

No. 869,726.

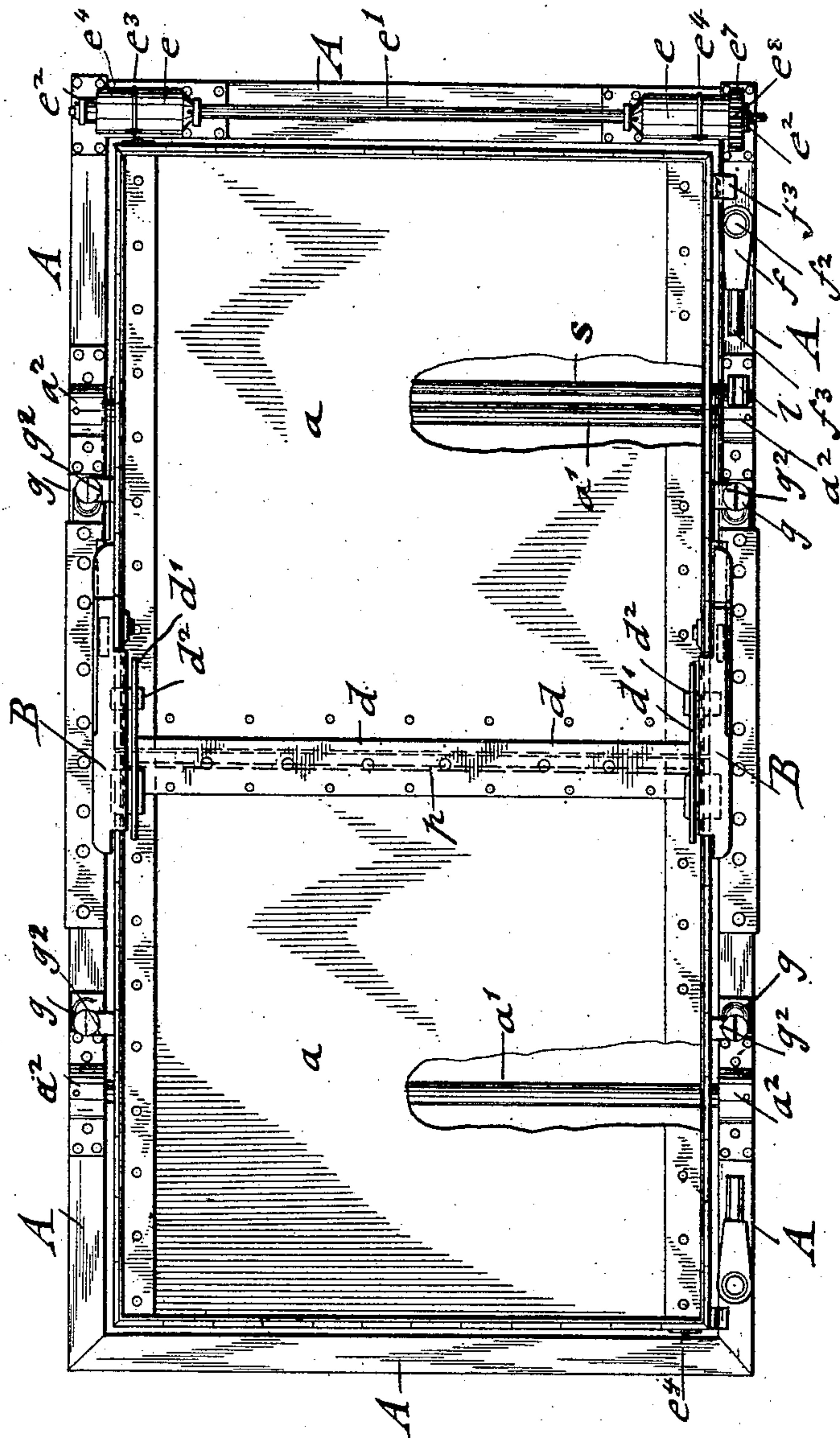
PATENTED OCT. 29, 1907.

J. M. O'KELLY.
DUMPING CAR.

APPLICATION FILED NOV. 16, 1905. RENEWED JULY 27, 1907.

3 SHEETS—SHEET 2.

Fig. 3.



Witnesses
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3 SHEETS—SHEET 3.

Fig:4.

