A. PARENT.

BOX TOPPING MACHINE.

APPLICATION FILED NOV. 2, 1916.

1,220,540.

Patented Mar. 27, 1917.

3 SHEETS—SHEET 1.

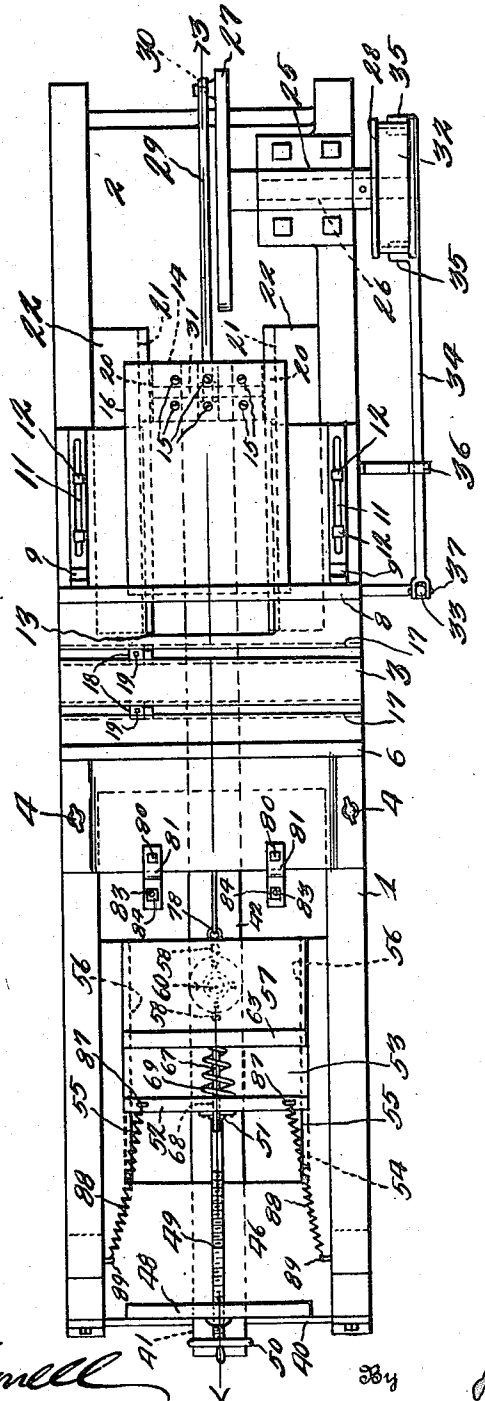


Fig. 1.

Witnesses

Inventor

A. Parent

By

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

A. PARENT.

BOX TOPPING MACHINE.

APPLICATION FILED NOV. 2, 1916.

1,220,540.

Patented Mar. 27, 1917.

