No. 810,971. PATENTED JAN. 30, 1906.

L. C. PALMER.

MACHINE FOR STRIPPING BLANKS FOR PAPER BOXES.

APPLICATION FILED NOV. 17, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

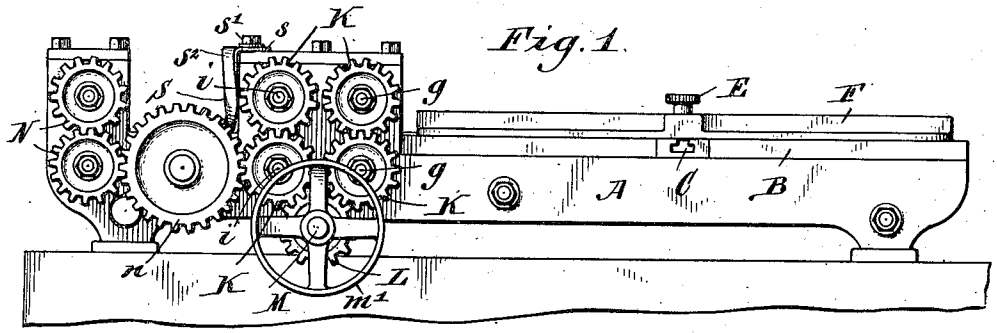


Fig. 2.

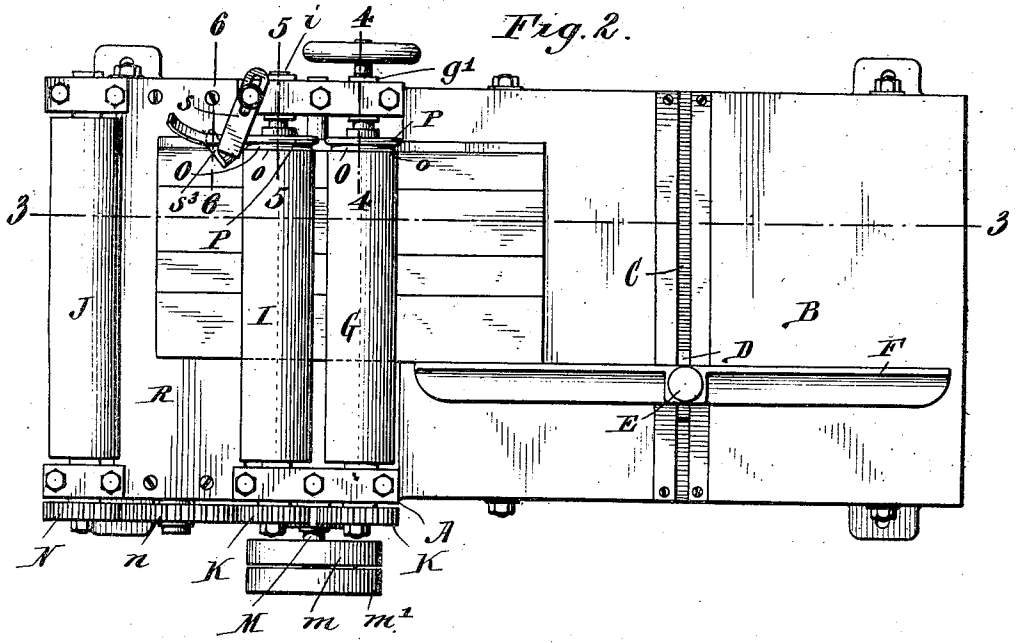
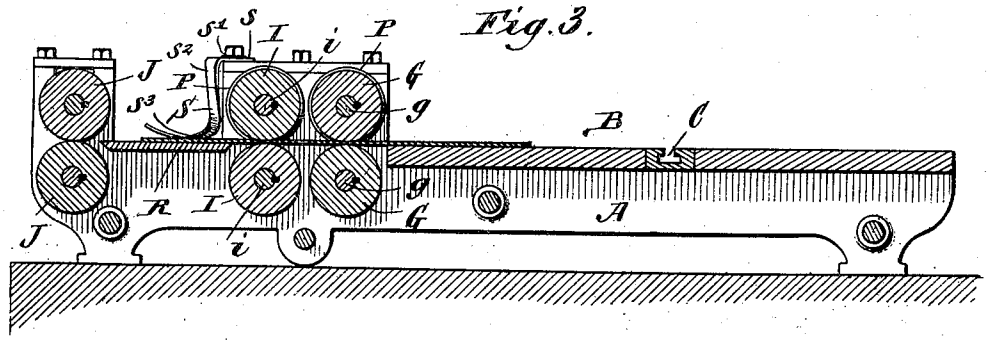


Fig. 3.



Witnesses:
Julius Lauker
May Sewert.

Lyndon C. Palmer, Inventor.
By Neukart & Burkhart,
Attorneys.

