

UNITED STATES PATENT OFFICE.

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THRESHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 772,402, dated October 18, 1904.

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To all whom it may concern:

Be it known that I, FRANKLIN M. CARTER, a citizen of the United States, residing at Haskins, in the county of Wood and State of Ohio, have invented a new and useful Threshing-Machine, of which the following is a specification.

This invention relates to threshing-machines and grain-separators, and it has particular reference to the threshing-cylinders of this class of machines.

The object of the invention is to promote the separation of the grain from the straw at a very early stage, or, in other words, as soon as possible after the mass of material has been subjected to the combined action of the cylinder and concave. It is well known that at this stage the greater portion of the grain is naturally separated from the straw and escapes either through openings in the concave or is otherwise directed downwardly into receiving means provided therefor; but in threshing-machines of ordinary construction a relatively large portion or percentage of the grain is carried along with the straw and has to be gradually and comparatively slowly separated therefrom by various means, the assemblage of which within a single casing requires the latter to be large and unwieldy.

To overcome these and other disadvantages and to effect an early and thorough separation of the grain from the straw the present invention consists in the arrangement interiorly of the threshing-cylinder of a fan connected with and driven by the cylinder-shaft and surrounded by a casing provided with an outlet whereby the current set up by the fan may be discharged in the desired and most profitable direction.

The invention further consists in providing guiding and agitating means for the straw, which is discharged between the cylinder and the concave.

The invention further consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been

illustrated a simple and preferred form of embodiment of the invention, it being understood, however, that various changes, alterations, and modifications may be made, especially with regard to size, proportion, and exact manner of assemblage when such changes are fairly within the scope of the invention, and may be resorted to without departing from the spirit or sacrificing the utility of the same.

In said drawings, Figure 1 is a longitudinal vertical sectional view showing as much of a threshing-machine as is necessary to illustrate the invention. Fig. 2 is a plan view showing the front part of the machine with the deck removed.

Corresponding parts in both the figures are indicated by similar numerals of reference.

The frame of the machine, which is designated 1, supports in the usual manner the concave 2 and the shaft 3, carrying the cylinder 4, which latter is of the usual well-known open-work construction. Securely connected with the shaft 3 are arms 4^a, carrying fan-blades 5, said arms and blades constituting a fan, which is obviously mounted for rotation with and by the shaft 3.

6 designates the fan-casing, which is cylindrical in shape and which is fitted within the cylinder 4. Said fan-casing is provided with heads or ends 7, having hubs 8, which loosely engage the shaft 3, upon which the casing is thus suspended. Said casing is provided with a slit or opening 9, and to the said casing is exteriorly connected a weight 10, whereby said cylinder is sustained non-rotatably upon the shaft 3. The weight 10 may be provided with attaching means, such as set-screws 11, whereby it may be adjusted with relation to the slit or opening 9, so that the latter may be faced in the desired direction. The hubs 8 are provided with lubricators 12 for the purpose of supplying the lubricant to the bearings in order to prevent the fan-casing from being carried around by the rotation of the shaft upon which it is suspended.

Suitably disposed directly behind the rear or discharge edge of the concave are rockshafts 14 15, the latter being disposed slightly in rear of and above the former, said rock-

shafts being provided with downwardly-extending arms 16, connected by pitmen 17 with cranks 18 upon a driven shaft 19, whereby oscillatory motion may be conveyed to the rock-shafts. While the operating means have been indicated, it is to be understood that any suitable well-known means may be employed for operating the rock-shafts 14 and 15. The latter are provided with upwardly and rearwardly extending curved fingers 20 and 21, which extend upwardly in the direction of the inclined deck 22 of the machine. The front rock-shaft is provided with forwardly-extending arms 23, carrying a shield or deflector 24, which extends downwardly in the direction of the separating-rack 25, which is disposed underneath and which is located directly above the grain-pan 26. The separating-rack and grain-pan have been indicated only conventionally, and it is to be understood that my invention is not only applicable to machines equipped with these members, but to all the various well-known forms of threshing-machines having means for effecting the separation of the grain from the straw discharged from the threshing mechanism.

