

No. 832,283.

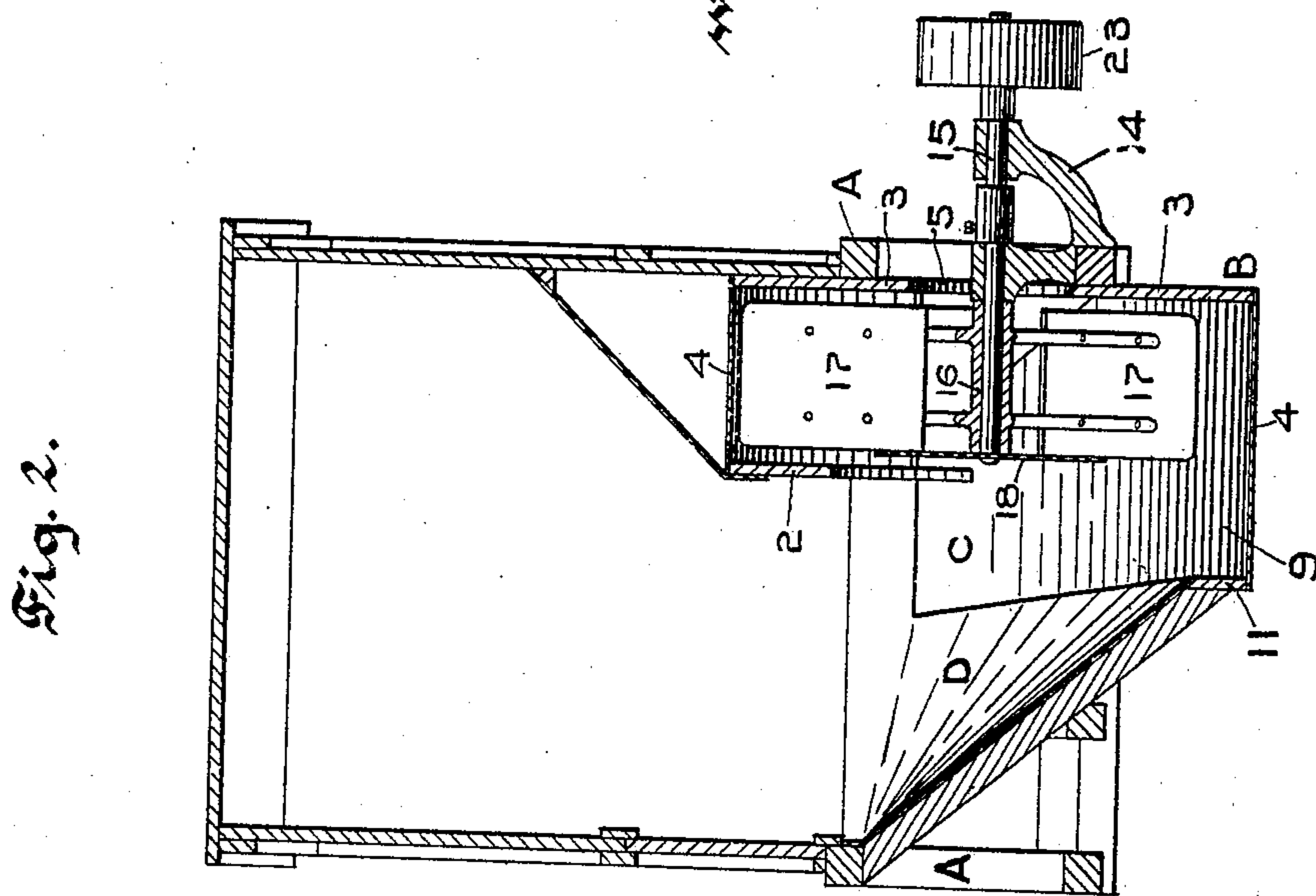
