

No. 825,159.

PATENTED JULY 3, 1906.

C. SCHOFIELD.
WILLOW.

APPLICATION FILED JULY 26, 1905.

Fig. 1.

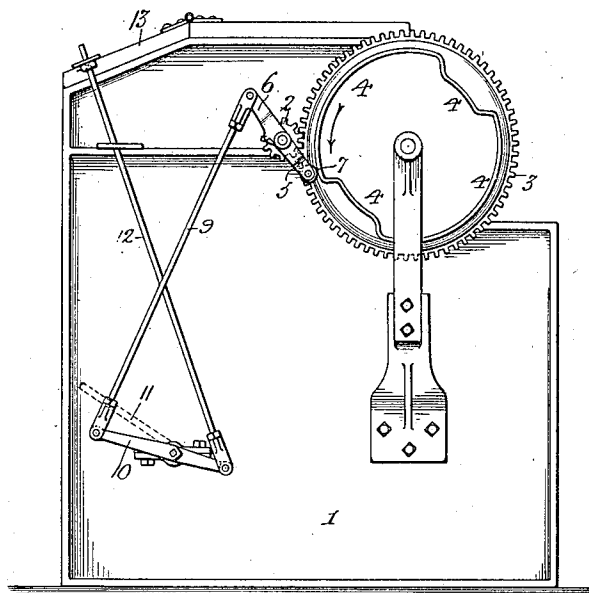
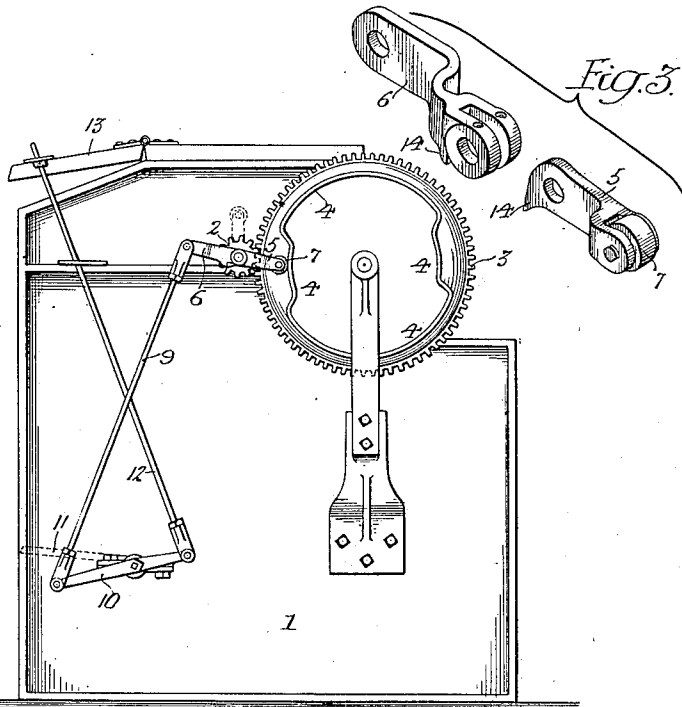


Fig. 2.



Witnesses

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WILLOW.

No. 825,159.

Specification of Letters Patent.

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To all whom it may concern.

Be it known that I, CHARLES SCHOFIELD, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Willows, of which the following is a specification.

My invention consists of certain improvements in the willow for which I have secured previous Letters Patent, No. 675,248, dated
10 May 28, 1901, and No. 772,831, dated October 19, 1904, the object of my present invention being to permit of a quicker opening of the delivery-door and inlet-valve of the willow than was effected in the patented machines to prevent accidental opening of the
15 same and to permit of the retention of the door and valve in the open position for any desired length of time independently of the action of a cam, which under ordinary circumstances governs their movements. These
20 objects 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 willow to illustrate my present invention, the
25 parts being shown in the positions assumed by them when the delivery-door and inlet-valve are closed. Fig. 2 is a similar view showing the parts in the positions assumed
30 by them when the delivery-door and inlet-valve are open; and Fig. 3 is a perspective view showing detached from each other certain of the devices whereby the operation of the door and valve are effected.

The fiber feeding and beating devices, the blast mechanism, and the belts, pulleys, and gearing for operating the same may be similar to those of either of the former machines, and as these parts constitute no portion of
40 my present invention reference to them here will be unnecessary.

