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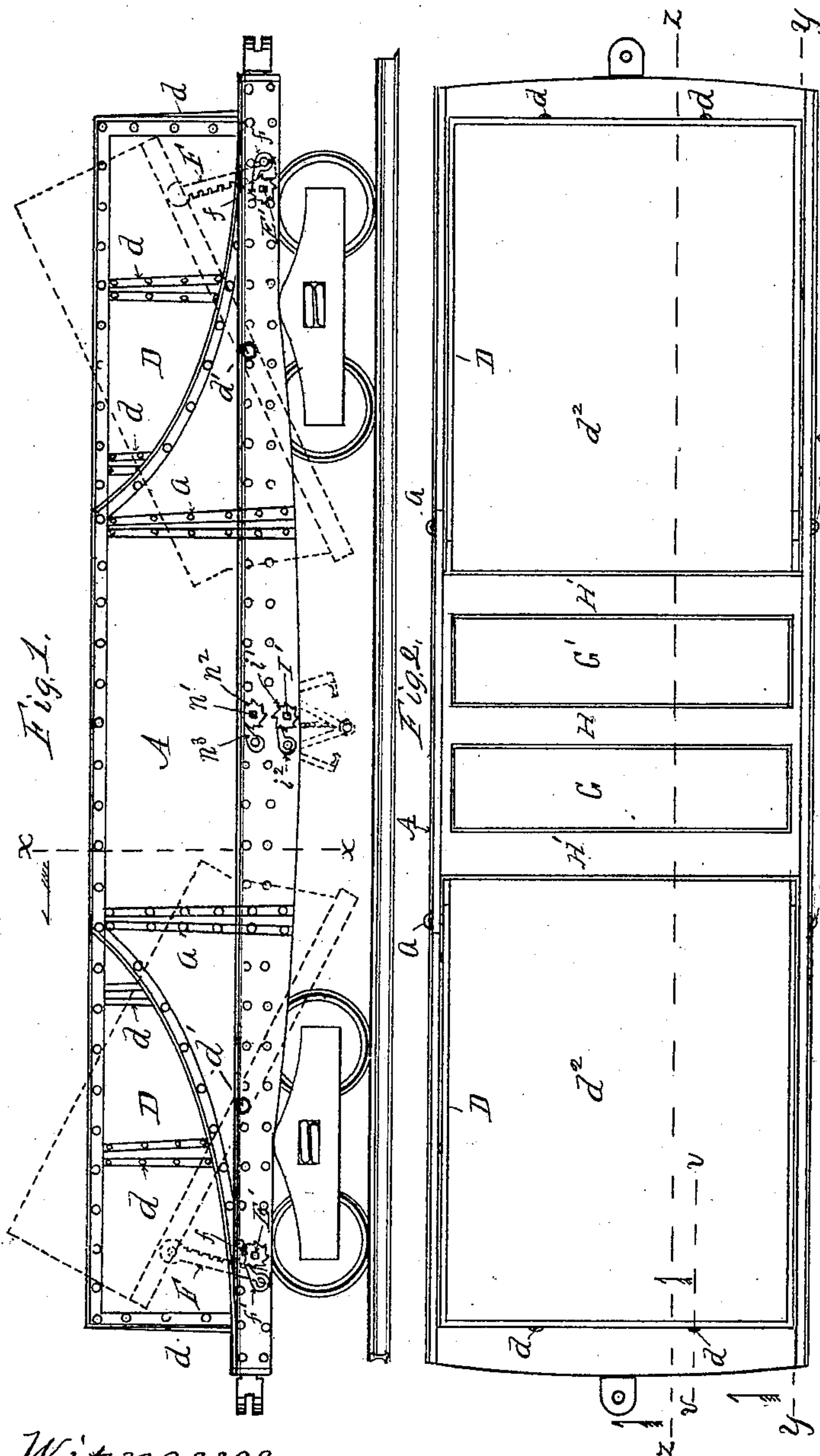
Patented Jan. 7, 1902.

