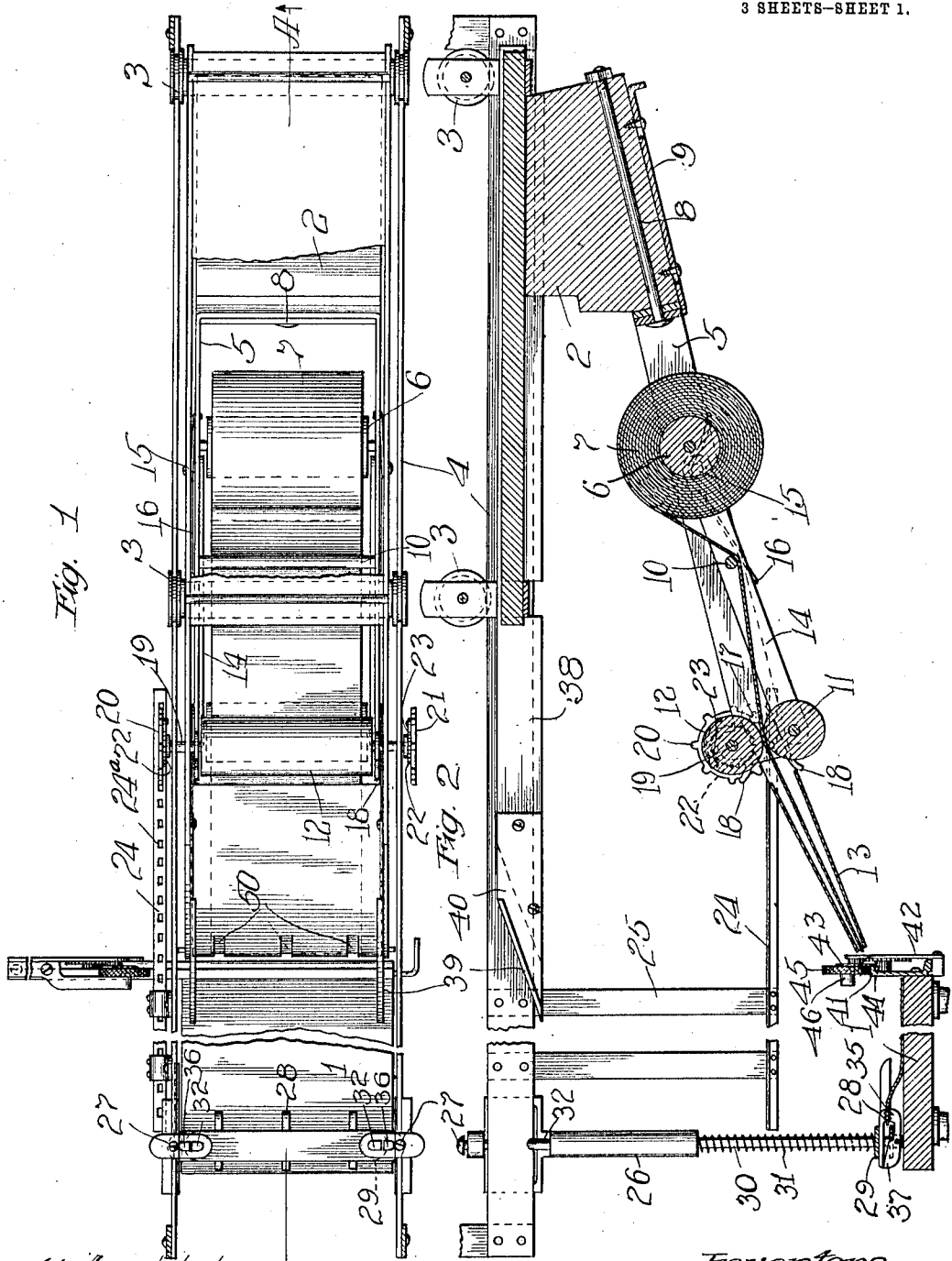


J. Z. POLLARD & G. J. LEDERER.
 APPARATUS FOR PILING CLOTH.
 APPLICATION FILED OCT. 18, 1909.

1,021,002.

