

No. 628,771.

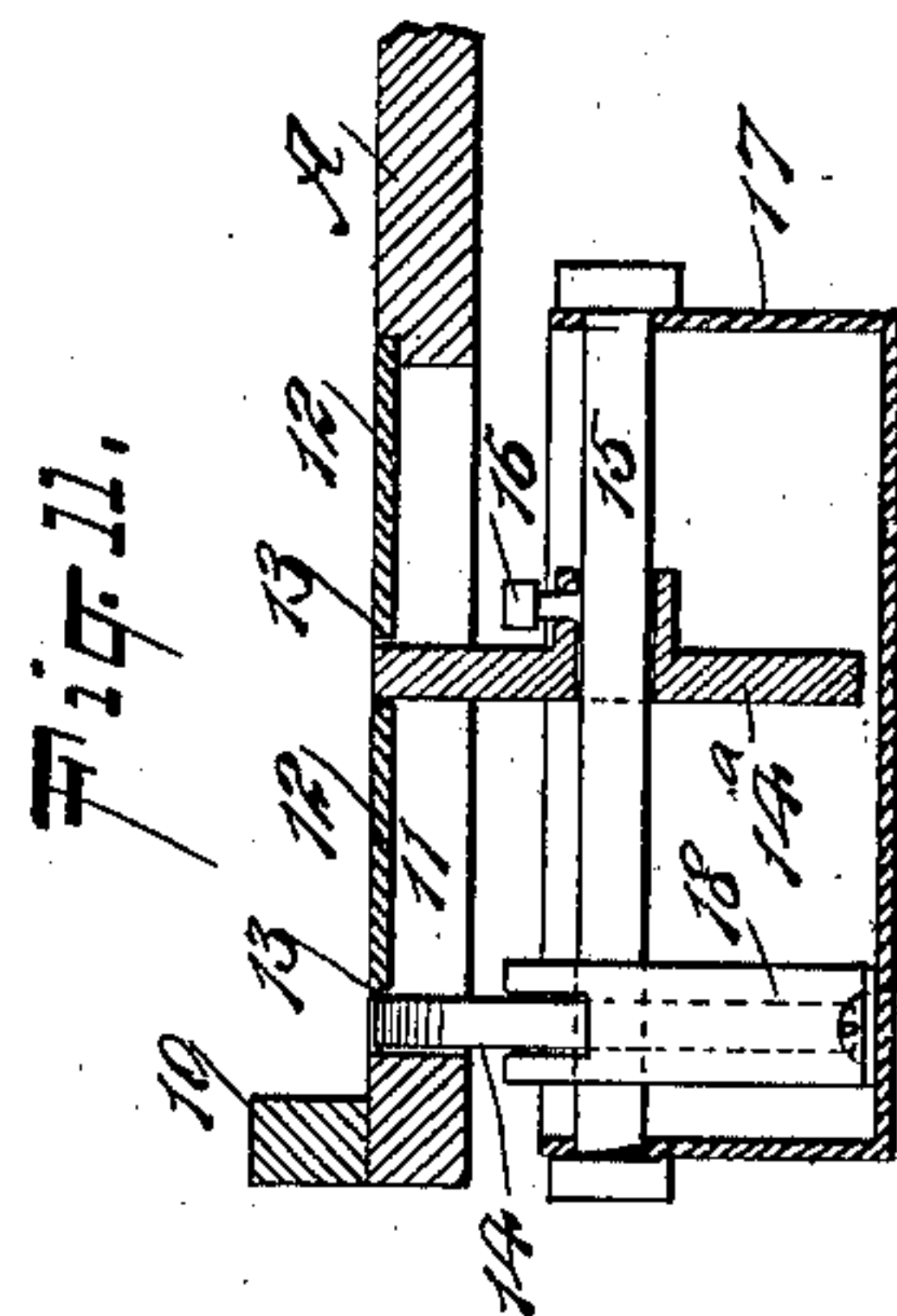
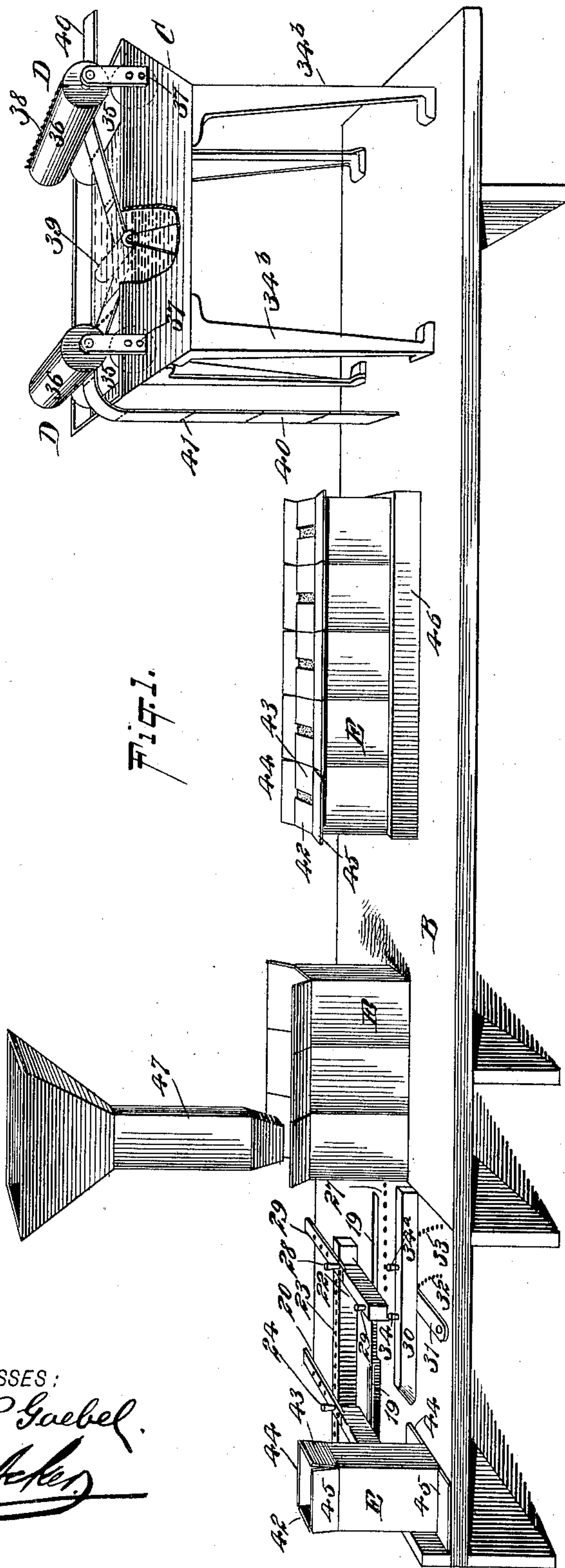
Patented July 11, 1899.

