

(No Model.)

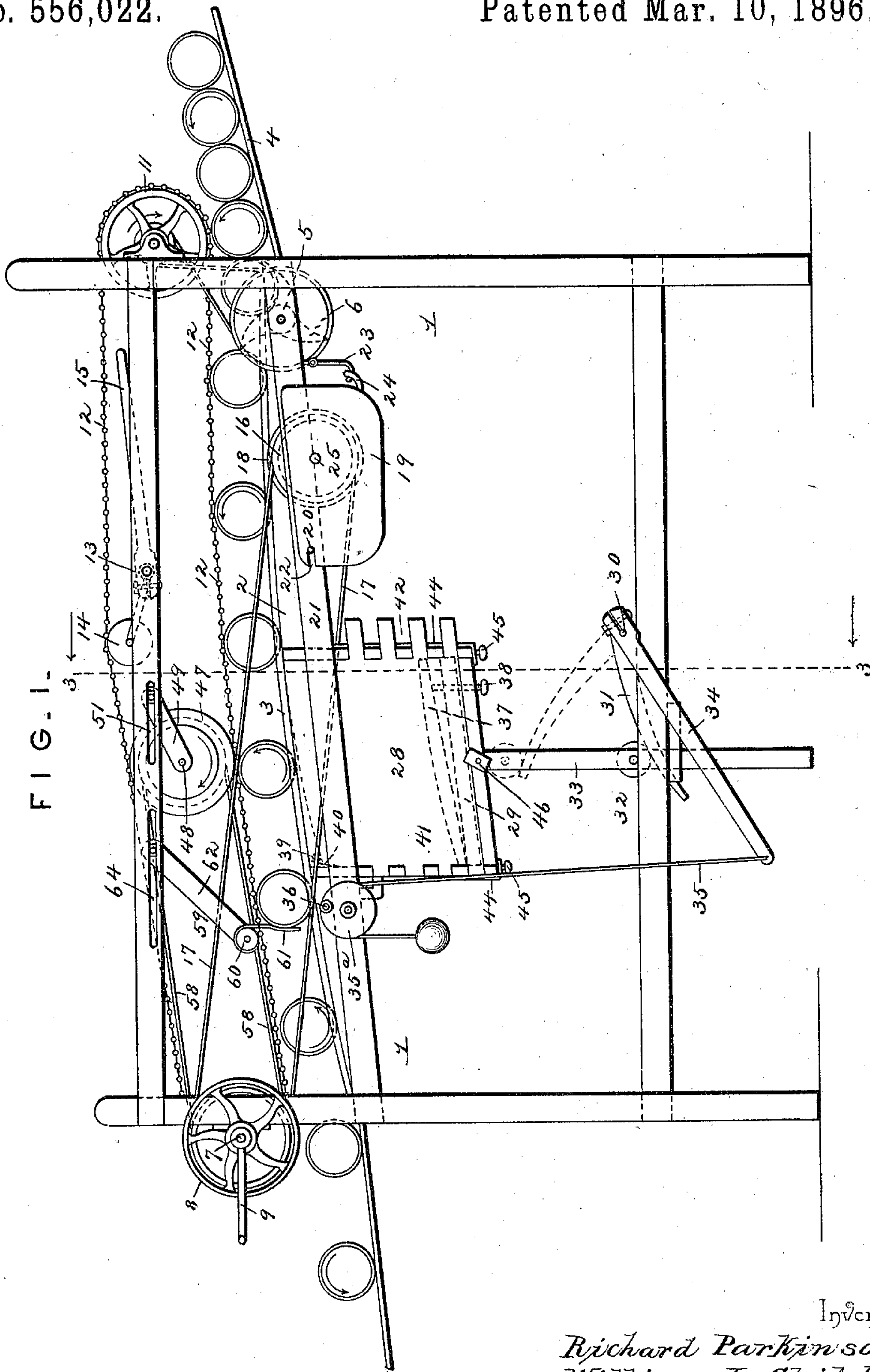
4 Sheets—Sheet 1.

R. PARKINSON, W. L. CHILDERS, R. HANSON
& J. WAKEFIELD.

CAN LABELING MACHINE.

No. 556,022.

Patented Mar. 10, 1896.



Witnesses

Harry L. Amer.

[Signature]

By their Attorneys.

Inventors
Richard Parkinson
William L. Childers
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James Wakefield.

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(No Model.)

4 Sheets—Sheet 2.

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FIG. 2.

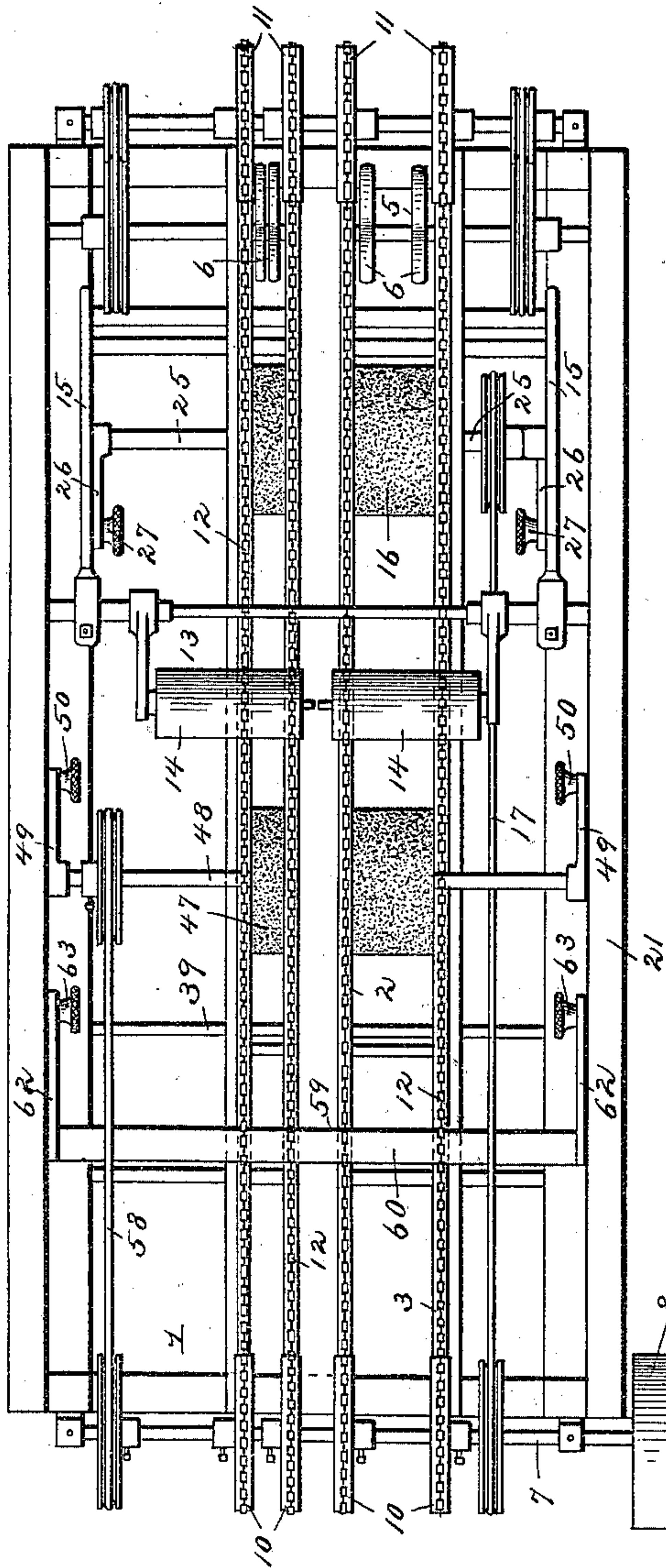


FIG. 6.

