

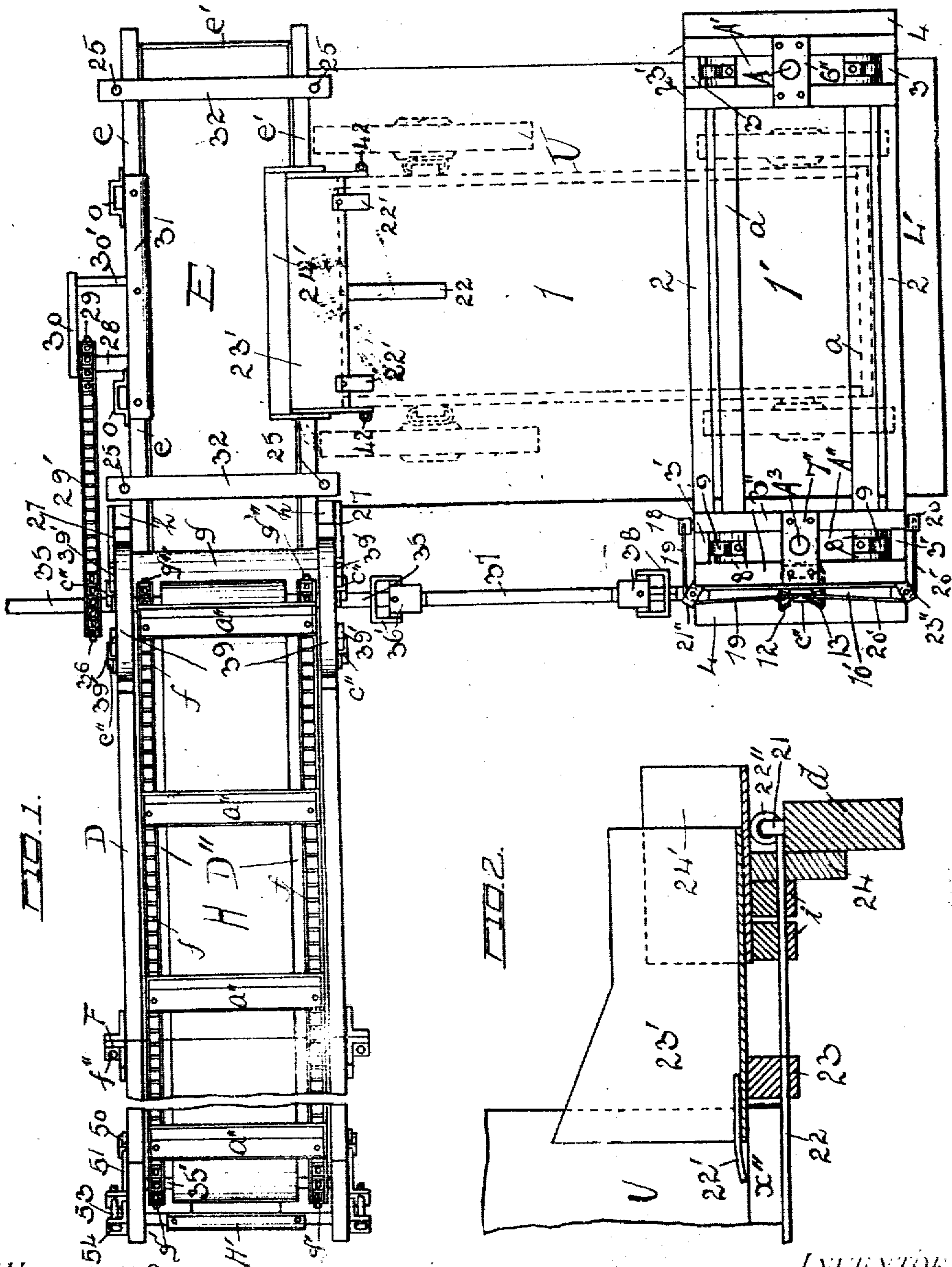
No. 816,017

PATENTED MAR. 27, 1906.

R. J. JONES.
GRAIN ELEVATOR AND WAGON DUMP.

APPLICATION FILED JULY 18, 1904.

5 SHEETS—SHEET 1.



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No. 816,017.