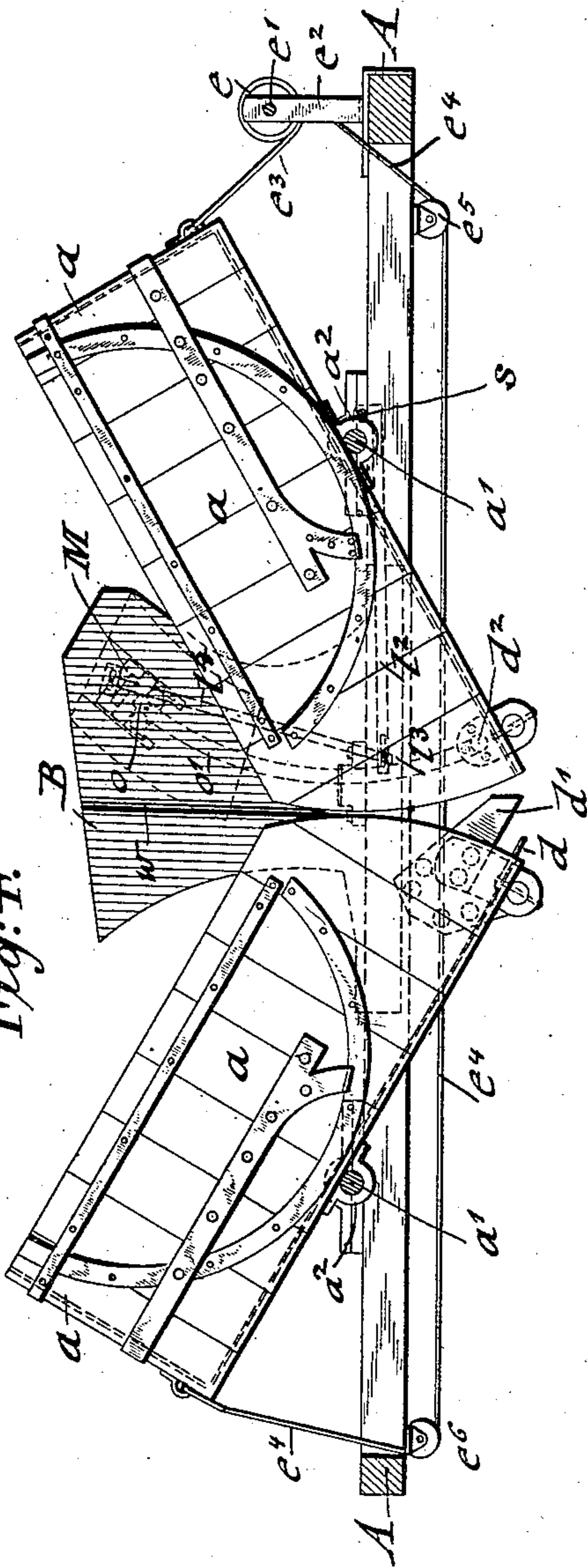


Fig:7.