Turning on a stud projecting from the casing 1 of the machine is a pinion 2, driven from any other available gear member of the
45 machine and meshing with a spur-wheel 3, which has on its outer face a cam-flange 4, the latter having in the present instance two high runs and two low runs, both concentric with the axis of the spur-wheel 3, so as to
50 provide for two operations of the delivery-door and inlet-valve on each rotation of said spur-wheel, although it should be understood that my invention is not limited to a cam-flange of this character, the latter being
55 shaped to accord with any desired operation of said door and valve.

Pivotally mounted upon the same stud as the pinion 2 is a lever comprising two arms 5 and 6, the arm 5 having mounted upon its free end an antifriction-roller 7, which travels in contact with the cam-flange 4, and the
60 arm 6 having pivoted to its free end the upper end of a rod 9, whose lower end is pivoted to one arm of a lever 10, secured to the axial shaft of the delivery-door 11 of the machine, (shown by dotted lines in Figs. 1 and 2,) the other arm of said lever 10 having
65 pivotal connection with the lower end of a rod 12, whose upper end is pivotally connected to the valve 13, whereby an air-inlet to the interior of the casing 1 is provided whenever the delivery-door 11 is open.

In the normal operation of the machine the spur-wheel 3 and its cam-flange 4 rotate in the direction of the arrow, Fig. 1. Hence
75 it will be noted that the action of the cam-flange upon the mechanism described has the effect of closing the delivery-door 11 and inlet-valve 13 and locking the same in the closed position against the weight of the delivery-door and of the load of fibers pressing
80 against the same, which, however, tends to cause said delivery-door to drop quickly as soon as a low portion of the cam-flange 4 comes within the range of the antifriction-roller 7. By this means quick opening of the
85 delivery-door and inlet-valve and a quick discharge of the contents of the willow are provided for; but accidental opening is prevented, whereas in the former machines the opening of these parts was caused by the
90 action of a cam, the delivery-door being counterweighted in order to insure the closing of the same, so that instead of a quick opening and a relatively slow closing there was a quick closing and a relatively slow
95 opening.

It sometimes becomes advisable to permit the delivery-door and inlet-valve to remain open for a longer period than would be permitted by the extent of either low portion of the cam-flange 4, and for this reason I use the two part lever 5 6, these two parts of the lever being so constructed that while they are rigid or incapable of independent movement in one direction they can be flexed or bent in the opposite direction, this result being effected by providing each part of the lever with a projecting shoulder 14, normally in contact with each other and normally locking the two parts of the lever against any independent movement in that direction in
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which they are moved by the action of the cam-flange 4. When, however, the delivery-door and inlet-valve are open, as shown in Fig. 2, and the antifriction-roller 7 of the arm 5 is traveling in contact with the low portion of the cam-flange 4, said arm 5 can be swung upwardly, as shown by dotted lines in Fig. 2, so that its antifriction-roller is free from the influence of the cam-flange 4 and can be retained in this position as long as may be desirable, the arm being swung backward when it is again desired to place the door and valve under the control of the cam. This possibility of flexure of the arms of the lever in one direction also prevents injury or accident to the parts which might be caused if a careless or ignorant attendant should permit rotation of the spur-wheel 3 and its cam-flange 4 in a direction the reverse of that indicated by the arrow.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination of the delivery-door of a willow pivoted to cause a preponderance of weight on one side of the pivotal axis which tends to normally open the door, a ro-

tatable cam, and means whereby said cam is caused to close the delivery-door, and retain the same in the closed position.

2. The combination of the delivery-door of a willow pivoted to cause a preponderance of weight on one side of the pivotal axis which tends to normally open the door, an air-inlet valve connected to said delivery-door so as to open simultaneously therewith, a rotatable cam, and means whereby said cam is caused to close the delivery-door and air-inlet valve, and retain the same in the closed position.

3. The combination of the delivery-door of a willow, a cam for operating the same, and intermediate motion-transmitting devices having as an element, a two-armed lever, whose arms are rigid against independent movement in one direction but can bend in the opposite direction.

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

CHARLES SCHOFIELD.

Witnesses:

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