

No. 667,205.

Patented Feb. 5, 1901.

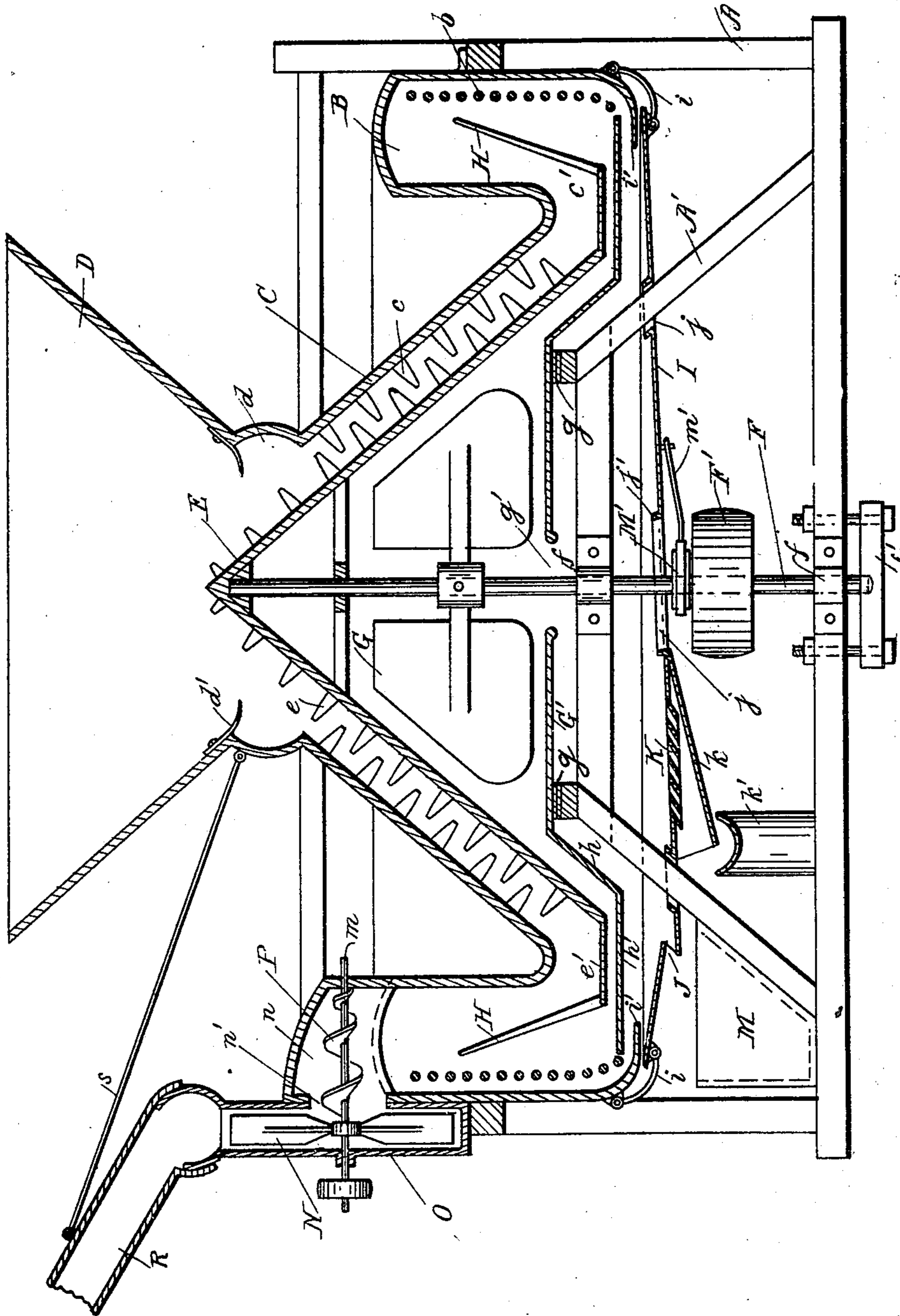
J. FAHRNEY.  
THRESHING MACHINE.

(Application filed June 16, 1900.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.



Witnesses

A. G. Keylman,  
Wm H Bates

Inventor

Josiah Fahrney

By Attorney Herbert W. Jenner.

