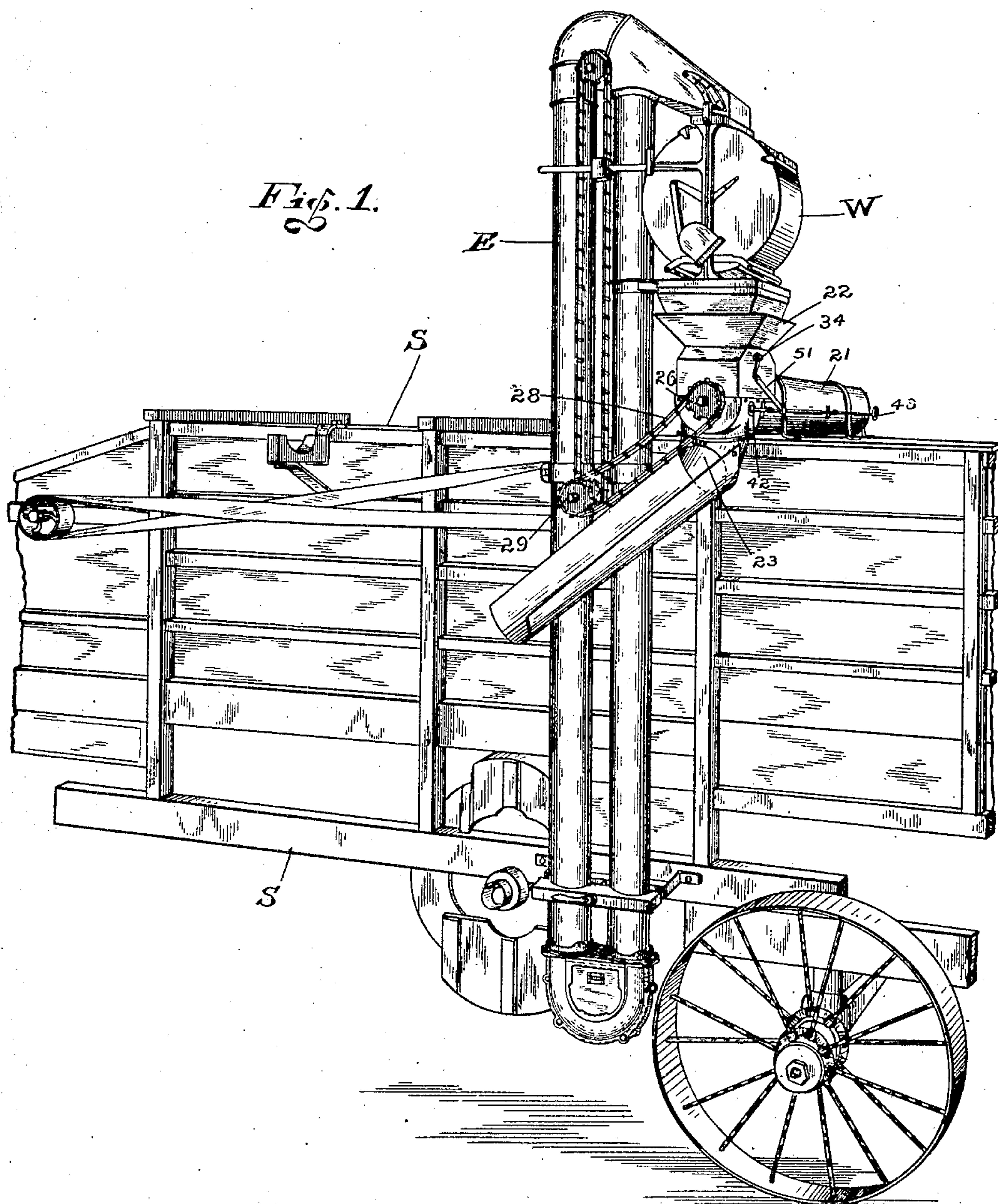


No. 849,594.

PATENTED APR. 9, 1907.