J. C. & R. A. STURGEON.
DUMPING CAR.

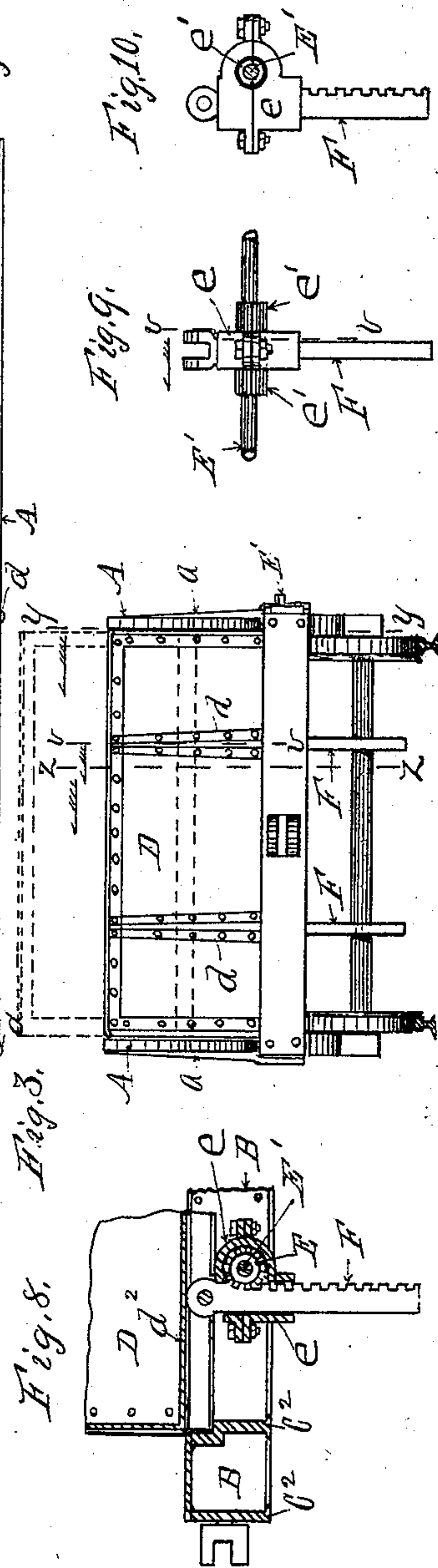
(Application filed Apr. 20, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