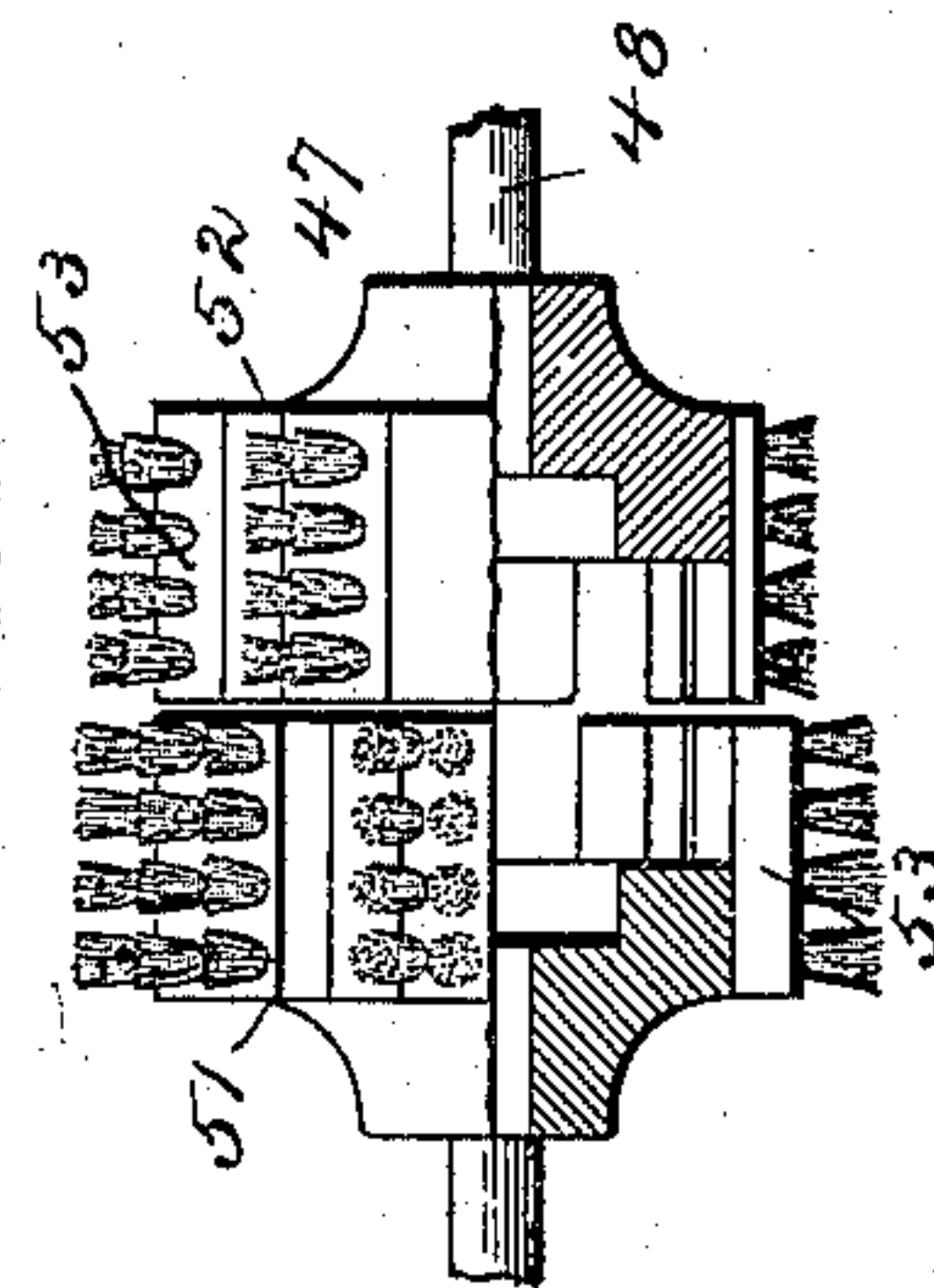


FIG. 5.

