T. M. MORROW.

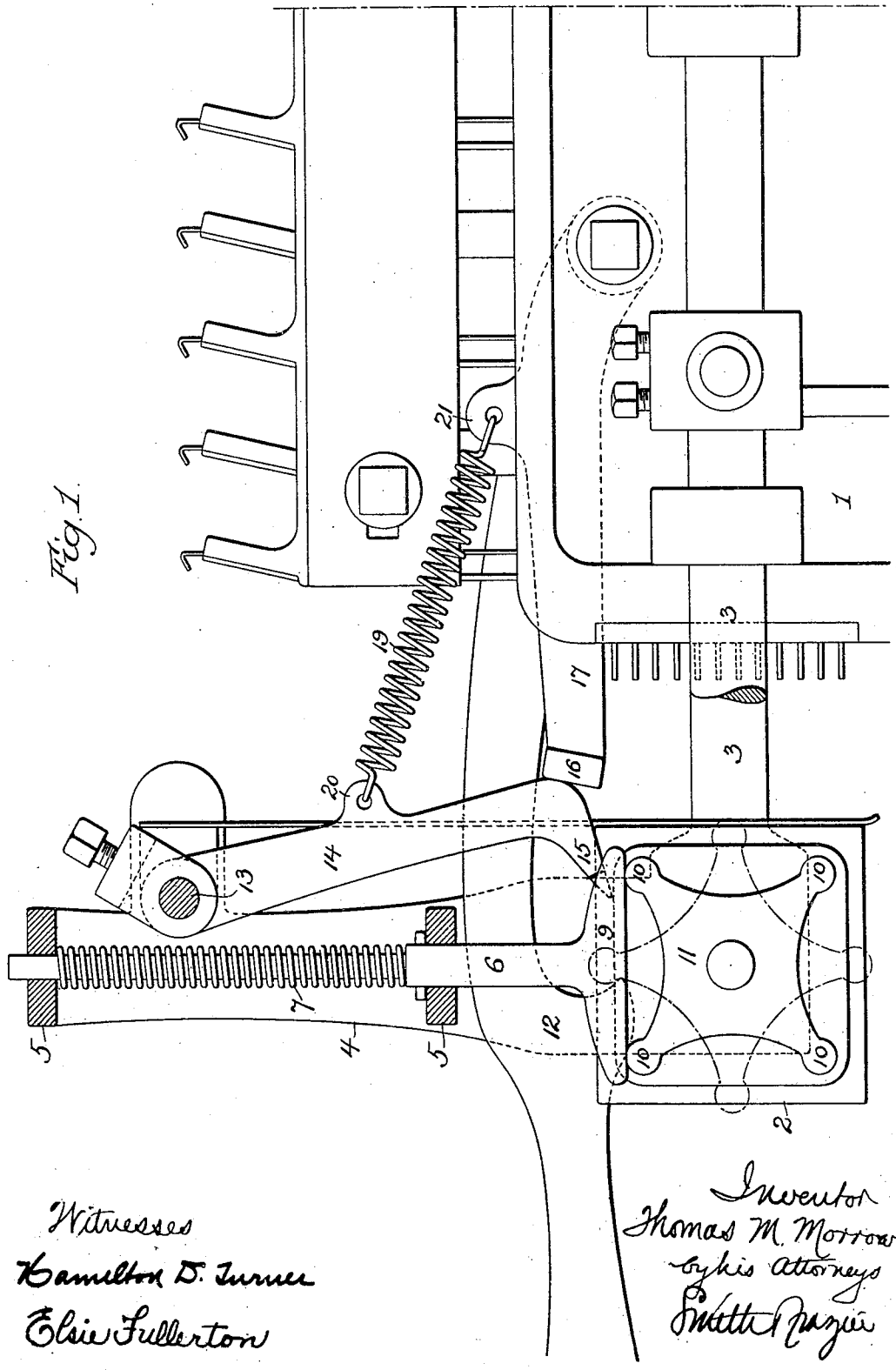
JACQUARD MACHINE.

APPLICATION FILED SEPT. 3, 1909.

955,664. **Patented Apr. 19, 1910.**

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Hamilton D. Turner
Elsie Fullerton