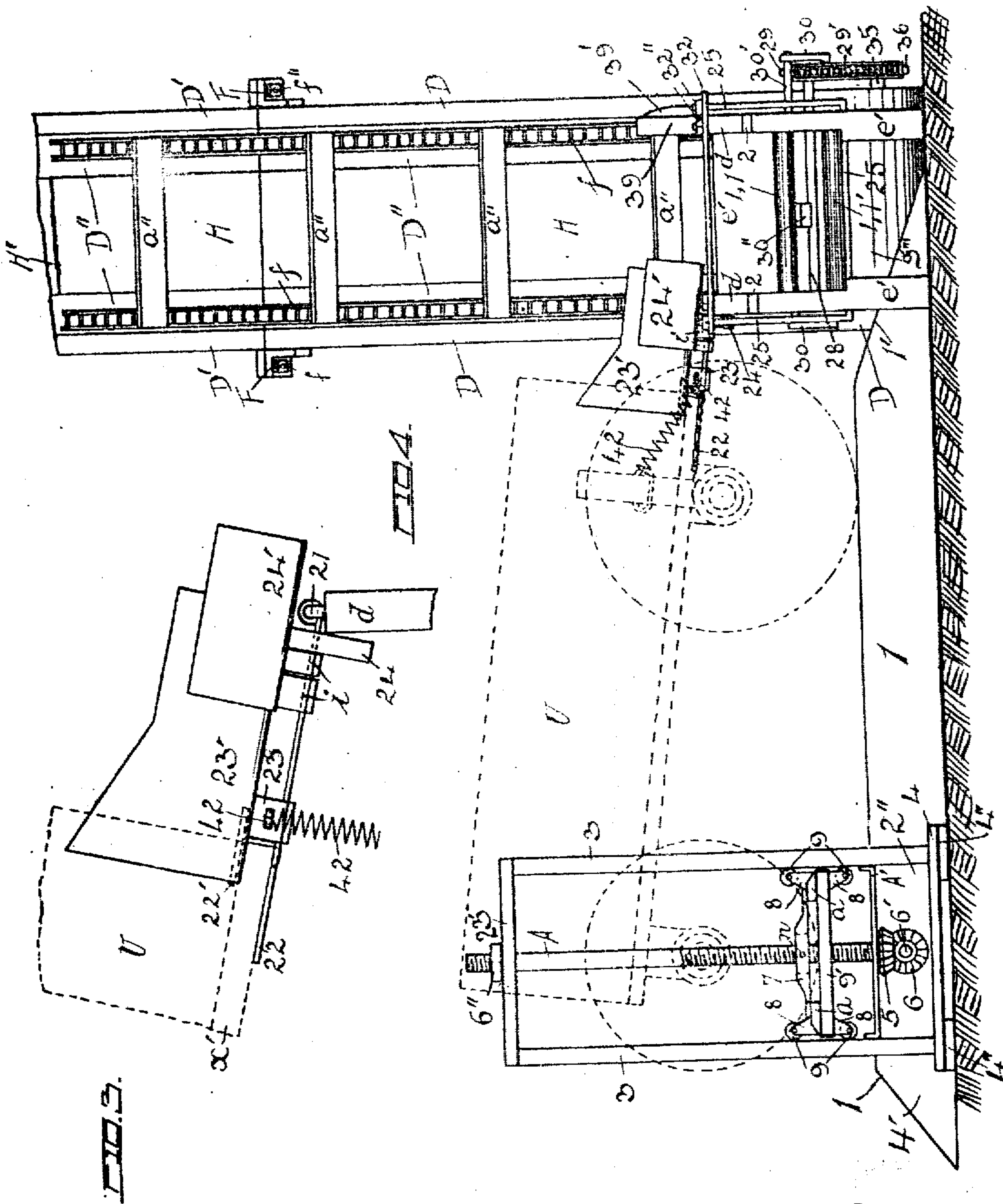
PATENTED MAR. 27, 1906.

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GRAIN ELEVATOR AND WAGON DUMP

APPLICATION FILED JULY 19, 1904.

5 SHEETS--SHEET 2.



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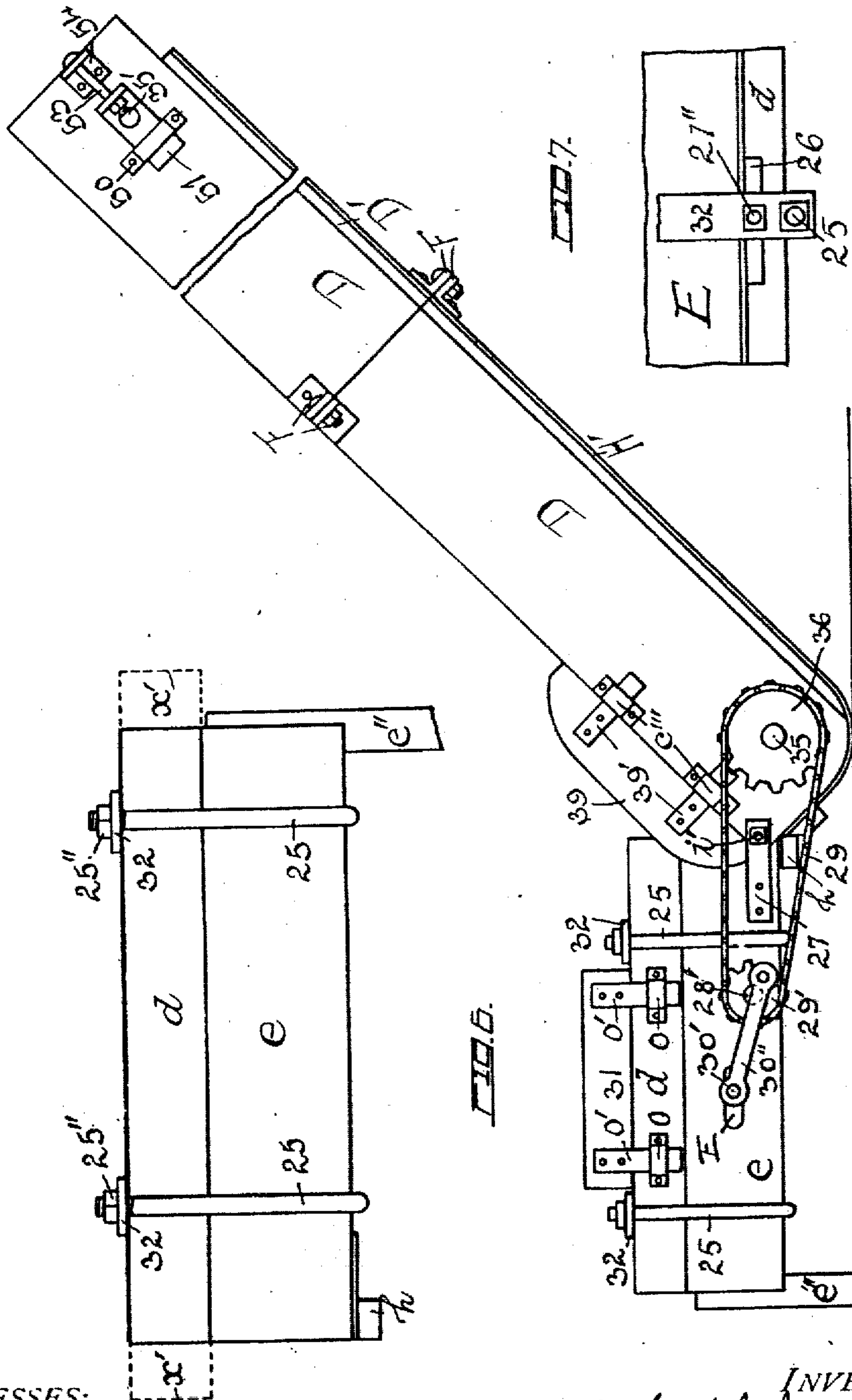
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5 SHEETS—SHEET 3.