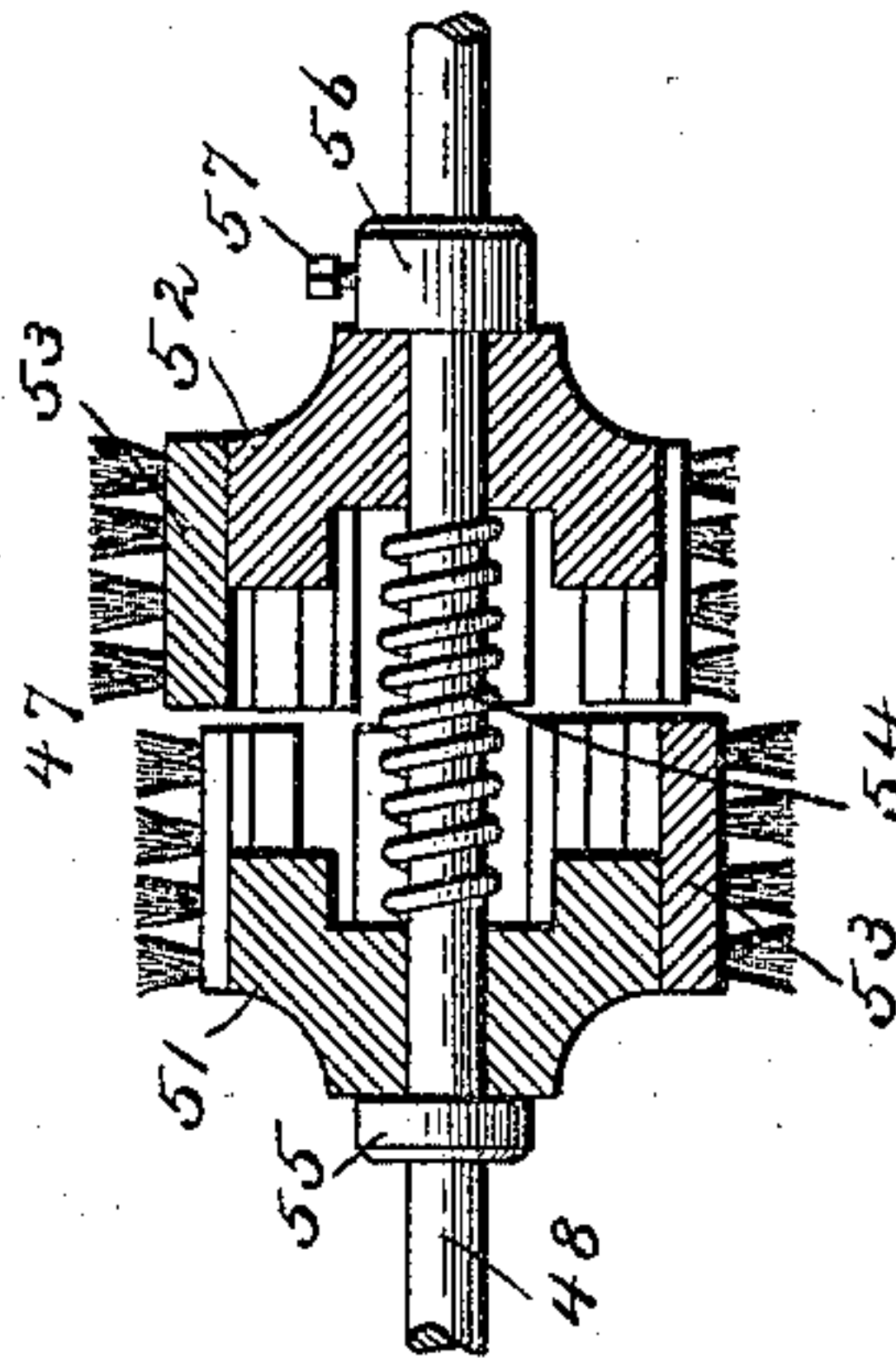
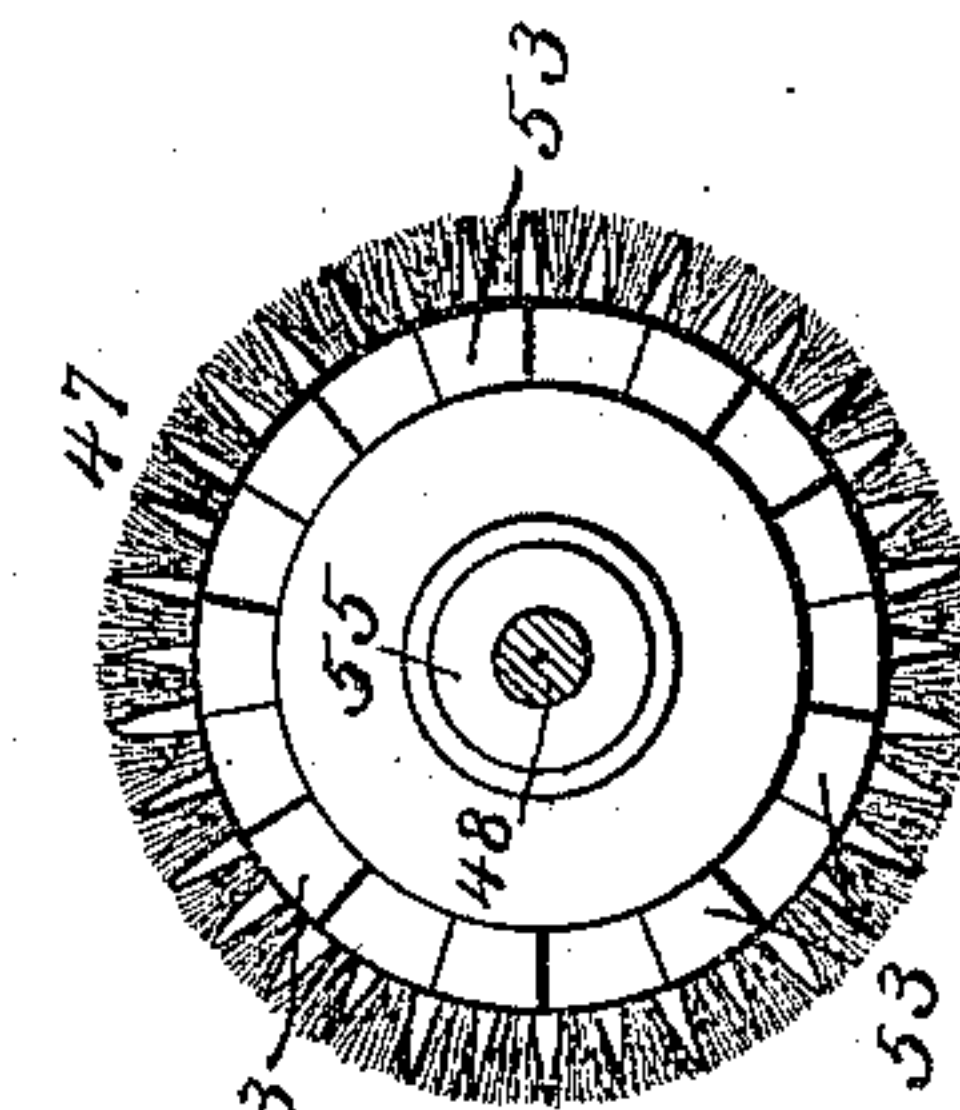


FIG. 4.



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4 Sheets—Sheet 3.

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FIG. 3.