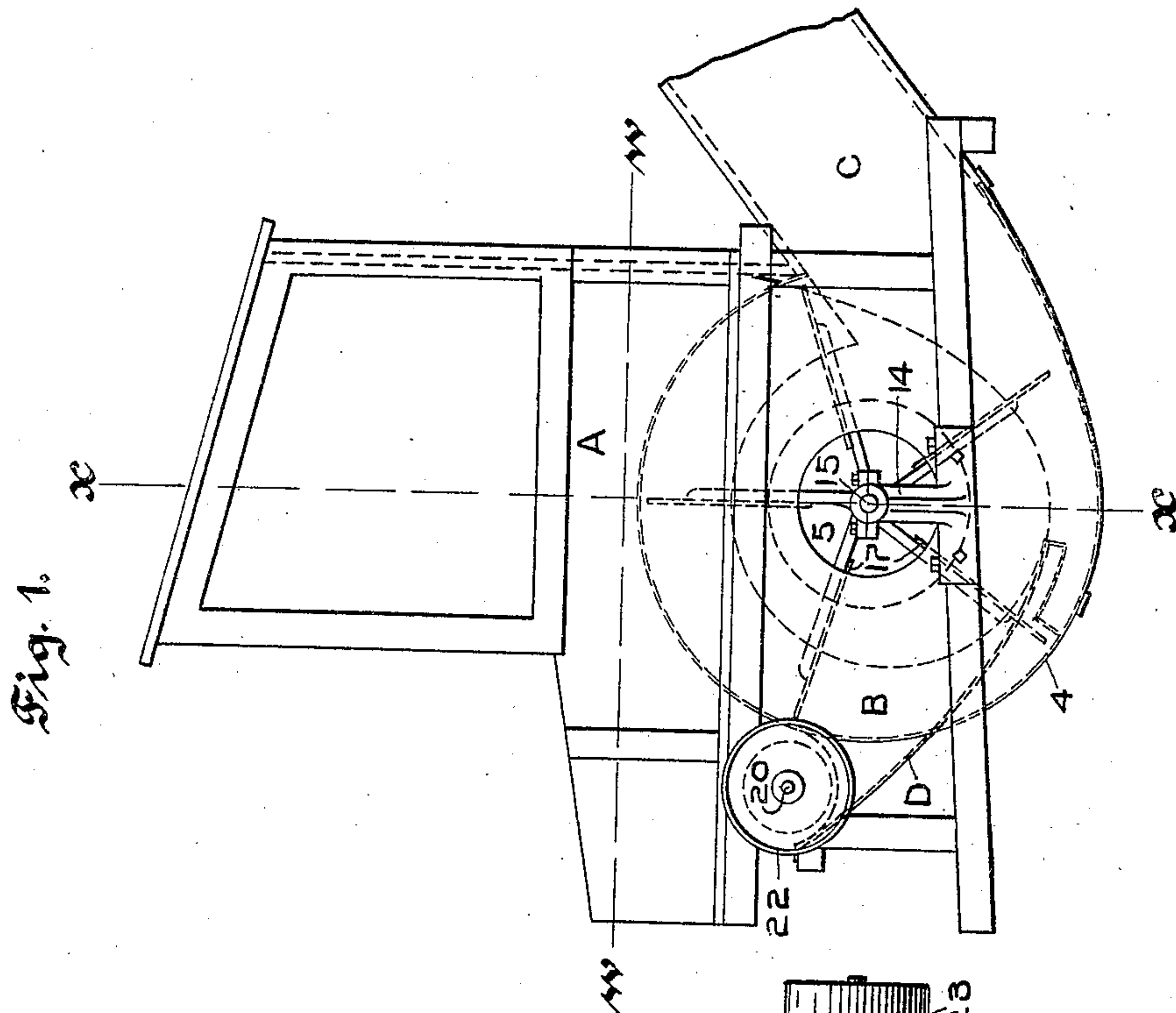
PATENTED OCT. 2, 1906.

