

Feb. 21, 1928.

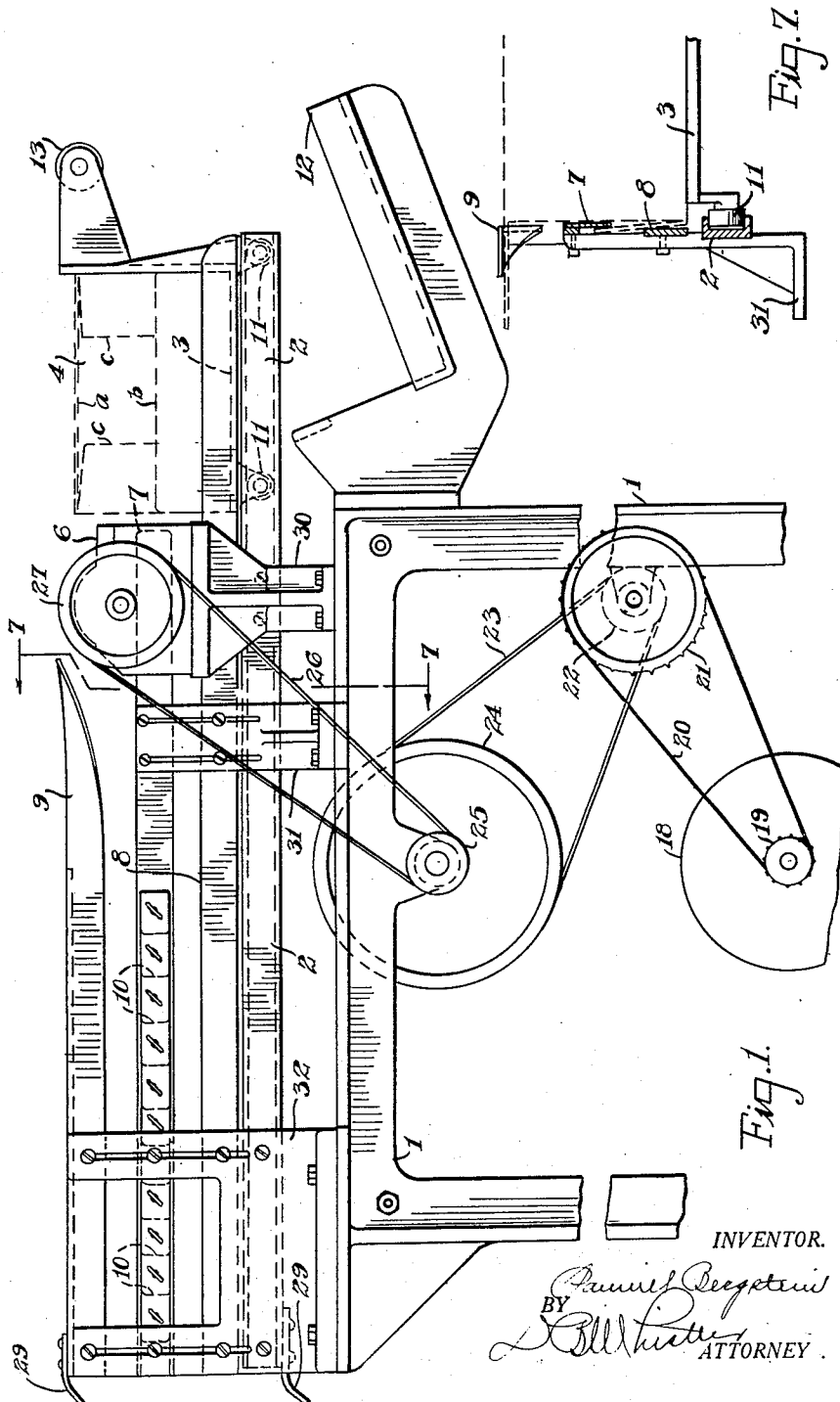
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S. BERGSTEIN

PAPER BOX MAKING MACHINE AND THE LIKE

Filed Dec. 20, 1926

3 Sheets-Sheet 1



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Feb. 21, 1928.

