V. N. PERRY.

PNEUMATIC STRAW STACKER.

APPLICATION FILED SEPT. 2, 1914.

**1,226,588.**

Patented May 15, 1917.

3 SHEETS—SHEET 1.

Fig. 1.

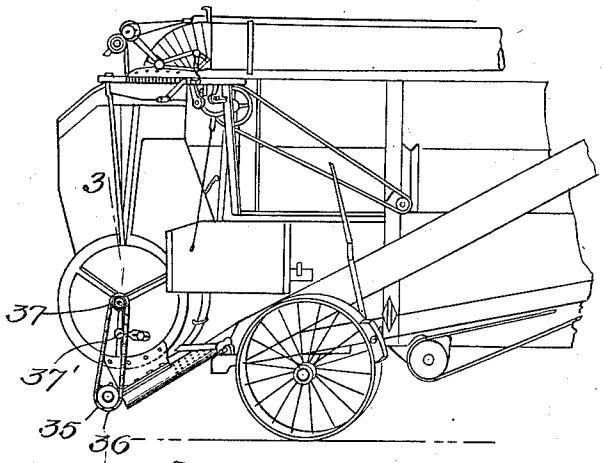
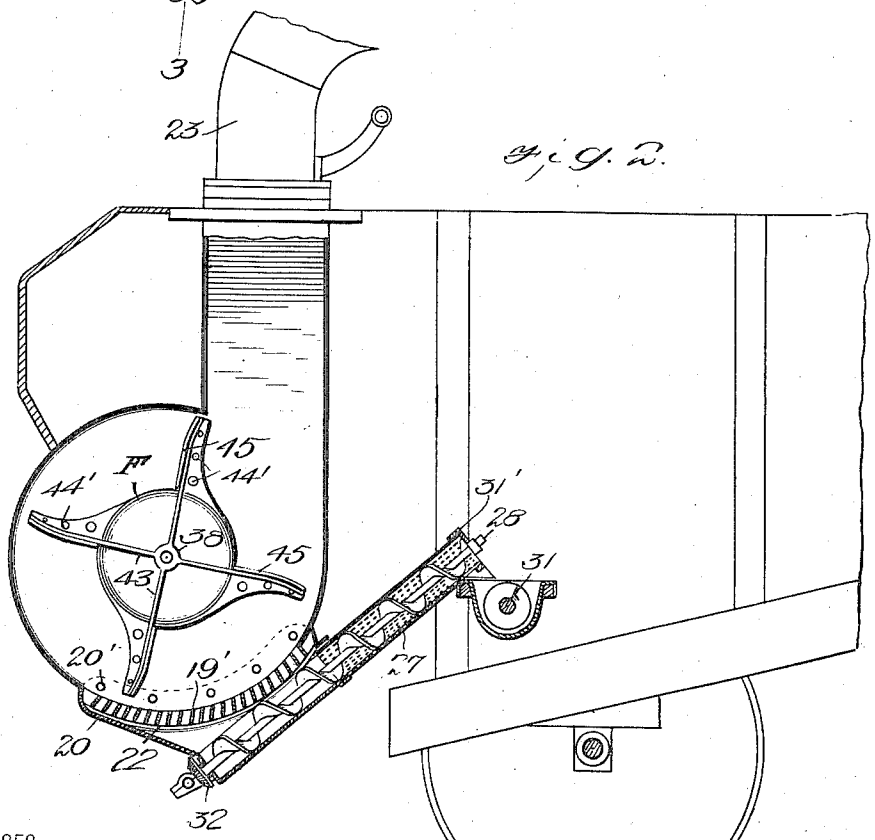



Fig. 2.




WITNESSES

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3 SHEETS—SHEET 2.

Fig. 3.