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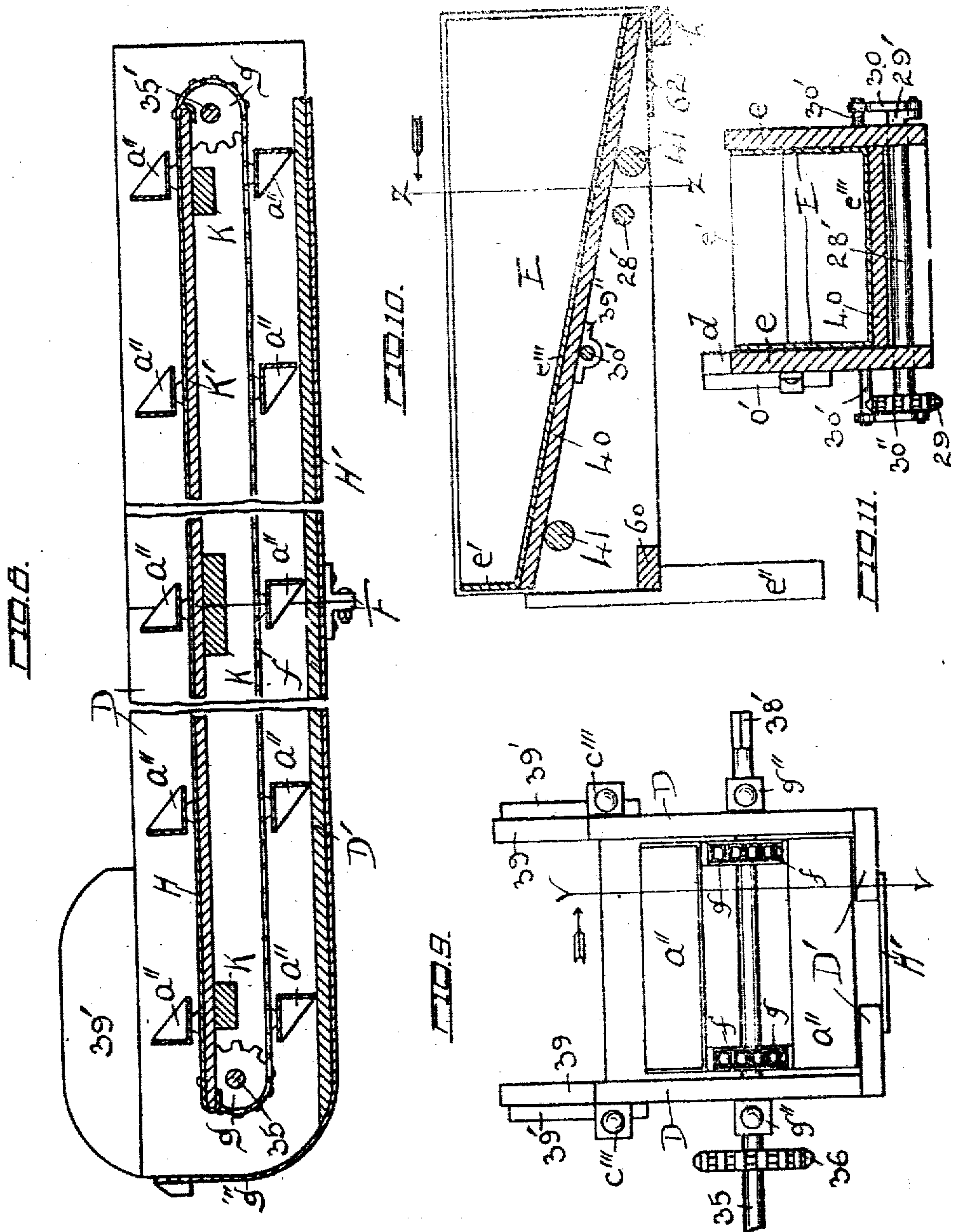
PATENTED MAR. 27, 1906.

R. J. JONES.

GRAIN ELEVATOR AND WAGON DUMP.

APPLICATION FILED JULY 18, 1964.

SECRET-SHEET 4.



