

No. 772,076.

PATENTED OCT. 11, 1904.

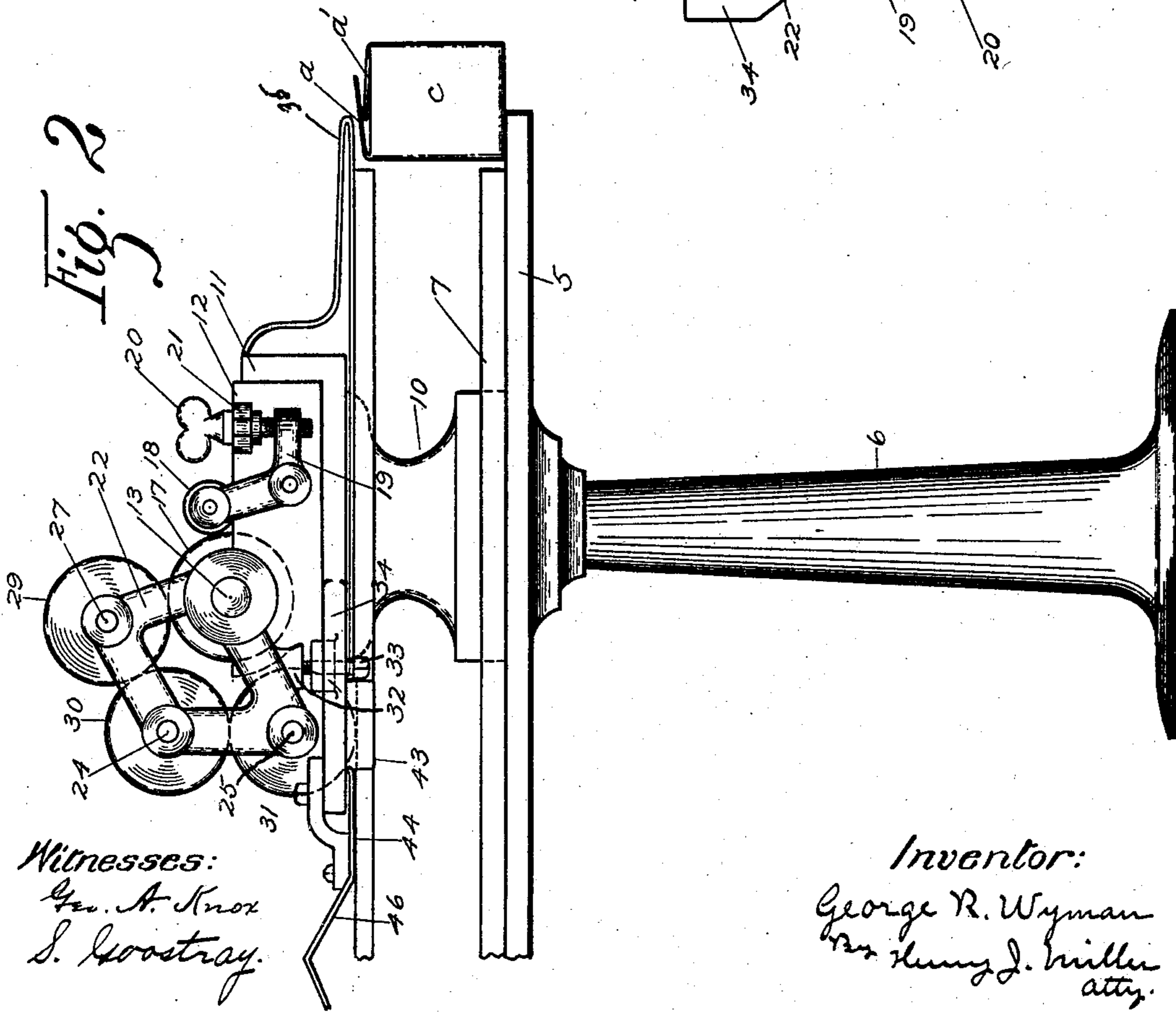