No. 810,971. PATENTED JAN. 30, 1906.

L. C. PALMER.

MACHINE FOR STRIPPING BLANKS FOR PAPER BOXES.

APPLICATION FILED NOV. 17, 1904.

2 SHEETS—SHEET 2.

Fig. 4.

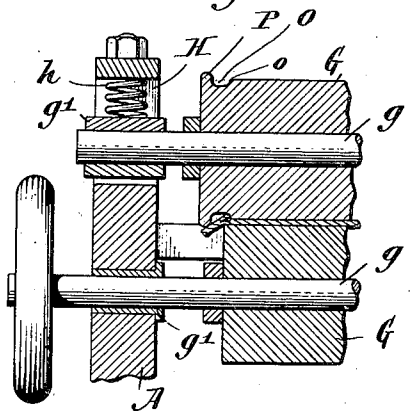


Fig. 5.

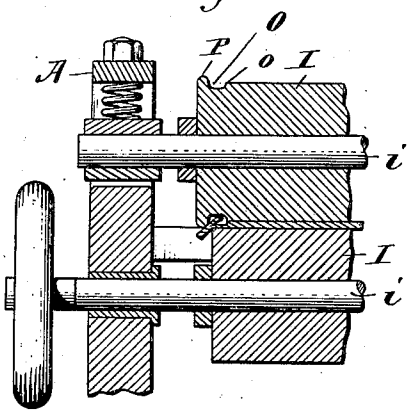


Fig. 6.

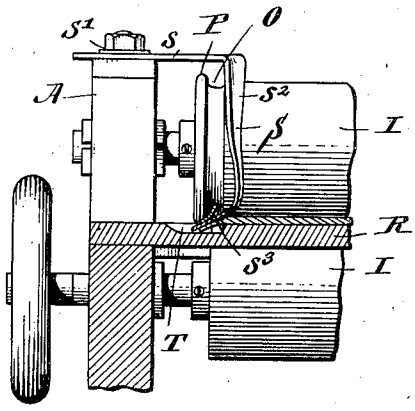


Fig. 7.



Fig. 8.



Fig. 9.

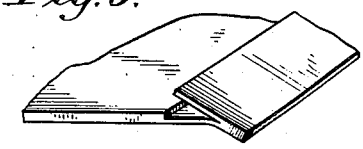


Fig. 10.

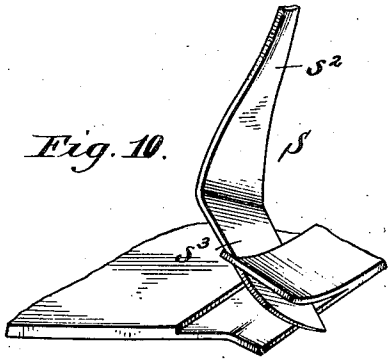
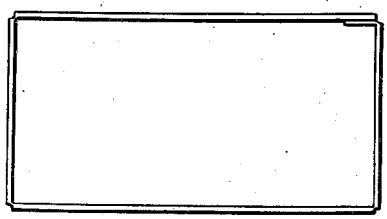


Fig. 11.



Witnesses:
Julius Lauke
May Sewert.

Lyndon C. Palmer, Inventor.
By Neuhart & Burkhart,
Attorneys.

UNITED STATES PATENT OFFICE.

LYNDON C. PALMER, OF BUFFALO, NEW YORK.

MACHINE FOR STRIPPING BLANKS FOR PAPER BOXES.

No. 810,971. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed November 17, 1904. Serial No. 233,148.

To all whom it may concern:

Be it known that I, LYNDON C. PALMER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Machines for Stripping Blanks for Paper Boxes, of which the following is a specification.

My invention relates to machines for stripping blanks for paper boxes, whereby the lap or marginal portion of the blank is reduced in thickness.

In forming square boxes the cardboard blanks are scored lengthwise at points forming the vertical edges of the box, and the lap or marginal portion overlaps one of the sides and is glued thereto. This overlapping of the blank as now done is objectionable not only because it is unsightly when the regular thickness of cardboard is overlapped, but also for the reason that two thick layers are not as quickly and as securely glued together as one thin layer glued to a thick layer. By stripping the lap of the blank to reduce the thickness the lap can be quickly and conveniently glued without resorting to pressure to hold the two layers together, whereas in gluing two thick layers together the folded blank must be held in a press for some time, thus consuming valuable time and requiring considerable labor, with the result that an unsightly and less rigid box is constructed than by the method of stripping the cardboard.

The object of my invention is to produce a machine which will strip the lap or marginal portion of a cardboard blank as it is fed through the same for the purpose of reducing the thickness of said marginal portion.

