

No. 611,384.

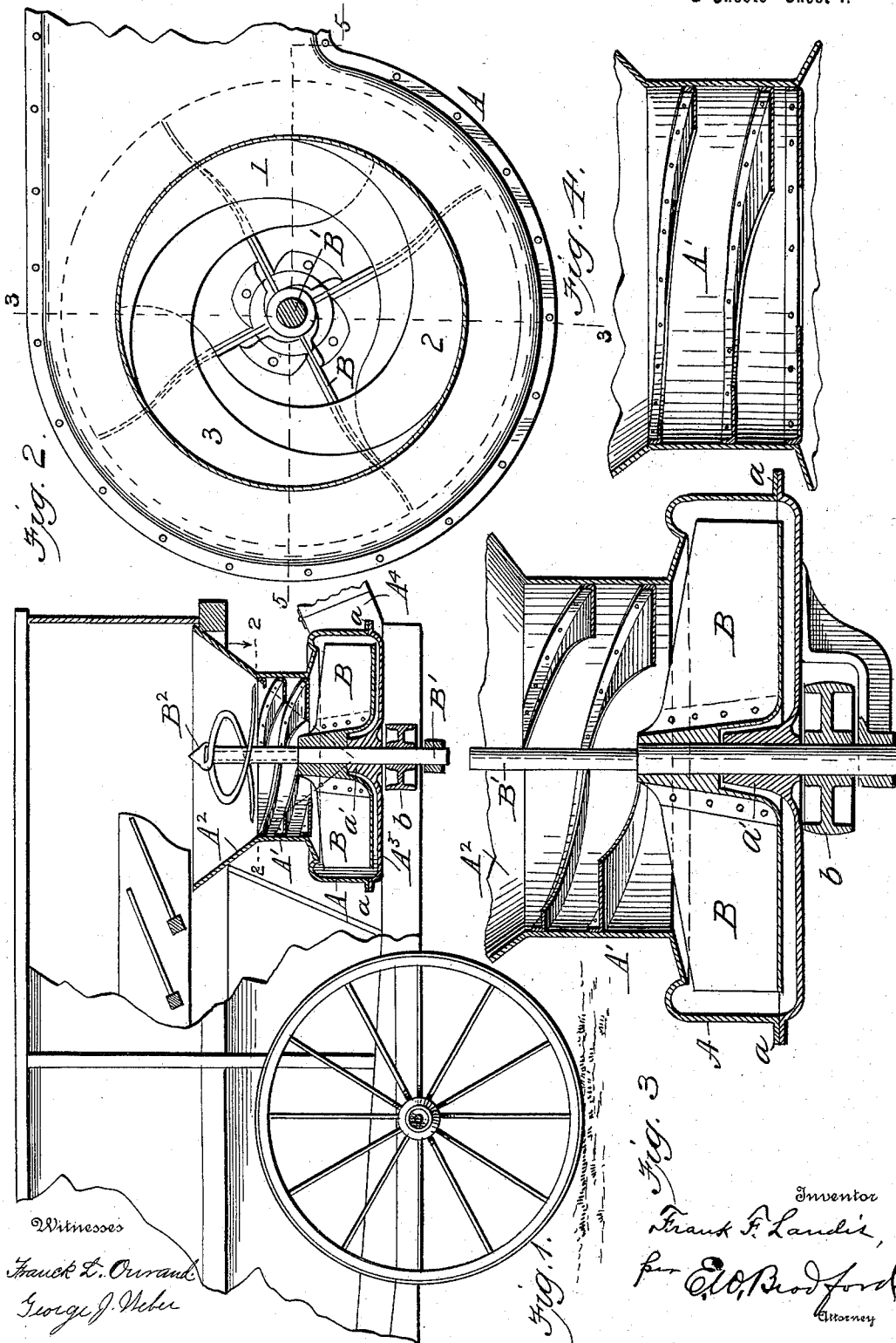
Patented Sept. 27, 1898.

F. F. LANDIS.
PNEUMATIC STACKER.

(Application filed Apr. 12, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 6.

