

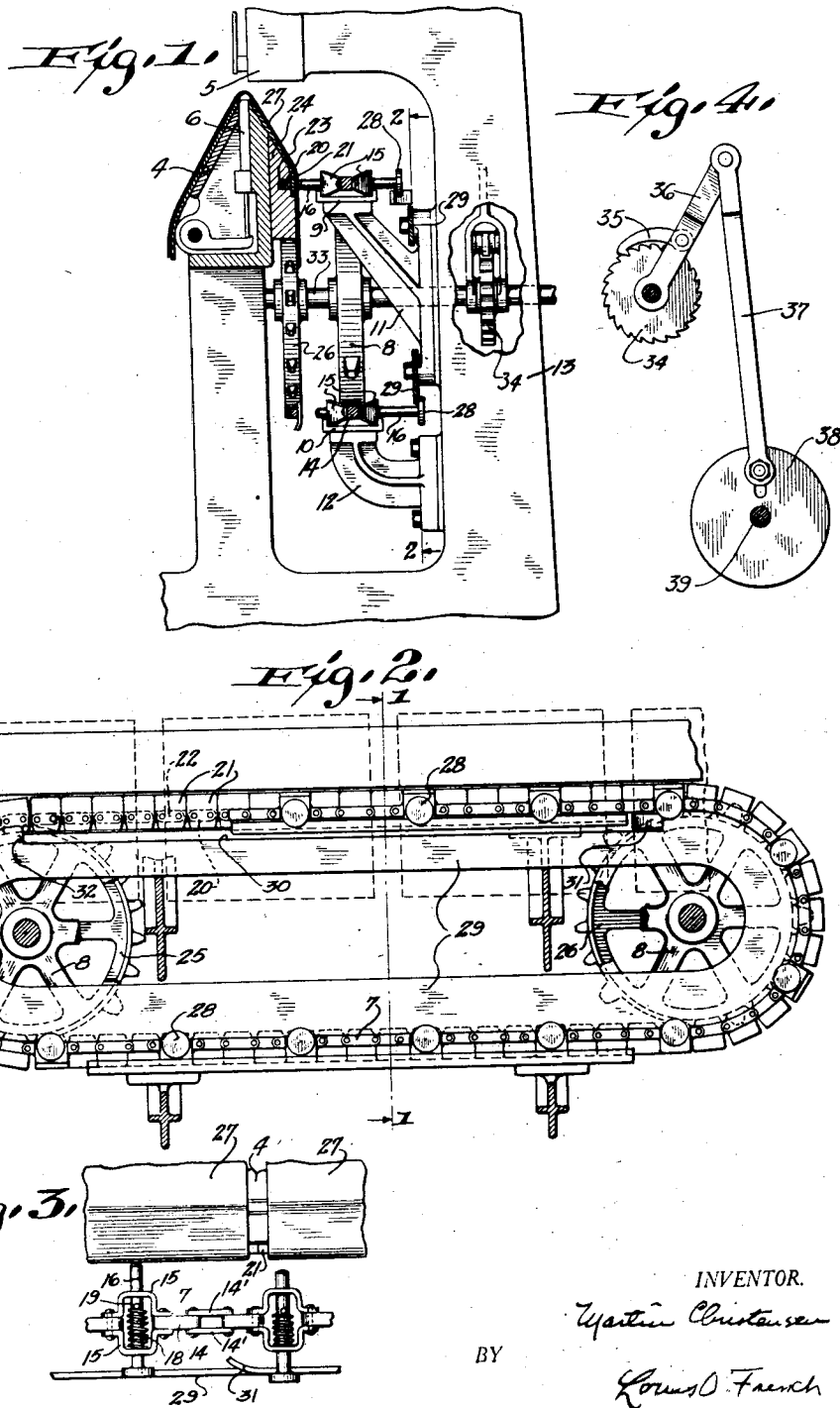
Jan. 18, 1927.

1,614,715

M. CHRISTENSEN

SIGNATURE FEEDING MECHANISM

Filed Jan. 2, 1926



INVENTOR.

Martin Christensen

BY

Louis O. French
ATTORNEY.

Patented Jan. 18, 1927.

1,614,715

UNITED STATES PATENT OFFICE.

MARTIN CHRISTENSEN, OF ELMHURST, ILLINOIS, ASSIGNOR TO THE CHRISTENSEN MACHINE COMPANY, OF RACINE, WISCONSIN, A CORPORATION OF WISCONSIN.

SIGNATURE-FEEDING MECHANISM.

Application filed January 2, 1926. Serial No. 78,927.

The invention relates to book-stitching machines, and more particularly to the mechanism for feeding the groups of signatures forming the book past the stitching mechanism and to the delivery mechanism.

One object of the invention is to provide a feeding mechanism of the character described in which a plurality of spring-pressed fingers on an endless conveyor cooperate with a movable backing means to positively move the groups of collected signatures past the stitching mechanism.

Another object of the invention is to provide a feeding mechanism of the character described in which a plurality of spring-pressed fingers on an endless conveyor cooperate with movable parts of the signature-supporting means and associated with an endless conveyor to positively move the groups of collected signatures past the stitching mechanism.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings, Fig. 1 is a view taken through a portion of the stitching section of a book-stitching machine, showing the feeding mechanism embodying the invention, parts being shown in section, as taken along the line 1—1 of Fig. 2;

Fig. 2 is a detail sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a detail elevation view of part of the feeding mechanism.

