

No. 749,649.

PATENTED JAN. 12, 1904.

D. A. WATERS.
CARD FEEDING MACHINE.
APPLICATION FILED JUNE 21, 1902.

NO MODEL.

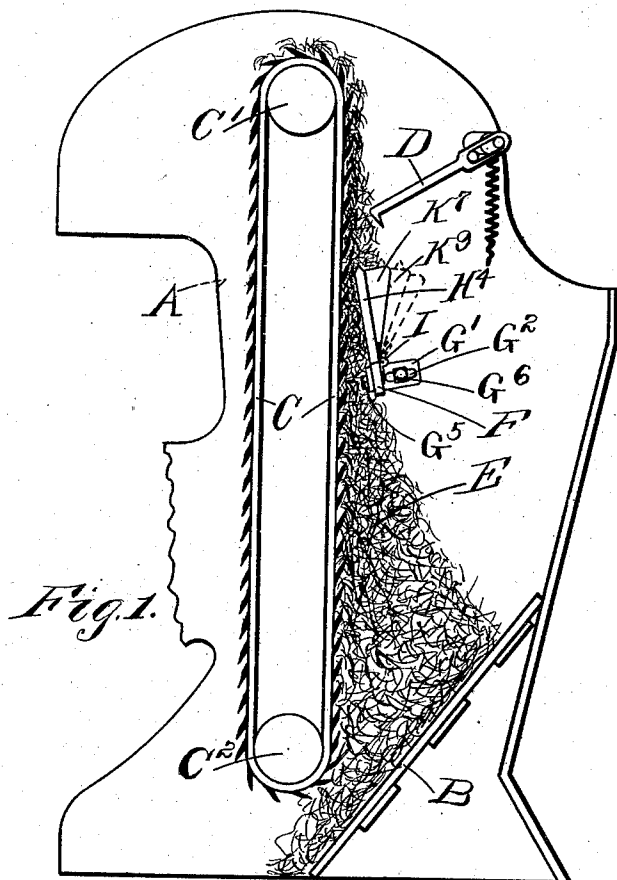


Fig. 1.

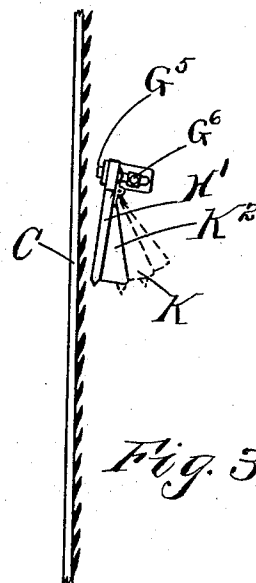


Fig. 3.

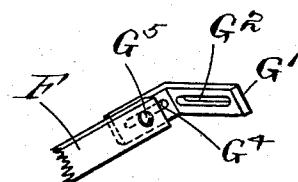


Fig. 4.

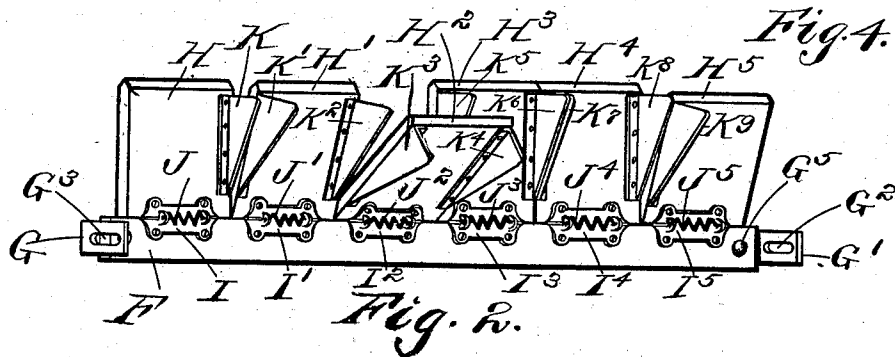


Fig. 5.

Witnesses.
John G. Gately.
Erving S. Porter.

Inventor.
Douglas H. Waters
by
Gardner W. Benson
Attorney.

UNITED STATES PATENT OFFICE.

DOUGLAS H. WATERS, OF POQUETANUCK, CONNECTICUT, ASSIGNOR TO
EDDO V. BATES, OF DRACUT, MASSACHUSETTS.

CARD-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 749,649, dated January 12, 1904.

Application filed June 21, 1902. Serial No. 112,717. (No model.)

To all whom it may concern:

Be it known that I, DOUGLAS H. WATERS, of Poquetanuck, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Card-Feeding Machines, of which the following is a specification.

This invention relates to the type of card-feeding machines commonly known as the "Bramwell," in which the stock in the feeder-box is carried up in comparatively regular quantity by means of a "spike-apron" to be first delivered to a weighing device, then discharged and fed forward to the cards in even quantity.

