

No. 794,274.

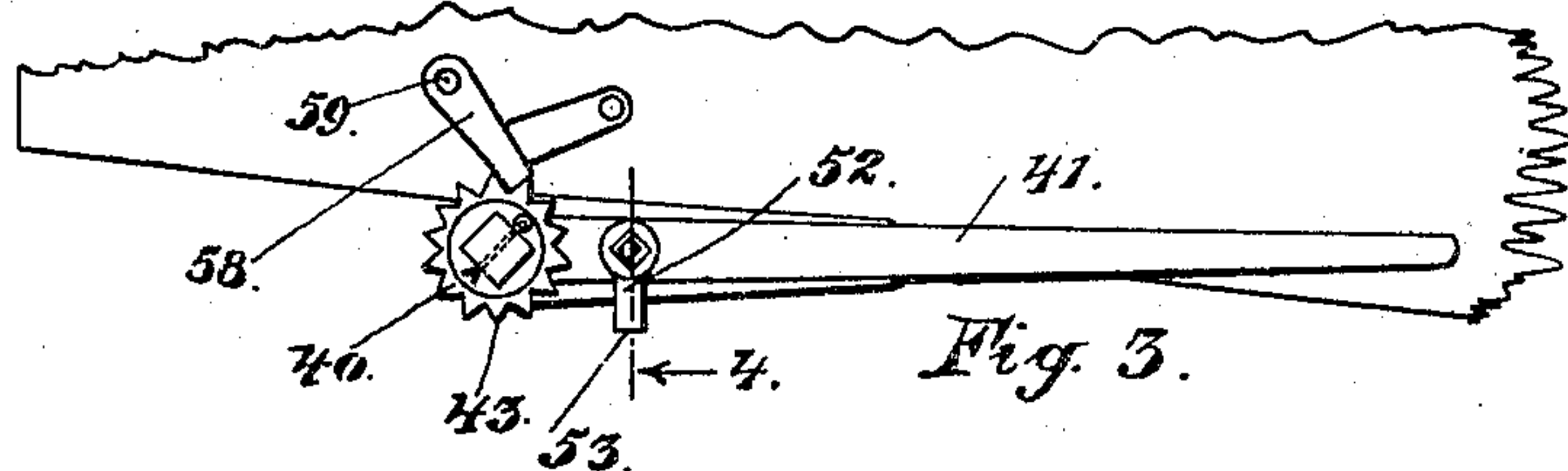
