S. WILLIAMS.
PNEUMATIC FEEDER.
APPLICATION FILED APR. 24, 1917.

1,235,406.

Patented July 31, 1917.

2 SHEETS—SHEET 1.

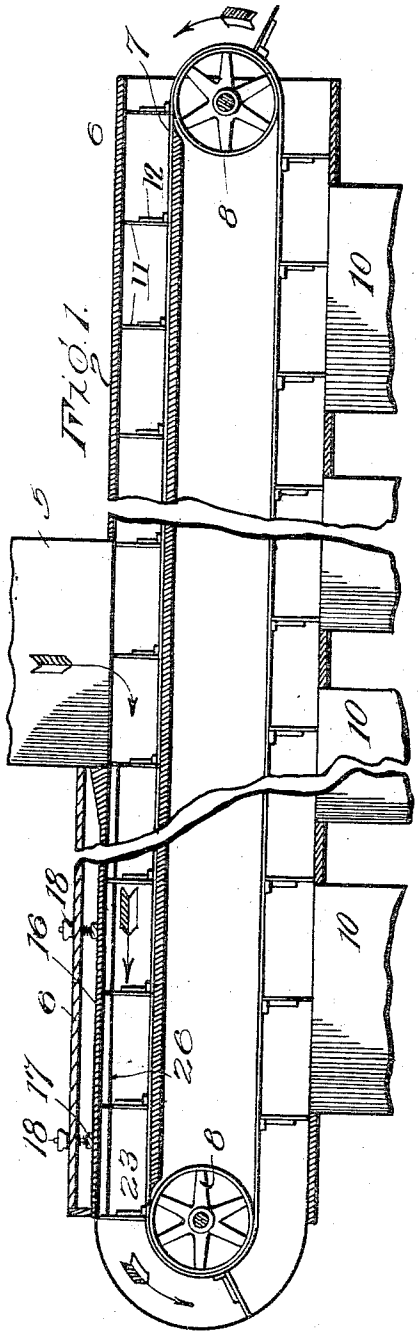

Fig. 1.

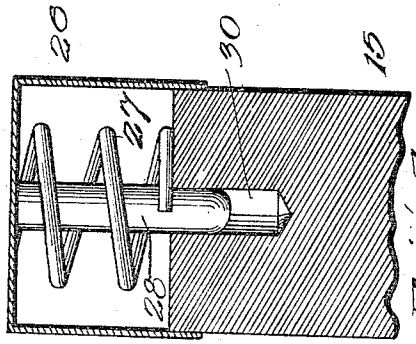

Fig. 4.

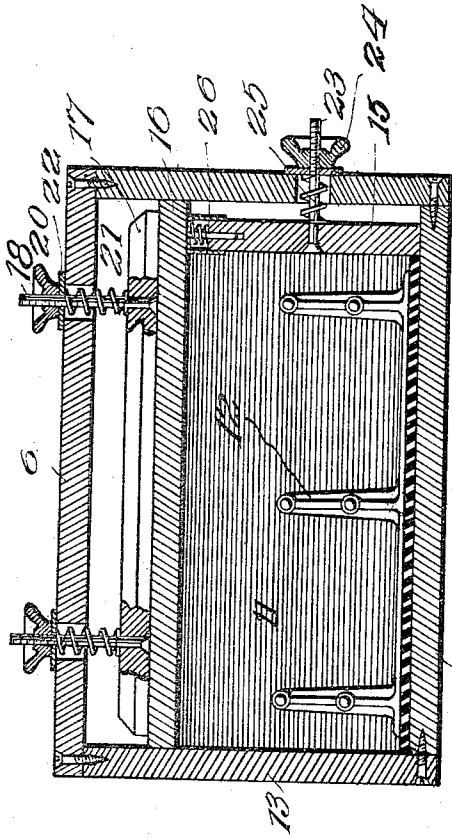

Fig. 2.

