

No. 665,629.

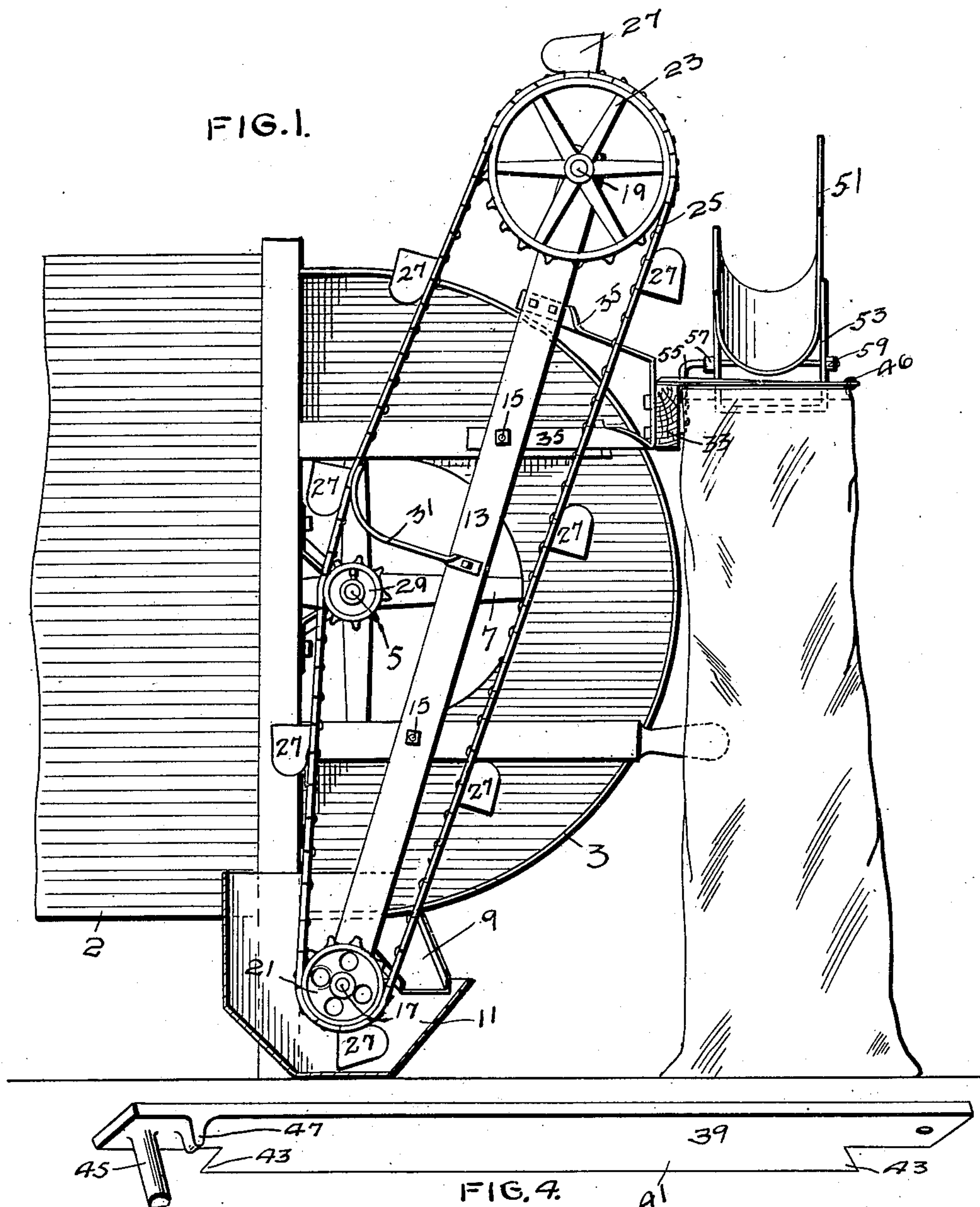
Patented Jan. 8, 1901.