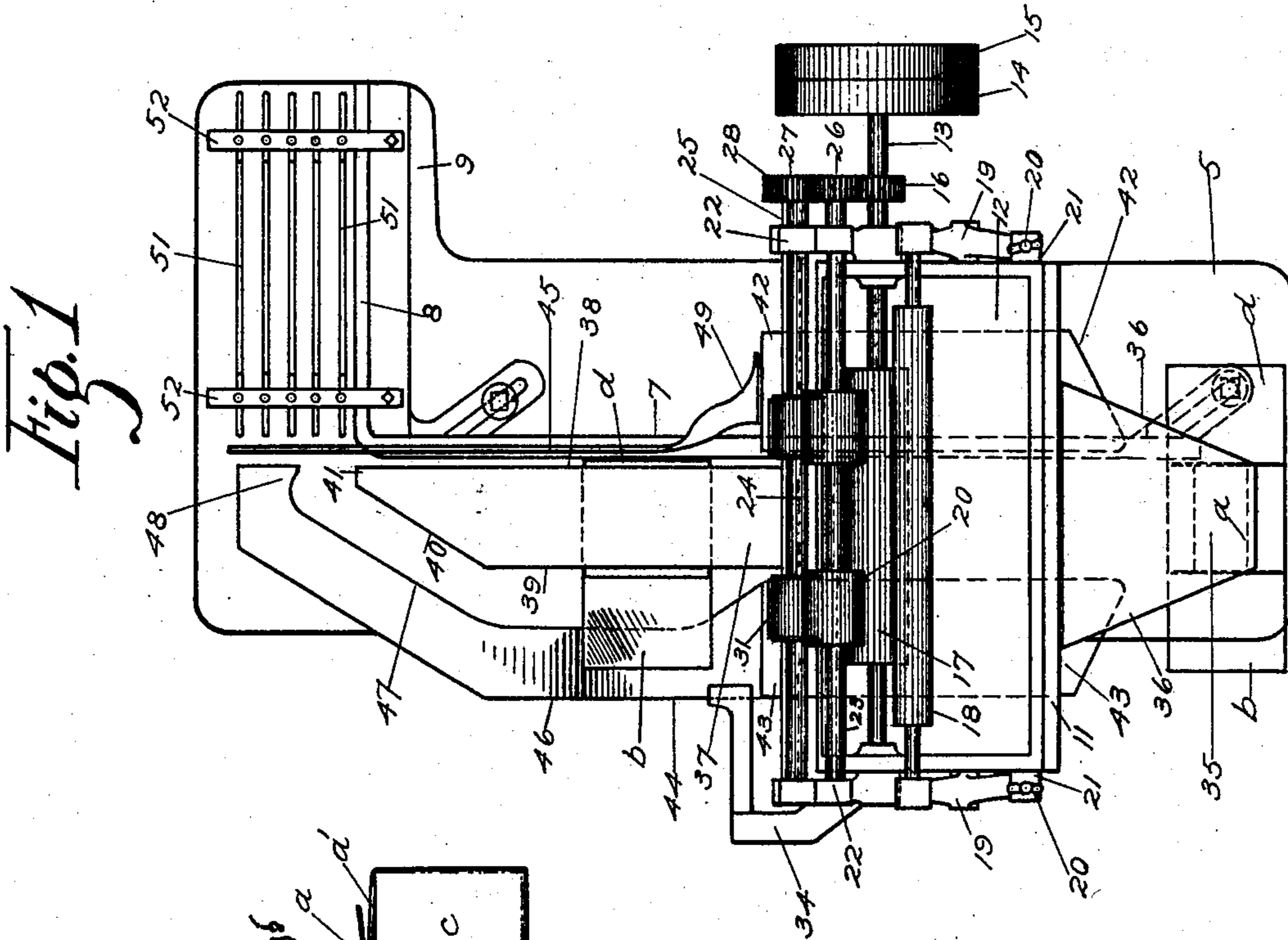
G. R. WYMAN.