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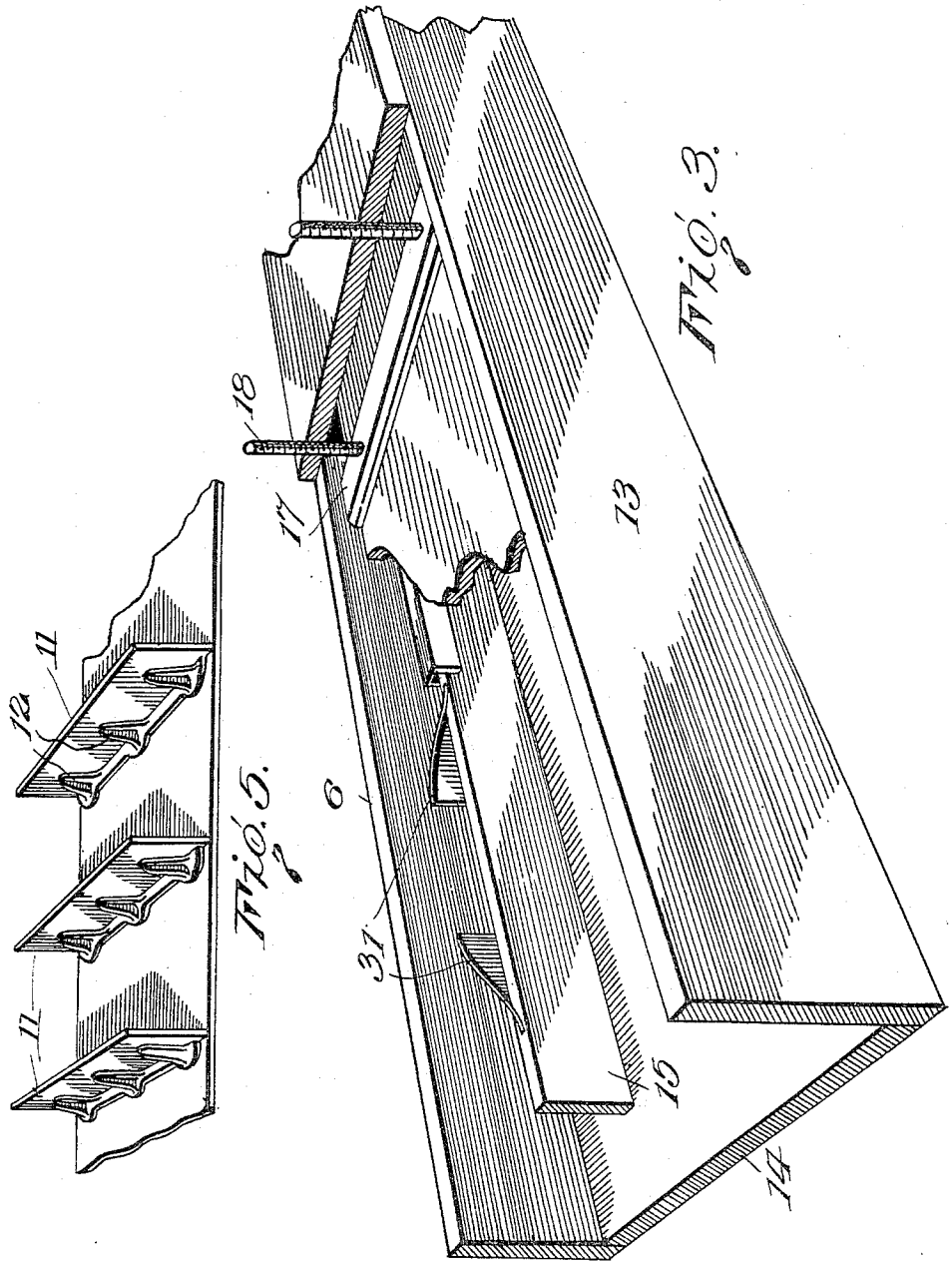

Fig. 3.

Fig. 5.

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PNEUMATIC FEEDER.

1,235,406. Specification of Letters Patent. Patented July 31, 1917.