A. V. CLELAND.
ATTACHMENT FOR FANNING MILLS.

(Application filed Aug. 12, 1899.)

(No Model.)

2 Sheets—Sheet 1



WITNESSES

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2 Sheets—Sheet 2.

FIG. 5.

FIG. 2.

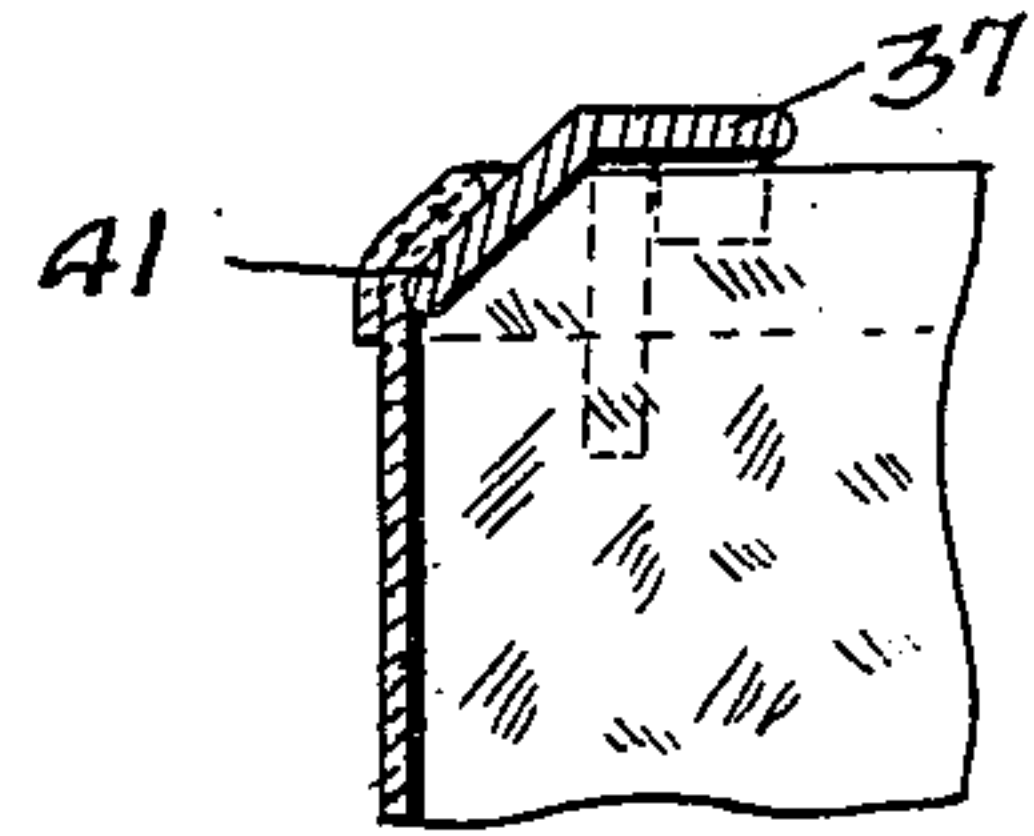
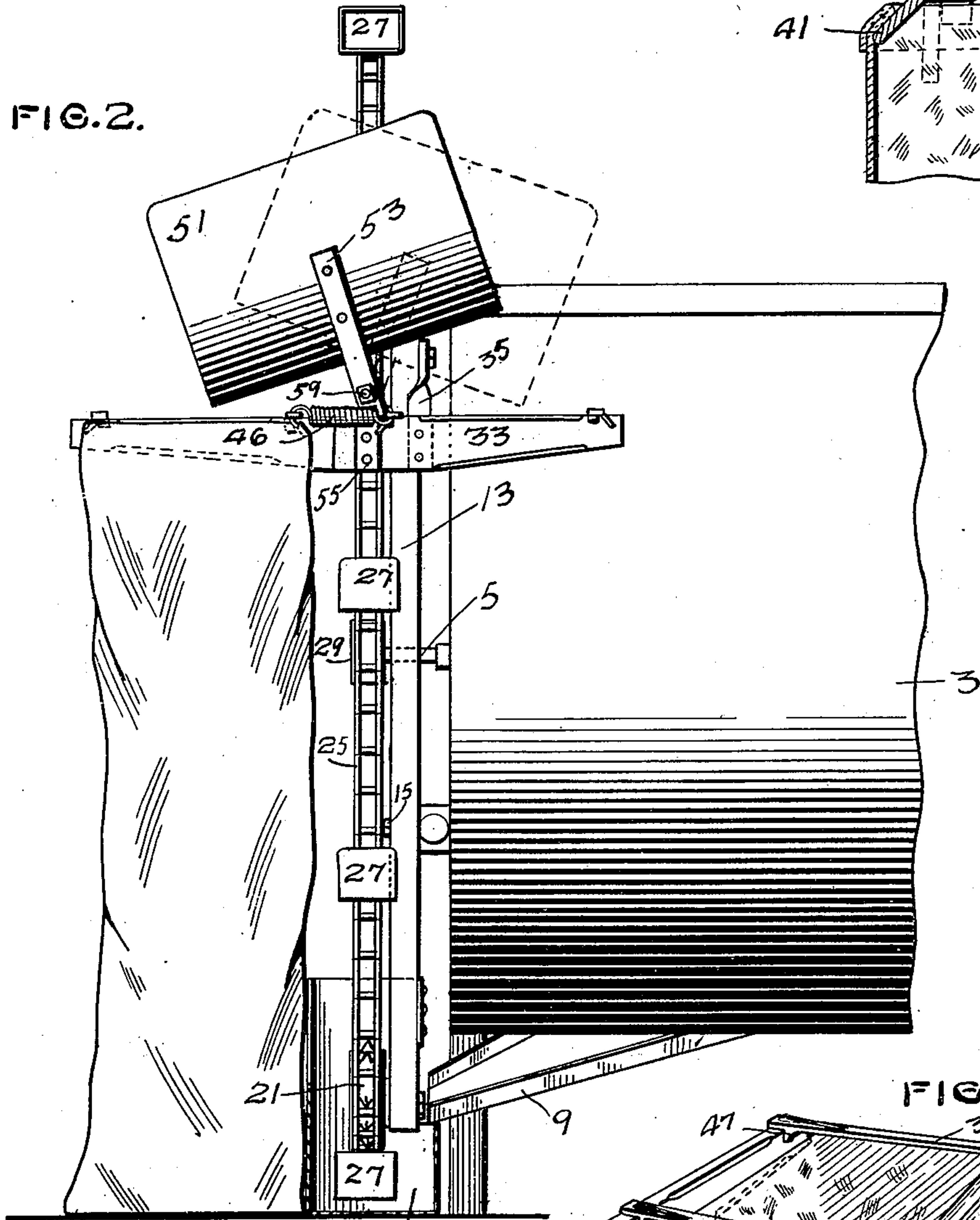
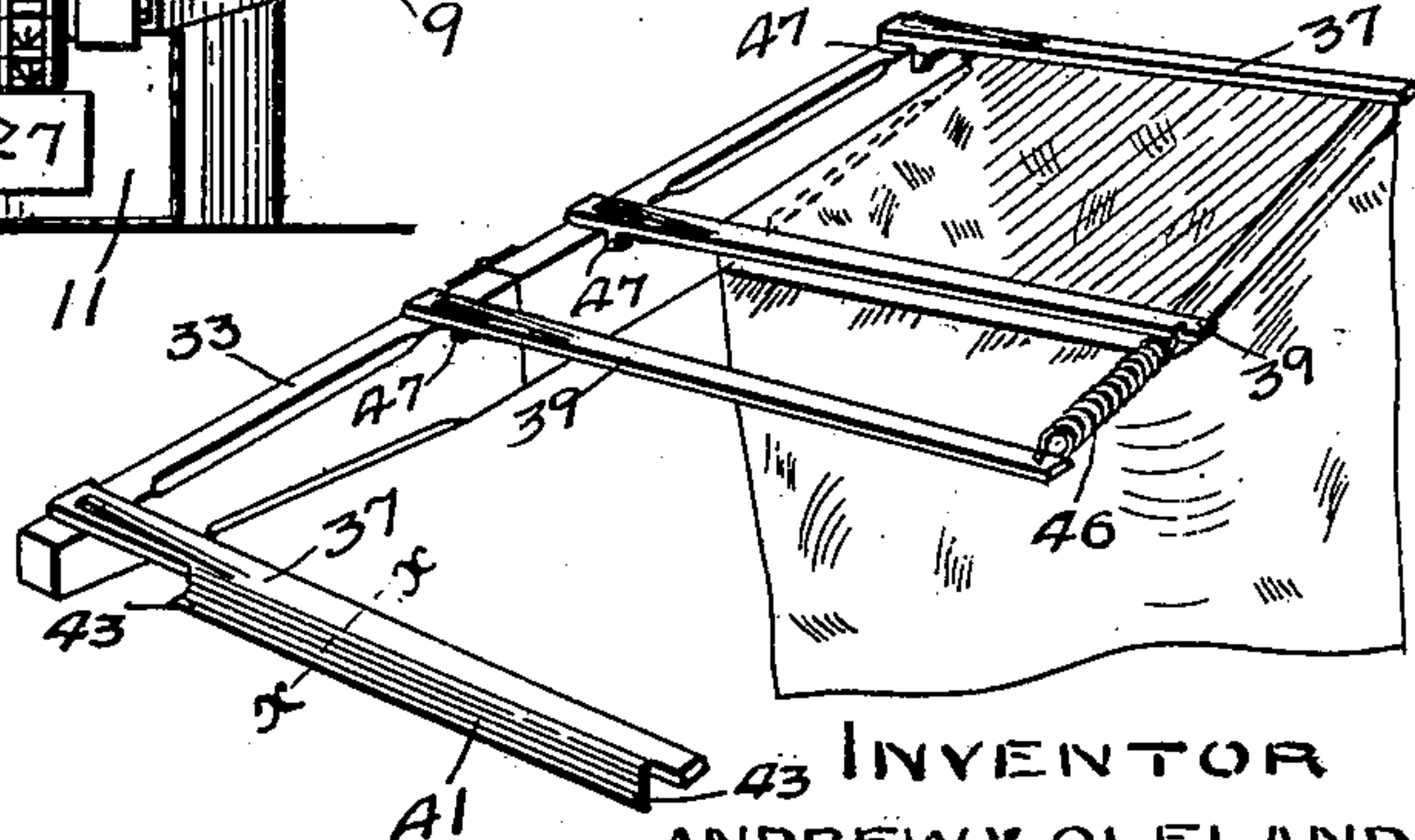