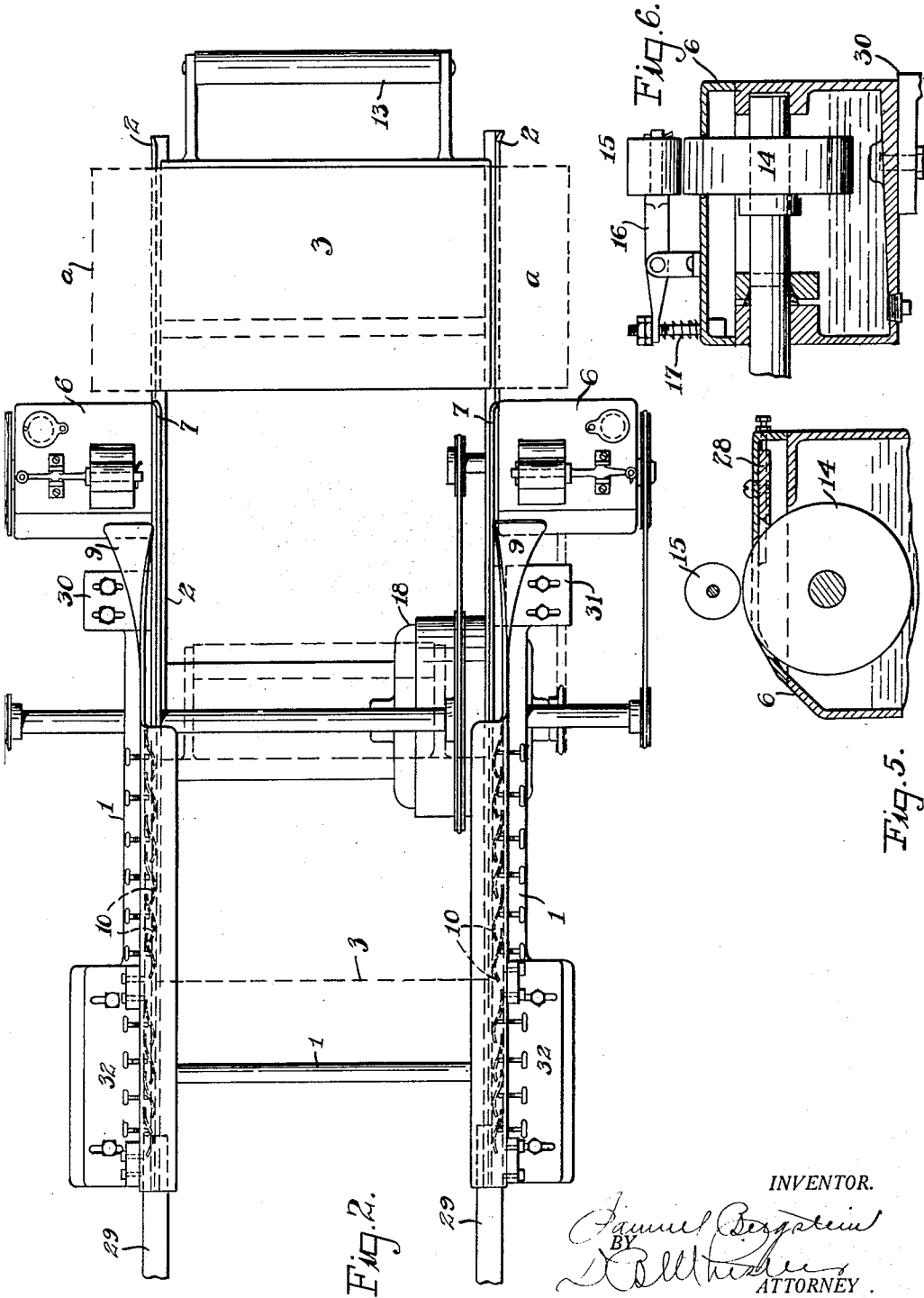
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PAPER BOX MAKING MACHINE AND THE LIKE

