

G. HOLMES.  
FEEDER OR RECEIVING PAN FOR CONVEYERS.  
APPLICATION FILED DEC. 26, 1908.

950,621.

Patented Mar. 1, 1910.

3 SHEETS—SHEET 1.

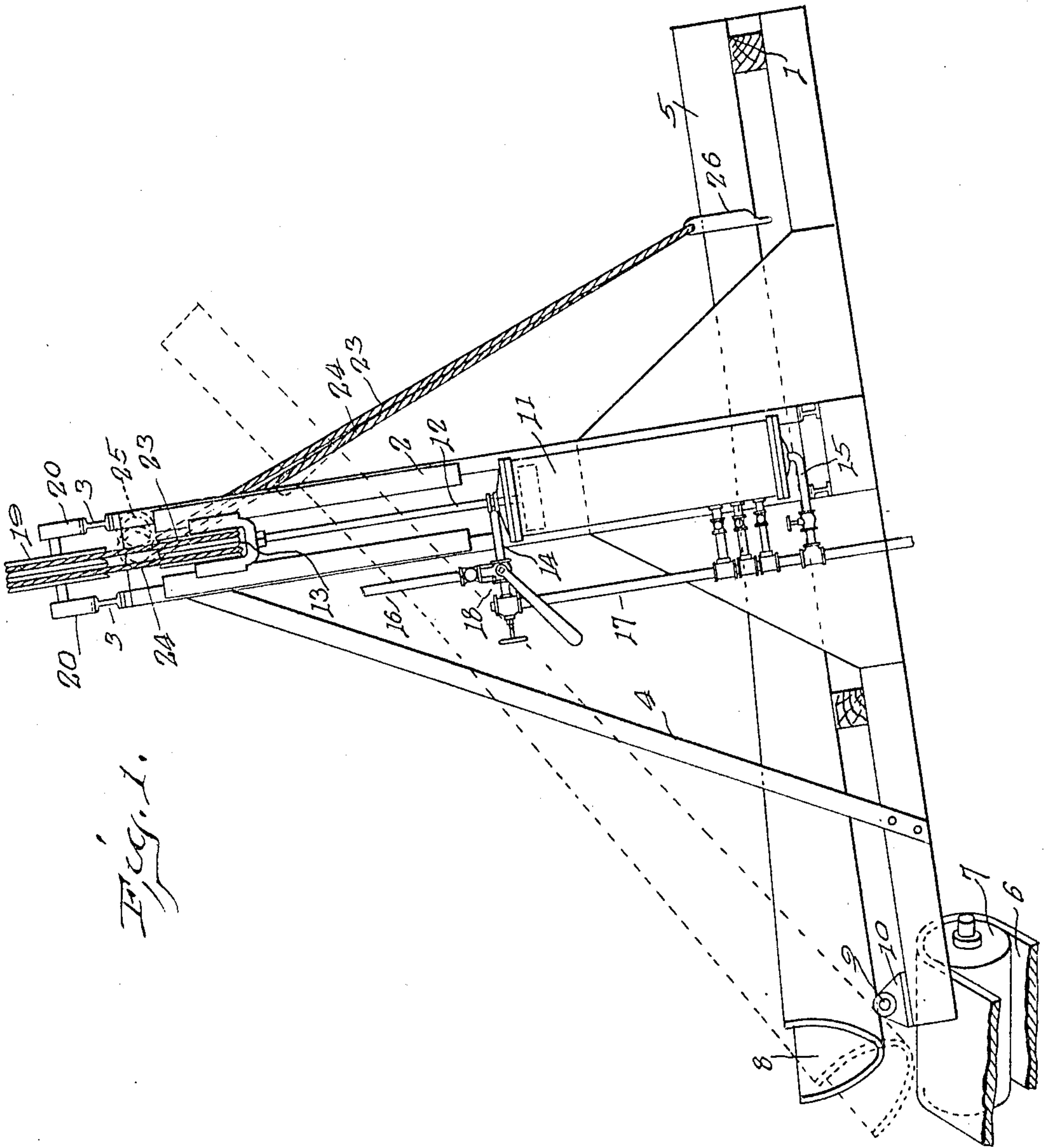


Fig. 1.