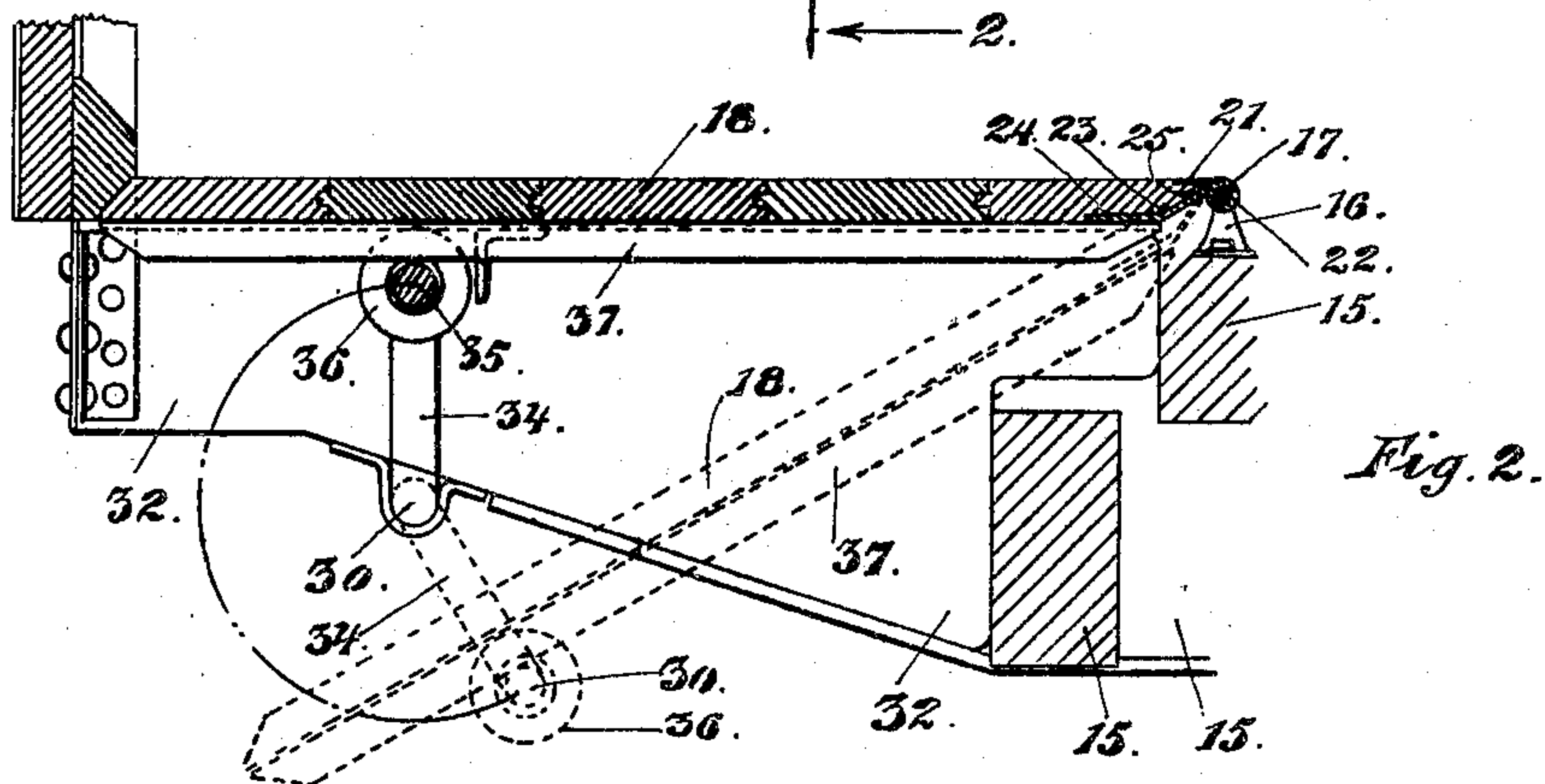
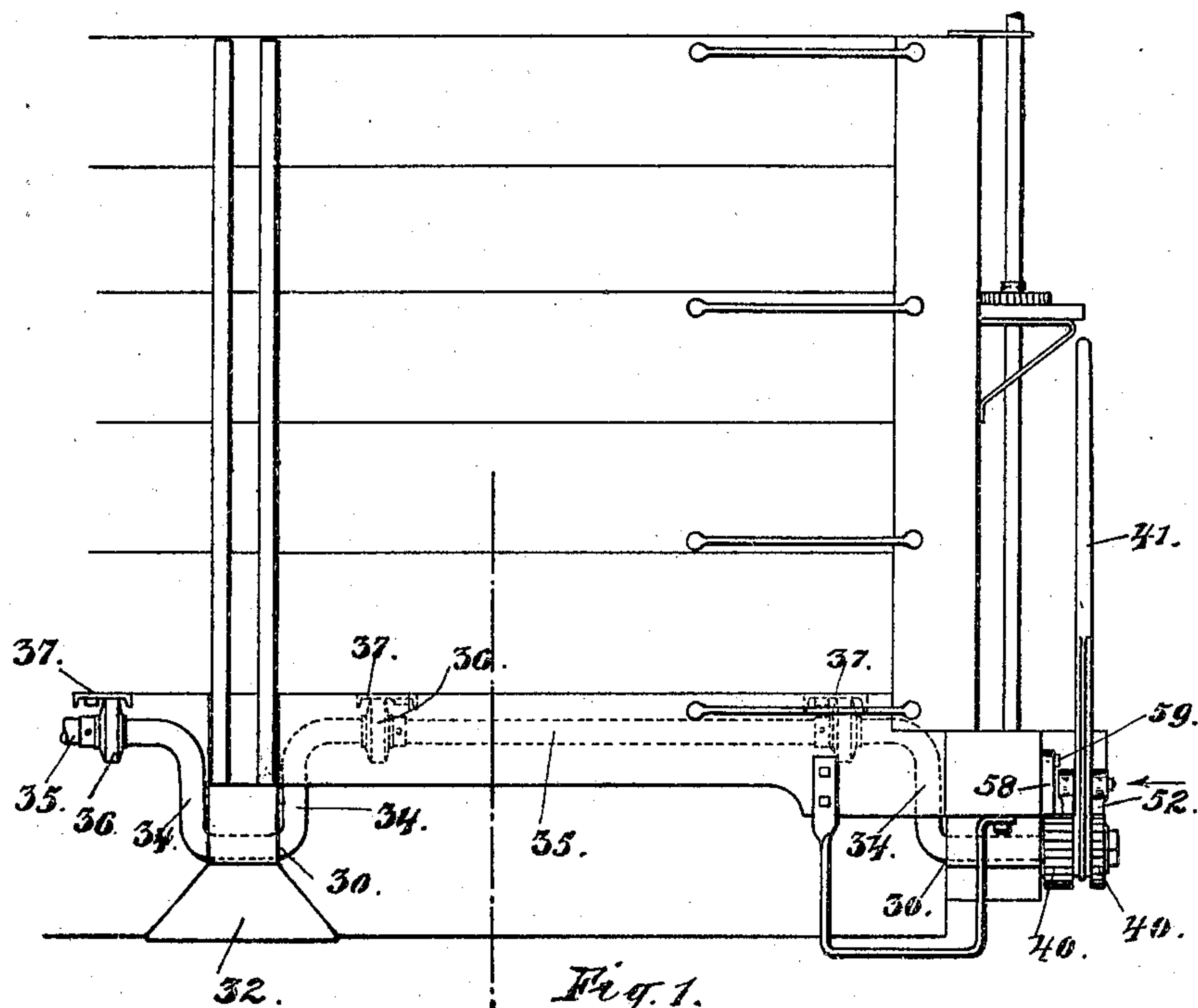
PATENTED JULY 