Patented Mar. 26, 1912.

3 SHEETS—SHEET 1.



Witnesses
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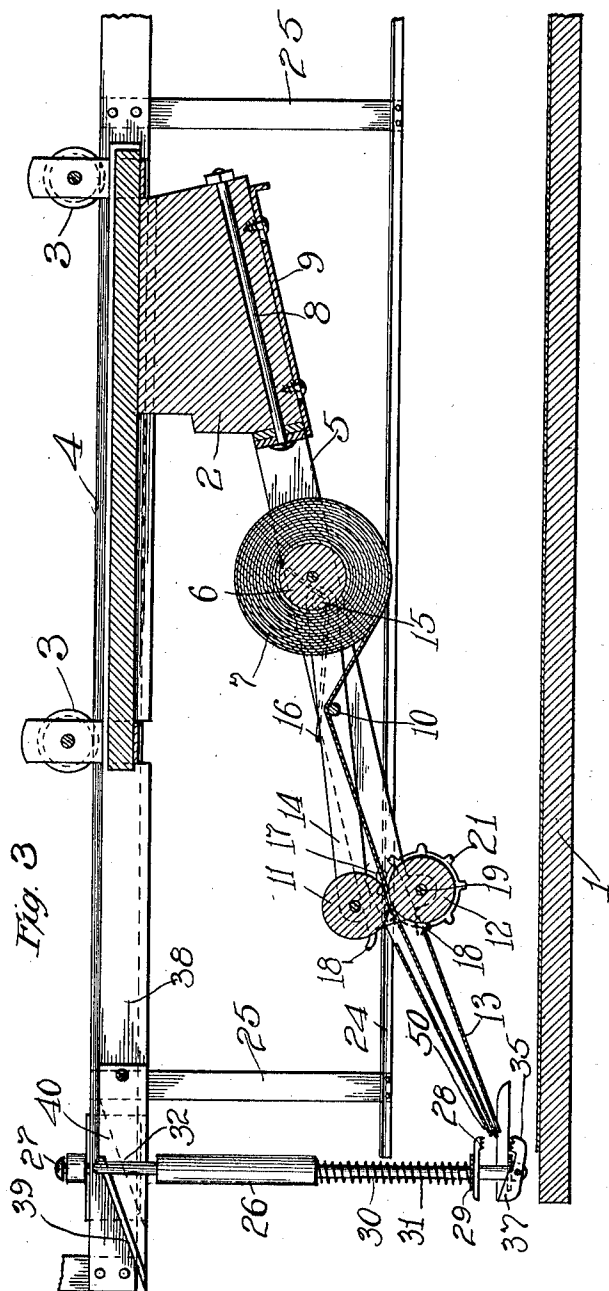