M. WHEELER & C. SPENCER.

WIND STACKER.

APPLICATION FILED JUNE 8, 1903.

3 SHEETS—SHEET 1.



Witnesses,
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3 SHEETS—SHEET 2.

Fig. 3.

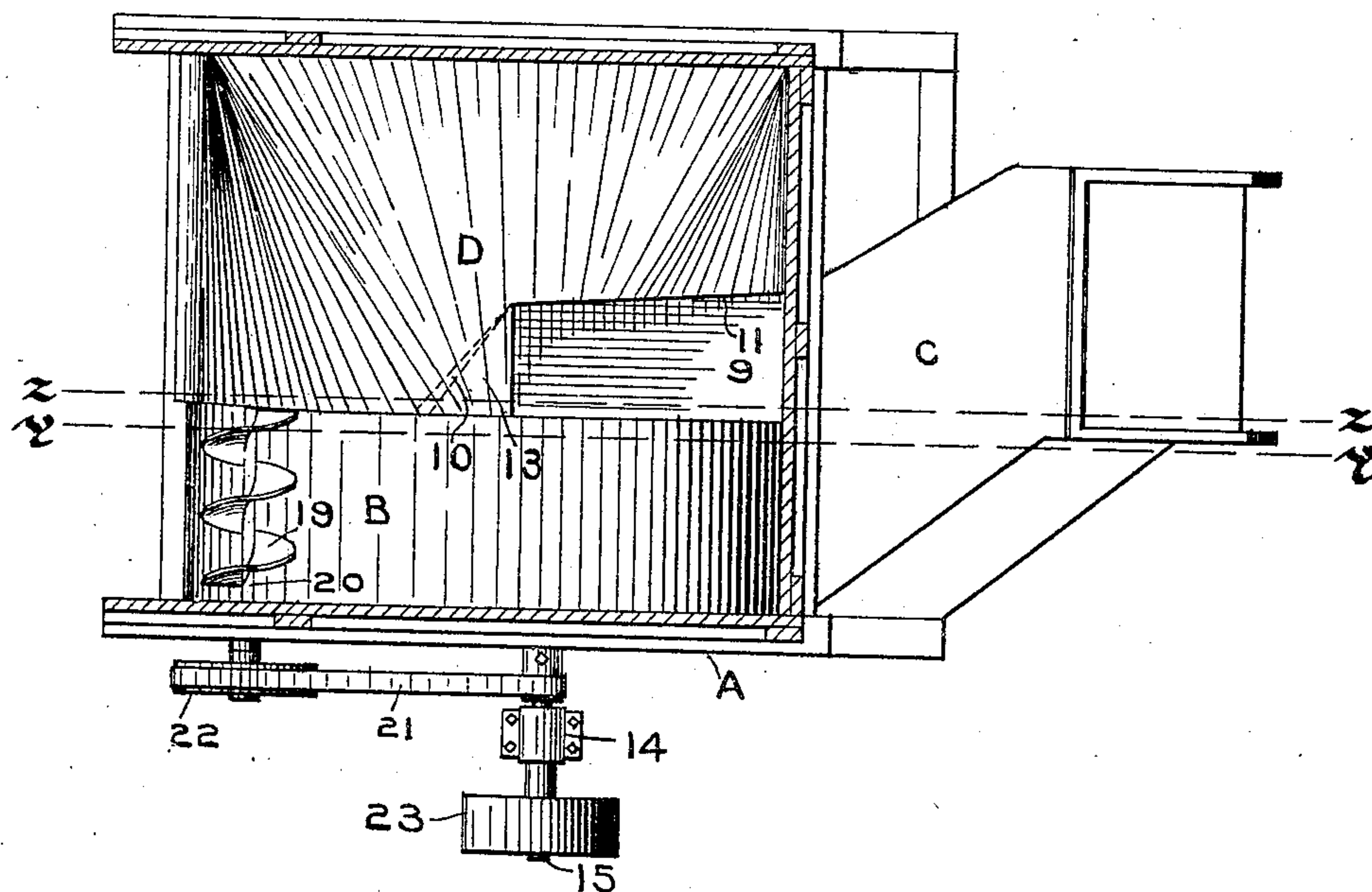
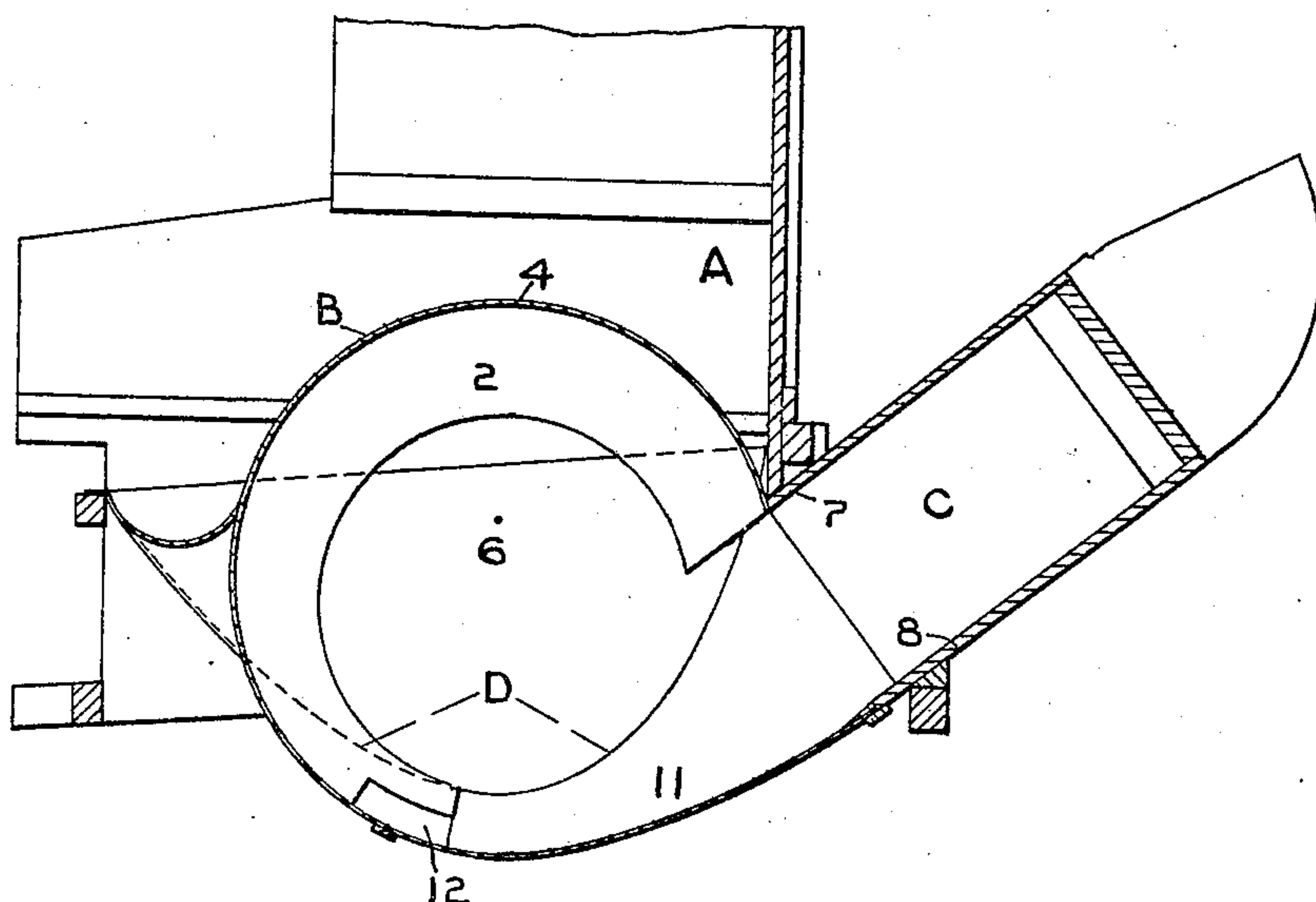


