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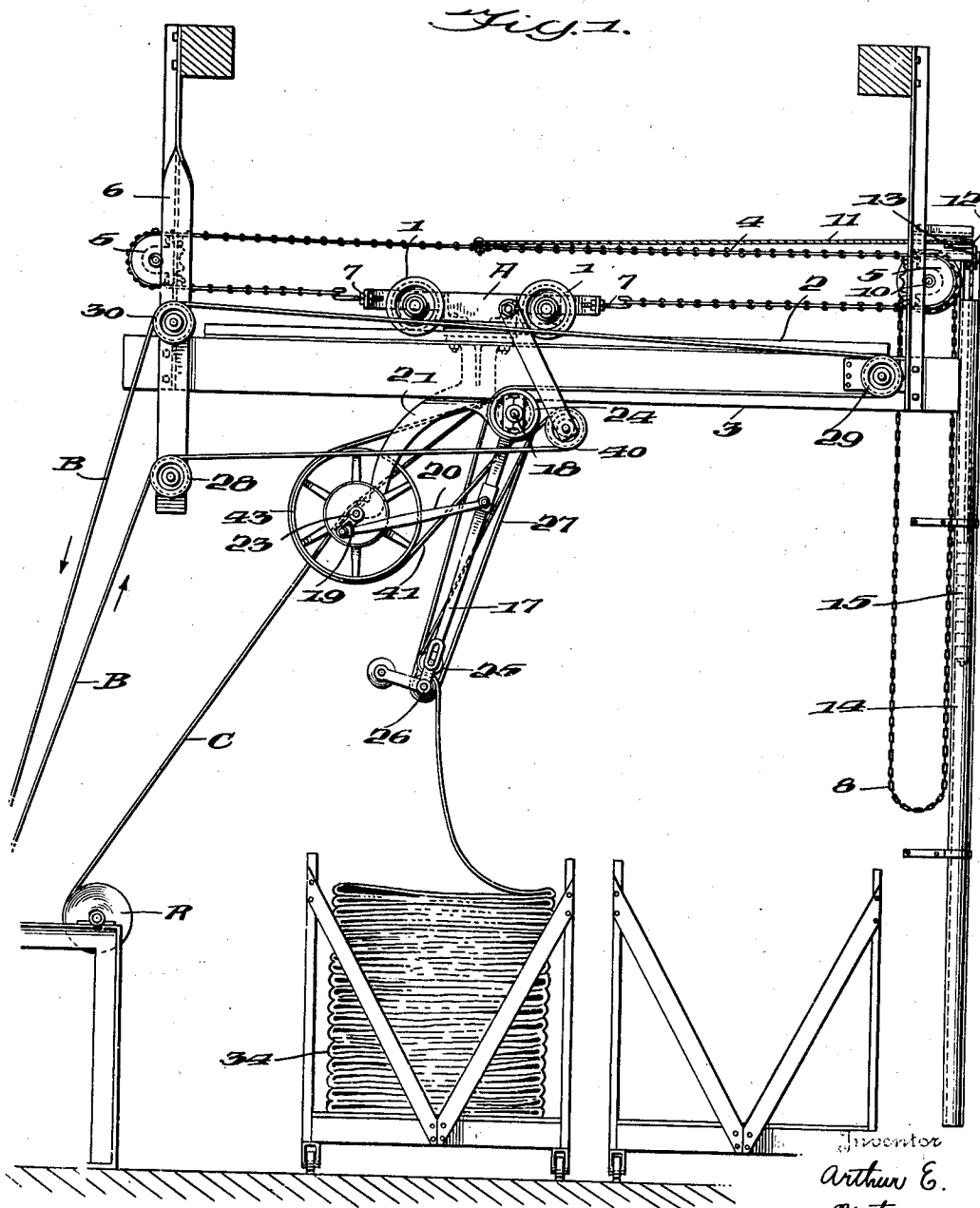
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PLAITER-DOWN FOLDING ATTACHMENT AND METHOD OF LAYING THE CLOTH