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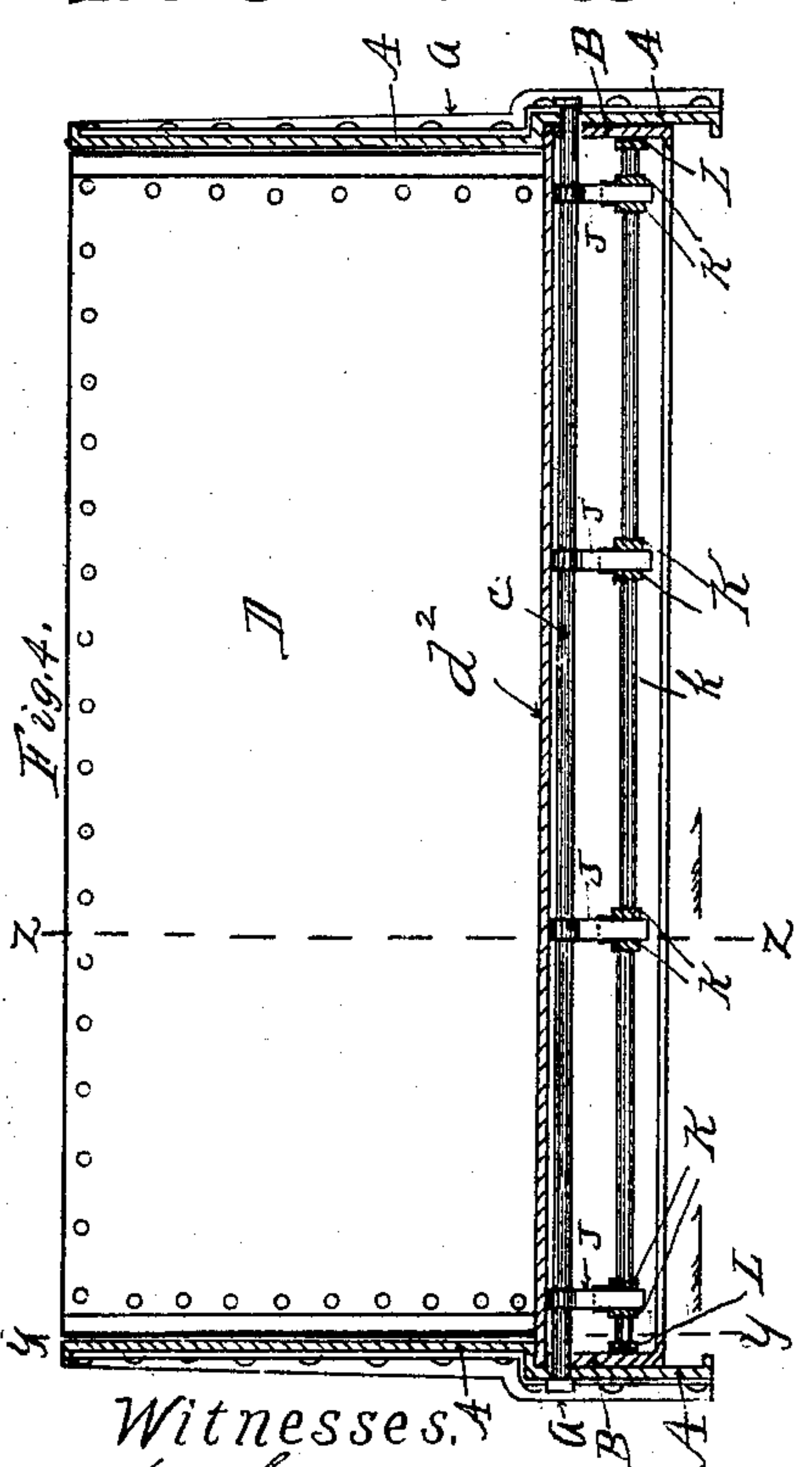
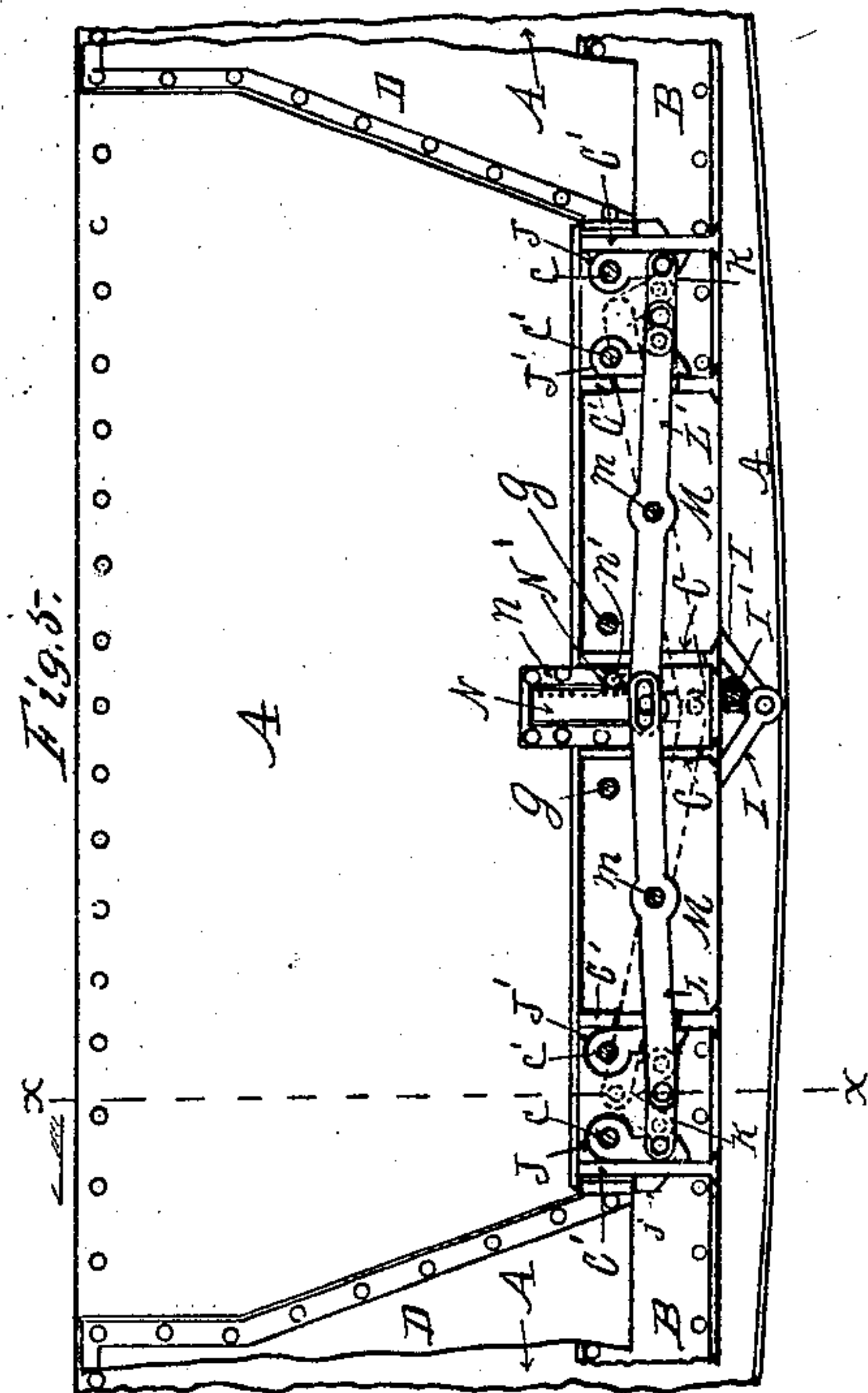