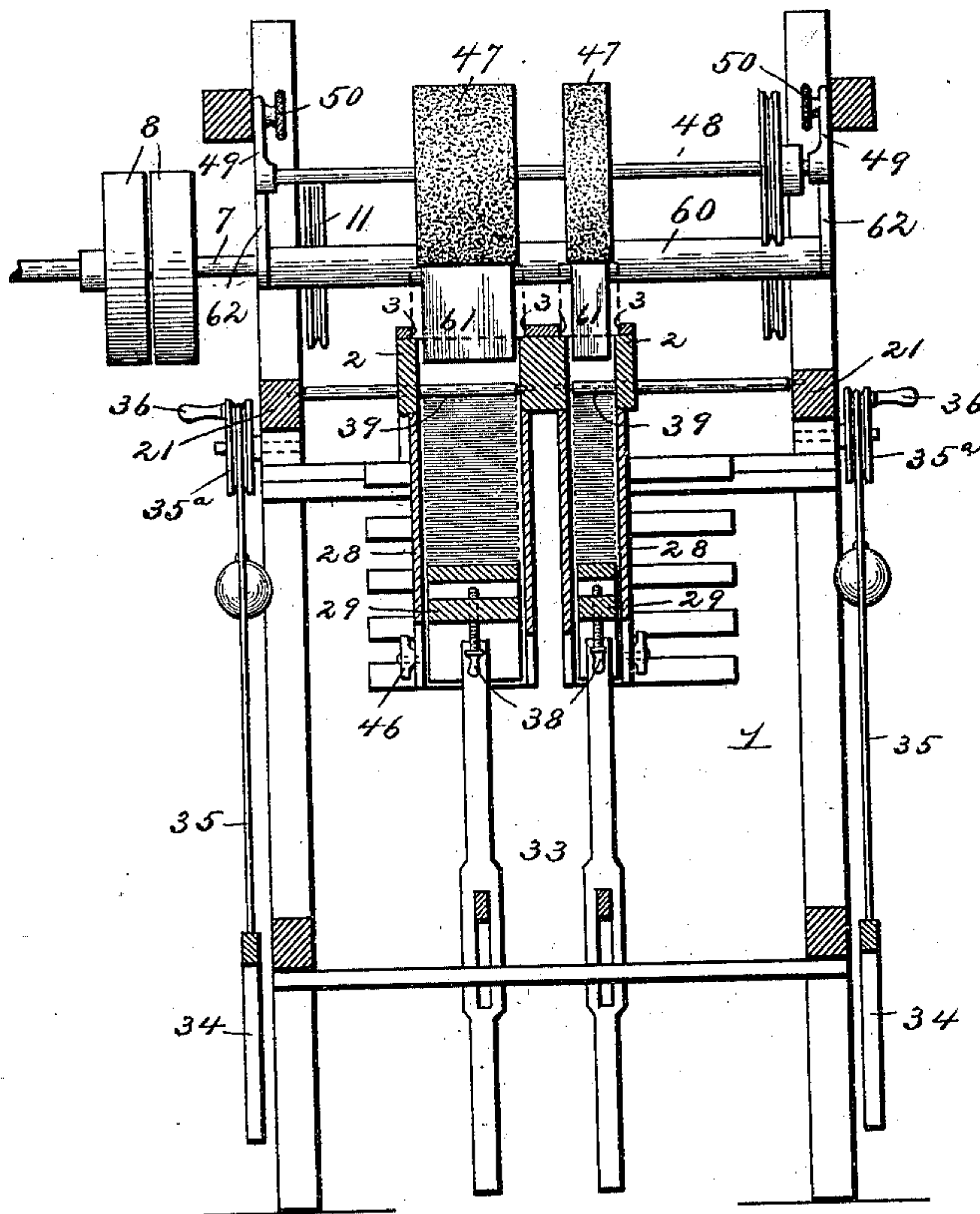
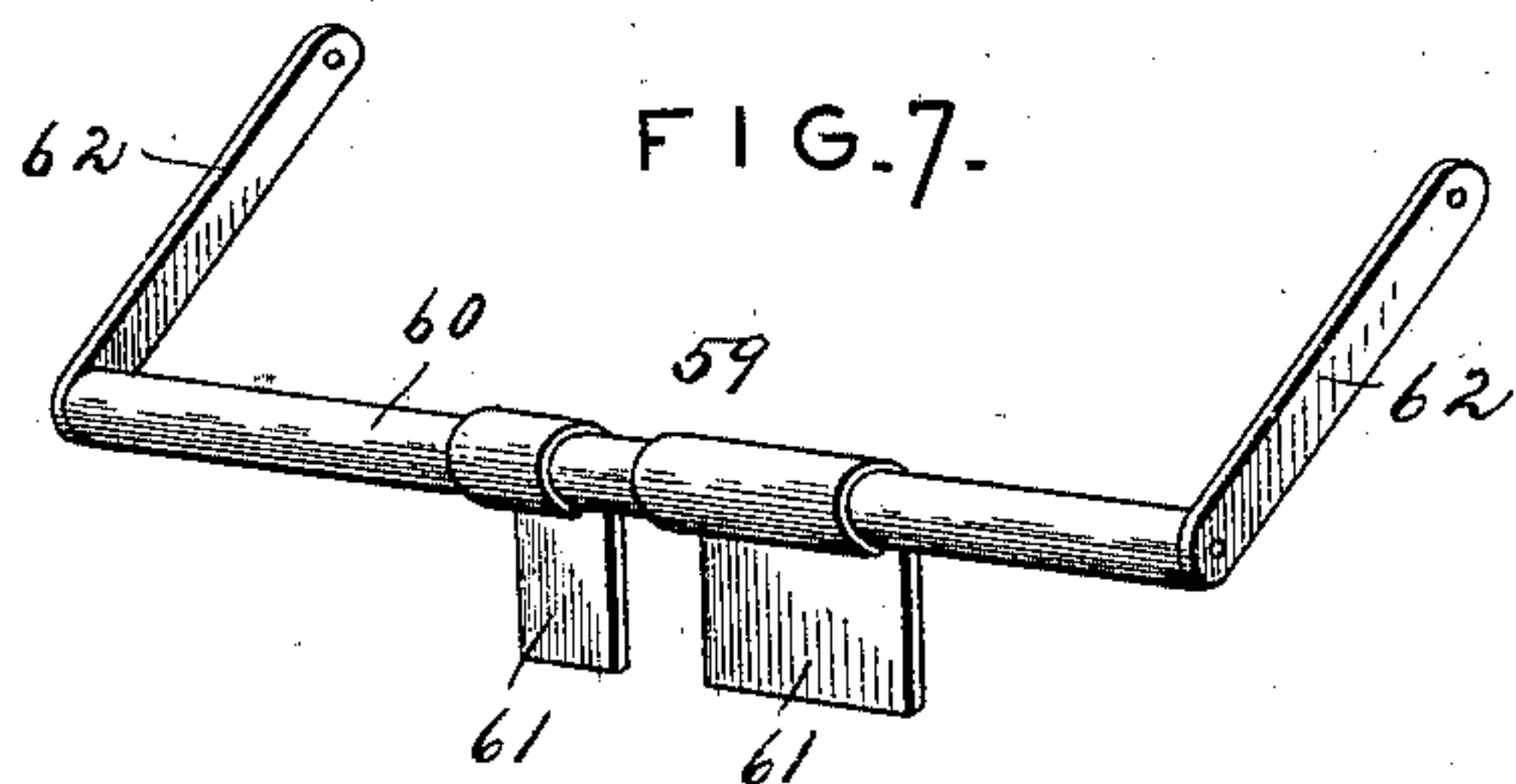


FIG. 7.



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4 Sheets—Sheet 4.

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FIG. 8.

