(No Model.) 2 Sheets—Sheet 1.

F. BLACKBURN.

FEEDING MECHANISM FOR STRAW BRAID SEWING MACHINES.

No. 344,239. Patented June 22, 1886.

FIG. 1.

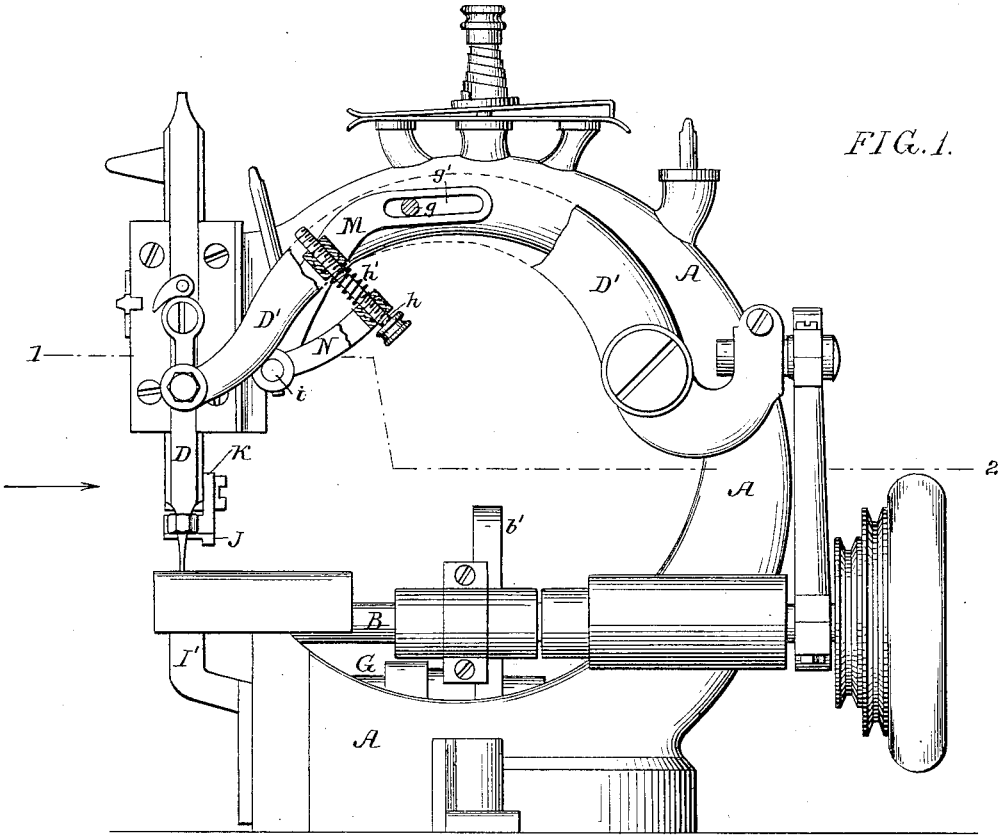

FIG. 2.