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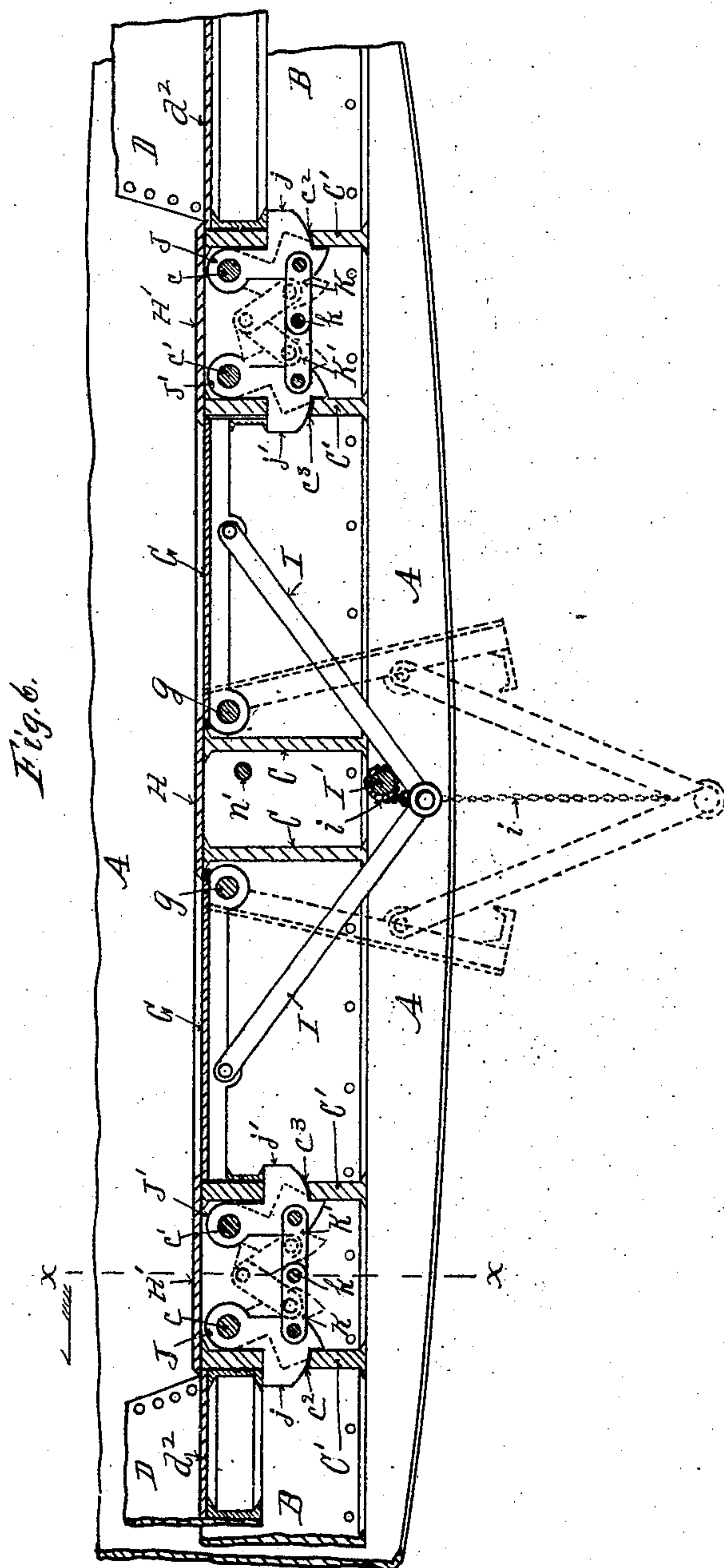
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3 Sheets—Sheet 2.