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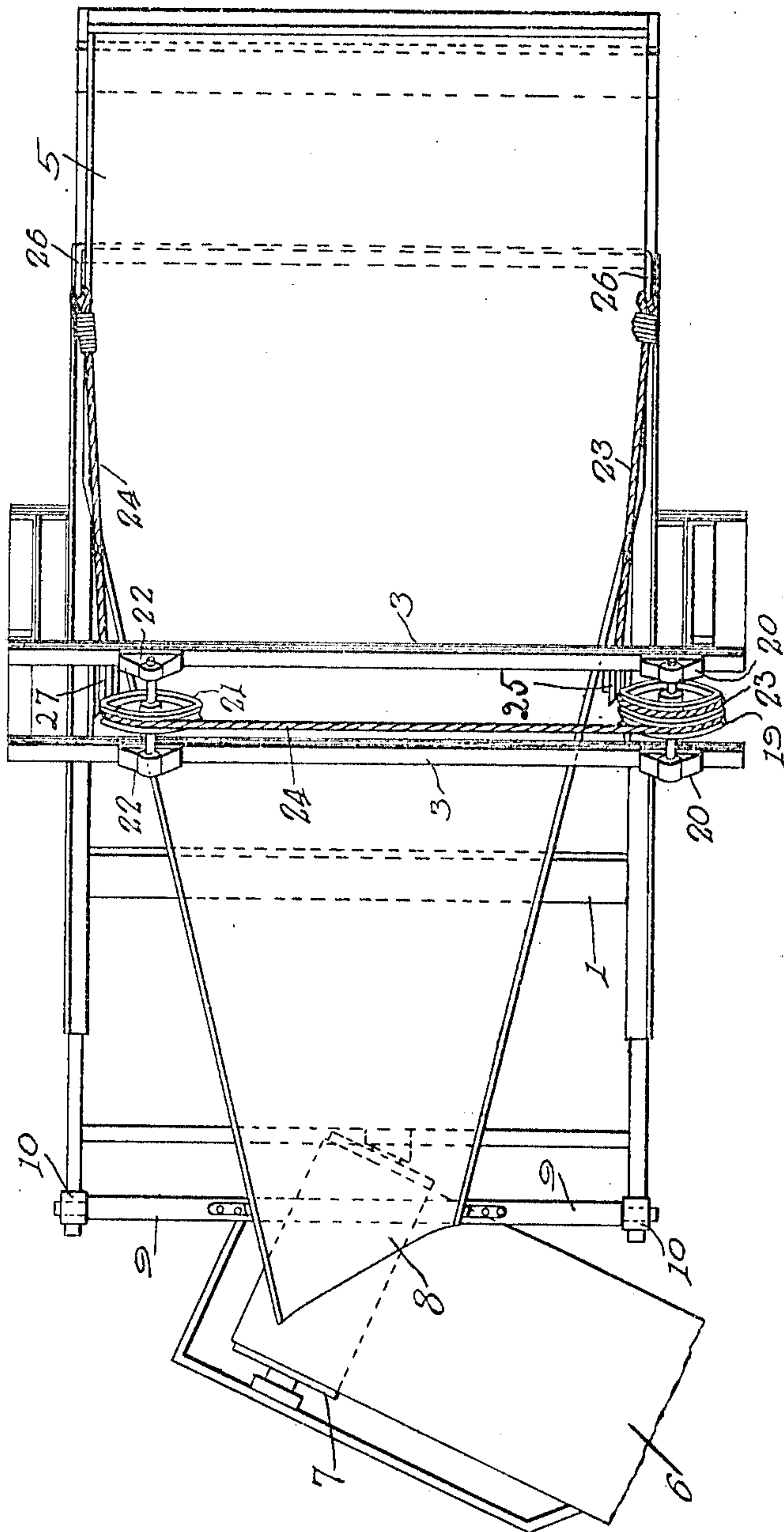
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Fig. 2.



