

No. 700,078.

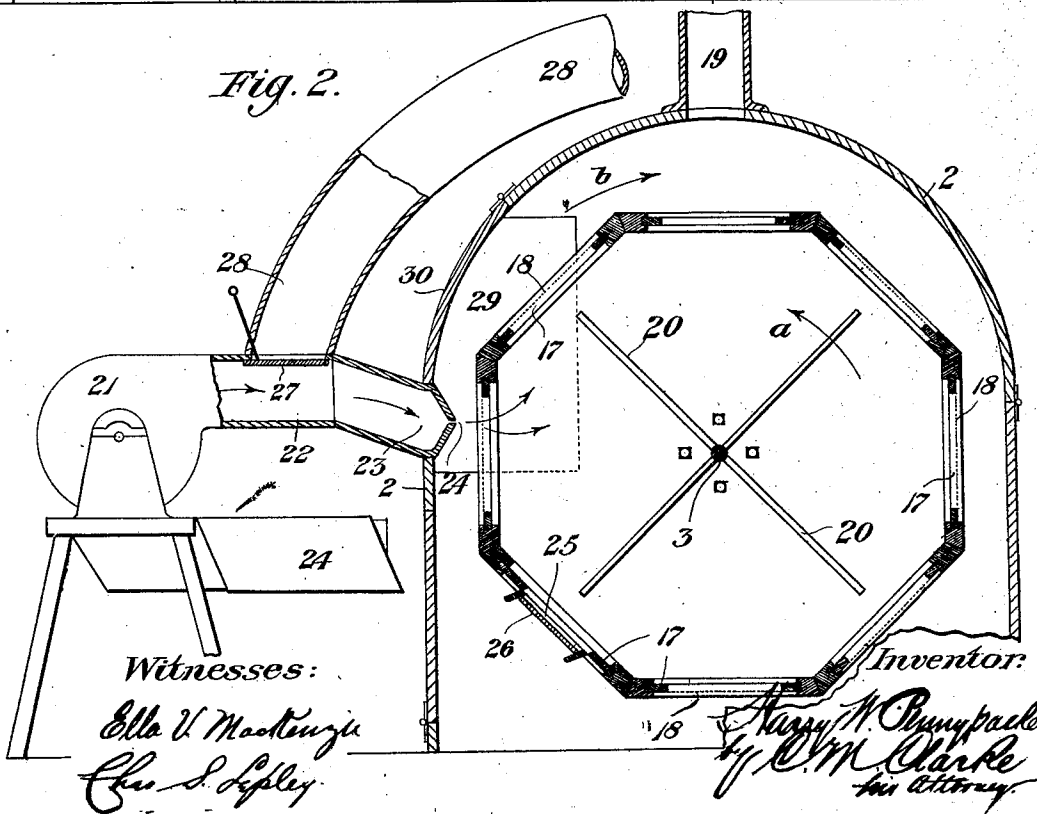
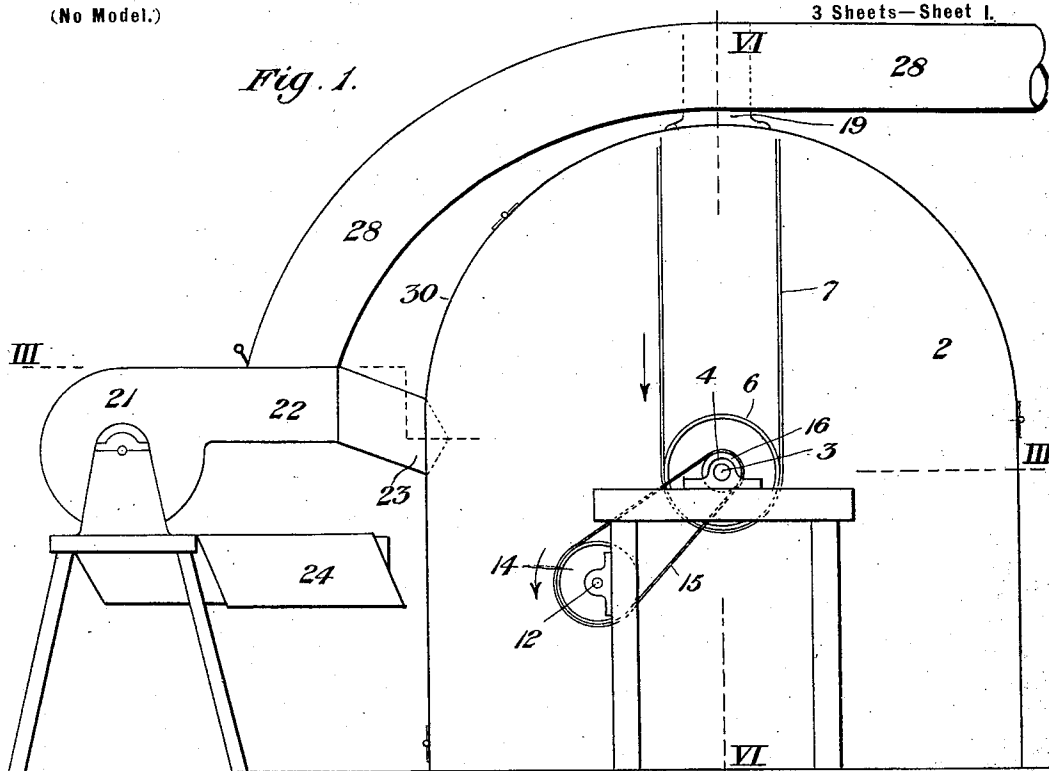
Patented May 13, 1902.