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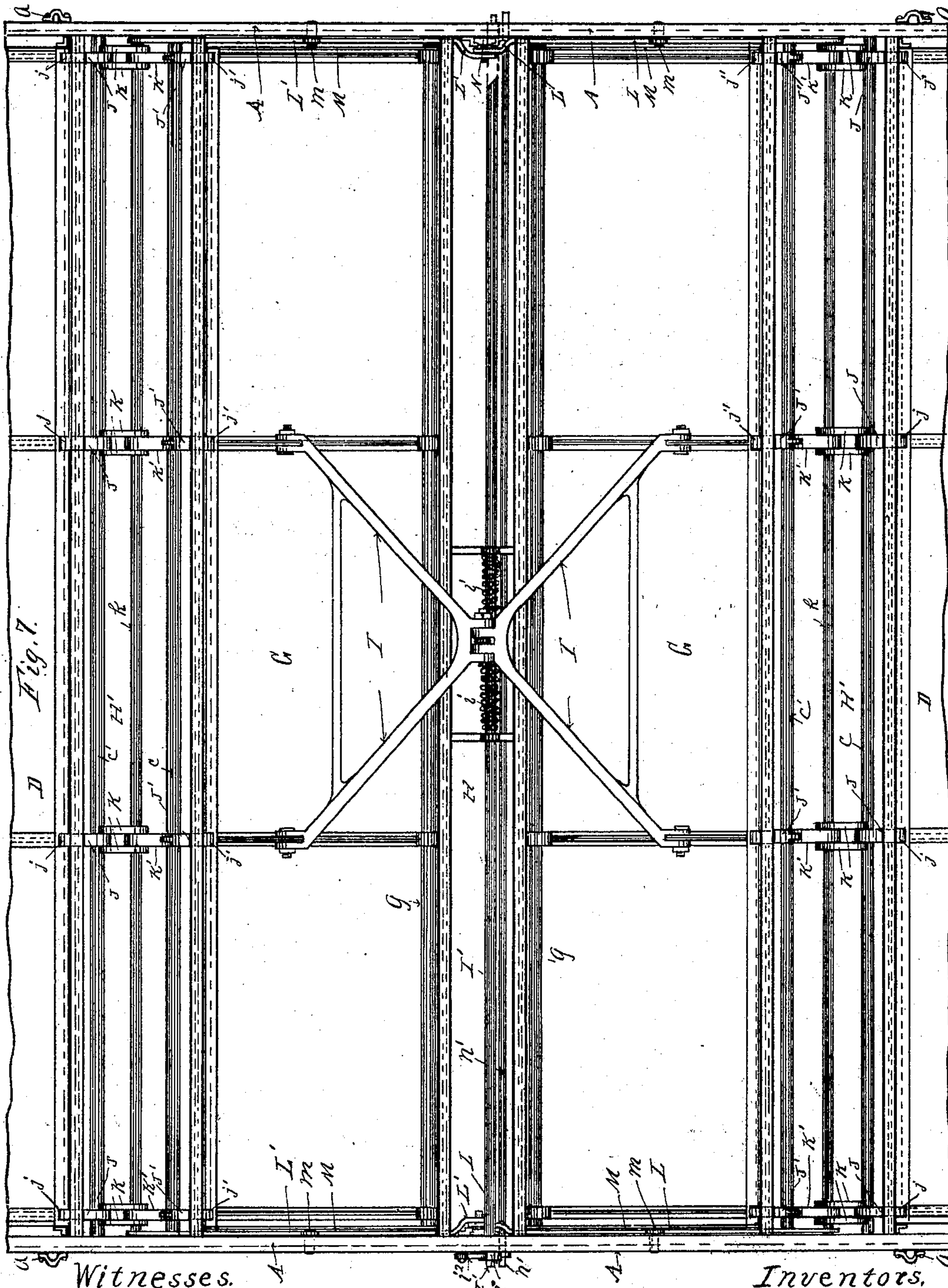
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(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