It is the purpose of my invention to secure as nearly an even load of stock upon the spike-apron as possible whether the box is full, partly full, or nearly empty. Ordinarily if the box were full a larger surface of stock and at a greater weight would be in contact with the spike-apron than if the box were almost empty, and as the stock is carried up by the spike-apron these conditions change, making an uneven feed.

By the device of his Patent No. 667,213, February 5, 1901, George Geb attempts to secure the above result by arranging an evening-board in the feeder-box near the upwardly-moving spike-apron, so controlling such board that it will tend to press the stock against the spike-apron, as therein described. To obtain the same result, devices wherein an evening-board fixed at its upper edge with its free edge pointing downward and toward the spike-apron and pressed toward the spike-apron by means of levers and weights have also been used with some success. My invention accomplishes the same result in a more perfect manner.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical side view with the end of the feeder-box removed, showing only the parts necessary to understand my invention. Fig. 2 shows the cross-bar, evening-boards, and attachments in slight perspective. Fig. 3 shows another method of adjusting my device with the free edges of the evening-boards

pointing downward. Fig. 4 shows one of the brackets which support the cross-bar.

Similar letters refer to the same parts throughout the several views.

A is the casing.

B is the inclined board, whose function is to allow the stock to roll down into contact with the spike-apron C.

C' is the upper and C² the lower pulley, over which spike-apron C runs in carrying the stock to the top.

D is the evening-comb, which is so operated as to knock off bunches or undue quantities of wool which may be carried up by the spike-apron.

E represents the wool or other textile fiber forming the stock, the box being shown as less than half full.

F is the cross bar or stay, of wood or metal, of a length about equal to the width of the feeder-box. To each end of the cross-bar F is adjustably bolted the angle-irons or brackets G and G' by means of bolts G², passing through holes in the cross-bar and through adjusting-slots G⁴ in angle-irons G and G' and held in place by suitable nuts. Brackets G and G' may be adjusted so that cross-bar F may be raised or lowered or moved toward or away from apron C by means of the adjusting-slots G³ and G³ in angle-irons G and G' and the adjusting-bolts G⁶, which pass through these slots and also through the end casings of the feeder-box A and are provided with suitable tightening-nuts. By loosening these nuts the brackets may be adjusted, and so the cross-bar, and then by tightening the nuts brackets and cross-bar may be held firmly in place.

In the Geb device and the other device above mentioned the pressure of the evening-board upon the stock between it and the spike-apron is not uniform, for if a bunch or congestion of stock forms at one place it forces the whole board away from the apron, and thereby reduces the pressure on such portions of stock as are not so closely packed.

I overcome the above objection by hinging to the edge of the adjustable cross-bar F by means of the hinges I, I', I², I³, I⁴, and I⁵ a plu-

5 rality of shorter evening-boards H H' H² H³
 H⁴ H⁵ instead of using one long board. These
 boards are beveled on both sides on the end
 opposite the hinges and are placed as close
 10 together as is consistent with their free motion
 on the hinges. The hinges I I', &c., are pro-
 vided with springs J J' J² J³ J⁴ J⁵ of any
 suitable design adapted to press the boards
 H H', &c., toward the spike-apron C when
 15 the cross-bar is in the position shown in Fig.
 1. In the drawings the well-known form of
 spiral door-spring is shown; but any form of
 spring may be used which will produce the
 necessary pressure. The evening-boards H
 20 H', &c., are provided at adjacent edges with
 fan-shaped wings or plates K K' K² K³ K⁴ K⁵
 K⁶ K⁷ K⁸ K⁹, the purpose of which is to pre-
 vent the stock getting caught between the
 edges of adjacent evening-boards, and thus
 25 jamming and preventing the boards from
 working independently.

The operation is as follows: Fig. 1 shows
 one usual position of the cross-bar and evening-
 boards, showing the bar at such a distance and
 30 position that if no stock were in the feeder-box
 the free edges of the evening-boards would be
 upward as close as possible to the spike-apron
 and nearer thereto than the cross-bar. The dot-
 ted lines show the position the evening-boards
 35 assume as stock accumulates between them
 and the spike-apron, each board working in-
 dependently of the others. Fig. 3 shows a
 section of spike-apron and the cross-bar and
 evening-boards in another position when the
 40 cross-bar is turned end for end. In this latter
 position if no stock were in the feeder-box
 the free edges of the evening-boards would be
 downward as near as possible to the spike-
 apron and nearer thereto than the cross-bar,
 45 and the dotted lines show the position the
 boards assume as stock accumulates between
 them and the spike-apron. These two posi-
 tions are not the only ones which may be used
 with my device, and I do not confine myself
 50 to them. The cross-bar, and with it the even-
 ing-boards, may be completely rotated and
 moved in any radial direction from bolt G⁶
 the full length of the slots G² and G³, and the
 same thing may be done when the cross-bar is
 55 turned end for end. Of course a cross-bar
 rigidly fixed in any suitable position may be
 used in place of my adjustable cross-bar, and
 the wings K K', &c., may be dispensed with,
 if desired. Any suitable form of springs or
 60 other equivalent devices may be used in place
 of the spiral springs shown.