J. T. CRAW.  
PACKAGE SEALING DEVICE.

(Application filed Feb. 18, 1899.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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**Patented July 11, 1899.**

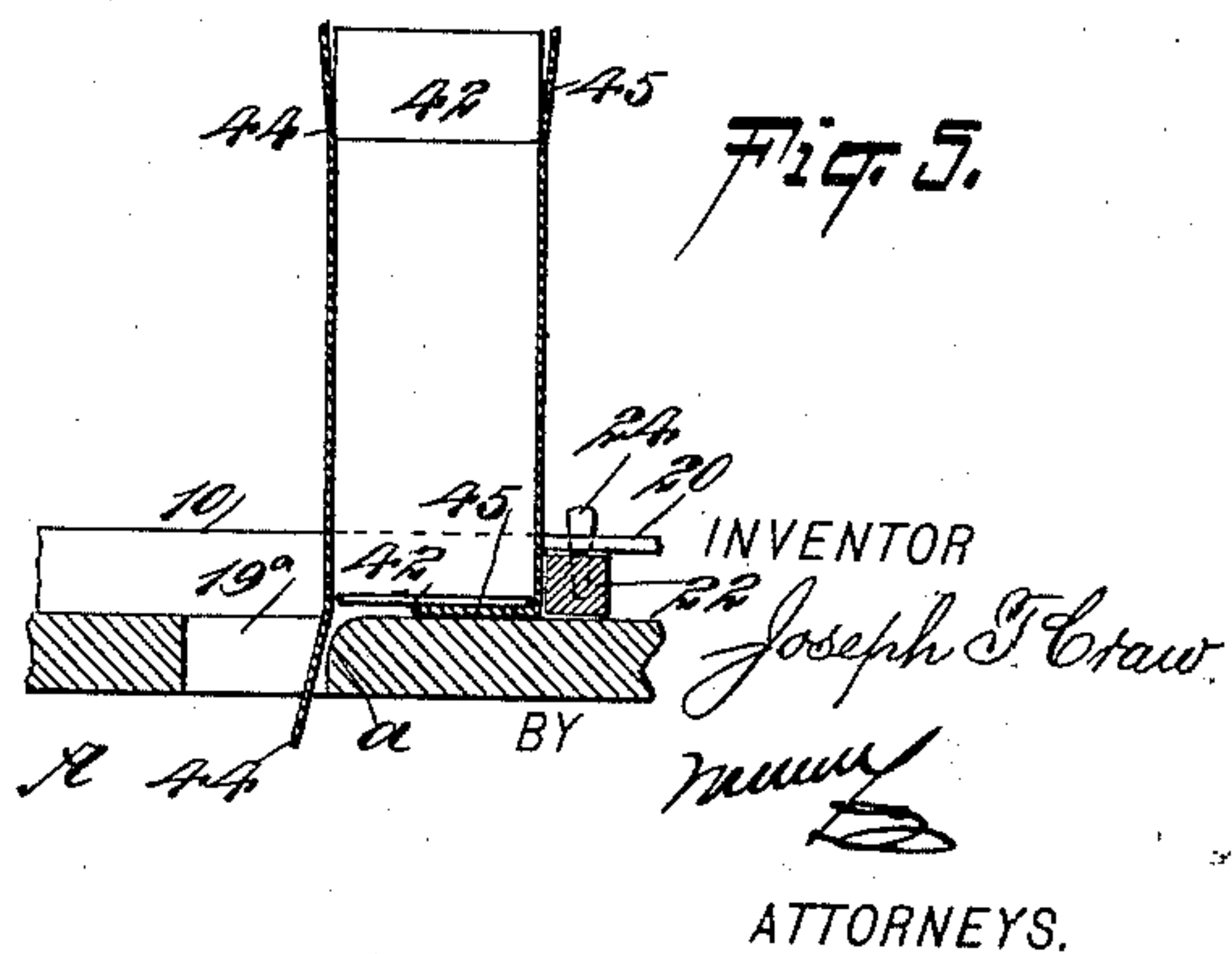
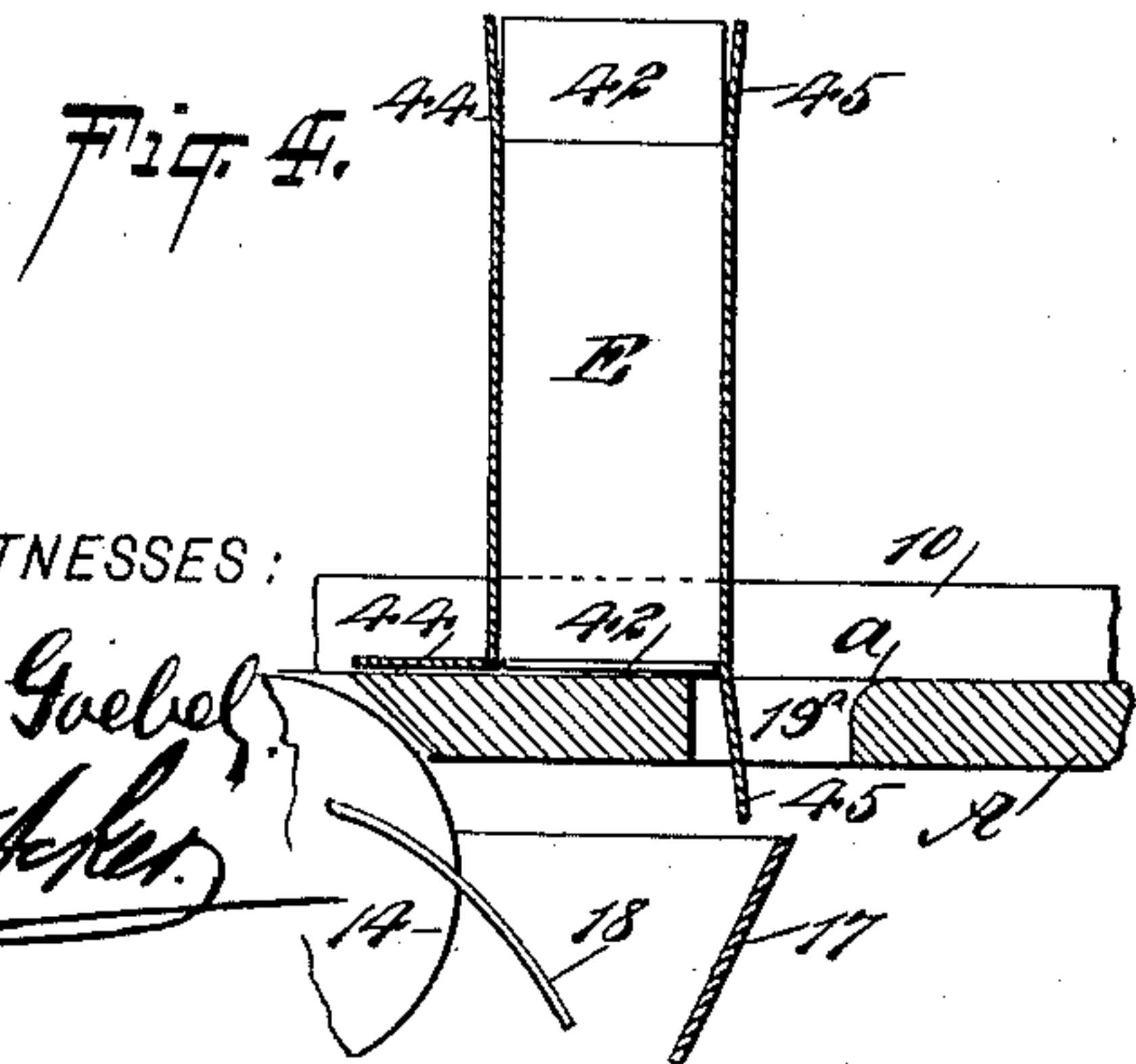
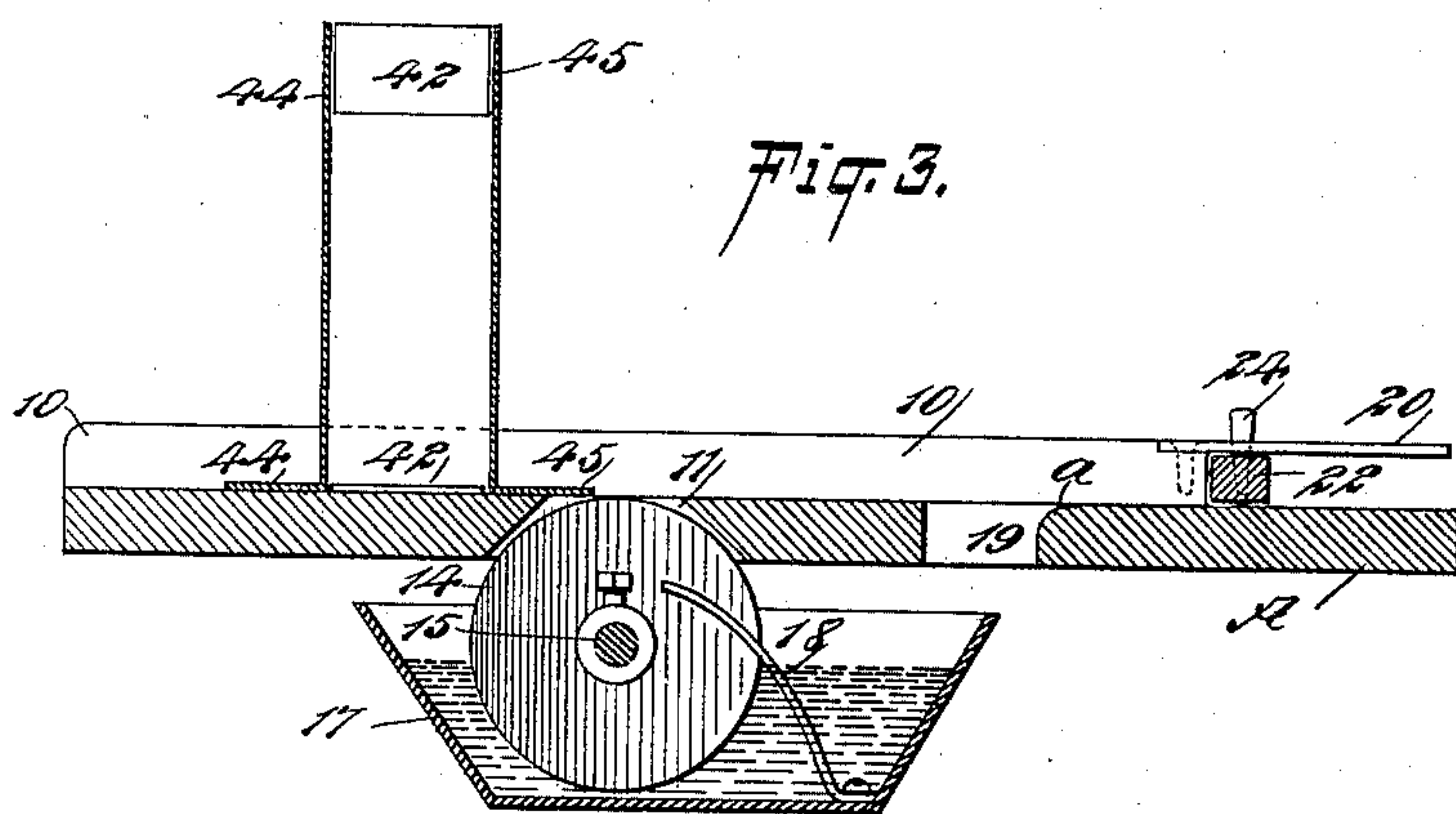
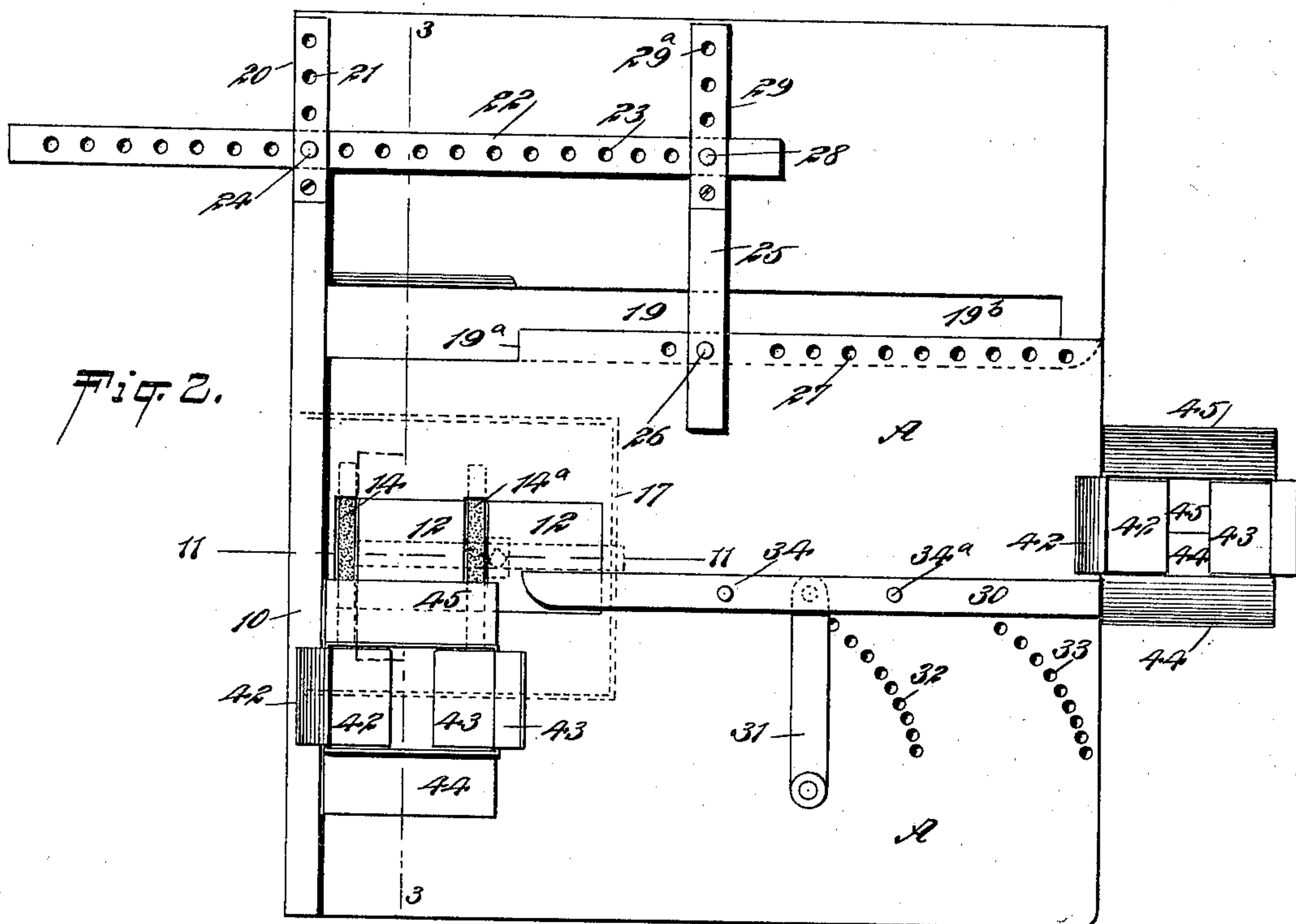
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**3 Sheets—Sheet 2.**



