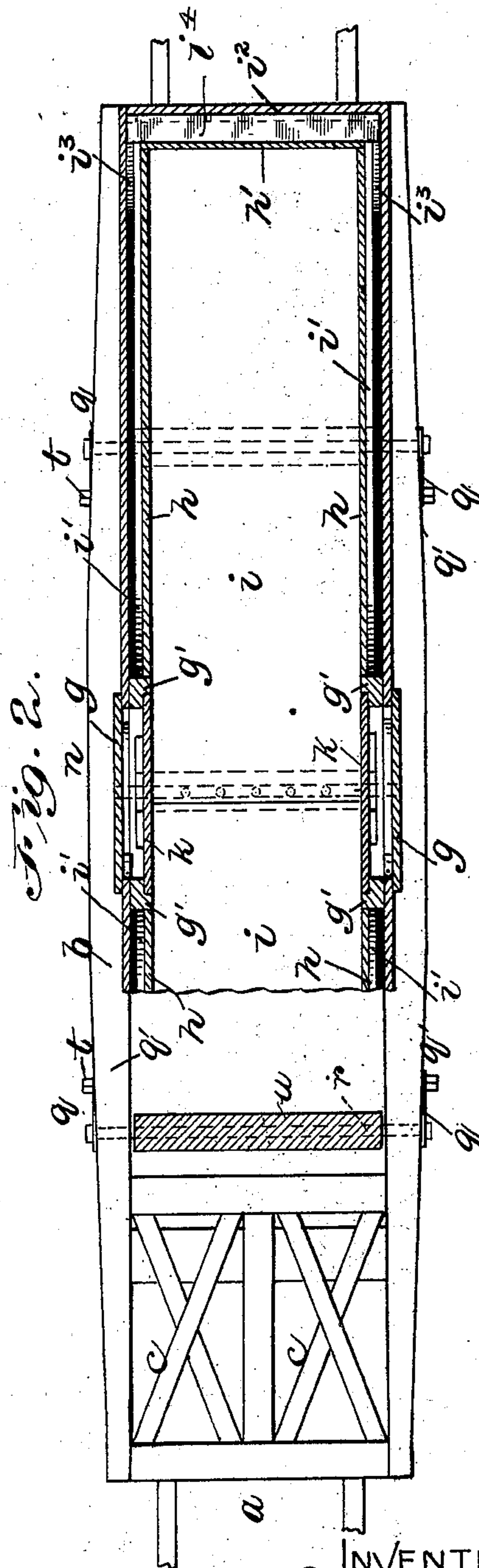
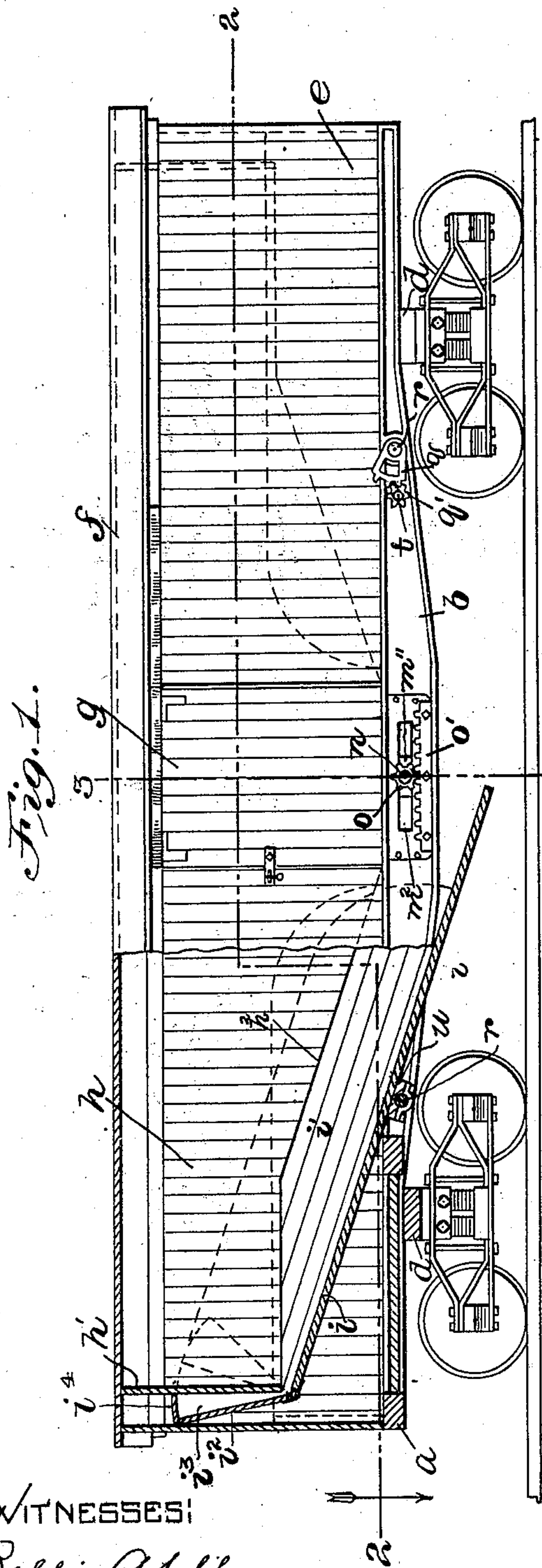


