

No. 747,896.

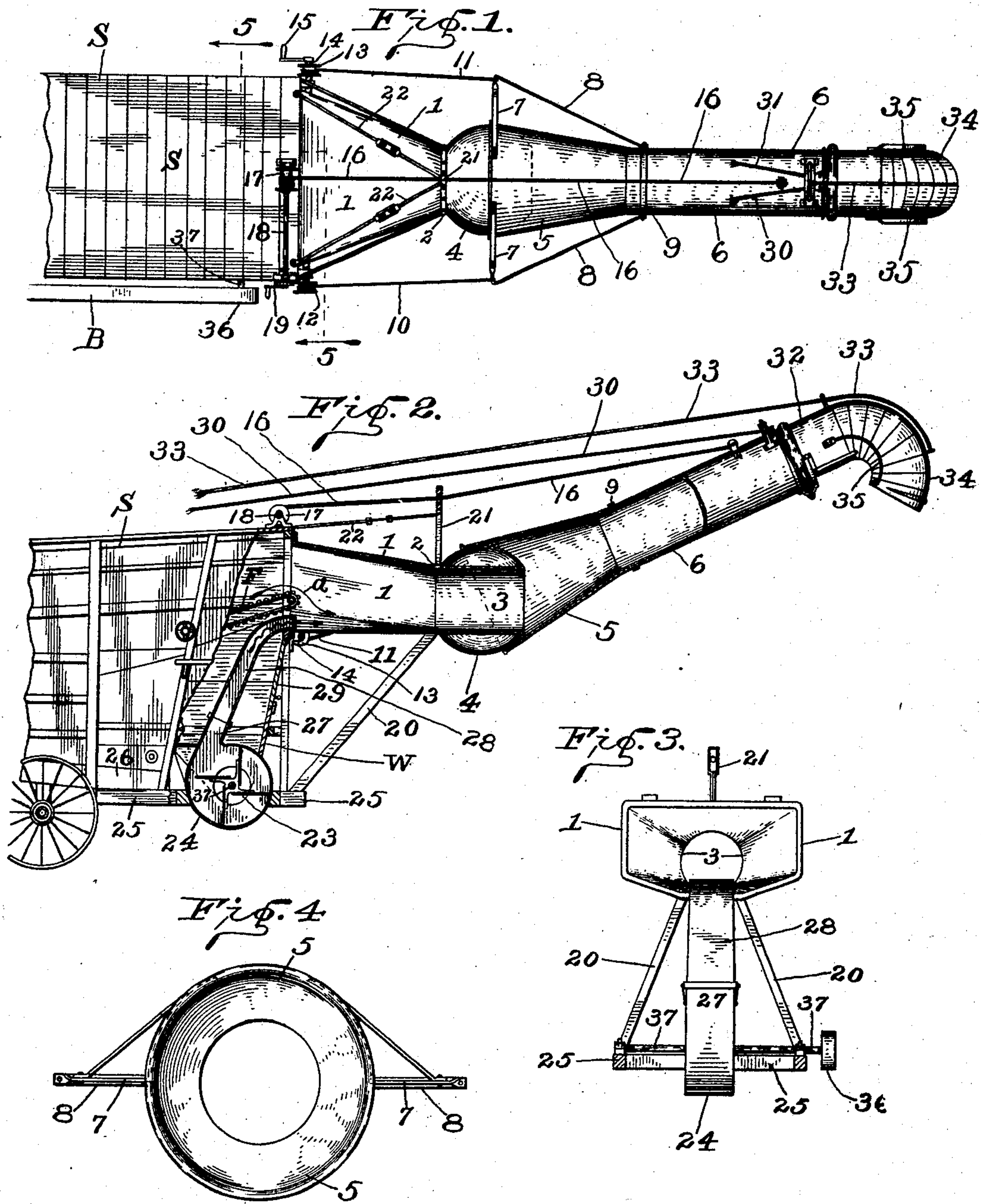
PATENTED DEC. 22, 1903.

J. K. SHARPE, JR.
PNEUMATIC STRAW STACKER.

APPLICATION FILED SEPT. 28, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

C. S. Frye.
L. H. Colvin.

INVENTOR:

Joseph K. Sharpe, Jr.,

BY

Chester Bradford,
ATTORNEY

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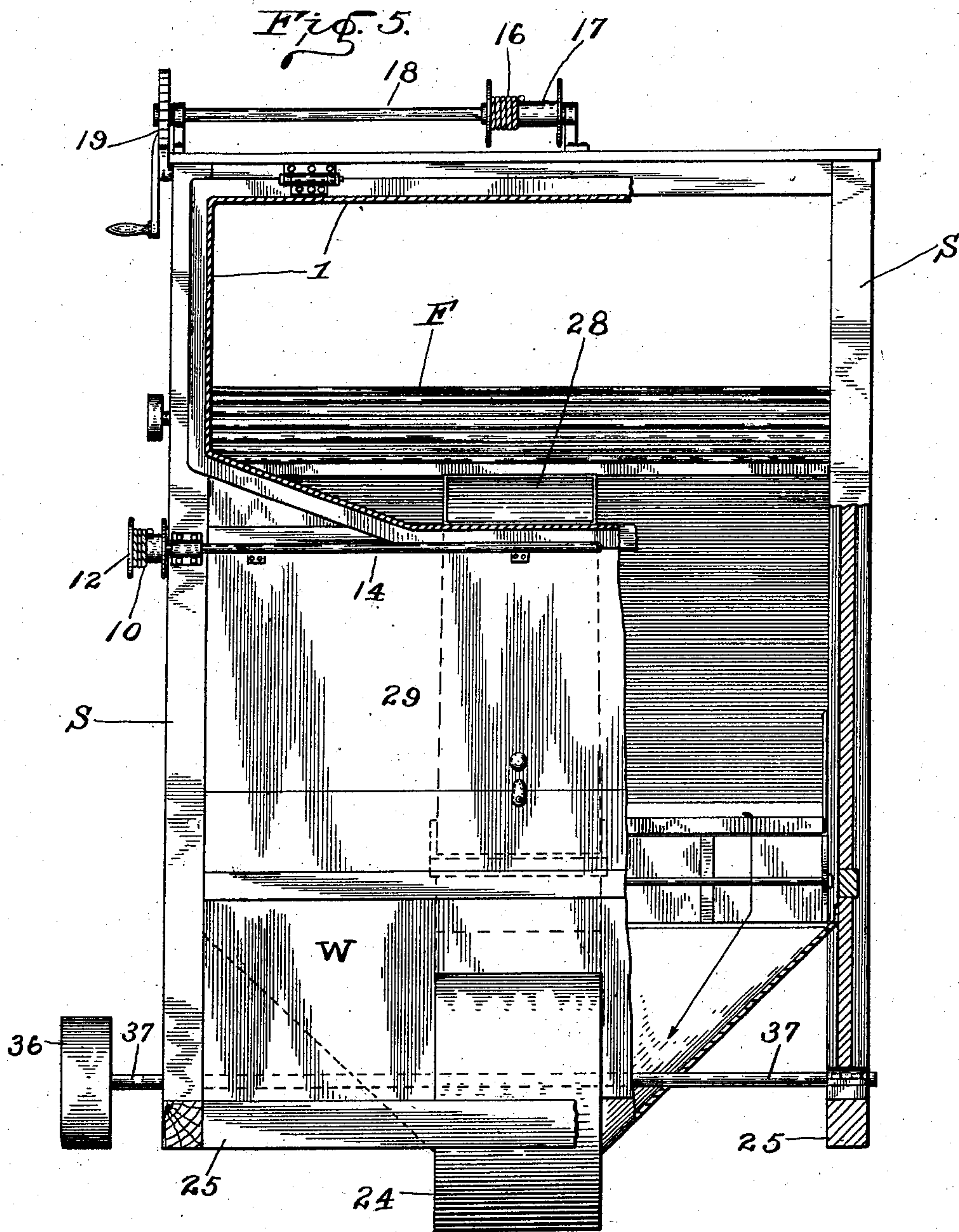
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UNITED STATES PATENT OFFICE.

JOSEPH K. SHARPE, JR., OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE INDIANA MANUFACTURING COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF WEST VIRGINIA.

PNEUMATIC STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 747,896, dated December 22, 1903.

Application filed September 28, 1901. Serial No. 76,876. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH K. SHARPE, JR., a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Pneumatic Straw-Stackers, of which the following is a specification.

My said invention relates to the art or method of taking the straw, stalks, dust, &c., from machines used in threshing or separating and cleaning grain, seeds, &c., and conveying away and depositing the same upon stacks or elsewhere; and it consists in certain improvements in machines for the purpose, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a top or plan view of a pneumatic straw-stacker embodying my said invention and a fragment of a threshing-machine or separator to which it is attached; Fig. 2, a view partly in side elevation and partly in longitudinal vertical section; Fig. 3, a view showing the rear end of the lower or stationary part of the stacker trunk or chute which constitutes a receiving-chamber for the straw detached from the separator and also the fan-housing used in connection therewith; Fig. 4, a view of the rear end of the outer or movable part of the stacker trunk or chute, and Fig. 5 a view as seen from the dotted line 5 5 in Fig. 1.