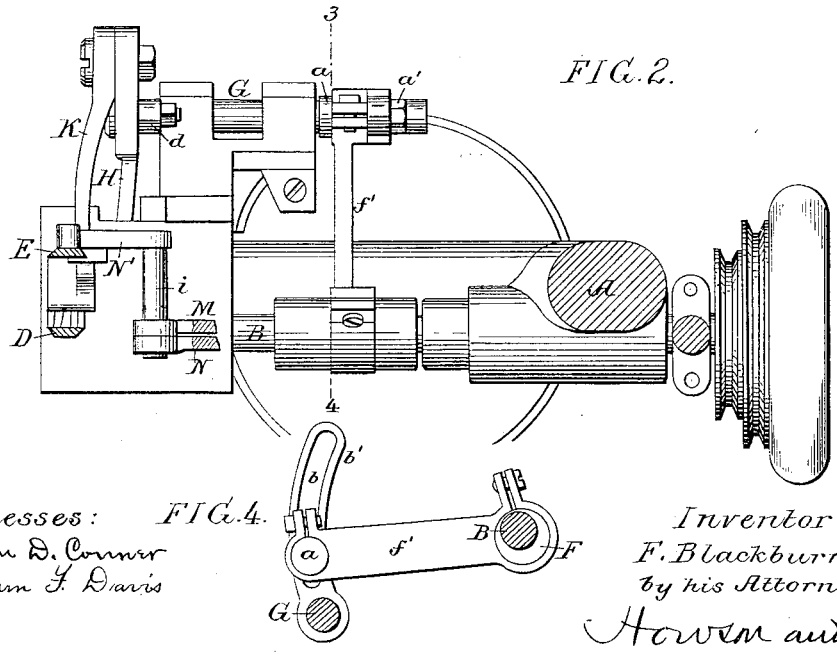

FIG. 4.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

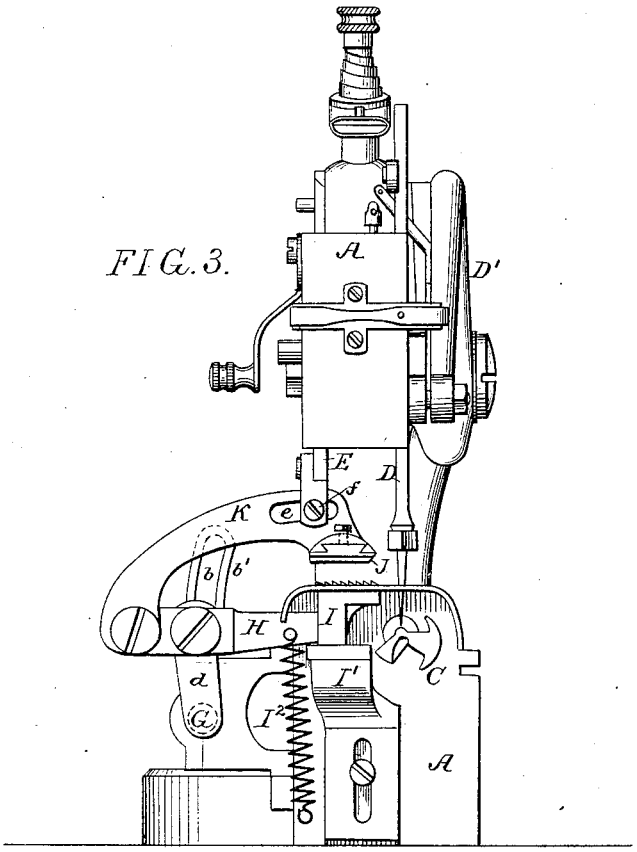
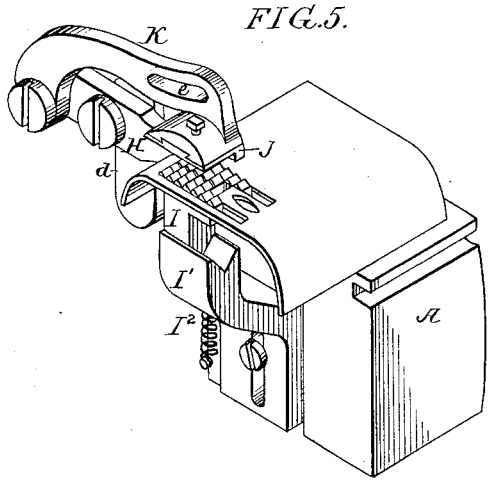


FIG. 5.



Witnesses:
William D. Conner
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Inventor:
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UNITED STATES PATENT OFFICE.

FREDERICK BLACKBURN, OF PALMYRA, ASSIGNOR TO THE BLACKBURN STRAW BRAID SEWING MACHINE COMPANY, OF BEVERLY, N. J.

FEEDING MECHANISM FOR STRAW-BRAID-SEWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 344,239, dated June 22, 1886.

Application filed July 11, 1884. Serial No. 137,414. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK BLACKBURN, a citizen of the United States, and a resident of Palmyra, New Jersey, have invented certain Improvements in Feeding Mechanism for Straw-Braid-Sewing Machines, of which the following is a specification.

My invention consists of certain improvements, fully described and claimed hereinafter, in the feeding mechanism of the machine, with the view of lessening the wear of the parts and insuring a positive feeding of the braid without wounding the latter.

In the accompanying drawings, Figure 1 is a side view, partly in section, of sufficient of a straw-braid-sewing machine to illustrate my improvements; Fig. 2, a sectional plan on the line 1 2, Fig. 1, the head which guides the needle-bar and presser-bar not being shown; Fig. 3, an end view of the machine, looking in the direction of the arrow, Fig. 1; Fig. 4, a transverse section of part of the machine on the line 3 4, Fig. 2; and Fig. 5, a perspective view of part of the feeding mechanism.

The machine shown in the drawings is one of the "Willcox & Gibbs" type, although it should be understood that my invention is not limited to such a machine, the latter being selected simply because it is the one most used for this class of work.

A is the frame of the machine, B the driving-shaft, D the needle-bar, D' the needle-arm, E the presser-bar, and C the rotating hook, all constructed as usual.

