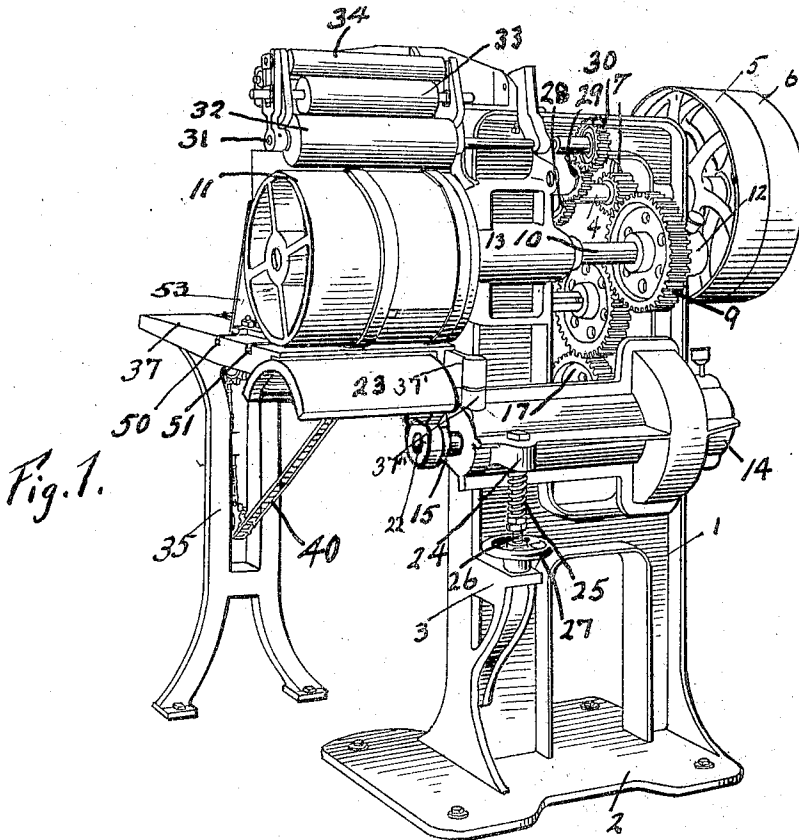


E. C. NORTHRUP.
BOX PRINTING MACHINE.
APPLICATION FILED NOV. 20, 1918.

1,317,451.

Patented Sept. 30, 1919.

