

No. 731,118.

PATENTED JUNE 16, 1903.

W. J. NEWMAN.
DUMPING APPARATUS.
APPLICATION FILED JAN. 8, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

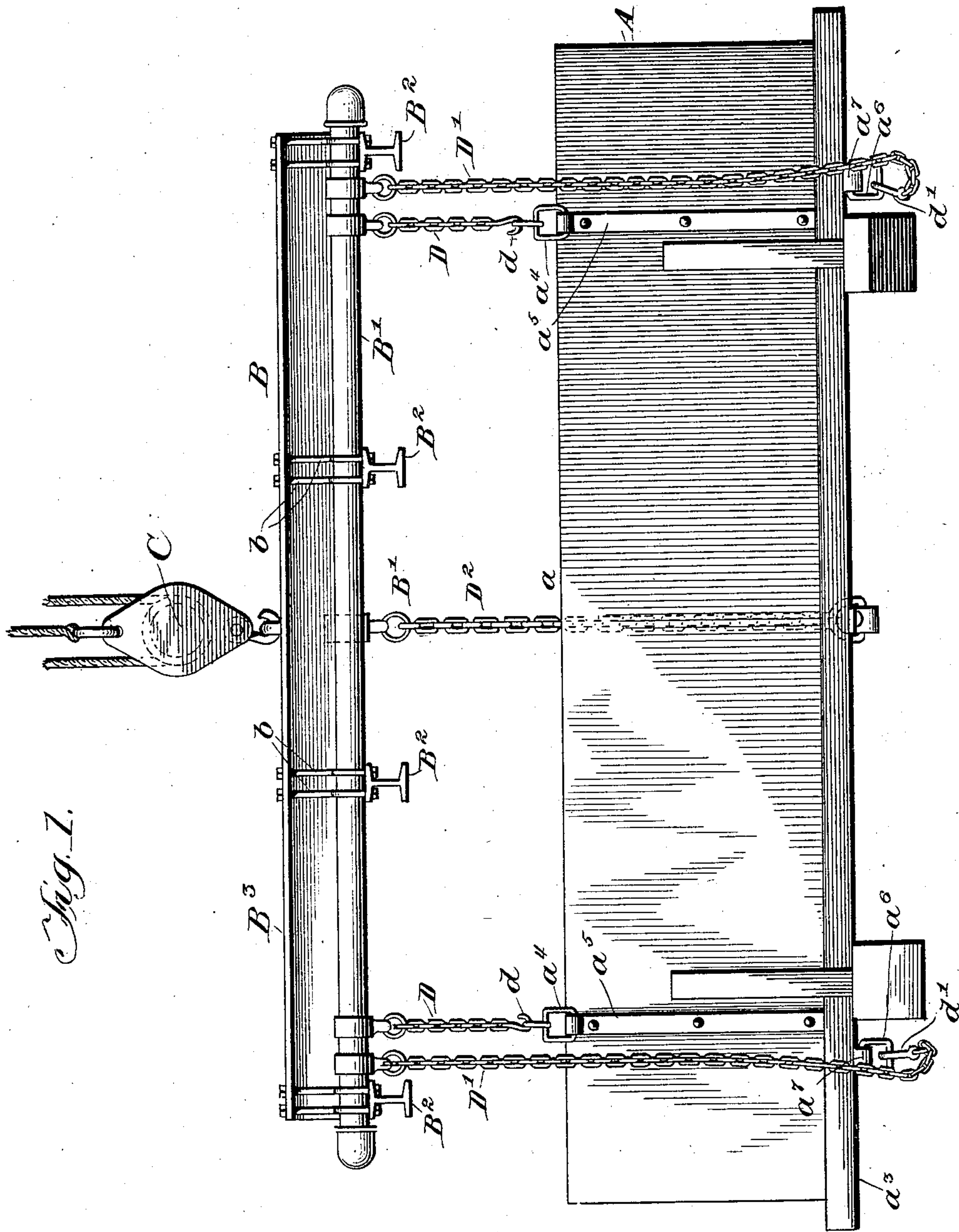


Fig. 1.