Application filed April 24, 1917. Serial No. 164,209.

To all whom it may concern:

Be it known that I, SAMUEL WILLIAMS, a citizen of the United States, residing at Elk City, in the county of Beckham and State of Oklahoma, have invented certain new and useful Improvements in Pneumatic Feeders, of which the following is a specification.

This invention relates to pneumatic feeders and more particularly to pneumatic feeders especially adapted for use in connection with cotton cleaners and cotton gins for feeding cotton to or from one or the other as circumstances require.

The invention will be hereinafter described more particularly with its relation to the feeding of cotton from a cotton cleaner, such for example as shown in my prior Patent No. 1,205,585, to a cotton gin.

The cotton cleaner disclosed in my above referred to patent is of the pneumatic type in which air is forced into intimate contact with the cotton for the purpose of cleaning the cotton of refuse and dirt as it passes over a series of screens or the like. It is therefore highly desirable that air should be prevented from entering the apparatus where the cotton is discharged. The device therefore hereinafter disclosed is considered to be applicable to a cotton cleaner of the above referred to type and is positioned adjacent the discharge end thereof or intermediate the cleaner and the cotton gins.

One of the objects of the present invention is to provide a simple and practical pneumatic feeder particularly adapted for the above usage which will be reliable and efficient in use and operation. A further object is to provide a pneumatic feeder of the above general type capable of various adjustments in order to obtain the maximum wear in use of the several parts entering into its construction. A further object is to provide a device of the above character having relatively few parts which will be inexpensive to manufacture and install.

Other objects will be in part obvious from the annexed drawings and in part indicated in connection therewith by the following analysis of this invention.

This invention accordingly consists in the features of construction, combination of parts and in the unique relations of the members and in the relative proportioning and disposition thereof, all as more completely outlined herein.

To enable others skilled in the art so fully to comprehend the underlying features thereof that they may embody the same by the numerous modifications in structure and relation contemplated by this invention, drawings depicting a preferred form have been annexed as a part of this disclosure, and in such drawings like characters of reference denote corresponding parts throughout all the views, in which—

Figure 1 is a partial sectional view of the complete apparatus, showing certain parts more or less diagrammatically;

Fig. 2 is a transverse sectional view of a part of the apparatus shown in Fig. 1;

Fig. 3 is a perspective view of a part of the apparatus with certain parts broken away, or removed in order to show the structure more clearly;

Fig. 4 is a detail sectional view of one of the parts;

Fig. 5 is a fragmentary perspective view of the belt.

Referring now to the drawings in detail and more particularly to Fig. 1, 5 denotes the entrance chute which is adapted to be connected with the discharge opening of a cotton cleaner immediately below the revolving valve, as shown in my previously referred to patent. This feed chute 5 is connected with the central part of a longitudinally disposed casing 6 having upper and lower channels through which an endless belt 7 is adapted to move under the action of feed pulleys 8 at opposite ends of the casing 6. The lower channel or part of the casing 6 is provided with a plurality of discharge chutes 10 leading to other apparatus, such as gins, where the cotton is further treated. The belt 7 is preferably made of rubber or suitable air-tight material and carries at spaced intervals flights 11 of rubber or similar flexible material supported in perpendicular relation thereto by means of lugs or brackets 12. These flights with the belt are adapted to travel in a closed channel, as shown more clearly in Fig. 2. The casing is provided with one fixed side wall 13 and a bottom wall 14. The opposite side wall 15 however is movable transversely with respect to the belt while the top member 16 is also movable or adjustably mounted with respect to the height of the flights or valves 12. This member 16 is supported from cross members 17 which are in turn supported by means of adjustable bolts 18 provided with nuts 20 engaging their threaded ends on the

outside of the casing. A spring 21 surrounds each bolt and acts between the upper part of the transverse member 17 and a fixed plate 22 on the outside of the casing to constantly urge the member 16 downwardly into engagement with the upper edge of the flights 12. The side member 15 is also provided at intervals with bolts 23 provided with nuts 24 and springs 25, so positioned and arranged as to urge the member 15 inwardly against the side edges of the flights 12.