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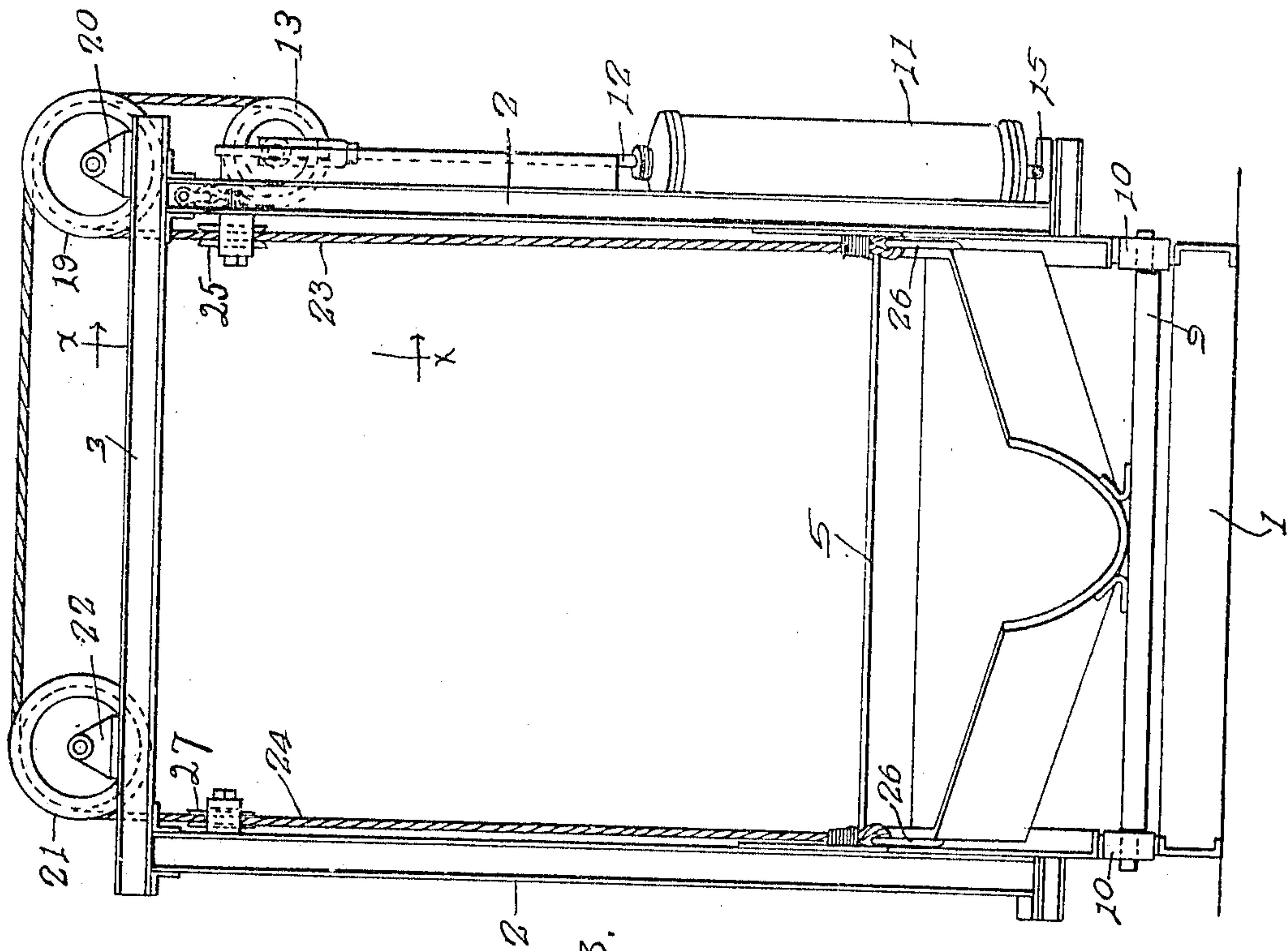
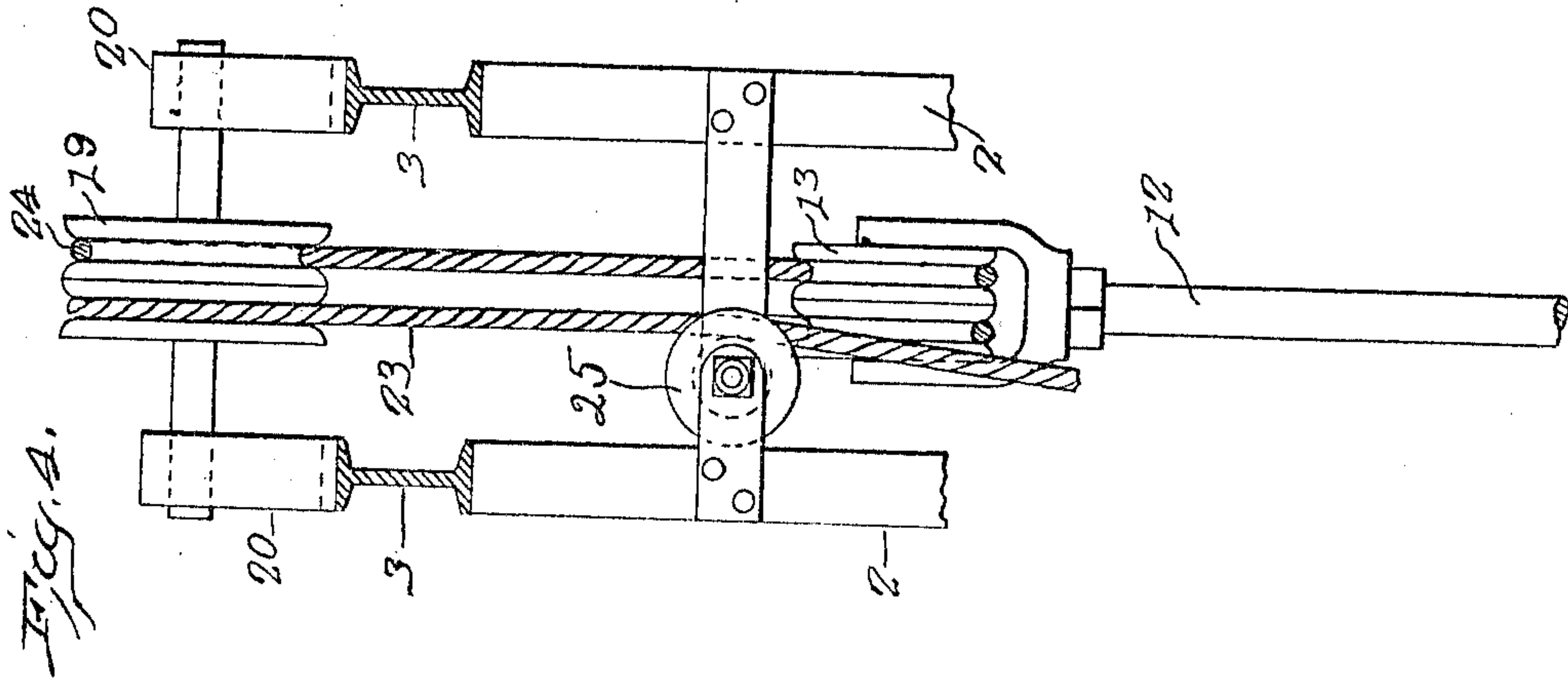
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3 SHEETS—SHEET 3.