Inventor
Thomas M. Morrow
by his attorneys
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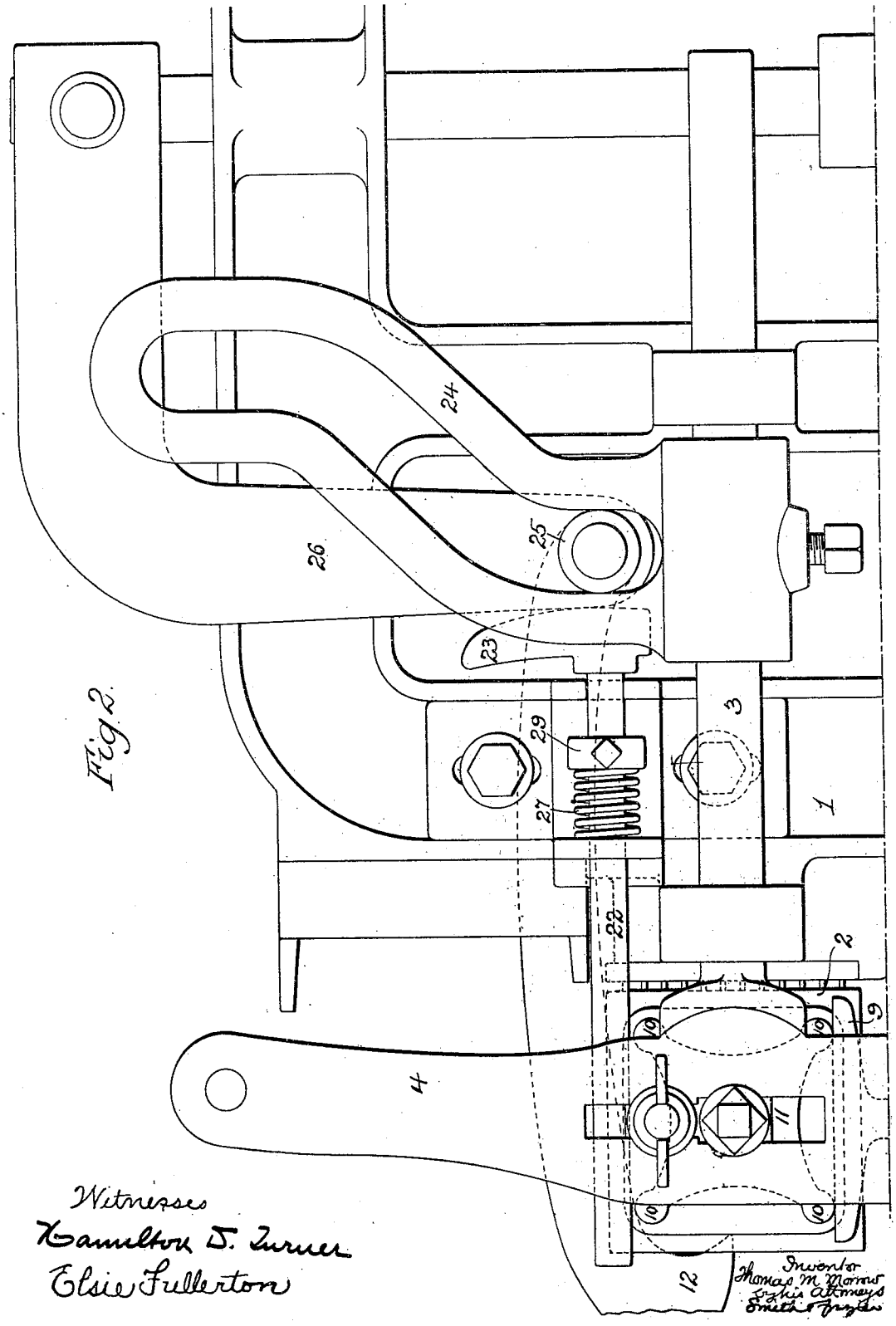

Fig. 2.

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UNITED STATES PATENT OFFICE.

THOMAS M. MORROW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THOMAS HOLTON'S SONS, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

JACQUARD-MACHINE.

955,664. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed September 3, 1909. Serial No. 516,118.

To all whom it may concern:

Be it known that I, THOMAS M. MORROW, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Jacquard-Machines, of which the following is a specification.

My invention relates to devices for preventing injury to the needles or other portions of a jacquard machine arising from improper adjustment of the card cylinder, the object of my invention being to provide more effective devices for this purpose than those hitherto employed. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of sufficient of a jacquard machine to illustrate my invention, and Fig. 2 is a side view of part of a jacquard machine of a different type and illustrating a modification of my invention.

Referring in the first instance to Fig. 1 of the drawing, 1 represents part of the frame of a jacquard machine, and 2 a card cylinder which is rotatably mounted at its opposite ends in bearings carried by rods 3, horizontally guided on the main frame 1 and having horizontal reciprocating movement imparted to them by the devices ordinarily used, the rods 3 having upward extensions 4 connected by cross bars 5, in which is vertically guided a stem 6 depressed by means of a coiled spring 7 and having at its lower end an enlarged head 9.

At each end of the card cylinder is a block 11 with a lug 10 at each corner, and the uppermost lugs of the block 11 at one end of the cylinder are acted upon by the head 9 of the stem 6 so as to square or level said cylinder and cause it to present its flat face to the projecting ends of the needles of the jacquard machine when it is moved inwardly toward said needles.