3 SHEETS—SHEET 1.



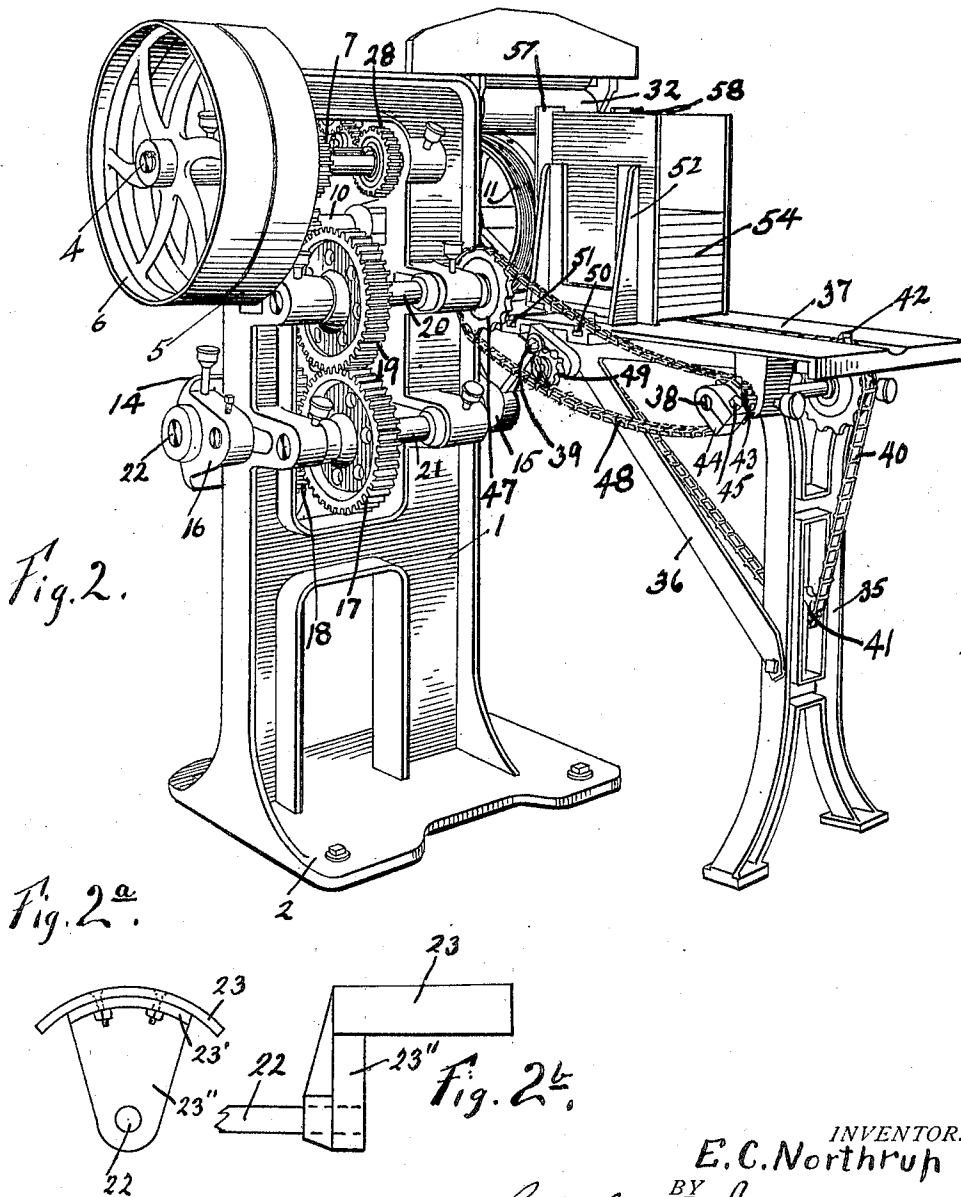
INVENTOR.
E. C. Northrup.
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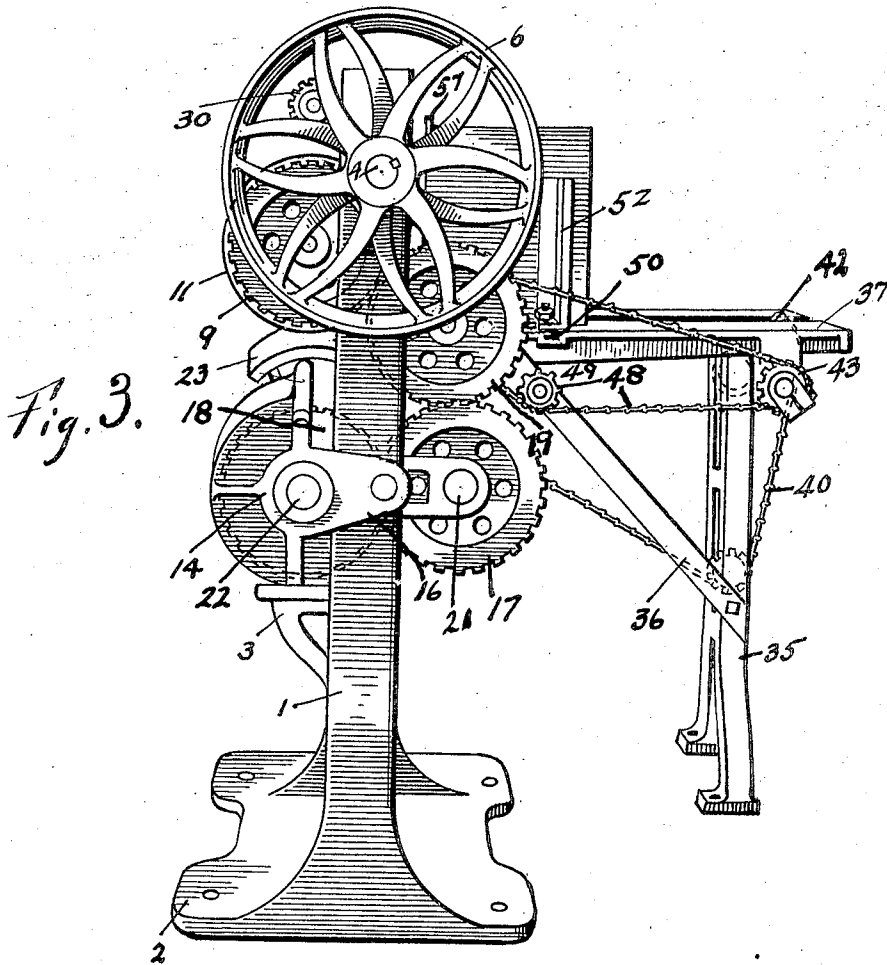


