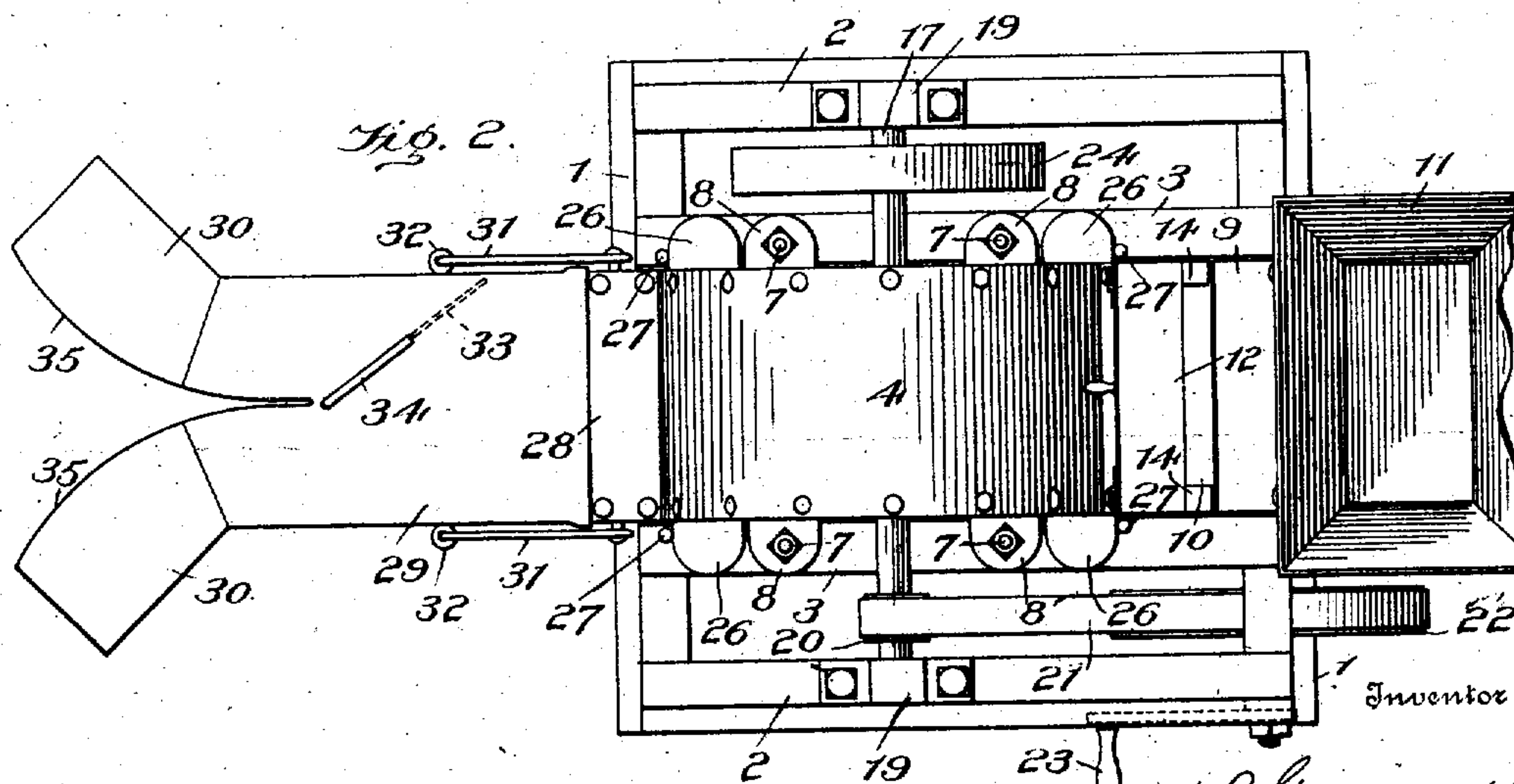
