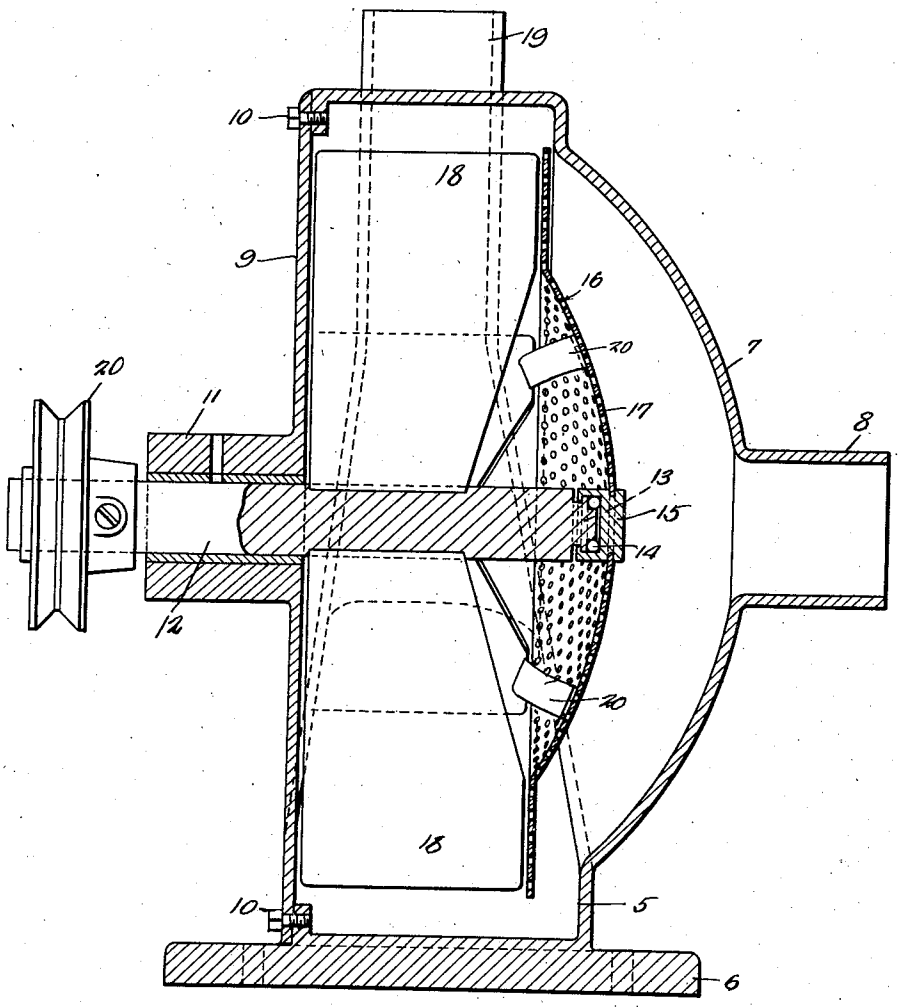
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PNEUMATIC GRAIN LOADER

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Fig. 1.



