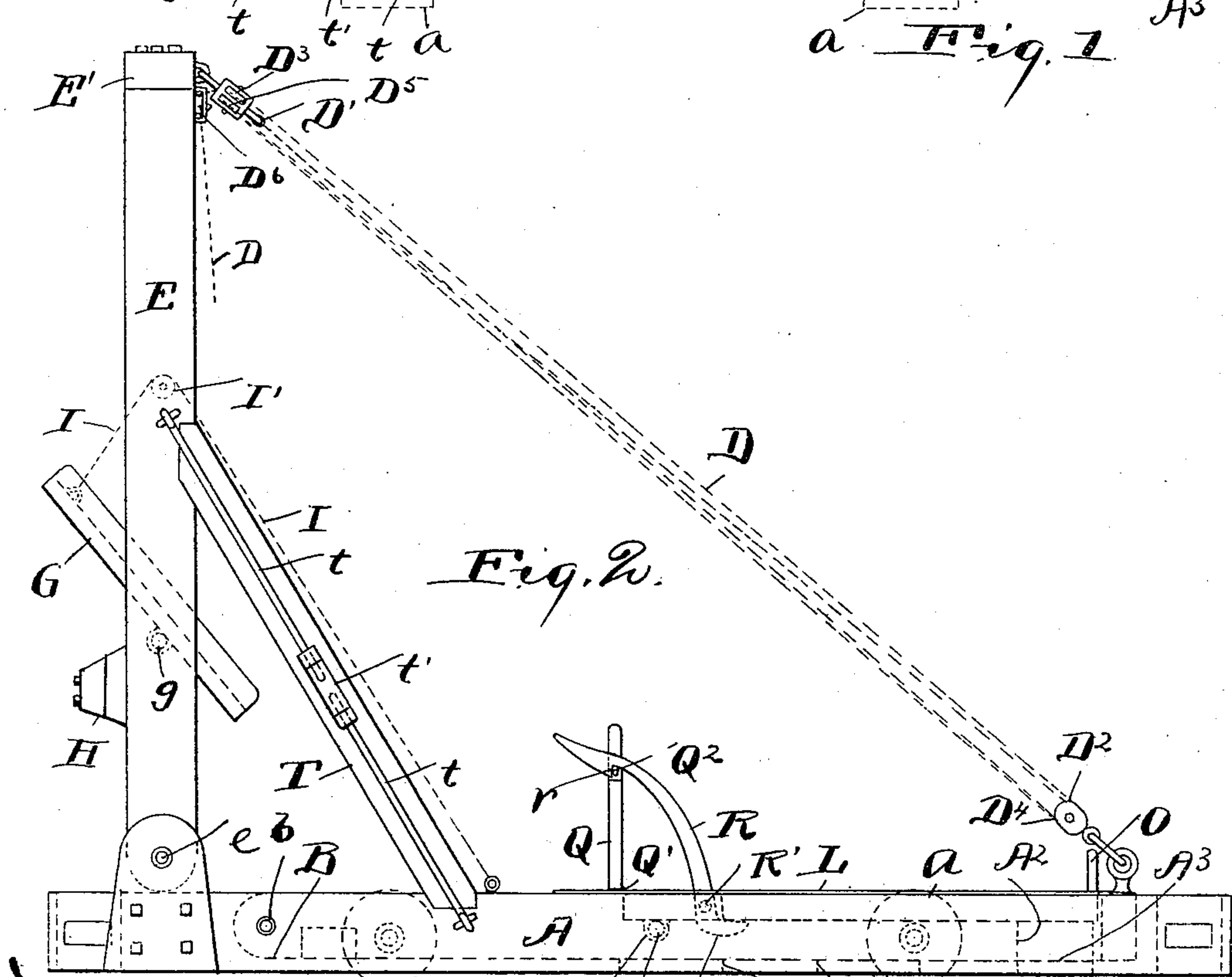
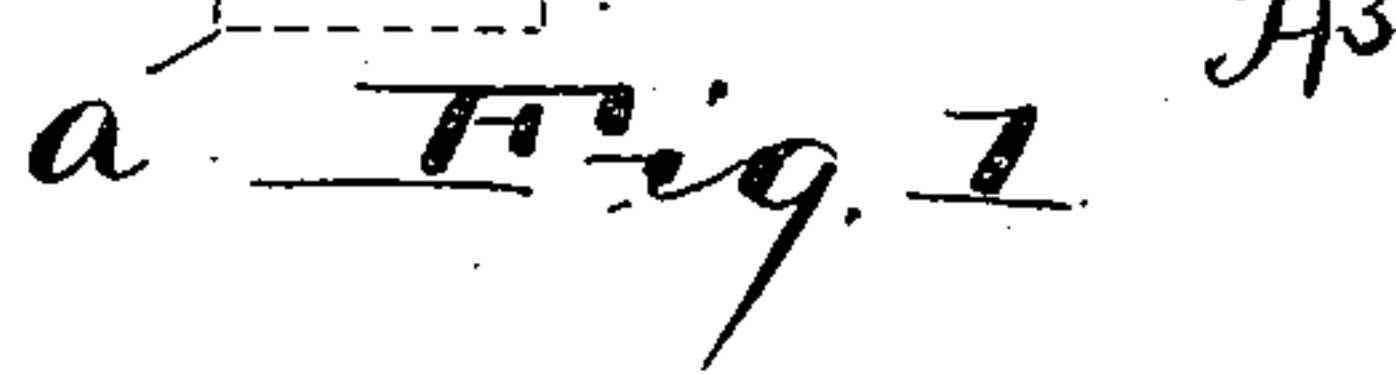