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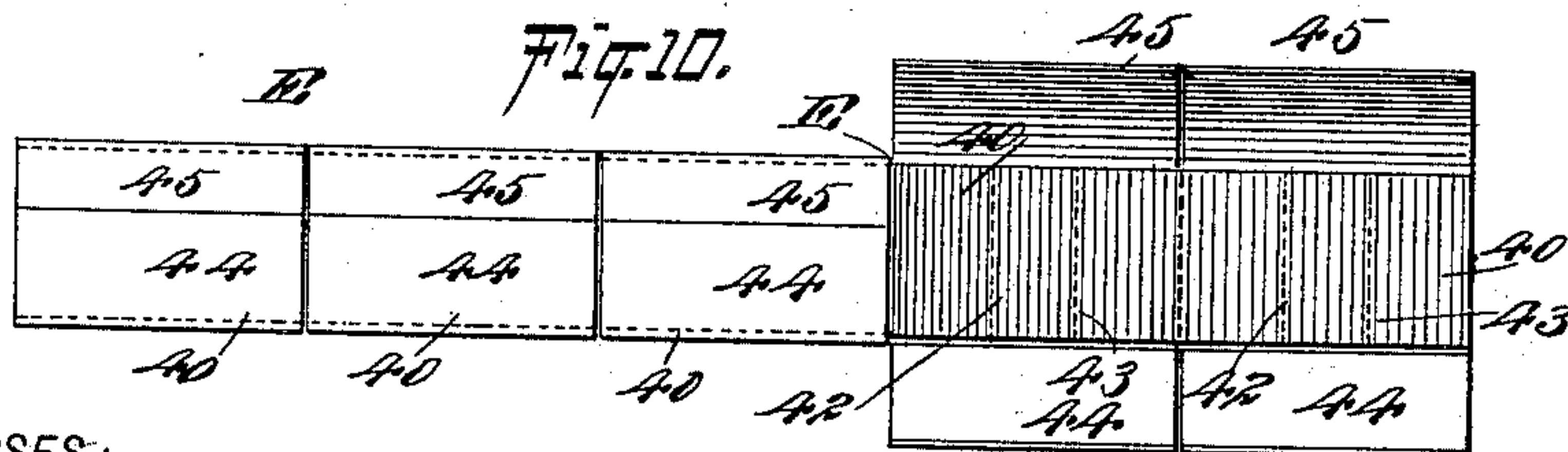
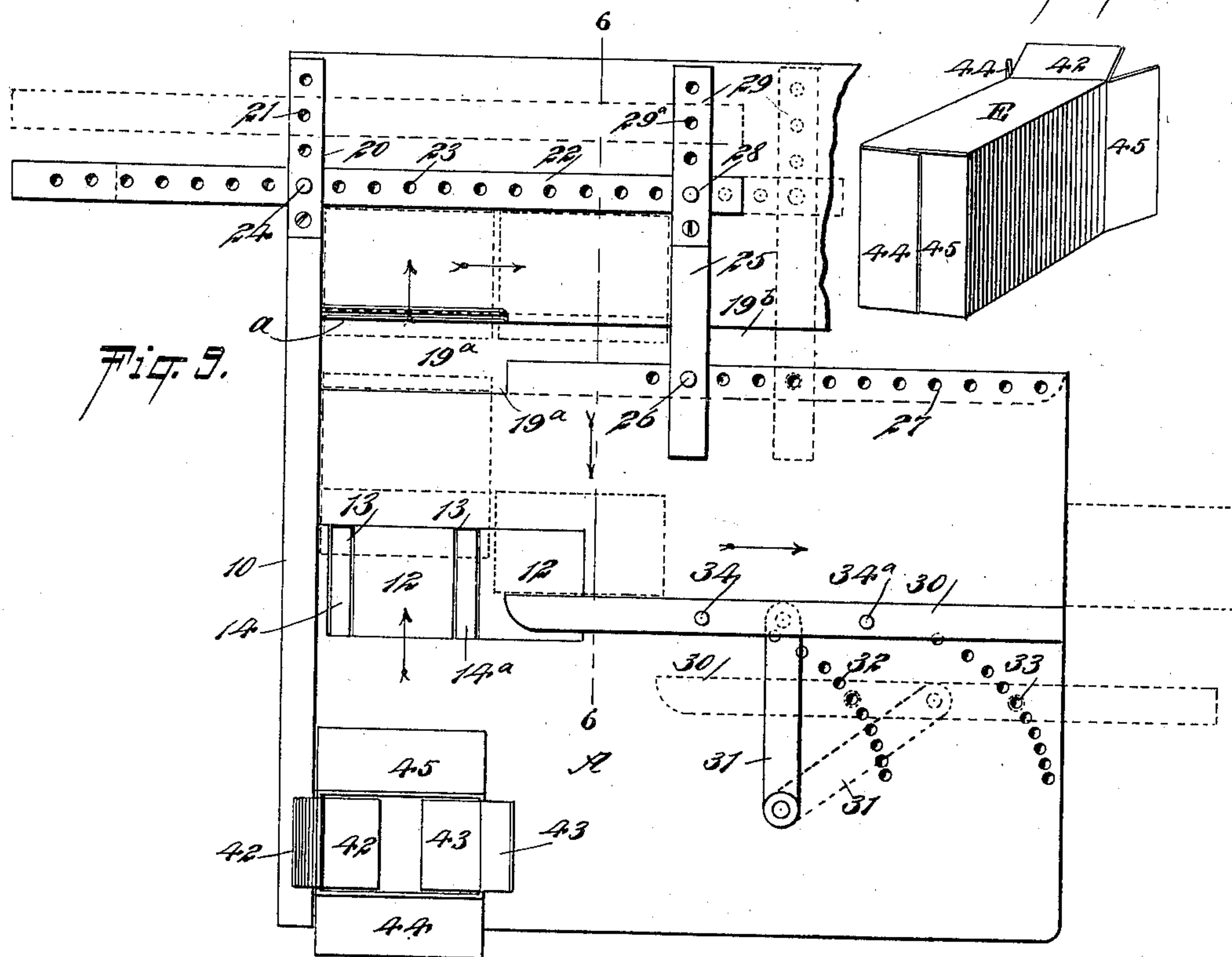