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*Fig. 3.*

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# UNITED STATES PATENT OFFICE.

GRANT HOLMES, OF DANVILLE, ILLINOIS, ASSIGNOR TO ROBERT HOLMES & BROTHERS,  
OF DANVILLE, ILLINOIS, A CORPORATION.

FEEDER OR RECEIVING-PAN FOR CONVEYERS.

950,621.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed December 26, 1908. Serial No. 469,438.

*To all whom it may concern:*

Be it known that I, GRANT HOLMES, a citizen of the United States, residing at Danville, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Feeders or Receiving-Pans for Conveyers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to feeders or receiving pans for conveyers, such as are used in connection with excavating machines, coal handling mechanism and machines of a similar character.

15 The object of the invention is to provide a feeder or receiving pan of this character which will receive the material in large quantities as it is discharged from the dipper of an excavating machine or the hopper of a coal handling mechanism and which may be manipulated to discharge the material so received in relatively small quantities; to provide a feeder or receiving pan of this character which may be moved into an inclined position to cause the material to be discharged therefrom by gravity; to provide a receiving pan of this character of such a construction as to provide a large receiving space and a relatively small discharge opening; to provide such a pan with a discharge opening extending at an angle to the length of the pan; to provide a feeder or receiving pan with means for manipulating the same to cause the material to be discharged therefrom; and to provide a complete mechanism of this character which will be very simple in its construction and operation and which can be transported from one point to another.

40 With these objects in view my invention consists in certain novel features and in certain combinations and arrangements of parts hereinafter to be described and then more particularly pointed out in the claims.

45 In the accompanying drawings, Figure 1 is a side elevation of a feeder embodying my invention; Fig. 2 is a top plan view of the same; Fig. 3 is a front elevation of the same; and Fig. 4 is a detail view of the upper end of one of the side members of the frame.

50 In these drawings I have illustrated one form of my invention, and have shown the same of a construction particularly designed for use in connection with steam shovels.