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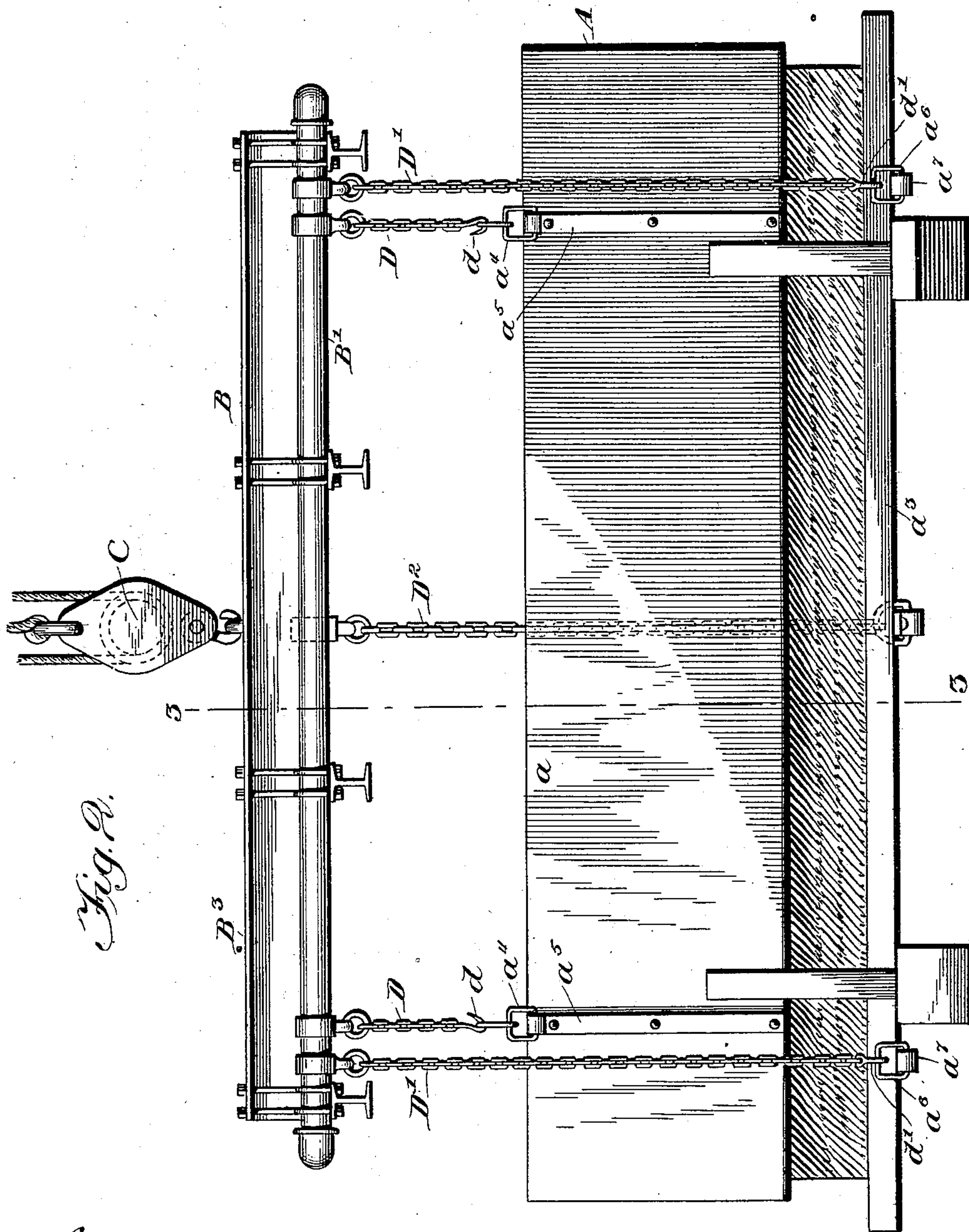
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

NO MODEL.