11, 1905.

A. BECKER.

DUMPING MECHANISM FOR CARS.

APPLICATION FILED FEB. 25, 1905.

2 SHEETS—SHEET 1.



Witnesses.
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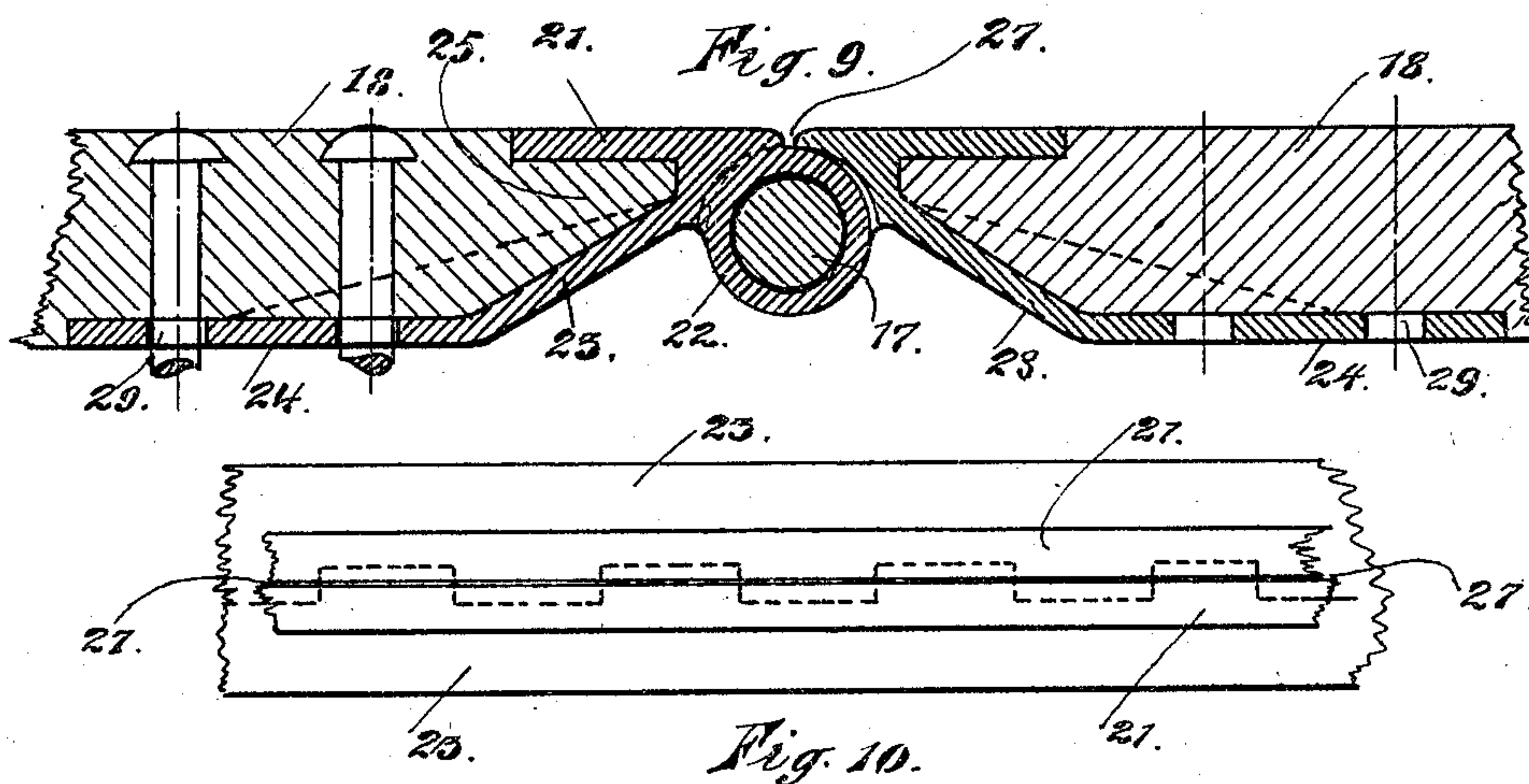