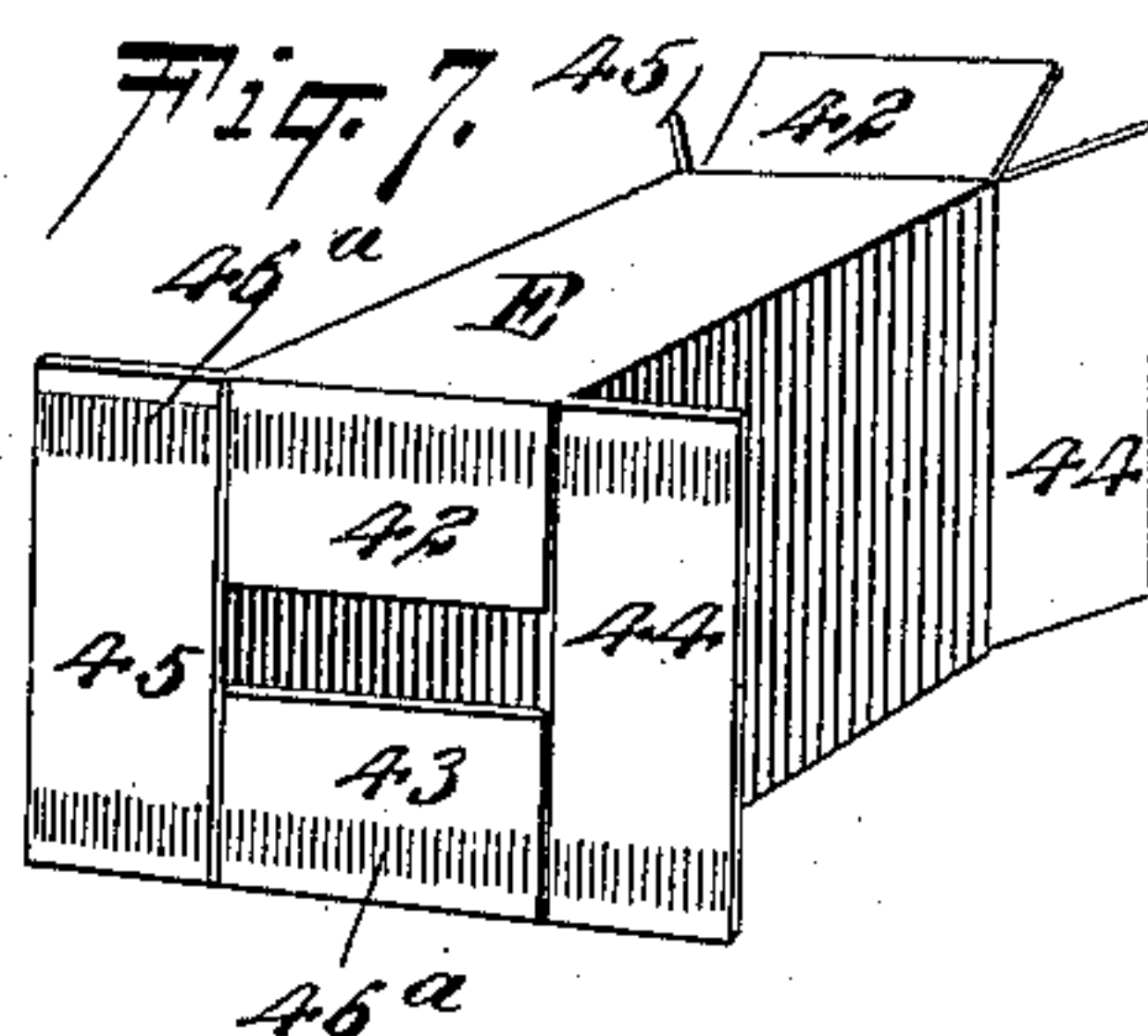
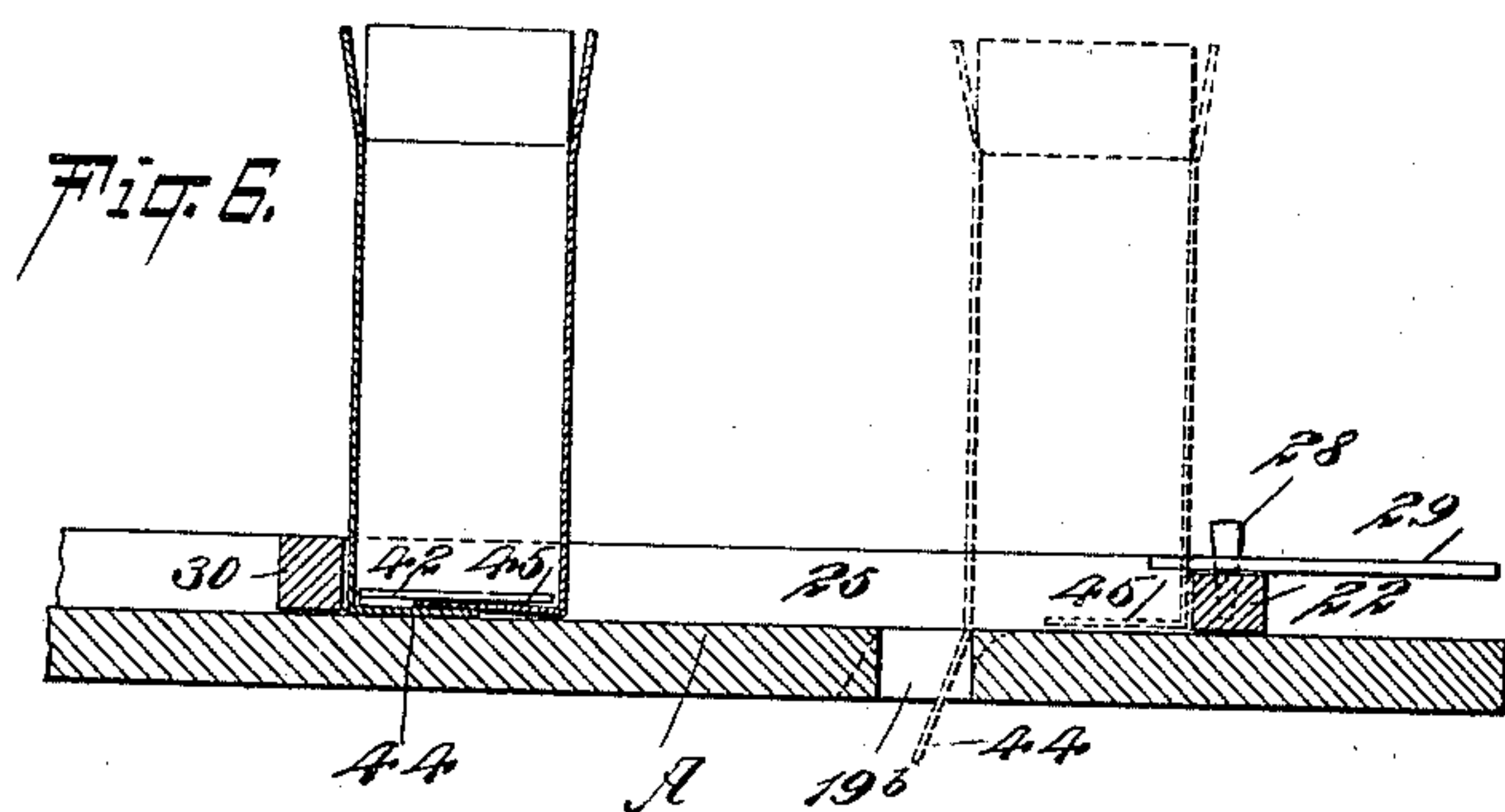
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(Application filed Feb. 18, 1899.)