Fig. 3.

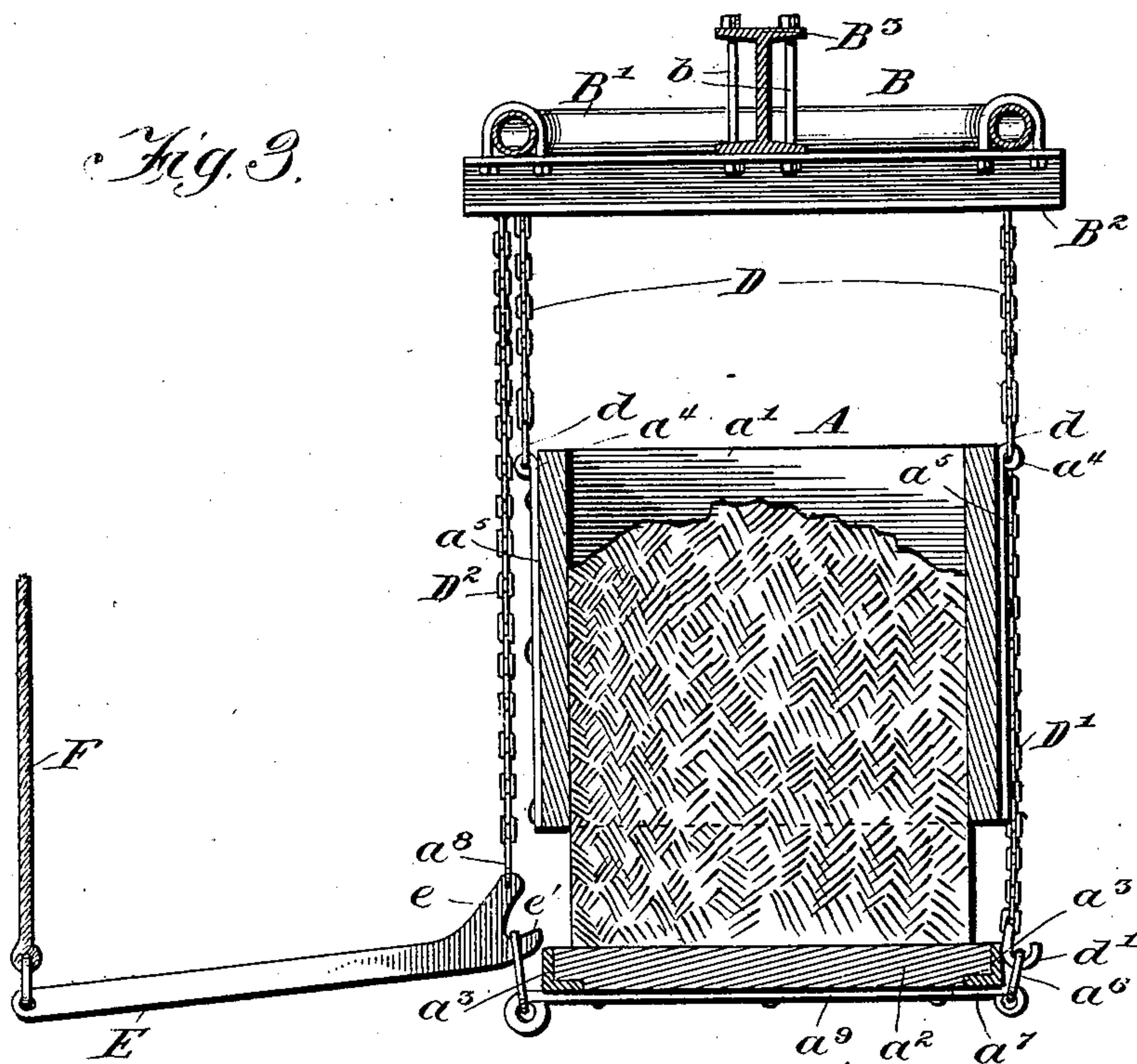