The chief advantage of my device is that by
 providing a number of independently-work-
 ing evening-boards in place of a single one a
 65 bunch of stock in one place affects only one
 board, while the others maintain the same
 pressure, and thus the places on the spike-
 apron where the stock is thin receive the same
 pressure as the places where the stock is thick
 or bunched. The facility with which the cross-

bar and evening-boards may be adjusted is also an advantage.

What I claim as my invention, and desire to cover by Letters Patent, is—

1. In a card-feeding machine, the combina-
 tion with a feeder-box and spike-apron of a
 cross-bar fixed at each end to an inner side of
 the feeder-box so as to be in proximity to the
 rising portion of the spike-apron, a plurality
 75 of adjacent evening-boards independently
 hinged to said cross-bar, wings or plates affixed
 to adjacent edges of said evening-boards, suit-
 able hinges which attach the evening-boards
 to the cross-bar, and suitable springs adapted
 80 to force the evening-boards independently to-
 ward the spike-apron and to allow said even-
 ing-boards to give back as stock accumulates
 between them and the spike-apron.

2. In a card-feeding machine, the combina-
 tion with a feeder-box and spike-apron of a
 cross-bar adjustably attached at each end to a
 side of the feeder-box so that its position rela-
 tive to the rising portion of the spike-apron
 may be changed, a plurality of adjacent even-
 ing-boards each independently hinged to said
 90 cross-bar, wings or plates affixed to adjacent
 edges of said evening-boards, hinges adapted
 to connect the respective evening-boards with
 the cross-bar and springs adapted to keep the
 evening-boards normally pressed toward the
 95 spike-apron.

3. In a card-feeding machine, a cross-bar
 which is somewhat shorter in length than the
 inside width of the feeder-box, slotted angle-
 irons adjustably bolted to each end of the
 cross-bar and adapted to be adjustably bolted
 each to a side of the feeder-box, combined with
 suitable evening-boards attached by suitable
 hinges to the cross-bar and suitable springs
 adapted to press the evening-boards toward
 105 the spike-apron and a feeder-box and spike-
 apron together with wings or plates affixed to
 adjacent edges of said evening-boards, as de-
 scribed and for the purpose specified.

4. In a card-feeding machine, a cross-bar F,
 angle-irons G and G' adjustably attached one
 at each end of cross-bar F, slots G⁴, in angle-
 irons G and G', bolts G⁵, adapted to attach
 angle-irons G and G' to cross-bar F, and bolts
 G⁶, adapted to pass through slots G² and G³ in
 angle-irons G and G' and through casing A,
 whereby the position of cross-bar F may be
 adjusted relatively to spike-apron C, a casing
 A and a spike-apron C, combined with a plu-
 120 rality of evening-boards H, H', H², H³, H⁴, H⁵,
 a plurality of wings or plates K, K', K², K³,
 K⁴, K⁵, K⁶, K⁷, K⁸, K⁹, affixed to adjacent
 edges of evening-boards K, K', K², K³, K⁴, K⁵,
 a plurality of hinges I, I', I², I³, I⁴, I⁵, which
 125 attach said evening-boards to cross-bar F, and
 a plurality of springs J, J', J², J³, J⁴, J⁵,
 adapted to press the said evening-boards to-
 ward the upwardly-moving portion of the
 spike-apron C, as described and for the pur-
 130 pose specified.

5. In a card-feeding machine, the combination with a feeder-box and spike-apron of a cross-bar fixed at each end to a side of the inside of the feeder-box so as to be crosswise, parallel to and in proximity to the rising portion of the spike-apron, a plurality of adjacent evening-boards hinged at their upper edges to said cross-bar in such a manner as to be independently movable to and from the spike-apron, suitable wings attached to adjacent edges of said evening-boards adapted to prevent the stock getting caught between said adjacent edges, and springs so adapted as to normally hold the lower edges of said evening-boards in close proximity to said spike-apron and to allow the evening-boards to give back as stock accumulates between them and the spike-apron.

6. In a card-feeding machine, the combination with a feeder-box and spike-apron of a cross-bar fixed at each end to a side of the inside of the feeder-box so as to be crosswise, parallel to and in proximity to the rising por-

tion of the spike-apron, a plurality of adjacent evening-boards hinged at their upper edges to said cross-bar in such a manner as to be independently movable to and from the spike-apron, suitable wings attached to adjacent edges of said evening-boards adapted to prevent the stock getting caught between said adjacent edges, and springs so adapted as to normally hold the lower edges of said evening-boards in close proximity to said spike-apron and to allow the evening-boards to give back as stock accumulates between them and the spike-apron.

In testimony whereof I have affixed my signature in presence of two witnesses.

DOUGLAS H. WATERS.

Witnesses:

LEVI E. WATERS,
JOHN P. FLYNN.