3 SHEETS—SHEET 2.

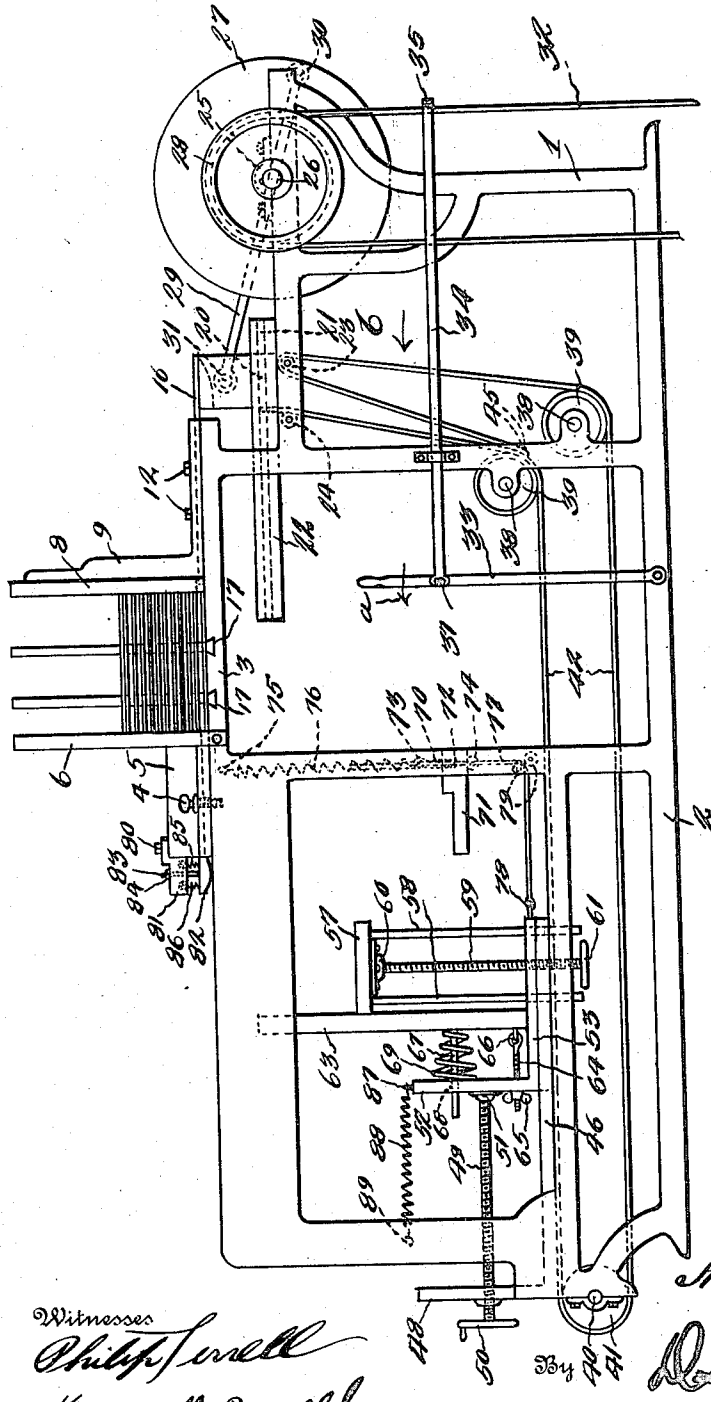


Fig. 2.

Witnesses

Philip Farrell

Frances G. Farrell

Inventor

A. Parent

By D. Swift & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

A. PARENT.

BOX TOPPING MACHINE.

APPLICATION FILED NOV. 2, 1916.

1,220,540.

Patented Mar. 27, 1917.

3 SHEETS—SHEET 3.

Fig. 3.