MACHINE FOR CLOSING AND SEALING CARTONS.

APPLICATION FILED APR. 18, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

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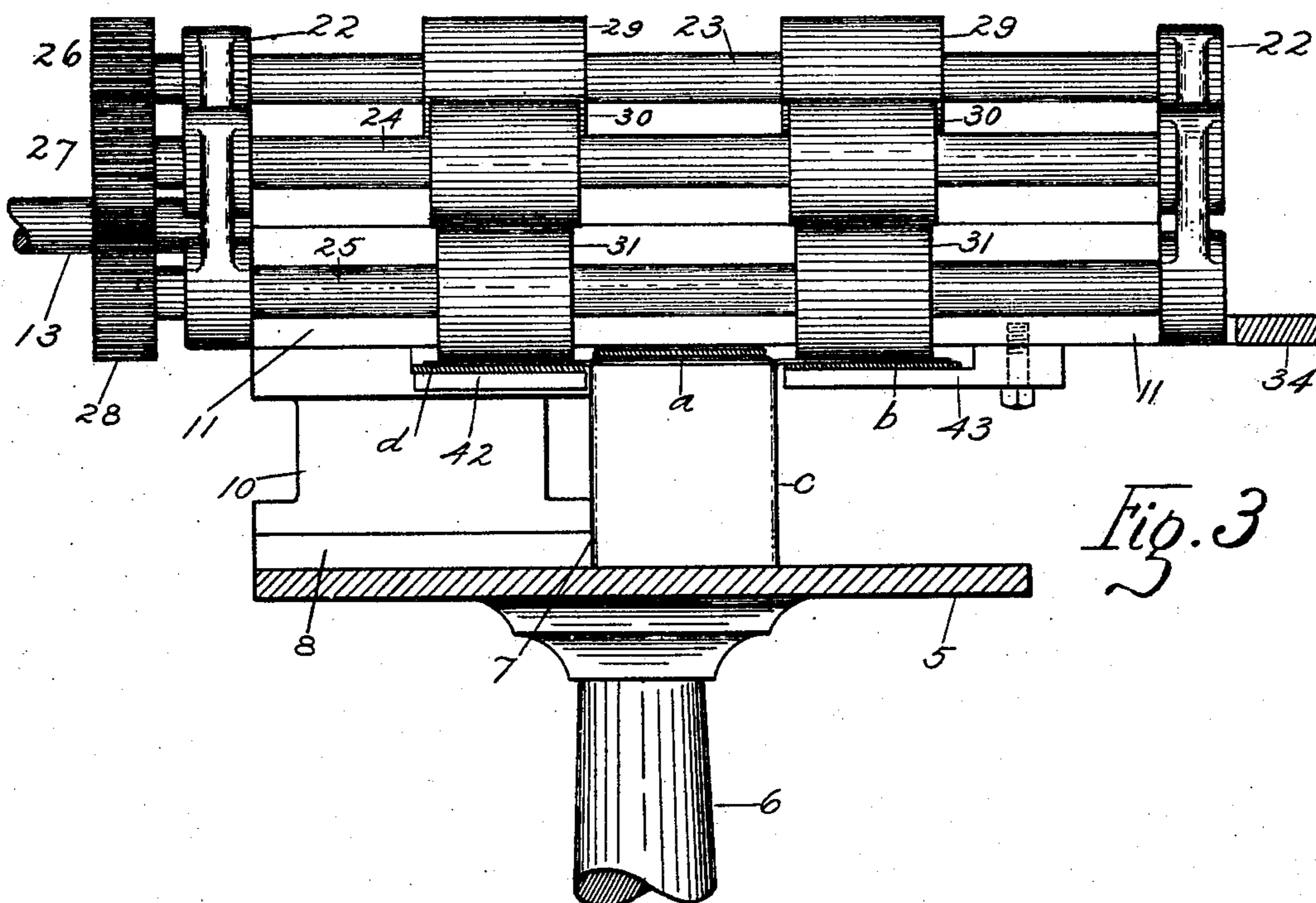