2 Sheets—Sheet 1.

Patented Mar. 31, 1896.



Witnesses,
E B Gilchrist
[Signature]

A' Inventor
Benjamin F. Shuart
By M. D. Seggett & Co
his attorneys

(No Model.)

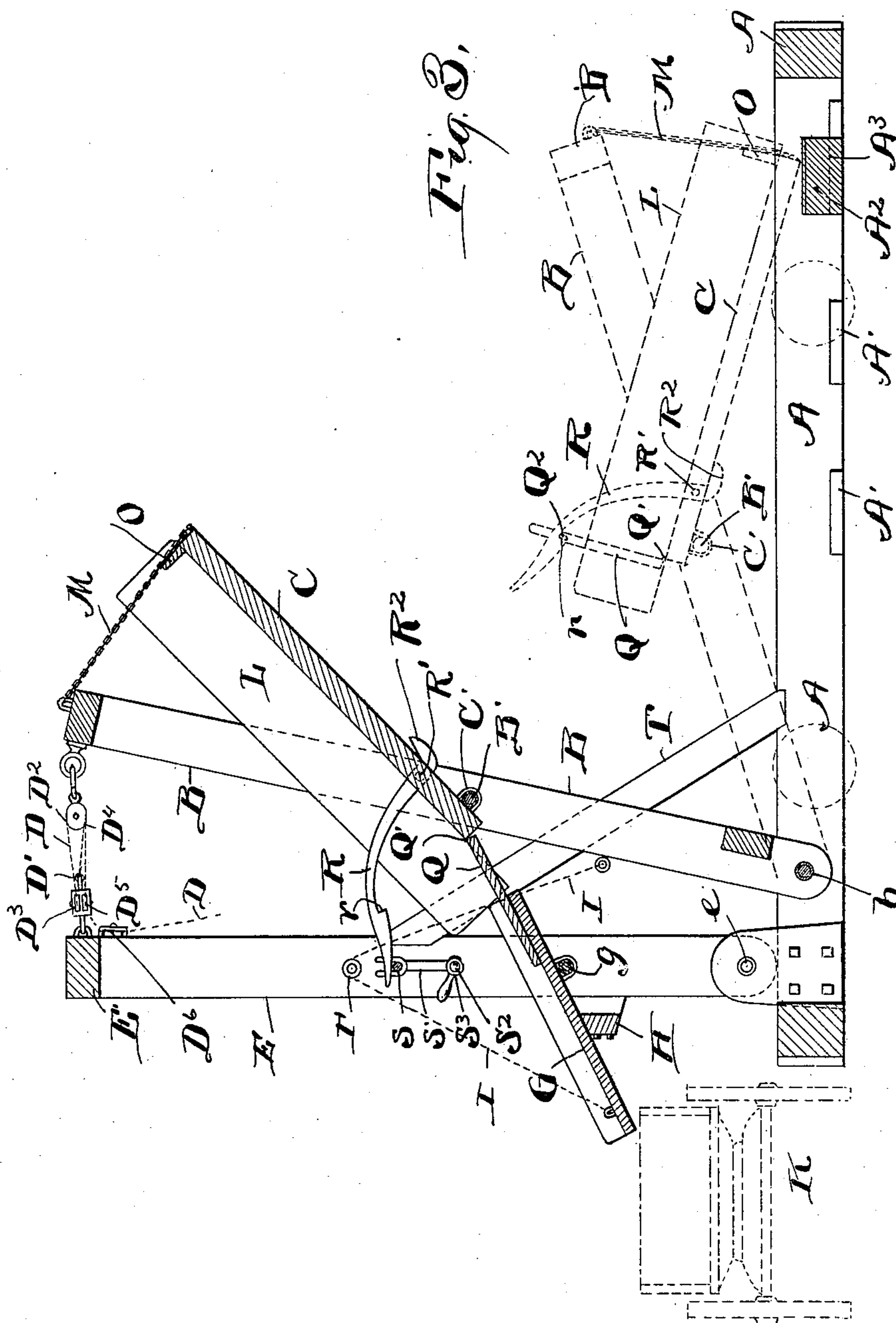
2 Sheets—Sheet 2.