55 As here shown, the feeder as a whole com-

prises a frame having a base portion 1 adapted to be supported upon the surface of the ground or in any suitable manner, and preferably to be arranged in a substantially horizontal position, although it is sometimes desirable to arrange the same at a slight inclination to the horizontal. Extending upwardly from the base portion 1 of the frame are upright members or standards 2, arranged on opposite sides of the base 1 and substantially midway between the ends thereof. The upright members or standards 2 are connected at their upper ends by transverse beams or connecting bars 3 which are preferably two in number and are spaced some distance apart, as shown. It is also sometimes desirable to provide the upright members or standards 2 with braces, as shown at 4, which braces extend from points near the upper ends of the standards to the base on one side of said standards. In this form of the invention the feeder or receiving pan proper, 5, extends longitudinally of the base 1, is of a length substantially equal to the length of that base and is arranged between the upright members or standards 2, which standards are preferably provided with suitable means for manipulating the receiving pan or feeder.

The receiving pan itself may be of any suitable construction, but, in the present instance, I have shown the rear portion of the pan, or the portion farthest removed from the point of discharge, as having its side walls substantially parallel and of a relatively small depth. At a point some distance removed from the rear end thereof, the pan begins to taper, *i. e.*, the side walls converge forwardly or toward the point of discharge, and, as the side walls converge, the central portion of the bottom is depressed until the forward end of the pan is substantially semicircular in cross section and of a depth considerably greater than the depth of the rear portion of the pan.

The supporting frame which carries the pan 5 is so arranged that the forward or discharge end of the pan will extend above a conveyer which is adapted to receive the material therefrom and convey the same to a suitable point of discharge. In the present instance this conveyer is shown as an endless belt 6, of ordinary construction, extending about a drum 7 which is rotatably supported at a point near the base 1 of the frame. As



stated, the forward or discharge end of the pan 5 extends above the conveyer 6 and is preferably open and without controlling means of any kind. Further, one side of the discharge end of the pan extends forwardly a distance considerably greater than does the other side of the pan, thus causing the lower edge of the discharge mouth of the pan to extend at an inclination to the length of the pan, as shown at 8 and also causing the same to extend transversely to the conveyer, thereby enabling the material to be discharged upon the conveyer across substantially its entire width. The forward or discharge end of the pan is preferably pivotally mounted on the base 1, and, in the present instance, this end of the pan is shown as having a shaft or transverse bar 9 rigidly secured thereto at a point slightly removed from the discharge mouth thereof, this shaft being journaled in suitable bearing brackets 10 mounted on opposite sides of the base 1. The opposite or rear end of the pan normally rests upon the base 1 and is free to be moved vertically to cause the material, which has been deposited thereon, to be discharged by gravity from the forward end of the pan.

Any suitable means may be provided for moving the pan 5 into an inclined position, such as will cause the material to be discharged from the forward end thereof. In the present instance I have shown one form of mechanism well adapted for this purpose, As here shown I have mounted at one side of the base 1 and adjacent to one of the upright members or standards 2 a power cylinder 11 provided with an upwardly extending piston rod 12, to the upper end of which is secured a double sheave or pulley block 13. The power cylinder 11 is provided at its upper and lower ends, respectively, with inlet and discharge pipes 14 and 15, the discharge pipe 14 being connected to a steam supply pipe or other source of power, as shown at 16. The pipe 14 extends some distance beyond the point of connection to the pipe 16 and is connected at its outer end to an exhaust pipe 17. The pipe 14 is provided at its point of connection to the supply pipe 16 with a three-way valve 18, by means of which the upper end of the cylinder 11 may be connected with either the supply pipe 16 or the exhaust pipe 17. The transverse beams 3 are provided at that end adjacent to the cylinder 11 with a double sheave or pulley 19, which is journaled in suitable bearings 20 mounted on said transverse beams, and are provided at their opposite ends with a single sheave or pulley 21 journaled in bearings 22 carried by the beams 3. Two ropes or cables 23 and 24 are provided, each of said cables having one end connected to that upright member or standard 2 adjacent to the cylinder 11, near the

upper end thereof. The cables thence extend downwardly and about the double sheave carried by the piston rod 12, thence upwardly and over the double sheave 19, whence the cable 23 extends downwardly about a suitable guide, such as a small pulley 25 mounted on the inner side of the upright member 2, and has its lower end secured to the pan 5 near the rear end thereof, preferably by connecting the lower end of the cable 23 to the upper end of a clip 26 which is rigidly secured to the pan. The cable 24 extends from the double sheave 19 transversely to the pan and about the single sheave 21 supported near the other end of the beam 3, thence downwardly about a guide 27, similar to the guide 25, and is secured to the pan 5 at a point directly opposite the point of connection of the cable 23 and is secured thereto preferably in the same manner as is the cable 23.