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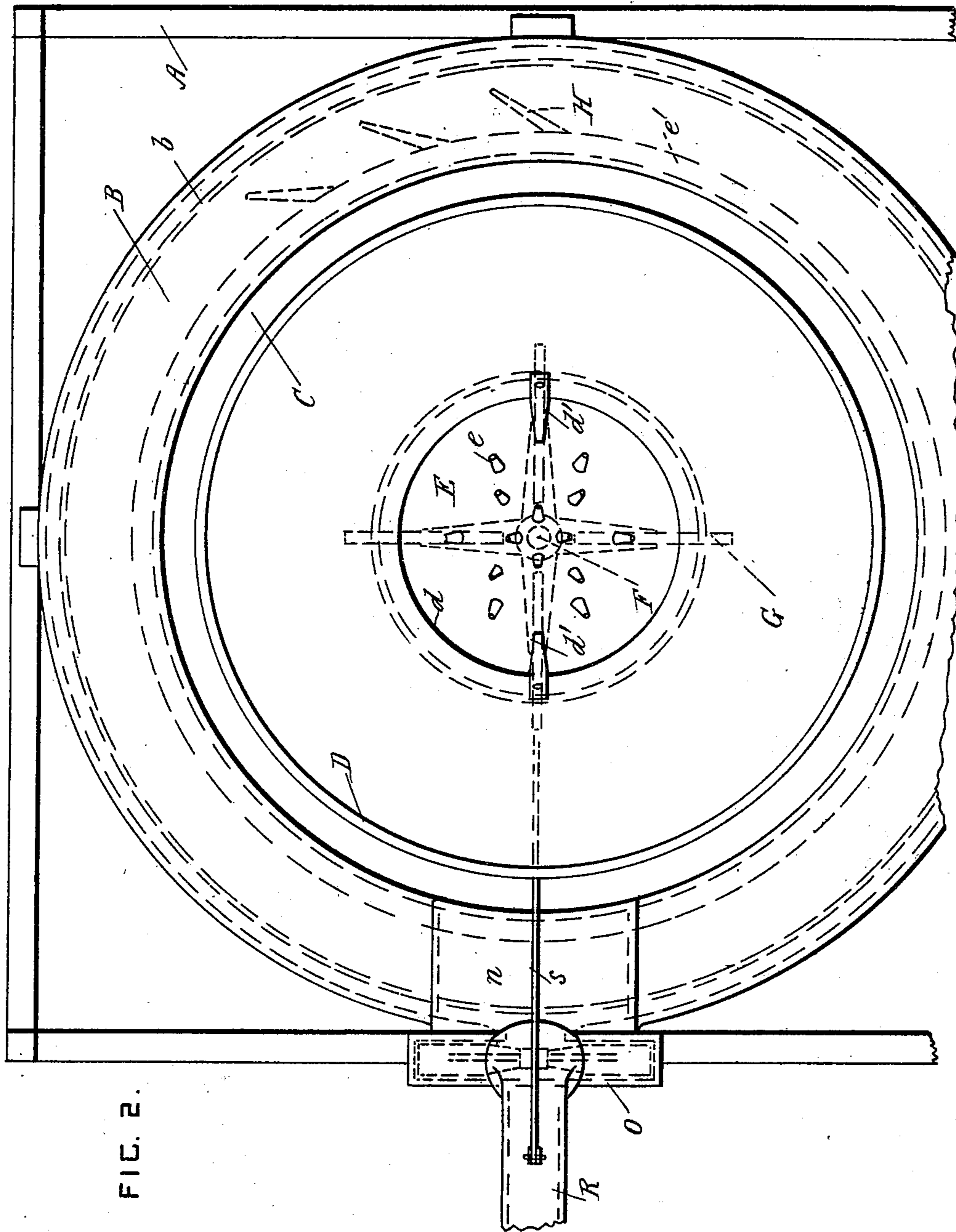
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WITNESSES

A. G. Heymann.  
Wm. H. Bates

INVENTOR.

Josiah Fahrney  
by Herbert W. Jenner.  
Attorney

# UNITED STATES PATENT OFFICE.

JOSIAH FAHRNEY, OF WAYNESBOROUGH, PENNSYLVANIA.

## THRESHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,205, dated February 5, 1901.

Application filed June 16, 1900. Serial No. 20,486. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAH FAHRNEY, 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 Threshing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to threshing-machines; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a vertical section through the threshing-machine. Fig. 2 is a plan view of the same.