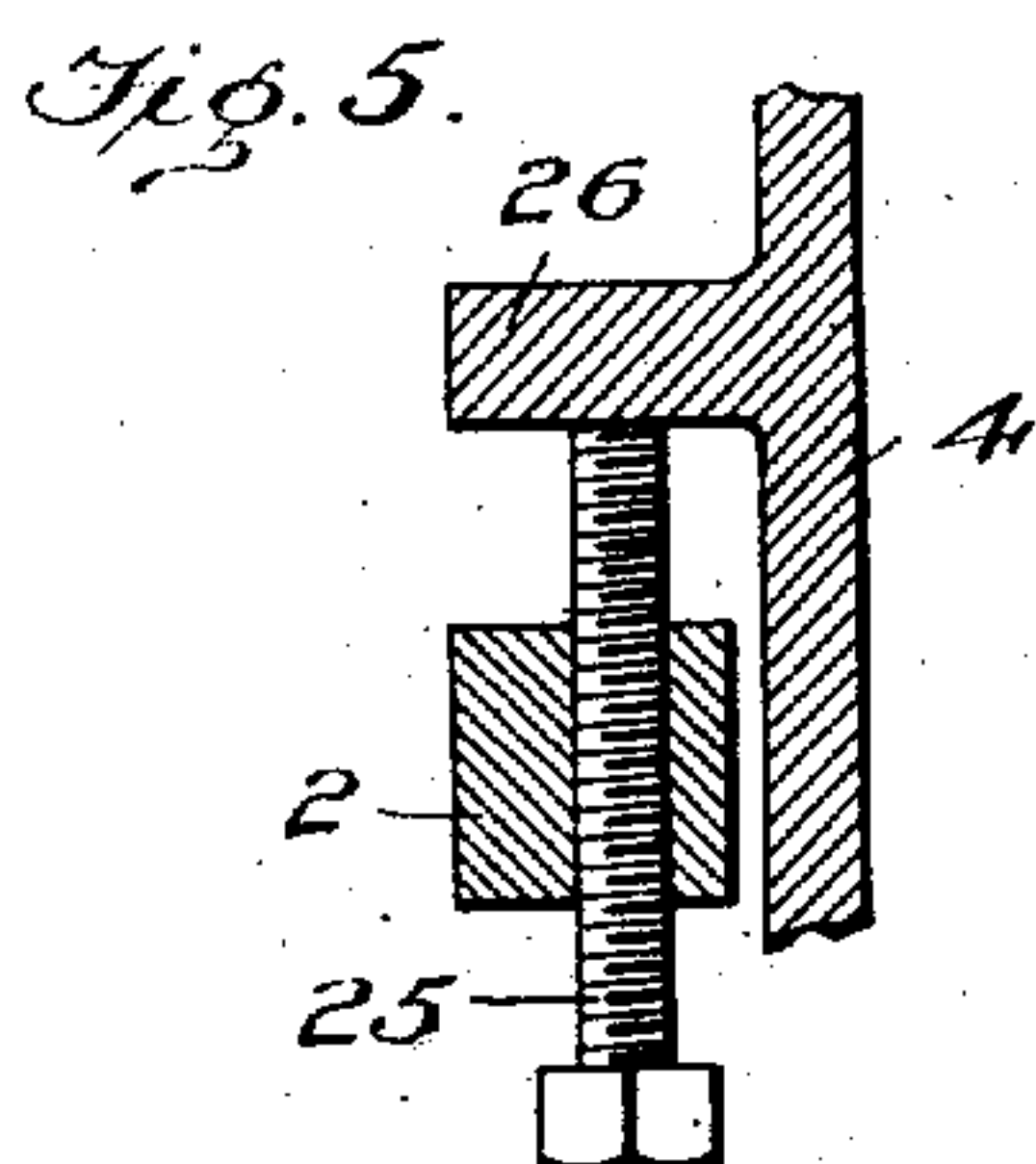