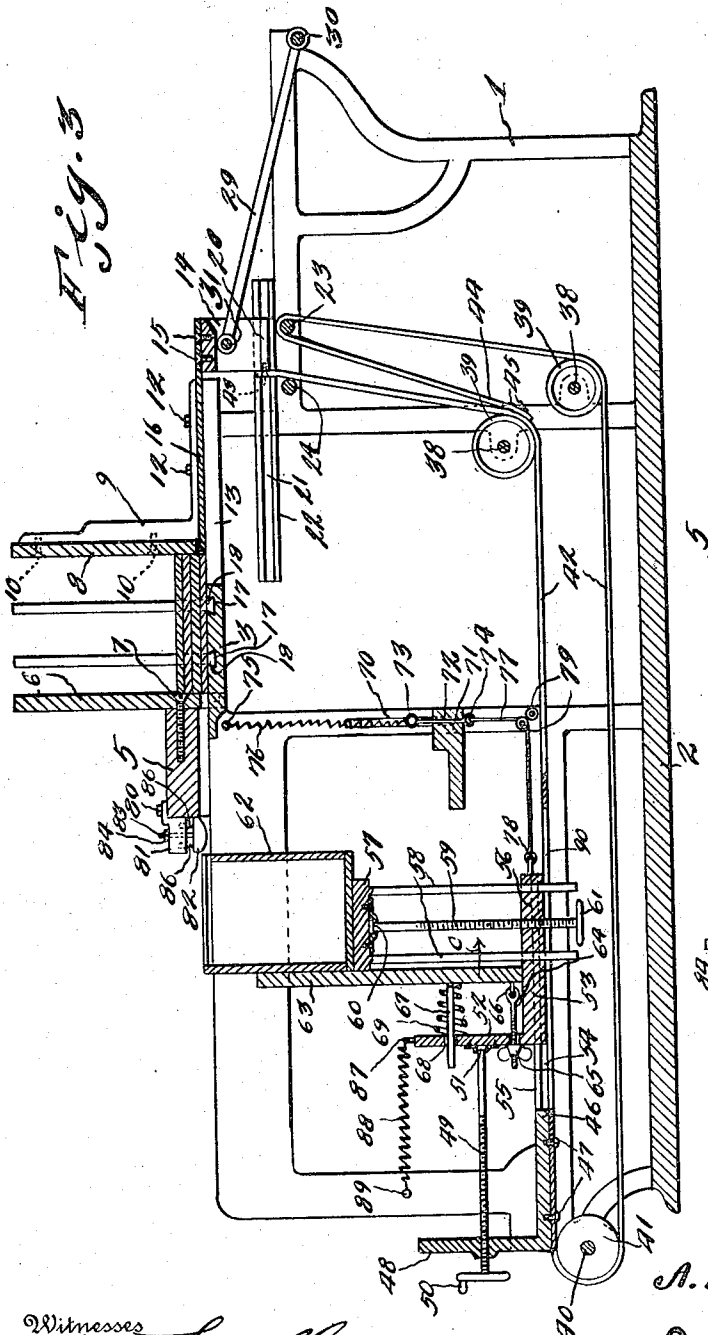


Fig. 4.

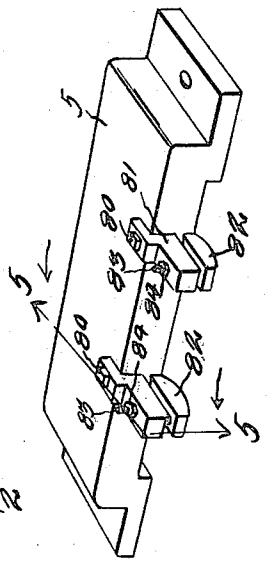
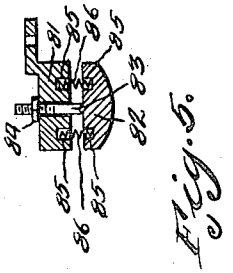


Fig. 5.



Witnesses

Philip Terrell

Howard G. Barnes

Inventor

A. Parent

By D. Swift & Co

Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR PARENT, OF FARLEY, MASSACHUSETTS.

BOX-TOPPING MACHINE.

1,220,540. Specification of Letters Patent. Patented Mar. 27, 1917.

Application filed November 2, 1916. Serial No. 129,167.

To all whom it may concern:

Be it known that I, ARTHUR PARENT, a citizen of the United States, residing at Farley, in the county of Franklin, State of Massachusetts, have invented a new and useful Box-Topping Machine; 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 the art of box machines, and more especially to an improved, efficient and practical machine for putting tops upon wooden or other boxes, thereby avoiding and saving considerable manual labor.

One of the objects of the invention is to provide means upon the bed plate of the machine, to hold the tops in place, while the tops, one at a time are removed from the magazine and put upon the box.

A further object of the invention is to provide means for moving the box and the lid or top toward each other simultaneously, whereby the top may slide into connection with the box.

A further object of the invention is to provide means for temporarily holding the box, while the box carriage is withdrawn from under the box.

In practical fields the details of construction may necessitate alterations falling within the scope of what is claimed.

The invention comprises further features and combination of parts as hereinafter set forth shown in the drawings and claimed.

In the drawings:—

Figure 1 is a plan view of the improved box topping machine constructed in accordance with the invention.

Fig. 2 is a view in side elevation of the machine.

Fig. 3 is a longitudinal sectional view on line 3—3 of Fig. 1.

Fig. 4 is a detail view of a cross piece of the frame of the machine, showing the spring tensioning clamps, to engage the upper part of the box when the top is in place, to assist in holding the box, while the box carriage is being withdrawn from under the box.