C. BRADFORD.
CROSS CONVEYER.
APPLICATION FILED OCT. 7, 1905.

2 SHEETS—SHEET 1.



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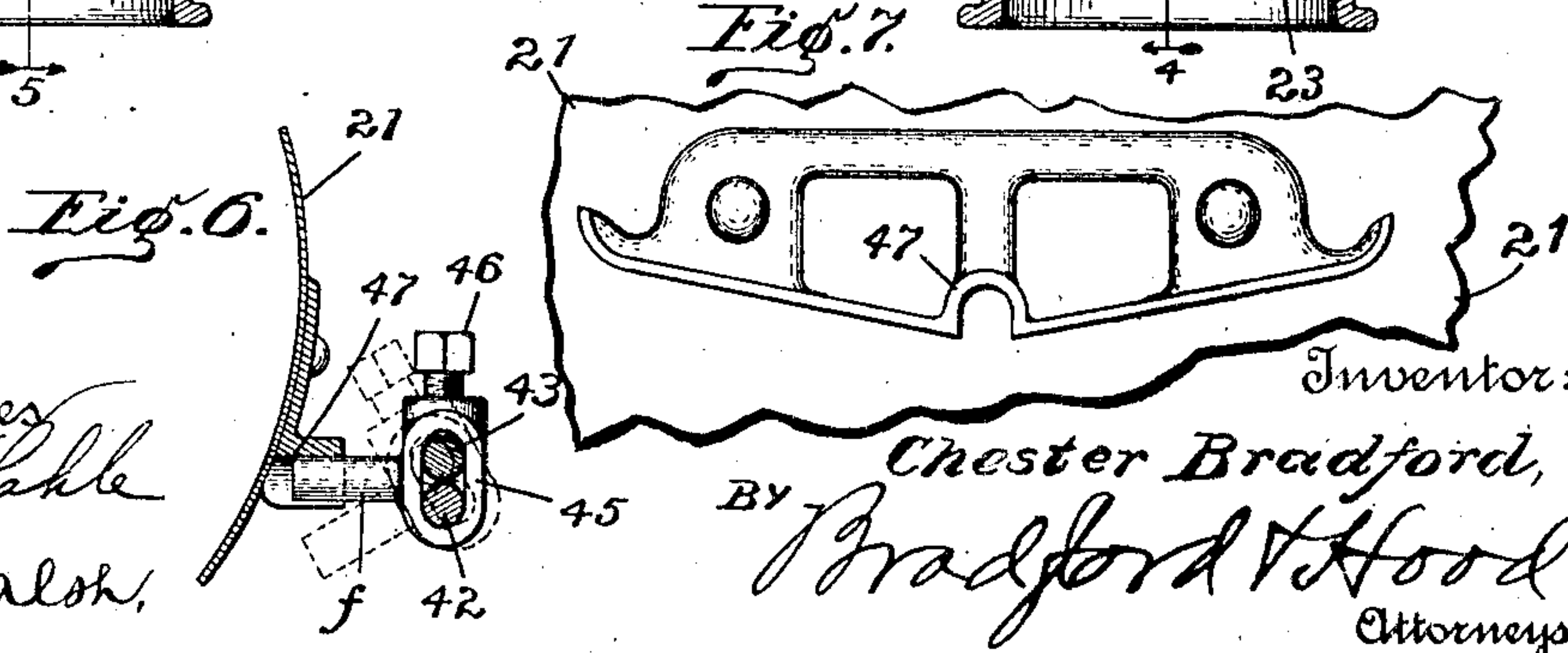
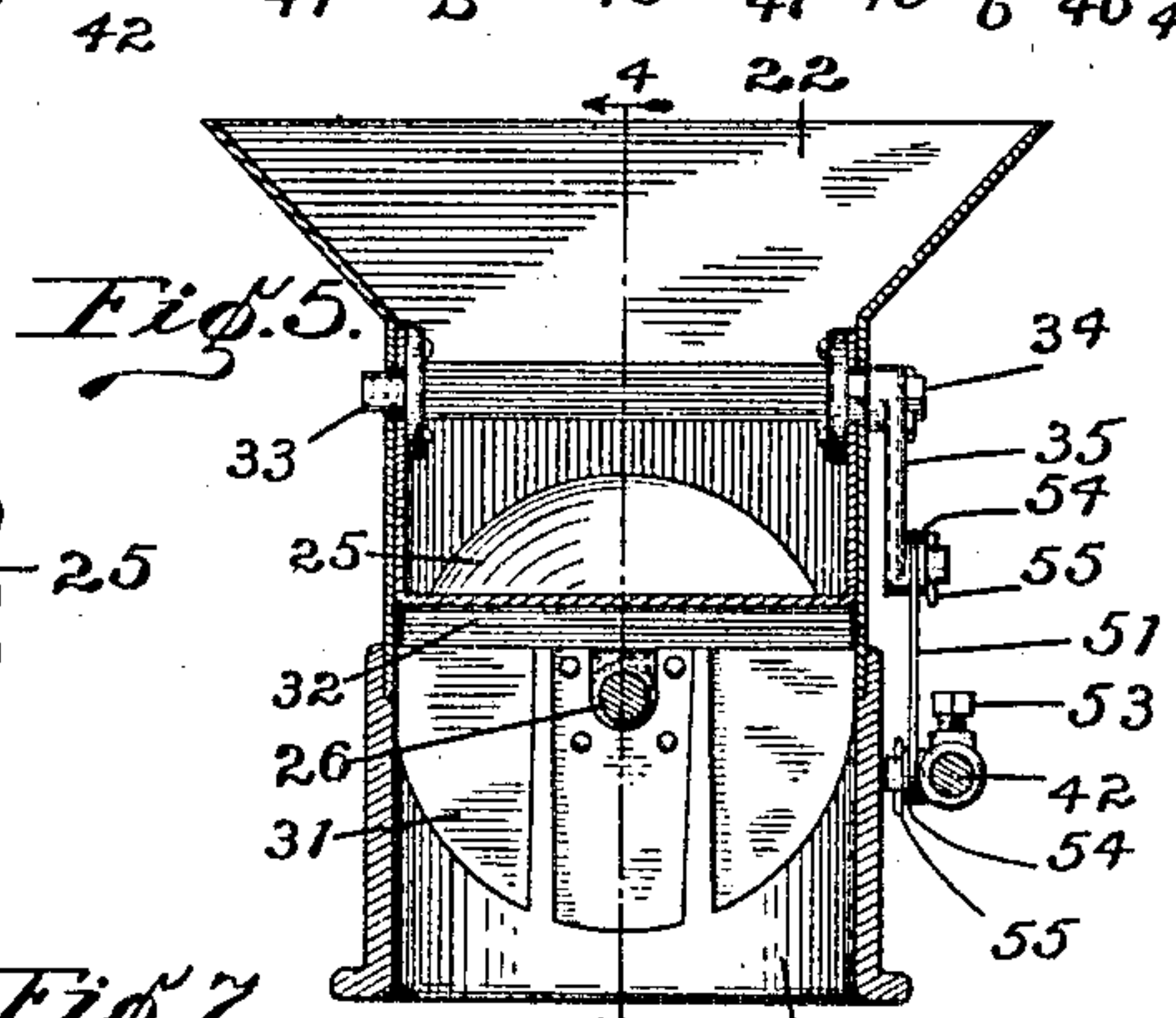