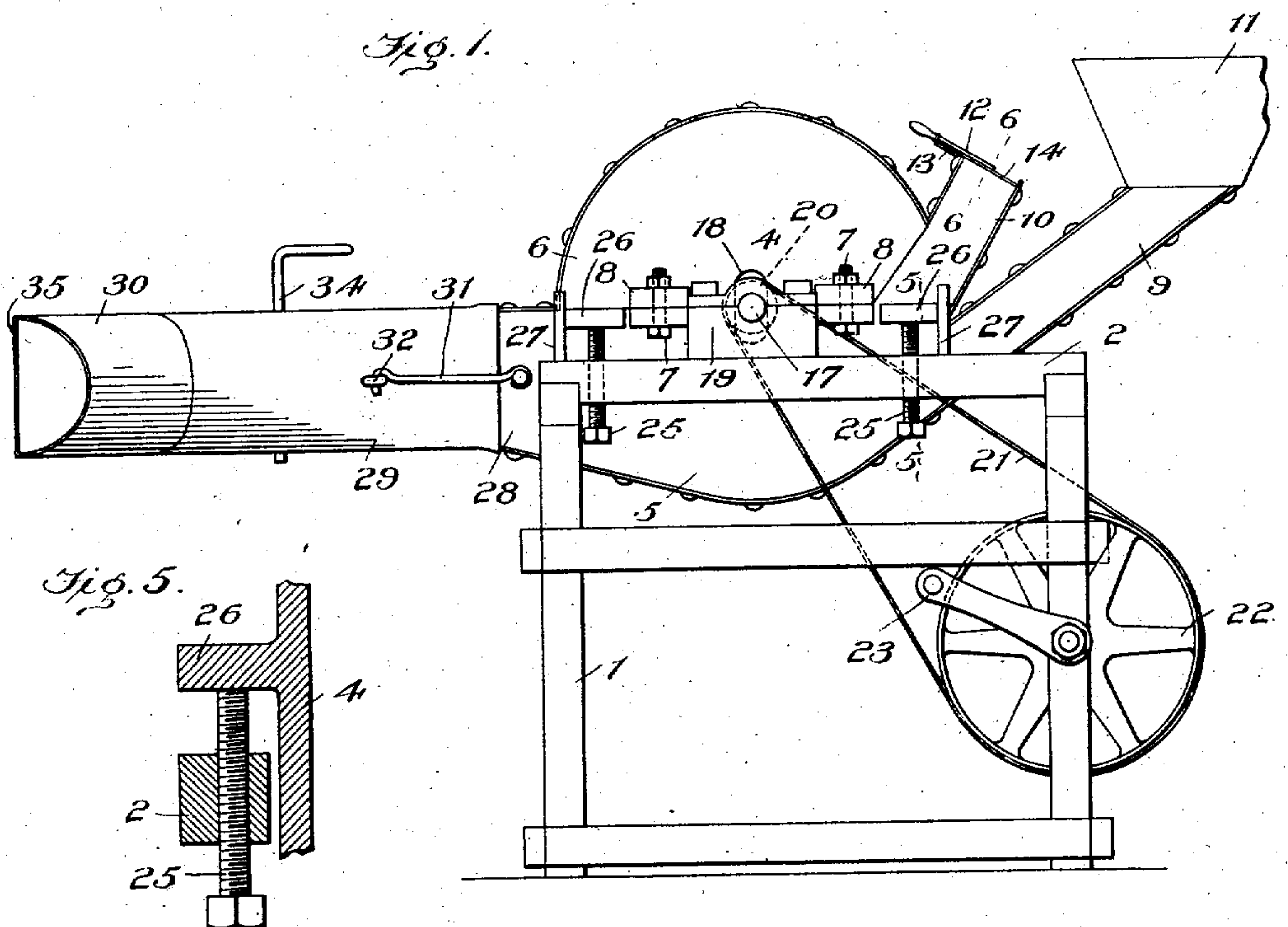