JOHN C. STURGEON AND RALPH A. STURGEON, OF ERIE, PENNSYLVANIA.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 690,625, dated January 7, 1902.

Application filed April 20, 1901. Serial No. 56,683. (No model.)

To all whom it may concern:

Be it known that we, JOHN C. STURGEON and RALPH A. STURGEON, citizens of the United States, residing at the city of Erie, in the county of Erie and State of Pennsylvania, have jointly invented certain new and useful Improvements in Dumping-Cars; and we 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

This invention relates to dumping-cars, and more particularly to cars provided with oscillating ends and center drop-bottom members adapted to be opened so as to dump the central portion of the load and allow the end sections to dump the remainder of the load.

Heretofore in the construction of dumping-cars the body of the car has been constructed of two oscillating sections pivoted approximately near the centers thereof in the frame of the car, each of these oscillating sections forming approximately one-half of the car-body, the inner ends thereof nearly meeting at the center of the car-frame, so that when the car-body was loaded with coal or other dumpable material no provision being made for first dumping the central portion of the load or otherwise relieving the pressure at that point rendered the operation of such cars impracticable. In other cases such cars have been made with each end pivoted at their inner ends, so that the outer ends thereof, with the load therein, have to be lifted bodily so as to dump their contents through an opening in the central part of the car-floor, which in practical operation of cars of this character requires the use of powerful hoisting mechanism of a character which is impracticable to construct as a part of the car.

The object of our invention is the construction of a dumping-car having an open box or gondola body with a substantially level floor therein throughout its entire length, so that it can be used not only to transport dumpable material—such as coal, ores, &c.—but can with equal facility be used to transport any other character of freight usually transported in open box or gondola cars. The body of

this car consists substantially of stationary side sections, forming the central part thereof, oscillating end sections, the inner ends of which are overlapped by the stationary side sections, forming the central part of the car-body and also adapted to be lowered below the level of the car-floor for dumping the same, a central drop-floor section or sections between the inner ends of the oscillating sections for dumping the central portion of the car-body, and mechanism for locking the oscillating ends and the central drop-floor sections of the car-body in a horizontal position.

The construction of this improved dumping-car and the mechanism thereof are hereinafter fully set forth and described, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation of a dumping-car embodying our invention. Fig. 2 is a top or plan view of the same. Fig. 3 is an end view in elevation of the same. Fig. 4 is a transverse section of the car frame and body on the line $x x$ in Figs. 1, 5, and 6. Fig. 5 is a longitudinal section of the central portion thereof on the line $y y$ in Figs. 2, 3, and 4. Fig. 6 is a longitudinal section of the same portion thereof on the line $z z$ in Figs. 2 and 4. Fig. 7 is a plan view of the under side of the bottom of the central portion of the car. Fig. 8 is a longitudinal section of a portion of the end of the car and of the mechanism for hoisting the outer end of the oscillating car-body section on the line $v v$ in Figs. 2, 3, and 9. Fig. 9 is an end view in elevation of said mechanism. Fig. 10 is a side view in elevation of the same.

In the drawings illustrating this invention the side frame A of the car we preferably make of metal plates cut and pressed into proper shape and provided with braces a , which are both riveted to the side sills B, which are connected by means of transverse sills C C at the center of the frame, C' C' at the inner ends of the oscillating sections D of the car-body, C² C² at the ends of the car-frame, and at such other points (not shown) as may be deemed necessary. The oscillating end sections D of the car-body are each approximately about six-fifteenths of the length of the car-body. These sections D are provided with braces d and are of sufficient width, so that the inner

ends thereof will move freely up and down between the sides A A of the car, the central portion of which form the sides of the car-body between the inner ends of the oscillating end sections D D. These sections D D are pivoted in the sides A and sills B of the car-frame by means of pivots d' , preferably at such point that when loaded the inner ends thereof will when released automatically drop into the positions illustrated by dotted lines in Fig. 1 and discharge the contents thereof, and when the contents are discharged they will automatically return to their normal positions, in which they are locked by means of suitable mechanism hereinafter described.

In the drawings we have shown pinions E mounted on transverse shafts E' and inclosed in cases e , provided with trunnions e' , suitable for mounting the same upon a car-frame, as illustrated in Figs. 8, 9, and 10, the upper ends of the racks F being pivoted to the under surfaces of the outer ends of the car-body sections D and operated by means of the pinion E and the shafts E', extending through the centers of the trunnions e' and through the sides of the car-body, where they are provided with ratchets f and dogs f' , by means of which mechanism the sections D can be raised and lowered by hand as may be desired.

At each side of the central cross-sills C C are pivoted drop-sections G G, which occupy approximately four-fifteenths of the length of the car-body and nearly the full width thereof and when closed and locked into place form portions of the central part of the floor of the car-body. These sections G G', the plate H on the top of the transverse sills C C, the plates H' H' on the tops of the transverse sills C' C', and the plates d^2 , forming the floors of the oscillating sections D of the car-body, taken together form a complete horizontal floor for the car-body. The doors G are pivoted upon transverse rods g , so that the outer ends thereof will when released drop down into the position illustrated in dotted lines in Figs. 1 and 6. For raising these sections G G up to their normal position links I I are pivoted thereto and pivoted together at their lower ends, as illustrated in Figs. 6 and 7, and a chain i extends therefrom to a transverse shaft I', provided with a ratchet-wheel i^2 and dog i^3 on the outside of the frame, the ends of the shaft I being also squared, so that a crank or other suitable actuating mechanism can be applied thereto by, means of which mechanism the sections G G can be restored to their normal positions.