The sides of the machine-casing are provided with openings 27, alining with openings 28 in the ends of the fan-casing and provided with slide-valves 29, whereby the admission of air into the fan-casing may be regulated.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. When the machine is in operation, the material subjected to the action of the cylinder and concave is thoroughly disintegrated and a large portion of the grain will escape to the grain-pan through the usual openings in the concave. The material on being discharged from the rear edge of the concave is subjected directly to the blast issuing through the opening 29 of the fan-case, and is thereby forced against the oscillatory fingers 20 and 21, whereby the straw is beaten or agitated, thereby promoting the separation of the grain, which will drop down upon the separating-rack and through the interstices in the latter into the grain-pan, the straw discharged from the fingers 20 and 21 being disposed of by well-known carrying and separating means.

The shield or deflector 24 is preferably provided at its upper edge with rearwardly-extending teeth 30, over which the threshed material is compelled to pass before it is intercepted by the oscillatory fingers or beaters 20 and 21. The deflector, it will be observed, has a vibratory and also a vertical reciprocatory movement, whereby the straw will be thoroughly loosened and not only prevented from packing between the rock-shaft, but also

enabling the grain to pass from the straw operated upon by the fingers or beaters through the straw-rack and into the grain-pan in advance of the straw without possibility of its becoming again intermingled with the straw.

This invention, as will be seen from the foregoing description, is extremely simple and may be applied at no great expense to threshing-machines of ordinary construction. It will be found possible, however, in constructing new machines to greatly shorten the straw-carrying and grain-separating means, inasmuch as a thorough and practically complete separation will take place very close to the cylinder.

Having thus described the invention, I claim—

1. A threshing-cylinder, a driven shaft for the same, a fan mounted upon said shaft, and a casing for said fan mounted loosely upon the shaft within the cylinder.

2. A threshing-cylinder, a driven shaft for the same, a fan mounted upon said shaft within the cylinder, a casing for said fan mounted loosely upon said shaft within the cylinder, and a weight connected with the fan-casing.

3. A threshing-cylinder, a driven shaft for the same, a fan mounted upon said shaft within the cylinder, a casing for said fan connected loosely with the shaft, and having an outlet and a weight connected adjustably with said fan-casing.

4. A threshing-cylinder, a driven shaft for the same, a fan mounted upon said shaft within the cylinder, a fan-casing connected loosely with said shaft, a weight connected with said fan-casing, and lubricators upon the hubs of the latter.

5. A threshing-cylinder, a driven shaft for the same, a fan mounted upon said shaft within the cylinder, a fan-casing mounted loosely upon said shaft and having an outlet, a weight connected adjustably with said casing, a concave cooperating with the cylinder, and rock-shafts disposed in rear of the concave and having upwardly-extending rearwardly-curved fingers.

6. In a threshing-machine, a cylinder and a concave, rock-shafts disposed in rear of the concave and having upwardly-extending rearwardly-curved fingers, and means within and auxiliary to the cylinder for setting up a current of air and for directing said current against the curved fingers of the rock-shafts.

7. In a threshing-machine, a cylinder, a concave cooperating therewith, straw guiding and agitating means in rear of the concave, a deflector connected with said straw guiding and agitating means and operable therewith, and means within and auxiliary to the cylinder for setting up and directing an air-current.

8. In a threshing-machine, the combination of threshing mechanism, straw guiding and

agitating means in rear of said mechanism,
and a deflector connected with said straw guid-
ing and agitating means and operable there-
with, said deflector depending substantially
5 vertically in rear of the concave and being
provided at its upper edge with rearwardly-
extending teeth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

FRANKLIN M. CARTER.

Witnesses:

CHAS. S. WOODFORD,
E. C. THORNTON.