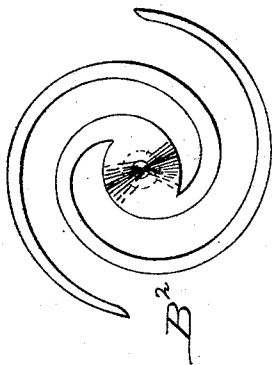
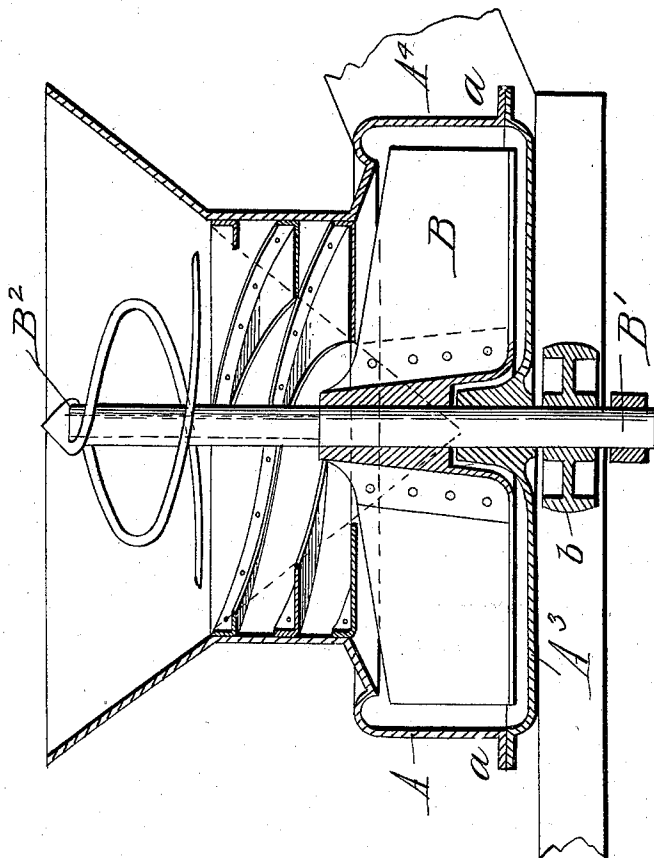


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK F. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 611,384, dated September 27, 1898.

Application filed April 12, 1898. Serial No. 677,381. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following is a specification.

My said invention relates to an improved construction of the entrance to the casing of the discharger-fan of a pneumatic stacker, whereby the straw is drawn toward the center in entering said casing, while the area of said entrance is maintained throughout its height of the full area of the top portion thereof, and said straw is given a spiral and whirling motion in the same direction as that of the fan-blades, thus preventing said blades from cutting and breaking it as they come in contact therewith, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part thereof, and on which similar letters and figures of reference indicate similar parts, Figure 1 is a side elevation of a rear end of a threshing-machine separator, showing a discharger-casing provided with my improvements, in central vertical section, attached thereto; Fig. 2, a horizontal section looking downwardly from the dotted line 2 2 in Fig. 1; Fig. 3, a transverse vertical section through the discharger-casing on a somewhat larger scale on dotted line 3 3, Fig. 2. Fig. 4 is a similar view showing modified form of entrance to said discharger; Fig. 5, a view similar to a portion of Fig. 1, on an enlarged scale, made on dotted line 5 5, Fig. 2; and Fig. 6, a plan view of the part B².

In said drawings the portions marked A represent the casing of the discharger-fan, and B said discharger.

It will be understood, of course, that the invention relates solely to the discharger and that the threshing-machine separator is only shown to illustrate a preferred location of said discharger in relation thereto and may be of any construction desired. It will also be understood that while I have shown the discharger especially adapted to a pneumatic straw-stacker, yet the improved form of entrance may be used with any form of fan-casing and for any purpose where it may be

found suitable without departing from my said invention.

The fan-casing consists of the part A, which immediately surrounds the fan, the part A', which is a cylindrical neck extending a distance from the eye of the casing proper and of the same diameter as said eye, (or it may be larger at the outer end,) and the hopper-like upper portion A² on the top of said part A' to receive the straw as it comes from the machine. As shown, said parts A, A', and A² may be formed integrally from sheet metal, or they may be built up in any manner desired. The part A is preferably formed with a flange or ears *a* around its lower edge, which by means of bolts or rivets are secured to similar formations on the edge of plate or disk A³, which forms the closed end of the discharger-casing and has a bearing *a'* for the discharger-shaft at its center. The pneumatic conveyer or stacker tube A⁴ extends out from one side of the casing A in the usual manner. The casing as a whole is mounted on the separator-frame as shown or in any approved manner or relation thereto.