Fig. 3

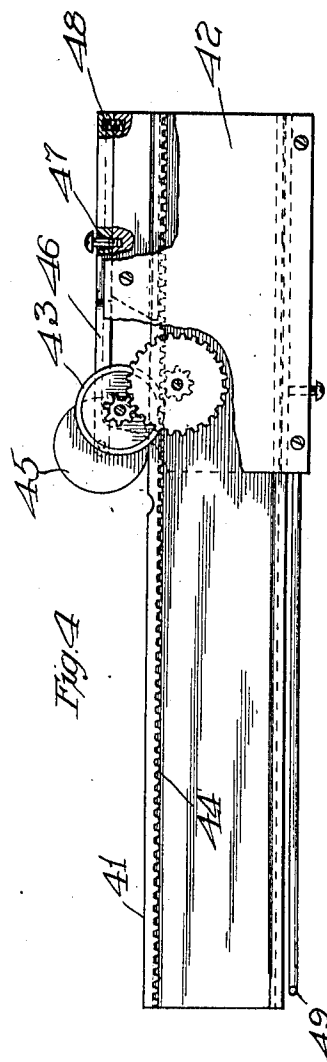


Fig. 4

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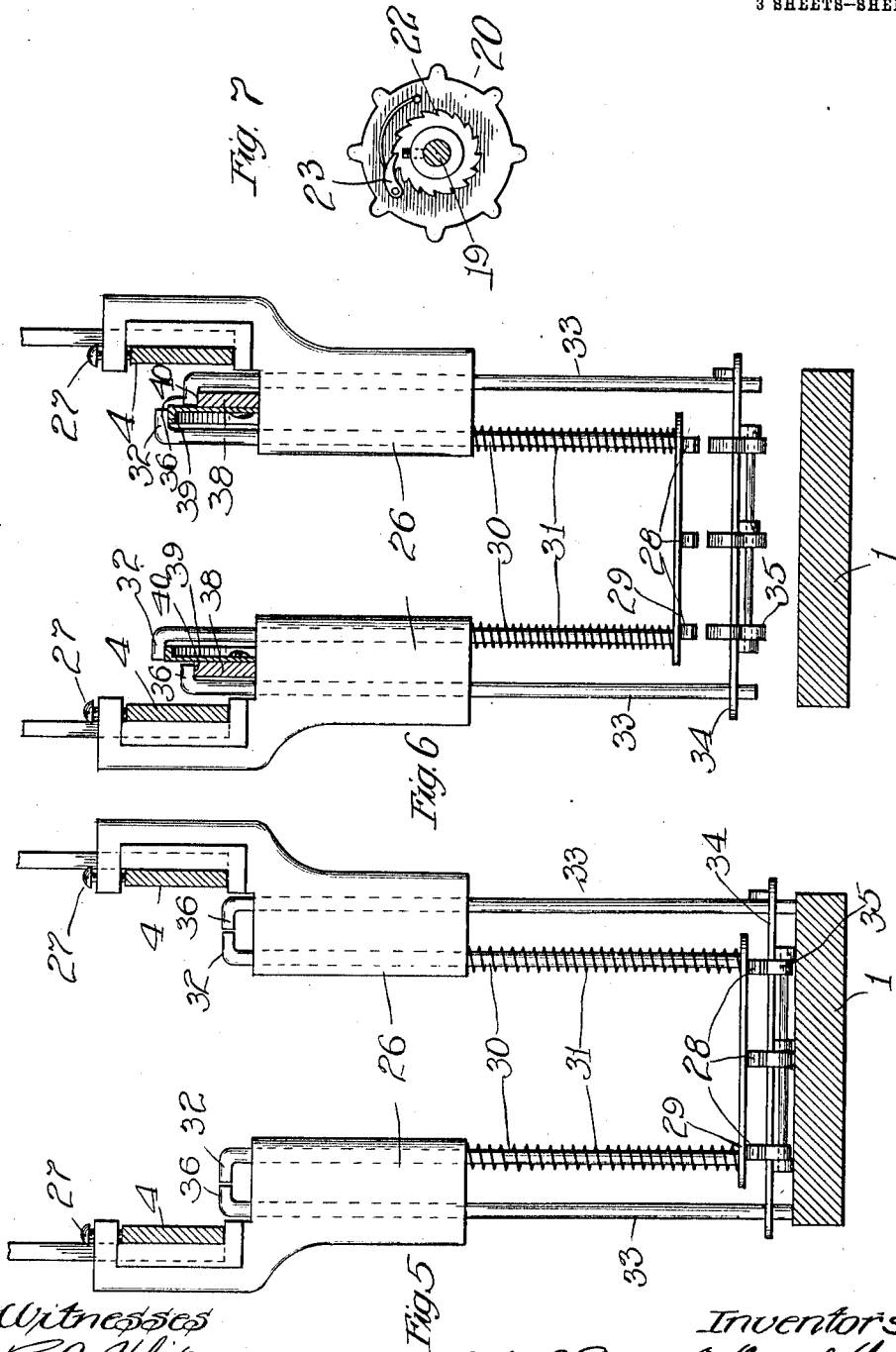
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UNITED STATES PATENT OFFICE.

JOHN Z. POLLARD AND GEORGE J. LEDERER, OF CHICAGO, ILLINOIS.

APPARATUS FOR PILING CLOTH.

1,021,002.

Specification of Letters Patent. Patented Mar. 26, 1912.

