



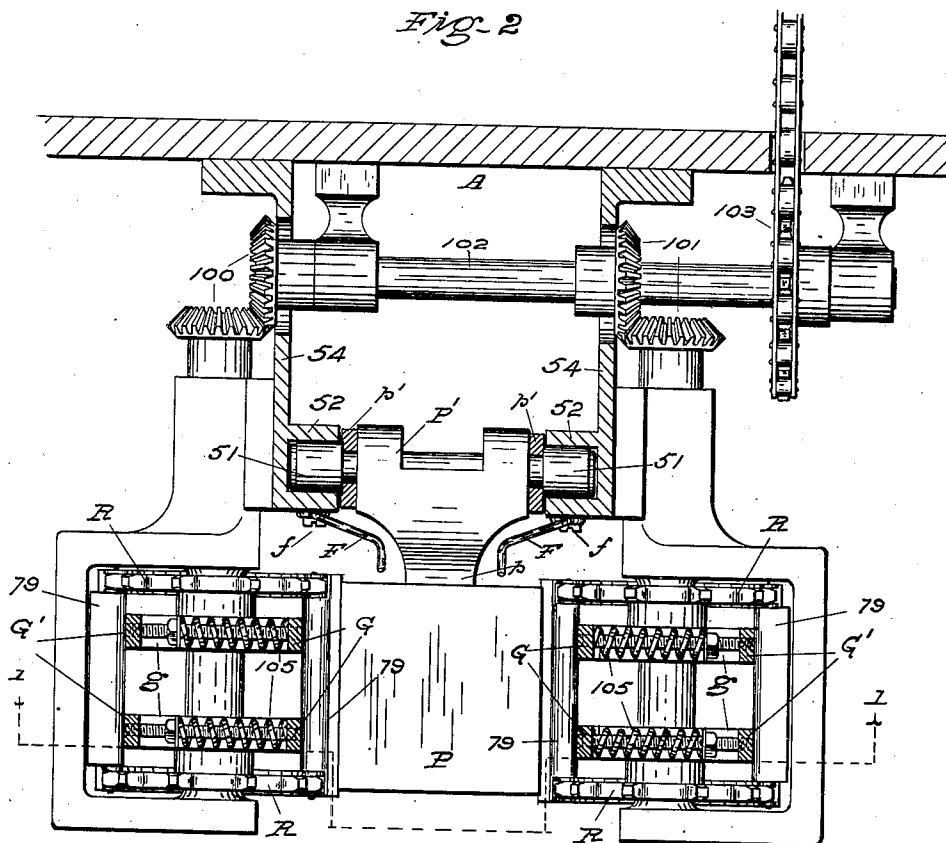
No. 898,250.

PATENTED SEPT. 8, 1908.