J. D. SHANAHAN.
DUMPING CAR.

(Application filed Oct. 7, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Rollin Abell.

Alice Richmond Brown

INVENTOR:

John D. Shanahan
by *Frank Parker Davis*
att'y

No. 691,814.

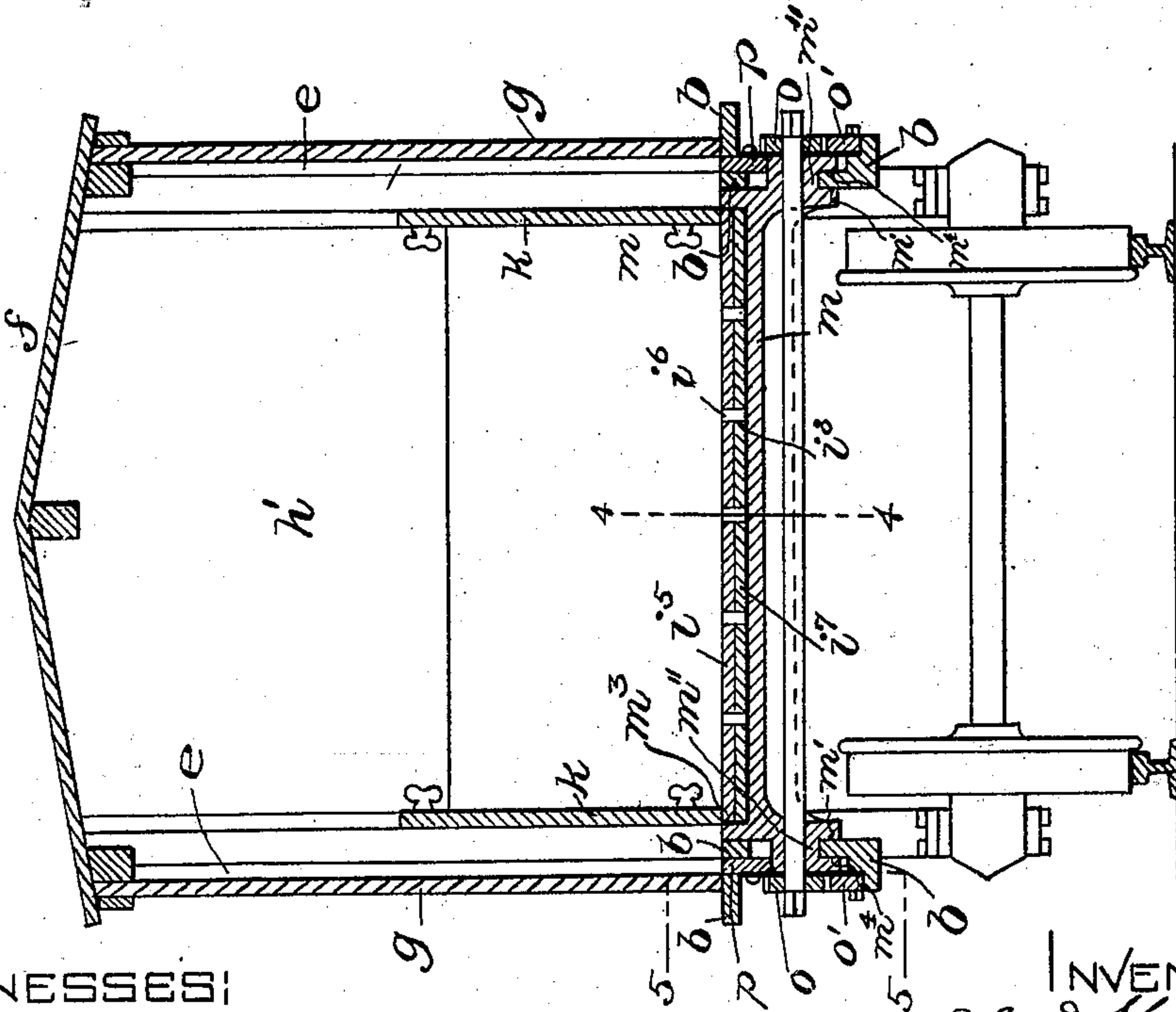
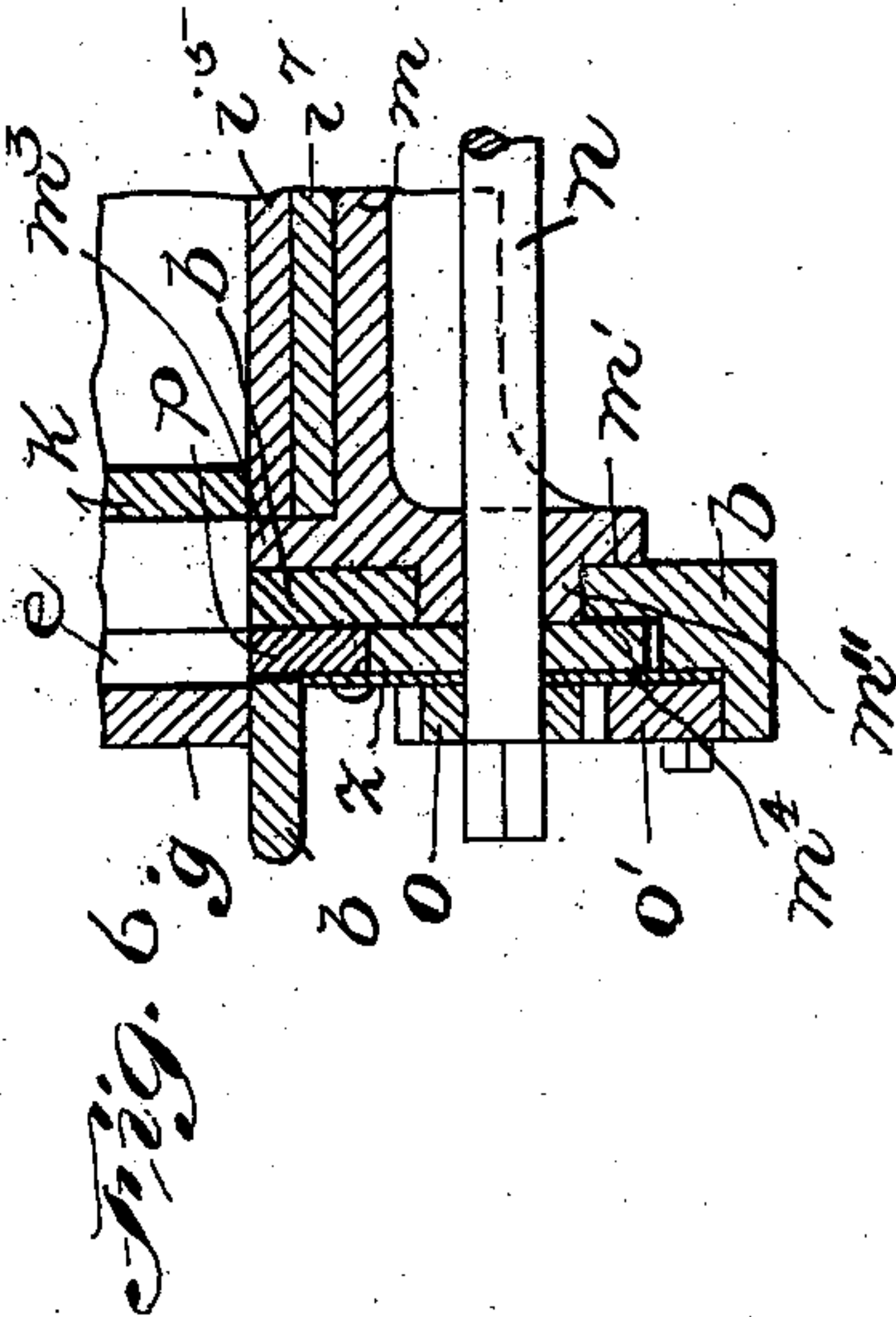