Fig. 3

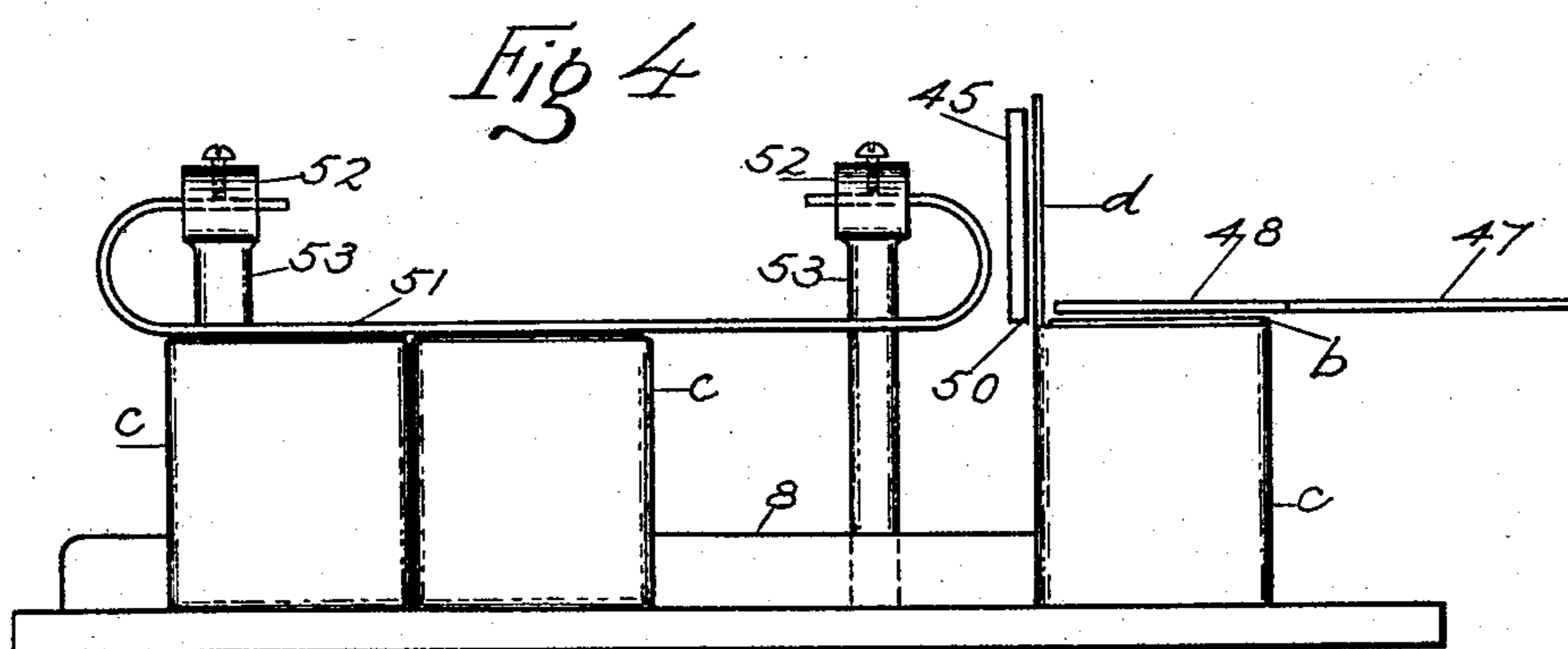


Fig. 4

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UNITED STATES PATENT OFFICE.

GEORGE R. WYMAN, OF EAST WALPOLE, MASSACHUSETTS, ASSIGNOR TO
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MACHINE FOR CLOSING AND SEALING CARTONS.

SPECIFICATION forming part of Letters Patent No. 772,076, dated October 11, 1904.

Application filed April 18, 1904. Serial No. 203,632. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. WYMAN, of East Walpole, in the county of Norfolk and State of Massachusetts, have invented certain
5 new and useful Improvements in Machines for Closing and Sealing Cartons; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming
10 part of this specification.

This invention relates to improvements in machines for closing and sealing cartons, and particularly to machines of this nature in which the cartons are designed to be moved
15 over a fixed surface.

The main object of the invention is to so construct a machine for closing and sealing cartons that the flaps are supplied with glue and are folded down by the passing of the carton
20 through the machine.

Other objects of the invention will appear from the specification and claims.

The invention consists in the fixed bed or guide plate on which the cartons may be
25 moved and the end closing and sealing mechanism mounted above said plate.

The invention also consists in the peculiar construction of the flap-closing mechanism.

The invention also consists in the novel construction of the glue-applying means and in its
30 combination with the flap-supporting means.

The invention also consists in such other novel features of construction of parts as shall hereinafter be more fully described, and pointed
35 ed out in the claims.

Figure 1 represents a plan view of the improved carton closing and sealing machine. Fig. 2 represents a side elevation of parts of the same. Fig. 3 represents an end elevation,
40 partly in section, of the machine to illustrate the glue-applying mechanism in the act of applying glue to the flaps of a carton. Fig. 4 represents an end view of the side-flap closing devices and the means for holding the
45 last-folded flap in the closed position.

Similar numbers of reference designate corresponding parts throughout.

As shown in the drawings in its preferred form, 5 indicates a table having a smooth

plane surface and suitably supported, as by 50 the standard 6. On the table is adjustably secured the guard or guide 7, having the angularly-disposed arm 8 extending onto the part 9 of the table.