No. 884,016.

PATENTED APR. 7, 1908.

C. L. GROVES.
PNEUMATIC CONVEYER.
APPLICATION FILED APR. 30, 1907

2 SHEETS—SHEET 1.



Witnesses
Edwin L. Bradford
L. O. Little.

Clarence L. Groves
By Watson E. Coleman
Attorney

No. 884,016.

PATENTED APR. 7, 1908.

C. L. GROVES.
PNEUMATIC CONVEYER.
APPLICATION FILED APR. 30, 1907.

2 SHEETS—SHEET 2.

Fig. 3.

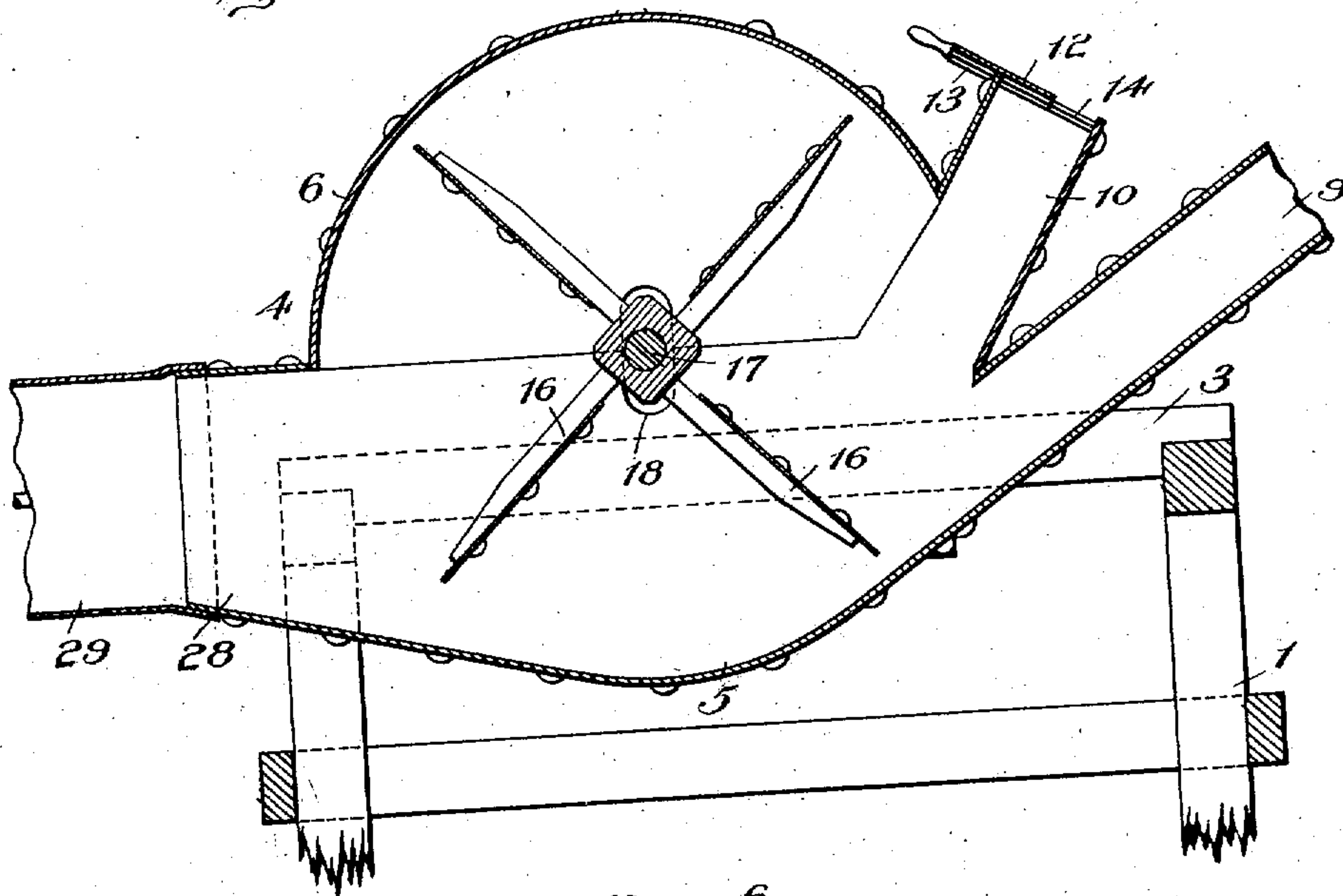


Fig. 4.