My improved stacker is shown as secured to the rear end of an ordinary threshing-machine or separator S and is composed of parts united by a suitable joint. The extreme lower part 1 of the trunk or chute, which is immediately connected to the separator, is flared out, as best shown in Fig. 1, to cover the opening in the upper portion of the rear end of the separator out of which the straw is discharged, and thus constitutes a straw-receiving chamber, which is preferably stationary. It thence converges to a neck, where it enters a supporting band or frame 2, and thence extends for a short distance in a substantially direct line, this portion 3 being in

the form of a short plain tube or cylinder. Surrounding this cylindrical portion 3 is a globe-like shell 4. The movable part of the trunk or chute of the stacker comprises a tapering section 5, the lower end of which is of sufficient size to fit over the outside of the globe-like shell 4, over which it is adapted to slide in manipulation, the movement being similar to that of a ball-and-socket joint. Said tapering section converges until it unites with the straight section 6. The section 6 may be of any length desired and may be a single tube or a double or telescopic tube, as desired, and may have (and usually does have) a hood at the outer end, as shown. The lower end of the section 5 is provided with arms 7, (which preferably embody a brace-like construction, as best shown in Fig. 4,) and from the ends of these arms truss-rods 8 extend to a ring 9, which surrounds the section 6. From the ends of the arms 7 ropes 10 and 11 run back to spools 12 and 13 on the ends of a crank-shaft 14, whereby by means of a crank 15 that part of the stacker trunk or chute composed of the sections 5 and 6 may be swung sidewise, as may be desired. By means of a rope 16, running back to a spool 17 on the winding-shaft 18, said stacker-trunk portion may be by means of a crank 19 raised or lowered, as desired. Braces 20 are attached to the band or neck 2, and a frame 21 rises up therefrom, from which truss-rods 22 extend to the separator. Said braces, frame, and truss hold the stationary part of the stacker rigidly and firmly, while at the same time they are of light weight and are inexpensive.

The blast of air is supplied by means of a fan 23 in a fan-housing 24, secured in the frame 25, which is attached to the sills 26 of the separator-frame. To the neck 27 of the fan-housing is connected an air-conduit 28, which leads up and discharges into the part 1 or straw-receiving chamber of the trunk or chute of the stacker. The fan is thus adapted to be located low down in relation to the separator, where it is well adapted to receive the dust and chaff, which are generally drawn into the fan-eyes with the supply of air and driven out with the air through the air-con-

duit and the trunk or chute to the straw, while the straw-receiving chamber in the lower portion of the straw-stacker trunk or chute is secured directly behind the straw-floor of the separator and substantially on a level therewith, and is thus adapted to receive the straw directly from said straw-floor. As will be readily seen, the straw in passing through a machine thus arranged does not fall to a lower point whence it has to be raised again, nor does it pass through the fan, but continues in a substantially unchanged direction from the straw-floor of the separator out through the trunk or chute of the straw-stacker. This obviously requires less power than where sharp changes in direction are involved or where the straw has to pass through the fan-housing and come in contact with the blades of the fan. Abrupt changes in direction of motion of a blast of air and its load are highly detrimental to its efficiency and consume much power.

As is best shown in Fig. 2, the nozzle of the air-conduit is curved somewhat, so as to discharge directly along the floor of the straw-receiving chamber in the part 1. The straw is delivered into said chamber directly from the straw-carrier floor F of the separator, its course being indicated by the plain arrow *a* at the rear end of said straw-carrier floor, and is thrown directly onto and in front of the blast of air coming from the conduit 28, which, as above stated, is arranged to discharge directly along the floor of the chamber in said part 1. The straw is thus in a sense floated on the current of air which comes in beneath it rather than driven along for a considerable distance in forcible contact with the sides of the trunk or chute of the straw-stacker. This reduces friction, and consequently the machine requires less power to drive it.

As heretofore stated, by manipulation of the ropes 10, 11, and 16 the outer portions of the trunk or chute of the straw-stacker can be moved from side to side and raised and lowered as desired. By means of suitable ropes 30 and 31 the outer end 32, carrying the hood, can be revolved on the part 6, so that the discharge from the mouth of said hood may be varied and directed to the right or left, as well as downward, at will. By means of another rope, 33, the sections of the hood 34 can be swung in relation to each other and the discharge from the mouth of the hood thus directed more outwardly, while when the pull on said rope is relieved the springs 35, which are arranged to act reversely thereto, will cause said sections to move back to or toward the position shown most clearly by Fig. 2 of the drawings, so that the discharge may be directed more inwardly. I am thus enabled to direct the discharge of straw to any desired point within a comparatively large area, as will be readily understood.

As will be readily seen also, the various parts are very simple and of light weight, which is of great importance in a machine of

this character, and are easily manipulated, while the construction is such that there is no liability of anything getting out of order. The fan itself is one of the simplest forms of blast-fan and is driven by a belt B, running to a pulley 36 on the outer end of the fan-shaft 37.

