No. 737,381. PATENTED AUG. 25, 1903.

W. FRANZ.

CIRCULAR BROOM FILLING MACHINE.

APPLICATION FILED NOV. 26, 1902.

NO MODEL. 4 SHEETS—SHEET 1.

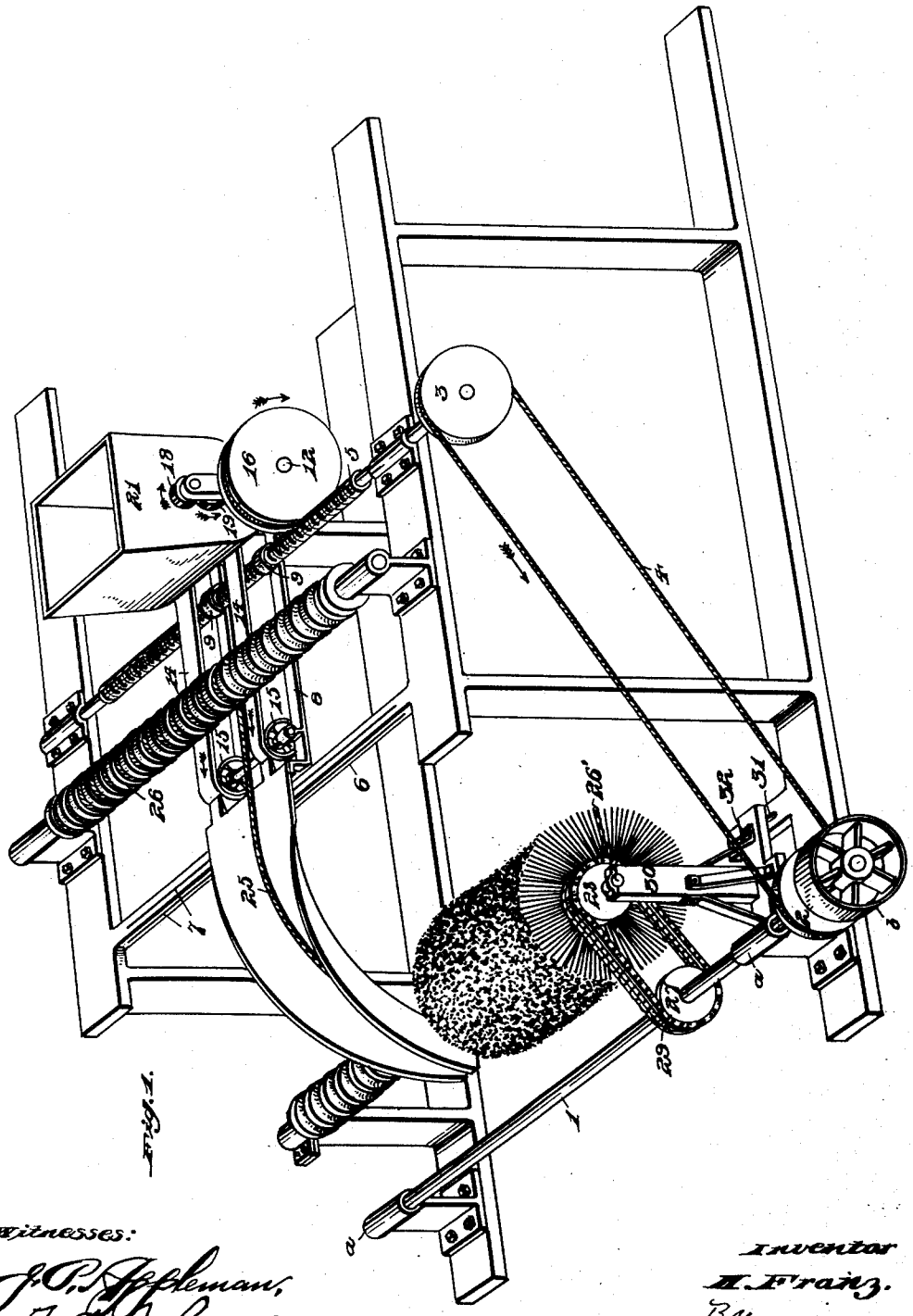


Fig. 1.