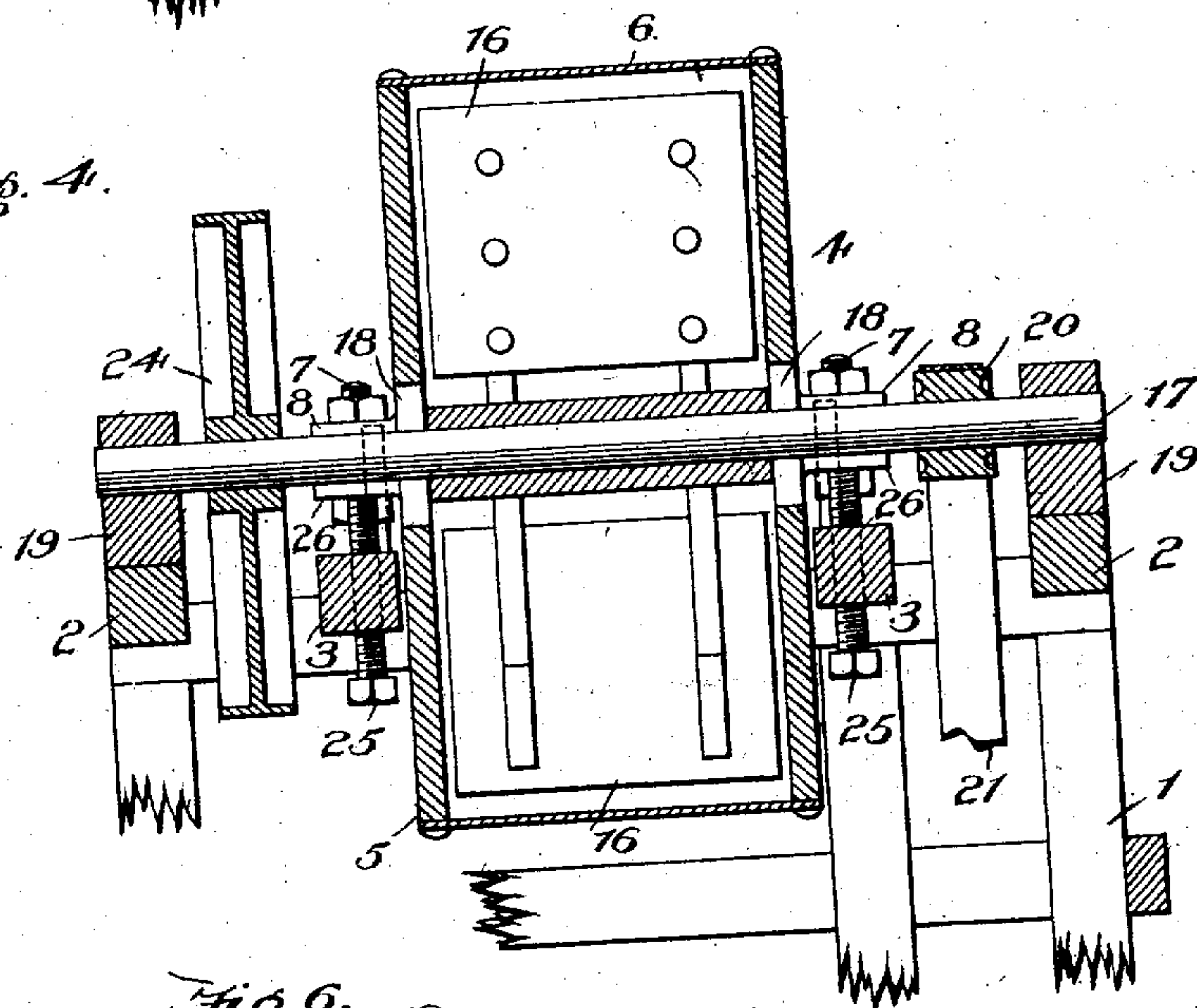
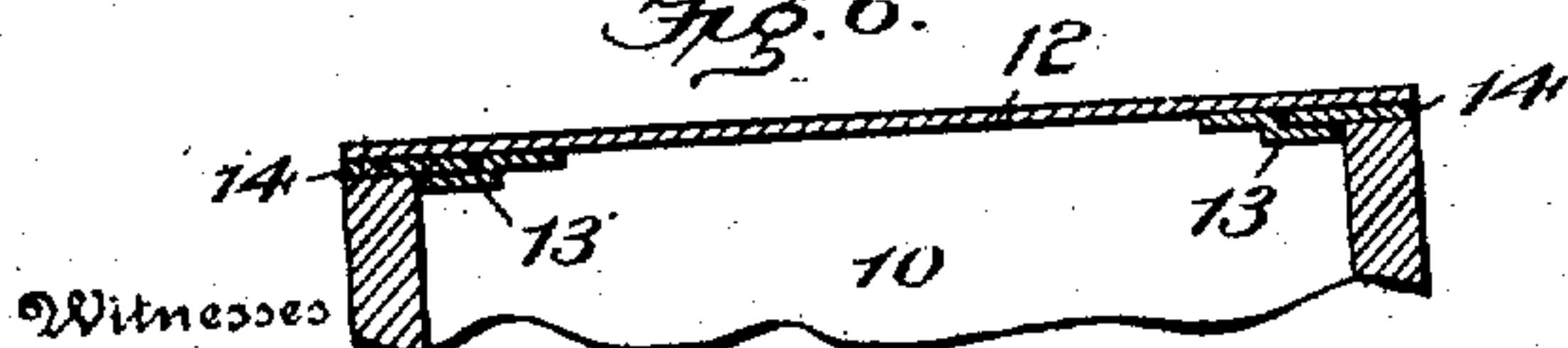