(No Model.)

3 Sheets—Sheet 3



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# UNITED STATES PATENT OFFICE.

JOSEPH T. CRAW, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF  
TO ROBERT P. BROWN AND EDWARD L. BAILEY, OF PHILADELPHIA,  
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## PACKAGE-SEALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 628,771, dated July 11, 1899.

Application filed February 18, 1899. Serial No. 705,988. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH T. CRAW, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Device for Sealing Packages, of which the following is a full, clear, and exact description.

The object of my invention is to provide a simple economic device whereby the end flaps or wings of empty paper boxes, cartons, or like articles usually packed flat may be expeditiously and securely sealed at one end to admit of filling.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a perspective view of the complete device. Fig. 2 is a plan view of the main table of the device or that portion that is adapted to close and seal an end of an empty box. Fig. 3 is a section taken substantially on the line 3 3 of Fig. 2. Fig. 4 is a section taken also on the line 3 3 of Fig. 2, illustrating one flap or wing of the box in position to be closed. Fig. 5 is a section similar to Fig. 4, illustrating the flap shown in Fig. 4 as in position to be sealed, as having been sealed, and the opposing flap in position to be closed and sealed. Fig. 6 shows in dotted lines a box with a flap in position to be closed over a flap already closed, said box having been moved to a different position on the table than the position the box occupies in Fig. 5, and said figure also shows in positive lines a vertical section on the line 6 6 in Fig. 9 of a box, the bottom flaps of which have been sealed. Fig. 7 is a perspective view of a box viewed from the bottom, illustrating the manner in which the sealing compound is applied to the bottom of said box. Fig. 8 is a perspective view of a box, the bottom of which has been completely closed. Fig. 9 is a partial plan view of the improved table adapted for closing the bottom of the box, illustrating in dotted lines the various posi-

tions the box occupies while its bottom is being closed. Fig. 10 is a plan view of a series of boxes, showing the manner in which their upper ends are sealed, sundry of the boxes being shown completely sealed and others partially so; and Fig. 11 is a transverse section taken practically on the line 11 11 of Fig. 2.