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A. E. Johnston

Inventor
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By
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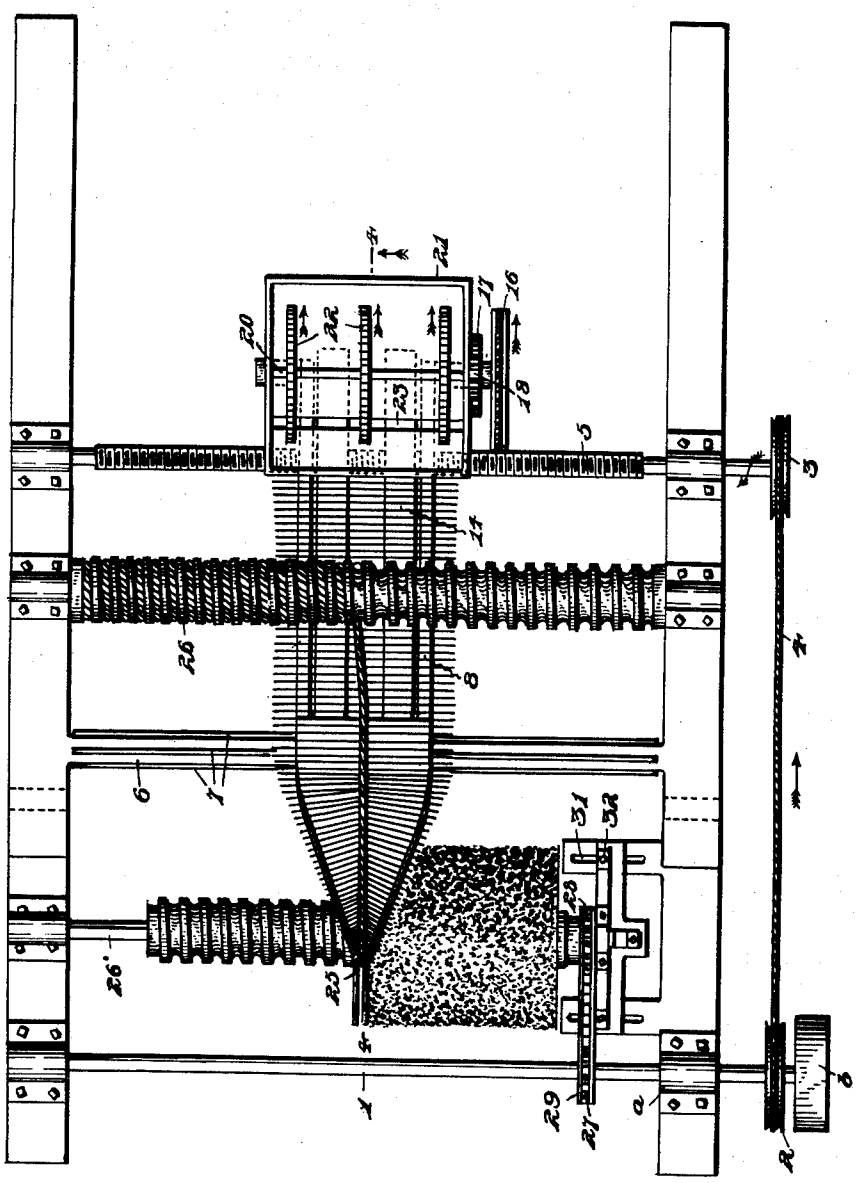
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NO MODEL. 4 SHEETS—SHEET 2.

Fig. 2.