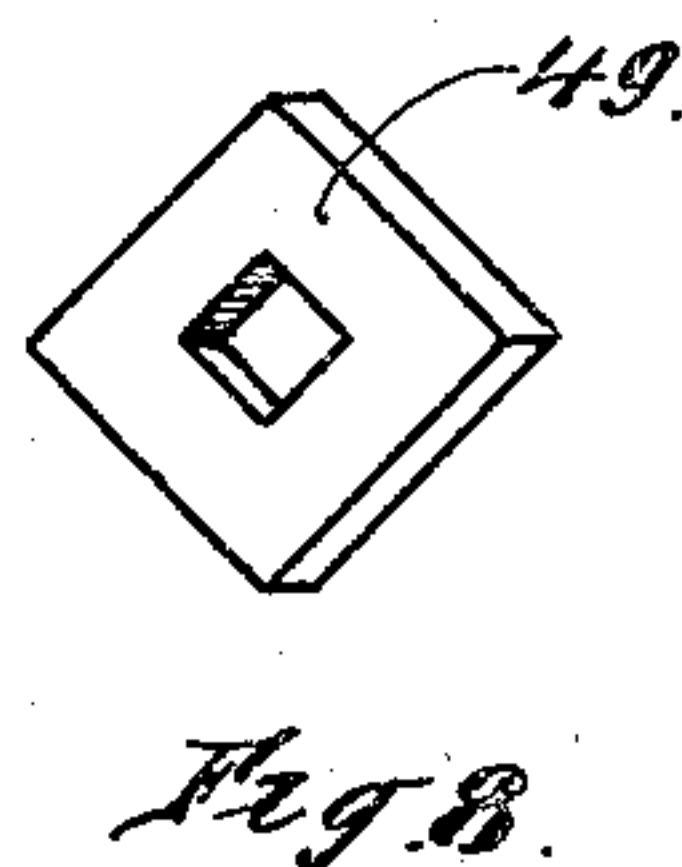
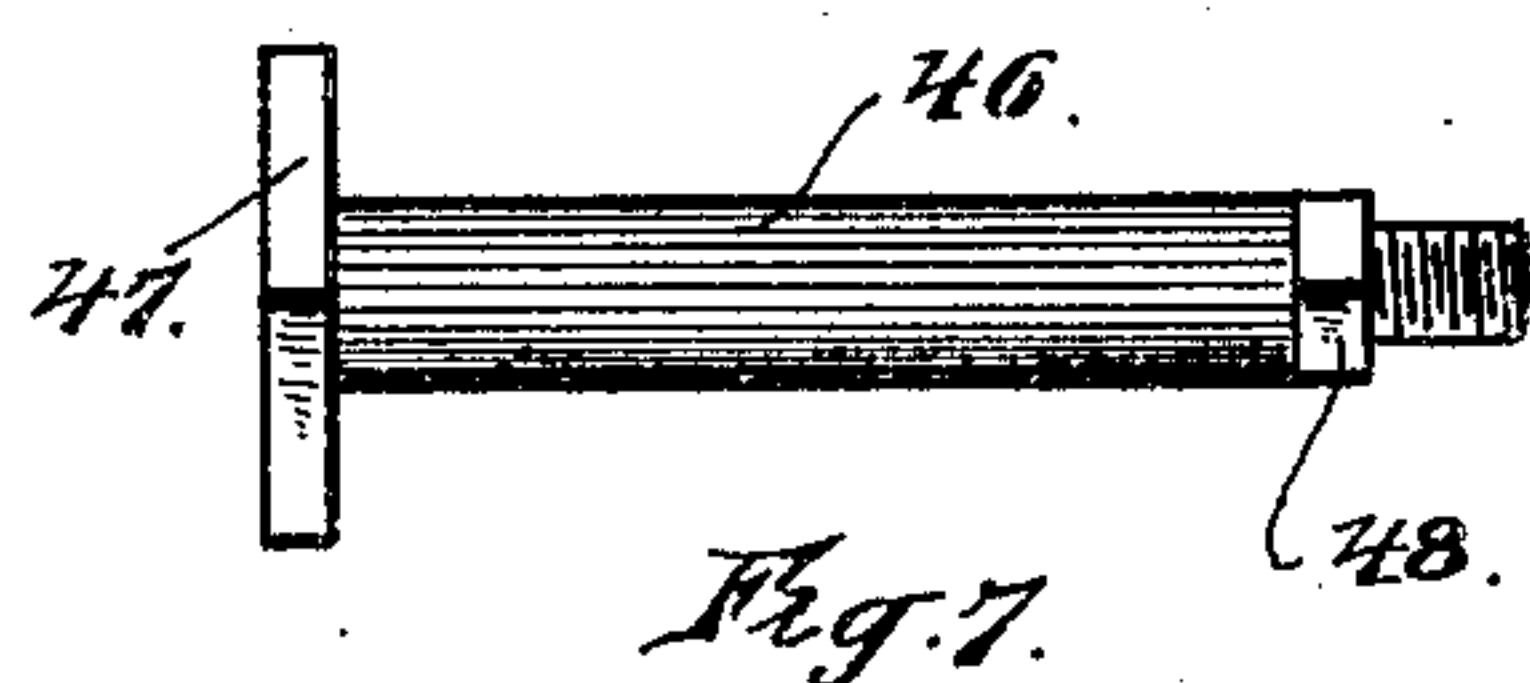