For locking the inner ends of the oscillating car-body sections D and the outer ends of the doors G in their normal positions arms J J' are pivoted between the sills C' C' on transverse rods $c c'$, which arms J J' are provided with projections $j j'$, which when in their normal positions extend through openings $c^2 c^3$ in the sills C' C' and under the ends of the oscillating car-body sections D and the sections G. Between the free ends of the

arms J and J' there are links K K', which are pivoted upon a transverse rod k , so that when in their normal positions, as illustrated in full lines in Figs. 5 and 6, the arms J and J' are held firmly in place, and thereby the car-body sections D and the sections G are securely locked in a horizontal position; but when the rod k is raised by the levers L L' into the position shown in dotted lines in Figs. 5 and 6 the arms J J' are moved back, so as to release the sections D and the drop-sections G and permit them to move downward. For operating the rod k there are levers L L', centrally pivoted on pivots m between vertical plates M, extending between the transverse sills C and C', along the sides of the openings for the sections G, (see Figs. 5 and 7,) and the side sills B of the car-frame. The outer ends of these levers L L' are pivoted to the ends of the rods k , and their inner ends meet and are pivoted to the lower ends of vertically-moving racks N, mounted in slides n , secured to the sides A of the car-frame. These racks N are operated by means of gear-pinions N', which intermesh therewith and are mounted on a transverse shaft n' , which extends out through the sides A of the car-frame, where it is provided with a ratchet-wheel n^2 and a dog n^3 . The end of this shaft is also squared, so as to receive a crank or other actuating mechanism when desired, so that by means of the rack N and the levers L L' the car-body sections D D and the sections G G' can be simultaneously locked in a horizontal position and in like manner released as desired.

It will be observed that this car can be used for carrying coal, iron ore, or any other material which can be dumped and can with equal facility be used for conveying any kind of freight usually shipped in ordinary open-topped box-cars, as when the end sections D D and the sections G G are locked in a horizontal position the bottom of the car is flat and suitable to receive any kind of freight therein.

In operation the dog i^3 being raised from the ratchet-wheel the operator applies a crank to the end of the shaft n' . The dog n^3 being then thrown back the shaft n' is rotated and the rack N is moved downward until the levers L L' are in the position shown in dotted lines in Fig. 5. This operates, through the links K K', to simultaneously withdraw the projections $j j'$ on the arms J J' from under the ends of the oscillating sections D D and the sections G G, which allows them to automatically drop into the position illustrated by the dotted lines in Fig. 1 and dump the load from the car. If, however, the oscillating end sections D D did not operate promptly, cranks applied to the shafts E' enable the operator to speedily raise the outer ends of the sections D D, so that they will dump their contents, when they will automatically return to their normal positions, and to return the sections G G to their normal positions it is necessary to wind the chain up

on the shaft I', which operates on the links II to raise the sections to their normal places, when they, together with the inner ends of the sections DD, can be simultaneously locked in a horizontal position, as hereinbefore described.

We have thus shown and so described a dumping-car embodying our invention as to enable others skilled in the art to which it appertains to construct and operate the same. We do not, however, limit ourselves to the exact construction of our invention herein shown and described, as we are aware that many modifications can be made in the construction and operating mechanism thereof without departing from the spirit of our invention.

Therefore what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a dumping-car, a car-frame, a central car-body section, oscillating car-body end sections so pivoted in the car-frame that their inner ends can drop below the plane of the central section of the car-body, and a drop-floor section in the central car-body section, for the purpose set forth.

2. In a dumping-car, a car-frame, a central car-body section, oscillating car-body end sections so pivoted in the car-frame that their inner ends can drop below the plane of the central car-body section, a drop-floor section in the central car-body section, and mechanism for locking the oscillating car-body sections and the drop-floor sections, for the purpose set forth.

3. In a dumping-car, a car-frame, a central car-body section, side plates on the central part thereof forming the sides of the central car-body section, end car-body sections so pivoted in the car-frame that their inner ends are overlapped by the side plates thereon and can be dropped below the level of the central car-body section, drop-floor sections in the central car-body section, and mechanism adapted to lock the oscillating car-body end sections and the drop-floor sections in a horizontal position, for the purpose set forth.

4. In a dumping-car, a car-frame, side plates on the central part thereof, a central car-body floor-section between said side plates, a drop-floor section therein, oscillating car-body sections so pivoted in the car-frame that when in their normal positions the floors thereof are substantially on the same plane with the central car-floor section, and mechanism for locking the oscillating car-body sections and the drop-floor section of the central portion of the car-body floor in substantially a horizontal position, for the purpose set forth.