Fig. 4 is a detail view of the mechanism for intermittently feeding the finger-carrying conveyor.

The groups of collected signatures which have been previously alined are fed over an inverted V-shaped saddle 4 and while passing therealong are secured together by staples from the stitchers 5 cooperating with clincher mechanisms 6, but as the detailed construction of the stitching mechanism is of known form further description thereof is deemed unnecessary.

The signature-feeding mechanism, for carrying the books or groups of signatures along the saddle 4 in the stitching section of the machine, includes an endless conveyor 7 running over sprockets 8, one of which is suitably power-driven, with its upper run moving in a channel-guide 9 and its lower run moving in a similar guide 10, said

guides being respectively carried by brackets 11 and 12 secured to the frame 13 of the machine.

The conveyor 7 includes the usual chain-links 14 and 14' but at intervals pairs of U-shaped links 15 are provided and each set of these links is apertured to receive a finger or pin 16 that is normally spring-pressed toward the saddle by a spring 18 interposed between the outer link of the pair and a pin or stop 19 on the pin 16.

A backing means cooperating with the fingers 16 is associated with the saddle and includes an endless conveyor 20 having saddle or plate portions 21 secured to adjacent links of a chain 22. The upper run of chain 22 moves in a recess 23 in the saddle frame 24 and said chain runs over sprockets 25 and 26, one of which is driven at the same speed as the conveyor 7.

As the portions 21 face the pins 16, a group of signatures 27 will be clamped between a part of the conveyor 20 and one or more of the pins with the result that the movements of both conveyors 7 and 10 will positively carry the group of signatures to, past, and away from the stitching mechanism.

To control the action of the pins 16, cam means are provided associated with heads 28 on said pins. As shown, this cam means is in the form of a plate 29 which has a recessed portion 30 adjacent the upper run of the conveyor and an inwardly extending cam portion 31 at the delivery end of the conveyor, and the remainder of the plate acts as a retainer to engage the heads 28 and thereby hold the pins 16 outwardly from the time they pass the portion 31 until they reach the forward end 32 of the recess 30. Thus, as the pins 16 travel with the conveyor 7, and when their heads pass the end 32, said pins are released so that their springs are free to move them toward the saddle into engagement with the groups of signatures, and after being stitched the pins are automatically successively disengaged by the heads coming into contact with the cam portion 31 which causes an outward or release movement of the pins and thereafter said pins are held in release position by the plate 29 until again passing along the recessed portion or head-releasing portion of said plate.

The sprocket 26 and the sprocket 8 adja-

cent thereto are mounted on a shaft 33 which is given a step-by-step rotation by means of a ratchet wheel 34 on said shaft engaged by an oscillating pawl 35 which is carried by an oscillating arm 36 connected by a connecting rod 37 with a continuously driven crank disk 38 mounted on a shaft 39, with the result that as the shaft 39 is revolved and the lever 36 oscillated, the shaft 33 is given a step-by-step rotation so as to produce an intermittent feed of the signatures 27 along the saddle 4 through the feeding means previously described.

From the foregoing description it will be noted that the signatures are carried along between two intermittently moving conveyors, and that they are gripped between the pins 16 and the adjacent conveyor while being stitched.

I desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the appended claims.

What I claim as my invention is:

1. In a book-stitching machine, signature-feeding mechanism comprising a pair of endless conveyors, and releasable means mounted on one of said conveyors for holding the signatures clamped to the other conveyor.

2. In a book-stitching machine, signature-feeding mechanism comprising a pair of endless conveyors, and spring-pressed fingers mounted on one of said conveyors for holding the groups of signatures clamped to the other conveyor.

3. In a book-stitching machine, signature-feeding mechanism comprising a pair of endless conveyors, spring-pressed fingers mounted on one of said conveyors for holding the groups of signatures clamped to the

other conveyor, and means for releasing said fingers from the groups of signatures.

4. In a book-stitching machine, signature-feeding mechanism comprising a pair of endless conveyors, spring-pressed fingers mounted on one of said conveyors for holding the groups of signatures clamped to the other conveyor, and cam means engageable with said fingers for releasing them from the groups of signatures.

5. In a book-stitching machine, signature-feeding mechanism comprising a pair of endless conveyors, spaced spring-fingers carried by the links of one of said conveyors for holding the groups of signatures clamped to the other conveyor, guide means for the upper and lower run of said finger-carrying conveyor, means for holding the fingers in retracted position prior to their engagement with the groups of signatures, and cam means for retracting said fingers from clamping engagement with the signatures.

6. In a book-stitching machine, the combination with a signature-supporting saddle having a movable feed portion forming a run of an endless conveyor, of another conveyor provided with devices for engaging and holding said signatures against the movable feed portion of said saddle.

7. In a book-stitching machine, signature-feeding mechanism comprising a pair of endless conveyors, means for imparting a step-by-step advance of both of said conveyors, signature-engaging devices carried by one of said conveyors and holding the signatures clamped to the other conveyor, and means for releasing said devices from the groups of signatures.

In testimony whereof, I affix my signature.

MARTIN CHRISTENSEN.