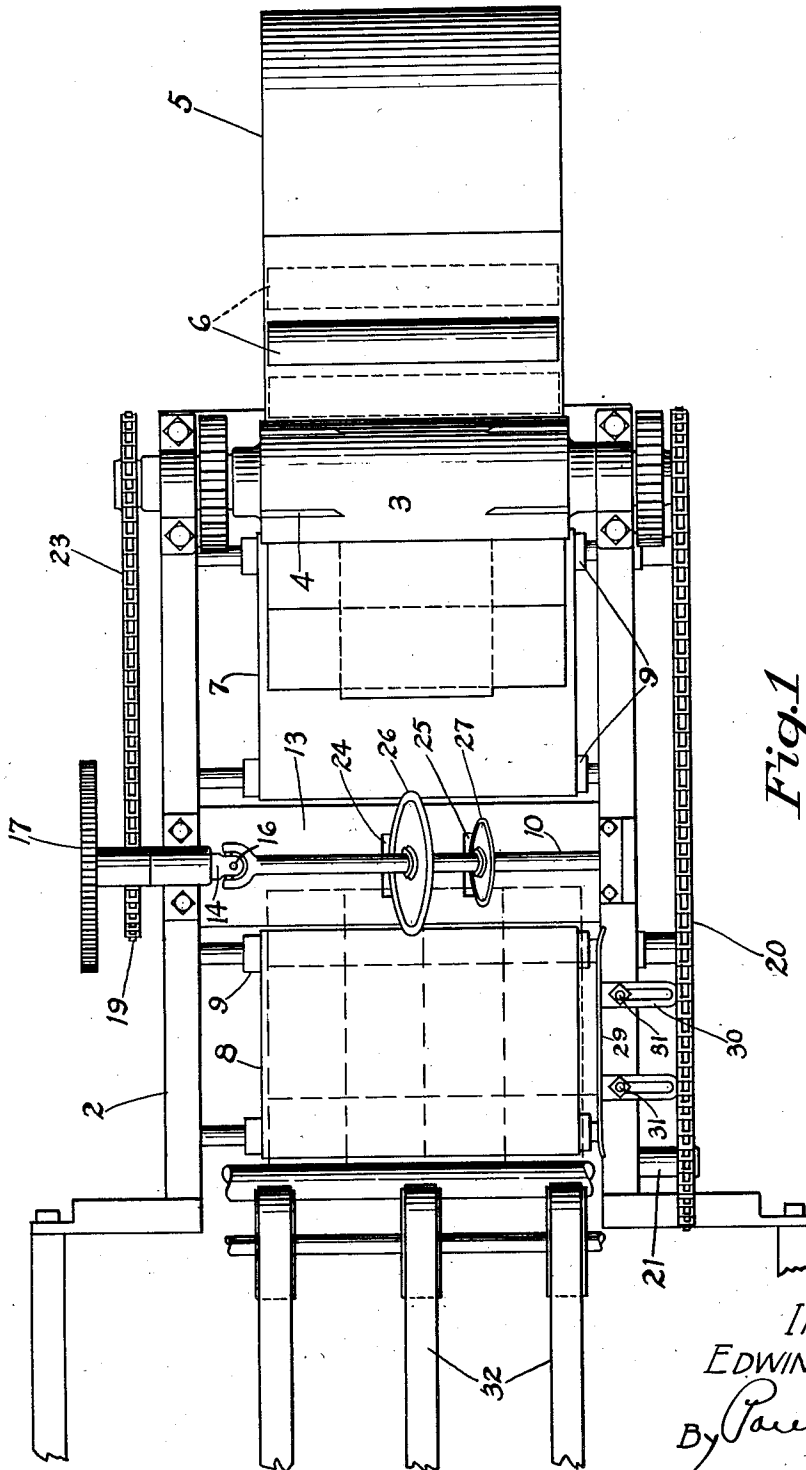


Mar. 27, 1923.

E. G. STAUDE.
PAPER BOX MACHINE.
FILED SEPT. 1, 1920.

1,449,959.

3 SHEETS--SHEET 1.



INVENTOR
EDWIN G. STAUDE

By Paul Hovel

HIS ATTORNEYS

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3 SHEETS—SHEET 3.

