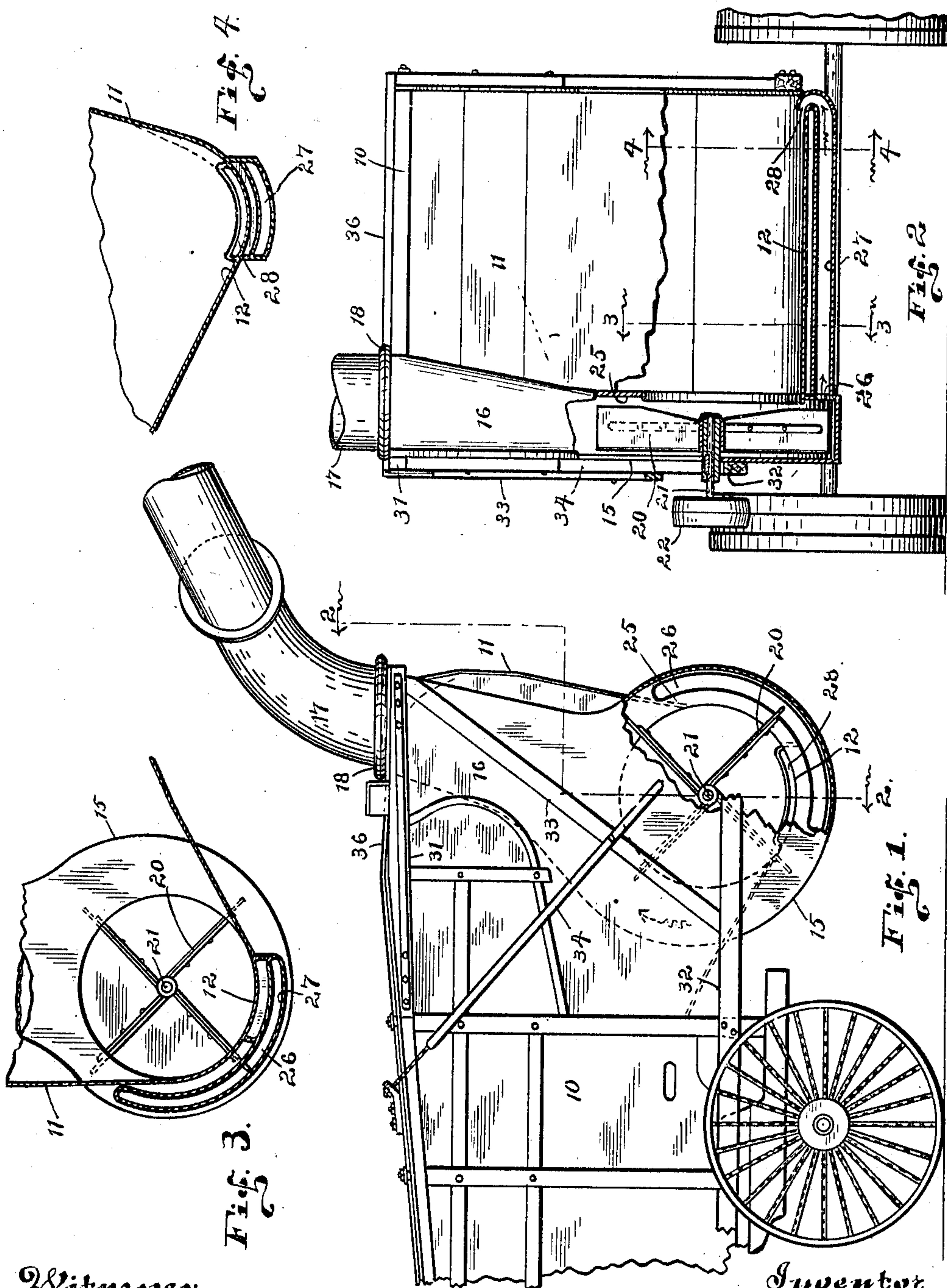


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2 SHEETS—SHEET 1.



