(No Model.)

W. SCHOFIELD.

WILLOW.

No. 532,591. Patented Jan. 15, 1895.

Fig. 1

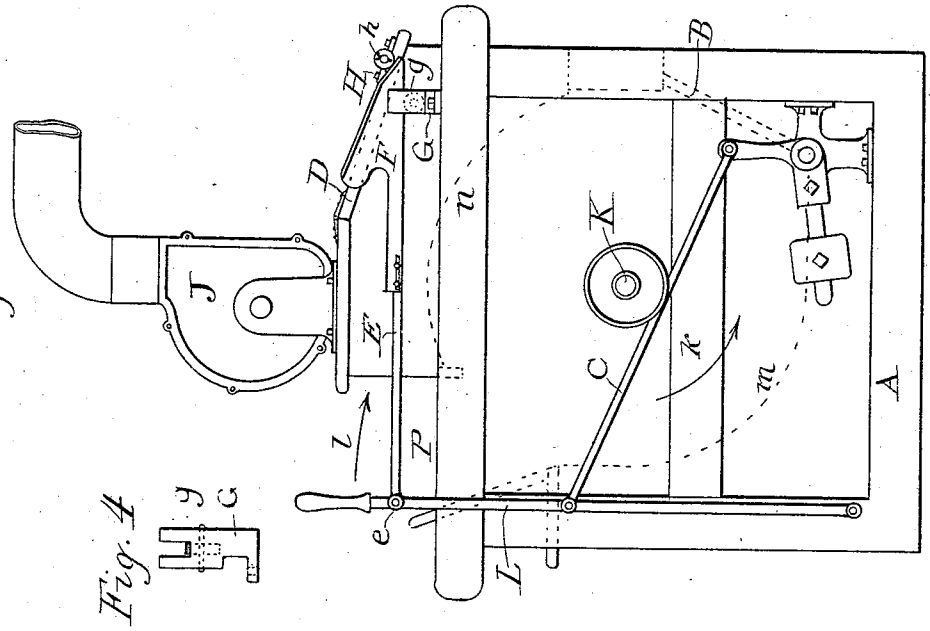

Fig. 4

Fig. 3

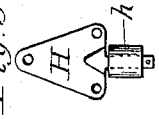

Fig. 2

WITNESSES:

Edw. C. Dolman

John Dolman

INVENTOR

William Schofield

BY

John Dolman Jr.

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM SCHOFIELD, OF PHILADELPHIA, PENNSYLVANIA.

WILLOW.

SPECIFICATION forming part of Letters Patent No. 532,591, dated January 15, 1895.

Application filed October 10, 1894. Serial No. 525,460. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHOFIELD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Willows, of which the following is a specification.

My invention relates to mechanism for opening the doors of a willow while blowing out stock after cleaning, and it has for its object the opening of the upper door or lid at the right moment and to the right degree to insure successful blowing out and prevent clogging.

Referring to the drawings: Figure 1 is a side elevation of a willow showing my improvement, and having the doors closed. Fig. 2 is a similar view with the doors open. Fig. 3 is a top view of the bracket H; and Fig. 4 is a front view of the bracket G.

A is the frame of the willow, of ordinary construction and provided with the usual lags, cylinder and other internal mechanism, not shown, and having the ordinary screen the position of which is indicated by the dotted line at *n*, and the ordinary grate the position of which is indicated by the dotted line at *m*.

D, is the upper door or lid ordinarily used for cleaning.

B, is the lower door, used for blowing out the stock after it is cleaned.

P, is the opening for inserting the stock to be cleaned.

L, is the lever which through the connecting rod C, opens and shuts the door B, by means of a crank lever.

Upon the top of the willow is mounted a suction fan J, for carrying off the dust and light dirt.

The internal mechanism for tearing apart and agitating the stock works in bearings at K, and is rotated in the direction indicated by the arrow at *k*.

All these parts are old and well known in the art.

The improvement is as follows: Near the upper end of the lever L, is pivoted at *e*, a connecting rod E, to the other end of which is rigidly but adjustably attached an arrow shaped sliding cam F, of the form shown, the point or forward end of which has, upon its upper edge, a greater slope or bevel than the rearward end as shown. This sliding cam works in a bracket G, provided with a friction roller *g*. A bracket H, with a friction roller *h*, is fastened upon the upper side of the door D so that the friction roller *h*, projects over the side of the door D and contacts with the upper edge of the cam F.

The operation is as follows: The stock being inserted at P, is broken up and whirled around by the cylinder in the direction indicated at *k*. The stones and heavier dirt fall through the grate at *m*. The lighter dirt and dust are drawn through the screen at *n*, up and out through the fan J, the draft of air proceeding from P, downward around the cylinder and up through the fan J. When the stock is sufficiently cleaned, the lever L is moved forward in the direction indicated by the arrow *l*, and the cleaned stock is supposed to be blown or thrown out through the door B, but in the old method, this result was imperfect, because the draft made by the revolving cylinder, acting as a fan, was drawn up and out through the fan J, to a great extent, and the desired strong draft through B, did not take place. Consequently some of the stock was thrown or drawn up toward the screen *n*, some of it feebly thrown out at B and some lodged on the door B, and around the same, preventing the subsequent tight shutting of the door B.

Under my improvement the operation is the same up to the moving forward of the lever L, when it is as follows: The lever L, pushes forward the rod E, and cam F. The latter presses against the friction roller *h*, and lifts up the door D, quickly, while the door B, is just beginning to open. The air rapidly rushes in at D in sufficient volume to supply the suction of the fan J, (incidentally cleaning off the top of the screen *n*, of the dirt accumulated thereon,) and permitting the full force of the draft entering at P, created by the revolution of the cylinder, to blow out the stock at the door B, when fully open. The draft blowing out through B, also tends to draw by suction some air down from D, through the screen *n*, and carry out any stock that may have arisen toward *n*. This I believe to be the philosophy of the operation of the willow, but at any rate, the practical

results are as described. With the door D, opened in the manner shown the stock is cleanly blown out at B, and the top of the screen *n*, is kept comparatively free of the dirt which formerly accumulated there; while with the door D, left closed, or opened too little, too late or too slowly, the stock does not blow out perfectly, and the door B, becomes clogged. It is important that plenty of air be admitted at D, before B, is fully opened.

It will be noticed that my attachment does not in any manner interfere with the independent opening of the door D, for the purpose of cleaning or repairing.

Having as above fully described my invention and the best method known to me of working the same, what I claim, and desire to secure by Letters Patent, is—

1. In a willow, the combination with the upper door thereof, of a contact device on said door, an arrow shaped sliding cam for engaging with said contact device and raising said door, and a lever L for actuating said cam.

2. In a device for opening the upper door of a willow, while blowing out stock, the combination of the lever L, connecting rod E, arrow shaped sliding cam F, friction roller *g* with suitable mounting therefor, bracket H, friction roller *h*, and door D, all combined and operated substantially as shown and described.

3. In a willow, the combination of the upper door, D, the lower door B, the lever L, and connections between said lever and each of said doors whereby both doors may be opened simultaneously by the forward movement of said lever, substantially as shown and described.

WILLIAM SCHOFIELD.

Witnesses:
FREDK. A. SOLEMHEIMER,
ALFRED STALEY.