B. F. SHUART.

ELEVATING AND TRANSFERRING APPARATUS.

No. 557,345.

Patented Mar. 31, 1896.



Witnesses,
E. B. Gilchrist


Inventor
Benjamin F. Stuart
By M. D. Seggett & Co
his attorneys.

UNITED STATES PATENT OFFICE.

BENJAMIN F. SHUART, OF OBERLIN, OHIO.

ELEVATING AND TRANSFERRING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 557,345, dated March 31, 1896.

Application filed August 15, 1895. Serial No. 559,322. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. SHUART, of Oberlin, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Elevating and Transferring Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in elevating and transferring apparatus more especially designed for receiving a deposit or deposits of sand or other material at or near the ground and lifting and transferring the load to a wagon, car, or other vehicle at hand to receive it.

With this object in view my invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan, partly broken away and in section, of apparatus embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation, in central vertical section, showing the dumping-platform and discharging-chute of the apparatus in a dumping position in solid lines, and showing in dotted lines the dumping-platform and its supporting tilting frame in an intermediate position.

The illustrated apparatus comprises a rectangular stationary horizontally-arranged frame A, that is preferably provided with wheels A to render it portable. Frame A is designed to rest upon the ground or upon a track. (Not shown.) A vertically-tilting frame B is pivoted at one end, as at *b*, to and at or near one end of frame A. Frame B, in its lower or normal position, rests upon members A' of frame A. A vertically-tilting platform C is suitably supported from the outer portion of tilting frame B and is shown pivotally connected in any approved manner, at or near its inner end, to the central portion of frame B. The pivotal connection between platform C and the supporting-frame B consists, preferably, of a shaft or rod B' arranged transversely of and suitably secured to frame B and extending through any suitable number of staples or straps C' arranged at suitable intervals transversely of and suitably se-

cured to platform C. A cable D is suitably attached to the outer end of frame B, and said tilting frame is tilted upwardly, as shown in solid lines, Fig. 3, by actuating cable D in the one direction, and is lowered from its upwardly-tilted position by paying out the cable in the opposite direction.

Cable D, in the case illustrated, is attached at one end, as at D', to the block of tackle suitably secured to the central portion of a cross bar or beam E', that extends between and is suitably secured to two upright posts or standards E E arranged a suitable distance apart and suitably secured to frame A. From point D' cable D leads to and over a sheave D² of a tackle attached to the outer end of tilting frame B, thence to and over a sheave D³ of the tackle borne by cross-bar E', thence to and over another sheave D⁴ of the tackle attached to frame B, thence to and over another sheave D⁵ of the tackle attached to member E', thence horizontally along the side of said member E' to and over a sheave D⁶ borne by and at or near one end of said member E', whence it leads to the place at which it is hitched or engages the animal or means employed in actuating the cable.

The sand or material to be elevated and transferred to a wagon or vehicle is deposited upon platform C when the latter is in its normal or lowered position, and the load is dumped from said platform, when the latter is elevated, into a vertically-tilting chute G, located at a suitable elevation and pivoted at any suitable point between its central portion and its rear end, as at *g*, to and between standards or posts E E, and is adapted to discharge into the wagon or vehicle at hand to receive the load. Chute G should be so arranged that the greater portion of its weight shall be forward of its axis, so that the chute when free shall automatically tilt into its outwardly and downwardly inclining or operative position (shown in solid lines, Fig. 3) against a stop H provided for limiting the movement of the chute beyond the desired point in actuating the chute from an inoperative to its operative position. Stop H consists, preferably, of a cross-bar rigid with posts or standards E E. One or more cables I establish operative connection between said chute and tilting frame B. Two cables I I

are secured to and at or near the outer end of the chute and at opposite sides, respectively, of the chute, thence lead upwardly to and over different sheaves I' I', respectively, secured to the different posts or standards E E, respectively, and thence lead to frame B, to which they are secured at any suitable point between the central portion and hinged end of the frame. It will be observed, therefore, that when frame B is tilted upwardly chute G is tilted into an operative position, as required, to adapt it for discharging anything received by it into a wagon, car, or vehicle K placed under the discharging end of the chute.