Fig. 5 is a sectional view on line 5—5 of Fig. 4.

Referring more especially to the drawings 1 designates a suitable frame work, which may be any size, shape or configuration, and its base 2 may be secured in any suitable manner (not shown), to the flooring or other place where the machine is in use. Extending across and connecting the sides of the frame is a suitable bed plate 3. Also secured to the upper edges of the sides of the frame, by means of the set screws 4 is a cross piece 5, to which the upright piece 6 is secured by means of the screws 7. The under face of the cross piece 5 and the lower part of the upright piece 6 are under-cut to permit a top for a box to slide thereunder. A second upright piece 8 opposes the piece 6, which two pieces constitute coöperating opposing walls of a magazine for box tops. Angular brackets 9 are provided, and to the upright arms of these brackets 9 the upright piece 8 is secured by means of the screws 10. The horizontal arms of said brackets 9 have elongated slots 11, to receive the bolts 12, to adjustably secure the brackets 9 on the upper edges of the sides of the said frame 1. The bed plate 3 is provided with a rearwardly extending opening 13, to receive the cross head or follower 14 when moved toward the bed plate. Carried by the cross head or follower 14 and secured thereto by the screws 15 is a box top pushing blade 16, which rests and is guided upon the upper parts of the bed plate upon opposite sides of the opening 13, thereby preventing the pushing plate 16 from moving or bending downwardly, or otherwise becoming deranged from its necessary position. It is to be noted that a multiple of box tops are placed upon the bed plate 3, between the uprights 6 and 8, and as the push plate 16 moves toward the tops, the under-most one is pushed from under the box tops above. It is to be noted that by adjusting the brackets 9, the upright 8 may be moved toward and from the upright 6, thereby varying the space between the two uprights, in order to accommodate box covers or lids of different sizes. The bed plate 3 is provided with a pair of transverse dove-tail grooves, in which grooves 17 the dove-tail brackets 18 are mounted, and by means of the set screws 19, these brackets may be held in adjusted positions, corresponding to the width of the box cover or lid. By means of these brackets 18, the box covers or lids are held even, one above the other, so that when the push plate or blade 16 is moving to force a cover toward a box, the cover or lid will move under the cross piece 5 and the lower edge of