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UNITED STATES PATENT OFFICE.

ELMER C. NORTHRUP, OF SAN JOSE, CALIFORNIA.

BOX-PRINTING MACHINE.

1,317,451.

Specification of Letters Patent. Patented Sept. 30, 1919.

Application filed November 20, 1918. Serial No. 263,245.

To all whom it may concern:

Be it known that I, ELMER C. NORTHRUP, a citizen of the United States, residing at San Jose, in the county of Santa Clara, State of California, have invented a new and useful Box-Printing Machine, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to a box printing machine and its object is to produce a machine which will automatically print labels upon box shoos from a pile of such shoos, which may have complete boxes placed therein manually and be printed.

A particular object of the invention is the provision of means whereby the type carrying roll may remain stationary while adjustments for different thicknesses of box materials is accomplished, by moving the lower roll, thereby avoiding the necessity of providing an adjustment for the inking rolls.

A further object of the invention is to provide means whereby the complete boxes may be placed in position to be printed from the end of the roll, the printing rolls being supported entirely from one end of the shafts carrying them.

Other objects of the invention will appear as the description proceeds.

An embodiment of the invention is shown in the drawings in which the same reference numeral is applied to the same portion throughout, but I am aware that there may be modifications thereof.

Figure 1 is a perspective view of the complete machine looking from the front toward the printing rolls,

Fig. 2 is a perspective view of the machine looking from the back thereof in an opposite direction from Fig. 1,

Figs. 2^a and 2^b are detailed views of the segmental printing platen, and

Fig. 3 is a perspective view of the machine looking from the side opposite the printing rolls.

The numeral 1 indicates a frame which has a base 2 and which carries a bracket 3 for adjusting the opening between the printing roll and its platen. Near the top of the frame there is a shaft 4 which carries loose and fast pulleys 5 and 6 for driving the machine. This shaft has a gear 7 thereon which gear is in mesh with a larger gear 9 on the shaft 10 of the printing roll 11. The shaft 10 is journaled in two boxes 12 and 13 car-

ried by the main frame 1, and the end carrying the roll is unsupported save by said two boxes.

Below the printing roll shaft there is a heavy yoke 14 which yoke has two short arms 15 and 16 which arms are journaled on short stub shafts carried by the frame 1, the centers of which are in line with the pitch circles of the gears 17 and 18.