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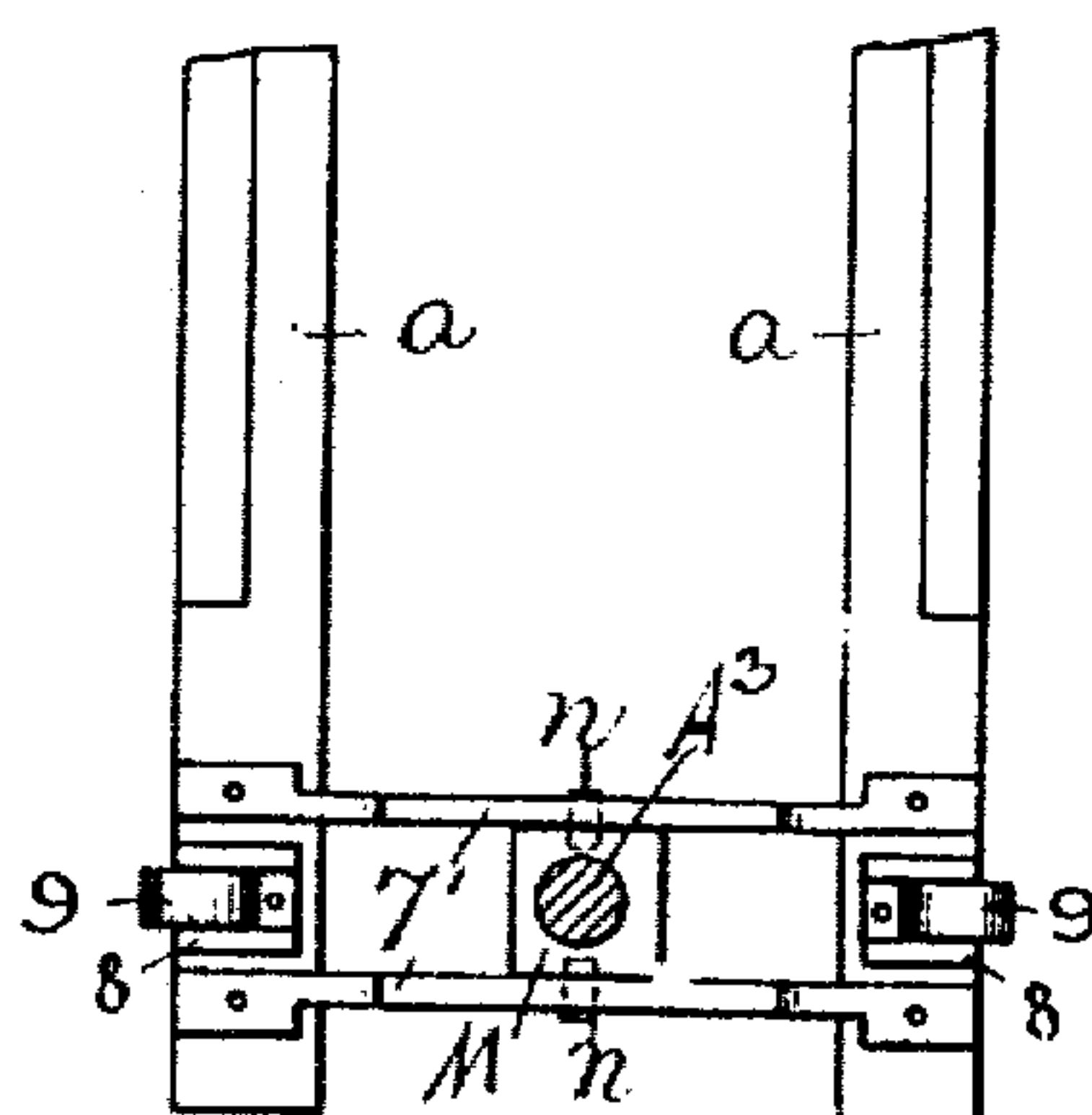
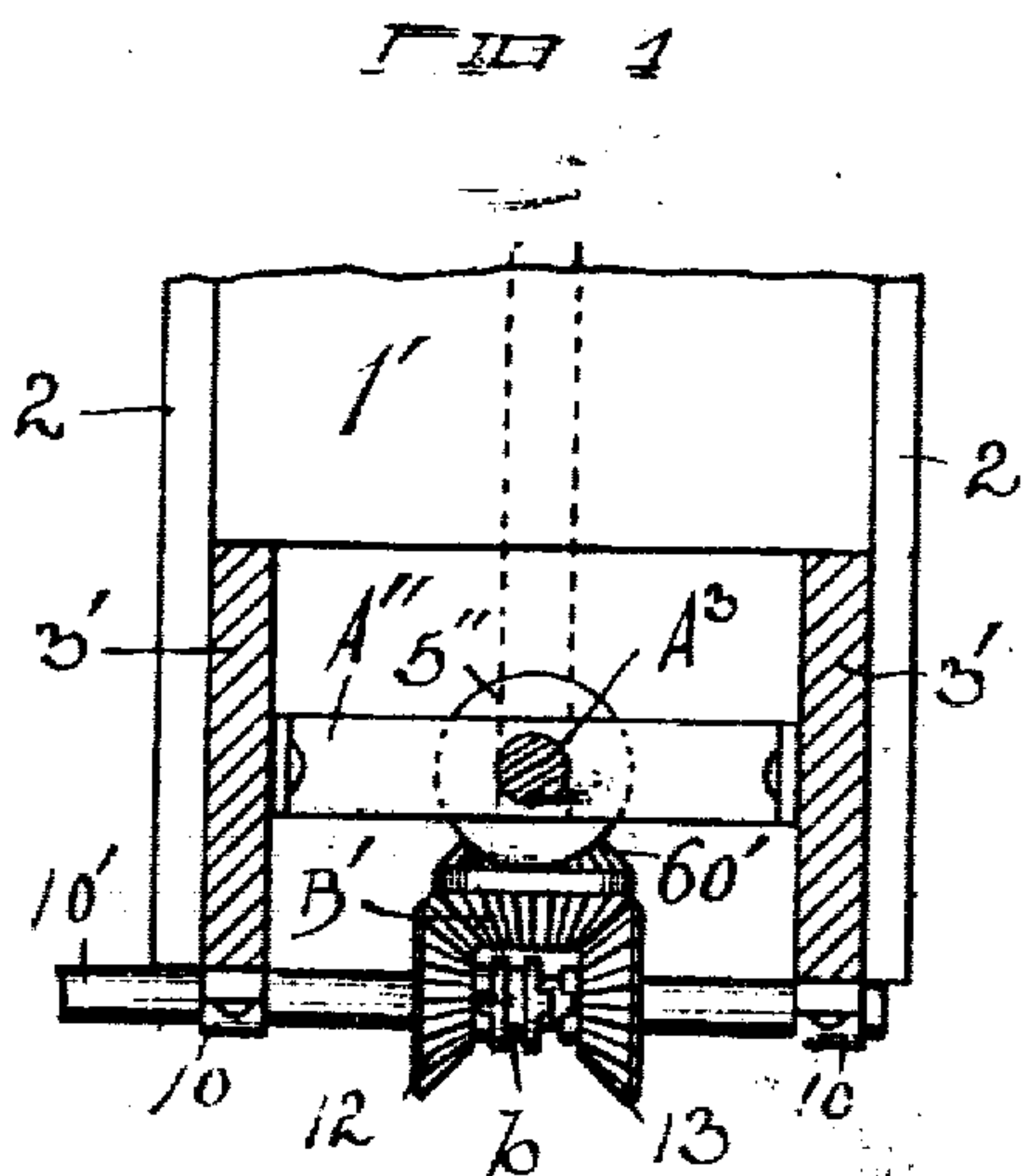