the upright 6, without binding. The cross head or follower upon its side ends is provided with tongues 20, which engage the guide grooves 21 of the opposite pieces 22 which are carried by the opposite sides of the frame 1. By this construction the cross head or follower will move into the opening 13 of the bed plate. Journaled in bearings in the upper portions of the sides of the frame 1 are suitable rollers 23 and 24. Mounted in a suitable bearing 25 on the rear of the machine at one side is a shaft 26, having a disk 27 on one end, and a flange pulley 28 on the other end. A pitman 29 has one end mounted upon a pin 30 projecting eccentrically from one face of the disk 27, and its other end pivoted on a pin 31 of said cross head. It is to be noted that when the shaft 26 is rotated movement is imparted to the cross head or follower, by means of any suitable power (not shown) being belted to the pulley 28 by virtue of the belt 32. The belt 32 is traveling at all times, and it loosely engages the pulley 28. When it is desired to cause movement to be imparted to the cross head, the lever 33 is moved in the direction of the arrow *a*, in which case the bar 34 is moved in the direction of the arrow *b*, and owing to the opposite sides of the belt traveling in the guides 35 at one end of the bar 34 (which is mounted in a guide 36), the belt 32 may be tightened, sufficiently to frictionally bind with the pulley 28, which will cause rotation of the shaft 26. Upon referring to Figs. 1 and 2 it will be seen that the bar 34 is pivoted at 37 to the lever 33. Mounted in bearings on the frame are shafts 38, on which the pulleys 39 are mounted. At one end of the frame 1 a shaft 40 is mounted in suitable bearings and is provided with a roller 41. Passing about the roller 41 and over the rollers or pulleys 39 is a belt 42, one end of which is secured by a screw 43 to the cross head or follower 14, while the other end 44 is secured by rivets 45 to said belt 42, that is, after passing over the roller 23. A plate 46 is secured to the belt by means of the screws 47, and one end of this plate has an upright portion 48, in which a threaded rod 49 is threaded. The rod 29 has a hand wheel 50 at one end, and a swivel joint 51 at its other end to an upright 52 of the slide 53. The plate 46 is provided with a slot 54, which is open at one end, and the opposite sides of the slot have flanges 55 to enter the guide grooves 56 of the opposite side edges of the slide 53. It is to be noted that by turning the hand wheel 50 in one direction or the other, the slide 53 may be adjusted relative to the plate 46. A platform 57 mounted upon rods 58 is provided. A screw 59 has a swivel connection 60 to the under surface of the platform 57. This screw is threaded into the slide 53, and by turning the hand wheel 61 in one direction or the other the platform may be raised or lowered. When raising or lowering the platform, the rods 58 (which extend downwardly through the slide 53) guide the platform in its movement. A box 62 to be provided with a cover or lid is placed upon the platform 57, the back plate 63 acting to support the box in position. A rod 64 extends loosely through the upright 52 and has threaded thereon a winged nut 65. The rod 64 is in turn connected to the lower part of the back plate 63 by means of the eye connections 66, so as to prevent movement of the lower end of the back plate in the direction of the arrow *c*. A rod 67 is carried by the back plate, and extends through an opening 68 of the upright 52, there being a spring 69 between the back plate and the upright. Mounted in guides 70 in the central portions of the opposite sides of the frame 1 is a box clamping support 71. A rod 72 is loosely mounted vertically in the box clamping support 71, and is provided with eyes 73 and 74. Just under one side of the bed plate 3 is a transverse rod 75, to which one end of the spring 76 is connected. The other end of the spring is connected to the eye 73 of the rod 72. A cable 77 has one end connected to the eye 74, and its other end connected to an eye 78 of the slide 53, and which cable 77 passes over a pulley 79. Mounted upon the cross piece 5 by means of bolts 80 are angular brackets 81, as shown in Figs. 3 and 4. Box clamps 82 are provided, each having an integral bolt 83. These bolts 83 pass upwardly through the brackets 81, and have nuts 84, whereby the box clamps 82 may be adjusted. The adjacent faces of the box clamps and the brackets 81 are provided with recesses 85, to receive the springs 86, which hold the clamps 82 to their farthest downward movement, which movement is limited by the nuts 84. The upper edge of the upright 52 has eyes 87 to which the springs 88 are connected, and which springs in turn are connected at 89 to the opposite sides of the frame 1. It is to be noted that the belt 42 is provided with a slot 90, through which the screw and the rods 58 extend, so as to permit movement of the slide 53. When it is desired to apply a cover or lid to a box (the opposite upper edges of the sides of which having the usual grooves) the box is placed upon the platform 57, which has been adjusted, so as to accommodate the height of the box. The magazine is supplied with a plurality of lids or covers, after which the belt 32 is tightened, in which case motion is imparted to the shaft 26, which by virtue of the eccentric 27 and the pitman rod 29 will impart movement to the cross head or follower 14. The follower 14 will in turn pull upon the belt 42, which will cause the plate and the slide 53 to move toward the follower 14. The push plate 16 of the follower will slide