A is the outer frame, which supports the main portions of the machine, and A' is an inner frame which projects from the frame A and supports the driving-shaft.

B is an annular chamber secured to the frame A, and *b* is a cylindrical screen supported in the chamber B. The screen *b* may be formed of bars or any desirable reticulated or perforated material which will separate grain from straw.

C is a conical casing for the threshing-cone, provided with teeth or projections *c*. The lower part of the casing C is connected to the lower part of the inner wall of the chamber B, and an annular inlet *c'* is formed all around the said chamber at its base.

D is the feed-hopper, which may be round, square, or any other convenient shape, and *d* is a throat or neck which joins the feed-hopper to the upper part of the casing C. The throat or neck *d* is preferably concave and formed of a part of a sphere; but it may be formed of other convenient shape. Band-cutter knives *d'* are secured in the lower part of the hopper and project over the said neck. The band-cutter knives *d'* have their sharp cutting edges along one side, their upper surfaces being broad and flat, as shown in Fig. 2.

E is the threshing-cone, which takes the place of a threshing-cylinder and is arranged inside the casing C. The threshing-cone is provided with teeth or projections *e*, which work between the teeth *c*, and the apex of the threshing-cone extends upward into the

hopper through the neck *d*, so that the upper teeth work opposite the band-cutter knives *d'*. The lower edge of the cone E is provided with a flange *e'*, which projects outwardly into the annular chamber B.

F is the vertical driving-shaft of the machine, provided with a driving-pulley F'. The shaft F is secured to the threshing-cone and is journaled in bearings *f* and in a step *f'*, which are secured to the frames A' and A.

The interior of the threshing-cone forms the fan-chamber, and G is the fan, secured on the shaft F inside the fan-chamber.

G' is a plate which forms the cover for the fan-chamber, which is supported from the frame by blocks *g*, so that its position may be adjusted vertically. The plate G' has an eye *g'* at its center for the inlet of air to the fan-casing and an inclined portion *h* at its middle part, which forms an annular blast-passage between it and the lower part of the cone E. The outer portion *h'* of the plate G' is substantially parallel with its center portion, and it projects under the flange *e'* of the threshing-cone and joins onto the bottom of the screen *b*.

H represents arms which project upwardly and outwardly in the annular chamber B from the periphery of the flange *e'* of the threshing-cone. The arms H may also be inclined rearwardly of the direction of the revolution of the threshing-cylinder. The function of the arms H is to whirl around the straw in the straw-space of the annular chamber inside the screen, so that all the grain is driven out of it, and the said arms may be straight or curved or inclined in any direction that will enable them to whirl around the straw to the best advantage.

I is the grain-pan, which is suspended from the lower edge of the annular chamber B by pivoted links *i*. The lower portion of the outer wall of the chamber B is curved inward, forming a lip *i'*, which projects in the space between the peripheries of the fan-cover and the grain-pan. The grain-pan is provided with openings *j* for the legs of the frame A' and the driving-shaft to project through, and these openings also admit air to the fan and have upwardly-projecting guards or flanges *j'* around them to prevent grain from falling through them. The grain-pan has an outlet-

opening J for the grain to fall through, and the surface of the pan is inclined in various directions from its periphery downward toward the outlet-opening J.

5 K is a screen let into the bottom of the grain-pan to remove small seeds and dirt. A gather-board *k* is arranged under the screen K, and *k'* is a chute for receiving the rubbish which slides down the gather-board. Ad-  
10 ditional screens can be let into the bottom of the grain-pan, if desired.

M is a receptacle arranged below the opening J to catch the grain which falls through it.

15 M' is an eccentric driven by the shaft F and operatively connected with the grain-pan by an eccentric-rod *m'*, so as to impart a shaking motion to it.

N is a centrifugal discharger for removing the straw from the annular chamber B.

20 O is the casing of the centrifugal discharger supported on the outer side of the chamber B at its top. The chamber B is provided with a projecting hood *n*, which joins onto the inlet *n'* of the discharger-casing.  
25 The centrifugal discharger is mounted on a shaft *m* which is driven by a driving-pulley.

P is a feeding device secured on that portion of the shaft *m* which projects within the chamber B under the hood *n*.