Application filed October 18, 1909. Serial No. 523,217.

To all whom it may concern:

Be it known that we, JOHN Z. POLLARD and GEORGE J. LEDERER, citizens of the United States of America, and residents of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Apparatus for Piling Cloth, of which the following is a specification.

The main objects of this invention are to provide an improved form of apparatus for piling a plurality of layers of cloth one upon another, upon a cutting table in suitable manner to admit of cutting a large number of right and left parts simultaneously, and to insure that the pattern of the goods will be similarly disposed on corresponding right and left parts; to provide an improved form of carriage for carrying a bolt of cloth and laying it on a cutting table; to provide an improved apparatus of this character in which the operation of laying the cloth may be to a considerable extent automatic; to provide an improved form of clamping device whereby the free end of the cloth will be automatically gripped and held when the carriage approaches the clamp; to provide improved feeding mechanism for laying the cloth; and to provide improved means for cutting the cloth from the bolt or roll.

A specific construction embodying this invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a top plan, partly broken away, of a cloth piling machine embodying this invention. Fig. 2 is a longitudinal section of the same on the line A—A of Fig. 1, the carriage being shown at the right-hand limit of its movement. Fig. 3 is a sectional view similar to Fig. 2, but showing the relative positions of the parts when the carriage is at the left-hand limit of its movement. Fig. 4 is a detail, partly broken away, of the cutting mechanism by means of which each layer of the cloth is cut off from the bolt after having been laid upon the cutting table. Fig. 5 is an elevation of the clamping mechanism which holds the free end of the cloth while it is being laid upon the cutting table, the clamping jaws being shown in their closed position. Fig. 6 is a similar elevation with the jaws open and raised. Fig. 7 is a detail of the pawl and ratchet connections between the feed rollers and their driving gears.

In the form shown, the cloth laying appa-

ratus is suspended from the ceiling above the cutting table 1 and comprises a carriage 2 mounted upon trolley wheels 3 riding on elevated tracks 4. The carriage has pivotally mounted thereon a frame 5 on which is journaled a spindle 6 for supporting a bolt of cloth 7, the axis of the spindle being horizontal and transverse to the length of the table 1. The frame 5 is carried by the shaft 8 disposed lengthwise of the table 1 and the frame 5 is adapted to be rotated about the axis of the shaft 8 so as to turn the cloth alternately face upward and face downward. The frame 5 is locked in either position by means of a sliding plate or bolt 9. The free end of the cloth is passed around a rod 10 and then between a pair of feed rollers 11 and 12 into a guide member 13 in the form of an inclined chute. The feed roller 11 is carried by a swinging frame 14 pivotally mounted at 15 in the frame 5, and the roller 11 is urged toward the roller 12 by means of a spring 16. The rod 10 serves as a brace between the two sides of the frame 14. The guide member 13 is pivotally mounted at 17 so as to swing on a horizontal axis in the frame 5, which frame is provided with a pair of stop shoulders 18 adapted to limit the movement of the guide member 13 so that its free end will be at substantially the same height above the cutting table 1 for either of the two positions of the frame 5, as will appear from Figs. 2 and 3. The shaft 19 of the roller 12 is extended beyond both of its bearings in the frame and has loosely journaled thereon at opposite ends toothed wheels 20 and 21. Rigidly mounted on the shaft 19, adjacent to each of the wheels 20 and 21, is a ratchet wheel 22 which is engaged by a pawl 23 on the wheel.

A track 24 extends along one side of the table in parallel relation to the path of the carriage. In the form shown, the track 24 is formed of an angle bar having a horizontal flange with perforations 24^a spaced for meshing with the teeth on the wheels 20 and 21. The track 24 is suspended by uprights 25 at such elevation that it will mesh with the wheel 20 when the frame 5 is in the position shown in Fig. 2, and with the wheel 21 when the frame 5 is in its inverted position, as in Fig. 3. The wheel 20 rides on the upper side of the track 24, whereas the wheel 21 rides on the lower side.