Fig. 6.



Witnesses

Edwin L. Bradford
L. O. Little

By

Clarence L. Groves
Watson E. Coleman
Attorney

UNITED STATES PATENT OFFICE.

CLARENCE L. GROVES, OF HARTFORD CITY, INDIANA.

PNEUMATIC CONVEYER.

No. 884,016.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed April 30, 1907. Serial No. 371,155.

To all whom it may concern:

Be it known that I, CLARENCE L. GROVES, a citizen of the United States, residing at Hartford City, in the county of Blackford and State of Indiana, have invented certain new and useful Improvements in Pneumatic Conveyers, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in pneumatic conveyers and more particularly the one set forth in Patent #843,806, granted to me February 12, 1907.

One object of the present invention is to provide an improved air inlet for the fan casing whereby the feed of air to the fan may be readily controlled.

Another object of the invention is to provide an improved mounting for the fan casing whereby it may be adjusted with respect to its contained fan to adapt the machine for handling either large or small grain or similar substances.

Another object of the invention is to provide an improved discharge or outlet for the machine whereby it may be more effectively used for loading grain or the like in cars.

A further object of the invention is to improve and simplify the construction and operation of pneumatic conveyers of the character mentioned and thereby render the same less expensive and more efficient and durable.

With the above and other objects in view the invention consists in the novel features of construction and the combination and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of the improved machine; Fig. 2 is a top plan view of the same; Fig. 3 is a vertical longitudinal section, the lower portion of the supporting frame being broken away; Fig. 4 is a detail vertical transverse section taken on the plane indicated by the line 4—4 in Fig. 1; and Figs. 5 and 6 are detail sections taken respectively on the planes indicated by the lines 5—5 and 6—6 in Fig. 1.