Other objects are to construct a machine of this type which can be adjusted to feed the lap accurately to the stripping-knife irrespective of the width of the lap or the width of the blank, to provide a simple, effective, and durable machine of few parts, and to provide flexing and feeding rolls whereby the blank is fed to the stripping-knife with the paper separated at the lap from the score-line outward.

With these and other objects in view the invention consists in a series of feed-rolls, means for flexing the blank at the lap or marginal portion to separate the layers of paper from the score-line outward, and means for stripping the paper to reduce the thickness of the same at the lap.

It also consists in the construction, combination, and arrangement of parts to be hereinafter described, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of my stripping-machine. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal section taken on line 3 3, Fig. 2. Fig. 4 is an enlarged transverse section taken on line 4 4, Fig. 2. Fig. 5 is an enlarged transverse section taken on line 5 5, Fig. 2. Fig. 6 is an enlarged transverse section taken on line 6 6, Fig. 2. Fig. 7 is a sectional perspective view of a portion of a cardboard blank, showing the score-line dividing the lap from the remainder of the blank. Fig. 8 is a similar view showing the lap flexed after passing between the first pair of feed and flexing rolls. Fig. 9 is a similar view showing the lap flexed nearer the edge thereof after passing between the second pair of feed and flexing rolls. Fig. 10 is a sectional perspective view of a portion of a cardboard blank and the stripping-knife, showing the manner of stripping the lap after passing through the feed and flexing rolls. Fig. 11 is an end view of the body of a box, showing the reduced lap glued to the inner face of one of the sides of the same.

Referring to the drawings in detail, like letters of reference refer to like parts in the several figures.

The reference-letter A designates the frame of the machine, having the table B secured thereto, on which the scored cardboards may be stacked for quickly feeding them into the machine. This table has a transverse inverted-T-shaped groove C, in which a nut D is confined for the reception of a clamping-bolt E, which passes through a longitudinally-disposed gage F and serves to fasten the latter in any adjusted position.

G designates a pair of feed and flexing rolls secured to shafts *g*, journaled in suitable bearings *g'* in the frame. The lower bearings are rigid within the frame, while the upper bearings are yieldingly held in vertical openings H. A spring *h* serves to hold the upper roller yieldingly against the lower roller. I designates a second pair of feed and flexing

rolls secured to shafts *i*, the bearings of both said shafts being similar to those of the first pair of feed-rolls.

J designates a pair of delivery-rolls, which are journaled in the frame, similar to the feed and flexing rolls.

The rolls of each pair of feed and flexing rolls are geared together by gears K, and the gears of the lower rolls are in mesh with a gear L on the power-shaft M, which latter is also provided with the usual loose and tight pulleys *m m'*, respectively. The delivery-rolls are geared together by gears N, the lower one of which is held in mesh with an idler *n*, driven by the gear K on the lower roll of the second-mentioned pair of feed and flexing rolls. Thus the rolls are all operatively connected with the power-shaft to cause the blanks to be fed forward between the rolls. The upper rolls of the feed and flexing rolls are of equal length, and each is provided with an annular groove O near one end to form a gage edge *o*, the cardboards being fed to the rolls with the score-line in registration with said gage edge. Each upper feed-roll is also provided with a flexing-rim P, which is of greater diameter than the body of the roll. The lower roll of the first-mentioned pair of feed and flexing rolls extends slightly beyond the gage edge of the upper rolls, while the lower roll of the second-mentioned pair of feed and flexing rolls is somewhat longer than the lower roll of the first-mentioned pair and extends beyond the gage edge of the upper rolls to a greater extent than does the lower roll of the first-mentioned pair of feed and flexing rolls.

R designates a platform located between the feed-rolls and delivery-rolls, over which the cardboard blanks pass as they leave the feed-rolls.

S designates the stripping-knife, consisting of a horizontal securing portion *s*, bolted to the frame of the machine at *s'*, a depending portion s^2, and an inclined cutting-blade s^3, extending into a depression T in the platform R, said cutting-blade lying in the path of the flexed lap of and substantially parallel with the cardboard blank as it leaves the feed and flexing rolls.

In operating the machine the several rolls are revolved in a direction to feed the cardboard blanks between the rolls to the stripping-knife and delivery-rolls, the latter gripping the blanks and delivering the same to a suitable platform or receptacle, from which they may be carried to a gluing-machine for gluing the lap portion, or, if desired, the stripped blanks may be delivered directly to the gluing-machine.