A represents a table or a board that is supported in any suitable or approved manner, but which may rest directly upon an independent support of any character. The table A is provided with a rib or flange 10 at its left-hand side, extending from the front to a point near the rear, and between the ends of the flange 10 a transverse opening 11 is made in the table, as shown in Fig. 11, the opening being adjacent to the said flange 10. This opening is partially closed by plates 12, that fit in rabbets formed in the walls of the opening, and the said plates are so arranged as to provide two longitudinal slots 13, and a disk 14 is made to extend through the opening 13, that is nearest the flange 10, while a second disk 14<sup>a</sup> extends into the opening 13 farthest removed from said flange. These disks may have a brush-periphery, or their peripheral surfaces may be prepared in any manner that will enable said surfaces to carry paste, glue, or other cementing material to the upper surface of the table.

The disk 14 is secured upon a shaft 15, while the disk 14<sup>a</sup> is adjustably attached to said shaft, and, as shown in Fig. 11, the shaft 15 is mounted in a trough 17, said trough being adapted to contain paste, glue, or other cementing compound. In order that the disk cement-distributors may not become clogged, a scraper 18 is provided for one or both of the disks, the scrapers being preferably of the character shown in Figs. 3 and 11, each scraper consisting of a plate of spring material secured to the bottom of the trough and having its upper end bifurcated, so that the members may extend out at each side of the disk cement-distributors.

A transverse opening 19 is made in the table A, the said opening extending usually from the right-hand side to the flange 10 at the left-hand side of the table. This open-



ing 19 is between the rear edge of the table and the opening 11, at which the devices are attached for conducting cementing material to the upper portion of the table. The opening 19 is in two widths, the wider section 19<sup>a</sup> being adjacent to the left-hand side of the table and the narrower section 19<sup>b</sup> of the opening extending toward the right-hand side, as is clearly shown in Figs. 2 and 9. The rear wall of the opening 19 is practically straight throughout its length and the forward wall of the narrower section 19<sup>b</sup> of the opening may be either beveled or straight, while the rear wall  $\alpha$  of the wider section 19<sup>a</sup> of the opening is curved upwardly and rearwardly or is inclined in such direction as may be desired.

A plate 20, provided with apertures 21, is secured in any suitable or approved manner to the upper portion of the rear end of the flange 10. An adjustable guide-bar 22 is made to extend transversely of the upper face of the table and beneath the plate 20, the guide-bar 22 being provided with a series of apertures 23, and the said guide-bar is adjusted transversely or longitudinally of the table by passing a pin 24 through one of the openings 21 in the plate 20 and a suitable opening 23 in the guide-bar.

A longitudinal guide-bar 25 is located upon the upper face of the table at or near the right-hand end of the transverse guide-bar 22, and the forward end of the longitudinal guide-bar 25 is held in desired position by passing a pin 26 through an aperture in the longitudinal guide-bar and one of a series of transversely-arranged apertures 27 made in the table adjacent to the forward edge of the narrower portion of the opening 19 in the table. The longitudinal guide-bar 25 is at a right angle to the transverse guide-bar 22, and said longitudinal guide-bar 25 is provided at its rear end with a plate 29, secured to the upper surface of said guide-bar 25, said plate having apertures 29<sup>a</sup> made therein, so that the transverse and the longitudinal guide-bars may be adjustably connected by passing a pin 28 through any one of the apertures 29<sup>a</sup> in the longitudinal guide-bar into any one of the apertures 23 in the transverse guide-bar, as is particularly shown in Fig. 9. A second transverse guide-bar 30 is located upon the upper face of the table between the opening 19 and the forward edge of the table, and said second transverse guide-bar 30 extends from the right-hand side of the table usually over the right-hand cover-plate 12 for the opening 11 in the table. This second transverse guide-bar is adjustable, being attached to the table through the medium of two pins 34 and 34<sup>a</sup>, located one at each side of its center, and said bar 30 is rendered adjustable by attaching a link 31 to its central portion, the other end of the link being pivotally attached to said table. Series of apertures 32 and 33 are eccentrically located in the table, and as the guide-bar 30 is

moved it may be held in adjusted position by passing the pins 34 and 34<sup>a</sup> through any one of the series of apertures 32 and 33, as is illustrated in dotted lines in Fig. 9.

In connection with the table A an auxiliary table B is preferably employed, the upper faces of the two tables being in the same horizontal plane. Usually at the right-hand end of the auxiliary table B a trough C is supported by suitable legs 34<sup>b</sup> or their equivalents. The said trough is provided with a set of rollers D at or near each of its ends, one roller 35 of each set being adapted to turn in the trough, while the other rollers 36 of the sets revolve out of the trough and above the lower rollers quite near thereto, the upper rollers being journaled in suitable bearings 37. The upper roller 36 of the outer set of rollers is provided with a longitudinal blade 38, extending, preferably, from end to end, and a combined tension and guide roller 39 is journaled within said trough C between the two sets of rollers D. A strip of paper 40 is fed between the outer set of rollers under the combined guide and tension roller 39 and between the rollers of the inner set D, as illustrated in Fig. 1, and as the upper roller of the outer set D is revolved by drawing the paper between the rollers, the blade 38, which is provided with series of teeth or pins, produces transverse perforations 41 in the paper at regular intervals, and the space between adjacent perforations corresponds to the space between the edges of the box to be sealed, at which the innermost flaps or wings are located.

Each box E is provided with corresponding flaps or wings at top and bottom, comprising what may be termed "opposing inner flaps or wings" 42 and 43 and "outer or sealing flaps or wings" 44 and 45, the outer sealing flaps or wings 44 and 45 being adapted to fold upon each other and upon the inner flaps or wings 42 and 43 when the latter have been folded inward.

A tray 46 is provided to receive the filled boxes E, the tray being open at one end, and after an end of an empty box has been closed and sealed by its travel over the main table A said empty box is brought beneath a hopper 47, suitably supported and adapted to contain the material with which the box is to be filled, or for the hopper 47 may be substituted any equivalent device that may be convenient or advisable.