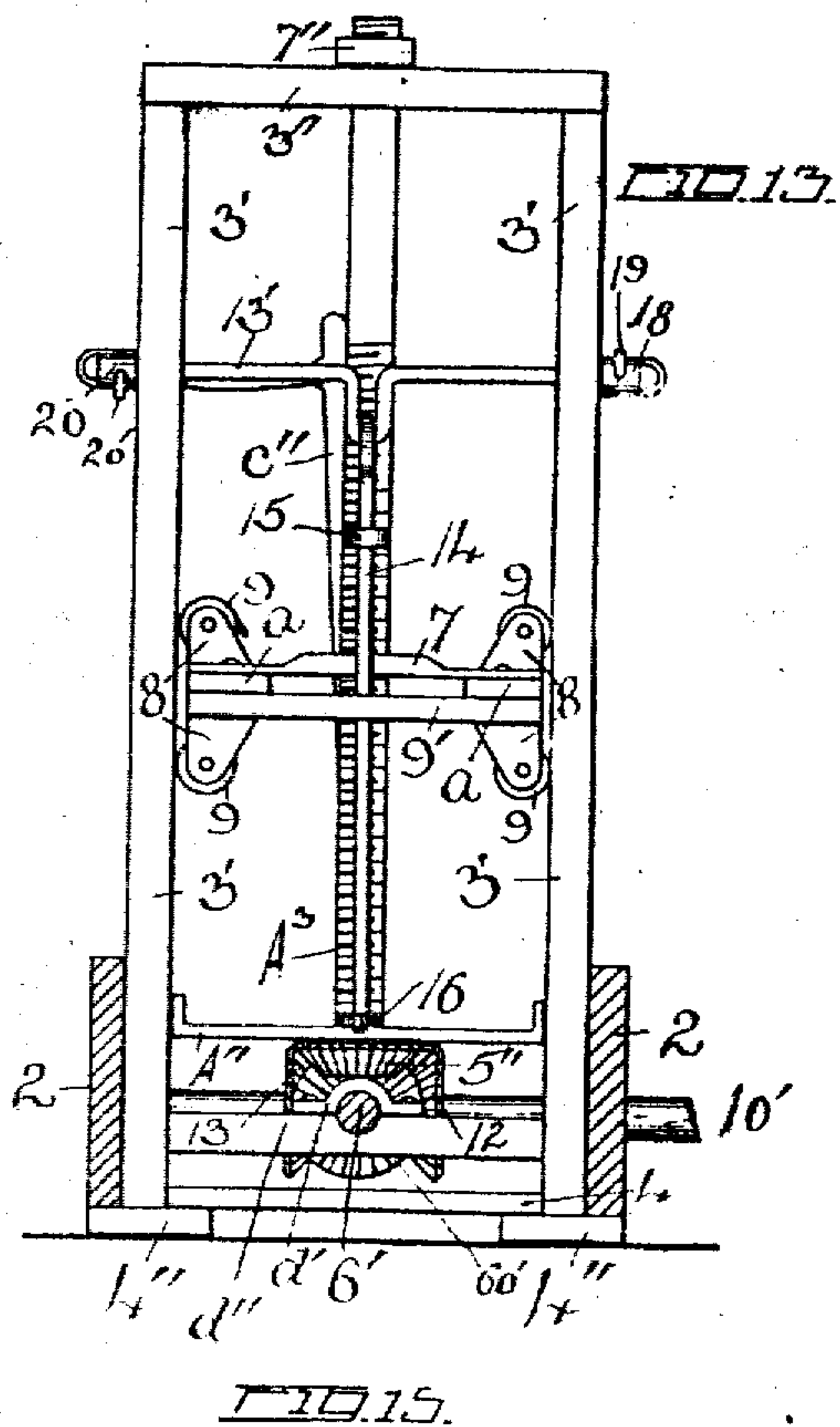
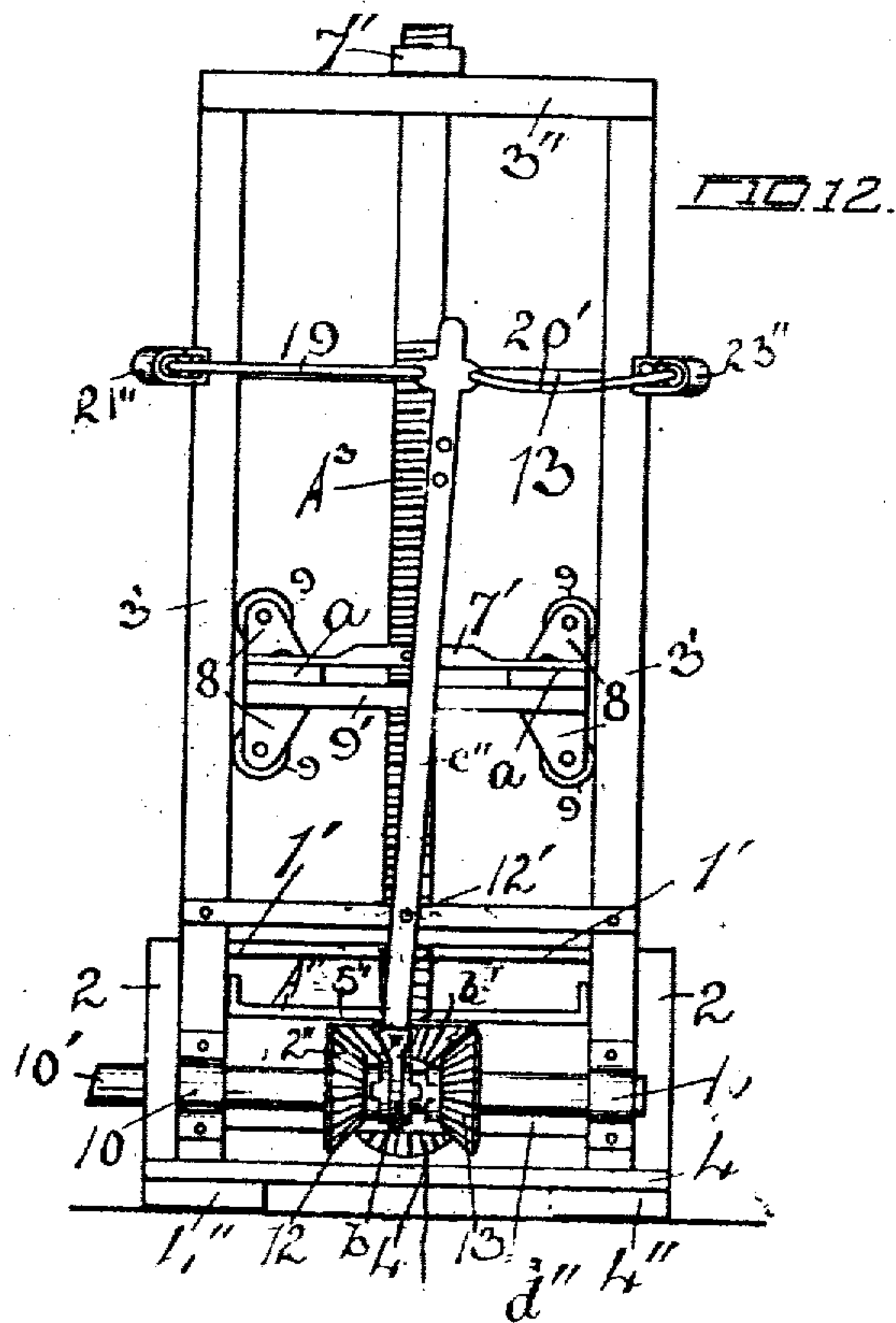
PATENTED MAR. 27, 1906.