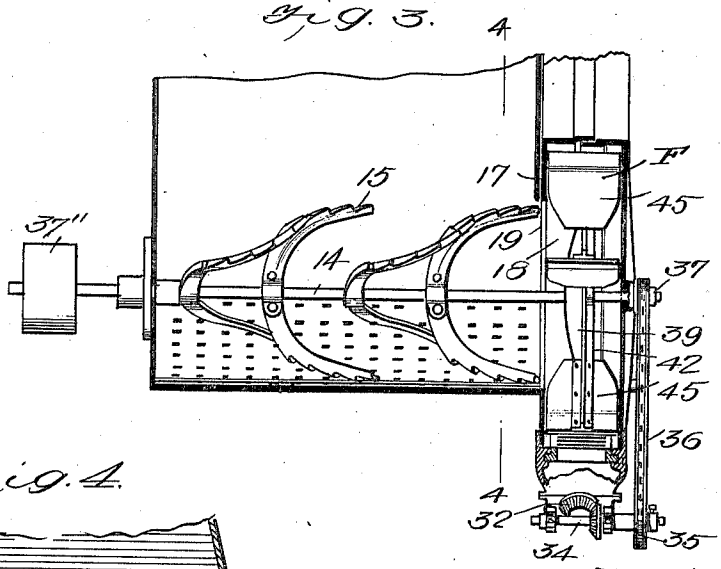



Fig. 4.

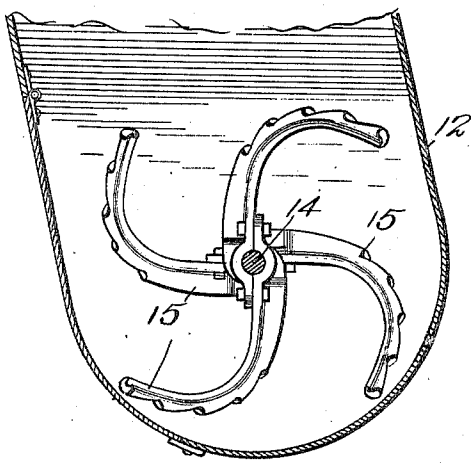



Fig. 5.

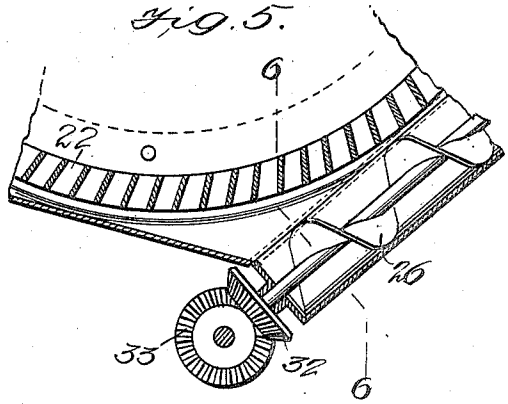



Fig. 7.

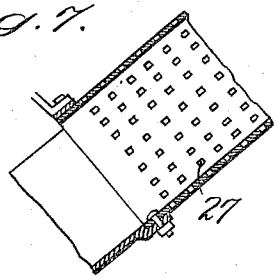
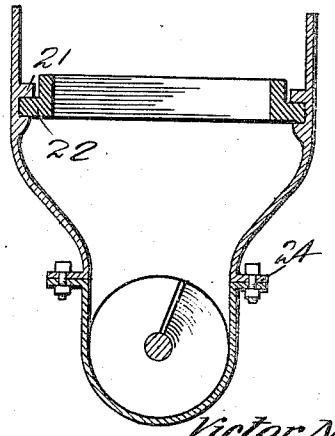



Fig. 6.




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3 SHEETS—SHEET 3.

Fig. 8.

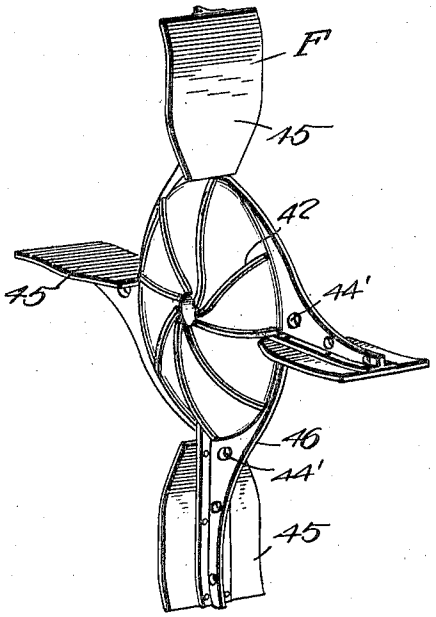



Fig. 9.