H. W. PENNYPACKER.
FEATHER CLEANING MACHINE.

(Application filed Jan. 8, 1902.)

(No Model.)

3 Sheets—Sheet I.



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Inventor:

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Fig. 3.

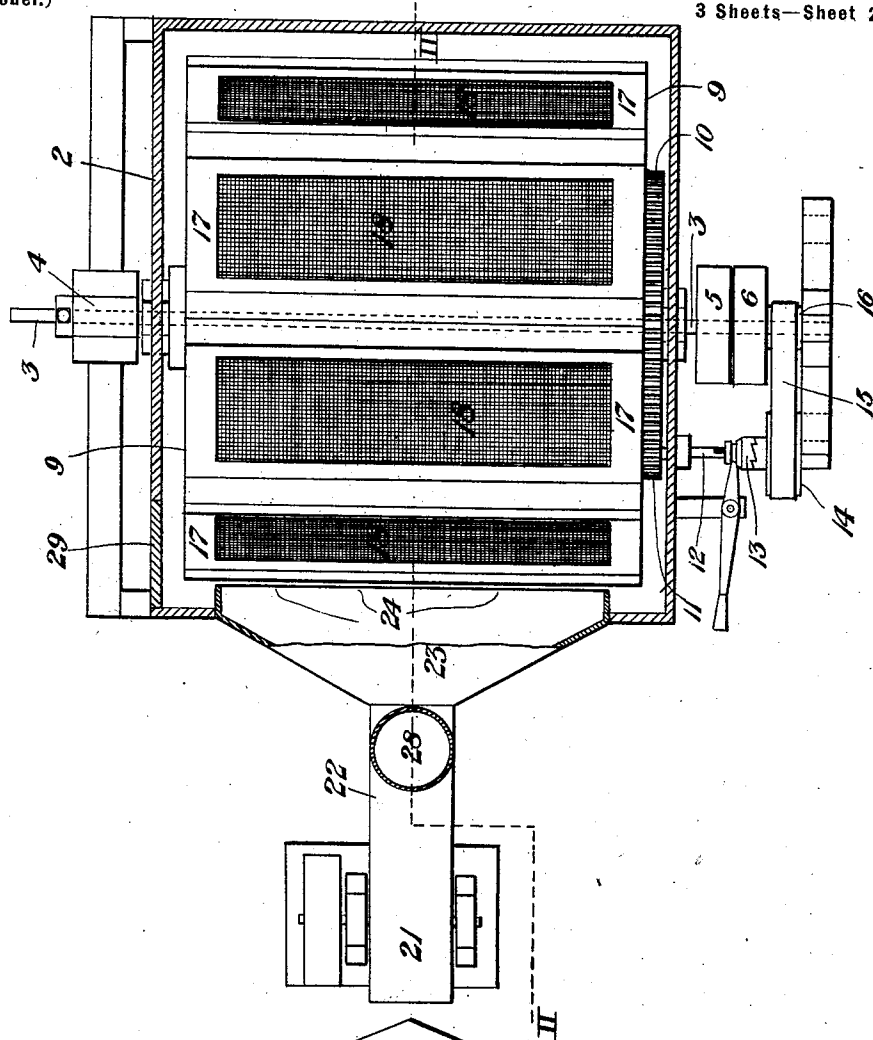
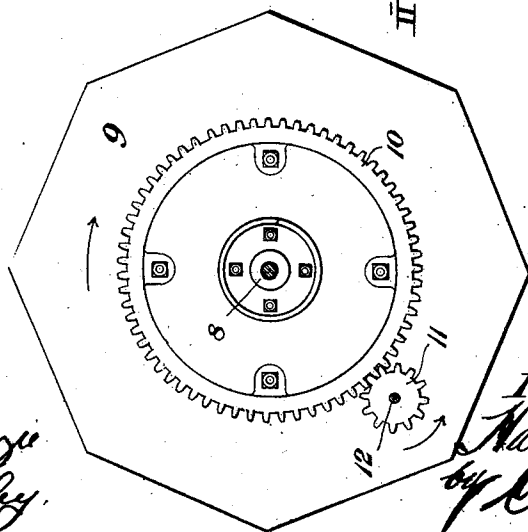