Witnesses:

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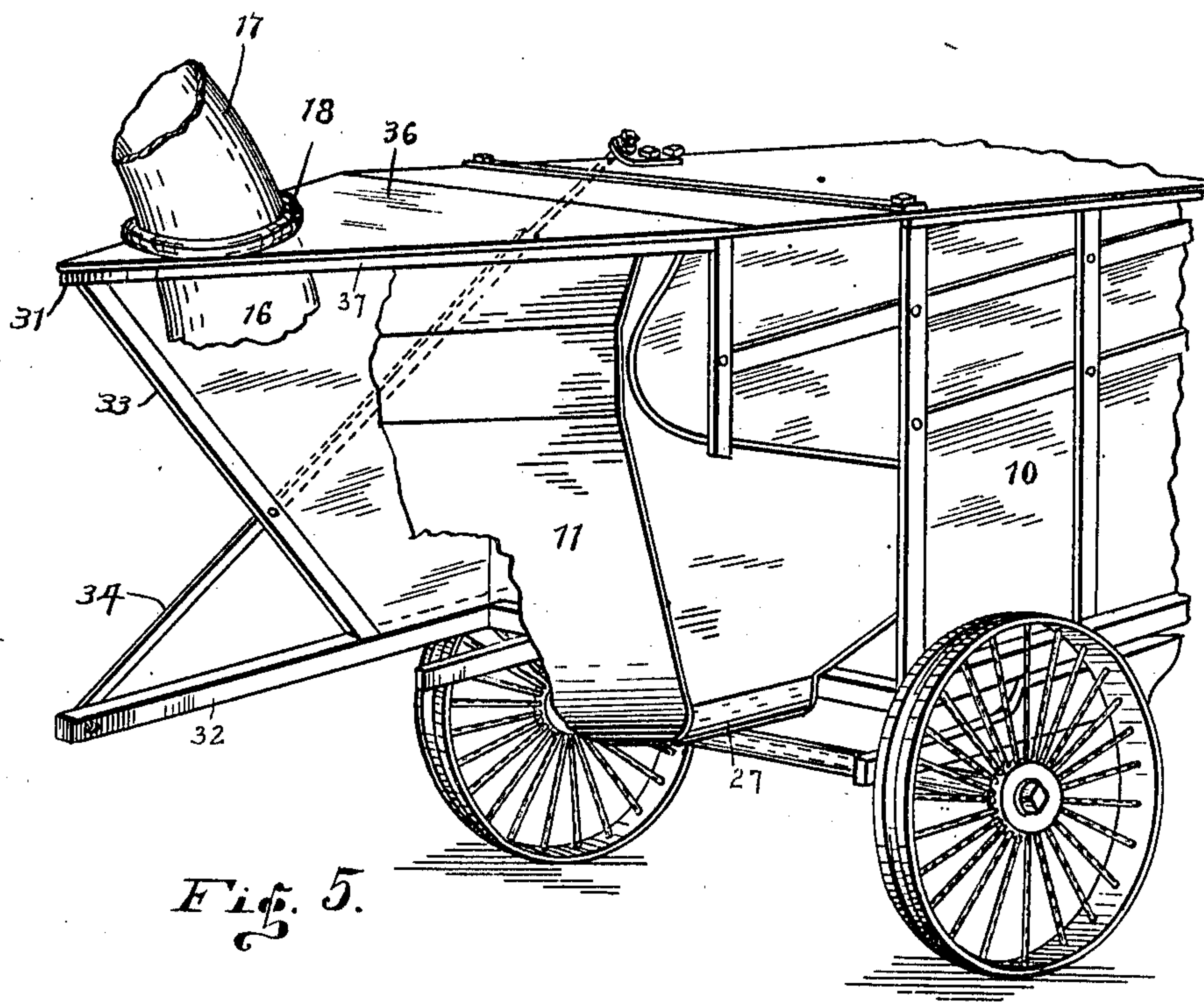


Fig. 5.