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

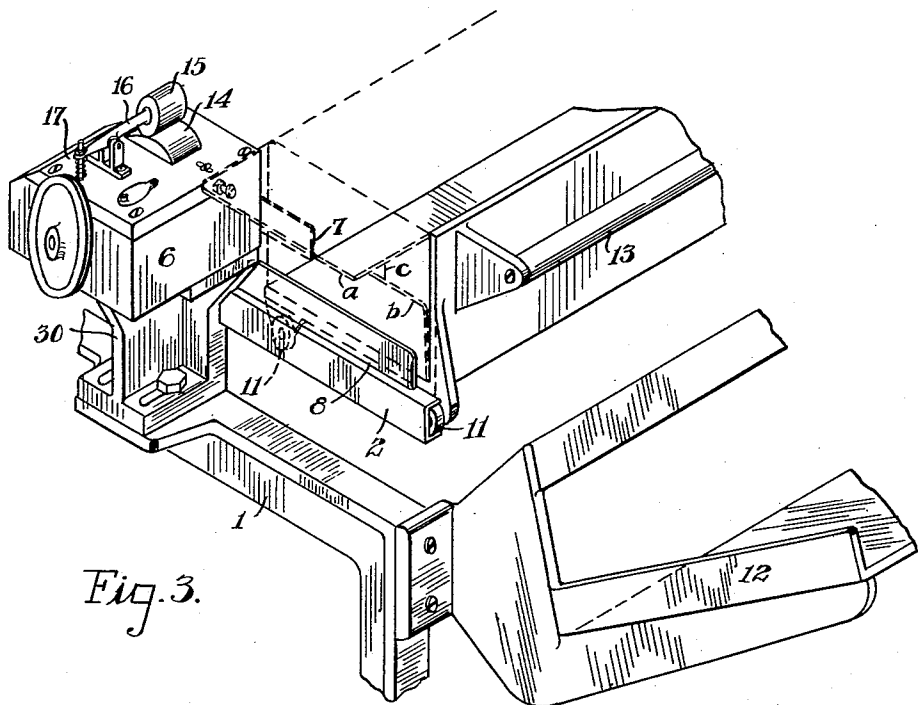


Fig. 3.

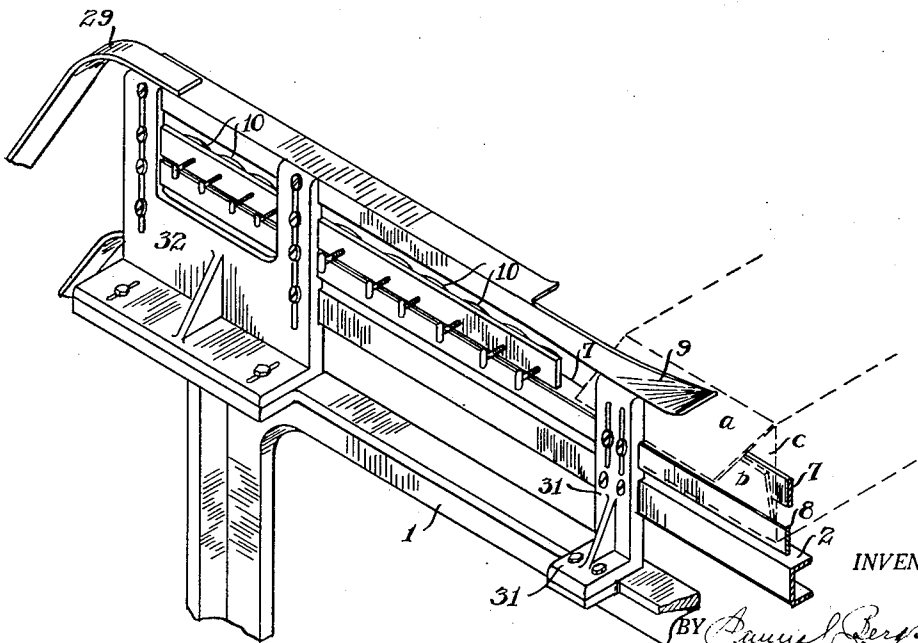


Fig. 4

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UNITED STATES PATENT OFFICE.

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PAPER-BOX-MAKING MACHINE AND THE LIKE.

Application filed December 20, 1926. Serial No. 155,840.

This invention relates to improvements in paper box making machines.

In the accompanying drawings which serve for illustrating the invention:

5 Fig. 1 is a view in side elevation of the machine;

Fig. 2 is a plan view;

Fig. 3 is an enlarged view in perspective of the box carriage and the adhesive applying mechanism;

Fig. 4 is an enlarged view in perspective of mechanism for closing and sealing the boxes;

Figs. 5-6 are detail views of the adhesive applying mechanism;

Fig. 7 is a sectional view on line 7-7 of Fig. 1.

The objects attained in the invention consist in a box making machine of simple form adapted for hand operation and for making different common types of boxes on the same machine.

The machine is especially adaptable for the small paper box user who requires better facilities than ordinary hand methods for assembling the boxes but whose requirements are too small to justify the greater cost of power machines.

The improved machine, however, as herein set forth, is effective for producing boxes of the best construction and at minimum cost, hand operation being considered.

As shown in the main assembly views, Figs. 1-2, the machine consists of a suitable frame structure 1 upon which opposite side rails 2 are supported, serving as tracks for a carriage 3 upon which the boxes 4 are supported, the carriage having a handle 13 for reciprocating the same back and forth into operative relation with the mechanisms for closing and sealing the ends of the boxes, the carriage being provided with wheels 11 for traversing the tracks. A rack 12 serves for supporting a supply of box blanks or open boxes placed convenient for the operator.

The boxes, as shown in Figs. 1-4, are placed on the carriage with ends open, flaps *a-b-c* at both ends of the box being extended beyond the sides of the carriage into the plane of the adhesive applying devices and the flap folding and sealing mechanisms.