The gear 9 is in mesh with a gear 19 on a shaft 20 at the back of the machine, and the gear 19 is in mesh with the gear 17 which is carried by the shaft 21 just below the shaft 20. The yoke 14 forms the journal for a shaft 22 upon which the gear 18 is mounted and said shaft carries the printing platen 23. Said printing platen is a plate forming only a segment of a complete roll and is attached to a smaller overhanging segment 23', carried by the arm 23''. See Figs. 1, 2^a and 2^b. This printing platen is sufficiently extensive to be equal to or somewhat greater than the plate used on the upper roll 11, so that a number of different sized plates may be used on said printing roll. The yoke 14 also has a short arm 24 which rests upon a heavy spiral spring 25 carried by a rod 26 and said rod is threaded into an adjusting wheel 27 which is supported by the bracket 3.

It will be observed that as the position of the yoke is adjusted, that it moves about a center which is in line with the pitch circles of the two gears 17 and 18 and therefore its adjustment and the adjustment of the platen 23 does not materially alter the relation of said gears 17 and 18. The shaft 4 carries a gear 28 which is in mesh with a gear 29 on a stub shaft carried by the frame. Said gear 29 is in turn in mesh with a gear 30 on a shaft 31 which carries the inking roll 32. The inking roll has an ink supply roll 33 in contact therewith, and the latter roll is in contact with another ink supply roll 34 just above it.

When it is desired to use the machine to automatically feed box shoos therethrough, a stand 35 is made use of. This stand is secured to the machine by means of an arm 37' which has a pin fitting in a hole in a boss 37'' on the yoke 14, so that the table height varies in accordance with the height of the platen 23. The stand is secured to the floor in any suitable manner and it has a brace 36 which supports a slotted table 37. The stand has a shaft 38 at one end and a

shaft 39 at the other end, which shafts have sprocket wheels around which a sprocket chain 40 passes. Said sprocket chain also passes around a sprocket wheel 41 in order to make the sprocket chain of the proper length for the required number of flights 42. This sprocket chain is driven by means of a sprocket wheel 43 which sprocket wheel is connected with the shaft by means of the friction coupling 44 which coupling is tightened against the shaft by means of the set screw 45. The object of this is to permit the sprocket wheel to slip if a box shook sticks in the machine.

In order to drive the sprocket wheel 43, a sprocket wheel 47 is mounted on the shaft 20 and drives the sprocket chain 48 which passes around the sprocket wheel 47 and the sprocket wheel 43, an idling sprocket 49 holding the chain 48 taut. The table 37 has two transversely extending slots 50 and 51 for the purpose of holding brackets 52 and 53 between which the pile of box shook 54 is placed. At the front of the pile of box shook 54, the stop plates 57 and 58 permit only one box shook to pass through at a time, so that as the chain 40 travels forward, it will pull the lowermost box shook along and push it between the printing roll and its platen.

The operation of the machine is as follows: Assuming it to be driven from any suitable source of power, the rolls will rotate and as they do so, the box shook will be pulled into the machine one at a time by means of the flights at suitable intervals on

the chain 40. As said shook pass through, an impression will be made thereon. If it is desired to change the spacing between the printing roll and its platen for box shook of a different thickness, the position of the yoke 14 is adjusted by means of the hand wheel 27. If it is desired to use the machine for the purpose of printing the set up boxes, the sprocket chain 48 and stand 35 may be removed. Then the operator can place the boxes in a position to be printed between the printing roll and its platen during the time the segment platen roll is down. The operator holds the box in a position to travel forward when the segment roll comes up, and removes the box by hand as soon as the printing has been effected.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is as follows, express reservation being made of permissible modifications:

A box printing machine comprising a printing roll, means to supply the printing roll with ink, a platen roll, a pivoted yoke supporting the platen roll, gears connecting the printing roll and platen roll for driving them in the same time the pitch circles of two of said gears being in line with the axis of the pivoted yoke, and means to adjust the pivoted yoke to print upon materials of different thicknesses.

In testimony whereof I have hereunto set my hand this 7th day of November A. D. 1918.

ELMER C. NORTHRUP.

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