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

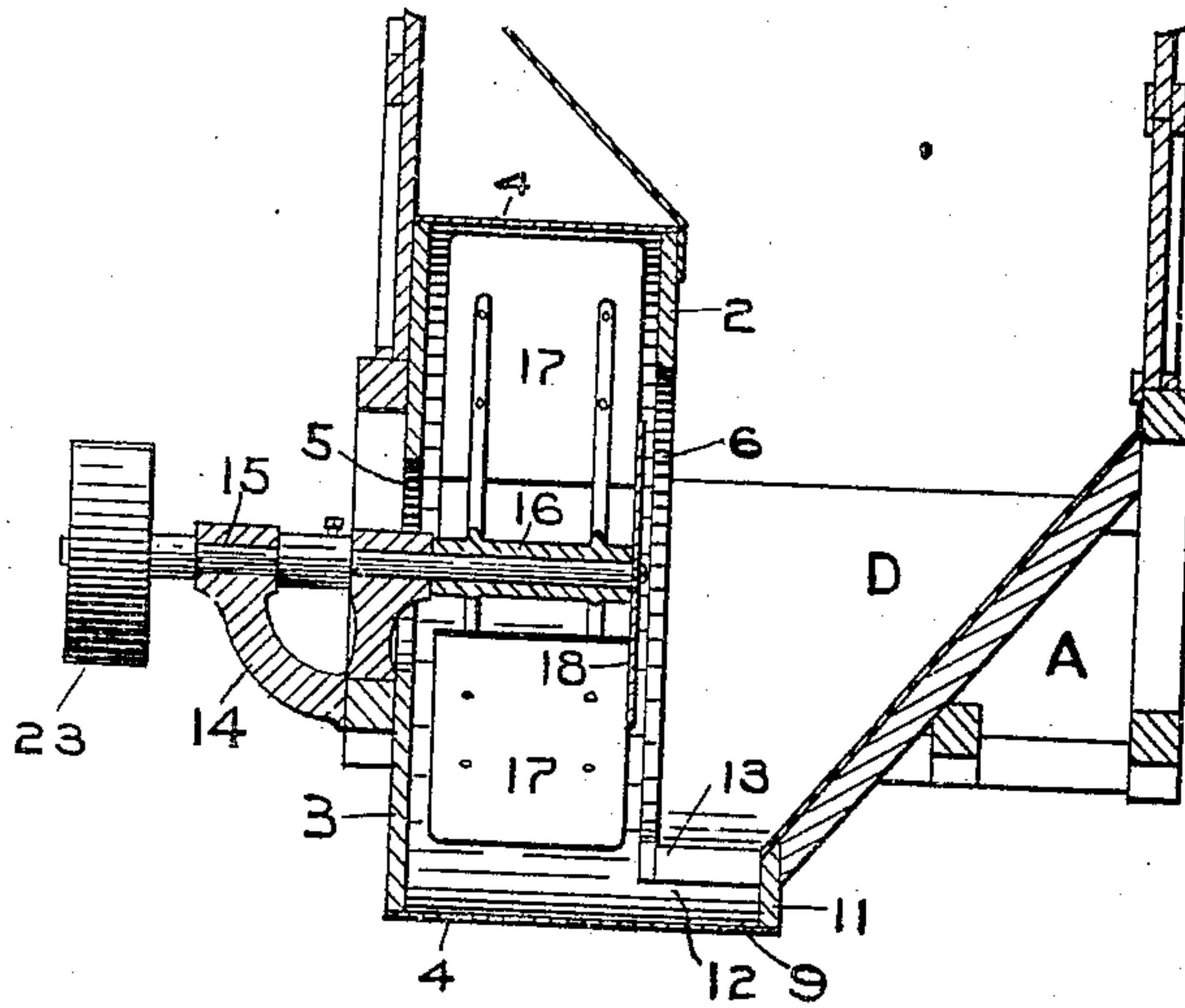
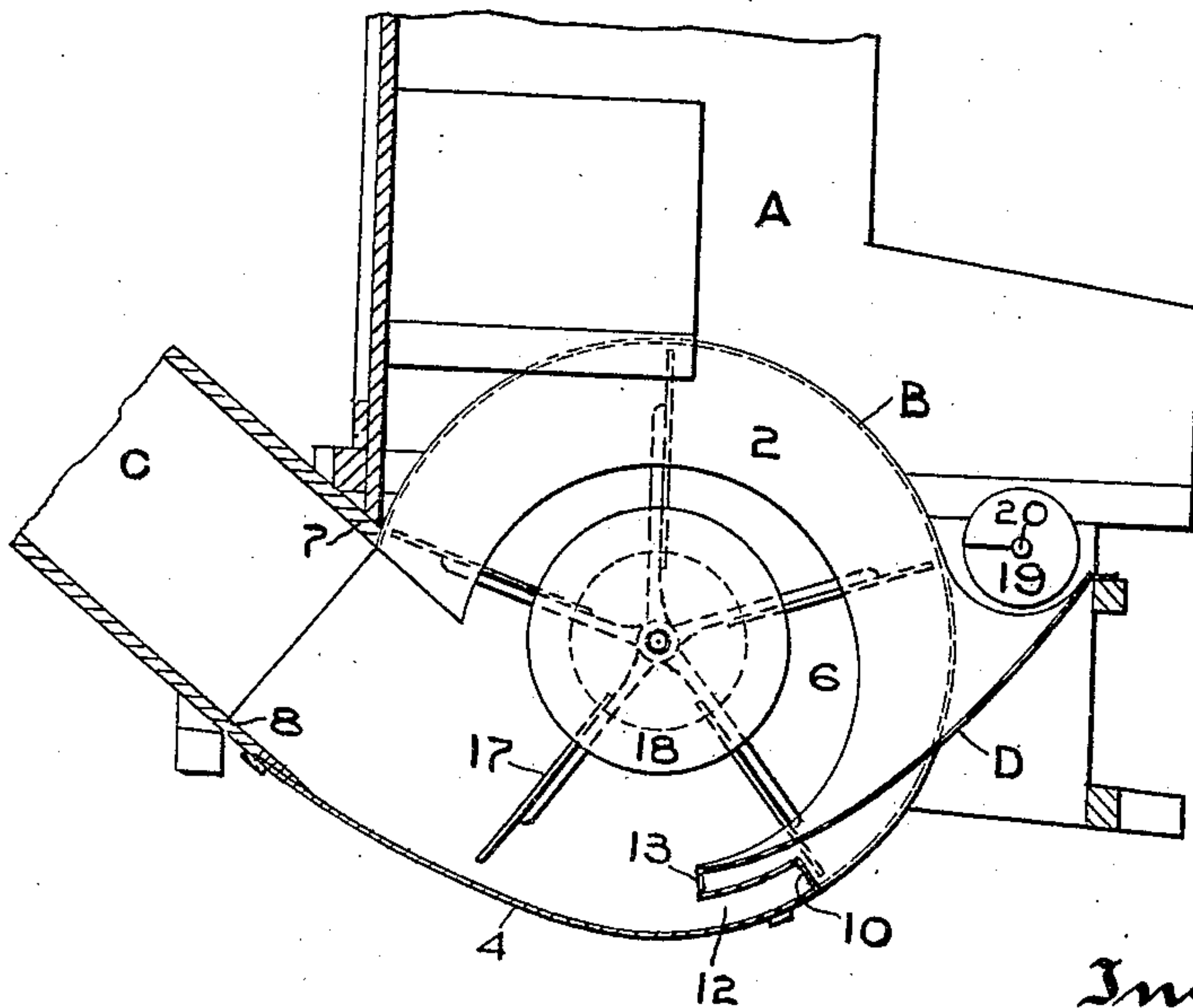