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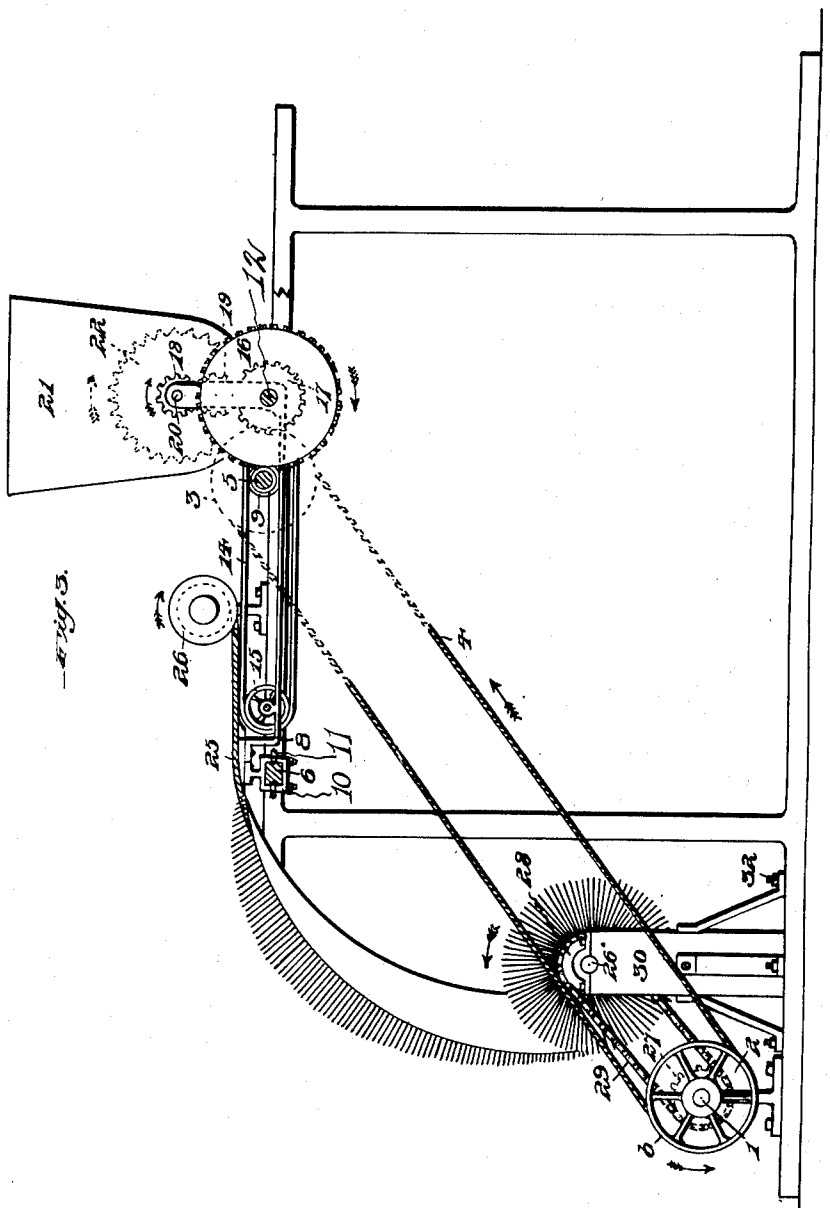
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CIRCULAR BROOM FILLING MACHINE.

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NO MODEL. 4 SHEETS—SHEET 3.



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CIRCULAR BROOM FILLING MACHINE.

APPLICATION FILED NOV. 26, 1902.

NO MODEL. 4 SHEETS—SHEET 4.