Filed Jan. 20, 1939

3 Sheets-Sheet 1



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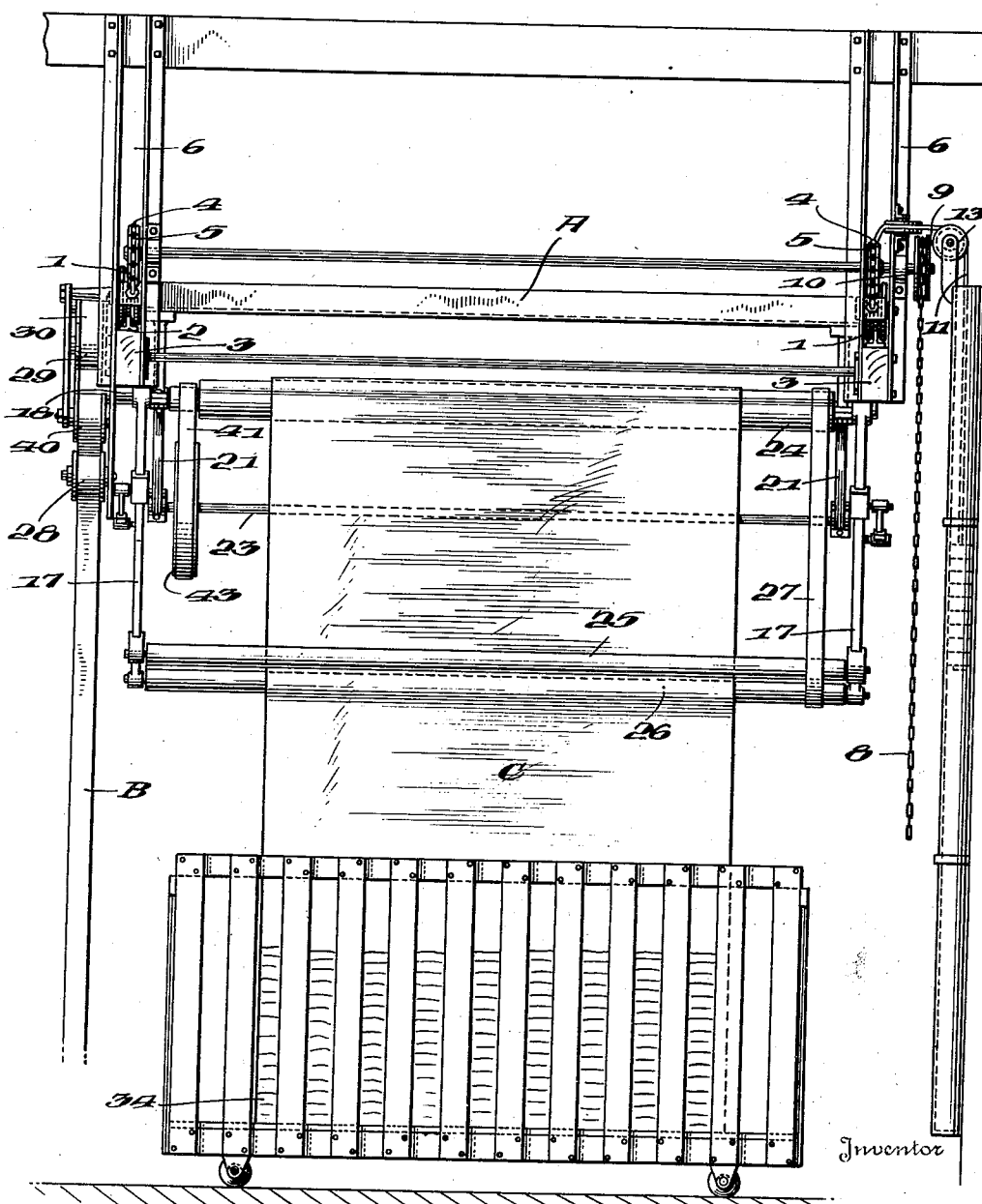
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Fig. 2.