Fig. 4.



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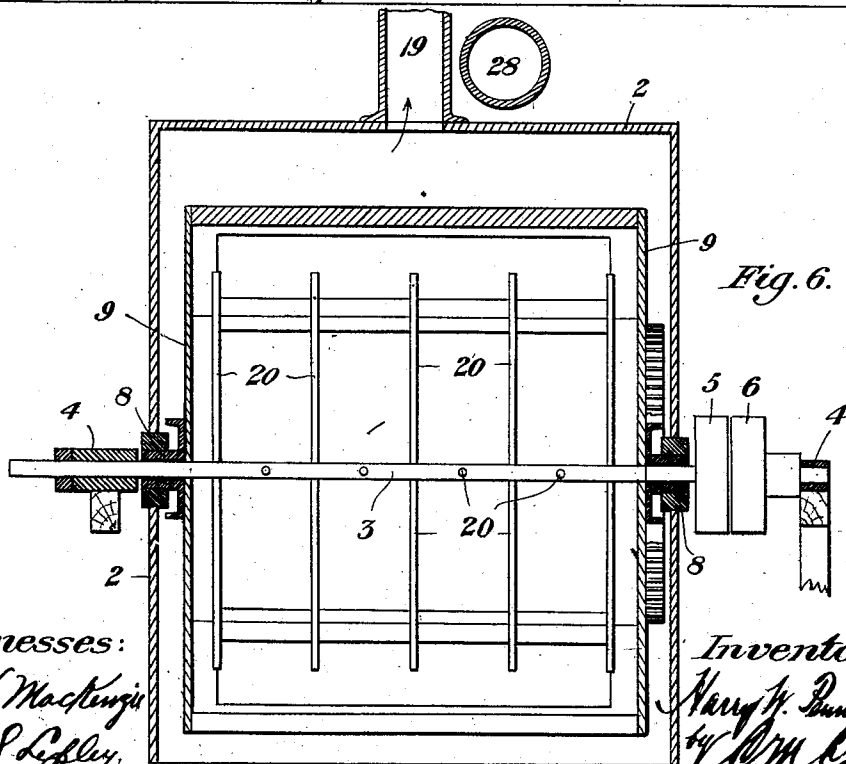
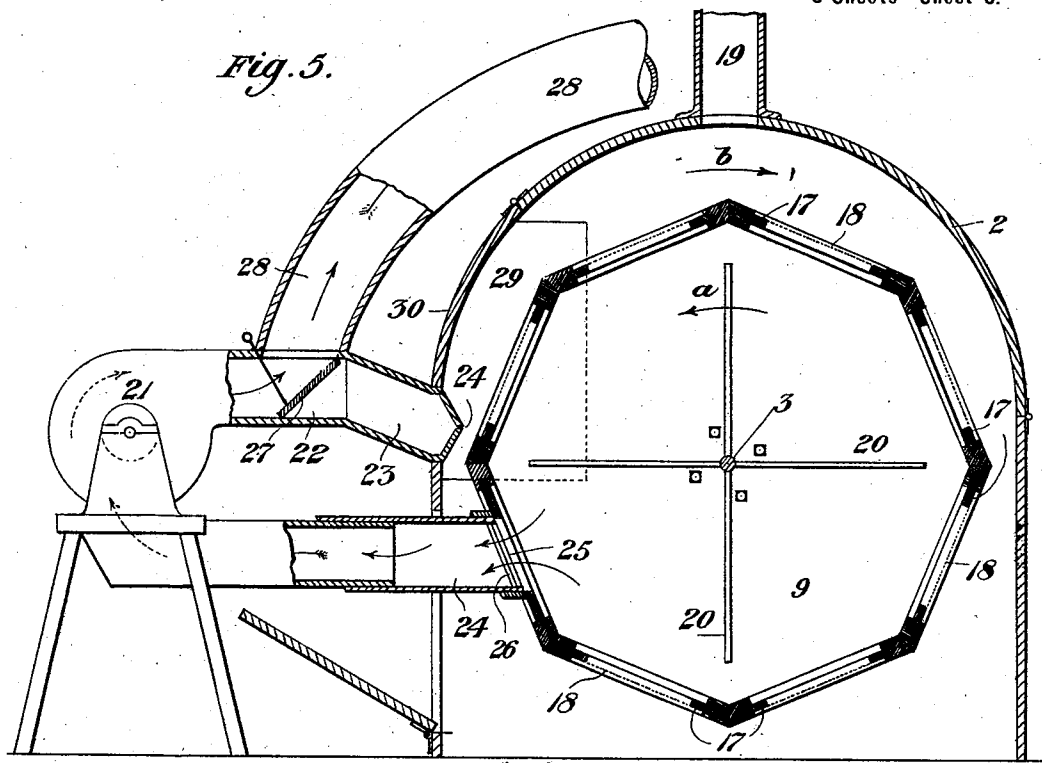
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3 Sheets—Sheet 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