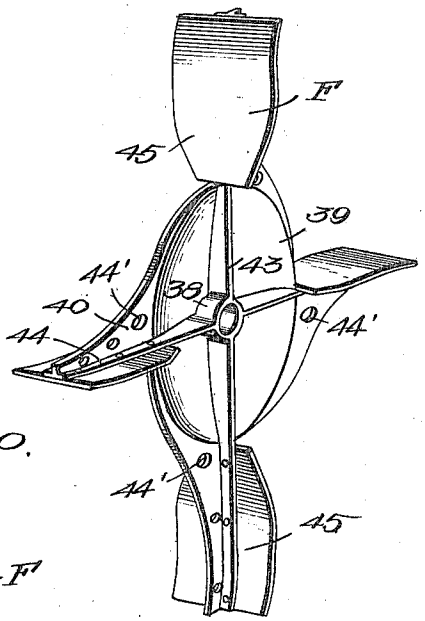



Fig. 10.

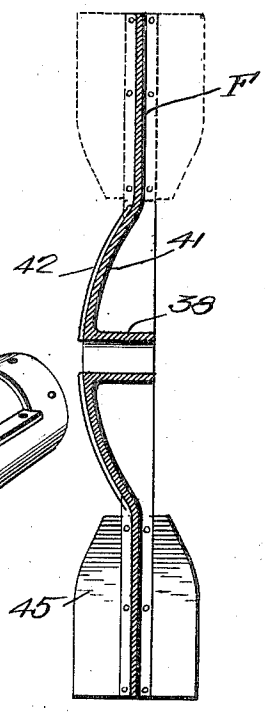



Fig. 11.

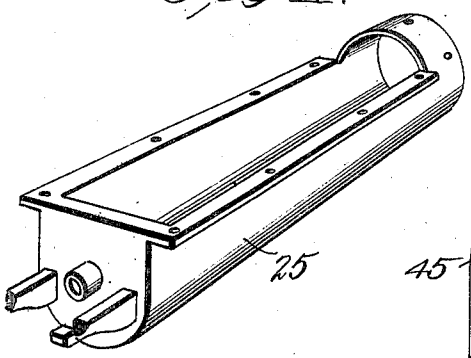
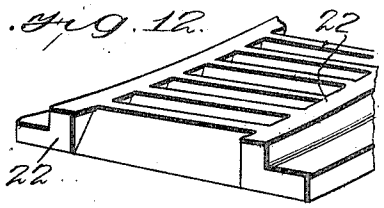



Fig. 12.



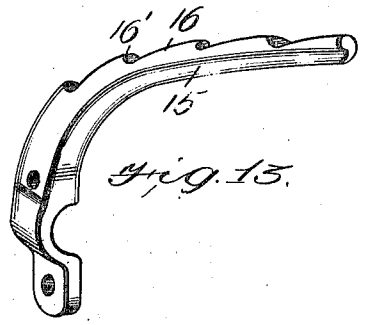




Fig. 13.

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# UNITED STATES PATENT OFFICE.

VICTOR N. PERRY, OF BATAVIA, NEW YORK.

## PNEUMATIC STRAW-STACKER.

1,226,588. Specification of Letters Patent. Patented May 15, 1917.

Application filed September 2, 1914. Serial No. 859,800.

*To all whom it may concern:*

Be it known that I, VICTOR N. PERRY, a citizen of the United States, and resident of Batavia, in the county of Genesee and State of New York, have made certain new and useful Improvements in Pneumatic Straw-Stackers, of which the following is a specification.

This invention relates to improvements in pneumatic straw stackers.

An object of the present invention is to provide a hopper with conveying means adapted to deliver straw to a fan casing with the grain separated and loosened from the straw and with the heads or pods thereof torn open and in proper condition to be threshed within the fan casing, all of which is accomplished by the provision of novel serrated conveying arms.

A further object is to provide an elevating fan, for the straw, of novel and advantageous construction, particularly efficient in the treatment and separation of the straw and accompanying ingredients such as grain, weed seeds, etc.

A further object is to provide the fan casing with a lower grated opening through which the grain and allied foreign material accompanying the straw may pass, the grate bars being inclined at an angle corresponding to the direction of movement of the straw, thus preventing the grate from being choked or stopped up thereby and allowing the fan blades to remove the chaff from thereabove.