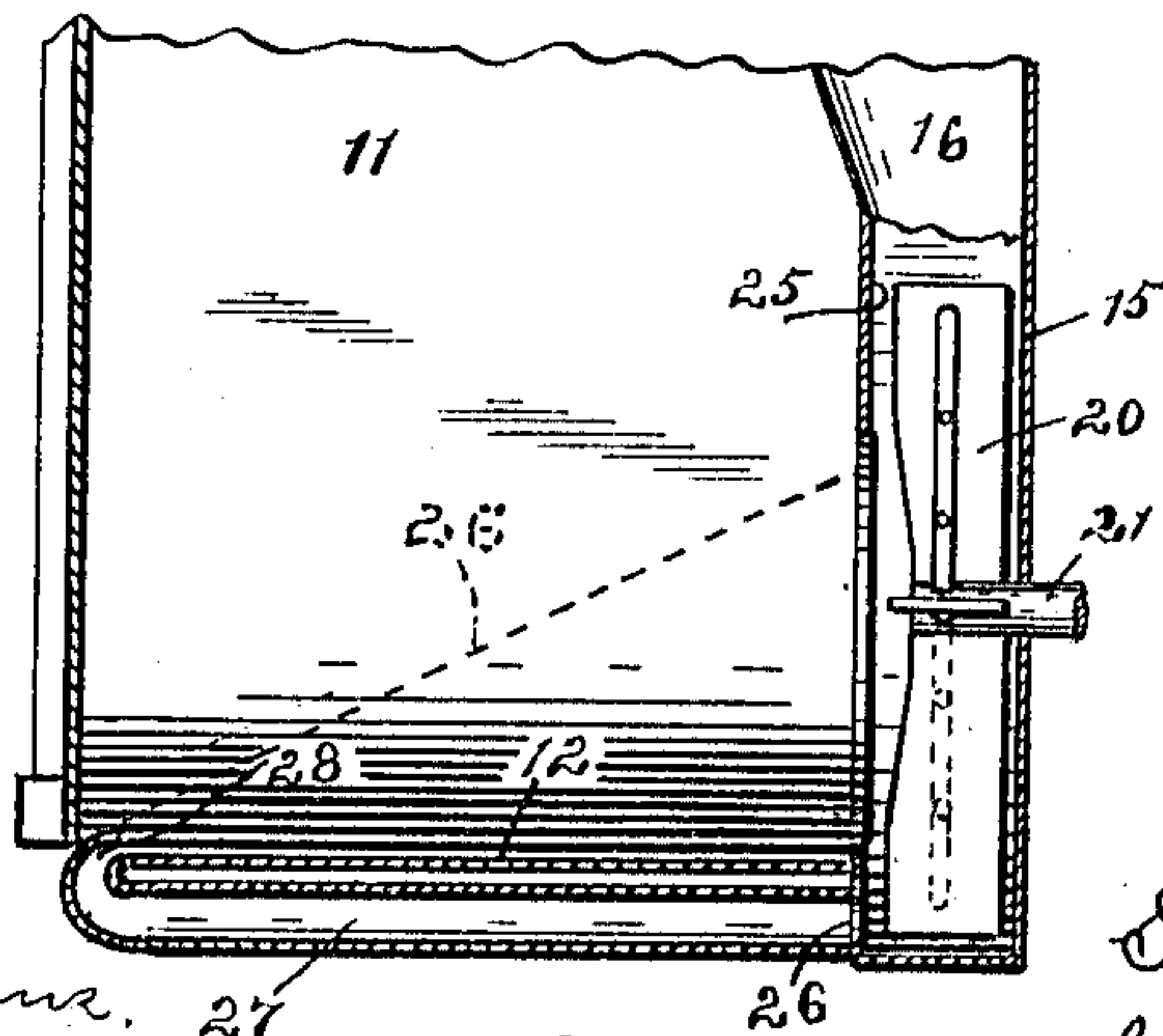


Fig. 6.

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# UNITED STATES PATENT OFFICE.

GEORGE F. CONNER, OF PORT HURON, MICHIGAN, ASSIGNOR TO THE INDIANA MANUFACTURING COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF WEST VIRGINIA.

## PNEUMATIC STACKER.

970,183.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed October 8, 1909. Serial No. 521,648.

*To all whom it may concern:*

Be it known that I, GEORGE F. CONNER, a citizen of the United States, residing at Port Huron, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following is a specification.

My invention relates to improvements in the general construction of that portion of pneumatic stackers comprising the hopper and fan whereby the attachment thereof to separators is simplified and the efficiency of the fan and hopper are increased, all as will hereinafter more fully appear.

In the accompanying drawings, which are made a part hereof, Figure 1 is a side elevation of a separator in fragment equipped with my improved stacker; Fig. 2 a transverse sectional view of portions of the stacker on the dotted line 2—2 in Fig. 1; Figs. 3 and 4 detail sectional views on the dotted lines 3—3 and 4—4 respectively in Fig. 2; Fig. 5 a perspective view showing my improved frame for attaching said stacker to a separator; and Fig. 6 a detail sectional view of portions of the stacker as seen when looking from the rear end of the separator toward the stacker.

In said drawings the portions marked 10 represent a separator of any ordinary or desired construction to which my improved stacker is designed to be attached. The straw chamber 11 is of usual formation, its bottom portion 12 constituting the hopper, which latter is horizontally arranged and whereby I dispense with the specially designed inclined hopper and rotary conveyers and similar devices commonly employed for directing material toward the zone of action of the intake suctional current created by the stacker fan.