FIG. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

ANDREW V. CLELAND, OF MINNEAPOLIS, MINNESOTA.

ATTACHMENT FOR FANNING-MILLS.

SPECIFICATION forming part of Letters Patent No. 665,629, dated January 8, 1901.

Application filed August 12, 1899. Serial No. 726,962. (No model.)

To all whom it may concern:

Be it known that I, ANDREW V. CLELAND, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Attachments for Fanning-Mills, of which the following is a specification.

This invention relates to improvements in devices designed to be attached to fanning-mills for the purpose of sacking the grain after it has been cleaned in the mill; and one of the objects I have in view is to provide a sacking attachment that is complete in itself and which can be readily applied to or removed from an ordinary fanning-mill and by means of which the cleaned grain may be elevated and deposited in suitable sacks that are supported by said sacking attachment.

A further object of the invention is to provide an attachment of this kind which will occupy but little space on the fanning-mill, so that the mill can be conveniently handled with the sacking attachment arranged thereon.

A further object of the invention is to provide means whereby all the grain that is carried up by the buckets may be delivered to the pan or tray by which it is guided into the sack, so that an unincased elevator may be employed for elevating the grain to the pan or tray.

A further object of the invention is to provide the attachment with improved means for holding the sacks.

The invention consists generally in the constructions and combinations hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a portion of a fanning-mill having my improved sacking device attached thereto. Fig. 2 is an end elevation of the parts shown in Fig. 1. Fig. 3 is a perspective view of the sack-holder. Fig. 4 is an under side perspective view of one of the sack-holding bars on a larger scale. Fig. 5 is a transverse section of one of the sack-holding bars on line *xx* of Fig. 3, showing also a sack in position on said bar.

In the drawings, 2 represents a portion of a fanning-mill casing provided with the usual curved portion 3, forming the fan or blower

casing, and with the fan-shaft 5 and fan 7, mounted on said shaft and arranged within said fan-casing. A suitable spout 9 is also provided, which takes the cleaned grain from the shoe of the fanning-mill and conducts it to any desired point of delivery. As here shown, the grain is conducted by the spout 9 into a suitable boot 11, arranged at the bottom of the sacking attachment. This boot forms a small pit, from which the grain is taken up by the buckets of the elevator hereinafter referred to. I provide also the substantially upright bar or timber 13, which is bolted, preferably, to the casing of the fanning-mill by suitable bolts 15, and this bar supports and has secured to it all of the parts of the sacking attachment, except the sprocket-wheel by which the sacking attachment is driven, so that by removing the bolts 15 the entire sacking attachment may be removed with the upright bar 13. Mounted upon this bar at its opposite ends are the short shafts 17 and 19, upon which are mounted the sprocket-wheels 21 and 23. A sprocket-chain 25 passes over these wheels and is provided with the elevator-buckets 27. A sprocket-wheel 29 is mounted upon the fan-shaft 5 and engages the sprocket-chain 25. This wheel is arranged, as will be seen, preferably so as to engage the up side of the sprocket-chain 25, and to prevent any jar or shaking of the bucket by change of direction of the chain after it passes the sprocket-wheel 29 I prefer to provide the spring 31, which is secured upon the upright bar 13 and engages the under side of the sprocket-chain 25. (See Fig. 1.) This serves as a belt-tightener for said sprocket-chain and it prevents any shaking or jarring of the bucket that might otherwise occur from the quick change in direction of the sprocket-chain after it passes the sprocket-wheel 29. The boot 11 is also attached to the upright bar 13, as shown in Fig. 2 of the drawings.

At a point below the upper sprocket-wheel 23 I provide the transverse supporting-bar 33. This bar is supported upon the upright bar 13 by means of the brackets 35, which are secured to said transverse bar 33 and also to the upright bar 13. The bar 33 is arranged near the upper part of the elevator, as shown in Figs. 1 and 2. The bar 33 preferably sup-

ports two sack-holders, which are preferably constructed as shown in the detail views, Figs. 3, 4, and 5. Each sack-holder consists of the projecting bars 37 39. Each of these 5 bars is provided with an inclined downwardly-projecting flange 41 and with the angular ends 43. (See Figs. 3, 4, and 5.) Each bar is also provided upon its under side with a pin 45 and a stop-lug 47. The bars 37 39 are 10 secured to the bar 33 by having the pin 45 driven into a suitable opening in the bar 33, and the lug 47 on each of the bars 37 is in such position as to preferably cause the bar 37 to be held rigidly, although an outward- 15 swinging movement of this bar would not be objectionable in practice. The lugs 47 on the bars 39 (see Fig. 4) are preferably arranged near the inner edges of said bars. These lugs limit the movement of said bars 20 in one direction, but do not interfere with each of said bars 39 being moved toward its companion bar 37. A spring 46 is connected to the ends of the bars 39, and said spring tends to draw the ends of said bars 39 to- 25 ward each other or to swing each of said bars 39 away from its companion bar 37. When it is desired to place a sack on the sack-holder, it is drawn over the inclined flange 41 upon one of the bars 37, and its 30 companion bar 39 and the spring 45 tending to separate the two bars 37 and 39 causes the sack to be firmly held upon said bars.