Depending from the tracks 4 at the left-

hand end of the table is a pair of supports 26 which are clamped to the tracks 4 by means of set screws 27 so that they may be adjusted to different positions along the tracks 4, if desired. A horizontal row of clamping jaws 28 are mounted on a bar 29 carried by vertical rods 30 which are mounted to slide vertically in the supports 26, but are urged downward by means of springs 31. The upper ends of the rods 30 are bent outward to form cam shoulders 32. A pair of similarly mounted rods 33 carry a horizontal bar which is provided with a series of pivotally mounted jaws 35 located to coact with the respective jaws 28. The upper ends of the rods 33 are bent inward to form cam shoulders 36 adjacent to the shoulders 32 on the rods 30. The jaws 28 and 35 are serrated so as to securely hold an interposed sheet of cloth. The pivoted jaws 35 have lever arms 37 which engage the rearward parts of the jaws 28 and increase the gripping leverage of the jaws.

The carriage 2 is provided with arms 38 which extend along in parallel relation with the tracks 4 and each of the arms 38 is provided with two inclined tracks or cam surfaces 39 and 40, which are respectively located for engagement with the shoulders 32 and 36, as may be best seen from Fig. 6. The cam surfaces 39 overhang the inner faces of their respective arms 38 and terminate at such positions that as the carriage approaches the left-hand limit of its movement, the shoulders 32 will pass off from the cam surfaces 39, while the shoulders 36 are still supported by the cam surfaces 40. The cam surfaces 39 are located in advance of the cam surfaces 40 so that the clamping jaws will be separated before being elevated to the level of the throat of the member 13 and the upper jaws 28 will be released so as to permit them to grip the cloth immediately before the carriage reaches the left-hand limit of its movement.

At the right-hand end of the table 1, there is mounted a straight edge 41, the upper surface of which is a cutting edge located at a level slightly below that of the lower end of the member 13. A cutter carriage 42 is mounted to travel along the straight edge 41 and carries a rotary cutter 43 which is connected by a suitable train of gears with a rack 44 which extends along parallel with the straight edge 41. The carriage 42 also carries a pressure roller 45 which rides above the straight edge 41 and securely holds the cloth at the point where it is being cut by the rotary cutter 43. The roller 45 is carried by a lever 46 fulcrumed at 47 and normally urged to hold the roller 45 into gripping engagement with the cloth by a spring 48. The carriage 42 is operated by means of a handle 49.

The operation of the device shown is as

follows:—The cloth is first mounted on the spindle 6, and the free end of the cloth is threaded around the rod 10, then between the rollers 11 and 12, and into the guide member 13, as shown in Figs. 2 and 3. As the carriage is moved toward the left, the cam surfaces 39 and 40 cause the clamping jaws 28 and 35 to be separated and to be lifted to suitable position for engaging the cloth which protrudes from the guide member 13. The throat of the guide member 13 is provided with recesses 50 to permit the jaws to enter a sufficient distance to insure a positive grip upon the cloth. When the carriage reaches the left-hand limit of its movement, the shoulders 32 pass beyond the right-hand end of the cam surfaces 39, allowing the springs 31 to close the jaws, but the clamp is still held in its elevated position by the shoulders 36 riding on the cam surfaces 40. As the carriage is now moved toward the right of Figs. 2 and 3, the clamp will gradually descend to a position close to the top of the table 1, and the wheel 20 or 21, as the case may be, riding on the track 24, will cause the cloth to be fed from the bolt at a proper rate to cause it to lie flat without wrinkles on the table. After the carriage has passed beyond the right-hand end of the table, the operator pulls the cutting mechanism toward the front of the table by means of the handle 49, and thereby cuts away the cloth which has been laid on the table. The frame 5 is now turned upside down on its pivotal axis, being locked in its inverted position by means of the bolt 9, and is then returned to the left-hand end of the table. The ratchet mechanism permits the wheels 20 and 21 to run toward the left on the rack without rotating the feed rollers. The operation now continues as has been hereinbefore described until the desired number of layers of cloth have been laid upon the table.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted, within the scope of the following claims, without departing from the spirit of this invention.