My improved pneumatic conveyer comprises a supporting frame 1 having at its top upon each side outer and inner longitudinal beams 2, 3 which are suitably connected together, as shown.

Between the inner beams 3 is arranged the fan casing 4 which is vertically adjustable and consists of a lower base section 5 and an

upper removable cover section 6. These sections 5, 6 of the casing may be made of wood, metal or any other material. The latter is detachably secured upon the former by bolts or the like 7 arranged in registering ears or lugs 8 projecting laterally from said sections at their meeting edges, as clearly shown in Fig. 1. The main or base section 5 is formed at its rear end with a feed inlet or pipe 9 for the grain or other material to be handled by the machine and also with an air inlet pipe 10 which is arranged slightly above the feed pipe 9. The latter is tangentially disposed and may be suitably connected to a hopper or the like 11.

In order to control the supply of air to the fan within the casing 4 for the purpose of effectively regulating the operation of the machine, I provide the inlet pipe 10 with a controlling valve 12. The latter is in the form of a plate mounted for sliding movement across the open upper end of said pipe and, as clearly shown in Fig. 6, has secured upon its under face angle strips 13 which slidably engage the projecting inner edges of guide strips 14 secured upon the opposite sides of the air inlet pipe 10. These guide or track strips 14 have their lower ends bent downwardly to form stops to limit the downward sliding or closing movement of the valve plate.

Any suitable means may be provided for retaining the valve plate in an adjusted position to vary the opening of the pipe 10 but I preferably so construct the guides 13, 14 that the frictional engagement of said parts will be sufficient to maintain the valve plate in an adjusted position.

Arranged within the fan casing is a rotary fan 16 which may be of any suitable form and construction and which is secured to a transverse shaft 17 projecting through vertical slots or elongated openings 18 formed in the opposite sides of the fan casing, and has its ends journaled in bearings 19 fixed upon the outer beams 2 of the frame 1. The fan may be driven in any suitable manner but as illustrated I preferably provide upon one of the projecting ends of its shaft a pulley 20 and connect the same by a belt 21 to a pulley 22 suitably journaled in the lower portion of the frame 1 and having upon one end of its shaft a crank handle 23. I also preferably provide upon the other projecting end of the fan shaft 17 a fly wheel 24 which latter is arranged between the beams 2, 3,

upon one side of the machine, as clearly shown in Fig. 2.

The fan casing 4 is made vertically adjustable for the purpose of shifting it with respect to its contained fan 16 and thereby adapting the machine for handling different sized grain or similar material. This vertical adjustment of the casing is effected by supporting it upon set screws 25 arranged vertically in the inner beams 3 and adapted to have their upper ends engage laterally projecting lugs 26 formed upon the sides of the base section 5 of the fan casing adjacent to its upper edge, as shown in Fig. 1. The fan casing is guided in its vertical sliding movement by the engagement of its sides with the inner faces of the beams 3 and also by upright guide posts 27 which project vertically from the beams 3 and slidably engage the outwardly projecting lugs 26, as will be understood upon reference to Figs. 1 and 2. The fan casing may, however, be mounted and guided in its sliding movement by any other suitable means than the foregoing.

At the front end of the fan casing is formed an outlet or discharge pipe 28 upon which is detachably mounted a conveying pipe 29 having two diverging or oppositely projecting branches 30. The detachable connection of the pipes 28, 29 is effected by flaring the inner end of the latter so that it will readily fit over or telescope the former and by providing hooks 31 which are pivoted upon opposite sides of the pipe 28 and adapted to engage eyes or the like 32 upon opposite sides of the pipe 29. Arranged in this conveying pipe 29 is a combined valve and deflector 33 which may be swung to either side of said pipe to close one of its branches 30 and direct the grain into its other branch or which may be set into central position in the pipe 29 to divide the stream of grain so that half of it passes through each of the pipes 30. This valve 33 is in the form of a plate secured upon a vertical pivot 34 which has its upper end projecting above the top of the pipe 29 and bent to form a handle. The conveying pipe 29 with its two branches 30 is especially designed for use upon the machine in loading grain upon cars, in which case the frame 1 is set close to the car track and the pipe 29 is applied to its discharge end or pipe 28 so that the branches 30 project into the car and towards the opposite end of the latter.