The above mentioned features coact to form a straw stacker of marked efficiency in use, one that will separate the weed seeds from the grain and straw, thus preventing the reoccurrence of the weeds.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings accompanying this specification and forming a part thereof, the preferable form of the invention is illustrated.

In said drawings:

Figure 1 is a view in side elevation of the rear portion of a pneumatic straw stacker embodying my invention.

Fig. 2 is a view in longitudinal section of the pneumatic fan and contiguous parts,

Fig. 3 is a view in longitudinal section of the conveying hopper and discharging fan,

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3,

Fig. 5 is a fragmentary view in section of the lower outlet portion of the fan casing with the grate and grate housing secured thereto and with the conveyer located therebeneath,

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5,

Fig. 7 is a detail view in section of the conveyer casing illustrating the juncture between the trough-like portion and the cylindrical screen portion thereof,

Fig. 8 is a view in perspective of the fan looking at the convex face of the web,

Fig. 9 is a similar view looking at a concave face of the web,

Fig. 10 is a view in section of the fan,

Fig. 11 is a view in perspective of the lower trough-like portion of the conveyer casing,

Fig. 12 is a view in perspective of one of the grate sections,

Fig. 13 is a view in perspective of a conveying arm illustrating its outer serrated edge with sharpened or pointed teeth.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, the straw stacker includes many features of the usual design and construction necessary to the proper operation thereof but which are not treated in detail in the present description. With this in mind, attention is called to the hopper 12, open at its upper extremity and with the bottom wall provided with a multiplicity of perforations through which the weed seeds and dirt or foreign material may pass. A shaft 14 extends centrally through the hopper and is provided with the conveying or beating arms 15 rigidly secured thereto.

The arms 15 are arranged in pairs projecting to opposite sides of the shaft in a helical manner and are provided with outer serrated or toothed edges 16. The teeth terminate in the sharpened points 16′, which tear open the partly threshed heads or pods of the grain which thus prepare it for its

further treatment within the fan casing 18 with which the hopper communicates.

The end walls 17 of the hopper constitute one of the sides of the fan casing and through which the inlet opening 19 extends allowing the material from the hopper to be discharged directly into the fan casing. A fan F is mounted upon, so as to be rotated by the shaft 14 and is disposed eccentrically within the fan casing to effect the desired discharge of straw into the spout 23 and promote its subsequent discharge therefrom.

The lower portion of the fan casing is provided with the opening 19′ serving as an outlet for the grain and around which opening extends the grate casing or housing 20. This housing, which is secured to the casing by the rivets 20′ or allied means, is provided with the arcuate grooves 21 extending along the side walls and in which the grate sections 22 are disposed. These sections include the spaced bars which are tilted in a direction such that their upper extremities point in a direction similar to that of rotation of the fan wheel. This prevents the straw from being packed down between and choking the grate bars and also provides that the chaff will be removed from the grate bars and carried along with the straw into the discharge spout 23. The lower extremity of the grate housing is provided with the flanges 24 to which the lower open end of the conveyer trough 25 is secured. Thus the material passing through the grate falls within the conveyer tube and upon the rotating conveyer proper 26 by means of which it is conducted to the tailings conveyer 31. The upper extremity of the shaft 28 which forms a part of the conveyer proper is supported by the open bearings 31′ which allows the material to be discharged from the conveyer 25 into the tailings conveyer 31, as described. The upper extremity of the conveyer trough is formed as a circular screen 27, thus effecting a separation of the material into its various ingredients as it passes through the conveyer. It is to be noted in this connection that suitable means may be provided whereby the material as it passes through the circular screen is recovered.

The lower extremity of the shaft 28 is provided with the bevel gear 32 meshing with and driven by the bevel gear 33, the latter being fixedly mounted upon a jack shaft 34. Motion is imparted to the jack shaft 34 through the instrumentality of the sprocket wheel 35, and sprocket chain 36, the latter extending around a sprocket wheel 37 fixedly mounted upon and rotated by the shaft 14 which projects through the fan casing. A suitable idler gear or wheel 37′ engages the sprocket chain and maintains the same in operable condition. The remote end of the shaft 14 is provided with the belt wheel 37″ to which motion is imparted from any suitable source.