From the foregoing it is apparent that the longitudinal gage F on the table B may be adjusted to any point in the width of the table, which permits blanks of any width to be fed through the machine with the score-line forming the lap held in registration with the gage edges *o* of the feed and flexing rolls. The blanks are fed into the machine with the scored side face up, and as they pass between the first pair of feed and flexing rolls the flexing-rim of the upper roll forces down that portion of the lap extending beyond the edge of the lower roll, which causes the paper layers forming the board to separate from the score-line out toward the edge a certain distance, the thickness of the paper being thus separated depending on the depth of the score made in the blank. If desired, the flexed lap with a portion thereof thus separated from the blank may be presented to the stripping-knife without passing through a second pair of flexing-rolls; but I have obtained best results by passing them between a second pair of flexing-rolls, which serve to further separate the layers of the board, rendering it comparatively easy to strip the board as it comes in contact with the stripping-knife. By separating the paper as above described throughout the length of the lap assurance is had that the strip will be evenly cut throughout its length. When the stripped cardboard is glued, it is folded at the score-lines to form a tube, with the stripped lap glued against one of the sides. Ordinarily the cardboard is of sufficient length to form a number of boxes and after being glued and folded is cut to the desired lengths to form the sides of the box.

This invention is susceptible to many changes in the form, arrangement, and construction of parts without departing from the scope thereof, and I do not wish to limit myself to the embodiment of my invention herein disclosed.

Having thus described my invention, what I claim is—

1. In a machine for stripping cardboard blanks or the like, the combination with a suitable frame, of a feeding device for feeding the blanks forward, and a stripping device in the path of the blank for reducing the thickness of the marginal portion of the latter so that the reduced marginal portion is of even thickness throughout.

2. In a machine for stripping a cardboard blank or the like, the combination with a frame, of feed-rolls revolubly mounted in the frame, and a stripping device in the path of the blank for reducing the thickness of the marginal portion thereof as it passes through the machine so that the reduced marginal portion is of even thickness throughout.

3. In a machine for stripping cardboard blanks or the like, the combination with a suitable frame, of feed-rolls revolubly mounted in the frame, and a stripping-knife located in the path of the blank as it leaves the feed-rolls, said knife having its cutting edge arranged substantially parallel with the face of the marginal portion of the blank to reduce the thickness thereof.

4. In a machine for stripping a cardboard

blank or the like, the combination with a suitable frame, of feed-rolls and delivery-rolls revolubly mounted in the frame, and a stripping device lying in the path of the blank between the feed-rolls and the delivery-rolls, and adapted to reduce the thickness of the marginal portion of the blank.

5. In a machine for stripping the marginal portion of a scored cardboard blank, the combination with a frame, of a stripping-knife carried on the frame, and means for flexing the marginal portion of the blank and feeding the blank to said stripping-knife.

6. In a machine for stripping the marginal portion of a cardboard blank scored near one edge, the combination with a frame, of feed and flexing rolls revolubly mounted in the frame to flex said marginal portion and separate the layers of the same from the score-line toward the edge of the blank, and means for stripping the marginal portion of the blank as it leaves the feed and flexing rolls.

7. In a machine for stripping the marginal portion of a cardboard blank scored near one edge, the combination with a frame, of a pair of rolls between which said blank is passed, one of said rolls being longer than the other and having a flexing-rim at its outer end adapted to flex that portion of the blank extending beyond the end of the other roll to separate the layers of the blank from the score-line toward the edge of the same, and a stripping-knife in the path of the blank as it leaves said rolls.

8. In a machine for stripping the marginal portion of a cardboard blank scored near one edge, the combination with a frame, of a pair of rolls arranged one above the other between which said blank is passed, the upper of said rolls being longer than the lower roll and having a circumferential groove and a flexing-rim at its outer end, said rim serving to flex that portion of the blank extending beyond the end of the lower roll to separate the layers of the blank from the score-line toward the edge of the same, and a stripping-knife in the path of the blank as it leaves the said rolls.

9. In a machine for stripping the marginal portion of a cardboard blank scored near one edge, the combination with a frame, of a pair of rolls arranged one above the other between which said blank is passed, the upper of said rolls being longer than the lower roll and having a circumferential groove and a flexing-rim at its outer end, said rim serving to flex that portion of the blank extending beyond the end of the lower roll to separate the layers of the blank from the score-line toward the edge of the same, a platform in rear of said rolls provided with a depression in line with the flexing ends of said rolls, and a stripping-knife having its cutting-blade extending into said depression.

10. In a machine for stripping the marginal portion of a cardboard blank scored near one edge, the combination with a frame, of a pair of feed and flexing rolls revolubly mounted in said frame, the upper roll thereof having an end flexing-rim and a circumferential groove forming a gage edge and the lower roll thereof extending slightly beyond said gage edge, a second pair of revolubly-mounted similar rolls having the gage edge of the upper roll in line with the gage edge of the upper roll of the first-mentioned pair of rolls and the adjacent end of the lower roll extending beyond the corresponding end of the lower roll of the first-mentioned pair of rolls, and a stripping-knife in rear of said rolls in line with the flexing ends of the latter.

In testimony whereof I have affixed my signature in the presence of two subscribing witnesses.

LYNDON C. PALMER.

Witnesses:
EMIL NEUHART,
CHAS. F. BURKHART.