The operation of the device will be readily understood from the foregoing description and it will be apparent that, when in its normal position, the receiving pan or feeder proper, 5, rests in a substantially horizontal position upon the base 1; and that, while in this position, the dipper of the steam shovel is moved above the large, rear portion of the pan and the contents of the dipper dumped upon the pan. As soon as the dipper is removed from above the pan, the three-way valve 18 is opened to admit steam or other motive fluid to the cylinder 11, thereby moving the piston and piston rod 12 downwardly. The piston rod 12 carries with it the double sheave 13, thereby causing those portions of the cables 23 and 24, which extend about the double sheave 13, to be drawn downwardly, thus elevating the rear end of the pan, as shown in dotted lines in Fig. 1. As the pan approaches this position the material which rests upon the rear end thereof will slide forwardly under the influence of gravity, and, as it approaches the forward and discharge end of the pan, it will be compressed and will be discharged from the pan upon the conveyer in a relatively narrow stream or in relatively small quantities. Further, inasmuch as the discharge end extends transversely to the conveyer 6, the material will be discharged across substantially the full width of the conveyer and the load will be equally distributed thereon. When the material has all passed from the pan the three-way valve 18 is reversed to connect the upper end of the cylinder 11 with the exhaust pipe 17, thus permitting the pan to descend under its own weight to its normal position.

It will be apparent from the foregoing description that I have provided a feeder or receiving pan of this character which is adapted to receive at one time the entire contents of the dipper of a steam shovel or hop-



per of a coal handling mechanism, or the like, and may then be manipulated to discharge the material so received in a relatively narrow stream or relatively small quantities upon the conveyer; further, that I have provided a receiving pan or feeder of this character which is adapted to be moved into an inclined position to cause the material to be discharged therefrom by gravity and that, to this end, the discharge end of the feeder or receiving pan is pivotally supported in such a position that it will be at all times above the conveyer and the rear or receiving end of the pan is free to move vertically; and further, that the pan is of such a shape and its discharge mouth is so arranged as to secure the most satisfactory operation, to discharge the material in the desired quantities and to distribute the load equally over the conveyer. It will also be observed that I have provided this feeder or receiving pan with suitable mechanism for manipulating the same and that the entire mechanism is of a simple character and so constructed and arranged as to be easily shifted from one position to another or to be transported from one point to another.

While I have, in the present instance, shown and described the feeder or receiving pan as of a construction adapted particularly for use with steam shovels, it will be understood that the construction here shown and described is for purposes of illustration only and that the entire mechanism is capable of modification to adapt the same to the particular use to which it is applied; further, that while I have shown the frame as supported in a slightly inclined position, this arrangement is optional and the frame may be supported in any position which will give the most satisfactory results; and further, that while I have shown and described a particular mechanism for manipulating the receiving pan or feeder, any suitable mechanism may be employed for this purpose. I, therefore, wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described my invention,

what I claim as new and desire to secure by Letters Patent, is:—

1. In a mechanism for the purpose described, the combination, with a conveyer, of a receiving pan supported normally in a substantially horizontal position to receive a quantity of material, arranged at an angle to said conveyer and having a discharge mouth extending at an inclination to the length of said pan and arranged above and transversely to said conveyer, and means for moving said pan into an inclined position to discharge said material onto said conveyer.

2. In a mechanism for the purpose described, the combination, with a conveyer, of a receiving pan supported normally in a substantially horizontal position to receive a quantity of material and comprising a receiving portion having a flat bottom and substantially parallel side walls, and a discharge portion having converging side walls terminating in a discharge mouth, said discharge portion being substantially semicircular in cross section, said receiving pan extending at an angle to said conveyer and the discharge mouth extending at an inclination to the length of said pan and arranged above and transversely to said conveyer, and means for moving said pan into an inclined position to discharge said material onto said conveyer.

3. In a mechanism for the purpose described, the combination, with a frame comprising a base, and upright members arranged on the opposite sides thereof, of a receiving pan arranged between said upright members and pivotally connected at its forward end to said base, sheaves supported by said upright members, guides carried by said upright members beneath said sheaves, cables connected to said receiving pan near the rear end thereof and extending about said guides and said sheaves, and means for actuating said cables to move said receiving pan about its pivotal center.

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

GRANT HOLMES.

Witnesses:

WALTER C. LINDLEY,  
MAY MCAULIFFE.