A. W. MITCHELL.  
PAPER BOX MACHINE.  
APPLICATION FILED DEC. 2, 1907.

3 SHEETS—SHEET 2.

Fig. 2



WITNESSES

William Abbe  
L. H. Grote

INVENTOR

ALBERT W. MITCHELL

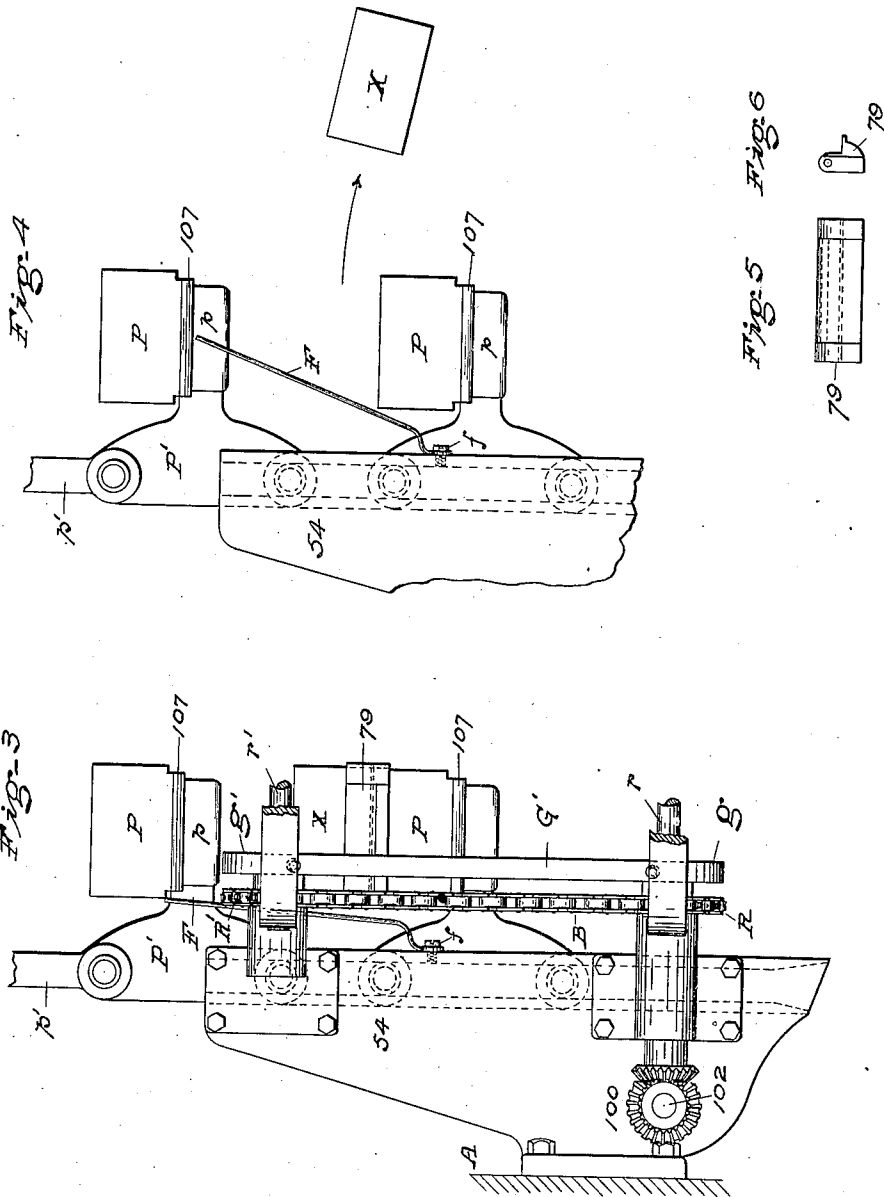
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WITNESSES

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L. H. Grote

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# UNITED STATES PATENT OFFICE.

ALBERT W. MITCHELL, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE NEW ENGLAND PAPER BOX MACHINE CO., OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

## PAPER-BOX MACHINE.

No. 898,250.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed December 2, 1907. Serial No. 404,659.

*To all whom it may concern:*

Be it known that I, ALBERT W. MITCHELL, a citizen of the United States of America, residing at New Haven, in the county of New Haven, in the State of Connecticut, have invented certain new and useful Improvements in Paper-Box Machines, of which the following is a specification.

My invention relates more particularly to paper box machines of the character set forth and claimed in my patent No. 852,974, May 7th, 1907, and in which there is combined with a forming die a series of plungers traveling through the die in succession, and the main object of my present invention is to provide improved means whereby the formed boxes may be stripped from the plungers after they have passed through the forming die.

In the accompanying drawings Figure 1 is a sectional elevation on the lines 1—1, Fig. 2; Fig. 2 is a sectional plan view on the line 2—2, Fig. 1, but drawn to a smaller scale; Fig. 3 is a side elevation, with parts broken away; Fig. 4 is a corresponding view, but showing the traveling plungers slightly advanced and the finished box being ejected; and Figs. 5 and 6 are side and end views of one of the strippers.

In these drawings I have shown the series of plungers P as shown and described in my prior patent as rectangular in outline for the formation of a rectangular box and as connected up in an endless chain to travel over suitable wheels above and below. These wheels over which the chain of plungers passes are not shown in the drawings because they are beyond the limits of the views. Each plunger P, as before, is carried by the projecting arm *p*, (Figs. 2, 3 and 4), of a link *P*<sup>1</sup>, and these links *P*<sup>1</sup> are connected into a chain by pairs of short links *p*<sup>1</sup>. In my former patent this chain of plungers is shown as guided in grooves in the frame only on their downward run, in passing through the box-forming die, but in connection with my present invention, I prefer to provide means for guiding the chain of plungers upon the upward run also. Thus on the brackets 54 bolted or otherwise fixed on the frame A are flanges 52 forming guiding grooves for the antifriction rollers 51 on the chain, (Figs. 2, 3 and 4). It is in connection with this upward run of the plungers P that I provide my improved box stripping means. On oppo-