In the cylindrical portion A' at the entrance to the discharger I have shown three spiral webs 1, 2, and 3, which start at the top of said portion in such relation to each other as to be best adapted to receive the straw from the machine, being shown equidistant, and extend in a spiral direction to the bottom thereof, widening from a point at the top to a width equal to about one-fourth the diameter of said portion at the bottom. By this means about three-fourths of the direct vertical opening is covered while the full area is open for the passage of the straw in a spiral path. The direct vertical entrance or passage is only about half the diameter at the bottom as at the top, (see dotted lines in Figs. 1 and 5,) and thus while the straw is not crowded through a narrow opening because of the peculiar form of the web yet it is directed toward the center of the discharger, where the velocity of the blades is the least, while all liability of choking the entrance is avoided. At the same time it is given a whirling motion in the same direction as that of the discharger, acquiring substantially the same velocity as the portions of its blades between which it enters, and

thus all liability of said blades breaking and disintegrating said straw is obviated and the discharger is given the straw under momentum in the proper direction, so that it is enabled to handle it with less difficulty and the expenditure of less power. While I have shown three of these spiral webs, it will be understood that this number is not essential to the success of the invention. Four, two, or even one might be used and the purpose of the invention be accomplished, or other numbers, as found desirable.

In Fig. 4 I have shown the part A' of the casing provided with a single spiral web, its lower end making a substantially complete circle at the bottom of said part. It will be readily seen that such a form may be used, although I regard the form shown in the principal views preferable.

The fan B consists of a hub with radial wings mounted on a vertical shaft B', which is journaled in the bearings a' and is provided with a pulley b, by which power may be applied to drive it. The form of said fan is not essential, and it may be this or any other form found desirable. Said shaft B' preferably extends through to within the hopper A² and on its end has a double spiral pronged reel B². The prongs extend in a spiral direction to near the part A' and serve to gather the straw as it is being fed into the hopper and give it a positive inward whirling motion before it enters said part, thus assisting the operation materially. Said reel may be dispensed with, if preferred, as in most work it is not needed, but in some it may be found very desirable, cooperating effectually with the spiral wings in accomplishing the object of the invention.

From the foregoing description the operation of the invention will be readily understood. The machine being in operation, the straw as it comes into the hopper from the thresher is drawn inward by the suction of the discharger-fan and is caught by the pronged reel and given a whirling spiral momentum, which is increased in its passage through the part A', the spiral webs therein not only imparting such direction, but also directing it toward the center of the discharger, where it is received by said discharger-fan and impelled outward through the stacker-tube in the usual manner, the straw being preserved in a whole condition and handled much more

easily and smoothly as a result of said improvements, as described.

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

1. A fan-casing having an entrance with an internal spiral web around the same, which increases in width from its outer to its inner end, substantially as set forth.

2. A fan-casing having an entrance formed with its cross area partly covered by a spiral web tapered in width from a narrow portion at its outer end to a wider portion at its inner end, substantially as set forth.

3. A fan or discharger casing formed with a cylindrical portion around its eye in which spiral webs are mounted, said webs being tapered from the outer end of said portion to greater width at its inner end, substantially as set forth.

4. A fan or discharger casing for pneumatic stackers having a cylindrical portion around its eye having spiral webs which start from narrow points at their outer ends at the outer end of said portion to wider inner ends at the inner end of said portion, whereby the material in passing through said portion is given both a spiral whirling motion and a motion toward the center of the discharger, substantially as set forth.

5. The combination, in a discharger for pneumatic stackers, of the casing, the receiving-hopper thereof, the spiral web on the neck of said hopper, the fan-shaft extending through said casing into said hopper, the fan within the casing, and the double-pronged spiral reel on the outer end of said shaft in said hopper, substantially as set forth.

6. The combination, in a discharger for pneumatic stackers, of the casing, the receiver therefor, the fan, the fan-shaft extending to within said receiver, the spiral reel on said shaft, and internal spiral webs below said reel extending to the eye of the fan-casing, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Waynesborough, Pennsylvania, this 30th day of March, A. D. 1898.

FRANK F. LANDIS. [L. S.]

Witnesses:

T. S. CUNNINGHAM,
E. W. BRADFORD.