

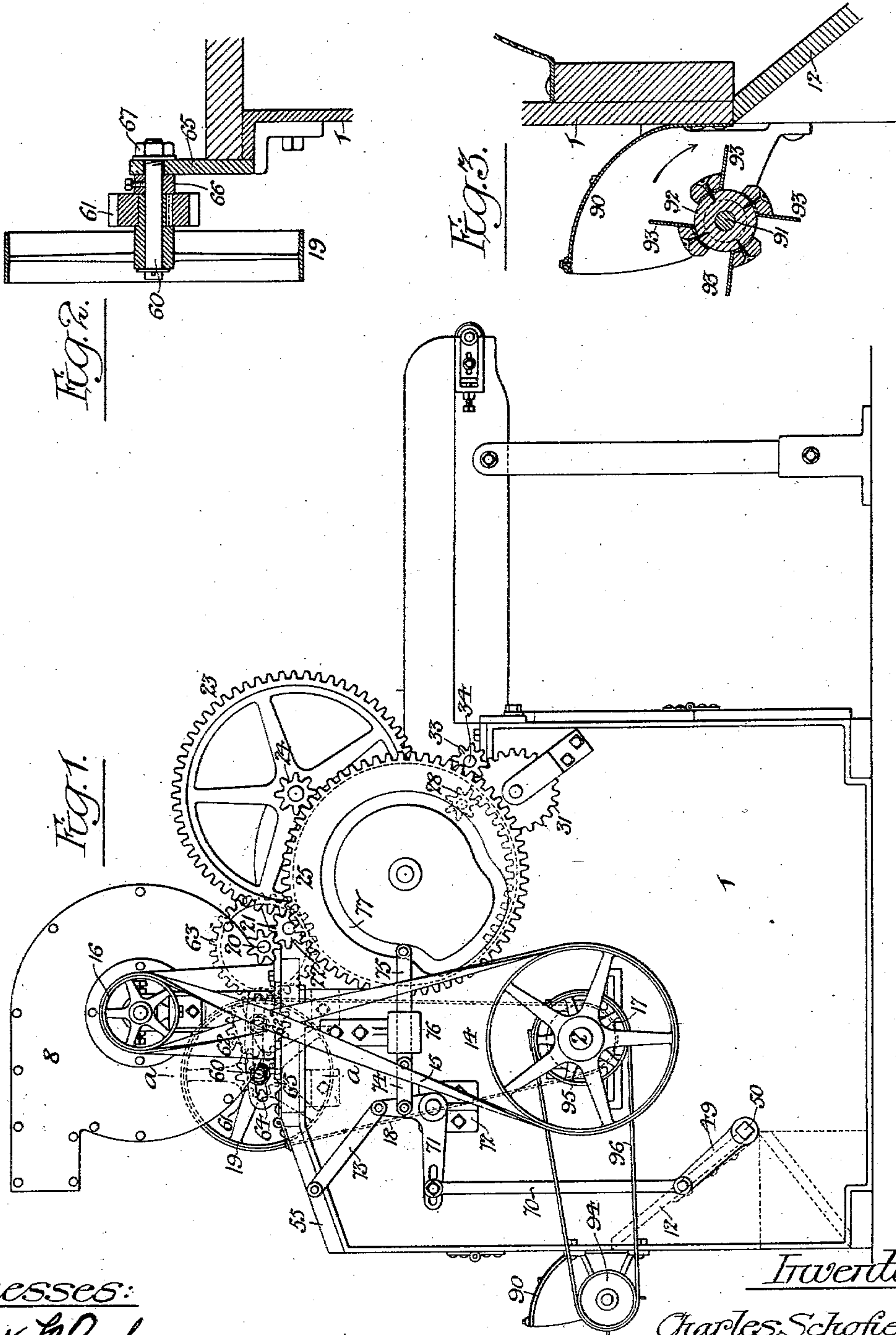
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C. SCHOFIELD.
WILLOW.

APPLICATION FILED JAN. 16, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES SCHOFIELD, OF PHILADELPHIA, PENNSYLVANIA.

WILLOW.

SPECIFICATION forming part of Letters Patent No. 751,948, dated February 9, 1904.

Application filed January 16, 1902. Serial No. 90,076. (No model.)

To all whom it may concern:

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

My invention consists of certain modifications in and additions to the willow forming the subject of my Letters Patent No. 675,248, dated May 28, 1901, the objects of my present invention being to improve the driving mechanism of the machine, to simplify and render more certain in their action the devices for operating the delivery-door and air-relief valve of the machine, and to facilitate the discharge of material from the machine and prevent the accumulation upon the delivery-door of fibers which would tend to prevent the complete closing of the same. These 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 the machine with my present improvements. Fig. 2 is an enlarged sectional view, on a larger scale, of part of the machine, the section being taken on the line *a a*, Fig. 1; and Fig. 3 is an enlarged longitudinal section of part of the machine.