On the table 5 back of the guard 7 is secured the substantial bracket or frame 10, 55 designed to support the moving mechanism, of considerable weight, and on this bracket is mounted the frame 11, carrying the glue-reservoir 12 and having bearing in which the 60 main shaft 13, provided with the belt-pulleys 14 and 15, is journaled. This shaft 11 is also provided with a gear 16 and with the glue-roll 17, which works in the glue reservoir or tank 12 and collects the semifluid therefrom, 65 this glue being distributed over the periphery of the glue-roll 17 by means of the doctor-roll 18, which is journaled in bearings in the bent arms 19 19, pivotally mounted on the ends of the glue-reservoir 12 and adjustable toward 70 and from the periphery of the glue-roll 17 by means of the thumb-nuts 20 20, working through the perforated ears 21 21 of the glue-reservoir 16 and through screw-threaded perforations in said arms 19 19. 75

Journaled on the shaft 13 are the roll-frames 22 22, each having bearings for the shafts 23, 24, and 25, respectively provided with the gears 26, 27, and 28, forming a train of gears 80 by means of which the gear 28 and its shaft 25 is driven from the gear 16 on the shaft 13, with which gear the gear 26 engages. These shafts 23, 24, and 25 are also supplied with the glue-transferring enlargements, respectively designated by the numbers 29 29, 30 30, 85 and 31 31, so spaced on their shafts that the enlargements 31 31 are separated by a space sufficient to permit the passage of the body of the largest carton which the machine is adapted to act upon. The enlargements 29 29 of 90 the shaft 23 bear against the periphery of the glue-rolls 17 and transfer glue from said roll to the enlargements 30 30 of the shaft 24, from whence the glue is delivered in a thin layer to the periphery of the enlargements 95 31 31. As the frame 22 is free to swing on the shaft 13, means in the nature of stops should be provided for limiting the downward

movement of said frame. This is accomplished by furnishing this frame with projections, as 32, adapted to be intercepted by the ends of screws, as 33, working through screw-threaded perforations in members, as 34, extending from the frame 11.

Supported from the frame 11 at the feeding-in end of the machine is the plate 35, adapted to close down one of the end flaps *a* of a carton *c*, passed thereunder, as shown in Fig. 2, and having the outwardly-extending edges 36 36, adapted to spread the side flaps *b* and *d*, as is disclosed in Fig. 1 of the drawings, this plate or an extension thereof extending through the machine between the enlargements 31 31 of the shaft 25 and being contracted in width to form the guide-plate 37, having the parallel edges 38 and 39, and the inclined edge 40 connecting the edge 39 with the square end 41, the line of which is approximately in the vertical plane of the guiding-surface of the member 8. This plate 37 may, however, be entirely distinct from the plate 35 and may be independently supported.

Below the plate 35, hereinafter called the "flap-spreader plate," are mounted the flap-supporting plates 42 and 43, the plate 42 being supported from the bracket 10, while the plate 43 is secured to the frame 11 or to some other equivalent supporting means. These plates have parallel inner edges, as indicated in broken lines in Fig. 1 of the drawings, and extend beneath the glue-applying enlargements 31 31 of the shaft 25, being primarily designed to support the flaps *b* and *d* of the carton during the application of glue thereto.

Suitably supported beyond the plates 42 and 43 are the flap-folding plates 44 and 45. The plate 44 has the upwardly-inclined portion 46, designed to turn upward the flap *b* from its horizontal extension, and the inclined curved edge 47, designed to gradually fold over such upwardly-extending flap *b* onto the end flaps until such flap is sufficiently turned over to enter with the carton under the hook end 48 of said plate, which is made possible by the incline from the portion 47 supporting said plate slightly above the level of the upper end of the carton. The plate 45 has the horizontal portion 49, designed to receive the flap *d* in its horizontal position and to gradually turn upward such flap until it extends vertically, as is shown in Fig. 4 of the drawings, the vertical portion of this plate 45 extending parallel with the edge 38 of the plate 37 and having the lower edge 50 extending considerably beyond the end of said plate to form a flap-turning member, as will hereinafter be described.

At one side of the plate 45, in position to receive cartons passed thereunder, is a yielding pressure device, preferably comprising a series of resilient wires 51 51 the curved- over ends of which are secured in the cross-

bars 52 52, which are suitably supported by standards 53 53, mounted on the end portion 9 of the table 5.