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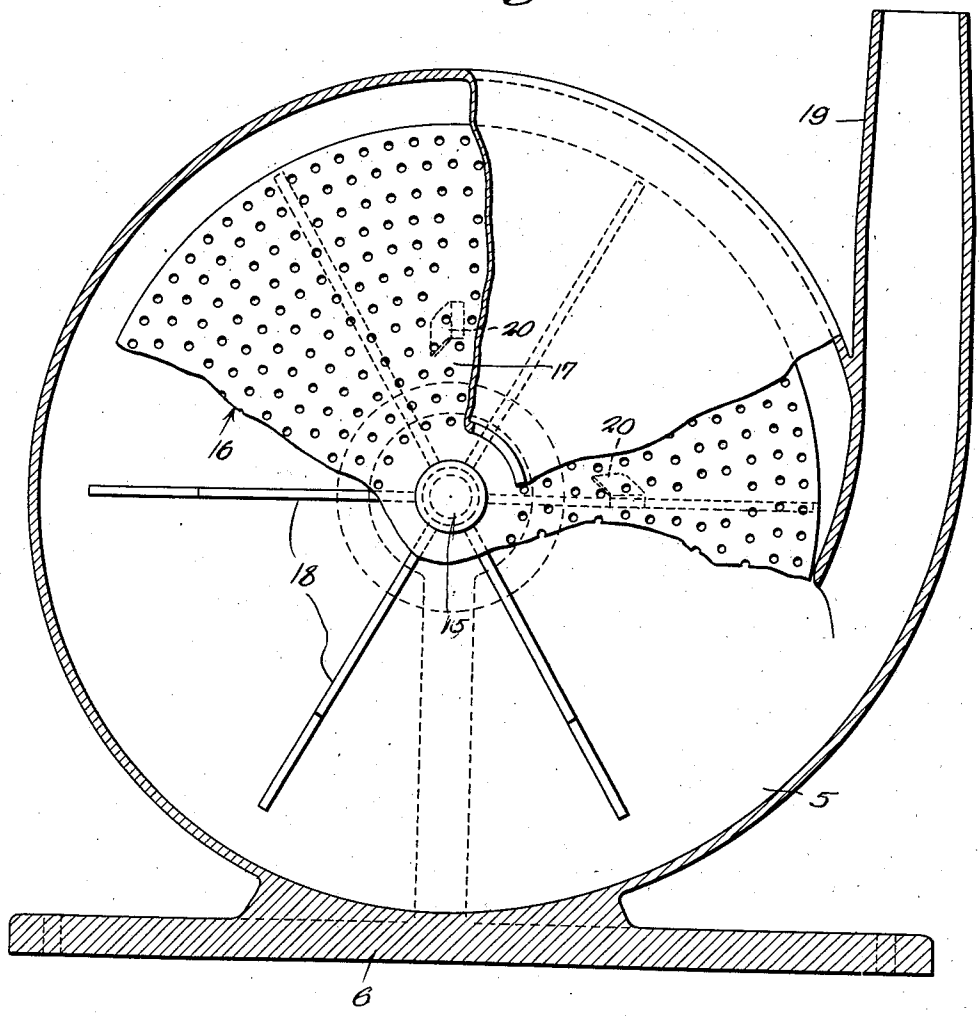
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Fig. 2.



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PNEUMATIC GRAIN LOADER

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Application December 10, 1945, Serial No. 633,942

4 Claims. (Cl. 302—37)

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This invention relates to grain loaders, the primary object of the invention being to provide a grain loader of the pneumatic type wherein the grain being loaded will be carried through the housing of the loader in such a way that the grain will be separated from the air, prior to the passage of the air through the fan of the loader, thereby avoiding damaging the grain by contact with the blades of the rotating fan.

An important object of the invention is to provide a rotary screening member operating within the housing, means being provided for causing the screening member to rotate by the action of the blast of air drawn into the housing, independently of the fan shaft which provides a support for the screening member.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings

Figure 1 is a vertical sectional view through a grain loader constructed in accordance with the invention.

Figure 2 is a side elevational view of the grain loader, a portion of the front wall of the housing having been broken away to illustrate the screening member and fan blades.

Referring to the drawings in detail, the loader comprises a drum-like housing 5 having a base 6 which may be secured by means of bolts, passing through openings of the base, into a supporting surface.

The front wall of the housing is bulged or dome-shaped as indicated at 7 and is formed with a short pipe-like extension 8 which provides the intake opening to the housing, through which grain is drawn, during the loading operation.

The rear wall 9 of the housing provides the cover plate for the housing, and is removably secured by means of the bolts 10 so that the mechanism within the housing will be easily accessible to facilitate repairing or cleaning the mechanism.

Formed integral with the rear wall 9, is a bearing 11 in which the fan shaft 12 operates, the fan shaft extending an appreciable distance within the housing, where it is provided with a reduced end forming a bearing 13 for the balls 14 that are held within the rotatable cap 15.

Secured to the rotatable cap 15, is the screening member 16 which is in the form of a perforated disk having a central bulged portion 17 disposed directly opposite to the pipe-like extension 8.

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Blades 20 extend inwardly from the inner surface of the screening member 16, and are contacted by the air passing through the perforated disk or screening member 16, causing the screening member to rotate independently of the shaft 12.