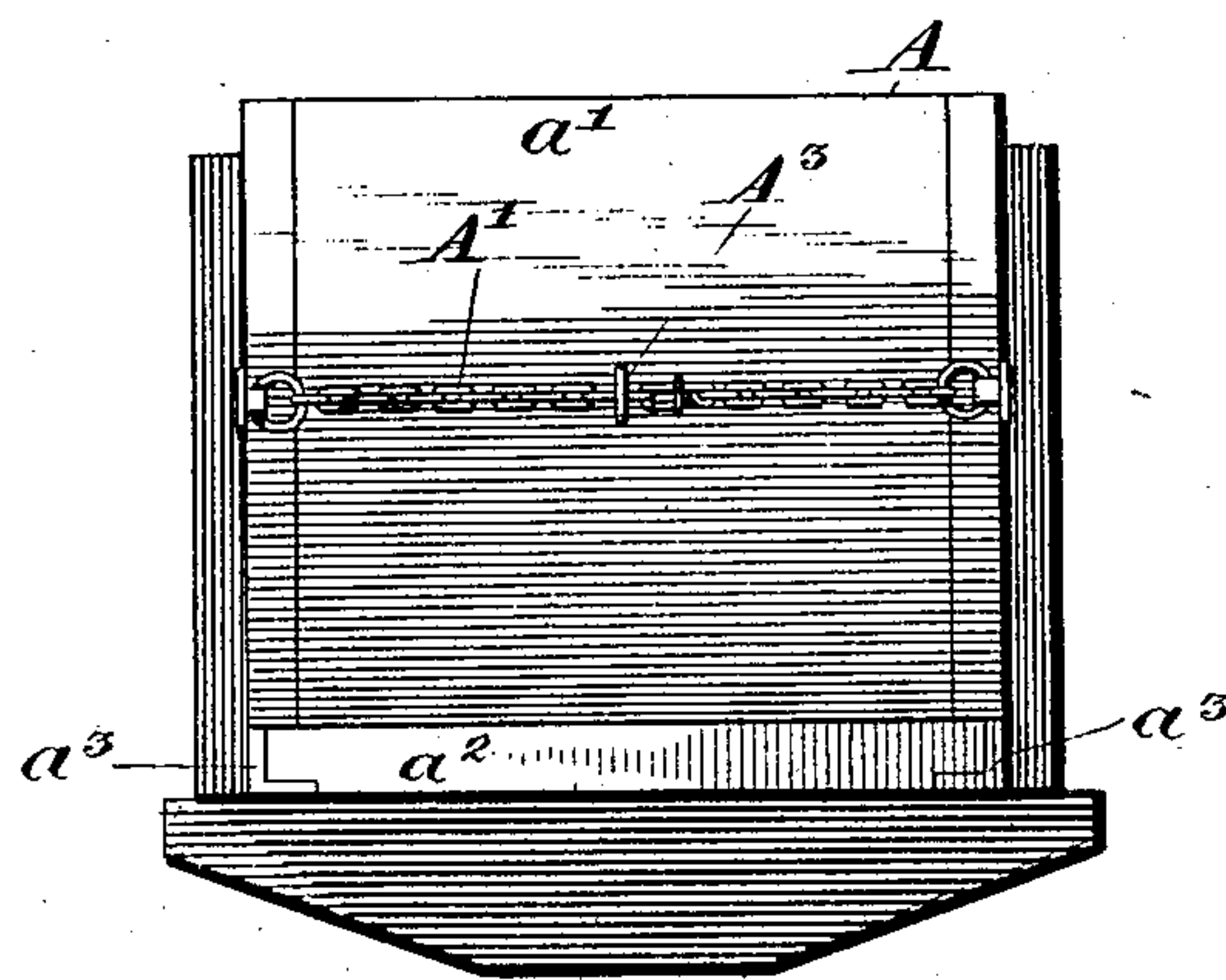


Fig. 4.