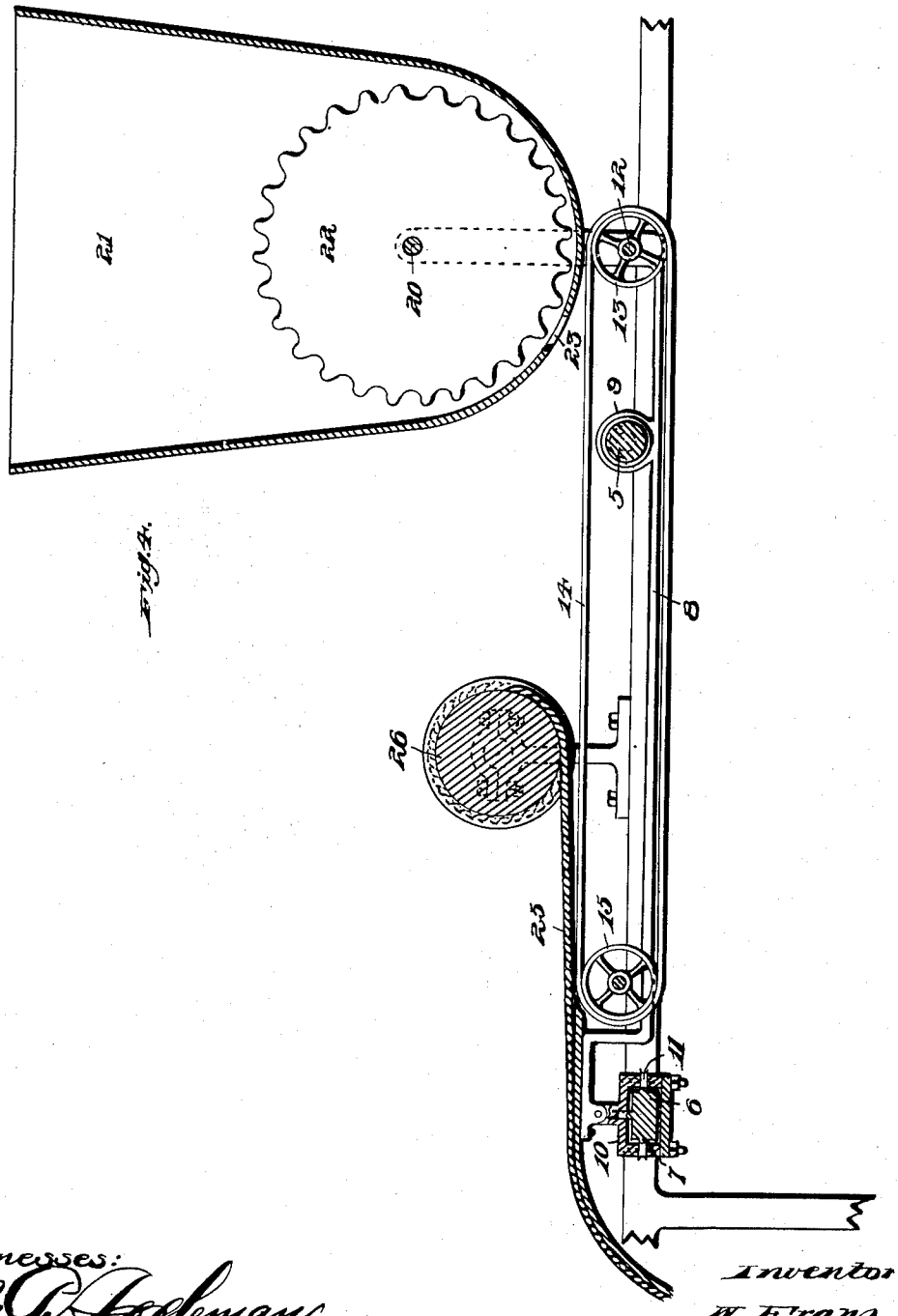


Fig. 4.

Witnesses:
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No. 737,381. Patented August 25, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM FRANZ, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM MAXWELL, OF PITTSBURG, PENNSYLVANIA.

CIRCULAR-BROOM-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 737,381, dated August 25, 1903.

Application filed November 26, 1902. Serial No. 132,961. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FRANZ, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Circular-Broom-Filling Machines, of which the following is a specification.

This invention relates to broom-making machinery, and particularly to that class designed for making what are known as "rotary" brooms or brushes.

One object of the invention is to produce a machine in which the broom fiber is automatically conducted to the shaft or roller and attached and in the provision of means for folding or shaping the fiber while in transit through the machine.

Furthermore, the object of the invention is to produce means for communicating a corresponding rate of speed to the several mechanical parts to insure a uniform distribution and arrangement of the fiber composing a brush.

Furthermore, the object of the invention is to produce means for permitting the adjustment of the device to accommodate rollers or shafts of various dimensions.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of the specification, wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 is a view in perspective of a machine embodying the invention. Fig. 2 is a plan view thereof. Fig. 3 illustrates a side elevation of the machine, partly in section. Fig. 4 is a sectional view taken on the line 4 4 of Fig. 2.

In the drawings, A indicates the frame, which may be of any preferred construction, to support the operating parts to be described. The power-shaft 1 is journaled in bearings *a* on the front of the frame, and a pulley *b* on the shaft is to be connected by belting with any suitable source of power. A grooved pulley 2 is mounted on the shaft 1, and a cable 4 run thereover drives the pulley 3 of the worm-shaft 5. The frame is provided with a supporting-beam 6, having its top and sides provided with ribs 7, forming tracks.

A carrier-frame 8 is provided with sleeves 9, which are internally threaded to receive the worm-shaft 5 in order that as the worm-shaft is rotated the carrier is moved transversely of the frame. The front end of the carrier has a shoe 10, fitted to the beam 6, said shoe being provided with antifriction-rollers 11 to prevent binding of the shoe in its travel along the beam. A shaft 12 is journaled at the rear of the carrier-frame, and pulleys 13 are mounted thereon. Conveyer-belts 14 are run over the pulleys and over the idlers 15, near the front of the carrier-frame. The shaft 12 is rotated through the medium of a worm gear-wheel 16, meshing with the worm 5. A gear-wheel 17 on the shaft 12 communicates motion to the wheel 18 through the medium of the wheel 19, the said wheel 18 being mounted on a shaft 20, which is journaled in hopper 21. Feeding-wheels 22 are provided on the shaft 20 at intervals and serve to carry the fiber in the hopper to the discharge-opening 23 of said hopper, and as said fiber passes from the opening it is deposited on the conveyer-belts and conducted to the front of the carrier and deposited on a chute, to be presently described. A spirally-grooved drum 26 is journaled in the bearings of the frame and has a binding cord or wire 25 wound thereon. The binder extends down over the surface of the chute and is wound on the broom-drum with the fiber, it being apparent that by reason of the frictional engagement of the binder with the fiber said fiber is carried down the chute. The chute is trough-like and tapers toward the lower end, so that as the fiber travels down the chute it is folded or bent on itself, and the binder forces the looped or double portion into the groove formed in the hub, thus retaining the fiber in place with its two ends parallel and coinciding. The hub is rotated on a shaft 26′, which is driven from the power-shaft 1 by the sprocket-wheels 27 28