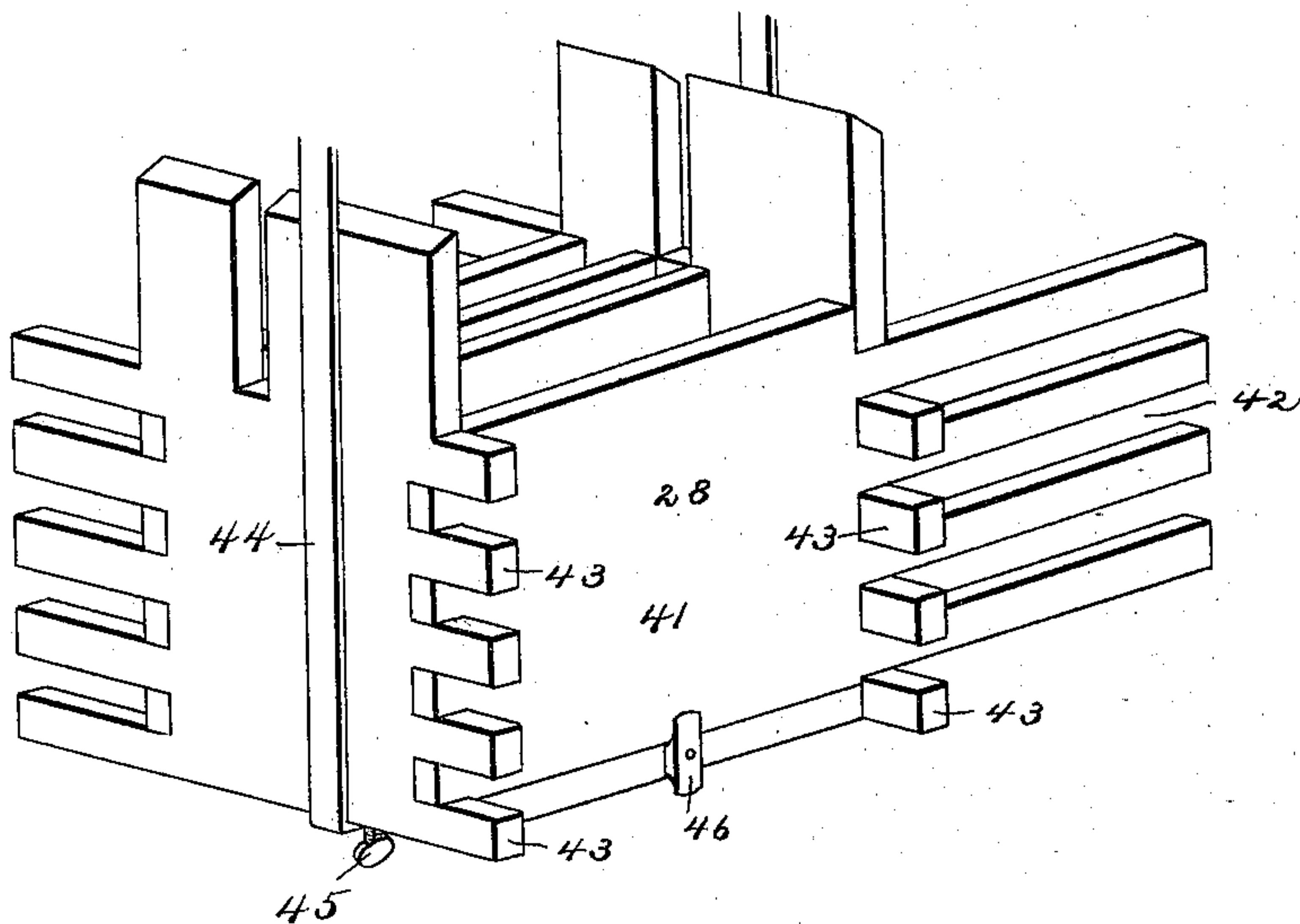


FIG. 9.