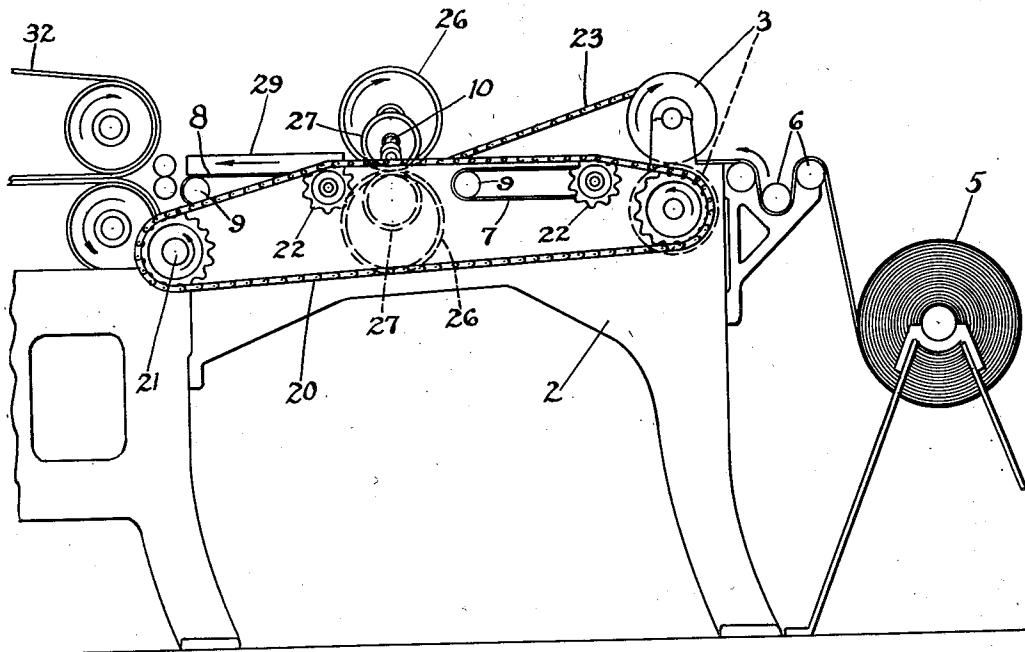


Fig. 3

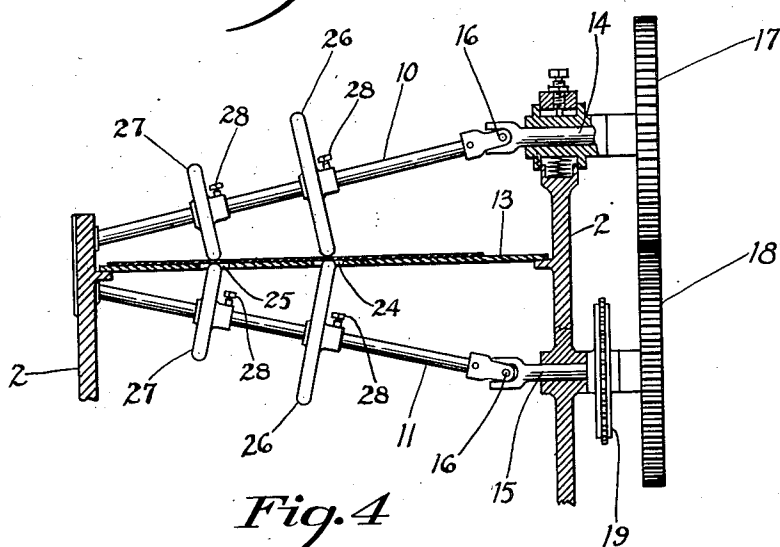


Fig. 4

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Patented Mar. 27, 1923.

1,449,959

UNITED STATES PATENT OFFICE.

EDWIN G. STAUDE, OF ST. PAUL, MINNESOTA.

PAPER-BOX MACHINE.

Application filed September 1, 1920. Serial No. 407,461.

To all whom it may concern:

Be it known that I, EDWIN G. STAUDE, a citizen of the United States, resident of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Paper-Box Machines, of which the following is a specification.

The object of my invention is to provide an improvement in machines for making paper boxes, whereby the blank can be turned or adjusted to bring its flaps into position to be glued or gummed.

A further object is to provide a simple, inexpensive attachment for the purpose described, which will rapidly shift or adjust the blanks as received from the cutting rolls without interfering with the speed or efficiency of the machine.

A further object is to provide a blank turning attachment of simple inexpensive construction and one which can be easily applied and will be strong and durable. -

The invention consists generally in the constructions and combinations hereinafter specified and more particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a plan view of a portion of a paper box machine with my invention applied thereto,

Figure 2 is a longitudinal vertical section of the same, showing the means for feeding the blanks through the machine.

Figure 3 is a side elevation.

Figure 4 is a detail sectional view showing the relative position of the blank turning means.

In the drawing, 2 represents the frame of the machine. 3 the rolls having slitting knives 4 in their peripheries for cutting the stock to form box blanks. 5 represents a reel of stock fed over the small rolls 6 to the slitting knives and 7 and 8 represent conveyer belts supported by suitable rolls 9, on which belts the blanks are fed through the machine. Between the belts 7 and 8 I arrange shafts 10 and 11 mounted in the frame of the machine respectively above and below a table 13. The shafts are inclined to the horizontal so that they converge from one side of the machine to the other.