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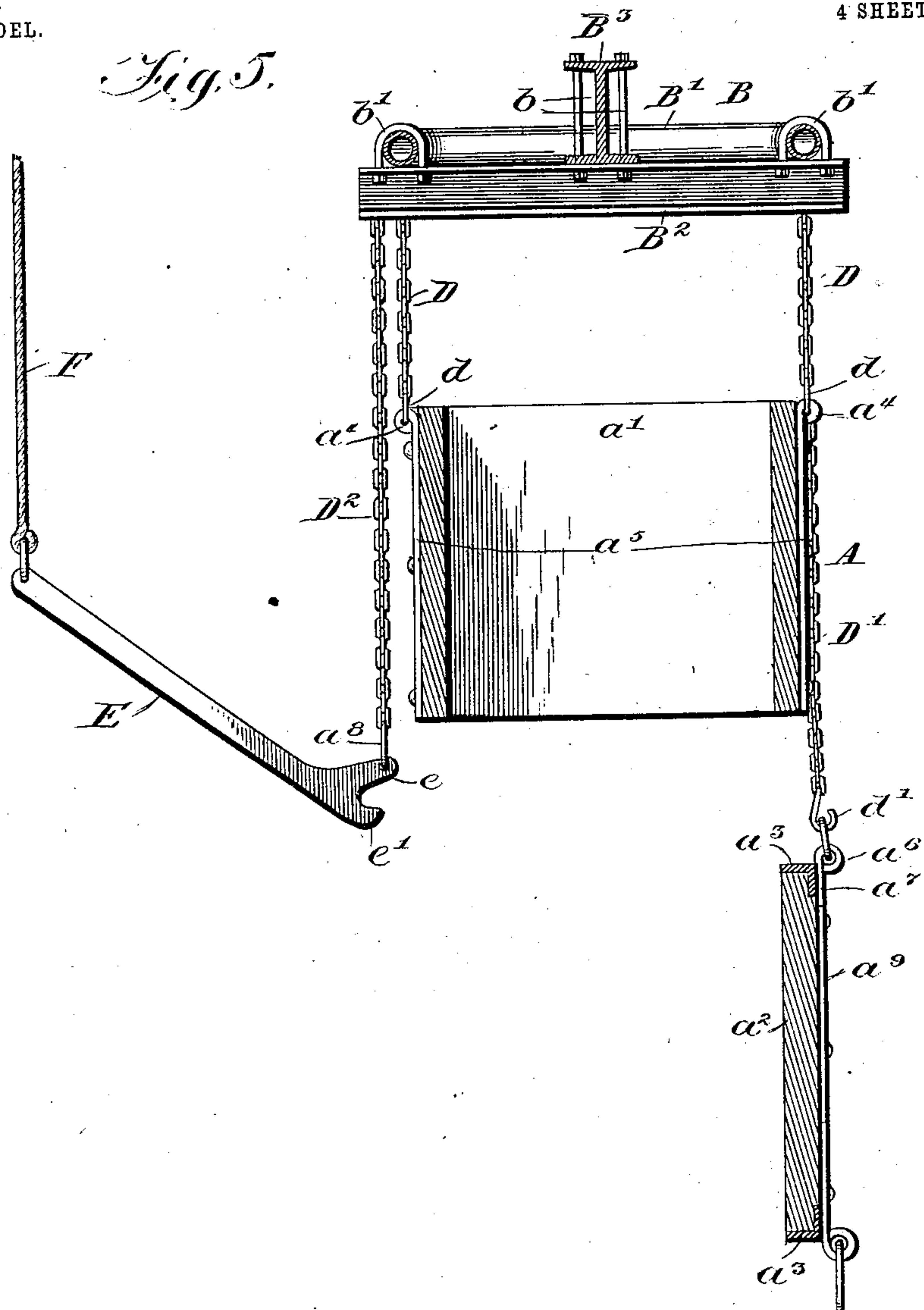
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WILLIAM J. NEWMAN, OF CHICAGO, ILLINOIS.

DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 731,118, dated June 16, 1903.

Application filed January 8, 1903. Serial No. 138,235. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. NEWMAN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dumping Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to novel means for dumping or unloading from wagon-bodies dirt and other material; and the object of the invention is to provide improved means for this purpose by which the unloading or dumping of wagon-boxes is facilitated and the mechanism simplified.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of a wagon-box and unloading device made in accordance with my invention. Fig. 2 is a similar view showing the side and end boards of the box raised from the bottom thereof, such as occurs in the beginning of the lifting movement. Fig. 3 is a vertical transverse section taken on line 3-3 of Fig. 2. Fig. 4 is an end view of the wagon-box. Fig. 5 is a transverse vertical section of the wagon-box, showing the position of the parts after the same has been dumped.

As shown in said drawings, A designates a wagon-box, in which dirt or other refuse, such as garbage or the like, may be transported to a dumping-place from outlying districts or localities.

B designates as a whole a lifting-frame located at the dumping-station and used in connection with any convenient form of derrick for lifting the box and swinging it from the vehicle running-gear to a convenient place for dumping the contents of said box. Said wagon-box consists of side-boards a , end-boards a' , which have sliding interfitting engagement at their sides with the side-boards, and a bottom a^2 , extending from end to end and side to side of the body and in the present construction is shown as made separate from the said body. Said bottom is shown as strengthened by longitudinal an-

gle-irons a^3 , attached to the margins and extending from end to end thereof. The side-boards are tied together at the ends of the box by means of chains A' , attached at their ends to loops on the side-boards. Said chains extend through rings A^3 on the end-boards, thereby preventing said end-boards from slipping downwardly out of place when the box is lifted from the running-gear.

The lifting-frame B embraces a generally rectangular surrounding frame B' , consisting of parallel side members connected by transverse end members and made, preferably, of tubing.

B^2 B^2 designate a plurality of transverse beams which are attached at their ends to the side members of the frame B' , and B^3 designates a deep longitudinal beam which extends across and is attached to the transverse beams centrally thereof. As herein shown, said beams have the form of I-beams, and the central longitudinal beam is attached to the transverse beams by means of vertical bolts b , extending through the flanges of the said beams at the intersections thereof, as most clearly shown in Figs. 3 and 5. The transverse beams are attached at their ends to the side members of the tubular frame by means of clips b' , which embrace said side members and extend at their ends through the upper flanges of said transverse beams. Said lifting-frame is suspended from a traveling pulley-block C, which is adapted to be carried by a derrick or other lifting device. (Not shown.)

D D designate short chains which are attached at their upper ends to the side members of the frame, two on each side of the frame and near its ends, and are provided on their lower ends with hooks d , adapted to engage loops a^4 , which are attached to the upper margins of the side-boards of the wagon-box. Said loops are herein shown as loosely connected with metal strips a^5 , which are bolted to said side-boards and extend throughout the width thereof to give strength thereto. D' D' designate other chains which depend from the side member B' of the lifting-frame at one side thereof and are provided at their lower ends with hooks d' , which engage loops a^6 , which are affixed to the bottom

of the box at one side thereof, said loops being herein shown as loosely connected with horizontal straps a^7 , extend beneath, and are attached to said bottom for the purpose of strengthening the frame.