R. J. JONES.

GRAIN ELEVATOR AND WAGON DUMP.

APPLICATION FILED JULY 18, 1904.

5 SHEETS—SHEET 5.



11/7/75

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UNITED STATES PATENT OFFICE.

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GRAIN-ELEVATOR AND WAGON-DUMP.

No. 816,017.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed July 18, 1904. Serial No. 217,068.

To all whom it may concern:

Be it known that I, ROBERT J. JONES, residing at Barneston, in the county of Gage and State of Nebraska, have invented certain useful Improvements in Grain-Elevators and Wagon-Dumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a new and useful improvement in grain-elevators and wagon-dumps.

The aim of my invention is to provide a portable device so constructed that an operator may drive a grain-loaded wagon upon a platform in such a manner that the front end of the wagon may be raised to empty the load into a feeder from which the grain is shaken into an elevator, by means of which it is carried into a bin or crib; and my invention embodies certain combinations, as will be described more fully hereinafter.

In the drawings, I show in Figure 1 a top view of my invention, disclosing in dotted outline the position of a wagon. Fig. 2 shows a detached sectional view of the scoop-board. Fig. 3 shows an enlarged detached detail of the scoop-board in a dumping position. Fig. 4 discloses a view of my invention, showing a wagon in dotted outline in a dumping position. Fig. 5 shows one of the adjustable sills of the feeder. Fig. 6 shows a detail, with parts broken away, of the feeder and elevator as used in my invention. Fig. 7 is a top view, with portions removed, of one of the adjustable sills. Fig. 8 discloses a detached sectional detail of the elevator on line v v of Fig. 9. Fig. 9 shows an end view of the elevator. Fig. 10 shows a central sectional view of the feeder. Fig. 11 shows a view on line z z of Fig. 10. Fig. 12 shows an end view disclosing the shifting-lever and the connected operating-strands. Fig. 13 discloses the position of the reversing mechanism as used in connection with the shifting-lever. Fig. 14 shows a detail disclosing a top view of the pinion upon the transverse shaft used in the wagon jack or elevator, while Fig. 15 shows a top view of one end of the lifting-rails, showing the nuts used with the elevating-screws.

As has been set forth, the aim of my inven-

tion is to provide a grain-elevator and wagon-dump so constructed that a wagon may be driven upon a platform to carry the front wheels upon a dumping-jack or elevator which is actuated to raise the forward end of the wagon. Secured to a feeder which may be raised or lowered to permit the passage of the wagon to be unloaded is a scoop-board which may be adjusted from side to side. As the wagon is raised in front to permit the dumping of the grain from the rear of the wagon the grain passes over a scoop-board into the feeder provided with a shaker, forcing the grain into an elevator, where the grain is carried into a suitable receptacle.

In Figs. 1 and 4 I show an ordinary platform 1, interposed between the elevator and feeder.

The elevator or dumping-jack as used in my invention comprises a table 1', as shown in Figs. 1 and 14. This table has secured to it the sills 2 2, supported below, as shown in Fig. 12, by means of the end bar 4, and the base-sills 4'' (Shown also in Fig. 4.)

Extending from the sills 2 2 at four points, as disclosed in top view in Fig. 1, in elevation in Figs. 12 and 4, and in detail in Fig. 14, are the four standards 3 3 and 3' 3'. The standards 3 3 are secured above by means of the two transverse bars 23', (shown in Fig. 1,) while the standards 3' are secured and strengthened above by means of two transverse bars 3'', as shown. These sets of standards 3 3 and 3' 3' are strengthened below by means of the preferably iron bars A' and A'', as shown in Figs. 1, 4, 12, 13, and 14. Secured to the transverse bars 23' above is a guide-plate 6'', while supported by means of the transverse bars 3'' is the guide-plate 7''. (Shown in Figs. 1 and 12.) Leading from the dumping-jack or elevator, as shown in Fig. 4, is the slanting platform 4', down which the wagon is drawn after the load has been dumped.

Vertically held between the standards 3 3, as shown in Figs. 1 and 4, is the lifting-screw A, working above within the plate 6'' and below through the bar A'. Below this screw A is provided with the pinion 5, which meshes with the pinion 6, secured to the pinion-shaft 6', as shown in Fig. 4. This pinion-shaft 6' is at its opposite end provided with a duplex pinion, as shown in Fig. 14, comprising the pinions 60' and B'. At one end this shaft is held within the transverse bar d'' and

the strap d' , (shown in Fig. 13,) while in Fig. 4 the opposite end of the shaft is shown as held within the end $2''$.