In the operation of the device, when an empty box is to be closed at its bottom end, the inner wings or flaps 42 and 43 are carried horizontally inward in direction of each other, as shown in Fig. 7, and the outer or sealing flaps or wings 44 and 45 are carried horizontally outward. The wings or flaps being in the position just described, the bottom of the box is placed upon the table A near the front and against the inner face of the flange 10 in such manner that the outer flap or wing 45, for example, will face to the rear and the op-



posing corresponding flap or wing 44 will face to the front, as shown in Fig. 9. The box is then carried rearward, guided by contact with the flange 10, and as the bottom of the box passes over the disks 14 and 14<sup>a</sup> the cement or paste on the peripheries of these disks will be deposited on the inner faces of the outer or sealing flaps or wings 44 and 45 and upon the outer faces of the inner flaps or wings 42 and 43, as shown in Fig. 7, in which figure the deposited cement is designated by the reference-numeral 46<sup>a</sup>. After the box has passed the cement-applying devices the rear flap or wing 45 will drop down into the larger portion 19<sup>a</sup> of the opening 19, and as the box is carried farther rearward to an engagement with the rear transverse guide-bar 22 the flap or wing 45 will engage with the beveled edge  $\alpha$  of the larger section of the opening 19 and will be carried toward and made to adhere to the inner closed flaps or wings 42 and 43, especially when the wing or flap 45 is brought in its folded state upon the upper face of the table, as shown in dotted lines in Fig. 9 and in positive lines in Fig. 5, the flap 45 before being carried to a contact with the folded flaps 42 and 43 being illustrated in Fig. 4. When the box has been carried rearward to an engagement with the transverse cross-bar 22 and the flap or wing 45 has been sealed and closed, the opposing flap 44 will extend down into the wider portion 19<sup>a</sup> of the opening 19, as shown in dotted lines in Fig. 6 and in positive lines in Fig. 5. The box is now slid toward the right along the surface of the table at the rear of the slot 19 until the longitudinal guide-bar 25 is reached, as shown in dotted lines also in Fig. 9. When the box reaches this position, said box is carried forward in engagement with the longitudinal guide-bar 25, and the flap 44, engaging with the forward edge of the slot 19, will be folded up in like manner as the flap 45 and will adhere to the flap 45 and the portions of the inner flaps 42 and 43 not covered by the outer or sealing flap 45. In this manner the bottom of the box is perfectly closed, and said closing is rendered smooth by continuing the box forward until it strikes the forward transverse guide 30, the box being then carried to the right-hand side of the table in contact with this latter guide and beneath the hopper 47 or other supply, where it may be filled. After a series of five boxes, for example, has been filled these filled boxes are placed in the tray 46, which is at the delivery end of the trough C. The trough C contains a paste or cementing compound of any description, and as the perforated strip of paper passes beneath the combined guide and tension roller 39 this strip of paper is coated on both sides with said cementing material. The filled boxes being in position close to one another and the inner flaps 42 and 43 having been folded down upon the contents, as shown in Fig. 1, a sufficient length of the cement-coated paper 40 is drawn from between the series of rollers D to

provide a strip of paper that will extend from one end package to the other across the folded inner flaps 42 and 43, the perforated portions 41 of the strips of coated paper registering with the space between adjoining packages or boxes. The outer or sealing flaps or wings 44 and 45 at the top portion of the packages or boxes are now carried over upon the coated paper, and in this manner the coated paper serves as a binder or cementing agent between the inner and the outer flaps or wings, closing the top end of the package or box practically in an air-tight manner.

It is evident that when the boxes or packages are separated the coated paper will part at the lines of perforations. For the plates 12 other plates, larger or smaller, may be substituted, so that the disks 14 14<sup>a</sup> may be adjusted to produce a proper gumming of the surfaces of flaps or wings of boxes of different sizes.

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

1. A device for sealing boxes, consisting of a surface over which the portion of the box to be closed is passed, said surface having an opening adapted to alternately receive the sealing-flaps of a box, the walls of the opening being arranged to direct the flaps to a closed position, means for supplying a cementing material to the said surface, and guides defining the path in which the box is to be moved, as described.

2. A device for sealing boxes, consisting of a surface over which the portion of the box to be closed is passed, said surface having an opening adapted to alternately receive the sealing-flaps of the box, the walls of the opening being arranged to direct the flaps to a closed position, means for supplying a cementing material to the said surface, a fixed guide, and adjustable guides, one of said guides crossing said opening, and locking devices for said guides, the guides defining the line of travel for the box, substantially as shown and described.

3. A device for sealing boxes, consisting of a surface over which the portion of the box to be closed is passed, rotary brushes extending through the said surface, a trough adapted to contain a cementing material in which the said brushes travel, the said surface having an opening produced therein adjacent to the brushes, the opening being adapted to receive a flap of a box whose end is to be closed after the said flap has been passed in contact with one of said brushes, the walls of the said opening being arranged to direct the gummed flap to a closed position, as described.

4. In a device for sealing boxes, the combination with a surface over which the portion of the box to be closed is passed, an adjustable brush extending through the said surface, said surface having an opening produced therein adjacent to the brush, which opening is adapted to receive the flap of a



box after it has been passed in engagement with the said brush, a wall of said opening being adapted to direct the gummed flap to a sealing position, of guides located upon said surface and arranged to define the path in which the box to be operated on is to travel, as described.

5. An apparatus for sealing boxes, the apparatus having a table with a plane upper surface broken by a slot, and guides on the upper surface of the table and juxtaposed to the slot so that the boxes may be moved over the top of the table and the flaps thereof caused to enter the slot, whereby to turn the flaps upon the box, and the guides serving to direct the movement of the boxes.

6. An apparatus for sealing boxes, the apparatus having a table with a plane upper surface broken by a slot formed in the table, cement-supplying devices having portions projected into proximity with the upper sur-

face of the table, and guides on the upper surface of the table and juxtaposed to the slot and the cement-supplying devices, so that the boxes may be moved from the cement-supplying devices over the slot to turn the flaps upon the box, the guides serving to direct the movements of the box.

7. An apparatus for sealing boxes, the apparatus having a table with a plane upper surface broken by a slot in the table, and cement-supplying devices having portions projected into proximity with the upper surface of the table so that the boxes may be moved with their flaps in contact with the cement-supplying devices and then over the slot, the walls of the slot serving to turn the flaps upon the box.

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Witnesses:

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