The contents are placed in the boxes as the same are placed on the carriage, the

rear flaps *c* being turned inward by hand, the forward flaps *c* being engaged by opposite guides 7, and the lower flaps *b* by opposite guides 8 which act to fold the flaps, flaps *a* remaining extended and being brought into engagement with the adhesive applying mechanism upon further movement of the carriage.

The adhesive applying mechanism, as here shown, consists of a container, indicated at 6, for liquid adhesive, a roller 14 being partially submerged in the liquid and acting to convey adhesive to flaps *a*. A roller 15 acts to press the flaps firmly into engagement with roller 14 for effecting an even application of adhesive thereon.

The rollers 14-15 are suitably spaced one from the other to prevent direct contact between the rollers. Roller 15 is supported on a pivoted arm 16 and is spring tensioned by a pressure regulating device 17. Roller 14, as here shown, is driven by a motor 18, through chain and sprocket reduction gearing 19-27. A gauge 28 adjustable relative to the periphery of the roller acts to regulate the amount of adhesive applied on the sealing flaps.

As the boxes are moved beyond the adhesive applying devices flaps *a* are engaged by guides 9 which act to fold the flaps over flaps *b-c*, sealing of the boxes being effected by a series of spring tensioned pressure devices 10 arranged on opposite sides of the machine.

The end of the movement of the box carriage is indicated in dotted outline in Fig. 2. As the carriage is retracted a box is retained between the pressure devices 10 upon each reciprocation of the carrier, thus the boxes are butted up one against another, the box farthest advanced being delivered from the machine upon each operation, downwardly inclined guides 29 acting to direct the boxes from the machine. The dwell of the boxes between the pressure devices allows the adhesive to set so that firm joints are made.

The brackets 30-31-32 which serve respectively for supporting the tracks for the box carriage, the adhesive applying mechanism, the guides for folding the sealing flaps, and the pressure devices for sealing the boxes, are all adjustable relative to the frame of the machine, as illustrated in the

drawings, for adapting the machine for boxes of different sizes.

Having described my invention, I claim:

1. A box making machine comprising a track, adhesive applying mechanism located relative to the track, box folding mechanism disposed in horizontal and vertical planes along the track, box sealing mechanism extended along the track, a carriage for supporting boxes operable reciprocally on the track into operative relation with said mechanism for effecting sealing of the boxes, and means for adjusting said mechanism variably for sealing boxes of different sizes.

2. A box making machine including box sealing devices consisting in oppositely arranged devices for rendering the sealing flaps of the boxes adhesive, devices for folding the sealing flaps, and devices arranged along the plane of movement of the box blanks on opposite sides thereof, for exerting pressure on the sealing flaps and effecting adhesion therebetween, a track interposed between said opposite devices below the plane of movement of the boxes, and a carriage operable reciprocally on said track for supporting the boxes singly and moving the same into operative relation with the box sealing devices.

3. A box making machine including sealing devices consisting in oppositely arranged devices for rendering the sealing flaps of the boxes adhesive, devices for folding the sealing flaps, and devices arranged along the plane of movement of the box blanks on opposite sides thereof, for exerting pressure on the sealing flaps and effecting adhesion therebetween, a track interposed between said opposite devices below the plane of movement of the boxes, and a carriage operable reciprocally on said track adapted to support the boxes singly and freely thereon and to move the same progressively into operative relation with the box sealing devices, one box being butted against another for effecting a pause of

the boxes in their operating relation with the pressure devices.

4. A box making machine including sealing devices consisting in oppositely arranged devices for rendering the sealing flaps of the boxes adhesive, devices for folding the sealing flaps, and devices arranged along the plane of movement of the box blanks on opposite sides thereof, for exerting pressure on the sealing flaps and effecting adhesion therebetween, a track interposed between said opposite devices below the plane of movement of the boxes and a carriage operable reciprocally on said track adapted to support the boxes singly and freely thereon and adapted to be removed therefrom by frictional engagement thereof by said pressure devices, the carrier acting to move the boxes progressively into operative relation with the box sealing devices the same as in 3.

5. A box making machine including sealing devices consisting in oppositely arranged devices for rendering the sealing flaps of the boxes adhesive, devices for folding the sealing flaps, and devices arranged along the plane of movement of the box blanks on opposite sides thereof, for exerting pressure on the sealing flaps and effecting adhesion therebetween, a track interposed between said opposite devices below the plane of movement of the said boxes, and a carriage operable reciprocally on said track for supporting the boxes singly and freely thereon and adapted to be removed therefrom by frictional engagement thereof with said pressure devices, the carrier acting to move one box against another to effect a pause thereof in their operation relation with said pressure devices and for delivering the box farthest advanced in the machine upon each forward movement of the carrier.

In testimony whereof I affix my signature.

SAMUEL BERGSTEIN.