On the shaft B is an eccentric, F, the rod F' of which has at the outer end a bolt, *a*, which passes through a slot, *b*, in an arm, *b'*, on a rock-shaft, G, adapted to suitable bearings on the frame A. The bolt *a* has a nut, *a'*, by which it can be secured to the arm *b'* after adjustment, the throw of the arm and the extent of vibration of the rock-shaft being thus regulated as desired. The opposite end of the rock-shaft G has an arm, *d*, to the upper end of which is hung a bar, H, the front end of the latter being connected to the lower feed-block, I, the upper serrated portion of which projects through an opening in the feed-table, as usual; but the lower end of the block is adapted to a V-guide in a bar, I', vertically adjustable on the frame A, so as to compensate for wear, a spring, I^2, serving to hold the block firmly to its bearing on the bar. The block I has a horizontal reciprocating movement, but no vertical movement, the braid being clamped against the serrated face of the block I by the upper feed-block, J, which is carried by the front end of an arm, K, the rear end of the latter being pivoted to the rear end of the bar H. In the arm K is a slot, *e*, and to this slot is adapted a pin, *f*, on the lower end of the presser-bar E, so that as the latter is reciprocated and the rock-shaft G vibrated a combined longitudinal and vertical reciprocation or "four-motion" feed will be imparted to the block J, and the braid will be clamped and fed forward. By thus imparting the combined movement to the upper block and a simple movement only to the lower block I avoid the necessity of having beneath the table a number of guides for the lower feed-block.

It has been found in practice that the dust and grit from the braid causes the rapid wear of any surfaces moving in contact beneath the feed-table; hence my machine has but one guide thus located, and this is one which can be readily adjusted to compensate for wear, or readily renewed when worn out.

The reciprocating motion of the presser-bar E is derived from the needle-arm D', a pin, *g*, on which is fitted to a slot, *g'*, in an arm, M, hung loosely to a rock-shaft, *i*, the latter being adapted to bearings on the frame A, and having an arm, N, secured to it. The outer end of the arm N is connected to the arm M by a right-and-left-threaded screw-rod, *h*, adapted to a right-handed swiveled nut on one arm and a left-handed swiveled nut on the other, so that both arms will be caused to vibrate as the needle-arm moves, the shaft *i* having a third arm, N', which acts upon a pin, *k*, on the presser-bar, and thus causes the vertical reciprocation of the latter on the vibration of the rock-shaft.

In order to adjust the presser-bar for different thicknesses of braid, it is necessary simply to vary the relations of the arms M and N by means of the screw-rod *h*. Thus the movement of the arm N away from the arm M serves to elevate the presser-bar, a reverse movement permitting its descent. A spring, *h'*, serves to

supplement the action of the screw-rod *h* in forcing the arms apart. The upper presser-block, J, is recessed, as shown in Fig. 5, for the reception of the overlying layer of braid, so that both layers are seized by the block during the feeding movement. The block is secured to the arm K by a dovetailed joint and set-screw, as shown in Figs. 3 and 5, so that it can be adjusted to suit different laps of braid, or can be readily removed when it becomes worn or when there is a change in the character of the braid to be sewed.

I claim as my invention—

1. The combination of the lower feed-block and its guide, the upper feed-block, J, a rock-shaft having an arm, *d*, connections between said arm and the two feed-blocks, a presser-bar, E, controlling the vertical movement of the upper feed-block, and means for vibrating the rock-shaft and imparting a vertical reciprocation to the presser-bar, all substantially as specified.

2. The combination of the lower feed-block and reciprocating mechanism therefor, the presser-bar E, having a pin, *f*, the bar K, having a slot, *e*, for the reception of the pin, the feed-block J, secured to said bar K, and devices whereby a vertical reciprocation is imparted to the presser-bar and a longitudinal reciprocation to the bar K, as set forth.

3. The combination of the lower feed-block and reciprocating mechanism therefor, the presser-bar E, the rock-shaft *i*, having an arm, N′, acting on said bar, the needle-arm D′, having a connection with the said rock-shaft, the upper feed-block, J, hung to the lower end of the presser-bar, and means for imparting a longitudinal reciprocation to the said feed-block, as set forth.

4. The combination of the needle-arm, the rock-shaft *i*, having a loose arm, M, connected to said needle-arm, a fixed arm, N, adjustably connected to said arm M, and an arm, N′, acting on the presser-bar, feed-blocks I and J, and mechanism for reciprocating said feed-blocks, all substantially as specified.

5. The combination of the feed-operating mechanism of a straw-braid-sewing machine, the lower feed-block, the presser-bar, and a laterally-adjustable upper feed-block recessed for the reception of the upper layer of braid, as set forth.

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

FREDERICK BLACKBURN.

Witnesses:

JOHN E. PARKER,

HARRY SMITH.