back and forth over the said label box; a pawl engaging with the said ratchet wheel, and a pivoted stop lever having its upper end arranged in the rearward path of the paste holder and having its lower end connected to the said pawl, whereby the platen is raised for the thickness of one label each time the paste holder runs back, substantially as set forth.

15. In a labeling machine, the combination, with an inclined table, a label box, and feed mechanism operating to raise the labels in the label box; of a paste holder provided with paste spreading devices and slidable crosswise of the table, an arm preventing the foremost can from rolling until the paste holder is drawn back, a label tightening and smoothing device arranged at the lower part of the table and provided with pivoted jaws and an endless flexible belt; and driving mechanism operating to slide the paste holder back and forth, to release the can from the said arm and permit the can to roll upon and pick up the pasted label, to lower the jaws and revolve the belt of the said tightening and smoothing device upon the arrival of the said can and label upon them, and subsequently to raise the said jaws and permit the can to roll clear of the belt, substantially as set forth.

16. The combination, with the tightening jaws M M′ pivoted together and provided with rollers N N′ at their upper ends, of the hook-shaped cradle pivoted to the axis of the roller N and provided with rollers, the endless belt passing over the said rollers, and driving mechanism operating to raise and lower the said jaws, and to revolve the said belt, substantially as set forth.

17. The combination, with the pivoted tightening jaws, the hook-shaped cradle, and the endless belt; of the rollers 68 supporting the jaws when raised and opened, and pressing them together when lowered; and driving mechanism operating to raise and lower the said jaws, and to revolve the belt, substantially as set forth.

18. The combination, with the pivoted jaws, the hook-shaped cradle, and the endless belt; of the spring-pressed rollers 68 bearing against the jaws, and driving mechanism operating to raise and lower the said jaws, and to revolve the belt, substantially as set forth.

19. The combination, with the pivoted jaws, the hook-shaped cradle, and the endless belt; of the rollers 68 supporting the said parts, the springs 75 assisting the jaws to open when raised, and driving mechanism operating to raise and lower the said jaws, and to revolve the belt, substantially as set forth.

20. The combination, with the friction wheel, and means for revolving it continuously; of the pivoted jaws provided with rollers N N′, the hook-shaped cradle, and the endless belt; the rollers 68 under the said jaws, a friction pinion secured concentric with the roller N, and driving devices operatively connected with the said friction wheel and operating to raise and lower the said jaws, and to press the said pinion on the periphery of the said wheel, substantially as set forth.

21. The combination, with the friction wheel, and means for revolving it continuously; of the pivoted jaws provided with the rollers N N′, the hook-shaped cradle, the endless belt, and the friction pinion for driving the belt; the rollers 68 under the said jaws, a cam operatively connected with the said jaws and adapted to raise and lower them and press the friction pinion on the friction wheel, and driving mechanism operatively connecting the said cam with the said friction wheel, substantially as set forth.

22. The combination, with the pivoted jaws having the rollers N N′ provided at one end with retractible pivots 85, the pivoted bell-crank levers 86 engaging with the said pivots and having their free arms arranged in grooves in the rollers flush with their peripheries, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIS W. FRANTZ.

Witnesses:

F. C. CUNNINGHAM,

T. S. CUNNINGHAM.