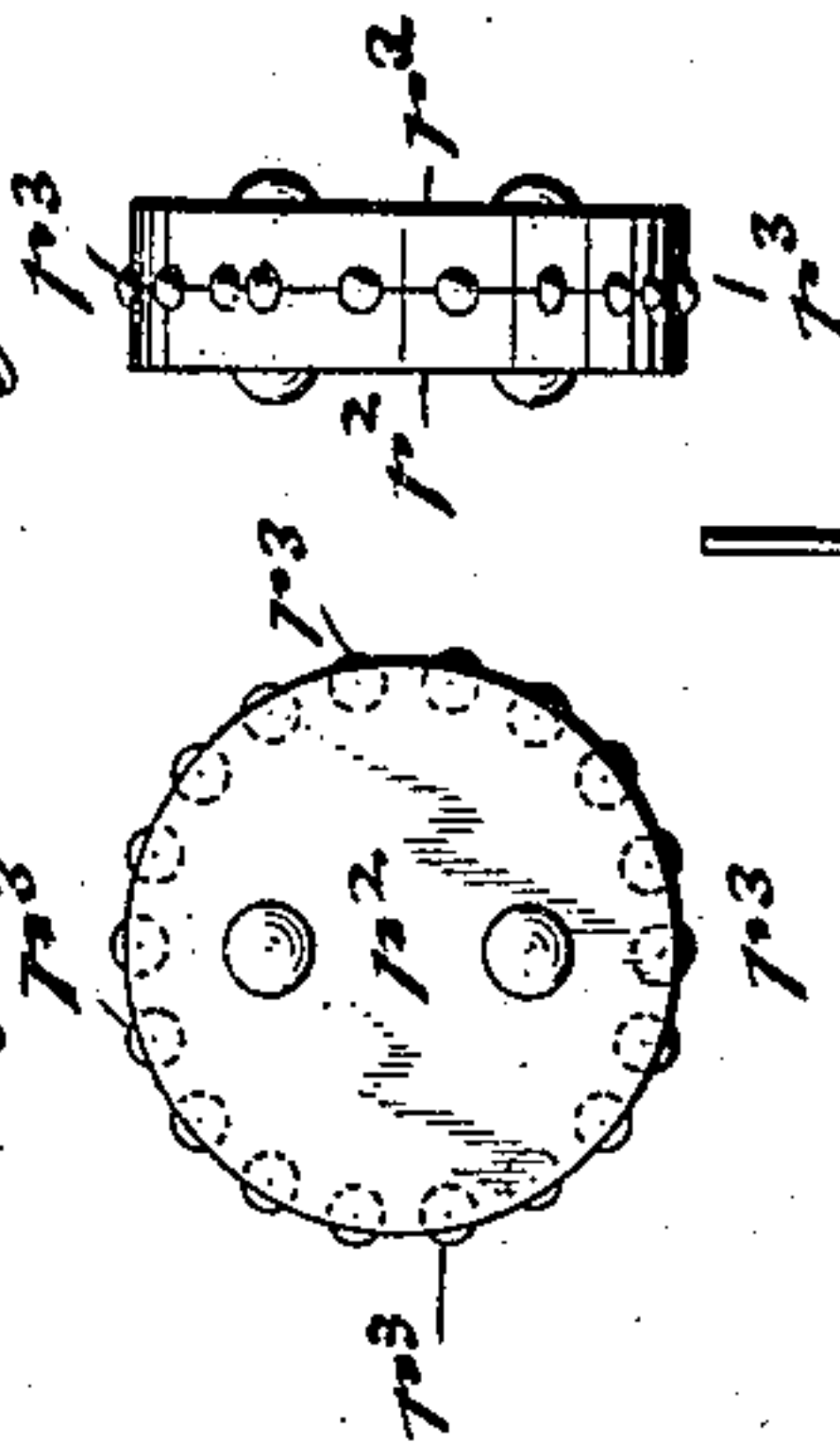


Fig:6.

