

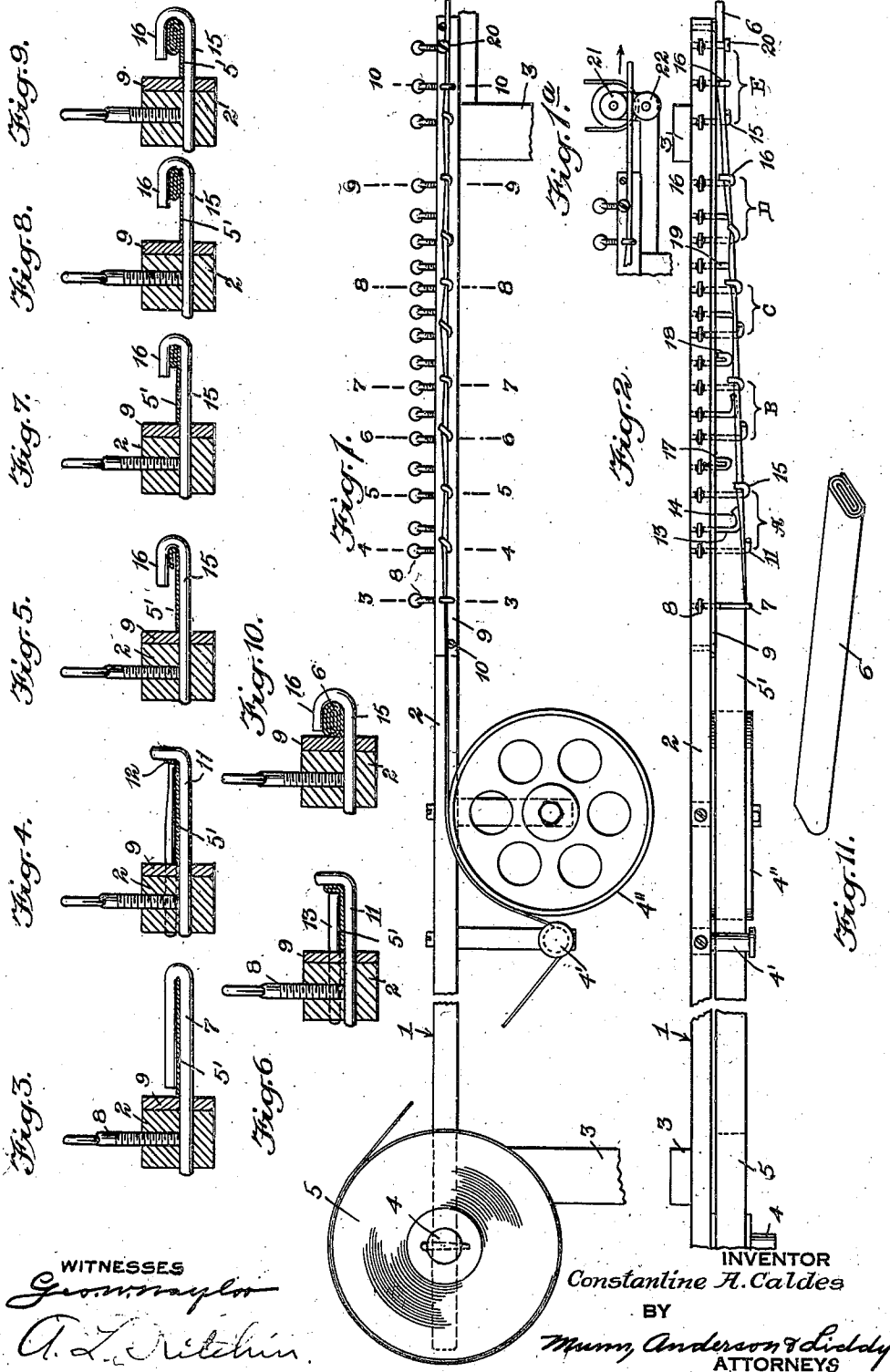
Dec. 9, 1941.

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2,265,894

PAPER FOLDING MACHINE

Filed March 22, 1940



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2,265,894

PAPER FOLDING MACHINE

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Application March 22, 1940, Serial No. 325,357

3 Claims. (Cl. 270-94)

This invention relates to paper folding machines and particularly to a machine for folding a strip of paper having straight parallel sides, an object being to provide a folding structure wherein the paper may be folded a number of times before it leaves the machine.

Another object of the invention is to provide a folding machine wherein a plurality of groups of folding structures are provided and means for feeding a strip of paper thereto so that the strip may move successively through the respective groups and receive an individual fold as it passes through each group.

In the accompanying drawing—

Fig. 1 is a side view of a paper folding machine embodying the invention;

Fig. 1a is an enlarged view of the discharge end of the device illustrating means for pulling the folded paper from the machine;

Fig. 2 is a top plan view of the structure shown in Fig. 1;

Fig. 3 is an enlarged sectional view through Fig. 1 on the line 3-3;

Fig. 4 is an enlarged sectional view through Fig. 1 on the line 4-4;

Fig. 5 is an enlarged sectional view through Fig. 1 on the line 5-5;

Fig. 6 is an enlarged sectional view through Fig. 1 on the line 6-6;

Fig. 7 is a sectional view through Fig. 1 on the line 7-7;

Fig. 8 is a sectional view through Fig. 1 on the line 8-8;

Fig. 9 is an enlarged sectional view through Fig. 1 on the line 9-9;

Fig. 10 is a sectional view through Fig. 1, approximately on the line 10-10;

Fig. 11 is a perspective view of a short section on an enlarged scale of a folded strip of paper.