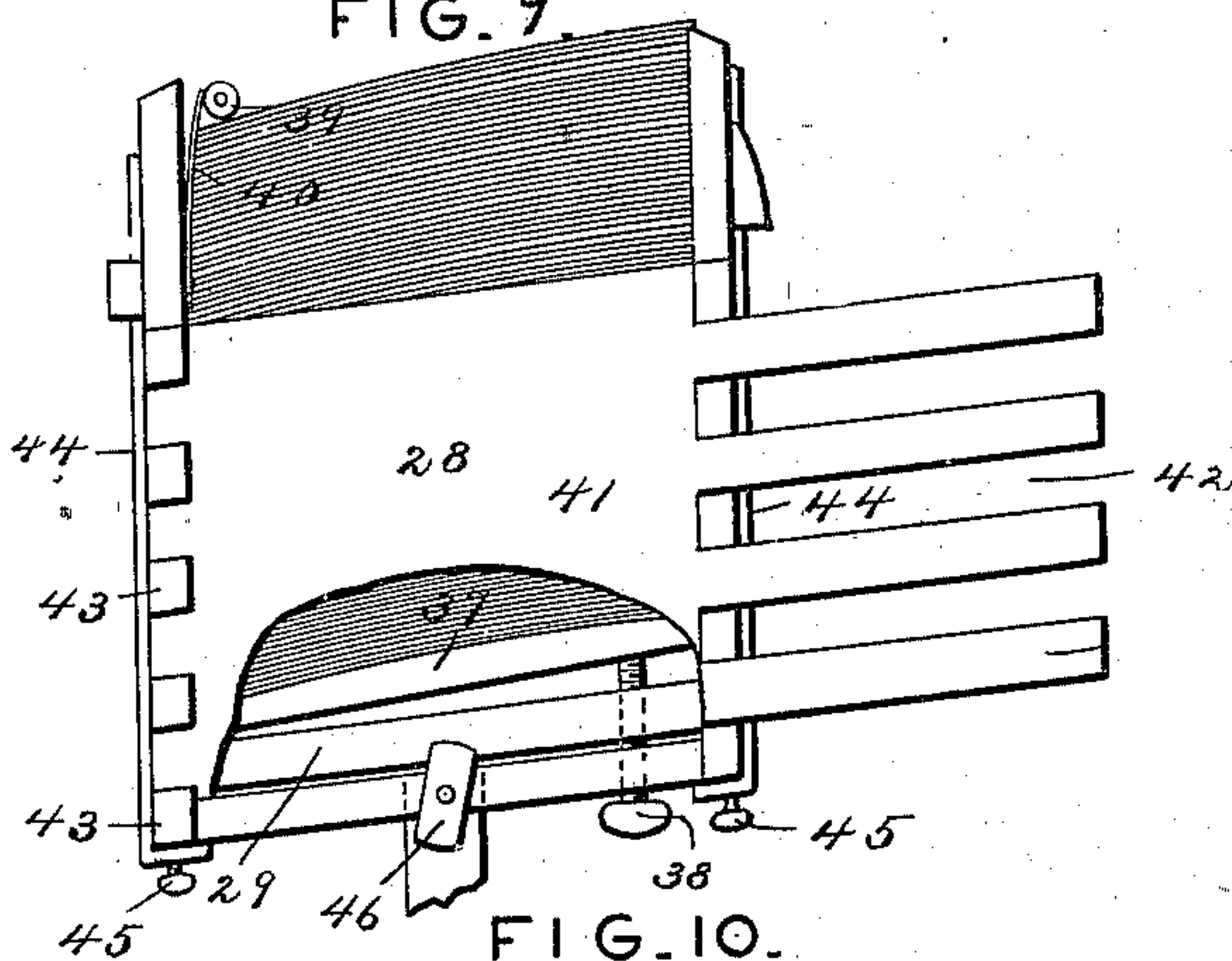
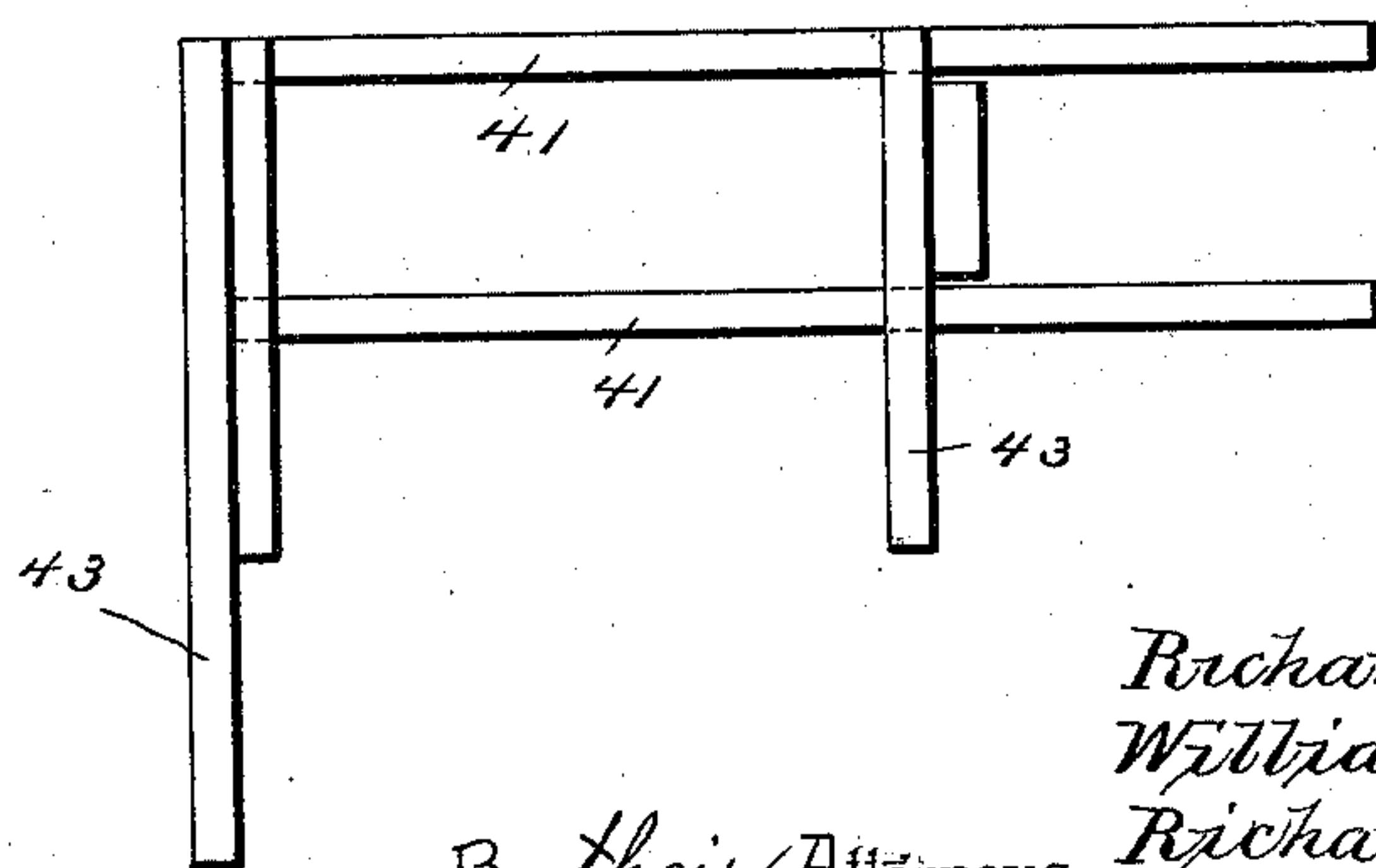


FIG. 10.



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UNITED STATES PATENT OFFICE.

RICHARD PARKINSON, WILLIAM L. CHILDERS, RICHARD HANSON, AND
JAMES WAKEFIELD, OF CRESCENT CITY, ASSIGNOR TO THE PACIFIC
LABELING COMPANY, OF SAN FRANCISCO, CALIFORNIA.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 556,022, dated March 10, 1896.

Application filed May 18, 1894. Serial No. 511,714. (No model.)

To all whom it may concern:

Be it known that we, RICHARD PARKINSON, WILLIAM L. CHILDERS, RICHARD HANSON, and JAMES WAKEFIELD, citizens of the United States, residing at Crescent City, in the county of Del Norte and State of California, have invented a new and useful Can-Labeling Machine, of which the following is a specification.

Our invention relates to machines for labeling cans; and it has for its object to provide a simple and effective device for accurately and expeditiously attaching labels to cans, irrespective of their size, without allowing paste to adhere to the exterior surface of the labels after the completion of the operation, the paste being applied to the surfaces of the cans without scattering or splashing and without bringing the paste-covered surfaces in contact with the can-track or any other than the label which is to be applied to the can just provided with the paste; to provide means for insuring an even or uniform pressure of the conveyer-belt upon all of the cans while passing through the machine; to provide for applying paste to the outer surface of the first-applied edge of each label in order to secure the subsequently-applied or lapping edge without checking the operation of the mechanism; to provide for feeding the labels positively and securing the requisite tension thereof during their application to the cans without tearing or otherwise injuring the same; to provide means for adjusting the label-supporting platen to insure a firm and positive "fixing" of the first-applied end of the label; to provide means for adjusting the label-receptacle to suit the size of labels which are being applied; to provide means for adjusting the length of the auxiliary paster to accord with the size of the labels, and to provide means for adjusting the positions of the auxiliary paster and the wiper to cause them to contact at the proper times with the can in accordance with the length of the labels.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view of

a machine embodying our invention. Fig. 2 is a plan view of the same. Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 1. Figs. 4, 5, and 6 are respectively detail end, sectional, and side views of the auxiliary pasting-brush. Fig. 7 is a detail view of the wiper. Figs. 8, 9, and 10 are respectively detail perspective, side, and plan views of the label-holder.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the supporting-framework of the machine, consisting of uprights and longitudinal and transverse connecting-beams which need no detailed description in that their relative placement may be varied without affecting the merits of the machine.