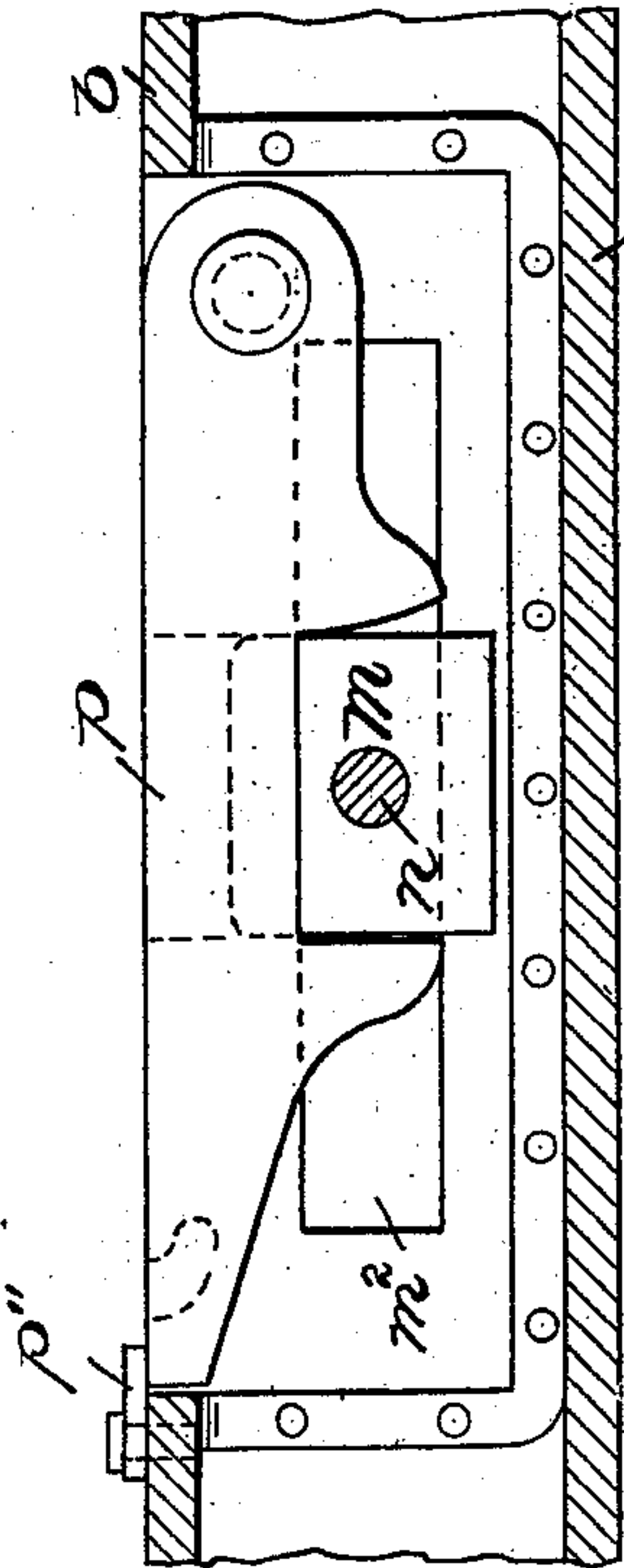
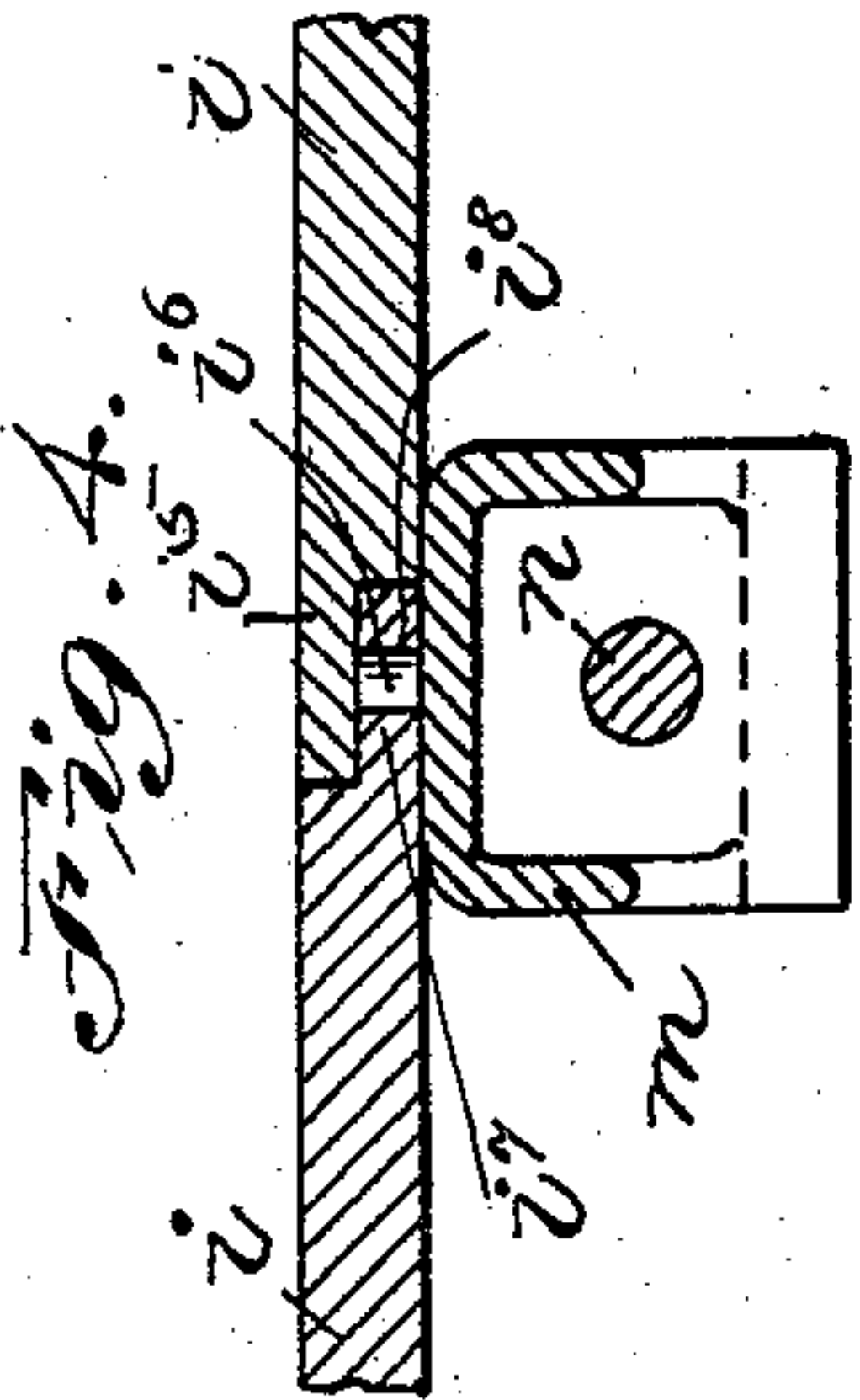
Patented Jan. 28, 1902.