5. In a dumping-car, a car-frame, side plates on the central part thereof, a horizontal central car-body floor-section between said side plates, drop-floor sections therein, oscillating car-body end sections so pivoted in the car-frame that when in their normally horizontal positions, the floors thereof are substantially

on a horizontal plane with the central car-floor section, mechanism for locking said end sections and said drop-floor sections in their normally horizontal positions, and releasing them so that the inner ends of the oscillating car-body sections and the free ends of the drop-floor sections will drop below the floor of the car-body, for the purpose set forth.

6. In a dumping-car, side plates forming part of the car-frame and the central portion of the sides of the car-body, oscillating dumping-sections centrally pivoted in the car-frame so that the inner ends thereof are adapted to tip downward, transverse strips of permanent car-body floor, at the inner ends of said oscillating sections, a transverse strip of permanent car-body floor, in the center of the car, and drop-sections between said strips of permanent floor-plate, for the purpose set forth.

7. In a dumping-car, side plates forming part of the car-frame and the central portions of the sides of the car-body, oscillating dumping-sections pivoted between the side plates, so that the inner ends thereof are overlapped by the portions of the side plates forming the central part of the car-body, transverse strips of permanent car-body floor at the inner ends of the oscillating sections, a transverse strip of permanent car-body floor at the center of the car, drop-sections between said strips of permanent floor-plate, mechanism for locking said dumping-sections and said drop-sections in a horizontal position and for releasing the same, for the purpose set forth.

8. In a dumping-car, a car-frame comprised substantially of longitudinal and transverse sills and side plates, oscillating dumping-sections pivoted between the side plates of said frame, transverse strips of permanent car-floor at the inner ends of the oscillating sections, a transverse strip of permanent car-body floor at the center of the car, drop-sections hinged at the sides of the central strip of permanent car-body floor so that the free ends thereof close up to the edges of the strips of permanent car-body floor at the inner ends of the oscillating sections, and mechanism undersaid strips of permanent car-body floor for locking and releasing the inner ends of said oscillating sections and the free ends of the drop-sections, for the purpose set forth.

9. In a dumping-car comprising substantially a frame, side plates, and a floor-section forming the central part of the car-body, a hinged drop-floor section therein, oscillating car-body end sections pivoted in the frame, locking mechanism adapted to lock the inner ends of the oscillating sections and the free ends of the hinged drop-floor section in a horizontal position, and shaft mechanism for operating the same for the purpose set forth.

10. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking mechanism mounted in said frame between the inner ends of the os-

cillating car-body end sections and the free ends of the hinged central drop-sections, and shaft-and-link mechanism for operating said locking mechanism, for the purpose set forth.

5 11. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking-arms mounted in said frame between the inner ends of the oscillating car-body end sections, and the free ends of the hinged central drop-floor sections, and shaft-and-link mechanism for operating said locking-arms, for the purpose set forth.

15 12. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking-arms mounted in said frame between the inner ends of the oscillating car-body end sections and the free ends of the hinged central drop-floor sections, shaft-and-link mechanism for operating said locking-arms, and mechanism for closing said hinged drop-sections, for the purpose set forth.

25 13. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking-arms mounted in said frame between the inner ends of the oscillating car-body end sections and the free ends of the hinged drop-floor sections, transverse shafts between the free ends of the locking-arms and operatively connected therewith, an actuating-shaft centrally mounted in said frame and operatively connected with and

adapted to simultaneously actuate the transverse shafts operating the locking-arms, for the purpose set forth. 35

14. In a dumping-car, a car-frame comprised of longitudinal and transverse sills, and side plates forming the central portions 40 of the car-body, oscillating dumping-sections forming the end portions of the car-body pivoted between said plates so as to overlap them, and form a continuous car-body, permanent transverse car-body floor-sections at the inner ends of the oscillating sections, a permanent transverse car-body floor-section at the center of the car, drop-floor sections hinged at the center floor-section so that their free ends will meet the other permanent floor-sections, mechanism under the floor-sections between the inner ends of the oscillating sections and the free ends of the drop-floor sections for locking the same in a horizontal position, lever mechanism for operating said locking mechanism, mechanism for raising said drop-floor sections into a horizontal position, and mechanism for raising and lowering the ends of the oscillating car-body sections, for the purpose and substantially as 60 set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN C. STURGEON.

RALPH A. STURGEON.

Witnesses:

H. M. STURGEON,
F. J. BASSETT.