Referring to Fig. 4, it will be noted that the upper part of the member 15 is provided with a channel shaped cap 26 extending lengthwise thereof and normally urged upwardly against the under side of the cover member 16 by means of a coil spring 27 surrounding guide members 28 extending into recesses 30 in the upper edge of the side member 15.

From this construction it will be seen that the movable top and side members of the channel are movable toward the belt and yieldingly held against the adjacent edges of the flights at all times, thus positively preventing any material amount of air being drawn through the channel through which the belt passes to interfere in any way whatsoever with the operation of the cotton cleaner connected with the chute 5.

Referring to Fig. 3 it will be noted that the space between the movable side member 15 and the adjacent parallel wall of the casing 6 is provided with a plurality of flexible partitions 31, thereby to prevent any leakage between these two parts.

It is believed that the construction, method of use and operation of a device of this character is clear from the above description, and a further statement thereof is thought to be unnecessary. It is sufficient to state that the parts are all so positioned and arranged as to reduce to a minimum the amount of air permitted to enter the discharge opening of a cotton cleaner through this pneumatic feeder or distributer. The parts, which are few in number, are simple and practical in construction, which renders the apparatus inexpensive to manufacture and install. It is believed that all of the objects and advantages herein set forth are accomplished by the structure described.

I realize that considerable variation is possible in the details of construction and arrangement of parts without departing from the spirit of my invention, and I therefore do not intend to limit myself to the specific form shown and described.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a pneumatic feeder in combination, a closed channel having an inlet and outlet chute connected therewith, a belt adapted to move through said channel having a series of perpendicular flights of flexible material mounted thereon, said channel having movable top and side walls, and means for yieldingly holding said walls in engagement with each other and in engagement with the edges of the flights.

2. In a pneumatic feeder in combination, a casing having a closed channel in the upper part thereof, inlet and outlet chutes connected with said channel, an endless belt adapted to move through said channel having a plurality of perpendicular flights of flexible material mounted thereon, said channel having a movable top wall, one side of which rests on one of the side walls, means for urging said top wall into engagement with the adjacent edge of the flight, and means for permitting relative movement between the top and side walls without leakage of air between the contacting portions thereof.

3. In a pneumatic feeder in combination, a casing having a longitudinally closed channel, inlet and outlet chutes connected therewith, an endless belt moving through said channel having flights mounted thereon, two of the walls of said closed channel being movable relatively toward and from the adjacent edges of the flights, spring means urging said movable walls into contact with the adjacent edges, and means for varying the degree of pressure with which said movable walls engage the edges of said flights.

4. In a pneumatic feeder in combination, a longitudinally closed casing having a closed channel therein formed by two walls of the casing, and two auxiliary walls within the casing, a belt having perpendicular flights movable in the closed channel, and means acting between the stationary walls of the casing and the auxiliary walls for urging the latter into engagement with the edges of the flights.

5. In a pneumatic feeder in combination, a longitudinally closed casing having a closed channel therein formed by two walls of the casing and two auxiliary walls within the casing, a belt having perpendicular flights movable in the closed channel, means acting between the stationary walls of the casing and the auxiliary walls for urging the latter into engagement with the edges of the flights, and means permitting relative movement of one of the movable walls with respect to the other adapted to prevent leakage of air between the adjacent contacting portions of said movable walls when such movement takes place.

6. In a pneumatic feeder in combination, a longitudinally closed casing having a closed channel therein formed by two walls of the casing and two auxiliary walls within the casing, a belt having perpendicular flights movable in the closed channel, means

acting between the stationary walls of the casing and the auxiliary walls for urging the latter into engagement with the edges of the flights, and means for closing the space between one of the movable walls and the adjacent stationary wall of the casing to air currents passing therethrough.

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

SAMUEL WILLIAMS.

Witnesses:
AMOS WILLIAMS,
A. R. LA MARCHE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."