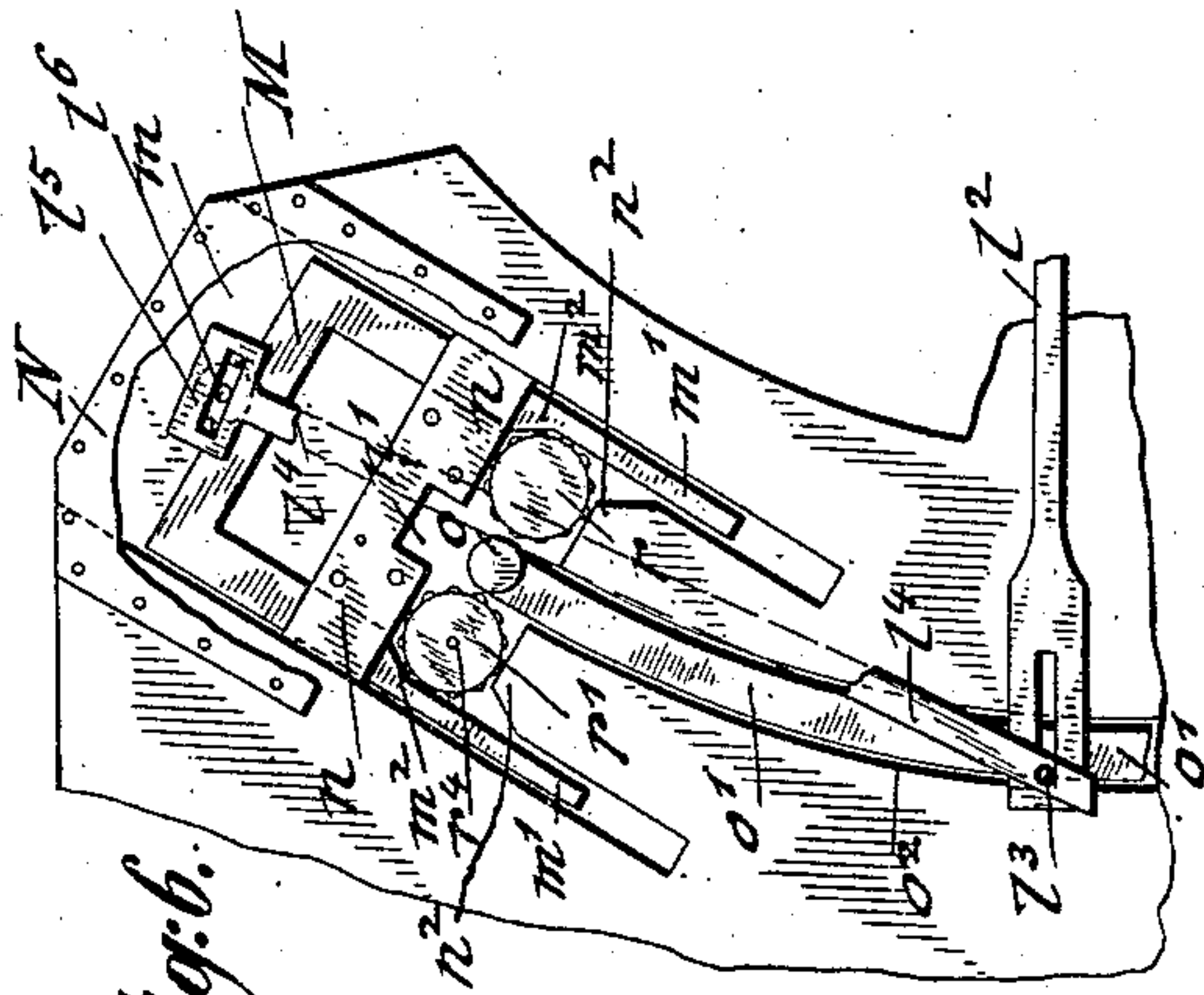


Fig:5.

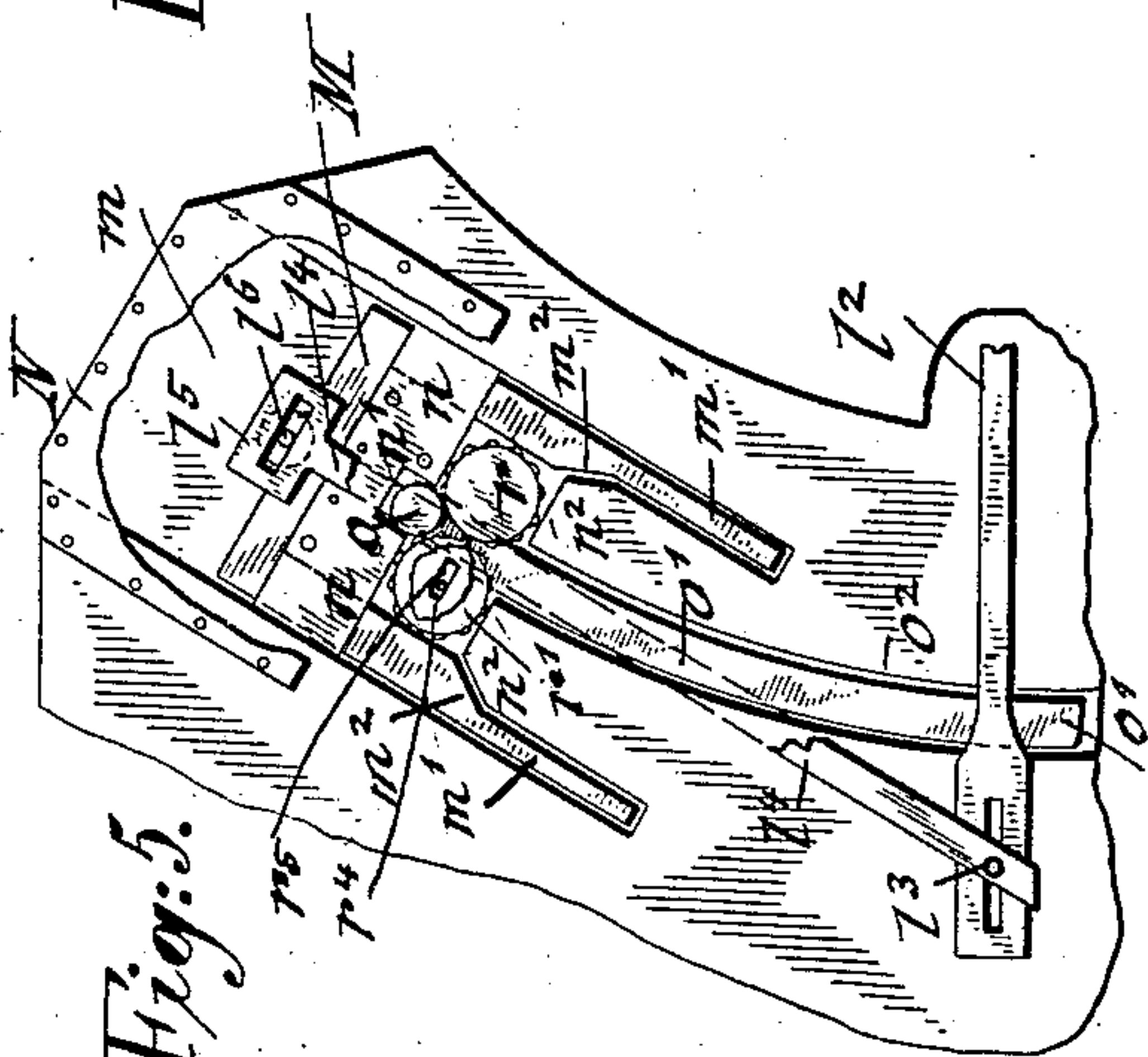
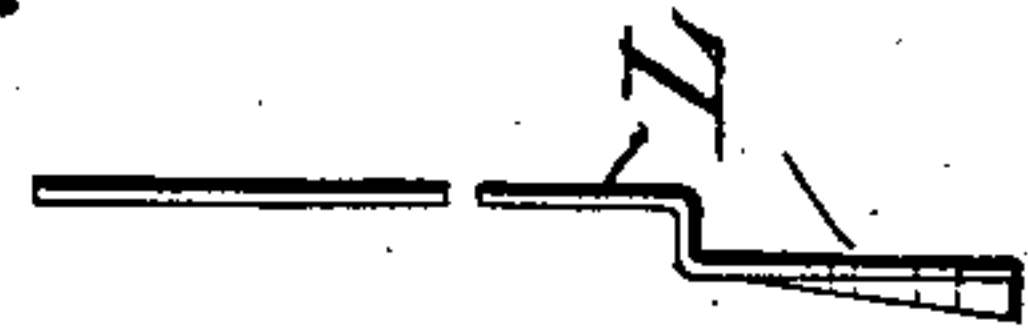