1 represents the casing of the machine, 2 the drum-shaft, 8 the blast-fan, 14 the pulley on the drum-shaft, 16 the pulley on the fan-shaft, 15 the belt connecting said pulleys, 12 the delivery-valve or gate of the machine, 55 the relief-valve, and 20, 21, 22, 23, 24, 25, 28, 31, 33, and 34 shafts and gearing connected with the operation of the feeding mechanism, all of these parts being similar in construction and operation to those of the previously-patented machine. Instead, however, of driving the shaft 20 directly from the drum-shaft 2 by means of a belt and pulley and varying the speed of said shaft 20 by varying the size of the pulley thereon, as in the former machine, I now provide means for driving said shaft 20 which renders unnecessary any change in the size of the pulley when the change of speed of said shaft is desired.

The pulley 19 is driven by a belt 18 from a pulley 17 on the drum-shaft, as before; but said pulley 19 is now free to turn on a spindle

60 and has secured to it a spur-pinion 61, meshing with a pinion 62, which is free to turn on a spindle 62^a and meshes with a spur-wheel 63 on the shaft 20, the spindles 60 and 62^a being capable of movement in a segmental slot 64, formed in a bracket 65, which is secured to the casing of the machine and projects above the top of the same, as shown in Fig. 2.

The spindle 60 has a collar 66 bearing against the outer face of the bracket, and said spindle is threaded for the reception of a nut 67, which bears against the opposite face of the bracket, as shown in Fig. 2. Hence said spindle can be adjusted in the slot 64 from and toward the shaft 20 and can be readily secured in position after such adjustment. The spindle 62^a is likewise adjustably mounted. By this means variation in the speed of the shaft 20 is effected by simply varying the size of the spur-wheel 63 on said shaft and adjusting the spindles 60 and 62^a accordingly, no slackening and tightening of the belt 18 being required, as is necessary when the change of speed is effected by the use of pulleys 19 of different diameters.

The intermediate spur-wheel 62 is used because of the desired direction of rotation of the shaft 20, and in cases where the use of the spur-wheel 62 is unnecessary the pinion 61 can mesh directly with the spur-wheel 63.

The rock-shaft 50, which carries the delivery-gate 12, has an arm 49, as before; but this arm is connected by a rod 70 to one arm of a bell-crank lever 71, which is hung to a bracket 72 on the casing 1, the other arm of said lever being connected by a rod 73 to the relief-valve 55. The latter arm of the lever 71 is also connected by a link 74 to a bar 75, which is guided in a bracket 76 on the casing of the machine and carries an antifriction-roller, which is adapted to a cam-groove 77, formed in the face of the spur-wheel 25. Hence as said spur-wheel is rotated reciprocating movement is imparted at the proper intervals to the bar 75, thus causing a rocking movement of the lever 71 and opening and closing movements of the delivery valve or gate 12 and relief-valve 55 when such movements are required. The mechanism now employed

serves to render the movements of the gate 12 and valve 55 positive in both directions, thereby dispensing with the use of the weighted arm before employed and obviating any uncertainty of action, such as is likely to result from the use of weights or springs.

On one end of the casing of the machine just above the delivery-opening therein is a hood 90, the side plates of which are provided with bearings for a transverse shaft 91, which carries a drum 92 with a series of fan-blades 93, rotating movement being imparted to a pulley 94 on the shaft 91 from a pulley 95 on the drum-shaft 2 through the medium of a belt 96. By this means a downward current of air is projected past the delivery-opening of the casing, and the fiber discharged from the same is therefore prevented from flying upwardly into the room or apartment in which the machine is situated, and, furthermore, any fibers which may be resting upon the top of the delivery-gate 12 as the same rises are dislodged, and hence do not interfere with the tight closing of said gate.

In view of the fact that the gate is now closed by a positive movement instead of by the action of a weight accumulation of fibers

upon its upper edge would not only prevent it from closing properly, but would be likely to subject the closing mechanism to such strain as might lead to breakage of some of the parts, an objection which the use of the fan 93 effectually overcomes.

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

1. The combination of the delivery valve or gate and the air-relief valve, with a bell-crank lever having arms connected to said valves, a bar connected to one of the arms of said bell-crank lever, and a grooved cam for reciprocating said bar, substantially as specified.

2. The combination of the delivery valve or gate of a willow, means for positively operating said gate to close the same, and an external fan for directing a current of air onto the upper edge of said gate as the same is being closed, substantially as specified.

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

CHARLES SCHOFIELD.

Witnesses:

WALTER MACINDOE,

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