As is well known to those experienced in the construction and operation of pneumatic stackers, it is somewhat difficult to so direct the discharging uneven masses or bunches of material such as straw into a vertically arranged stacker fan at one side of the machine in such manner as to insure its proper and efficient delivery thereinto at all times. To produce such result therefore I have devised a fan structure, to be placed at one side of the hopper, capable of creating a material discharging blast and also a blast which is conducted to the opposite side of

the hopper and discharged therethrough and into the eye of the fan and thus delivering to said fan all material in the path of such blast. The fan structure comprises a suitable casing 15 having its outlet duct 16 extending upwardly therefrom at a slight inclination and communicating with a preferably curved chute 17, this inclined duct and gradually curved chute enabling the straw to pass upwardly from the fan in a natural path without being subjected to abrupt deflection, as is common with what are known as turntable stackers, *i. e.* having a turntable, as 18, connecting the fan discharge duct and chute. In said casing a suitable fan 20 is mounted on a shaft 21 driven by a suitably connected power driven pulley 22. In the inner side 25 of the fan casing near the rear peripheral wall I provide a concentric opening 26 arranged in about the position and proportions shown in Figs. 1 and 3, and from this opening I lead a duct 27 across and beneath hopper 12, said duct 27 gradually inclining downwardly at its upper side from its departure from said opening 26 until at the opposite side of the hopper it is considerably contracted in size as indicated in Fig. 4, and is then curved upwardly to form a nozzle 28 pointing toward the fan.

I provide a simple and stable frame structure within which to support the stacker, comprising the upper and lower bars 31, 32 extending from the fan side of the separator and are connected by an angularly positioned brace bar 33, which bars are further tied or secured together by the tie-rod 34 connected to the forward end of the bar 31 and to the rear end of bar 32, and secured to the intermediate brace bar 33 by a bolt or otherwise. The stacker platform 36 is suitably attached to the rear of the separator and to the frame just described, and after the fan housing and hopper are in position the frame structure is securely held together by the angularly arranged bar 37 attached to the corner of the stacker frame and to the separator, as indicated in Fig. 5. By this simple arrangement it is only necessary to attach the stacker frame to one side of the separator, which is sufficient to sustain the stacker, and by which I am enabled to materially reduce the cost of such structures.

In the operation of my improved stacker



the lower fan blades are rotating in the direction of the separator, as indicated by the arrow, so that the material is discharged from said blades in the forward side of the housing and thence up through the duct and chute, and as the blades are thus freed and compressing air to the rear of the housing said compressed air expands laterally through the outlet 26 and is forced through the gradually tapered duct 27 from whence it is discharged through nozzle 28 and across the hopper toward the influence of the intake suction air current created by fan 20, which suction it joins and thus produces a continuous blast draft across the hopper by which all material falling thereinto will be instantly carried into the fan and discharged. In this manner I produce a single fan structure capable of performing the two operations just described in a simple and highly efficient manner. I am aware that a separate blast fan placed at the side of the hopper opposite to the stacker fan has been employed to produce a blast for the same purpose, as well as double fans for creating a straw directing blast and a discharge blast, and such structures I do not claim.

I claim as my invention:

30 1. The combination, in a pneumatic stacker, of a hopper; a vertically-arranged fan casing at one side of said hopper having a material-receiving inlet, a blast discharging outlet and a material-discharging outlet; a single fan in said casing for drawing material through said inlet, discharging air through said blast outlet and material through said material-discharging outlet; and means connected to said blast outlet for

conveying air from said fan to the side of the hopper opposite said fan and directing the same through said hopper and toward said inlet for propelling material into said fan. 40

2. The combination, in a pneumatic stacker, of a hopper; a vertically-arranged fan casing at one side of said hopper having a material inlet communicating therewith, a blast-discharging outlet adjacent said inlet and a peripheral material-discharging outlet; a single fan in said casing for drawing material from said hopper through said inlet, discharging air through said blast outlet and material through said peripheral outlet; and a duct leading from said blast outlet to the side of the hopper opposite said fan for conveying air from said fan into said hopper and propelling material therethrough into said fan. 45 50 55

3. The combination, in a pneumatic stacker, of a hopper; a fan casing at one side thereof having a material-receiving inlet and a blast-discharging outlet in its inner wall, and a peripheral discharge outlet; a single fan in said casing for drawing material from said hopper through said inlet, discharging air through said blast outlet and material through said peripheral outlet; and an air conductor communicating with said blast outlet and leading to the side of the hopper opposite said fan for conveying air into said hopper and propelling material therethrough into said fan. 60 65 70

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