Fig:9.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES M. O'KELLY, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO J. TURNER MOREHEAD,
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DUMPING-CAR.

No. 869,726.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed November 16, 1905. Serial No. 287,657. Renewed July 27, 1907. Serial No. 385,811.

To all whom it may concern:

Be it known that I, JAMES M. O'KELLY, a citizen of the United States, residing in New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Dumping-Cars, of which the following is a specification.

This invention relates to certain improvements in sectional dumping-cars so that the same can be quickly placed into position for dumping and easily returned into normal position and locked in this position so as to prevent any possibility of becoming unlocked and in danger of dropping the load; and for this purpose the invention consists of a dumping-car which is formed of two sections open at their inner ends and pivoted at their bottoms to the frame of the car, said sections being locked together when in normal position and unlocked for dumping by a locking device that is operated by a hand-operated lever-mechanism in connection with a mechanism for the preliminary locking of the sections at the bottom of the same.

The invention consists further of auxiliary locking devices for the car-sections, and of means for returning the car-sections from their dumping position into normal position preparatory to locking them together, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side-elevation of my improved dumping-car, showing the same in normally locked position, Fig. 2 is also a side-elevation, with the covering-plate of the locking-mechanism, showing the same removed, in position for locking the car-sections, Fig. 3 is a plan-view of the dumping-car showing part of the bottoms of the car-sections broken away, Fig. 4 is a vertical longitudinal section of my improved dumping-car, showing the sections of the same in tilted position for dumping, Figs. 5 and 6 are detail side-elevations of the locking mechanism of the car-sections, showing it respectively in locked and unlocked position, Figs. 7 and 8 are respectively a side-view and an end-view of the locking-rollers of the locking-mechanism, and Fig. 9 is a side-view of the hand-lever for operating the locking-mechanism of the car-sections.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

Referring to the drawings, A represents the supporting frame of my improved dumping-car, which is made of oblong shape, of wood, iron or other suitable material. The car-body is made of two car-sections a , a , which are strapped at their bottoms to transverse

pivot-rods a^1 , that turn in journal-bearings a^2 of the frame A, the pivot-rods being located nearer to the outer closed ends of each car-section than to the inner open ends. The car-sections a , a , are made of wood or sheet metal and reinforced by suitable straps so the required strength is imparted to the same. The inner ends of the side-walls of the car-sections are made in the form of an arc, the center of which is located in the axis of the transverse pivot-rods a , so that they do not interfere with each other when tilted for dumping or when returned into normal position on the supporting-frame A. To the center of the sides of the supporting-frame A are rigidly attached, by means of angle-irons at their lower parts or bases, upright side-plates B which extend over the inner curved ends of the car-sections so as to prevent the dropping of any portion of the load from the car-sections. The side-plates B serve for supporting the final locking mechanisms of the car-sections which are arranged in recesses of the same and operated by shouldered detachable hand-lever L, so as to place them in unlocked or locked position preparatory to dumping or relocking the car-sections.