We claim:—

1. An apparatus for piling cloth, comprising a table, a carriage movable along said table, a frame carried by said carriage and pivotally mounted thereon on an axis disposed longitudinally with respect to the path of the carriage, means for supporting a roll of cloth on said frame, feed rollers mounted on said frame and adapted to automatically unwind cloth from said roll and lay it on the table during the movement of the carriage in one direction, said frame being adapted to be inverted on said carriage whereby different layers of cloth fed to the

table will be respectively face down and face up.

2. An apparatus for piling cloth, comprising a table, a carriage movable along said table, a frame carried by said carriage and pivotally mounted thereon on an axis disposed longitudinally with respect to the path of the carriage, means for supporting a roll of cloth on said frame, feed rollers mounted on said frame and adapted to automatically unwind cloth from said roll and lay it on the table during the movement of the carriage in one direction, said frame being adapted to be inverted on said carriage whereby different layers of cloth fed to the table will be respectively face down and face up, and mechanism adapted to cause said feed rollers to deliver the cloth when said frame is in either of said positions on said carriage.

3. In an apparatus for piling cloth, the combination of a table, a carriage movable along said table, a frame invertibly mounted on said carriage to turn on an axis extending horizontally thereof, means on said frame for supporting a roll of cloth, a pair of feed rollers adapted to engage opposite sides of the cloth and journaled on horizontal axes, a shaft journaled on said carriage and adapted to rotate one of said feed rollers, said shaft being extended beyond opposite ends of said feed rollers, toothed wheels mounted at respectively opposite ends of said shaft and equally distant from the axis of said frame, each of said wheels having ratchet connection with said shaft, and each being adapted to rotate said shaft in one direction only, a suspended rack extending along the path of said carriage and adapted to engage the lower part of one of said toothed wheels when said frame is in one position, and to engage the upper part of the other of said toothed wheels when the frame is in its inverted position, said ratchet connections being such that the cloth will be fed from said frame only during the passage of said carriage in one direction regardless of whether said frame be inverted or not.

4. An apparatus for piling cloth, comprising a table, a carriage movable along said table, a frame carried by said carriage and pivotally mounted thereon on an axis disposed longitudinally with respect to the path of the carriage, means for supporting a roll of cloth on said frame, feed rollers mounted on said frame and adapted to automatically unwind cloth from said roll and lay it on the table during the movement of the carriage in one direction, said frame being adapted to be inverted on said carriage whereby different layers of cloth fed to the table will be respectively face down and

face up, a guide member for guiding the cloth in its passage between said feed rollers and the table, said member being pivoted to said carriage on an axis transverse to the pivotal axis of said frame, and stops on said frame adapted to support said member at a certain predetermined level above the table when said frame is in either of its positions on said carriage.

5. In an apparatus for piling cloth, the combination of a table, a clamping device at one end of said table adapted to automatically grip an advancing end of cloth, a cloth piling carriage movable along said table and adapted to lay a plurality of superimposed layers of cloth upon said table, means on said carriage for feeding the cloth therefrom during the movement of said carriage away from said clamping device, and cloth supporting means mounted on said frame to turn about an axis extending lengthwise of the table and adapted to be inverted about such axis after the carriage has completed its trip away from said clamp so as to cause successive layers of cloth to face in opposite directions.

6. In a device of the class described, the combination of a table, a carriage movable along the table and adapted to support a quantity of cloth, means on said carriage for supporting the free end of the cloth at an elevated position above the table, a clamping device located at one end of said table and comprising opposed upper and lower gripping jaws adapted to normally assume a closed position for gripping an interposed layer of cloth, cam shoulders on said clamping device respectively connected to said jaws, cam surfaces on said carriage adapted to engage said cam shoulders for actuating said jaws, said cam surfaces and shoulders being relatively positioned so that respective cam surfaces and shoulders will successively enter into engagement for operating said jaws to a relatively different extent when said carriage approaches said end of the table, whereby said jaws are opened to discharge a previously engaged layer of cloth and permit the insertion of another, said engaging mechanism being adapted to release said upper jaw when said carriage reaches the limit of its travel and to release said lower jaw when the travel of said carriage is reversed.

Signed at Chicago this 14th day of October, 1909.

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Witnesses:

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