a lid or cover from underneath the remaining covers or lids of the magazine, toward the box 62, which is carried upon the platform 57, which moves with the slide 53. The lid or cover will enter the grooves of the box. It is to be noted that when the plate 46 and its slide 53 is thus moving to carry the box 62 toward its lid, the box clamping support is raising under the action of the spring 76, so that the clamping support will engage the under face of the box. As the lid enters the grooves of the box, the lid lifts the box clamps 82, so that by the action of the springs 86, the box clamps 82 will bear upon the lid, and in this way the box will be clamped between the supporting clamp 71 and the clamps 82. While the box is so clamped, the platform 57 is moved from under the box. However, when the platform 57 is moving from under the box the supporting clamp 71 remains in contact with the box for a short period, owing to the lost movement of the rod 72 through the clamp 71 against the action of the spring 76. This lost movement occurs until the eye 73 of the rod 72 contacts with the upper surface of the clamp 71, then the clamp 71 will move downwardly, and with it the box which has been supplied with a lid. Just so soon as one box is supplied with a lid another is inserted or placed on the platform 57. Should the lid or cover be a trifle wider than the box, the back plate 63 will yield, incident to the lid fully entering the grooves of the box. Also, should the lid bind upon entering the grooves of the box, the back plate 63 will yield. It is to be noted that the slide 53, which carries the platform 57, may be adjusted relative to the plate 46, so that different widths of boxes may be accommodated on the platform. When a box has been fitted with a lid or cover, the carriage or plate 46 will be moved so that the platform 57 may be withdrawn from under the box, by action of the springs 88. When the back plate 63 yields, incident to the lid or cover being too wide or binding the rod 64 prevents the lower end of the back plate from moving in the direction of the arrow *c*.

The invention having been set forth what is claimed as new and useful is:—

1. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, a box carriage, and means of connection between the two, whereby a box and a lid may be moved toward each other to cause the lid to enter the grooves of the box, and means for operating the lid discharging member toward and from the magazine, and means for clamping said box, whereby the carriage may be moved from under the box.

2. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, a box carriage, and means of connection between the two, whereby a box and a lid may be moved toward each other to cause the lid to enter the grooves of the box, and means for operating the lid discharging member toward and from the magazine, means for clamping a box, means for removing the carriage from under the box while it is clamped, said clamping means comprising upper and lower clamps, and means of connection between the lower clamp and the carriage for causing the lower clamp to move downwardly and carry the box with it, when the carriage is moved from under the box.

3. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, a sliding cross head therefor, means for actuating the cross head, a carriage, a slide on said carriage, a platform adjustable on the slide to support a box, and means of connection between the carriage and the cross head, whereby as the cross head is operated, the box and a lid will be moved toward each other to cause the lid to enter the grooves of the box.

4. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, a sliding cross head therefor, means for actuating the cross head toward and from the magazine, a carriage, a slide on said carriage, a platform adjustable on the slide to support a box, and means of connection between the carriage and the cross head, whereby as the cross head is operated, the box and a lid will be moved toward each other to cause the lid to enter the grooves of the box, means for returning the carriage, as the cross head returns to its initial position.

5. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, a sliding cross head therefor, means for actuating the cross head toward and from the magazine, a carriage, a slide on said carriage, a platform adjustable on the slide to support a box, and means of connection between the carriage and the cross head, whereby as the cross head is operated toward the magazine, the box and a lid will be moved toward each other to cause the lid to enter the grooves of the box, means for returning the carriage, as the cross head returns to its initial position, and means for clamping the box with its lid in place while the carriage is returning to its initial position.

6. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, a sliding cross head therefor, means for actuating the cross head toward and from the

magazine, a carriage, a slide on said carriage, a platform adjustable on the slide to support a box, and means of connection between the carriage and the cross head, whereby as the cross head is operated toward the magazine, the box and a lid will be moved toward each other to cause the lid to enter the grooves of the box, means for returning the carriage, as the cross head returns to its initial position, and means for clamping the box with its lid in place while the carriage is returning to its initial position, said clamping means comprising upper and lower clamps, and means of connection between the lower clamp and the slide of the carriage for moving the lower clamp downwardly and the box with it as the carriage returns to its initial position, and means for adjusting the slide relative to the carriage.

7. In a machine for supplying sliding lids to boxes, a frame, a magazine thereon for the reception of lids, a lid discharging plate, means for moving the plate toward and from the magazine, a box carriage, means of connection between the carriage and the plate, whereby as the plate moves toward the magazine, the carriage is correspondingly moved, whereby the box may receive its lid, means for clamping the box after the same receives its lid, and means for removing the carriage from under the box while it is clamped.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR PARENT.

Witnesses:
SAMUEL B. PIERCE,
WILLIAM G. HAWKES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."