30 R is the stacker-pipe of the centrifugal discharger, and *s* is a support for the same.

The discharger and its coacting parts are of any approved construction, and the details of their construction do not form a part of  
35 the present invention.

The sheaves are placed in the hopper and are caught by the upper teeth of the threshing-cone, which is revolved rapidly in its casing. The bands around the sheaves are cut by contact with the band-cutting knives and the  
40 sheaves are spread out. The straw passes between the teeth of the threshing-cone and its casing and the grain is threshed out of the heads. The grains and straw are driven off  
45 from the flange of the threshing-cone by centrifugal force, and the straw is whirled around in the annular chamber by the projecting arms. The grains are driven through the screen while the straw is being acted on by  
50 the blast from the fan, and the straw is driven upward by the blast through the annular chamber. The straw is taken from the top of the annular chamber by the centrifugal discharger, and the grains descend into the  
55 grain-pan by gravity after passing through the screen or grain-separating device. The motion of the grain-pan causes the grains to slide over its surface to the opening J, and the small seeds and dirt are separated from  
60 the good grains by the screen K. The fan draws air through the screen K and prevents it from becoming clogged.

The annular outlet from the threshing mechanism and the annular outlet from the blast  
65 apparatus are connected direct to the annular inlet of the annular chamber B, which contains the separating mechanism. The

straw therefore receives no check in its progress through the machine, and having been once set in rapid motion by the threshing-  
70 cone and driven off from it in a loose condition it continues in that loose condition and in rapid motion under the influence of the blast and the arms H until all the grain has been separated from it by the grating in the  
75 separating-chamber.

What I claim is—

1. In a threshing-machine, the combination, with a casing, and a threshing device working therein; of a grain-separating cham-  
80 ber encircling the said casing and receiving the threshed material, a fan arranged axially under the threshing device, and a plate provided with a central air-inlet and arranged under the said fan, a peripheral blast-open-  
85 ing being formed between the said threshing device and plate through which opening the air is projected into the said chamber, substantially as set forth.

2. In a threshing-machine, the combina-  
90 tion, with a conical casing, and a threshing-cone working therein; of an annular grain-separating chamber encircling the said casing and having an annular inlet, a fan arranged inside the said cone, and a plate pro-  
95 vided with a central air-inlet and arranged under the cone, an annular blast-passage being formed between the said cone and plate which delivers into the said chamber, sub-  
100 stantially as set forth.

3. In a threshing-machine, the combination, with an annular grain-separating chamber having an annular inlet and an inwardly-projecting lip at its lower part, and a plate  
105 provided with a central air-inlet and arranged to overlap the said lip leaving a passage for grain between them; of threshing mechanism and a blast-fan both provided with annular outlets delivering into the said annular inlet,  
110 substantially as set forth.

4. In a threshing-machine, the combination, with a conical casing, and an annular grain-separating chamber encircling the said casing and provided with an annular inlet;  
115 of a threshing-cone working in the said casing and provided with a flange at its base which projects into the said inlet, a fan arranged inside the said cone, and a plate provided with a central air-inlet and having an  
120 inclined portion at its middle part which projects within the lower part of the said cone, an annular blast-passage being formed between the said plate and cone, substantially as set forth.

5. In a threshing-machine, the combina-  
125 tion, with a threshing-cone, and a fan arranged inside it; of a plate arranged at the base of the said cone and forming an annular blast-passage around it, said plate being provided with a central air-inlet, substantially  
130 as set forth.

6. In a threshing-machine, the combination, with a threshing-cone, and a fan arranged inside it; of a plate secured below the

base of the cone and forming an annular blast-passage around it, said plate being provided with a central air-inlet, and means for adjusting the width of the said blast-passage, substantially as set forth.

7. The combination, with a toothed casing having a straw-outlet, a threshing device working in the said casing, and a plate forming a fan-chamber with the said threshing device, said fan-chamber being provided with a central air-inlet and having also a peripheral air-outlet arranged adjacent to the

straw-delivery outlet; of a fan inclosed within the said fan-chamber between its inlet and outlet and forcing a blast of air against the straw projected from the said casing, substantially as set forth.

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

JOSIAH FAHRNEY.

Witnesses:

E. B. FAHRNEY,  
J. STOVER WINGERT.