The dumping-platform, to prevent any portion of its load from dropping therefrom at the sides of the platform, is provided with two preferably metallic gates L provided at opposite sides, respectively, of the platform and hinged at the lower end in any approved manner, as at L', to the platform. The dumping-platform is adapted to tilt downwardly a limited distance, as shown in dotted lines, Fig. 3, during the upward movement of frame B. Said downward tilt of the dumping-platform is shown limited by any suitable number of chains M, suitably attached at one end to the outer end of frame B and at their opposite end to the outer end of the dumping-platform, and the latter at its outer or rear end is provided with an upright guard O adapted to prevent any portion of the load from dropping off said end of the platform during the downward tilt of the latter. The capability of the dumping-platform to tilt downwardly, as hereinbefore indicated, enables the horse or animal employed in actuating said platform and its load to obtain an easy start before the entire load is brought to bear upon the animal—that is, the weight of the load, as the animal begins to pull upon the actuating-cable, is distributed between the animal and a bearing A², with which frame A is provided, and the animal does not do all the work required of it until after said platform has tilted downwardly by gravity relative to frame B and has been raised above and disengaged from bearing A², that consists, preferably, of a cross bar or beam arranged transversely of and rigid with frame A.

The backward or downward tilt of platform C relatively to the frame B is furthermore essential in handling many materials to prevent the material from being spilled out before the platform can be brought into position to connect with chute G. The dumping-platform in its normal position is therefore supported from frame B and from member A², that is cut away at each end, as at A³, (see Figs. 1 and 3,) to accommodate the location of frame B in the latter's lower or normal position. The arrangement of parts is such that in their normal position the side gates L of the dumping-platform overlap the side members of frame B, and preferably the side members of frame A also, and are open, as shown

in Figs. 1 and 2, and hence when the dumping-platform is tilted downwardly relative to frame B said gates are automatically tilted upwardly or closed by the upwardly-actuated frame B, as shown in Fig. 3. The dumping-platform at its forward or hinged end is provided with a gate or apron Q, that is hinged at its lower end, as at Q', to the platform in any approved manner. This end gate is closed in its normal position and is secured or locked in said position preferably by means of two latches R, pivoted at R' to and at opposite sides, respectively, of the dumping-platform and projecting upwardly in the direction of, and preferably somewhat beyond, the discharging end of the platform. Each latch R a suitable distance from its upper extremity is shown provided with a shoulder r, that in the operative position of the latch engages the forward or outer side of a pin or member Q², projecting from the edge of gate Q, and thereby locks said gate in its closed position. Latches R, when the dumping-platform has been elevated into its dumping position, are actuated by hand or otherwise in the direction required to unlock or release gate Q and permit the latter to swing open by gravity downwardly against the bottom of chute G, as shown in solid lines, Fig. 3. The arrangement of parts is such that gate Q shall be adapted to bridge the space between the dumping-platform and chute G and overlap the bottom of the chute a suitable distance, and the side gates L of the dumping-platform preferably extend beyond the discharging end of said platform, as required to prevent a portion of the load from dropping from gate or apron Q between the load-conducting chute and platform.

Means for automatically actuating latches R in the direction required to unlock gate Q is shown provided, and consists, preferably, of a rod S, arranged horizontally between posts or standards E at a suitable elevation and supported from the upper bifurcated ends of upright arms S', that are pivoted at their lower ends by horizontally-arranged pins S² to said standards or posts. Pivotal pins S² are screw-threaded at their outer or free ends, and handle-bearing nuts S³ are mounted upon said ends of the pins and are adapted to secure arms S' in the desired adjustment. The arrangement of parts and trend of the forward or upper ends of the latches are such that rod S, when the dumping-platform is elevated into a dumping position, shall be engaged by the forward or upper end of latches R and thereby renders said latches inoperative, as required to unlock and permit gate or apron Q to swing open, and said actuation of the latches is effected earlier or later, according as rod S is adjusted so as to sooner or later engage the latches.