Many pneumatic straw-stackers are so constructed and attached as to render access to the interior of the separator difficult. In my improved pneumatic stacker I have obviated this difficulty by making the air-conduit 28, leading from the fan to the base of the straw-stacker chute, removable and placing behind the same in the rear wall of the structure inclosing the fan the door 29. When access is desired to the interior of the separator, (for the purpose of changing screens, cleaning, or otherwise,) it is only necessary to open this door 29, lift off the air-conduit 28, and the interior of the separator becomes as accessible as where no straw-stacker is used. The door 29 and also the portion W of the rear wall below said door can also be removed when desired, leaving the rear end of the separator below the part 1 of the straw-stacker entirely open, and when this is done the greater portion of the dust and chaff can be discharged out of the machine at this point separately from the straw, thus keeping the straw which goes into the straw-stack free therefrom. Where clean straw is an object, this method of handling the products of the machine is of considerable advantage.

Having thus fully described my said invention, what I claim new, and desire to secure by Letters Patent, is—

1. The combination, with a threshing-machine, of a pneumatic straw-stacker trunk or chute attached to and inclosing the rear upper portion thereof where it will receive the straw direct from the straw-floor of the separator, and a blast-fan located below said trunk or chute and provided with an air-conduit leading therefrom and arranged to discharge into the rear end of the straw-stacker trunk or chute just above the substantially horizontal floor of the straw-chamber therein.

2. The combination, with a threshing-machine, of a pneumatic straw-stacker trunk or chute the lower end whereof develops into a straw-chamber and is secured to and incloses the upper rear portion of said threshing-machine in position to receive the straw from the straw-floor thereof, and extends out substantially horizontally therefrom, a blast-fan mounted in the lower portion of the structure and adapted to receive the dust and chaff from the separating-chamber of the threshing-machine, and an air-conduit leading from said blast-fan up to and discharging into the straw-chamber of the straw-stacker trunk or chute.

3. The combination, with a threshing-machine or separator, of a pneumatic straw-stacker the trunk or chute whereof is composed of two parts one of said parts be-

ing flared out to cover the opening in the rear end of the separator to which it is rigidly attached, and the other adapted to be movably adjusted on the stationary part, said
 5 two parts being provided with a ball-and-socket joint where they unite, and a blast-fan located below the straw-stacker trunk or chute and discharging therein at its lower side, said several parts being arranged and
 10 operating substantially as set forth.

4. The combination of a threshing-machine, a pneumatic straw-stacker trunk or chute secured to the upper portion thereof at the rear end, a blast-fan secured to the lower portion
 15 thereof, and an air-conduit extending from the neck of the fan-housing up to and discharging into said trunk or chute, said air-conduit being removable as described, whereby convenient access may be had to the in-
 20 terior of said separator without detaching the straw-stacker, substantially as set forth.

5. The combination of a threshing-machine or separator, a pneumatic straw-stacker attached thereto and composed of a blast-fan,
 25 an air-conduit leading therefrom and discharging into the trunk or chute of the straw-stacker, and said trunk or chute, one portion of which is stationary and attached to the separator and the other of which is movable
 30 thereon, rigid arms extending out laterally from the movable portion, winding drums or spools secured to the separator, ropes running from said arms to said winding drums or spools, and other ropes running from said
 35 movable portion to still other winding drums or spools on the separator, whereby the same is manipulated, said two straw-stacker trunk or chute parts being provided at the point where they unite with a joint permitting

movement in any direction, substantially as
 set forth. 40

6. The combination, with a threshing-machine, of a pneumatic straw-stacker trunk or chute the lower end whereof develops into a straw-chamber and is attached to and incloses
 45 the rear upper portion of said threshing-machine where it will receive the straw direct from the straw-floor thereof, a blast-fan formed as a separate structure and located outside the structure of said trunk or chute, and an
 50 air-conduit leading from said blast-fan into said straw-chamber and arranged to discharge the blast coming from the fan directly into the straw as it enters said straw-chamber.
 55

7. The combination, with a threshing-machine or separator, of a pneumatic straw-stacker comprising a blast-fan mounted on the frame of the separator, a section of the
 60 stacker trunk or chute mounted thereon, and another section adapted to be moved in relation to the first-named section, the said two parts being provided with a ball-and-socket joint where they unite, the stationary part
 65 being provided with the spherical portion of said joint and the movable part being flared to fit over said spherical part, whereby continuous close contact between the parts may be secured while the relative positions are varied, substantially as set forth.
 70

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 25th day of September, A. D. 1901.

JOSEPH K. SHARPE, JR. [L. S.]

Witnesses:

CHESTER BRADFORD,
 L. H. COLVIN.