The can-guides 2 are arranged longitudinally of the framework and are spaced apart to allow the ends of the cans to bear thereon while leaving the intermediate portions of their sides exposed. In the construction illustrated in the drawings two guides arranged side by side are shown, said guides being spaced for cans of different sizes. In the same way other parts of the construction are duplicated. The guides are preferably constructed of metal and are rabbetted or grooved at their inner angles to form seats for the heads of the cans to prevent displacement, said rabbets being shown at 3, and while the general disposition of the guides is upon an inclination downward toward the outlet end of the machine in order to facilitate the forward feeding thereof the guides are convexed or rounded longitudinally, as clearly shown in the drawings, for a purpose hereinafter explained.

In communication with the can-guides at the inlet end of the machine is a feed-chute 4 to deliver cans successively to the guides, and located at the front end of the machine and in the path of the cans as they descend the chute is a rotary separator or feed-wheel 5, provided with a series of spaced curved arms 6, which engage the cans successively and place them upon the track or guide at intervals to prevent crowding.

Located at the outlet or rear end of the machine is a driving-shaft 7 provided with pulleys 8 and crank 9, whereby either mechanical or hand power may be employed to operate the machine and also provided with chain-wheels or belt-wheels 10, which in connection with the idle belt-wheels 11 at the opposite or front end of the machine carry the conveyer-belts 12. In this construction these belts are of metal and preferably consist of chains, in that conveyers so constructed are not liable to become clogged with paste and do not require as much attention with regard to adjustment to preserve a uniform tension. The under side of the conveyer bears upon the upper side of the cans as they traverse the guides, and the convexed or rounded shape of the latter serves to insure an even pressure of the belt upon all the cans on the guides to prevent irregular feeding, slipping, &c. A tension device 13 is employed to preserve an even tension in the belts, irrespective of the number of cans passing through the machine, and such device consists of a roller 14 held in contact with the upper side of the belts by means of weighted arms 15 which are pivoted to the framework.

It will be seen that the convexity or curvature of the can-guides is continuous from the feeding device to the outlet end of the machine, and that as the axes of the chain-wheels 10 and 11 are arranged beyond the ends of the machine, and at such a point that the lower sides thereof are contiguous to the planes of the ends of the can-guides, the lower side of the conveyer, when unobstructed between the chain-wheels, is arranged parallel with a tangent of the guides, and hence by holding the conveyer at an even tension the lower side thereof will bear with uniform pressure upon the upper sides of the cans on the guides irrespective of the number of such cans.

Located adjacent to the front or inlet end of the machine is the paste-roll 16, which receives motion from the driving-shaft by means of a belt 17, is provided with a raised center 18, which extends slightly above the plane of the can-guides in order to apply the paste to the side surfaces of the latter, and which dips at its lower side in the paste contained in the paste-box 19. This paste-box is detachably secured to the framework of the machine by means of pins 20, extending inward from side bars 21 of the framework and engaging slots 22 in the sides of the box, and a hook 23, also supported by the framework, engaging a keeper 24 on the opposite end of the box. The spindle 25 of the pasting-roll 16 is supported by arms 26 secured by means of set-screws 27 to the framework, whereby the elevation of the roll may be adjusted to suit the quantity of paste in the box and the desired pressure of the roll upon the surfaces of the cans.

In rear of the pasting device is arranged the label holding and applying mechanism,

consisting of a label-receptacle 28, provided with a vertically-reciprocable platen 29 to support a quantity of labels arranged face downward, means for pressing said platen upward to hold the uppermost label in position to bear against the surface of the previously-pasted can, and means for holding the rear end of the label until the front end has been fixed and a certain amount of tension is applied to properly stretch the label. The means for feeding the platen upward as the labels are successively removed consist of a rock-shaft 30, having an arm 31, which bears against an antifriction-roll 32, carried by the stem 33 of the platen, a lever 34 also secured to said rock-shaft, and a weight having a flexible connection 35 with the free end of said lever, said connection passing over an intermediate roll 35^a, provided with a handle 36, whereby the weight may be raised to allow the platen to descend. The platen is provided with an adjustable face-plate 37, capable of vertical adjustment at its front end by means of the screw 38. The entire platen is preferably placed upon an inclination downward toward its rear end to agree with the inclination of the can-guides; but by means of this adjustment the inclination of its upper surface or face-plate may be made in excess of that of the can-guides, for a purpose hereinafter explained. The upper surface of the face-plate is rounded or convexed also for a specific purpose.

Located near the top of the label-receptacle adjacent to its rear end is a tension-roll 39 to engage the rear end of each label and retain it until it is subjected to sufficient tension to properly press it against the surface of the can, and contiguous to this tension-roll is a spreader, consisting of a spring 40 which bears against the rear ends of the labels as they are elevated and press the uppermost label forward, so that its front edge overlaps the front ends of the subjacent labels to prevent the paste from the surface of the can which contacts with said uppermost label from coming in contact with said subjacent labels.

For the purpose of adjusting the size of the label-receptacles to suit labels of different sizes we extend the sides 41 thereof and provide them with longitudinal spaced slots 42, into which are fitted the spaced-end strips 43. These parts are held at the desired adjustment by means of the clips 44, having set-screws 45. One side of the receptacle is preferably removable to facilitate the introduction of labels, and it is held in place by means of a turn-button 46.

Arranged directly above the transverse center of the label-receptacle is an auxiliary pasting-roll 47, mounted upon a spindle 48, which is journaled in bearings in the free ends of the parallel arms 49. These arms are secured to side bars of the framework by means of set-screws 50, and said set-screws engage longitudinal slots 51 in said frame-

work to enable the roll 47 to be adjusted longitudinally of the machine to suit the length of the labels which are being applied.

In order to provide for the axial adjustment of the roll 47 to suit labels of different widths, we form the same in twin relatively adjustable parts or members 51 and 52 provided with interlocking brush-bearing fingers 53. A spring 54 is interposed between the parts or members of the roll to hold them separated and in contact, respectively, with the limiting-collars 55 and 56, of which one or both may be adjustable by means of a set-screw 57 or similar device. The spindle of the auxiliary pasting-roll receives motion from the driving-shaft through the belt 58, and it is driven at such a speed that the surface of the roll moves more rapidly than the cans, the rotation of the roll being in the opposite direction from that of the cans, whereby their adjacent sides move in the same direction, as indicated by the arrows in the drawings.

In rear of the auxiliary pasting-roll is the wiper 59, consisting of a transverse roll 60 carrying a flexible web 61 to bear against the surface of the label after application to the can and smooth out uneven parts thereof, as well as remove all surplus paste adhering to the surface. The roll 60 is normally stationary, although it is adjustable to vary the length of the web which is rolled thereon, and said roll is carried by the arms 62, which are secured to the framework by means of set-screws 63 engaging slots 64. By means of these set-screws and slots the wiper may be adjusted longitudinally of the machine to suit the length of the labels and the position of the auxiliary pasting-roll.