Some earth and materials will run or move at a less declivity than other earth or other materials, and the object of the adjustability of the latch trip-rod is to enable the dump-

ing-platform to be given a greater or less declivity preparatory to the dumping operation, and thereby accommodate all grades of sand, earth, or other materials.

5 Latches R extend, preferably, downwardly through slots in the dumping-platform, and below said platform terminate, respectively, in a foot or laterally-projecting member R², that is adapted to engage the under side of the platform and prevent the downward movement of the trip-rod-engaging end of the respective latch out of convenient reach during the return of the dumping-platform, after a dump, to its normal position.

15 To increase the portability of the apparatus, the upright posts or standards E are hinged or pivotally connected to frame A at their lower ends, as at e, and the braces T, that brace said standards or posts from the side members of frame A, engage mortises or recesses in said frame and standards and are removable to accommodate the folding of members E downwardly against frame A, and tie-rods t, that are instrumental in securing
25 braces T in place and tie together frame A and the uprights E adjacent to the braces, are provided, respectively, with a turnbuckle t for tightening or loosening the same, as the case may require.

30 The sand, earth or material to be elevated and transferred to a car or vehicle at hand to receive it may be hauled or deposited upon the dumping-platform in any suitable manner, and said platform is preferably large enough to enable a team to travel over the same, and if the material deposited upon the platform is hauled thereon by a team the cable-engaging tackle attached to frame B is of course detached from said frame and moved
40 with the cable out of the way of the platform loading operation.

My improved apparatus will be found especially valuable in expediting any excavating work—such, for instance, as excavating
45 work attending the erection of large buildings in cities, the construction of canals, and also in transferring or distributing material at docks, yards, &c.

What I claim is—

50 1. Elevating and transferring apparatus comprising a horizontally-arranged frame A, suitably-actuated vertically-tilting frame B pivotally connected to frame A, vertically-tilting dumping-platform C pivotally connected to the aforesaid vertically-tilting frame, and a flexible connection between the tilting frame and rear or outer end of the dumping-platform, substantially as shown, for the purpose specified.

60 2. Elevating and transferring apparatus comprising a vertically-tilting frame B, actuating-cable suitably attached to the outer or free end of said frame, a dumping-platform pivotally supported from the tilting frame, a bearing A² for the rear or outer end of said platform in the latter's lower or normal position, and a flexible connection between said

end of the platform and tilting frame, the length of said flexible connection being such as to afford a limited downward movement 70 to the engaging end of the platform, all arranged and operating substantially as shown, for the purpose specified.

3. Elevating and transferring apparatus comprising a relatively stationary frame A, 75 a suitably-actuated vertically-tilting frame B pivotally connected to the stationary frame, vertically-tilting dumping-platform pivotally connected to the tilting frame, the pivotal connection between the tilting frame and 80 platform being formed by a shaft or rod suitably secured to the tilting frame and extending through staples or straps secured to the under side of the platform, and chains M connecting the rear or outer end of the plat- 85 form with the tilting frame and limiting the separation of said end of the platform from the tilting frame, substantially as shown, for the purpose specified.

4. Elevating and transferring apparatus 90 comprising a horizontally-arranged frame A, suitably-actuated vertically-tilting frame B pivotally connected to frame A, vertically-tilting dumping-platform C pivotally connected to the aforesaid vertically-tilting frame 95 and provided with an upright guard O at its outer or rear end, and a flexible connection between the tilting frame and said end of the dumping-platform, substantially as shown, for the purpose specified. 100

5. Elevating and transferring apparatus comprising a suitably-actuated vertically-tilting frame and a vertically-tilting platform connected to the aforesaid tilting frame, means for limiting the separation of the outer 105 or rear end of the platform from the tilting frame and two gates hinged to the platform at opposite sides, respectively, of the platform and normally overlapping the side members of the tilting frame, the arrangement of parts 110 being such that said gates are actuated to close upon the separation of the outer or rear end of the platform from the tilting frame, substantially as shown, for the purpose specified.

6. In elevating and transferring apparatus, 115 the combination with a vertically-tilting chute, a suitably-actuated vertically-tilting frame, and a dumping-platform arranged to be elevated and tilted into a dumping position by the aforesaid frame, of means oper- 120 atively connecting the chute with the tilting frame, and the arrangement of parts being such that the chute shall be actuated into an operative position upon actuating the platform into its dumping position, and in said 125 position the platform shall be adapted to discharge into the chute, substantially as shown, for the purpose specified.