On the outward movement of the jacquard cylinder the lug 10 at the upper, outer corner of the block 11 is engaged by a hook 12 whereby, on each outward movement of the cylinder, the latter is caused to turn forwardly so as to present a different face to the needles. It sometimes happens, however, that this movement is not completed and the cylinder is only partially turned so as to present an angle instead of a flat face to the needles, and unless the cylinder is turned backwardly so as to restore it to normal position before it reaches the needles, injury to the latter or to other parts of the machine must necessarily result. In order to insure such backward turning of the cylinder before it reaches the needles, in the event of the cylinder having been only partially turned by the mechanism used for that purpose, I pivotally mount upon a shaft 13, carried by the extensions 4 of the rods 3, a depending bar 14 with projecting toe 15, at its lower end, the heel of this bar normally contacting with a lug 16 at the outer end of an arm 17 pivoted upon the main frame of the machine, the parts being thus held normally in contact by means of a coiled spring 19 which connects a lug 20 on the back of the bar 14 and a lug 21 on the back of the arm 17.

Supposing that the cylinder has only been partially turned the blocks 11 at each end of the same will occupy the position shown by dotted lines in Fig. 1, and as the cylinder approaches the needles, the uppermost lug of the block 11 at that end of the cylinder at which the bar 14 is located will be engaged by the toe of said bar and pushed rearwardly so as to turn the cylinder backward and cause it to present a flat face to the needles by the time it reaches the same, this movement being due partly to the forward movement of the cylinder, and partly to the rearward and upward movement of the end of the toe 15 which gives a sort of kick to the lug. This movement of the toe 15 is due to the fact that while the heel of the bar 14 has a stationary bearing upon the lug 16 of the arm 17 the shaft 13 upon which the bar is pivoted moves forward and backward with the cylinder carrying devices.

In Fig. 2 I have illustrated part of a machine embodying a modified form of my invention. In this machine, the outer end of a longitudinally guided bar 22, mounted in bearings on the frame of the machine, engages with the uppermost lug 10 of the block 11 when the cylinder has been improperly adjusted, and moves outwardly or toward said lug at the same time that the latter is being carried inwardly toward the bar. This movement is imparted to the bar in the following manner. On the bar 22 is a head 23 and on the cylinder-carrying rod 3 is a cam plate 24 which receives an anti-friction

roller 25 carried by a vertically reciprocating arm 26, whereby the cylinder-carrying rods are drawn inwardly as said arm descends and are moved outwardly as it rises. Before it has completed its descent the arm 26 strikes the head 23 of the bar 22 and causes the desired outward movement of the same before the cylinder has been drawn inwardly to its full extent, the inward movement of the bar 22 on the rise of the arm 26 being effected by a coiled spring 27 interposed between one of the bearings for the bar and a collar 29 secured to said bar.

I claim:

1. The combination, in a jacquard machine, of a card cylinder, means for reciprocating the same, means for turning it as it is thus reciprocated, a bar for effecting the backward turning of the cylinder when the same has had only a partial forward turn imparted to it, and means for imparting positive movement to said bar to aid it in the performance of its duty.

2. The combination, in a jacquard machine, of a card cylinder, means for reciprocating the same, means for imparting turning movement to the cylinder, and a pivoted bar having a toe for engaging a member of the cylinder structure and imparting positive backward movement thereto when the cylinder has had only partial forward turning movement imparted to it.

3. The combination, in a jacquard machine, of a card cylinder, means for reciprocating the same, means for imparting turning movement to the cylinder, a pivoted bar having a toe for engaging a member of the cylinder structure and imparting backward movement thereto, and a contact bearing for the heel of said bar.

4. The combination, in a jacquard machine, of a card cylinder, means for reciprocating the same, means for imparting turning movement to the cylinder, a pivoted bar having a toe for engaging a member of the cylinder structure and imparting backward movement thereto, a contact bearing for the heel of said bar, and yielding means for maintaining the heel of the bar in contact with said bearing.

5. The combination, in a jacquard machine, of a card cylinder, a reciprocating frame carrying the same, means for rotating said card cylinder, a bar pivotally mounted upon said frame and having a toe for engaging a member of the cylinder structure and turning the same backwardly, and a contact bearing for said bar.

6. The combination, in a jacquard machine, of a card cylinder, a reciprocating frame carrying the same, means for imparting forward turning movement to the cylinder, a bar pivotally mounted upon the cylinder-carrying frame and having a toe for engaging a member of the cylinder structure and turning the same backwardly, and an arm pivoted to the main frame of the machine and having a contact bearing for the heel of said bar.

7. The combination, in a jacquard machine, of a card cylinder, a reciprocating frame carrying the same, means for imparting forward turning movement to the cylinder, a bar pivotally mounted upon the cylinder-carrying frame and having a toe for engaging a member of the cylinder structure and turning the same backwardly, an arm pivoted to the main frame of the machine and having a contact bearing for the heel of said bar, and a spring connecting said bar and arm.

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

THOMAS M. MORROW.

Witnesses:

P. ELLIS,

T. H. HOLTON.