and chain 29. The bearing 30 of the shaft 26' is adjustable by the slot-and-bolt connections 31 and 32, respectively, for the purpose of accommodating hubs of varying lengths. The pitch of the worm of the worm-shaft is such as to conduct the carrier transversely of the frame with just sufficient rapidity as to retain the conveyer and chute in alinement with that portion of the groove of the hub to which the fibers are directed and are required. The rear end of the chute is secured to the carrier, as shown fully in Figs. 1 and 4, and hence the hopper, conveyer, and chute are retained in the same relative position throughout. The fiber being supplied to the hopper is fed therefrom through the slot, and the conveyer-belts carry the fiber to the mouth of the chute. The binder having by this time contacted with said fiber, the pressure thereof forces the central portion of the fiber into the depression of the chute, thereby binding it on itself, in which condition it is seated in the groove of the hub.

It will be observed also in view of the foregoing that various changes may be made in the proportions and other details of construction for successfully carrying the invention into practice without departing from the scope thereof.

Having fully described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a broom-making machine, a suitable frame, a hopper, a conveyer on which the hopper discharges, a chute, a binder adapted to pass over the surface of the chute and a hub on which the binder is wound.

2. In a broom-making machine, a suitable frame, a hopper and conveyer thereof, a chute for folding fiber and a binder coacting to fold and convey the fiber in the chute, as and for the purpose described.

3. In a broom-making machine, a suitable frame, a hopper and conveyer thereon, means for carrying the conveyer and hopper transversely of the frame, a chute carried with the conveyer, a drum, a binder thereon, operating over the surface of the chute and a hub on which the binder is wrapped and to which fiber is conducted by the binder.

4. In a broom-making machine, a frame, a hopper and conveyer with means for moving them transversely of the frame, a chute carried with the conveyer, said chute tapering toward its lower end, a binder operating in conjunction with the chute for conveying and folding fiber, and a hub on which the binder is wound and by which the fiber is attached to the hub.

5. In a broom-making machine, a suitable frame, a hopper and conveyer and means for moving the hopper and conveyer transversely of the frame, a chute carried with the conveyer, means for forcing fiber from the hopper, a binder operating to conduct fiber down the chute, a hub on which the binder is wound and suitable adjustable bearings for the hub, as and for the purpose described.

6. In a broom-making machine, a suitable frame, a worm-shaft journaled transversely of the frame, a hopper and conveyer moved by the worm-shaft, feeding mechanism in the hopper and suitable gearing whereby the worm-shaft operates the feeding mechanism, a cross-beam on the frame, tracks formed on the beam, a supporting-shoe for the conveyer, antifriction-wheels journaled in the shoe and traveling on the tracks, a trough-like chute carried with the conveyer, a drum journaled on the frame, a binder wound thereon, a hub on which the binder is wound from the drum, and means whereby said binder carries and folds fiber, in conjunction with the chute, and means for rotatably supporting the hub and for adjusting the support, as and for the purpose described.

7. In a broom-making machine, a suitable frame, a hopper and conveyer, a work-shaft for conducting the hopper and conveyer transversely of the frame, feeding mechanism in the hopper, a work-wheel meshing with the work-shaft and means for communicating motion thereof to the feeding mechanism, a spirally-grooved drum, a binder wound thereon, a chute carried with the conveyer, a spirally-grooved hub, adjustable bearings for the hub, means for operating the several parts of the machine and permitting the fiber to be carried down the chute and folded, as and for the purpose described.

8. In a broom-machine a suitable frame, a binder and means whereby the binder operates to convey and fold the fiber.

9. In a broom-machine, a frame, a conveyer, a binder and means whereby the binder carries and folds the fiber.

In testimony whereof I affix my signature, in the presence of two witnesses, this 24th day of November, 1902.

WILLIAM FRANZ.

Witnesses:
JOHN NOLAND,
J. P. APPLEMAN.