D^2 designates a chain which depends from the side of the frame remote from the chains D' and is located centrally of the frame. Said centrally-located chain D^2 carries at its lower end a tripping-bar E , said bar being provided at one end with an upturned lug e , with which is loosely connected the lower end of the chain D^2 in the manner shown in Fig. 3. Said bar is formed below said lug with a hook e' , which is adapted to engage a loop a^8 , which is loosely connected with a strap a^9 , extending beneath and attached to the box-body, the side of said bottom supported by said tripping-bar being adapted when free from said bar and the bar suspended to swing forwardly away from the side-boards to permit the load to be released from the box. When the box and its contents are suspended from the frame, the box-bottom and the principal part of the weight of load is sustained by the chain D' at one side of the box and the chain D^2 , which carries the tripping device, the chains D at the corners of the frame supporting the weight of the side and end boards and such part of the weight of the contents transmitted thereto as is due to adhesion or sticking of the contents to said side and end boards. Said gripping-bar E assumes when in position to support the adjacent side of the swinging box-bottom a horizontal position, as shown in Fig. 3, and is connected at its free end with a trip-cord F , which is adapted to be trained over a suitably-located pulley on the derrick and to extend to the derrick-engine house or other convenient location and by which the shank of the gripping-bar is swung upwardly to release the hook e' from the loop a^8 when the contents of the box is to be dumped.

It will be observed by an inspection of Fig. 1 that when the hooks of the chains D D' engage with the loops on the side-boards and bottom of the wagon-body and the chains D are drawn taut in the act of lifting the box the chains D' , which support the box-bottom, are slack, whereby during the continual lifting of the frame the side and end boards are raised a distance relatively to the bottom before the chains D' are drawn taut and in position to raise the box-bottom. In other words, the first lifting force exerted by the frame B acts to raise the side and end boards relatively to the box-bottom before the bottom is raised or lifted. The purpose of such relative vertical movement of the side and end boards to the bottom of the box when lifting the box from the running-gear is to overcome the adhesion or sticking of the contents to the side and end boards of the box, so that when the bottom is permitted to swing downwardly after the box has been swung to its dumping position the contents will fall freely from said

box. If the contents of the box be of a wet or sticky nature and no provision be made for shifting said side-boards relatively to the bottom of the box before the bottom is swung downwardly, said contents will not fall freely from said box, but will slip slowly therefrom, and thereby consume considerable time in unloading. This is due to the fact that the jars of the wagon cause the contents to settle and pack closely against the side and end boards of the box and is pressed so closely thereagainst as to adhere with considerable force thereto. By shifting the side and end boards relatively to the load, however, before lifting the load the sticking of the load to the side and end boards is overcome, so that when the bottom is dropped or swung downwardly said load drops freely away from said box. When handling drier materials, such as dry earth or certain classes of garbage, the relative shifting of the side and end boards to the bottom of the box may not be necessary, and in that event one side of the bottom of said box may be hinged directly to one of the side-boards. In the present construction the chains D' at one side of the box constitute, in effect, the hinges upon which the box-bottom swings, said chains, in connection with the lifting-frame and the short chains D , constituting a loose connection of the bottom with the body of the box.

In the use of the apparatus the lifting-frame together with the depending chains D , D' , and D^2 are lowered down over the box, and the hooks of said chains, together with the hook of the gripping-bar, are engaged with the several loops of the wagon-box. Thereafter the frame is lifted, and the first effect of such lifting is to shift the side and end boards upwardly relatively to the bottom in the manner shown in Figs. 2 and 3. After such shifting of the side and end boards has occurred the weight of the box and its contents is transmitted to the lifting-frame through all the chains alike, and said box is carried or swung from the running-gears of the vehicle over the spot upon which the contents of the box is to be dumped. Thereafter the outer end of the tripping-bar is swung upwardly, which releases the tripping-hook from the loop a^8 and permits the bottom of the box to swing downwardly and the contents of the box to fall away therefrom. The suspended box downwardly-swung body (shown in Fig. 5) is thereafter swung over the vehicle running-gear, and while the box is being lowered the bottom is properly located on the running-gear, so as to be in position to receive the side and end boards of the box when the same are lowered. Thereafter the hooks of the chains D D' D^2 are detached, after which the frame is raised away from the box to permit the wagon to be drawn away.