J. D. SHANAHAN.
DUMPING CAR.

(Application filed Oct. 7, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

Rollin Abell

Alice Richmond Brown

INVENTOR:

John D. Shanahan
by Frank Parker Davis
Secy

UNITED STATES PATENT OFFICE.

JOHN D. SHANAHAN, OF BUFFALO, NEW YORK.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 691,814, dated January 28, 1902.

Application filed October 7, 1901. Serial No. 77,808. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. SHANAHAN, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Dumping-Cars, of which the following is a description sufficiently full, clear, and exact to enable those skilled in the art to which it appertains or with which it is most nearly connected to make and use the same.

The present invention relates to freight-cars, and particularly that type in which provision is made for dumping the contents of the car through the center of the bottom.

The object, generally stated, is to make practical the embodiment of the dumping feature in a box-car, as well as a car of the gondola type, with particular regard to the carrying of grain and other fine stuffs without appreciably limiting the capacity of the car, which is also designed to accommodate package freight.

The specific objects of the invention are as follows: to improve the interior construction of a dumping freight-car, so that notwithstanding the movability of parts the car will be kept grain-tight throughout, while the whole of the interior can be utilized for freight without any appreciable restriction of capacity; to provide free and unobstructed passage-ways at the center of the car for the discharge of the contents, while at the same time the sills are sufficiently braced at the center crosswise of the car; to provide for interlocking the meeting ends of the tilting sections of the car, so as to prevent separation and consequent leakage under strain to which the car is subjected; to provide improved means for controlling the dumping of the car, said means including a novel form of support for the meeting ends of the tilting sections, having advantages of simplicity of construction and operation and also strength and durability, while affording a lateral brace for the sides of the car and also for the interlocked meeting ends of the tilting sections, and to provide for locking the said means which control the dumping in such a way as to guard against accidental displacement of parts or tampering with the same.

With the above-stated and other incidental objects in view the invention consists in

a number of novel features of construction and combinations of parts, the essential elements of which are recited in the appended claims and a preferred form of embodiment of which is illustrated in the accompanying drawings and specifically described hereinafter.

Of said drawings, Figure 1 represents, partly in side elevation and partly in longitudinal section, a freight-car embodying the invention, one of the tilting sections being shown in dumping position. Fig. 2 is a horizontal section taken on the line 2 2 of Fig. 1. Fig. 3 is a central cross-section taken on the line 3 3 of Fig. 1 with the scale enlarged. Figs. 4 and 5 are sections taken on lines 4 4 and 5 5 of Fig. 3 on a still larger scale; and Fig. 6 is a fragmentary section on the same line as Fig. 3, but on the scale of Figs. 4 and 5.

The frame of the car comprises end beams *a* and side beams or sills *b*, the latter preferably composed of pressed steel of angular form. The end portions of the frame are strongly braced by crossed angle-beams *c* and support the truck-bolsters *d*. The sides *e* and roof *f* of the car may be of the usual or any suitable construction so far as providing outside walls is concerned, and the usual sliding doors *g* may be employed; but within the car there is a lining comprising side portions *h*, extending from the door-posts *g'* to within a short distance of the ends of the car and from the roof of the latter part way to the floor, and end portions *h'*, which also extend from the car-roof part way to the floor-level. These end portions and the side portions for a distance therefrom terminate about midway the height of the car interior, and thence said side portions deepen, their lower edges extending on a slant to the floor of the car at the door-posts, as shown at *h''*.

The dumping structure of the car extends from end to end thereof and comprises two tilting sections in the form of chutes pivoted intermediate their ends by means of shafts *r*, journaled in the sills *b* and fastened to cross-beams *u*, to which the bottoms *i* of the chutes are secured, said bottoms together forming the floor of the car, with their inner ends meeting. The sides *i'* of these tilting sections or chutes extend up between the