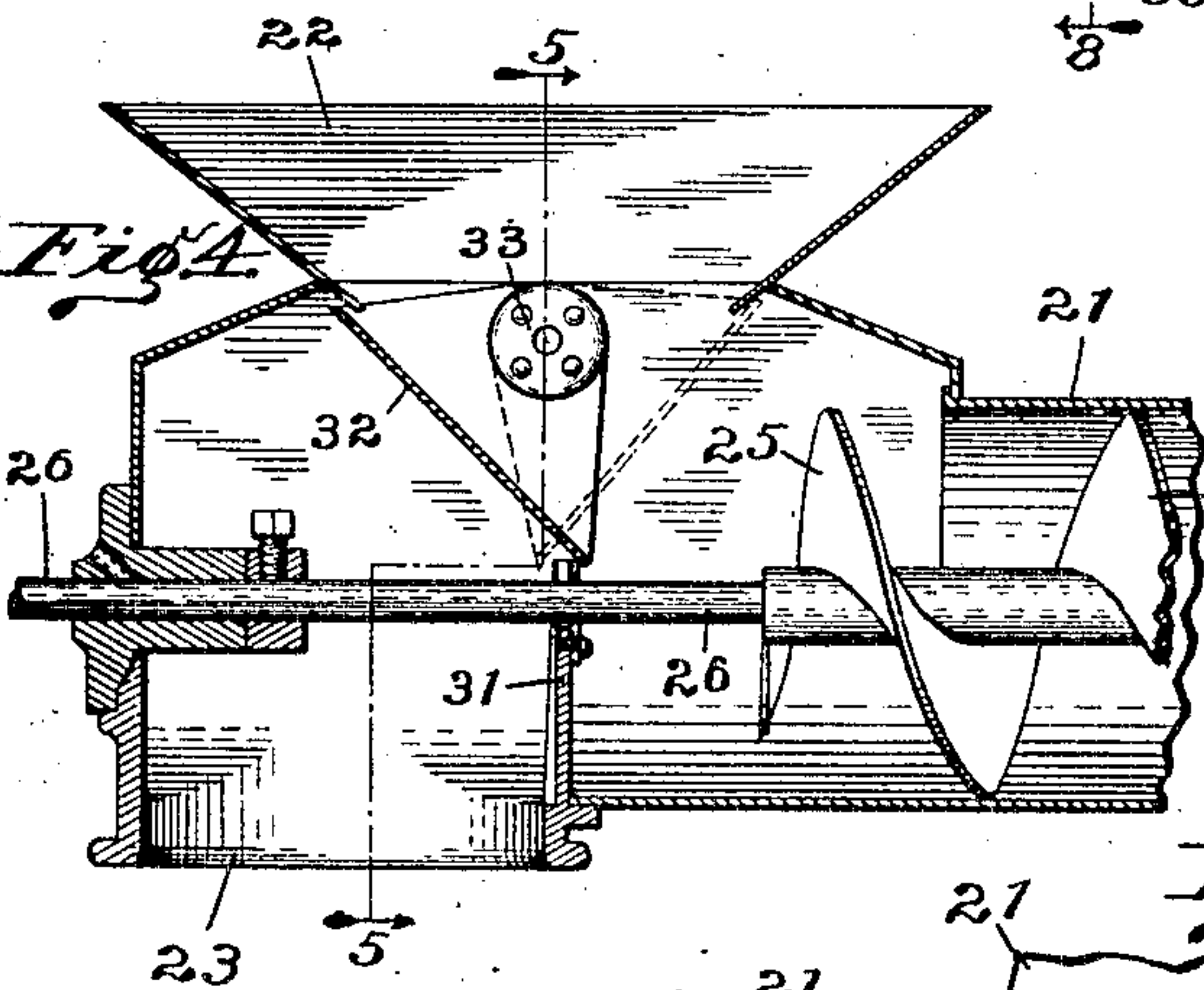
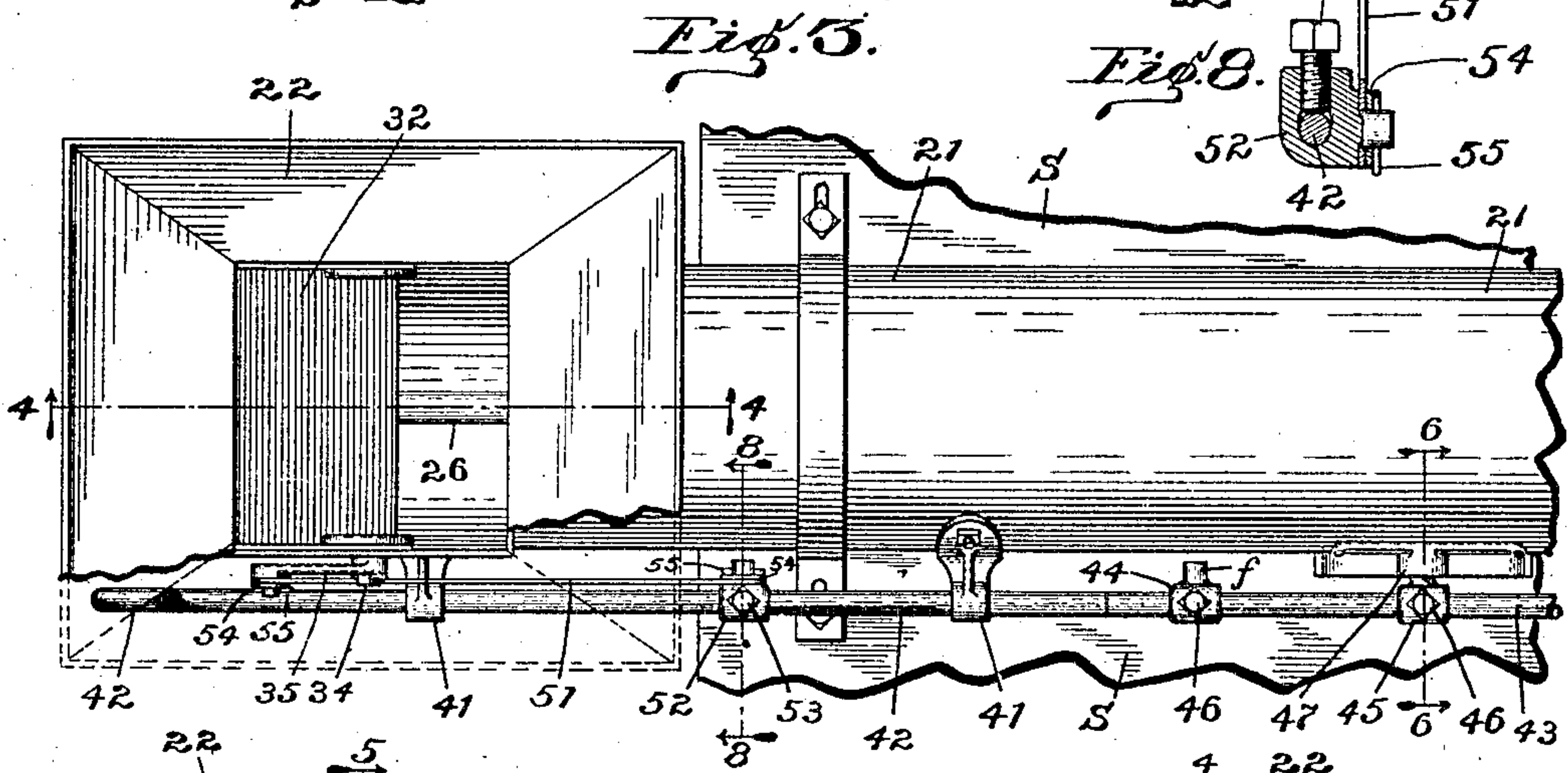
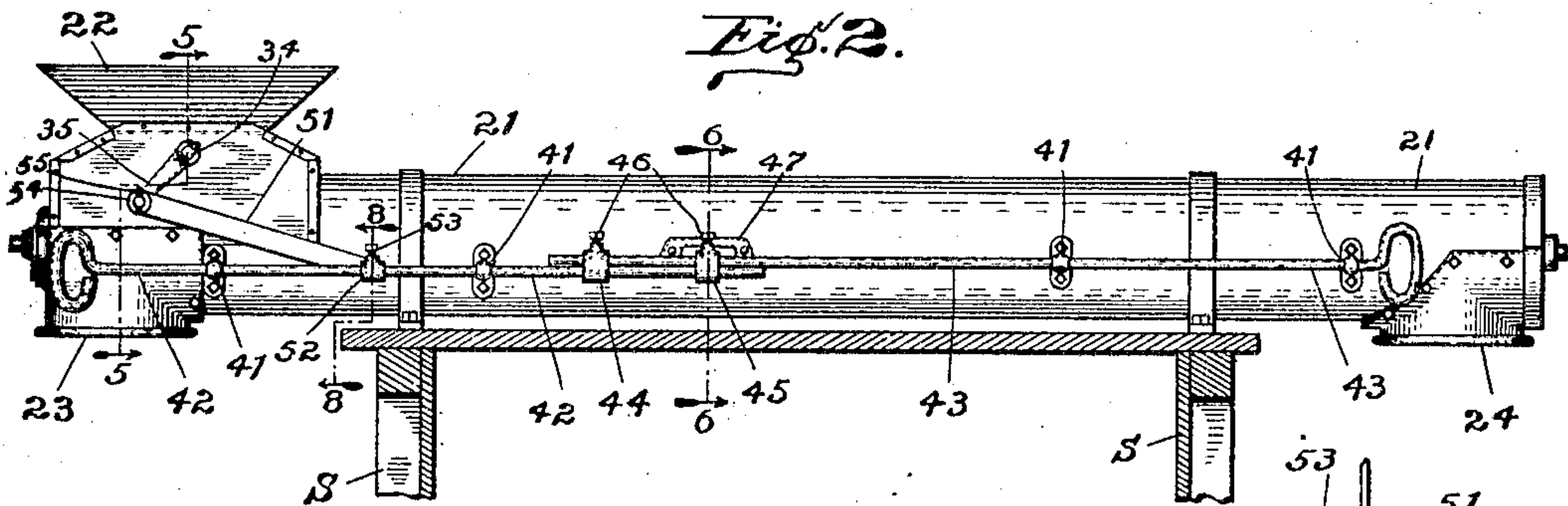
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHESTER BRADFORD, OF INDIANAPOLIS, INDIANA.