Vertically positioned between the standards $3' 3'$ is the lifting-screw A^3 , working above within the plate $7''$ and below through the bar A'' , as shown in Figs. 12 and 13. This screw below is provided with the pinion $5''$, meshing with the pinion $60'$, as shown in Fig. 14. From this it will be seen that the pinion 6 of the shaft $6'$, as shown in Fig. 4, meshes with the pinion 5 of the screw A , while the pinion $60'$, as shown in Fig. 14, meshes with the pinion $5''$, secured to the screw A^3 . In rotating the shaft $6'$ both the elevating-screws are turned.

Threading upon each elevating-screw is a nut M , the nut upon the screw A^3 being pivotally secured between the frame-bars $7'$, as shown in Fig. 15, the nut being held by means of the pins $n n$, while the nut upon the screw A is similarly secured between the bars 7 . (Shown in Fig. 4.) Extending from one set of frame-bars to the other are the two beveled lifting-rails $a a$, (shown in Figs. 1, 4, 12, and 15,) these rails being secured below at each end by a bar $9'$, as shown. Secured between the frame-bars 7 and $7'$, which bars are used in sets of twos and fastened to the rails $a a$ are the casters $8 8$, the wheels 9 of which are made to ride against the inner facing sides of the standards, as shown. A set of casters is also secured adjacent to the frame-bars $9'$, so that the frame-bars are guided in being carried up and down. The rails a normally lie upon the platform $1'$. In Fig. 4 an end view of the rails is clearly shown, disclosing in dotted lines the position of the front wheels of a wagon U , partly elevated.

Secured to suitable bearings $10 10$, as shown in Fig. 14, is a transverse shaft $10'$, also shown in Fig. 1, provided with the pinions 12 and 13 , between which is held a clutch-collar b . These pinions 12 and 13 work loosely upon the shaft $10'$, while the clutch-collar b is slidably held within a keyway of said shaft $10'$. By means of the yoke b' , which is secured to the lever c'' , held by means of the pin $12''$, either of the loose pinions 12 or 13 may be engaged to rotate the gear B' , which meshes with both loose pinions 12 and 13 and is secured to the shaft $6'$, as shown in Fig. 14. By this means the driving transverse shaft $10'$ may be brought into engagement with the shaft $6'$ to rotate the latter either to the right or left in actuating the screws to raise or lower the rails $a a$. The lever c'' is held by the pin $12'$.

In order to automatically throw the clutch-collar b out of gear with the pinions 12 and 13 , I provide the frame members $3' 3'$, as shown in Fig. 13, with the crank-shaft $13'$, from the crank of which extends a rod 14 , provided with the stop-collar 16 below, so that when the bar $9'$, through which the rod

passes, strikes the stop 16 the crank-shaft is rocked in one direction, and secured to this rock-shaft upon one end is a pulley 18 , to which is secured a pliable connection 19 , fastened to the upper end of the lever c'' , as shown in Fig. 12, while to a pulley 20 , secured to the opposite end of the rock-shaft $13'$, is secured a pliable connection $20'$, secured to the opposite side of the rock-lever c'' , so that the elevating mechanism is automatically thrown out of gear with the continuously-rotating driving-shaft $10'$ at first when the stop 15 is engaged to rock the shaft $13'$ upward and then when the stop 16 is engaged to rock the shaft downward. After the elevator has been automatically stopped the shaft $6'$ is thrown into operation in working the lever c'' by hand. The standards 19 and 20 are held by the brackets $21''$ and $23''$.

So far I have described the mechanism used in elevating the forward end of the wagon, so that the grain will dump out of the rear end of the wagon.

To the rear of the wagon, as shown in dotted lines in Fig. 4, is attached a scoop-board which is secured to one of the upper adjustable sliding sills d , as is shown in Fig. 3, to which sills are secured two staples 21 , holding the bars 22 , which bars slidably receive the supporting-bar 23 , (shown in Fig. 2,) to which sliding bar is secured a part of the scoop-board $23'$. Fixed to the bars 22 is the stop 24 , which is fastened and above has secured to it the scoop-mouth $24'$. This mouth or scoop end is provided with the ears i , through which the bars 22 pass to slidably hold the scoop-mouth $24'$. These bars 22 , by means of the staples 21 (shown in Figs. 2 and 3) are secured to one of the feeder-sills d . These sills d , as shown in Fig. 5, have secured to them the bars $32 32$, held by means of the nuts $25''$. The sills d are provided with slots 26 , as shown in Fig. 7, while depending from the bars 32 are the bolts $21''$, which extend into the slots, and so hold the sills. In Fig. 5 I have shown by means of the dotted lines x' the limit of movement of these sills.

The mouth $24'$ of the scoop-board empties into the feeder, comprising the two similar sides $e e$, supported at one end by means of the legs e'' and connected by means of the bars 60 and h , as shown in Fig. 10. The bar h further supports a stub-bottom 62 , as shown.

Transversely held between the sides $e e$ are the rollers $41 41$, upon which rests the bottom 40 , supporting the shaker. The sides $e e$ have adjustably secured to them the sills d , as described and shown in Figs. 2 and 5, one of the sills being secured to the mouth $24'$ of the scoop-board, which is further held by means of the supporting-bars i . By this means the scoop-board $23'$ can be drawn inward or outward, so as to accommodate various lengths of wagons, and the scoop-board is, further, of metal, so that the same snugly

fits upon the bottom of the wagon. The scoop-board 23', as shown in Fig. 2, is further provided with an inwardly-extending bar 22', resting above the wagon-box bottom 22'', while the bar 22 rests below the wagon-box bottom. Now as the wagons will not all be driven up exactly centrally between the standards 3 3' it is necessary that the scoop-board, which should closely fit into the wagon-beds, is permitted a lateral adjustment, and this adjustment I accomplish in securing the scoop-board to a sill *d*, as shown in Fig. 3. This is accomplished in using U-bolts 25, which are carried upward, as is shown in Fig. 6, and pass through the bars 32.