HARRY W. PENNYPACKER, OF ALLEGHENY, PENNSYLVANIA.

FEATHER-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 700,078, dated May 13, 1902.

Application filed January 8, 1902. Serial No. 88,901. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. PENNYPACKER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Feather-Cleaning Machines, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end elevation of my improved feather-cleaning apparatus. Fig. 2 is a cross-sectional view thereof, indicated by the line II II of Fig. 3. Fig. 3 is a plan view, the surrounding case being shown in section, as indicated by the line III III of Fig. 1. Fig. 4 is an end view of the revolving screening-hopper, showing the driving-gear therefor. Fig. 5 is a view similar to Fig. 2, showing the connection with the blower reversed, so as to withdraw the contents of the hopper. Fig. 6 is a vertical sectional view on the line VI VI of Fig. 1.

My invention consists of an improved apparatus for cleaning or renovating feathers or similar material, the objects being to thoroughly agitate and beat the mass of feathers and at the same time to force through them a current of air for the purpose of carrying off the light particles, dust, dandruff, quill-cuttings, &c., so as to leave the feathers in a thoroughly clean condition.

Referring to the drawings, 2 is the surrounding case, made of wood or other suitable material, the upper portion of which is preferably hinged, so that it may be raised up for the purpose of repair, removing, or insertion of any of the interior parts.

3 is a shaft passing centrally through the base from end to end, mounted in suitable bearings 4 4 at each end, which shaft is provided with a tight pulley 5 and a loose pulley 6, by which the shaft may be rotated or not by the belt 7.

Rotatably mounted around shaft 3 by means of bearings 8, secured on each end or head, is a rotating drum 9, upon one end of which is secured a large tooth-wheel 10, adapted to be driven by a pinion 11, mounted upon the inner end of a shaft 12, provided with a clutch 13 in spline engagement with the shaft and adapted to be thrown into gear with a

constantly-running pulley 14, driven by belt 15 from pulley 16, mounted upon shaft 3. By this construction it will be seen that when the belt 7 is upon the tight pulley 5 it will rotate the shaft 3 in the direction opposite that of the drum. The drum is preferably polygonal in cross-section, the construction shown being octagonal, and each side is formed of or provided with a longitudinal removable side 17, provided with a covering of wire or other screen cloth 18, so that as thus constructed the drum will permit of a current of air being passed from the outside of the interior, which current with any suspended particles will re-pass through the screen and be carried outwardly therefrom by the eduction-pipe 19, leading from any portion of the case, preferably the top, to any convenient point of discharge.

The shaft 3 is provided with a series of beater-arms 20, projecting outwardly from it at varying angles, which beater-arms are of sufficient number and length and so located that when the shaft 3 is rotated in the direction of the arrow *a* and when the drum is rotated in the direction of the arrow *b* the contents will be thoroughly intermingled and agitated by the arms, due to such reverse direction.