Power being applied to drive the machine and a supply of fluid glue being placed in the glue-reservoir, cartons may be fed through the machine for closing and sealing by hand or by any well-known mechanical machine, preferably by hand. When now the carton *c* is fed under the end of the plate 35, the first flap *a'* is turned down by hand and held in such position until the carton is pushed sufficiently under said plate to effect the folding down of the flap *a*. As the forward movement of the carton is continued the edges 36 36 cause the side flaps *b* and *d* to be turned outward until such flaps pass under said plate 35 and between such plate and the plates 42 and 43. The continued forward movement of the carton now carries the flaps *b* and *d* under the glue-applying enlargements 31 31 of the shafts 25, which press the flaps down on the plates 42 and 43 and apply glue or other adhesive material to the inner surfaces of the flaps. Continuing its movement, the carton passes under the plate 37, the flap *d* riding over the horizontal portion 49 of the plate 45 is turned upward to the vertical position as said plate curves from the horizontal to the vertical, the flap *d* then traveling along in the vertical position between the plate 45 and the edge 38 of the plate 37. While the flap *d* is being turned from the horizontal to the vertical, as above described, the flap *b* is engaged by the upward inclination 46 of the plate 44 and turned upward until it is in position to clear said inclined portion. The flap is next brought against the curving inclined edge 47, which turns said flaps inward over the flaps *a* and *a'*, and as the carton enters under this inclined portion of the plate 44 the flap *b* is pressed down onto the flaps *a* and *a'*, and is thus held until the carton passes to the position shown in Fig. 4 of the drawings, when it has passed beyond the end of the guide or guard 7. As the carton reaches this point the course of its movement is changed, and it is moved laterally under the edge 50 of the plate 45, which edge turns downward the flap *d* and effects the pressing of its glued surface onto the outer surface of the flap *b*, the carton then being moved along under the wires 51 51, by which the flaps are held in the thus pressed and glued position until the glue or other adhesive sets sufficiently to retain the flaps in position.

While I have herein described the preferred form of this machine, I do not desire to limit myself to the use of any specific mechanism for carrying the invention into practice.

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

1. A carton closing and sealing machine comprising glue-applying means, flap-spreading means mounted at one side of said glue-

applying means, a pair of parallel plates supported below the glue-applying means and extending to points below the flap-spreading means to receive the flaps therefrom.

5 2. A carton closing and sealing machine comprising a fixed support over which cartons may be moved, glue-applying means mounted thereabove and including a shaft having a pair of glue-applying enlargements separated
10 by a space, a guide-plate extending through said space, and flap-supports located at or below the lower surface plane of said plate and beneath the glue-applying enlargements of said shaft.

15 3. A carton-closing machine comprising stationary means for supporting cartons, a glue-reservoir mounted thereabove, flap-supporting plates located below the level of the reservoir to receive the side flaps of a carton,
20 and a series of rolls, one of which works in said reservoir for transferring glue from said reservoir to carton-flaps supported on said plates.

4. A carton closing and sealing machine
25 comprising a bed-plate, and a flap-turning plate fixed above the bed-plate and having a portion parallel to the bed-plate and curving to a portion vertical to said bed-plate, the lower edge of the vertical portion being so positioned with relation to the bed-plate that a
30 carton moved along said bed-plate may be moved laterally under said edge to effect the turning down of one of the carton-flaps, as described.

35 5. A carton-closing machine comprising stationary means for supporting cartons during their passage through the machine, a glue-reservoir mounted thereabove, a series of glue-transferring rolls for transferring glue from
40 said reservoir to a point at or below the bottom of said reservoir the glue-applying roll having a pair of separated glue-applying sec-

tions, a guide-plate extending longitudinally beneath the reservoir and between said spaced glue-applying sections, and a pair of flap-sup- 45
porting plates located at the sides of said guide-plate and at or below the surface plane thereof.

6. A carton-closing machine comprising glue-applying means, a guide-plate having par- 50
allel edges extending outward from the glue-applying position, under which plate the carton may be moved, and a flap-turning plate having a horizontal portion adjacent to the glue-applying position from which portion 55
the plate curves to the vertical and extends parallel to the guide-plate.

7. A carton closing and sealing machine comprising a guide-plate adapted to hold
60 downward the end flaps of a carton, a flap-turning plate extending parallel with one edge of said guide-plate and a lower edge portion under which the carton may be moved laterally to turn down one of the side flaps, and a yielding pressure device positioned adjacent 65
to said turning-plate.

8. A carton closing and sealing machine comprising a longitudinal plate adapted to hold down the end flaps of a carton passing
70 thereunder, flap-closing plates at the sides of said holding-plate, one of said flap-closing plates being shaped to turn upward its related flap, the other of said plates being shaped to turn upward and then inward its related flap onto the end flap, and means for turning 75
the first-mentioned side flap down onto the so-turned flap under the lateral movement of the carton, as and for the purpose described.

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

GEORGE R. WYMAN.

Witnesses:

JAMES KEMP,
HENRY J. MILLER.