Fig. 6.



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UNITED STATES PATENT OFFICE.

MATTHIAS WHEELER, OF ST. LOUIS PARK, AND COOPER SPENCER, OF ST. PAUL, MINNESOTA, ASSIGNORS TO FOSSTON WIND STACKER COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

WIND-STACKER.

No. 832,283.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed June 8, 1903. Serial No. 160,492.

To all whom it may concern:

Be it known that we, MATTHIAS WHEELER, of St. Louis Park, in the county of Hennepin, and COOPER SPENCER, of St. Paul, in the
5 county of Ramsey, State of Minnesota, citizens of the United States, have invented certain new and useful Improvements in Wind-Stackers, of which the following is a specification.

10 Our invention relates to improvements in pneumatic stackers of the class wherein the discharge of the straw, chaff, or other material is effected by directing the air-blast into
15 the side of the fan-blades, and has for its object to improve the means of controlling and directing the air, so as to concentrate the air-blast at the point where the work is to be done, to prevent the escape of air at other
20 places, and to guide it more directly into the discharge-spout.

To this end the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

25 In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of the improved stacker with the drive-pulley removed. Fig. 2 is a transverse vertical section of the same on line *xx* of Fig. 1 looking toward the discharge-throat. Fig. 3
30 is a horizontal section on line *ww* of Fig. 1. Fig. 4 is a longitudinal vertical section on line *yy* of Fig. 3 looking toward the hopper. Fig. 5 is a transverse vertical section on line
35 *xx* of Fig. 1 looking toward the rear—that is, away from the discharge-throat—and Fig. 6 is a longitudinal vertical section on the line *zz* of Fig. 3 looking toward the fan-casing.

40 In the drawings, A represents the frame and housing of the stacker, which may be attached in any convenient way to the rear end of a separator. (Not shown.) Supported within the frame is an upright cylindrical fan-casing B, having a peripheral discharge-
45 throat C, leading to a suitable discharge-spout. (Not shown.) The inner and outer side walls 2 and 3, respectively, of the fan-casing are preferably substantially parallel with each other and perpendicular to the pe-

ripheral wall 4 of the fan-casing, as best 50 shown in Fig. 5 of the drawings. The outer side wall 3 is formed, preferably, with an axial eye 5 for the intake of air, and the inner side wall 2 adjacent to the hopper is formed with an opening 6 of such size that the wall 55 constitutes but a rim about the opening. The peripheral wall 4 of the fan-casing extends around circularly from the upper wall 7 of the discharge-throat to the lower wall 8 thereof, into which it merges, and all parts of 60 its inner edge are in substantially the same plane parallel to the plane of rotation of the fan, except at the bottom, from a point near the vertical diameter of the fan-casing forwardly to the mouth of the discharge-throat, 65 between which points the peripheral wall is extended abruptly laterally to form an enlargement or space 9 for the reception of the straw, chaff, or other material to be discharged. This extended portion of the pe- 70 ripheral wall of the fan-casing is provided with a side wall or rim 11 and a rear wall 10, and it merges forwardly into the discharge-throat C, which extends across the entire width of the peripheral wall at its widest 75 part. It will thus be seen that the inner side wall 2 of the fan-casing, all parts of which are in substantially the same plane, extends only from the upper wall of the discharge-throat to the rear end of the enlarge- 80 ment 9 and approximates a crescent in shape. The rear and side walls 10 and 11, respectively, of the enlargement 9 constitute, in effect, a continuation of the side wall 2, carrying it around the enlargement 9 in the pe- 85 ripheral wall; but for convenience of description that portion alone which extends from the upper wall of the discharge-throat to the enlargement 9 is here called the "inner side wall" of the fan-casing. 90

Supported within the frame of the stacker at the side of the fan-casing is a chute or hopper D, which extends downwardly and inwardly to the side wall 2 of the fan-casing and to the enlargement 9. The material to 95 be discharged passes down this hopper to the enlargement 9 at the bottom thereof. In order that the air-blast may act most effect-

ively upon all the material in the enlargement 9, we prefer to carry the hopper over the rear end of the enlargement, so as to form between the overlapping portions 13 of the hopper and the end of the enlargement a space 12 for the passage of air from the fan-chamber proper to the uncovered portion of the enlargement. The air-blast thereby enters the enlargement at the end and is driven under such of the material as passes to the enlargement from the rear. The overlapping portion of the hopper is kept raised above the bottom of the enlargement by the rear wall 10 thereof, the wall being carried, preferably, in a slanting direction to the rim 2, which may be cut away at the bottom, as shown in the drawings, to facilitate the passage of the air through the space 12.