21 is a blower adapted to force a current of air through the pipe 22 and into the interior of the drum 9, the current of air being delivered in a thin stream along the whole length of the drum by means of a fan-shaped spout 23, terminating in a thin slot 24, which extends for practically the full length of the screen, so that as the drum is rotated each screen in succession will be brought into the plane of the incoming current of air, and such current will pass inwardly through the screens to the interior of the drum, removing the down adhering to the inner sides of the screens, and will thoroughly ventilate and further agitate the contents, then pass out through the screens, carrying with it the dust in suspension, and finally pass out through the eduction-pipe, as already described. After the feathers have been sufficiently blown the apparatus is stopped and the telescoping extension 24, leading to the blower 21, is adjusted upon a suitable opening 25 in one of the screen-sections covered by a slide 26, which is first drawn back, and a hinged door

or slide, constituting a valve 27, is dropped down, closing the pipe 22, leading to the drum, and throwing the blower into communication with a discharge-pipe 28, leading away therefrom to any suitable storage-compartment or point of discharge. The blower is started again and the contents of the drum will be drawn out, as indicated by the arrow in Fig. 5, through the blower and through pipe 28 until the drum has been entirely emptied of the feathers, when it is ready for refilling. Such refilling operation is done by drawing any of the sliding screens through a door 29 at one end of the case and by opening a hinged section or slide 30 of the case or by any other suitable operation which may be arranged.

Any solid matter too heavy to be carried out of the case by the current of air will drop to the bottom underneath the drum and may be removed therefrom from time to time as it accumulates, although I have found in practice that the greater portion of all waste matter, dirt, &c., will be carried outwardly from the case through the eduction-pipe 19.

The speed of the beater-arms is preferably considerably faster relatively than the speed of the drum, and I have found good results in practice from such arrangement of gearing therefor as I have shown and described, although these conditions may be modified or changed to suit varying conditions of use. It is also obvious that the apparatus may be utilized for operating on other substances or material than feathers and that various changes, modifications, or adaptations may be made by the skilled mechanic without departing from the invention, and I do not, therefore, desire to be limited to the exact construction shown and described, but to include all such as within the scope of the following claims.

What I claim is—

1. A feather-cleaning apparatus consisting of an outer surrounding case provided with an eduction-pipe, an inner revolving perforated drum, a series of revolving beater-arms in the interior of the drum, means for rotating the drum and beater-arms in opposite directions, and a blower in communication with the interior of the case, and provided with an adjustable spout adapted to be connected with the drum to withdraw the contents therefrom.

2. A feather-cleaning apparatus consisting of an outer surrounding case provided with an eduction-pipe, an inner revolving perforated drum, a series of revolving beater-arms in the interior of the drum, means for rotating the drum and beater-arms in opposite directions,

and a blower provided with an inlet-conduit leading to the interior of the case, a suction-conduit adapted to communicate with the interior of the drum, a valve, and a discharge-pipe.

3. A feather-cleaning apparatus consisting of an outer surrounding case provided with an eduction-pipe, an inner revolving perforated drum, a series of revolving beater-arms in the interior of the drum, means for rotating the drum and beater-arms in opposite directions, an air-inlet-current conduit leading to the interior of the case, a suction-conduit adapted to communicate with the interior of the drum, a discharge-pipe and means for supplying a current of air to the case and for establishing a suction-current through the suction-conduit and the discharge-pipe.

4. A feather-cleaning apparatus consisting of an outer surrounding case provided with an eduction-pipe, a central shaft provided with laterally-arranged beater-arms, a surrounding drum within the case journaled around said shaft and provided with screen-sections, means for rotating the drum and beater-arms in opposite directions, and a blower provided with a discharge-pipe leading to the interior of the case and a suction-pipe adapted to communicate with the interior of the drum, with a valve-controlled discharge-pipe.

5. In a feather-cleaning machine provided with a revolving drum having a series of screen-covered sections; a slide-covered opening in one of such sections, and a suction-pipe adapted to communicate therewith to establish communication with a discharge-pipe, with means for establishing a suction-current therethrough.

6. In a feather-cleaning machine, the combination of an outer surrounding case provided with an eduction-pipe, an inner revolving drum provided with a series of removable perforated screens, a central shaft provided with a series of radial beater-arms, means for rotating the drum and central shaft in opposite directions and at different speeds, a blowing device communicating with the interior of the case adapted to discharge a current of air against the screens, an opening in one of the screens, and a suction-pipe adapted to communicate therethrough with the interior and adapted to act as an outlet-conduit for the contents of the drum.

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

HARRY W. PENNYPACKER.

Witnesses:

JAS. J. MCAFEE,
C. M. CLARKE.