Arranged above the sack-holders is the pivoted pan or tray 51. This pan is preferably 35 of the curved form in cross-section shown in Fig. 1, and it is made of sheet-steel or other suitable material. The outer wall of the pan is considerably higher than the inner wall, so that all of the grain carried up 40 and dropped by the buckets 27 falls into the pan 51. I preferably support this pan by means of a yoke 53, having its ends secured to the outer walls of the pan, as shown in Figs. 1 and 2. A horizontal pivot-rod 55 is 45 secured upon the bar 33 and is provided with a collar 57 and a suitable locking-nut 59. This rod 55 passes through the two parts of the yoke 53, as shown in Figs. 1 and 2, and this rod thus forms the pivotal support for 50 said pan. Said pan may be placed in the position shown by full lines in Fig. 2, when it will deliver the grain into the left-hand sack, or it may be turned into position indicated by dotted lines in Fig. 2, when it will deliver 55 the grain into a sack held by the other sack-holder. By tightening the nut 59 the pan 51 may be slightly compressed, so as to cause the desired amount of friction between the yoke 53 and its pivot. By this means the 60 pan may be so connected to its pivotal support as to require any desired amount of force to be applied thereto to change its position, thereby preventing any accidental turning of the pan from the jarring of the machine 65 or other accidental means.

In using the machine the sacks are applied to the sack-holders in the manner already de-

scribed, and the pan is tilted so as to direct the grain into one or the other of the sacks. The outer high wall of the pan prevents any 70 of the grain being thrown over the pan and insures the delivery into the proper sack of all the grain carried up by the elevator. It has usually been customary where elevators 75 of this kind have been employed to inclose each part of the elevator in a suitable casing or to provide a single casing inclosing both the up and down sides of the elevator. By using a pan or tray of the form herein shown 80 having a low inner wall and a high outer wall I am able to dispense with the casing for the elevator and to insure the delivery of all the grain to the pan. With elevators as ordi- 85 narily constructed and with the usual means for receiving the grain from the elevator if any of the grain was not discharged from the bucket it passed down through the elevator-casing into the boot at the foot of the eleva- 90 tor. By using the pan herein described I am enabled to set the elevator at just the proper angle to cause each bucket to discharge all of its contents, and I insure the catching of 95 all of the grain in the tray by carrying the outer wall of the tray to a considerable height above the inner wall. By this means without using any casing for the elevator I am able to deliver all of the grain to the sacks without waste and without scattering any of it on the floor or ground around the mill. 100 When a sack is filled, the attendant tilts the tray in the opposite direction, so as to cause it to deliver grain to the sack on the other sack-holder. He then removes the filled sack and puts an empty one in its place, and this operation is repeated as long as the device is 105 in use. If preferred, the end of the bar 33 at the left hand in Fig. 2 may be made separate and hinged to the other part of the bar. This will enable the part of the bar 33 that projects outside of the side wall of the mill 110 to be turned on its hinged support, so as to cause the bar to lie against the elevator and close to the side wall of the fanning-mill casing. I have indicated in Fig. 3 the line upon which the two parts of the bar 33 may be 115 hinged together. In such construction the spring 46 will tend to keep the two parts of the bar 33 in line with each other. When the outer part of the bar 33 is to be swung around against the wall of the fanning-mill, 120 the spring 46 may be disconnected and the sack-holding bars 37 and 39 may be removed. One particular advantage of my device results from the readiness with which the sack-holding bars 37 and 39 may be removed from 125 the supporting-bar 33. To do this, it is only necessary to drive the pin 45 upward, so as to free it from engagement with the bar 33. By removing the nuts of the bolts 15 the up- 130 right bar 13 and all parts of the sacking attachment may be removed together from the fanning-mill. The sacking device is thus complete in itself and may be sold separately from the mill and attached to the mill by any

user. If for any reason it is not desired to use the sacking device, it can be readily removed from the mill and as readily applied to the mill again. By using an open elevator—that is, one in which there is no inclosing casing—I can attach the elevator to the end of the fan-casing or drum without interfering with the supply of air to the fan. An inclosed elevator could not be used in this place. The bracket 35 may be provided with a series of holes, so that the bar 33 may be arranged in any desired position thereon, thus regulating the height of the sack-holder.