The hand-lever L, has a socket-shaped end which is applied to the projecting arm of an elbow-lever l that is mounted on a shaft in proximity to the journal-bearings of the transverse pivot-rod a^1 of the right hand car-section, said shaft extending transversely across the frame A and carrying at both ends fixed rods l^1 , which are slotted at their outer ends and connected with pins l^3 on the lower ends of pusher-rods l^4 , the upper transversely-slotted ends l^5 of U-shaped which engage pins l^6 on the upper ends of slide-frames M of inverted U-shape. The slide-frames M are guided in corresponding recesses m of the side-plates B, the lower ends of their legs m^1 being made narrower and their upper ends wider, the narrower and wider portions being connected by short inclines m^2 as shown clearly in Figs. 5 and 6. The slide-frames M are retained in the recesses m of the side-plates B by transverse straps n which are riveted to the side-plates and provided with central recesses n^1 . Between the legs of the U-shaped slide-frame, below the transverse straps n are arranged two locking rollers r , r^1 which are guided on shoulders n^2 each being made of two disks r^2 that are riveted together and provided near the circumference of their faces with ball-races and anti-friction balls r^3 in said ball-races, said balls projecting beyond the circumference of the disks so as to reduce the friction of the locking rollers r with the shoulders n^2 , legs l^5 and along locking-pins o , which are arranged at the upper ends of the curved rods O^1

that are guided in grooves o^2 of the side-plates B and attached at their lower ends to the bottom of the right hand car-section a on which the hand-lever L is arranged, as shown in Figs. 2 and 4.

- 5 The inner disk of the locking roller r^1 of each locking-mechanism is provided with a transverse slot r^5 , and guided along a stationary pin r^4 on the side-plate B so as to guide it in its proper motion toward the locking-pin o in the upper end of the curved rod l^9 . When the
- 10 car-sections are in their normal horizontal positions, the locking-pins o and the slide-frame M are locked by the rollers r , r^1 as shown in Fig. 5, the hand-lever being in upright position, as shown in Figs. 1 and 2. In this position the locking rollers r , r^1 are located below the locking-pins o and retained in this position by the wider
- 15 portions of the legs of the slide-frames M, which bear at diametrically opposite points on the rollers, holding the locking-pins and their curved rods and thereby both car-sections in positively locked position.
- 20 When it is desired to unlock the car-sections, so as to permit the dumping of the same, the hand-lever L is moved towards the right, in the direction of the arrow shown in Figs. 1 and 2, so as to lift by the lever-rods l^2 and pusher-rods l^3 the slide-frames M from their locked
- 25 position, shown in Fig. 5, into the unlocked position, shown in Fig. 6, so that the narrow ends of the legs of the slide-frame are brought alongside of the locking-rollers r , r^1 whereby sufficient lateral play is given to the latter to move away from each other and permit the
- 30 locking-pins o to pass freely through between the same in following the tilting motion of the car-sections. The locking-pin o , the locking-rollers r , r^1 and the slide-frames M on both side-walls B are held in unlocked position, while the car-sections are in tilted position.
- 35 When it is desired to relock the car-sections into normal position, they are first returned into horizontal position, together with their curved rods o^1 and locking pins o upon which the hand-lever is moved in the opposite direction, so as to return the slide-frames into their lower-
- 40 most position, which motion forces by the inclines between the narrower and wider portions of the legs the locking-rollers towards each other and below the locking-pins, which latter are placed into the recesses of the transverse strap n , so that the locking-rollers r , r^1 are
- 45 placed in contact with each other and the locking-pins so as to produce thereby the effective interlocking of the parts and the re-locking of the car-sections. The easy motion of the locking-rollers r , r^1 is produced by the anti-friction-balls in the circumferences of the same.
- 50 The anti-friction-balls also permit the easy motion of the locking-rollers along the inner faces of the legs of the slide-frame, and over the shoulders at both sides of the curved rods.

The inner edge of the bottom of the left-hand car-section a^1 is provided with a projecting lip d and the side-walls, above said lip, with forwardly projecting tongues d^1 , both the lip and tongues being firmly riveted to the bottom and side-walls of the car-section. The right hand car-section a is provided with outwardly projecting studs or pins d^2 that move on the upward movement of the car-sections along the undersides of the tongues d^1 until the projecting lip over the

inner bottom-edge of the right-hand car-section so as to produce thereby the tight closing at the meeting-edges of the car-sections and a preliminary locking 65 action for the same.