site sides of this upward run of the plungers P, I arrange endless chains on bands B, preferably two on each side, passing over wheels R, R<sup>1</sup>, above and below. One set of these chain wheels, preferably the upper set R<sup>1</sup> may be mounted upon shafts *r*<sup>1</sup> to turn freely in bearings in the frame, while the other set R is to be driven by any suitable gearing from a moving part of the machine and at a speed such that the chains B, B will travel in relation to, but faster than, the plungers P. In the drawing I have shown the shafts *r*, on which the lower chain wheels are mounted, as driven together, (Figs. 2 and 3), through bevel gearing 100 and 101 from a cross shaft 102, which in turn is driven by a chain drive 103, (Fig. 2), from a suitable shaft in the machine. To each pair of these chains B, B, I pivot or hinge at proper intervals stripper blades or claws 79, (Figs. 1, 5 and 6), so that as the chains pass around their lower wheels R, the edges of the blades will take under the opposite edges of the formed box X upon the adjacent upwardly traveling plunger P, Fig. 1. The speed of travel of the chains B, B, is arranged in relation to, but so much faster than, the travel of the plungers P, as they move along, each pair of blades 79 will start at the bottom on its upward run alongside of a plunger, but will gradually lift the box X off the adjacent plunger until by the time the plunger has reached the position of the middle plunger shown in Fig. 1, (see also Fig. 3), the box will have been lifted entirely off the plunger, which had previously carried it.

In connection with the described stripping means, I provide an ejecting means, consisting of spring fingers F, which may be secured to the side pieces 54 at *f*, while their free upper ends tend to project outwardly to the position shown in Fig. 4, but as these spring fingers lie in the path of the plungers, each plunger as it rises will press the fingers back, as shown in Fig. 3, until that plunger in its upward movement passes beyond the fingers F, when the latter will snap outward against the box X, which has just been freed from the next succeeding plunger, and consequently the box will be thrown free of the machine as indicated in Fig. 4.

In connection with the stripper blades 79, I prefer to use supporting guides which may consist of upright bars G, G<sup>1</sup> carried by blocks *g*, *g*<sup>1</sup>, supported upon the shafts *r* and *r*<sup>1</sup> between the pairs of wheels R and R<sup>1</sup>.

prefer also to make the inner guides G, G, yielding, as by springs 105 on rods 106 bearing against the plates G, which are connected with play at top and bottom of the blocks 5 *g, g'*, Fig. 1. I prefer also to bevel the opposite edges of each plunger P at the back as shown at 107, Fig. 1, so that the acting edge of each stripper blade 79 will slide up to the back edge of the paper box and take hold 10 with greater certainty and the blade will be maintained against the plunger by the spring pressure means 105.

I claim as my invention—

1. The combination of a traveling series of 15 plungers of a paper box machine with means for stripping the formed boxes from the successive plungers and consisting of two endless series of stripper blades to bear against the opposite sides of the plungers and means 20 for traveling the stripper blades in relation to, but faster than, the plungers.

2. The combination of a traveling series of plungers of a paper box machine with endless chains on opposite sides of the series of 25 plungers, stripper blades carried by said endless chains and means for traveling the endless chains in relation to, but faster than, the plungers.

3. The combination of a traveling series of 30 plungers of a paper box machine with end-

less chains on opposite sides of the series of plungers, stripper blades carried by said endless chains, pressure means to keep the blades up to the plungers and means for traveling the endless chains in relation to, 35 but faster than, the plungers.

4. The combination of a traveling series of plungers of a paper box machine, with endless chains on opposite sides of the series of 40 plungers, stripper blades carried by said endless chains, pressure means to keep the blades up to the plungers, the back of each plunger being beveled at its opposite sides, and means for traveling the endless chains in relation to, but faster than, the plungers. 45

5. The combination of a traveling series of plungers of a paper box machine, with endless chains on opposite sides of the series of plungers, stripper blades carried by the chains, means for traveling the endless 50 chains in relation to, but faster than, the plungers, and means for ejecting the stripped boxes from the machine.

In testimony whereof I have signed my name to this specification, in the presence of 55 two subscribing witnesses.

ALBERT W. MITCHELL.

Witnesses:

HARRY H. ATWATER,  
HENRY A. L. HALL.