Upon reference to Figs. 1 and 2 it will be noted that the branch pipes 30 are of peculiar form, that is, of semi-circular shape in cross section and have their flat portions or walls 35 disposed vertically. I have found that when the branch pipes 30 are thus provided with the flat portions 35, the grain will be more effectively directed through said branch pipes.

It is thought that the construction, operation and advantages of my invention will be readily understood from the foregoing description taken in connection with the accompanying drawings and further explanation is therefore deemed unnecessary.

While I have shown and described in detail the preferred embodiment of the invention it will be understood that I do not limit myself to the precise showing herein set forth and that various changes in the form, proportion and minor details of construction may be resorted to within the scope of the appended claims.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. A pneumatic conveyer comprising a fan, a cylindrical fan chamber having at substantially opposite points upon its circumference the tangential feed and outlet pipes 9, 28, and also having the air inlet pipe 10 arranged in its circumference immediately above the feed pipe 9 and a valve plate transversely slidable across said air inlet pipe, substantially as set forth.

2. A pneumatic conveyer comprising a fan, a fan chamber having tangential feed and outlet pipes, an air inlet pipe opening into the chamber adjacent to the feed pipe, guides upon said air inlet pipe and a valve plate slidably engaged with said guides and movable across said air inlet pipe, for the purpose set forth.

3. A pneumatic conveyer comprising a support, a fan casing arranged thereon and consisting of a base section having an open top, a discharge pipe at one end and a feed pipe and an air inlet pipe at its other end, a fan in said fan casing, a removable cover section secured upon the open top of said base section of the fan casing and means for controlling the passage of air through said air inlet pipe.

4. A pneumatic conveyer comprising a supporting frame, a fan, a shaft for the fan journaled in bearings upon said frame and a casing for the fan adjustable transversely with respect to its shaft to vary the space between the outer ends of the blades of the fan and the inner face of the casing, substantially as set forth.

5. A pneumatic conveyer comprising a supporting frame, a fan, a shaft for the fan journaled in bearings upon said frame, a casing for the fan carried by the frame and movable transversely with respect to the fan shaft to vary the space between the ends of the fan blades and the inner face of the wall of the casing, and set screws for adjusting said fan casing, substantially as and for the purpose set forth.

6. A pneumatic conveyer comprising a supporting frame, a fan, a shaft for the fan journaled in bearings upon said frame, a cas-

ing for the fan carried by the frame and movable transversely with respect to the fan shaft to vary the space between the ends of the fan blades and the inner face of the wall of the casing, means for adjusting said fan casing, and means for guiding said fan casing in its sliding movement, substantially as set forth.

7. A pneumatic conveyer comprising a supporting frame, a fan, a shaft for the fan journaled in bearings on the frame, a fan casing slidable transversely with respect to the fan shaft to vary the space between the ends of the blades of the fan and the inner face of the wall of the casing, lugs carried by the casing, and set screws arranged in the frame and engaged with said lugs for adjustably supporting the casing.

8. A pneumatic conveyer comprising a

supporting frame, a fan having its shaft journaled in bearings upon said frame, a casing for the fan, lugs projecting from the opposite sides of said casing, set screws in said frame to engage said lugs and means for guiding said casing in its sliding movement.

9. A pneumatic conveyer comprising a fan casing having a discharge pipe, a conducting pipe projecting from said discharge pipe and diverging branches upon the outer end of said conducting pipe, each of said branches having the flat vertically extending walls substantially as and for the purpose specified.

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

CLARENCE L. GROVES.

Witnesses:

JOHN A. BONHAM,
GEORGE P. AYRES.