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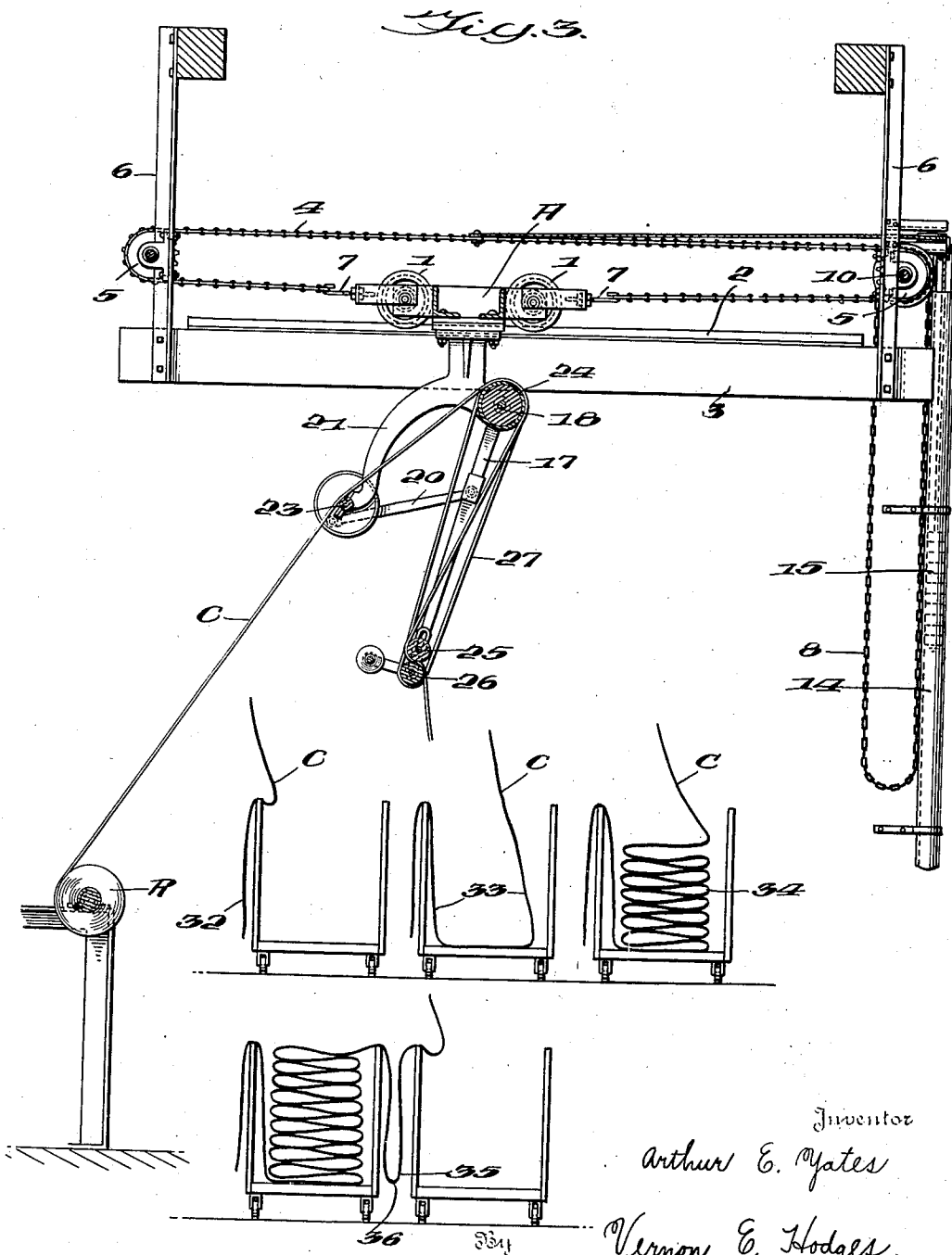
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PLAITER-DOWN FOLDING ATTACHMENT
AND METHOD OF LAYING THE CLOTH

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7 Claims. (Cl. 270—79)

My invention relates to an improvement in plaiter-down folding attachments and method of laying the cloth.

Hitherto, the recognized best practice has been to wind the goods on rollers, and afterwards unwind the cloth before the material is placed on any other continuous machine, because the end of the cloth, which is always next to the wooden roller, cannot be reached in order to sew the end onto another roll of fabric, thus making an additional operation necessary in order to get the cloth from the roll back to the boxes.

I have found this additional operation, which necessarily takes considerable extra time and handling of the goods, can be entirely omitted; and it is the purpose of my invention to do this, which I have succeeded in doing very satisfactorily by my improvements.