outer side walls of the car and the side portions h of the lining, the latter overlapping said chute sides at all times, so as to prevent escape of any contents of the car over the sides of the tilting sections, whatever may be the position of the latter. It will be seen that the contour of the lower edges of the side portions of the lining provides for this while permitting the required movement of the tilting sections. In order to prevent escape of the contents over the ends of the tilting sections and at the same time avoid appreciable reduction of the capacity of the car, the following construction is adopted: The ends i^2 of the sections are hinged to the bottoms i and carry sector-shaped wings i^3 , overlapping the sides i' and extending into the space between the side portions h of the lining and the side walls of the car, as shown in Fig. 2. These end pieces i^2 are surmounted by top cross-pieces i^4 , which are of sufficient width to close the spaces between the end portions h' of the lining and the end walls of the car. When the tilting sections are in normal horizontal position, the hinged ends i^2 lie against the end walls of the car and abut the end edges of the sides i' , and the end portions h' of the lining extend slightly below the front edges of the top cross-pieces i^4 . It will be obvious that no leakage can take place under this adjustment. When either section is tilted, the outermost end edge of its bottom of course describes an arc of a circle, carrying it away from the end wall of the car, and the hinged edge of the end piece i^2 will likewise be moved away from the end wall of the car; but the free edge of this end piece will continue to lie against the end wall of the car, inasmuch as the top cross-piece i^4 is of substantially the same width as the space between the said end wall of the car and the end portion h' of the lining. This top cross-piece continues to close the said space, while the wings i^3 close spaces which would otherwise open between the end piece i^2 and the sides i' . It will thus be seen that in the tilted position of the dumping-section no escape of the contents of the car can take place at the raised ends of the section, while at the same time the capacity of the car is not materially reduced by the presence of the dumping structure.

The sides of the tilting sections do not extend inward farther than the lines of the door-posts; but the bottoms i continue beyond these lines, meeting at the middle of the car, so as to provide a complete floor for the space into which the car-doors open. The car is made with interior doors k , which are let into the posts g' and secured thereto by removable fastenings, these inner doors extending only part way to the roof of the car, so as to leave openings through which grain or other freight in bulk can be introduced in the loading of the car. When the car is used for this character of freight, these inner doors need not be disturbed; but when the car is em-

ployed for package freight the inner doors can readily be removed to facilitate the handling of this kind of freight.

The meeting ends of the tilting sections are rabbeted, as shown in Fig. 4, so as to interlock, with one section overlapping the other, and in order to prevent lateral derangement the flange i^5 on one section is provided with a series of tenons i^6 , and the flange i^7 of the other section is formed with a corresponding series of mortises i^8 . The interlocked ends of the tilting sections are supported by an angle-beam m , extending from side to side of the car and having shoulders m' , which engage the inner faces of the sill-webs, necks m'' , which occupy longitudinal slots m^2 in the latter, and shoulders m^4 , which engage the outer faces of the same, the said beam adapted to slide lengthwise of the car for the purpose of permitting first the inner end of one tilting section to drop and then that of the other. The beam is formed with upstanding flanges m^3 , which extend between the sills b and the side edges of the bottoms of the tilting sections for the purpose of bracing the latter against lateral play. A shaft n extends lengthwise of the beam m and through the ends thereof, said shaft carrying pinions o beyond the latter in mesh with racks o' , fastened to the sills, so that rotation of the shaft will produce movement thereof and of the beam longitudinally of the car. The ends of the shaft will preferably be made square, so as to receive a crank-handle or other device to be used in rotating the shaft to shift the beam. The beam may be locked in a central position in various ways; but I prefer to employ a locking means which will be guarded by the sliding doors of the car. I have here shown locking-pieces p , pivoted in slots in the tops of the sills and forked or bifurcated to straddle the end portions of the beam when the latter is centrally positioned. These locking-pieces may be held down by any suitable fastenings—such, for example, as the simple turn-button p'' (shown in Fig. 5)—and when the beam is to be shifted the locking-pieces can be easily released and then thrown up and out of engagement with the beam. Cover-plates z are preferably secured to the sill-webs to close the lock-recesses on the outer sides (except for the slots in these plates alining with the slots m^2) and render the locks inaccessible for manipulation otherwise than from the top. Hence the outer sliding doors of the car guard the locks effectively against unauthorized manipulation.

It will be seen that the beam m provides a stable support for the inner ends of the tilting sections and that it is securely held in a central position by the locking means guarded by the car-doors, but that by sliding the beam back and forth first one tilting section and then the other will be released to permit dumping of the contents of the car. Furthermore, this beam by straddling the sills in the manner described constitutes a central

brace for the car-frame, obviating the necessity of a fixed central structure.

Any suitable means may be employed for applying the necessary power to tilt the dumping-sections. I have here shown toothed segments q , secured to the pivot-shafts r and engaged by pinions q' on a shaft t , the rotation of which will obviously result in tilting the sections.