Referring to the accompanying drawing by numerals, 1 indicates a frame which is provided with a rectangular bar 2, preferably of metal, which is held in working position by any suitable form of support 3. A spindle 4 is mounted on the bar 2 near one end thereof so as to receive a supply of paper consisting of a roll 5 to be folded. This paper may be wound on a spool and may be of any desired width. When the paper has been folded, as indicated by the short section of folded paper 6 shown in Fig. 11, it may be wound on insulated wire to form an armor therefor. Being formed of paper the armor will not only protect the insulated wire from injury but will act as an auxiliary insulating structure for the wire.

As indicated in Figs. 1 and 2, paper moving from the supply roll 5, passes under idler 4' and over idler 4'' to a guide 7. The paper 5 has straight sides which are parallel and the strip 5' as it enters the various folding structures shown at the right in Figs. 1 and 2 passes through the substantially U-shaped guide 7. This guide may be a comparatively stiff wire bent upon itself until it appears as shown in Fig. 3. A clamping screw 8 clamps this guide firmly in place so that one edge of the strip 5' will rest against the wearing strip 9. Wearing strip 9 is made of steel or other suitable metal and may be held in place by any desired number of screws 10. By reason of this construction and arrangement the wearing strip may be removed and replaced from time to time. Also by reason of the fact that the clamping screw 8 is used as shown in Fig. 3, the guide 7 may be removed and replaced from time to time. As a matter of fact, this same idea is carried out through the various folding structures shown at the right in Figs. 1 and 2. Referring more particularly to these figures, it will be seen that there are folding groups A, B, C, D and E. This will make six layers to the folded strip 6, as shown in Fig. 11, but any number of folds or laps desired may be obtained.

When the strip 5' leaves the guide 7, it passes over the L-shaped member 11, which turns up an edge, namely, edge 12, as shown in Fig. 4. This edge is turned approximately at right angles to the body of the strip though it might be turned a little more or even a little less without departing from the spirit of the invention. In order to hold the parts in their new position, there is provided a guiding member 13 having a flat portion 14. This guiding member fits substantially flatwise against the strip 5'. As the strip leaves the guiding member 13 it passes through a folding member 15, which is provided with a U-shaped end 16, as shown in Fig. 5. This causes the turned-up edge 12 to be folded over substantially flatwise against the body of the strip 5'. From the folding member 15 the strip passes to the next folding structure, namely, folding structure B, where the operation is repeated. From the folding structure B, the strip passes to the folding structure C and the operation again repeated. The same operation takes place at groups D and E.

Between groups A and B there is provided a U-shaped member 17 which fits substantially flatwise against the strip of paper to hold the same against buckling near the wearing strip 9. The same is true between groups B and C, name-

ly, a pressing or guiding member 18 is provided while a guiding member 19 is provided between groups C and D, and following group E is a headed member 20. From the headed member 20, the folded strip 6 extends to a suitable device which pulls the same through the various folding groups. This pulling device may be a spoon on which the finished folded paper is wound, but preferably is a pair of steel compressing and pulling rollers 21 and 22, as shown in Fig. 1a. These rollers may be driven at a desired speed by any suitable mechanism and preferably function constantly until the roll of paper 5 has been exhausted. When one roll of paper has been exhausted, another roll is provided and threaded by hand through the various groups of folding structures until the end is engaged by the rollers 21 and 22. The roll 5 may be of any desired diameter but preferably it is approximately eighteen inches in diameter when the machine starts to function. The paper to be folded may be of any desired quality and thickness.

I claim:

1. A machine for folding paper strips lengthwise including a frame providing a longitudinally extending straight surface, means carried by said frame for supporting a wound strip of paper, a pair of idlers for guiding said strip of paper to the place of folding, and means carried by said frame for supporting said strip of paper for lengthwise movement with one longitudinal edge thereof touching said surface while folding said strip of paper immediately after it leaves said idlers, said last-mentioned means including a plurality of groups of folding structures for successively folding said strip of paper, each of said groups including a member for turning the

other edge portion of said strip of paper at right angles to the body of the strip, a guide for holding said turned up edge portion in its turned up position, and a substantially U-shaped member for folding the turned up edge portion flatwise against the body of the strip.

2. In a machine for lap folding a strip of material lengthwise upon itself, a longitudinal bar constituting a support, said bar presenting a substantially straight longitudinal surface, groups of folding means carried by said bar for supporting said strip for lengthwise movement with one longitudinal edge thereof touching said surface while folding said strip as aforesaid, each of said groups including a member for turning the other longitudinal edge portion of the strip at right angles to the unfolded portion thereof, a guide for holding said turned up edge portion in its turned up position, and a substantially U-shaped member for folding the turned up edge portion flatwise against the unfolded portion of the strip.

3. In a machine for lap folding a strip of material lengthwise upon itself, a longitudinal bar constituting a support, said bar presenting a straight longitudinal surface, guiding means carried by said bar for supporting said strip for lengthwise movement with one longitudinal edge thereof touching said surface, means carried by said bar for turning up the opposite edge portion of the strip at right angles to the unfolded portion of the strip in the movement of the latter, means carried by said bar to engage said strip flatwise to prevent the buckling of the strip, and means carried by said bar for folding the turned up edge portion of the strip flatwise against the unfolded portion of the strip.

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