The lifting of the car-sections into their normal or horizontal position is accomplished by means of short drums e , which are arranged on a transverse shaft e^1 located at the right hand end of the supporting frame 70 A and supported on standards c^2 attached to the same. The drums e are connected by means of a wire-cord c^3 with the adjacent end wall of the right hand car-section and by a wire cord e^4 which passes over guide-pulleys e^5 , e^6 at the underside of the supporting-frame 75 A with the outer end of the left-hand car-section, as shown clearly in Fig. 4. The drum-shaft e^1 is rotated by means of a gear-wheel e^7 which is arranged on a short stud-shaft e^9 supported in bearings of the standards c^2 . The gear wheel e^7 meshes with a pinion e^8 80 on the drum-shaft C^1 so as to turn the same on its axis. A hand-crank is applied to the square end of the stud-shaft of the gear-wheel e^7 when the car-sections are to be returned to their normal position, and the drum shaft turned by the crank so that the wire cords are 85 wound up on the drums e and the car sections raised into their former horizontal positions. As soon as they are returned into horizontal position, they are tightly closed at their inner ends by the tongue and pin connection at the bottoms of the car-sections, after which 90 they are locked by means of an auxiliary locking-device, which consists of a lug f on the right hand car section a and which is pivoted to a stud f^2 on the supporting frame A and turned by hand-levers f^1 so that the lug f engages a projecting shoulder f^3 attached by 95 straps to the right hand car-section near the outer ends of the same, as shown clearly in Fig. 1. The lug f and shoulder f^3 form an auxiliary locking device for the car-section and impart a preliminary locking action to the same, which is then completed by operating 100 the hand-lever L locking the side walls of the car-sections by the final locking mechanisms to the side-plates B, so as to produce thereby the positive and final relocking of the car-sections ready for receiving 105 the load.

On the supporting-frame A are arranged at opposite sides inclined spring-cushioned blocks g which are guided in boxes g^1 and which receive the impact of projecting stops g^2 on the ends of reinforcing straps g^3 attached to the side-walls of the car-sections. The 110 cushioning blocks g serve to arrest the downward motion of the car-sections and take up the shocks caused by the tilting of the weighted car-sections. During the tilting motion of the car-sections the wire-cords by which the car-sections are returned into their former 115 position follow the motion of the outer ends of the car-sections, as shown in Fig. 4, the wire cords unwinding from the drums e sufficiently for this purpose. The final or main locking mechanisms are inclosed by suitable covering-plates N which extend over the same 120 and which prevent the dust from entering into the working parts of the locking mechanisms so as to preserve the same in good condition and ready for the unlocking or locking action in connection with the tilting

of the car-sections or the returning of the same into normal horizontal position, while the side-plates serve to retain the load in the car body and prevent any discharge of the same at the upper adjacent ends of the car-sections, while the tight closing of the bottom-edges of the car-sections so obtained by the bottom lip and the preliminary locking devices on the same.

When it is desired that one-half of the load should be dumped at a time, a transverse partition *p* is inserted above at the meeting edges of the bottoms of the car-sections, the partitions being supported in suitable ways *w* on the side-plates *B* as shown in dotted lines in Figs. 1 and 3. In this case the left hand car-section has to be provided like the right-hand car-section with an auxiliary locking device *b*, *b*¹, *b*³. For dumping the load of the right-hand car-section, its locking lug *f* is first released from the stop shoulder *f*³ after which the final locking mechanism is unlocked by the operation by the hand-lever so as to release the car-section, drop it into tilted position by gravity and permit the dumping of its load. The left hand car-section is then released and dumped in the same manner by unlocking its auxiliary locking-device *f* *f*¹ *f*³ and then tilting it by gravity as the greater part of the load presses on the longer inner ends of the car-sections. This arrangement enables the transportation of different substances in the same car in case it should be required, such as different kinds of ores, sand and ore, etc.

The advantages of my improved dumping-car are that it holds the load securely without any loss while in transit; that the dumping-sections are firmly and positively locked together without any possibility of release; that the dumping operation is accomplished with great facility by first unlocking the auxiliary locking devices and then the final locking mechanisms; that the return of the tilted car-sections into their normal position is conveniently accomplished by the return-mechanism; that the relocking of the car-section is accomplished by the action of the auxiliary locking devices, and the final locking-mechanisms operated by the hand-lever; and that all the different operations are accomplished by one attendant and from one side of the car-sections.

Having thus described my invention, I claim as new and desire to secure by Letters Patent.

1. A dumping-car comprising a supporting-frame, tilting-sections pivoted in said frame and having adjacent discharge-ends, a locking device for locking together the inner discharge-ends of said sections, means mounted on said supporting-frame and extending upwardly at the sides of said sections, and a final locking mechanism for said sections supported on said means.

2. In a dumping-car, the combination of a frame, car-sections pivoted in said frame to tilt toward each other longitudinally of the frame and having adjacent discharge-ends, devices mounted on said sections for closing the same at their meeting-edges when the same are in normal or horizontal position, side-plates attached to said frame, and a final locking mechanism for said car-sections arranged on said side-plates.