Stub shafts 14 and 15 are mounted in the frame of the machine on one side and have universal joint connections 16 with the

shafts 10 and 11, and the stub shafts 14 and 15 have intermeshing gears 17 and 18 thereon, and the shaft 15 is provided with a sprocket wheel 19. A drive belt 20 connects a shaft 21 with the lower slitting roll shaft and also engages the sprocket wheels 22 on one of the rolls of the conveyer belts 7 and 8 for operating these belts. On the opposite side of the machine a belt 23 connects the upper slitting roll shaft with the sprocket wheel 19 for driving the gears 17 and 18 and the shafts 10 and 11. The table 13 is provided with openings 24 and 25 therein, and wheels 26 and 27 are arranged in pairs on the shafts 10 and 11, and adjustably secured thereon by suitable means such as setscrews 28. The wheels are arranged so that those of the same diameter are opposite each other or in opposing relation through the openings 24 and 25, and both pairs of wheels revolve in inclined planes, due to the inclination of the shafts 10 and 11, on which they are mounted. The peripheries of the wheels are rounded as shown and may have rubber gripping rings or tires thereon, and have sufficient space between them to allow the passage of the blanks.

One pair of wheels, as shown plainly in Figure 4, is of greater diameter than the other pair and as the shafts revolve at the same speed, the larger wheels engaging the surface of the blank and having a greater travel than the smaller wheels, will impart to the blank a rotary or turning movement, causing it to swing from the position indicated at the right in Figure 1 to a quarter turn position as indicated at the left in the same figure,—where the blank is shown as having passed between the wheels so that the flap of the blank is at one side instead of in front as it was before engaging the wheels. A guide plate 29 is adjustably mounted on the frame of the machine by means of slotted arms 30 and bolts 31, and by means of this guide the proper position of the blank may be determined before its engagement with the narrow belts 32 which continue the feeding movement of the blank through the machine and past the gluing or gumming devices. It will be understood that when the blank is engaged by the wheels 26 and 27 that its forward feeding movement will be continued, but owing to the difference in diameter of the wheels, one portion of the blank will travel faster than another portion, resulting in partial rota-

tion on its support until the flaps, or portions to be gummed or glued are shifted or turned to the side instead of in front of the blank as it left the slitting rolls.

- 5 The relative size of the wheels and the speed of revolution may, of course, be varied as conditions may require, the main feature of the invention being the manner of mounting the wheels and the variation
10 in the size thereof to cause a turning movement of the blank as it is fed between the wheels.

I claim as my invention:

1. The combination, with means for feeding blanks, of means mounted revolving in planes inclined to the horizontal to engage the blanks and partially rotating them and continuing their forward movement in the same direction.
2. The combination with means for feeding the blanks, of means mounted above and below the blanks and engaging the surfaces thereof for imparting a combined forward and rotary movement thereto and continuing said forward movement in the same direction.
4. The combination, with means for feeding the blanks, of wheels mounted above and below the blanks and engaging the surfaces thereof for imparting a combined forward and rotary movement and continuing said forward movement in the same direction.
4. The combination, with means for feeding the blanks, of wheels of varying diameter, arranged in pairs above and below the blanks and contacting therewith, for imparting a combined forward and rotary movement thereto and continuing said forward movement in the same direction.
5. The combination, with means for feeding the blanks, of shafts mounted at an incline to the horizontal, above and below the blanks, and means mounted on said shafts and engaging the blanks, for imparting a combined forward and rotary movement thereto and continuing said forward movement in the same direction.

6. The combination with means for feeding a blank, of a shaft inclined to the horizontal, and means mounted on said shaft, and engaging the surface of the blank for imparting a combined forward and rotary movement thereto and continuing said forward movement in the same direction.

7. The combination, with means for feeding the blanks, of shafts mounted above and below the blanks, and inclined to the horizontal, wheels mounted on said shafts and engaging the surfaces of the blanks, said wheels being of different diameters, those of the same diameter being in opposing relation for imparting a combined rotary and forward movement to the blanks.

8. In a paper box machine, the combination with the blank slitting rolls and conveyor belts mounted to receive blanks from said rolls, and a table having openings therein and over which the blanks pass, of feed wheels mounted above and below said table and operating through said openings to engage and feed the blanks, said wheels being arranged in pairs and those of one pair being of greater diameter than those of the other pair whereby a predetermined rotary or turning movement will be imparted to the blanks as they are moved forward.

9. In a paper box machine, the combination, with the blank slitting rolls and conveyers mounted to receive the blanks from said rolls, and a support over which said blanks pass, of feed wheels mounted above and below said support and operating there-through to engage and feed the blanks, said wheels being arranged in pairs, those of one pair being of greater diameter than those of the other pair, whereby a predetermined rotary or turning movement will be imparted to the blanks as they move forward.

In witness whereof, I have hereunto set my hand this 27th day of August, 1920.

EDWIN G. STAUDE.