The fan wheel F by means of which the straw is treated and upon whose efficient operation the success of the entire machine, to a large degree, depends, includes the hub 38 from one extremity of which projects the concave-convex web 39. Projecting radially from the web 39 are the segmental, plane, paddle supporting brackets 40 to the gently curved front edges 44 of which the paddle blades 45 are secured. These brackets are each provided with a plurality of apertures 44′ which do not impair their rigidity or strength and at the same time materially reduce the weight thereof. The convexed face 41 of the web, which is the face directly adjacent the opening 19 in the fan casing and hopper has the spiral vanes 42 extending therealong, the curvature being in a direction opposite to that of rotation of the fan, to thus provide for the proper discharge of the straw and accompanying material from the fan casing. These vanes move the material into the path of motion of the paddle blades as will be readily appreciated.

The concaved face of the web is provided with a number of radially extending strengthening ribs 43 which continue beyond the web periphery and out along the front edges of the paddle brackets, thus materially strengthening the same and providing flanges 43 to which the paddle blades may be securely riveted. The rear edges 46 of the brackets project for a considerable distance in the rear of the paddle blades and thus prevent the straw from becoming wound therearound and at the same time providing for the proper and rigid support of the paddle blades. The straw thus striking the low spirally radiating vanes along the convexed face of the web is thrown outwardly and prevented from becoming wound around the fan hub or shaft 14 to which the former is rigidly secured.

The perforated hopper by separating the dirt and allied foreign material from the straw, renders it bright and clean and provides for its easy conveyance to the fan casing. Thus the grain will reach the fan casing in a proper condition which is insured by the pointed and angularly disposed teeth of the distichous helically bent arms, the number of which may be varied as circumstances may dictate. The grain and accompanying material having reached the fan with the heads or pods of the grain in a torn or partly open condition, will be properly threshed therein and separated, straw being delivered into the discharge spout 23 and the grain passing through the grate sections onto the conveyer. Marked economy will thus be obtained in the proportion of grain

recovered and placing it in a proper condition for its subsequent treatment.

Having thus fully described my invention what I claim is:—

1. In an apparatus of the class described the combination of a hopper, a fan casing forming one end wall thereof and communicating therewith, a fan eccentrically disposed within said casing, an outlet spout communicating with said casing, a grate housing carried by and disposed at the lower portion of said fan casing, a grate disposed within said housing with the grate bars tilted in the direction of rotation of the fan, a conveyer carried by said housing disposed below said grate and receiving material therefrom, and a cylindrical screen forming the upper extremity of said conveyer.

2. A straw stacker comprising a hopper with endwise conveying means disposed therein, a fan and casing disposed at one end of and communicating with said hopper, said fan casing provided with an outlet at its lower portion, an arcuate grate projecting across said opening and preserving the continuity of said fan casing with the bars thereof inclined in the direction of rotation of the fan, and a conveyer with perforated side walls disposed below and receiving material from said grate.

3. A separator and discharger for pneumatic stackers comprising a fan casing with a lower grain discharging outlet, a spout communicating with the upper portions thereof, a fan mounted eccentrically within said casing, a grate housing carried by and encompassing the outlet opening of said casing, a grate provided with bars inclined in the direction of rotation of the fan, disposed thereon and arranged along the arc of a circle preserving the continuity of the fan casing, the lower extremity of said grate housing provided with an opening extending therealong, and an open ended conveyer carried by said grate housing receiving material therefrom.

4. A grate housing for fan casings comprising spaced side members with arcuate grooves extending therealong, grate sections having inclined bars disposed within said grooves, the lower edges of said side members outwardly flared, and a conveyer trough with a flanged open top secured thereto.

5. In a separator and discharger for pneumatic stackers, the combination of a fan casing having a discharge spout communicating therewith and having a grain discharge outlet located in the floor of the fan casing, means for feeding material directly into the fan casing, a fan mounted eccentrically within the fan casing, a grate housing carried by the fan casing and encompassing the grain discharge opening thereof, a grate carried by the housing immediately below the fan forming a portion of the floor of the casing and arranged along the arc of a circle preserving the continuity of the fan casing, the lower portion of said grate having an opening, and a conveyer secured to the grate housing, and including a casing having an opening registering with the opening in the grate housing.

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Witnesses:
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EVERETT M. SALMON.