3. A dumping-car consisting of a supporting-frame, car-sections open at their inner ends, pivoted to said frame, an auxiliary device for locking the outer ends of the car-sections to the supporting-frame, side-plates attached to the supporting-frame and overlapping the inner ends of the car-sections, and a final locking mechanism on the

side-plates connecting with the inner end of one of the car-sections.

4. A dumping-car consisting of a supporting-frame, car-sections pivoted to the supporting-frame and open at their inner ends, side-plates attached to the supporting-frame and overlapping the inner ends of said car-sections, means for closing the meeting edges of the bottoms of the car-sections, and a final locking mechanism arranged on the side-plates and connected with one of the car-sections for locking them positively in their normal or horizontal position.

5. In a dumping-car, the combination, with a supporting-frame, of tilting car-sections pivoted to the same, upright side-plates attached to the supporting-frame and overlapping the inner ends of the car-sections, an overlapping lip at the bottom-edge of one car-section, closing devices between the lower inner ends of the car-sections, and a final positive locking mechanism arranged on the side-plates and connected with one of the car-sections.

6. In a dumping-car, the combination, with a supporting-frame, of tilting car-sections pivoted to the same, one of the car-sections being provided at its inner bottom-edge with a projecting lip and with locking-tongues on its side-walls, the other car-section being provided with locking-pins for interlocking with the tongue of the other car-section, and a final locking mechanism arranged in the upright side-plates and connected with one of the car-sections.

7. In a dumping-car, the combination, with a supporting-frame, of tilted car-sections pivoted to said frame, side-plates attached to the supporting-frame and overlapping the inner ends of the car-sections, a final locking mechanism arranged on said side-plates and connected with one of the car-sections, and a lever mechanism arranged on both sides of one of the car-sections and connected with the final mechanism for unlocking or locking the same for tilting the car-sections or when returned into normal position.

8. In a dumping-car, the combination of a supporting-frame, car-sections pivoted to said supporting-frame immediately of their length, side-plates attached to the supporting-frame and overlapping the inner ends of the car-sections, closing devices at the inner ends of the car-sections, a final locking mechanism arranged in the side-plates and connected with one of the car-sections, lever-mechanisms actuating the final locking-lever and a hand-lever for operating said lever mechanisms and unlocking the car section on both sides for tilting them or locking them after returning them into normal position.

9. In a dumping-car, the combination, with the supporting-frame, of upright side-plates attached thereto and located at the center of the same, car-sections pivoted to the supporting-frame and open at their inner ends, means for closing the inner ends of the car-sections near the bottom of the same, final locking-mechanisms located in the upright side-plates and consisting of curved bars provided with locking-pins at their upper ends, locking-rollers and U-shaped slide-frames guided in the recesses of the side-plates, and lever-mechanisms for moving the slide-frames so as to permit the lateral motion of the rollers and the release or velocity of the locking-pins.

10. In a dumping-car, the combination, with a supporting-frame, of upright side-plates attached to the supporting-frame at the center of the same, car-sections pivoted to said supporting-frame and open at their inner ends, and a final locking mechanism for said car-sections consisting of U-shaped slide-frames guided in recesses of the side-plates and having legs with thinner lower portions and wider upper portions and inclines between said portions, curved bars provided with locking-pins at their upper ends and connected at their lower ends with the car-sections, locking-rollers in said slide-frames, and lever mechanisms connected with the slide-frames for moving the same so as to permit the lateral movement of the locking-rollers and the locking or unlocking of the locking-pins.

11. In a dumping-car, the combination of a supporting-frame, tilting car-sections pivoted to the same, cushioning-

blocks arranged on said supporting-frame, and projecting stops arranged on the side-walls of the car-sections for arresting the tilting motion of the car-sections by contact with the cushioning-blocks.

- 5 12. In a dumping-car, the combination of a supporting frame, tilting car-sections pivoted to said frame, wire cords attached to the outer ends of said car-sections, a drum shaft at one end of the supporting-frame, drums for the opposite ends of said wire-cords, pulleys on said sup-
10 porting frame for guiding said wire-ropes, and gearing for turning the drum-shaft for rewinding the wire-cords and returning the car-sections into normal position.

13. In a dumping-car, the combination, with a support-

ing-frame, of tilting car-sections open at their inner ends and pivoted to said frame, upright side-plates at the cen- 15
ter of the supporting-frame, a removable partition guided in ways of the supporting-frame, auxiliary locking devices near the outer end of the car-sections and final locking devices between the side-plates and one of the car-sections.

In testimony, that I claim the foregoing as my inven- 20
tion, I have signed my name in presence of two sub-
scribing witnesses.

JAMES M. O'KELLY.

Witnesses:

PAUL GOEPEL,

H. J. SUHRBIER.