7. In elevating and transferring apparatus, the combination with a vertically-tilting 130 chute having the greater portion of its weight forward of its axis and being normally in an inoperative position, a suitably-actuated vertically-tilting frame and a dumping-platform

arranged to be elevated and tilted into a dumping position by the aforesaid frame, of means operatively connecting the chute with the tilting frame, and the arrangement of parts being such that the chute shall be actuated into an operative position upon actuating the platform into its dumping position, and in said position the platform shall be adapted to discharge into the chute, substantially as shown, for the purpose specified.

8. In elevating and transferring apparatus, the combination with a vertically-tilting chute having the greater portion of its weight forward of its axis and being normally inoperative, a suitably-actuated vertically-tilting frame pivoted at one end, and a dumping-platform arranged between the central portion and outer or free end of said tilting frame and adapted to be elevated and tilted into a dumping position by said frame, of two suitably-guided cables attached at one end to and at or near the discharging end and at opposite sides, respectively, of the chute, and attached at their opposite end to the aforesaid tilting frame at any suitable point between the dumping-platform and pivoted end of the frame, and a stop or bearing for the chute in the operative position of the latter, substantially as shown, for the purpose specified.

9. Elevating and transferring apparatus comprising an elevated chute, a suitably-actuated vertically-tilting frame pivoted at one end a suitable distance below the chute, a dumping-platform suitably connected to said frame a suitable distance from the axis of the frame, said platform, at its discharging end, being provided with a gate or apron hinged to the platform at its lower end, and adapted, in its open position, to bridge the space between the platform and chute, means for locking said apron or gate in its closed position, and mechanism for automatically rendering said locking means inoperative upon the elevation of the platform into a dumping position, substantially as shown, for the purpose specified.

10. Elevating and transferring apparatus comprising an elevated chute, a suitably-actuated vertically-tilting frame pivoted a suitable distance below said chute, a dumping-platform arranged to be elevated and tilted into a dumping position by said frame, said platform, at its discharging end, being provided with a gate or apron hinged to the platform at its lower end and adapted, in its open position, to bridge the space between the platform and chute, said apron or gate being provided with a projecting member Q^2 , a latch for engaging said projecting member in the closed position of the gate or apron, and means for rendering said latch inoperative, all arranged and operating substantially as shown, for the purpose specified.

11. Elevating and transferring apparatus comprising an elevated chute, a suitably-actu-

ated vertically-tilting frame pivoted a suitable distance below said chute, a dumping-platform arranged to be elevated and tilted into a dumping position by said frame, said platform, at its discharging end, being provided with a gate or apron hinged to the platform at its lower end and adapted, at its open position, to bridge the space between the platform and chute, a latch for engaging the gate or apron in the closed position of the latter, said latch extending downwardly through the platform, and, at its lower end, terminating in a foot R^2 adapted to engage the under side of the platform, and means for rendering said latch inoperative, all arranged and operating substantially as shown, for the purpose specified.

12. Elevating and transferring apparatus comprising an elevated chute, a suitably-actuated vertically-tilting frame pivoted a suitable distance below said chute, a dumping-platform arranged to be elevated and tilted into a dumping position by said frame, said platform, at its discharging end, being provided with a gate hinged to the platform at its lower end and adapted, in its open position, to bridge the space between the platform and chute, two latches pivoted to the platform and adapted to engage and lock the gate in the closed position of the latter, and means for rendering said latches inoperative, all arranged and operating substantially as shown, for the purpose specified.

13. Elevating and transferring apparatus comprising an elevated chute, a suitably-actuated vertically-tilting frame pivoted a suitable distance below said chute, a dumping-platform suitably connected with said frame a suitable distance from the axis of the frame, said dumping-platform, at its discharging end having a gate hinged thereto, which gate, in its open position, is adapted to bridge the space between the platform or chute and which gate is provided with the two projecting members Q^2 , the two latches R pivoted to the platform, and the trip-rod S adjustable laterally, all arranged and operating substantially as shown, for the purpose specified.

14. Elevating and transferring apparatus comprising a frame A arranged at or in close proximity to the ground, a suitably-actuated vertically-tilting platform-bearing frame B , chute-bearing uprights E hinged or pivotally connected at their lower ends to the aforesaid frame A , and removable braces T between said frame A and the aforesaid uprights, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 30th day of July, 1895.

BENJAMIN F. SHUART.

Witnesses:

LILLIAN CARTER,
CHAS. SETH BROWN.