Journalled in the bracket 14 upon the outside of the fan-casing and extending within the fan-chamber is a shaft 15, carrying at its outer end a drive-pulley 23. Upon this shaft is rigidly mounted within the fan-chamber a fan having hub 16 and blades 17. The fan-blades are nearly as wide as the fan-casing and fit close to the side walls thereof, and they are long enough to overlap the inner side wall or rim 2, so that air which is thrown by centrifugal force toward the end of the blades may all be retained within the fan-casing. Against the side edges of the blades adjacent to the hopper is arranged a disk 18, which may be secured to the shaft 15 or to the fan-blades or to both, as may be desired. The disk is preferably of less diameter than the fan or the opening 6 and assists in retaining the air within the fan.

If desired, a screw conveyer 19 may be arranged above the fan-casing at the rear to prevent any accumulation of material upon the fan-casing and between it and the frame at its rear. As shown in the drawings, the conveyer-shaft 20 is journaled in the side of the frame A and is driven from the fan-shaft by a belt 21, passing over the fan-shaft and over a pulley 22 upon the conveyer-shaft.

In use the material passes by gravity down the hopper or chute D to and into the enlargement 9, which by reason of its upwardly-extending side and end walls 11 and 10 forms a sort of pocket. In the meantime the air which has been confined within the fan by the closely-fitting vertical end walls 2 and 3 and the disk 18 is thrown out by centrifugal force to the ends of the blades and to the peripheral wall 4 and is propelled in the plane of rotation of the fan until it reaches the space 9, when being suddenly relieved from the restraint of the rim 2 it sweeps through the space 9 into the discharge-throat, carrying with it the material in its path. It will be evident that by having all parts of the edge of the peripheral wall down to the en-

largement at the bottom in the same plane parallel to the plane of rotation of the fan and by making the fan-blades to fit closely to the rim the air is retained within the fan and subject to the direct propelling action of the fan-blades until it reaches the space 9 near the mouth of the discharge-throat and is driven through this space with comparatively slight deviation from the direction of rotation of the fan. The confinement of the air within the fan also causes a concentration of the current, which increases its efficiency as well in carrying off the material as in preventing it from reaching the fan-blades and retarding the fan.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a pneumatic stacker, in combination, a fan-casing having a peripheral discharge-throat, and a fan rotatably mounted therein, the fan-casing being formed at the bottom with a lateral enlargement at the side of the fan-blades for the reception of material, the outer side wall of the casing having an eye for the intake of air and the inner side wall being cut away in the center and extending in substantially the same plane parallel with the plane of rotation of the fan from the upper wall of the discharge-throat to the enlargement at the bottom, and a hopper extending downwardly to the inner side wall of the fan-casing and to the enlargement.

2. In a pneumatic stacker, in combination, a fan-casing having a peripheral discharge-throat and a fan rotatably mounted therein, the fan-casing being formed at the bottom with a lateral enlargement at the side of the fan-blades for the reception of material, the outer side wall of the casing having an eye for the intake of air and the inner side wall extending in substantially the same plane parallel with the plane of rotation of the fan from the upper wall of the discharge-throat to the enlargement at the bottom, and a hopper extending downwardly over the rear portion of the enlargement to the plane of the inner side wall of the fan-casing, and also extending to, but not overlapping, the forward part of the enlargement.

3. In a pneumatic stacker, in combination, a fan-casing and a fan rotatably mounted therein, the fan-casing having an eye in its outer side wall for the intake of air and being formed at the bottom with a lateral enlargement at the inner side of the fan-blades for the reception of material, the inner side wall of fan-casing extending in substantially the same plane parallel with the plane of rotation of the fan from the upper wall of the discharge-throat to the enlargement at the bottom, a rim or side wall extending along the outer side of the enlargement, and a hopper

extending downwardly over the rear part of
the enlargement to the plane of the inner
wall of the fan-casing and extending to, but
not beyond, the rim of the enlargement, the
5 inner side wall of the fan-casing being cut
away adjacent to the overlapping portion of
the hopper to form a passage underneath said
overlapping portion.

In testimony whereof we affix our signatures in presence of two witnesses.

MATTHIAS WHEELER.
COOPER SPENCER.

Witnesses:

W. L. SEVERANCE,
D. A. SEVRANCE.