It will now be seen that the construction herein described is well calculated to fulfil all of the objects primarily stated. At the same time it is to be understood that the invention may be embodied in other forms than that here shown.

The invention has the advantage of providing a car which can be fully loaded with grain or other fine stuff, the same as any ordinary box-car, and yet dumped by the simple releasing of the tilting sections at the middle of the car and turning the pivot-shafts, while the interior is maintained grain-tight at all points except where the discharge is taking place. At the same time the car is adaptable for the carrying of package freight, perishable or otherwise, a clear floor-space being had throughout and practically the same head-room as in the ordinary box-car. It is to be noted that no fixed floor structure is required at the middle of the car and that a clear dumping-space results. The interlocking structure at the meeting ends of the tilting sections prevents any loss of cargo by leakage resulting from strain when the car is in motion. All in all the invention provides a self-unloading freight-car which can be used for every purpose required of the ordinary box-car.

Having thus described my invention, what I claim as new is as follows:

1. In a dumping-car the combination of an open center frame, tilting floor-sections having meeting ends rabbeted to interlock, and a beam on which said meeting ends rest, said beam being bodily movable in opposite directions to free the said ends alternately, substantially as and for the purpose described.

2. In a dumping-car the combination of an open center frame, tilting floor-sections having meeting ends rabbeted to interlock and mortised and tenoned, and a beam on which said meeting ends rest, said beam being bodily movable in opposite directions to free the said ends alternately, substantially as and for the purpose described.

3. In a dumping-car the combination of an open center frame, tilting floor-sections having meeting ends, a beam on which said meeting ends rest, said beam being movable in either direction to free the said ends, and means for locking the beam in a central position, said means arranged to be guarded by the car-door when closed.

4. In a dumping-car the combination of an open center frame; tilting floor-sections therein having meeting ends; a beam on which said ends rest, said beam being movable in

either direction to free the said ends; a side door; and a locking-piece to engage the beam in its central position, said locking-piece being located on the inner side of the car-door, substantially as and for the purpose described.

5. In a dumping-car having side doors, the combination of the car-body, a lining extending along the sides thereof from the door-posts to the ends and from the roof part way to the floor-level, and tilting floor-sections having sides which extend behind said lining.

6. In a dumping-car having side doors, the combination of the car-body, a lining extending along the sides thereof from the ends to the door-posts and from the roof part way to the floor-level for a distance from the ends, thence deepening so that the lower edges slant to the floor; and tilting floor-sections having sides which extend behind said lining.

7. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, substantially as described.

8. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, said hinged ends having wings overlapping the sides of the tilting sections.

9. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, said hinged ends having top cross-pieces closing said spaces, substantially as described.

10. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, said hinged ends having wings overlapping the sides of the tilting sections and top cross-pieces closing said spaces.

11. In a dumping-car the combination of an open-center frame, tilting floor-sections having meeting ends, and a sliding beam on which said meeting ends rest, said beam being movable in either direction to free the said ends and engaged with the frame sides to constitute a central brace therefor, substantially as and for the purpose described.

12. In a dumping-car the combination of an open-center frame comprising side beams or

1
sills slotted longitudinally at the middle, tilting floor-sections having meeting ends, and a sliding beam on which said meeting ends rest, said beam engaging the slots in the sills
5 and straddling the latter, substantially as and for the purpose described.

13. In a dumping-car the combination of an open-center frame, tilting floor-sections having meeting ends, and a sliding beam on which
10 said meeting ends rest, said beam being movable in either direction to free the said ends, and having upstanding flanges engaging the side edges of the latter, substantially as and for the purpose described.

15 14. In a dumping-car the combination of an open-center frame comprising side beams or

sills with longitudinal slideways and top slots; tilting floor-sections in the frame having meeting ends; a beam on which said meeting ends rest, said beam engaging the slideways
20 of the sills; and pivoted locking-pieces occupying the top slots of the sills and adapted to engage the sliding beam in its central position.

In testimony whereof I have signed my
25 name to this specification, in the presence of two subscribing witnesses, this 24th day of September, A. D. 1901.

JOHN D. SHANAHAN.

Witnesses:

F. HOWARD MASON,

H. J. BEITZ.