In the accomplishment of this object, my invention consists in means for lowering the cloth without first winding it on a roller, directly into a box placed therebeneath, and when that is filled, quickly shifting the feeding mechanism to a point above another box where the operation continues uninterruptedly until that is filled, and during its filling removing the filled box and replacing it with an empty box, which in turn is filled by shifting the cloth to a point thereabove from an overhead carriage, and thus continuing and repeating the method, without interrupting the continuous operation of the machine and method.

In the accompanying drawings:

Fig. 1 is a view in side elevation of the present form of the machine;

Fig. 2 is a view in front elevation; and

Fig. 3 is a view in part similar to Fig. 1, with the remaining part diagrammatic, to illustrate the way the cloth is handled without winding on a roll.

A represents an overhead carriage with two grooved wheels 1 at each end, which fit and travel on rails 2, provided therefor, which in turn are supported on the superstructure 3 of the framework of the machine.

Sprocket-chains 4 pass in opposite directions over the sprocket-wheels 5 supported on the frame 6 of the machine, and their ends are brought to the opposite ends of the carriage A, where they are held by any approved fastening means 7.

The carriage is moved back and forth by any approved means such as an endless chain 8 which is hung over a wheel 9 on one end of the shaft 10 which carries two of the sprocket-wheels 5.

To counterbalance the pull of the carriage, due to the weight of the cloth and the pull of the drive belt, a cable 11 is attached at some convenient point to the sprocket-chain 4 and thence passed around pulleys 12 and 13, down into a pipe 14, where it is provided with the necessary number of weights 15 to counterbalance. The pipe not only guides the weights in their movement up and down with the movement of the carriage, but also provides a safeguard for the protection of the operator of the machine.

A more or less standardized delivery mechanism is provided for folding the cloth back and forth in layers in the box placed therebeneath, and this mechanism generally consists of a pair of arms 17 mounted on the shaft 18, one arm 17 at each end of the machine as shown in Fig. 2, and crank mechanism 19 and connecting rod 20 for swinging the arms 17 back and forth, thus providing a continuously swinging delivery mechanism.

This delivery mechanism is supported by brackets 21 depending from the carriage A. The cloth C is taken from a roll R upwardly over a shaft 23, thence over the main roll 24 on shaft 18, and then downwardly between a pair of rollers 25 and 26, one above the other and both carried at the lower ends of the arms 17, and between which the cloth is fed downwardly to the boxes.

The lower roller 26 is driven by a belt 27 from the main roll 24. An endless drive belt B, preferably of constant speed, is passed over pulley 28, thence around idle pulley 40, then around a pulley on the shaft 18, then over pulleys 29 and 30 located at opposite points on the framework 6 of the machine, and finally back to any source of power (not shown). A belt 41 extends from a pulley 42 on shaft 18 to a drum 43 on shaft 23 for transmitting motion from one to the others.

My improved method is distinguished from previous methods since heretofore it has been the invariable custom to wind the goods on a roller just previous to being delivered and removed from the plaiter-down or folding machines, and that has been supported at a fixed point, and hence the goods were always delivered therefrom at a single point, whereas with my improvement one operation of winding the goods upon a roll is entirely dispensed with, and thus the operation of unwinding the goods before they can be placed on any other continuous machine is unnecessary, and, furthermore, cloth is saved which hitherto amounted to a large amount of loss, since with my method the goods

are laid in the boxes successively and can be cut in two by the operator at the seam where two strips have been previously sewed together. To carry out this method, the end 32 of the cloth is preferably first hung over one edge of the box, as shown at the lower left in Fig. 3, and as it is paid out by the continuous delivery from above with the constant swinging of the folder-arms 17, it then is caused by a little manipulation on the part of the operator, to take the general position indicated at 33, until the box is filled as shown at 34. When thus filled, the operator loops it down, preferably as shown at 35, in Fig. 3, and repeats the operation as shown at 33 and 34, and he cuts the cloth apart at 36, then removing the filled box and replacing it with the next one, as shown in Fig. 1, thus always having an empty box ready, so that the operation may continue without interruption.