CROSS-CONVEYER.

No. 849,594.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed October 7, 1905. Serial No. 281,848.

To all whom it may concern:

Be it known that I, CHESTER BRADFORD, 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 Cross-Conveyers, of which the following is a specification.

My present invention relates to that class of grain-handling apparatus commonly used in connection with threshing-machines and which embodies an elevator whereby the grain is raised from the grain-delivery spout of the threshing-machine or separator to a position where it is to be delivered to suitable receptacles in which it is to be transported to a grainery or other place of deposit, it being sometimes delivered directly into a wagon-body and at other times into sacks, which are in turn usually placed in a wagon for such transportation.

Said invention especially relates to that part of such apparatus by means of which the grain is received from the elevator and delivered at will to the sacks or wagons upon either side of the threshing-machine, the same being commonly denominated a "cross-conveyer."

It consists particularly in the means for shifting the flow of grain so that it will be delivered at one end or the other of said cross-conveyer, as desired, and to various details of construction and arrangement of parts, all 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 perspective view of a grain-handling apparatus embodying my present invention arranged in place upon a threshing-machine or separator; Fig. 2, a side elevation of such a cross-conveyer separately; Fig. 3, a top or plan view thereof, a portion of the hopper being broken away to show the parts below more plainly; Fig. 4, a longitudinal vertical section view at the point indicated by the dotted line 4 4 in Figs. 3 and 5; Fig. 5, a transverse vertical sectional view as seen when looking in the direction indicated by the arrows from the dotted line 5 5 in Figs. 2 and 4; Fig. 6, a detail sectional view at the point indicated by the dotted line 6 6 in Fig. 2, showing the form of the catch mechanism more plainly; Fig. 7, a detail elevation, on an enlarged scale, of the catching device by means of which the shift-

ing-gate is held to the desired position; and Fig. 8 a detail sectional view at the point indicated by the dotted line 8 8 in Figs. 2 and 3.

The threshing-machine or separator S is of any usual or desired type. The elevator E and weigher W, while necessary parts of the grain-handling apparatus to which my invention relates, are not in themselves peculiar to my present invention and will not, therefore, be further described herein, except incidentally in referring to the invention.

The cross-conveyer consists of the usual conveyer-tube 21, provided with a receiving-hopper 22 at one end and two discharging-mouths 23 and 24, one at each end. The conveying means which I have chosen to illustrate is an ordinary auger 25, which is mounted on a shaft 26 and is driven from a suitable adjacent driving-shaft on some other part of the machine, the driving means being commonly a sprocket-chain 28, running to a sprocket-wheel 29 on said shaft.

Alongside the discharging-mouth 23 and centrally below the receiving-hopper 22 is a partition 31, which extends up from the bottom of the conveyer to a little beyond or above the shaft of the auger and is so arranged that when grain is delivered to one side of said partition it will fall through the mouth 23, but when directed to the other side of the partition it will come in contact with and be propelled by the auger through the conveyer-tube across the threshing-machine and delivered through the mouth 24.

A shifting valve 32 is arranged above the partition 31 and is adapted to shift the flow of grain to one side or the other of said partition, as indicated by the full and dotted lines, respectively, in Fig. 4. At the extreme sides of the structure this valve has upwardly-turned sides, to which are secured gudgeons 33 and 34. These are arranged directly above the partition 31 and constitute the bearings on which the valve swings. At the outer end of one of these gudgeons is secured an arm 35, by means of which the shifting of the valve is accomplished from the outside. In order that this shifting may be accomplished from both sides of the threshing-machine, I provide a handle-rod which extends across the machine alongside of the conveyer and which is mounted in bearings 41, secured to the sides of said conveyer. This rod for convenience in assembling and adjusting is made in two pieces 42 and 43, which overlap each other at the center where they come to-

gether and are clamped together by the combined couplings and latch-blocks 44 and 45, being held therein by ordinary set-screws 46, as shown. These parts 44 and 45 are positioned just that distance apart which the handle moves in shifting the valve from one position to the other and are each provided with a projecting latch-finger *f*, which is adapted to engage in the notch in the catch 47, secured to the side of the conveyer. When the finger *f* of the part 45 is engaged with this catch, the valve is held to the position indicated by the full lines in Fig. 4, and when the finger *f* on the part 44 is engaged with the catch the valve is held to the position indicated by the dotted lines in Fig. 4.