The fan blades which are indicated by the reference character 18, are mounted on the shaft 12 to rotate therewith, the length of the fan blades 18 being such that they will extend to points adjacent to the edge of the screening member, there being a slight space between the blades and screening member, so that rotation of the blades will not in any way interfere with the rotation of the screening disk.

The forward edges of the blades 18 are inclined towards the shaft 12 providing a space between the forward edges of the blades and the bulged portion 17 of the screening member.

The outlet spout, which is indicated by the reference character 19 is arranged tangentially of the housing, the bottom wall of the housing forming a continuation of the wall of the spout 19, so that grain which falls to the bottom of the housing, will be blown upwardly over the inclined surface of the bottom of the housing, into the outlet spout, where it may be directed to a place of deposit.

As clearly shown by Fig. 1 of the drawings, the blades are of lengths to provide a space between the ends of the blades and the bottom of the housing to retain the feed or grain which has been separated from the incoming air, by the screening member 16 and has fallen to the bottom of the housing.

A pulley indicated by the reference character 20 is secured to one end of the shaft 12, and is powered by means of a belt operating over the pulley, the belt operating over a pulley of a motor, all of which are not shown in the present disclosure.

From the foregoing it will be seen that due to the construction shown and described, the air-laden grain to be handled, will be drawn into the housing, through the pipe 8, where it will strike the bulged portion of the screening member 16 and be deflected to fall by gravity to the bottom of the casing.

The blast of air produced by the fan is such that the grain will be picked up from the bottom of the housing and forced through the outlet

spout 19. As the air is drawn through the perforated screening member 16, the screening member 16 is caused to rotate to dislodge grain which would otherwise collect on the disk or screening member, if it remained stationary.

What is claimed is:

1. A pneumatic grain loader comprising a drum-like housing having an inlet opening formed centrally thereof and having a tangentially formed outlet opening, a horizontal shaft extending into the housing, fan blades mounted on the shaft and adapted to create a suction through the housing, a screening member of a diameter to extend beyond the outer ends of the fan blades mounted on the forward end of the shaft, blades on the screening member against which air strikes on entering the housing, rotating the screening member independently of the shaft, said screening member separating the fan from the front wall and intake opening of the housing and adapted to obstruct the passage of solids passing into the housing with air, whereby the solids fall to the bottom of the housing and are directed through the outlet opening by the blast of air produced by the fan.

2. A pneumatic grain handling device, comprising a drum-like housing having a bulged forward wall, said housing having an inlet opening formed in the bulged wall and having an outlet opening formed tangentially of the housing, a horizontal shaft extending into the housing, a screening member in the form of a perforated disk, loosely mounted on the forward end of the shaft, blades secured to the screening member, against which air strikes on entering the housing rotating the screening member, said screening member providing a stop for solids drawn into the housing whereby the solids gravitate to the bottom of the housing, and fan blades mounted on the shaft at one side of the screening member for creating a blast of air through the housing, forcing the solids from the housing.

3. A pneumatic grain loading device comprising a housing having an inlet opening and a tangentially formed outlet opening, a horizontal shaft extending into the housing, fan blades mounted on the shaft and adapted to create a draft of air through the housing, a screening member mounted on the forward end of the shaft and adapted to rotate independently of the shaft, blades mounted on the screening member against which air strikes on entering the housing, rotating the screening member, said screening member shielding the fan blades against grain drawn into the housing, whereby grain falling to the bottom of the housing is carried off through the outlet opening by the draft of air created by said fan blades.

4. A pneumatic grain loader comprising a drum-shaped housing, the front wall of the housing being bulged outwardly and formed with an inlet opening, said housing having a tangentially formed outlet opening, a horizontal shaft extending into the housing, a bulged screening member in the form of a perforated disk, mounted on the forward end of the shaft and adapted to rotate on the shaft independently of the shaft, blades extending inwardly from the screening member and adapted to be contacted by air drawn through the screening member, whereby the screening member is rotated, and fan blades formed on the shaft and adapted to create a draft of air through the housing, drawing material into the housing and forcing the material outwardly through the outlet opening.

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