From the foregoing it is obvious that changes may be made in the structural details without departing from the spirit of my

invention, and I do not wish to be limited to such construction except as hereinafter made the subject of specific claims.

I claim as my invention—

5 1. As a means for dumping the contents of wagon-boxes, the combination with a wagon-box having connected side and end members and a bottom member, of a lifting-frame provided with means for attaching the same to
10 the wagon-box, means for raising said frame and box, means for releasing the bottom member of said box when lifted by the frame and means whereby the side and end members are initially lifted relatively to the bottom
15 member.

2. As a means for dumping the contents of wagon-boxes, the combination with a wagon-box provided with a bottom, one side of which is capable of swinging downwardly away
20 from the box-body, means for lifting said box, means for effecting the lifting of the side and end boards of the box relatively to the bottom when power is first applied to lift the box, means for holding the bottom horizontal
25 when first lifted and constructed to release one side thereof to permit it to swing downwardly to release the contents of the box.

3. A dumping apparatus comprising a lifting-frame, short chains depending from the
30 frame on opposite sides thereof, two longer chains depending from one side of said frame, one near each end and a chain depending from the frame opposite to said longer chains and carrying at its lower end a tripping device.
35 vice.

4. A dumping apparatus comprising a lifting-frame, chains depending from the sides thereof adapted for connection with devices on the upper part of a wagon-box, longer
40 chains at one side of the frame adapted for engagement with parts on one side of the bottom of said box and a tripping device suspended from the side of the frame opposite to said longer chains.

45 5. A dumping device for wagon-boxes comprising a lifting-frame consisting of rigidly-connected side and end members, transverse beams attached at their ends to said side members, a central longitudinal beam extending
50 across and affixed to said transverse beams and chains depending from said side members and adapted for connection with the side-boards and the bottom of the box, one of the chains carrying a tripping device adapted for

detachable connection with a part on one margin of the box-bottom. 55

6. The combination with a wagon-box embracing connected side and end boards and a bottom, one side of which is adapted to swing
60 downwardly away from the body of the box, of a lifting-frame, chains depending from said frame and adapted for connection with the side-boards and a chain depending centrally of the frame and provided with a tripping device adapted to engage a part on the swinging
65 side of the bottom.

7. The combination with a wagon-box embracing connected side and end boards and a bottom made separate from the side-boards,
70 one side of which is adapted to swing downwardly away from the box-body, of a lifting-frame, chains depending from said frame, and adapted for connection with parts on the side-boards of the box, two chains depending from one side of the frame adapted for connection with parts on one side of said bottom,
75 and a chain depending from the other side of the frame and provided with a tripping device adapted to engage a part on the swinging side of the bottom. 80

8. The combination with a wagon-box embracing connected side and end boards and a bottom made separate from the side-boards,
85 one side of which is adapted to swing downwardly away from the box-body, of a lifting-frame, chains depending from said frame and adapted for connection with parts on the side-boards of the box, two chains depending from one side of the frame adapted for connection with parts on one side of said bottom
90 and a chain depending from the other side of the frame and provided with a tripping device adapted to engage a part on the swinging side of the bottom, said bottom-supporting chains being made of such length as to be
95 slack when the side-board chains are drawn taut, whereby the side and end boards are lifted relatively to the box-bottom before the latter is lifted.

In testimony that I claim the foregoing as
100 my invention I affix my signature, in presence of two witnesses, this 5th day of January, A. D. 1903.

WILLIAM J. NEWMAN.

Witnesses:

WILLIAM L. HALL,
GERTRUDE BRYCE.