The handle-rod is connected to the arm 35 by a connecting-rod 51, which contains suitable perforations near its ends, one of which slips over a suitable wrist on the arm 35 and the other of which slips over a similar wrist on the block 52, which is adjustably secured on the handle-rod member 42 by an ordinary set-screw 53. The surface out of which the said wrists immediately extend are flat surfaces forming shoulders against which the sides of the connecting-rod (which are also flat) bear. The fastenings, as washers 54 and cotter-pins 55, which are on the opposite sides of the connecting-rod from said shoulders, serve to hold said rod at the connecting-points between two flat surfaces. The rod itself is thin and comparatively wide and is formed of spring metal, so that a rotation of the handle-rod in its bearings acts twistwise thereon against its spring force, which spring force tends always to return it to normal position. In the manipulation of the valve, therefore, by means of the devices which have been described the operator first grasps the handle of said handle-rod and rocks it in its bearings until the finger *f*, which is at the time in engagement with the notch in the catch 47, is thrown out of said notch, as indicated by the dotted lines in Fig. 6. The handle-rod is then pushed upon until the finger is beyond the notch and the force upon the handle-rod is continued until the finger *f* on the other combined coupling and latch-block enters the notch. This it is easily enabled to do by reason of the form of the catch-piece 47, which has a gradual taper in each direction leading to the said notch. The parts 44 and 45 being, as stated, positioned apart just the distance of the movement of the handle-rod in operating the valve, the movement in question results not only in the shifting of the valve, but in the efficient automatic locking of it in position. It then normally remains so locked in position until the handle-rod is again rocked (thus causing the twisting tension upon the combined spring and connecting-rod 51) and the operation already described is repeated.

Having thus fully described my said in-

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

1. The combination, in a flow-changer, of a shiftable valve, a handle-rod, latching devices carried by said rod and an adjacent stationary part and adapted to engage with each other, a connection between said handle-rod and the valve, and a spring whereby the catching devices are normally held into engagement but which will yield under a rocking force applied to the handle-rod and thus allow said catching devices to become disengaged.

2. The combination of a shifting valve, a handle-rod for operating the same, catch devices mounted on said handle-rod and on an adjacent stationary part and adapted to engage with each other, and a connecting-rod connecting said handle-rod and said valve formed of flat spring metal and secured against suitable shoulders whereby as the handle-rod is rocked in its bearings it tends to twist said connecting-rod against its spring force, which spring force when the force on the handle-rod is relieved tends to restore the parts to normal position.

3. The combination, in a cross-conveyer having two discharging-points and means for conveying material between the two points, of a shifting valve whereby the material is directed toward one of the said discharging-points when in one position and toward the other of said discharging-points when in the other position, a handle-rod secured in bearings alongside the conveyer and connected to said valve, and latching devices consisting of a catch part secured to the side of the conveyer and containing a notch, with inclines leading toward said notch and two latching-fingers secured to said handle-rod that distance apart which said handle-rod moves in shifting the valve from one position to the other, the fingers whereon are respectively adapted to traverse said inclines and engage with said notch at the respective ends of the movement.

4. The combination, in a cross-conveyer, of a valve for shifting the flow of material therein, a handle-rod connected to said valve for operating it, and catch devices for holding said handle-rod to the different positions, said handle-rod being formed in two parts, combined couplings and latch-fingers connecting said two parts, and a catch part wherewith said catch-fingers are adapted to be engaged secured to an adjacent stationary part.

5. A handle-rod composed of two parts, two coupling and latch members connecting said parts, and a catch with which each of said latch members is adapted to engage at the end of the movement of said handle-rod.

6. The combination, in a cross-conveyer having two discharging-points and means for conveying material between the two points,

of a shifting valve whereby the material is directed toward one of the said discharging-points when in one position and toward the other of said discharging-points when in the
5 other position consisting of a swinging plate carried by arms and gudgeons above said plate and a partition rising from the structure below to meet the plate in the same plane as the gudgeons, and a suitable handle-
10 rod connected to one of said gudgeons by

means of which said plate may be swung from one position to the other.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 3d day of October, A. D. 1905.

CHESTER BRADFORD. [L. S.]

Witnesses:

ARTHUR M. HOOD,
JAMES A. WALSH.