This being the construction of the improved labeling mechanism, the operation thereof, briefly stated, is as follows: The cans as they are lifted from the chute and placed at intervals upon the guides are caught by the conveyor-belts and rolled over the continuously-rotating pasting-roll, after which they are carried over the label-receptacle, where the front ends of the labels are picked up by the paste. The slight elevation of the front end of the face-plate of the platen causes the front end of the uppermost label to be pressed firmly against the can, and when this front end of the label, by reason of the rotation of the can, reaches the upper side thereof it comes in contact with the rapidly-rotating auxiliary pasting-roll. The rapid rotation of this roll causes it to press the edge of the label smoothly against the surface of the can and at the same time apply a film of paste to the outer surface of the label adjacent to this end to insure the attachment of the rear end of the label when pressed in contact therewith and overlapped, as in the usual practice. The auxiliary pasting-roll is supplied with paste by contact with the paste-coated portions of the surfaces of the cans, the paste removed by the roll from each can being transferred

to the front ends of the labels on the succeeding cans. Until the can reaches the transverse center of the label-receptacle and is engaged at its upper side by the auxiliary pasting-roll it simply rolls over the surface of the uppermost label and lifts it without longitudinal strain or tension, owing to the fact that this portion of the label is held in a plane corresponding with the plane of the can-guides; but after the front end of the label has been "fixed" by the contact therewith of the auxiliary pasting-roll the rounded or convexed surface of the face-plate of the platen allows the label to recede from the plane of the can-guides, and as the rear end of the label is held by the tension-roll the label is strained and is not released until the can reaches a point approximately above said roll.

The use of a roll instead of a finger or pressure-bar is advantageous in that it is more reliable, being less affected by friction and therefore releases the label at the proper moment and before the latter is torn or otherwise injured.

The tension-roll, which is arranged in the label-holder contiguous to the rear wall thereof, and hence in contact with the upper surface of the uppermost label at its rear end, is mounted in stationary bearings, and in addition to limiting the upward movement of the labels and of the platen it holds the rear end of the uppermost label until after the can, to which the front end thereof is attached, has passed over and beyond the roll. This draws the label over the tension-roll and exerts an upward pull upon the label, which is sufficient to detach it from the holder without the liability of tearing. The tension-roll extends from one side of the holder to the other, and by being arranged in front of and contiguous to the surface of the spring 40 it bears upon the extreme rear end of the label which is being applied to a can.

The can now passes on to the wiper where the rear or finally-applied end is pressed in contact with the pasted front edge to form an overlapping-joint, and all wrinkles and uneven parts of the surface are smoothed.

The operation of the machine is continuous and rapid, and as its various parts or members operate automatically to perform their various functions independently of each other and at the same time in the proper succession and to preserve the proper tension to insure the effective application of the labels the operator is relieved of a considerable portion of the labor usually attending this work. Furthermore, it is not necessary that cans should be fed continuously during the operation of the mechanism in order to prevent injury to the parts, for the latter are so arranged as to preserve their proper positions irrespective of the cans.

While we have described only one set of devices, including feeding, pasting, labeling, applying, and smoothing mechanism, it will be seen from the drawings that a plurality of

sets is employed, said sets being either of the same or different sizes, as may be preferred, the construction, however, of each set being as hereinbefore described.

5 It will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

10 Having thus described our invention, we claim—

1. In a device of the class described, the combination with can-guides and feeding devices communicating therewith, of a rotary 15 pasting-brush arranged at its upper side between the can-guides, a paste-box provided at one end with slots or notches 22 to engage pins 20 on the frame, and a hook supported by the frame and engaging a loop or eye at the 20 opposite end of the paste-box, substantially as specified.

2. In a device of the class described, the combination with can-guides, and feeding and pasting devices, of a label-receptacle, a platen 25 arranged therein and provided with an adjustable face-plate having a convexly-rounded upper surface, means for adjusting the front edge of said face-plate, tension devices, and means for feeding the platen, substantially 30 as specified.

3. In a device of the class described, the combination with can-guides, and feeding and pasting devices, of a label-receptacle constructed of relatively adjustable members 35 having terminal interlocking extensions, means for adjusting said members whereby the size of the receptacle may be varied to receive labels of different sizes, said means comprising clamps 44 and set-screws 45, a platen, 40 and means for feeding the latter, substantially as specified.

4. In a device of the class described, the combination with pasting and label-feeding devices, of a continuous upwardly convexed 45 or rounded can-guide extending from the feeding to the discharge end of the machine, an endless conveyer-belt arranged above the can-guide with its lower side contiguous thereto and having supporting-rolls arranged adjacent to the extremities of the guide, whereby 50 when unobstructed the lower side of the conveyer occupies a position parallel with a line tangential to the guide, an automatic tension device for maintaining an even tension in the 55 belt irrespective of the number of cans upon the guide, and whereby the lower side of the belt bears with equal pressure upon all of said cans, and means for operating the belt, substantially as specified.

60 5. In a can-labeling machine, the combination with can-pasting devices and a label-

supply, of a pasting device in the path of travel of the can and arranged to come in contact with the can at the point where the front end of the label is attached to it and 65 prior to the overlapping of the front end of the label by the rear end, the said pasting device acting to transfer paste from each can as it passes through the machine to the front end of the label on the succeeding cans, substantially 70 as specified.

6. In a can-labeling machine, the combination with can-pasting devices and a label-supply, of a rotating pasting device in the 75 path of the can and arranged to come in contact with the can at the point where the front end of the label is attached to it and prior to the overlapping of the front end of the label by the rear end, the said pasting device acting to transfer paste from each can as it passes 80 through the machine to the front end of the label on the succeeding cans, and means whereby the said pasting device is given a greater surface speed than that of the cans, 85 substantially as specified.

7. In a machine of the class described, the combination with can-guides, feeding and pasting devices, and a label-holder, of an auxiliary pasting-roll comprising twin separable 90 parts or members provided with interlocking brush-carrying fingers, means for adjusting and locking said parts or members, and operating connections, substantially as specified.

8. In a machine of the class described, the 95 combination with can-guides, feeding and pasting devices, and a label-holder, of an auxiliary pasting-roll comprising twin separable parts or members provided with interlocking brush-carrying fingers, a spring interposed 100 between said parts or members, stop-collars to limit the outward movements of the parts or members, and operating connections, substantially as specified.

9. In a machine of the class described, the 105 combination with can-guides, feeding and pasting devices, a label-holder, and an auxiliary pasting-roll, of a wiper having a flexible web arranged in the path of the cans traversing the guides, a rotatably-adjustable roll 110 supporting said web, and means for supporting the roll, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

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WILLIAM L. CHILDERS.
RICHARD HANSON.
JAMES WAKEFIELD.

Witnesses:

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