It will be seen that the device is exceedingly simple, inexpensive, and durable. It requires no skilled mechanic to apply it to a fanning-mill or to remove it therefrom. It does not interfere with the supply of air to the fanning-mill casing or with the operation of any part of the mill. It occupies little space and may be removed and stored or shipped separately from the mill. By turning the hinged part of the bar 33 against the wall of the fanning-mill the mill may be moved through a narrow door or space very little wider than what would be needed if the sacking device were entirely removed. The entire device may be quickly removed from the mill or the pan or tray or the sack-holding bars may also be quickly removed. These parts may be as quickly attached to the device.

While I have shown and described and claimed a sprocket-chain as the means for supporting and carrying the elevator-buckets, it will be understood that other devices—such, for example, as a perforated belt—might be used in place of the chain and would be an equivalent therefor.

It will be noted that the sprocket-wheel 29, by which the elevator is driven, is located outside of the direct line joining the circumferences of the two sprocket-wheels, so that the up side of the belt or chain does not travel in a straight line. This is desirable, as by this arrangement the sprocket-wheel so engages the belt or chain as to prevent any slipping between the two.

I do not limit myself to the exact details of the constructions herein shown and described, as the same may be varied in many particulars without departing from my invention.

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

1. The combination, with the pivot-rod 55 provided with the collar 57 and nut 59, of the sheet-metal pan mounted upon said rod between said collar and nut, for the purpose set forth.

2. The combination, with the curved sheet-metal pan 51 provided with open ends, of a pivot-rod upon which said pan is mounted, and means for increasing or diminishing the

frictional contact between the support of said pan and said rod, for the purpose set forth.

3. The combination, with the curved sheet-metal pan provided with open ends, of the yoke 53 secured to said pan, the pivot-rod 55 upon which said yoke is mounted, and a frictional locking device provided on said rod for the purpose set forth.

4. In a fanning-mill attachment, the combination, with a fan drum or casing, of a grain-elevating device secured to one end of said casing, said device being uninclosed to permit the unobstructed passage of air to the opening in the end of said casing, a boot inclosing the lower end of said elevating device and whereto the grain to be lifted is delivered from the fanning-mill shoe, and a tilting pan provided near the upper end of said elevating device.

5. In a fanning-mill attachment, the combination, with the fan drum or casing, of a substantially upright bar 13, means for securing said bar to said casing and permitting its ready removal, sprockets journaled on said bar near its upper and lower ends, a chain passing over said sprockets, a series of small buckets provided at intervals on said chain, a sprocket provided on the fan-shaft and engaging said chain and whereby it and said buckets are operated by the revolution of said fan, a boot provided at the lower end of said bar, a spout for delivering grain from the fanning-mill to said boot, and a tilting pan provided near the upper end of said bar and adapted to receive the grain from said buckets, substantially as described.

6. In a fanning-mill attachment, the combination, with the fan drum or casing, of a substantially upright bar 13 secured on one side of the same over the opening leading to said fan-casing, sprocket-wheels mounted at the upper and lower ends of said bar, a sprocket-chain connecting said sprocket-wheels and provided with a series of buckets 27 arranged at intervals thereon, said sprocket-chain and said bar being uninclosed to permit the unobstructed passage of air into the fan-casing, a sprocket 29 mounted on the fan-shaft and engaging said chain, and whereby it and said buckets are operated to elevate the grain, a boot 11 inclosing the lower end of said bar and whereto the grain is delivered to be gathered up by said buckets and a tilting pan provided on the fan-drum near the upper end of said bar and adapted to receive the grain from said buckets, substantially as described.

In witness whereof I have hereunto set my hand this 9th day of August, 1899.

ANDREW V. CLELAND.

In presence of—

A. C. PAUL,
M. E. GOOLEY.