Resting upon the inclining bottom 40 is the shaker, preferably made of sheet metal, and comprising the bottom *e''*, as shown in Fig. 11, the sides *F E* and the end *e'*. Passing through the sides *e e* is the crank-shaft 28', (shown in Figs. 6 and 11,) to the crank 29' of which is secured the pitman 30, fastened to the bar 30', this bar 30' being secured to the bottom 40. This crank-shaft 28' is provided with the chain-gear 29, and from this gear also extends the pitman 30'', (shown in Fig. 11,) secured to the opposite end of the bar 30'. This bar 30' by means of the ear 39'' is secured to the bottom 40.

In connection with my feeder I use an elevator comprising the side members *D D*, united by means of the couplings *F*, as shown in Fig. 6, so that the elevator may be taken apart, and this elevator is further provided with the stub-bottoms *D' D'*, covered, as is shown in Fig. 9, by means of the sheet-metal strip *H'*.

Secured to each side *e e* is a bar 27, as shown in Figs. 1 and 6, and these bars, by means of a pin *i'*, are each secured to the elevator sides *D D*, so that the feeder can be raised to a vertical position to be carried out of the way of the vehicle as it is drawn onto the platform 1, as will be understood in referring to Fig. 1.

Passing through the lower end of the elevator-housing, as is shown at 35 in Figs. 6 and 1, is a driving-shaft, to which any suitable power is applied, and this driving-shaft supports the chain-gear 36, over which extends the chain 29, passing over the shaker-pinion 29', as shown. By means of an ordinary coupling 36', as shown in Fig. 1, secured to a shaft 37, which is provided with a coupling 38, the main drive-shaft 35 is coupled to the shaft 10', which has been described as actuating the screws *A A'*.

The elevator is provided below with the side boards 39, having the bars 39', held within the ears *c''*, as shown in Figs. 6 and 9.

My elevator is of a peculiar construction in that I use two shafts, one being marked 35' and the other 35, as shown in Fig. 8, and each shaft supports two similar chain-sprockets *g*, as shown also in Figs. 1 and 9. Passing over these sprockets are the chains *f f*, and secured to these are the cups *g''*.

Positioned between the chains *f* is a bench *K'*, as shown in Fig. 8, over which the cups work when filled. This bench is supported by means of suitable timbers *K*, positioned within the elevator and provided above with a tin covering *H*, as shown. The advantage of this arrangement is that grain that is spilled out of the cups is permitted to drop into the bottom of the elevator, and thus gravitates back toward the feeder, where it is scooped out of the bucket formed by the bottom extension *g''*, as shown in Fig. 8. In Fig. 9 I have shown the end 38' of the shaft 35, to which the coupling 36 is secured, this figure also showing the position of the gears *g'*, over which the chains *f* pass.

In order to take up the slack of the chains *f*, the shaft 35' (shown in Fig. 6) is held within the sliding bearings 51, these bearings being guided by the straps 50, the bolt 53 securing the bearing to the ear 54, it being understood that two such bearing-straps and adjusting-bolts are used.

Any suitable power is used to operate the shaft 35, which by means of the chain 29 actuates the shaker and by means of the coupling-shaft 37 the wagon-jack in the manner set forth.

As the scoop-board 23' might become detached from the wagon while being unloaded, I use the coil-spring 42, suitably secured to the wagon, as shown in Fig. 4, so that the scoop-board may be held against the end of the wagon *U* under spring tension.

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

1. The combination with a supporting-platform, of a lifting-frame, elevating-screws secured to said lifting-frame, a reversing driving mechanism in gear connection with said elevating-screws, a lever to actuate said reversing driving mechanism, stops arranged in the connections to said lever engaged by said lifting-frame to actuate said lever to throw out of gear said reversing driving mechanism, and means to actuate said reversing driving mechanism.

2. The combination with a supporting-platform, of a lifting-frame, elevating-screws secured to said lifting-frame, a reversing driving mechanism in gear connection with said elevating-screws, a lever to actuate said reversing driving mechanism, stops arranged in the connections to said lever engaged by said lifting-frame to actuate said lever to throw out of gear said reversing driving mechanism, a feeder, an agitator within said feeder, and means to drive said reversing mechanism and said agitator.

3. The combination with a supporting-platform, of a lifting-frame, elevating-screws secured to said lifting-frame, a reversing driving mechanism in gear connection with said elevating-screws, a lever to actuate said re-

versing driving mechanism, stops arranged in the connections to said lever engaged by said lifting-frame, an agitator, an elevator connected to said agitator and means to operate said reversing driving mechanism, agitator and elevator.

4. The combination with a supporting platform, of a lifting-frame, elevating-screws secured to said lifting-frame, a reversing driving mechanism in gear connection with said elevating-screws, a lever to actuate said reversing driving mechanism, stops arranged in the connections to said lever engaged by said lifting-frame to actuate said lever, an agitator, an adjustable scoop-board shiftably secured adjacent said agitator, an elevator-housing, and an endless conveyer within said elevator-housing, and means to actuate said conveyer, agitator and said reversing driving mechanism.

5. In a device of the character described, the combination with a suitable base, of four standards extending from said base, cross-bars uniting said standards in sets of twos above, a guide-plate secured to said cross-bars, a horizontally-disposed drive-shaft, two

reversing-gears secured to said drive-shaft, a second shaft, a gear secured to one end of said second shaft adapted to be alternately engaged by said reversing-gear, two additional gears secured to said last-mentioned shaft disposed near each end upon said shaft, two vertically-positioned elevating-screws, said screws passing above through said guide-plates, a bar to guide said elevating-screw below, a gear at the lower end of each of said elevating-screws, said gears meshing with the two last-mentioned gears secured to said second-mentioned shaft, caster-frames mounted upon said elevating-screws nuts working upon said elevating-screws and secured to said caster-frames, said caster-frames reciprocating vertically between said sets of standards, and a reversing mechanism to actuate said reversing-gears.

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

ROBERT J. JONES.

Witnesses:

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