The operator pulls the carriage A back and forth to insure the proper position directly above the box being filled. Thus, much time is saved, and practically no material need be wasted, and there are always two free ends of the cloth accessible for attachment to the end of another piece of goods, so that the next operation can be proceeded with, with little or no interruption, and with much less loss of time than heretofore.

When the carriage A is being moved to the right, as shown in Figs. 1 and 3, the cloth is delivered slower because the main roll 24 is moving away from the source of supply of cloth which thereby places the cloth under more tension from the pull thereon. Also, since the belt B travels at a constant speed, the roller 24 will not revolve as fast while it is being moved in the belt's direction of travel, between the roller 24 and the pulley 29. When the carriage is being moved to the left, the cloth feed will be faster, both because the tension thereon is lessened and the roller 24 is revolved faster as it is being moved toward the source of supply of cloth, and in a direction opposite to the direction of travel of the constant speed belt B.

This attachment is applicable to any machine working with textile material. While the element B has been shown as an ordinary endless drive belt, obviously either a chain or cable might be employed just as well as a belt.

I claim:

1. A method as herein described, which consists in positioning a continuously swinging delivery mechanism at a predetermined point with respect to a box to be filled, moving the delivery mechanism to another predetermined point without interrupting the continuous feed of the material from the delivery mechanism to another box to be filled, starting the feed of the material by placing one end thereof over an edge of the first box to be filled, so that it depends outside of the latter, and after filling the first box, looping a portion over the opposite edge and down along its side, and over the adjacent edge of the other box, and cutting the material apart at some point in the loop formed in the cloth between the two receptacles.

2. The combination of a carriage, a swinging delivery mechanism carried thereby, and manually operated flexible means for shifting the position of the carriage to a predetermined point, while the machine is in operation, above a receptacle stationed to receive the material being delivered.

3. The combination of a movable carriage, swinging delivery mechanism supported thereby through which the material to be delivered therefrom is fed, flexible means extending from the carriage in opposite directions, means over which said flexible means is rove for moving the carriage into selected positions, and manually operated flexible means for moving said flexible means in opposite directions to control the movement of the carriage.

4. The combination of a movable carriage, swinging delivery mechanism supported thereby through which the material to be delivered therefrom is fed, flexible means extending from the carriage in opposite directions, means over which said flexible means is rove for moving the carriage into selected operating positions, manually operated belt means for moving said flexible means in opposite directions to control the movement of the carriage, and counterbalance means attached to said flexible means.

5. The combination of a carriage, rails mounted on a frame and upon which the carriage travels, means for shifting the carriage to predetermined positions, rollers over which cloth is fed, an endless drive-belt which travels at a constant speed and which is passed around an idle pulley carried by the carriage, a pulley on the main roll carried by the carriage and around idle pulleys at opposite points on the frame, whereby the cloth is fed slowly when the carriage is being moved in one direction, and faster when being moved in the opposite direction.

6. The combination of a carriage, rails mounted on a frame and upon which the carriage travels, means for shifting the carriage back and forth to predetermined positions, rollers over which cloth is fed, an endless drive-belt which travels at a constant speed and which is passed around an idle pulley carried by the carriage, a pulley on the main roll carried by the carriage and around idle pulleys at opposite points on the frame, whereby the cloth is fed slowly when the carriage is being moved in one direction, and faster when being moved in the opposite direction, and swinging delivery mechanism carried by the carriage and depending from the main roll for laying the cloth in folds.

7. The combination of a carriage, rails mounted on a frame and upon which the carriage travels, means for shifting the carriage back and forth to predetermined positions, rollers over which cloth is fed, an endless drive-belt which travels at a constant speed and which is passed around an idle pulley carried by the carriage, a pulley on the main roll carried by the carriage and around idle pulleys at opposite ends of the frame, whereby the cloth is fed slowly when the carriage is being moved in one direction, and faster when it is being moved in the opposite direction, swinging delivery mechanism carried by the carriage for laying the cloth in folds, two shafts carried by the carriage on one of which the main roller is secured and concentric with which the delivery mechanism is carried, a drum on the other shaft, means extending therefrom to the delivery mechanism for swinging the latter, and a belt extending from the drum shaft to the roller shaft, whereby motion is transmitted from one to the other.

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