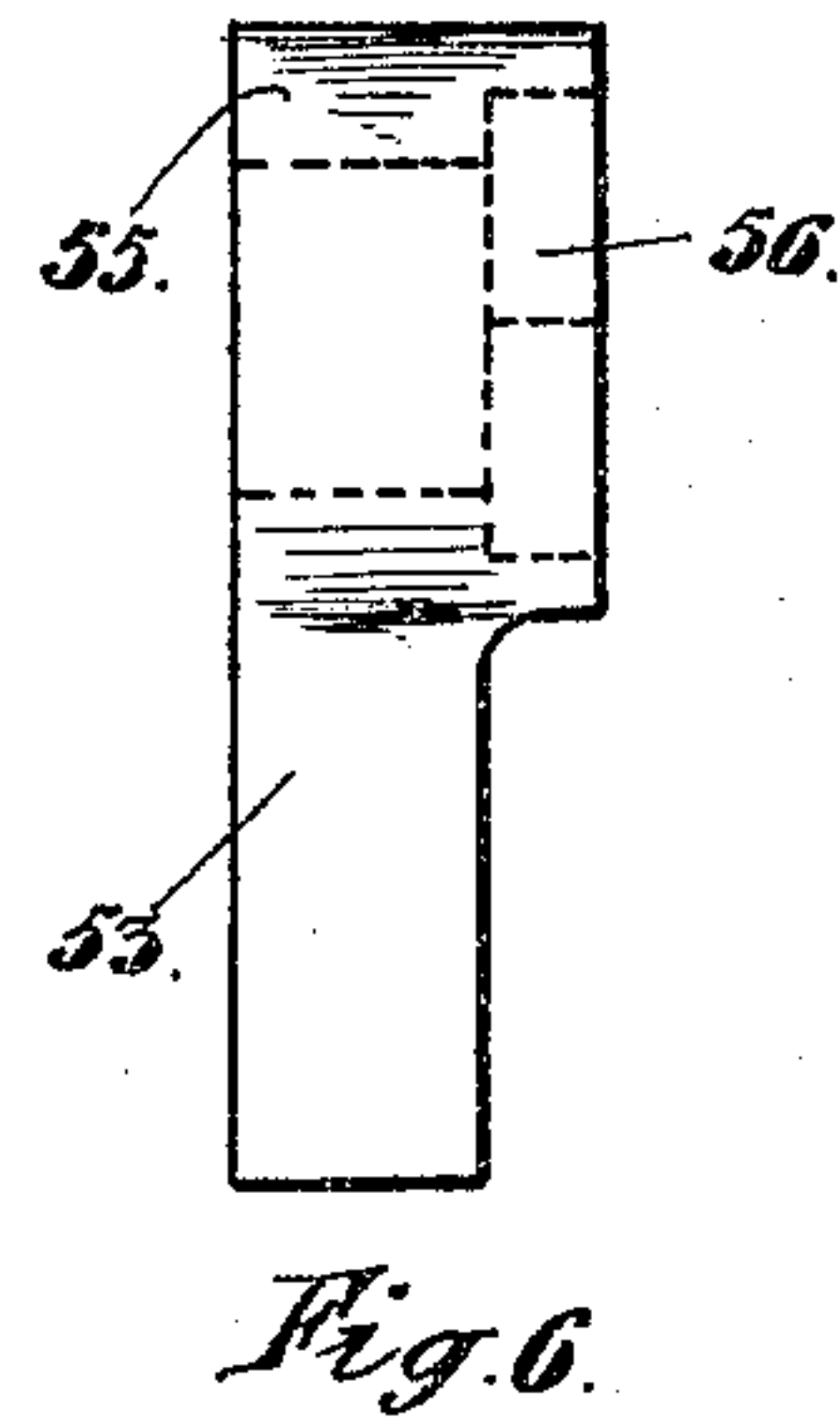
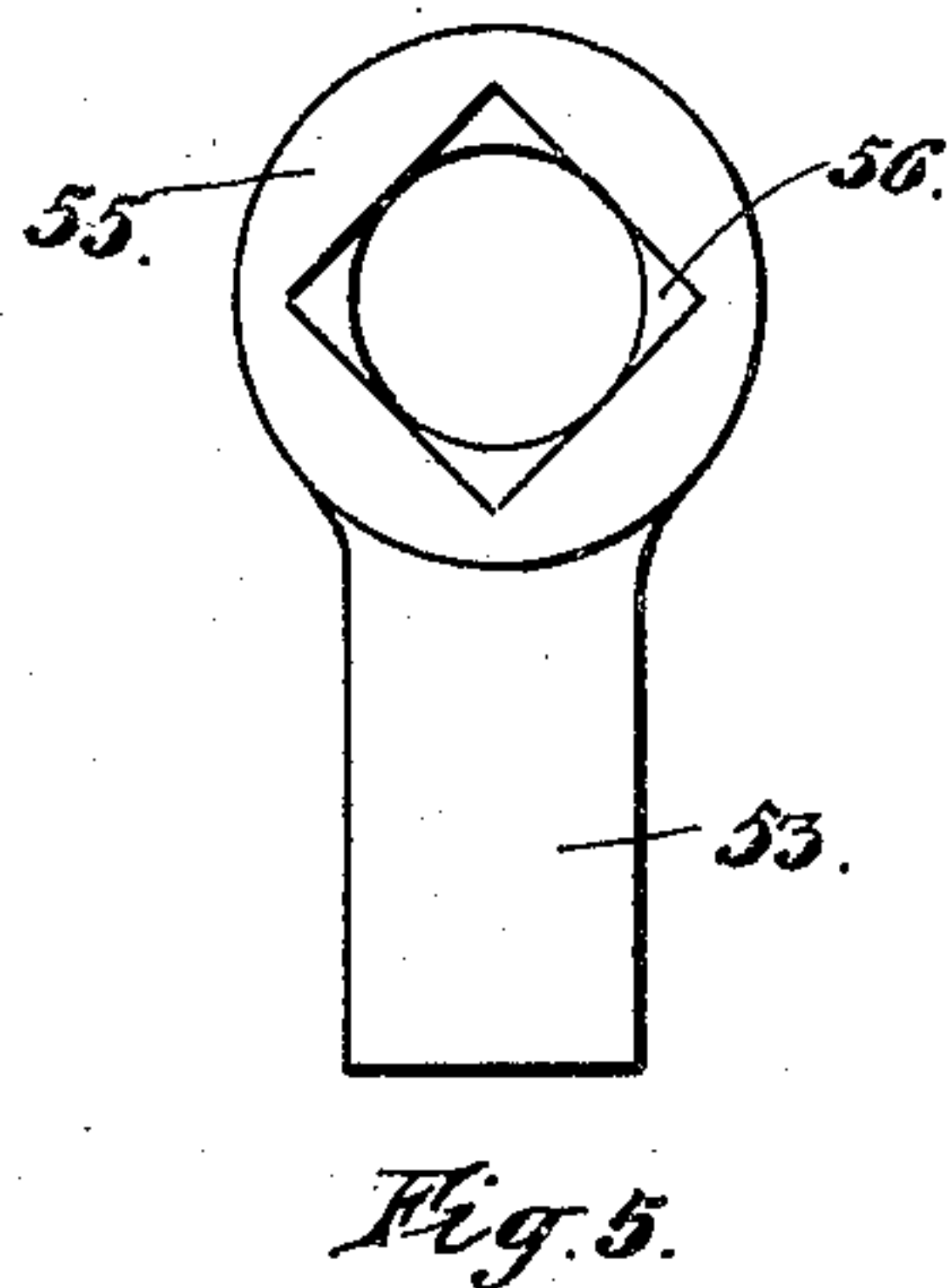
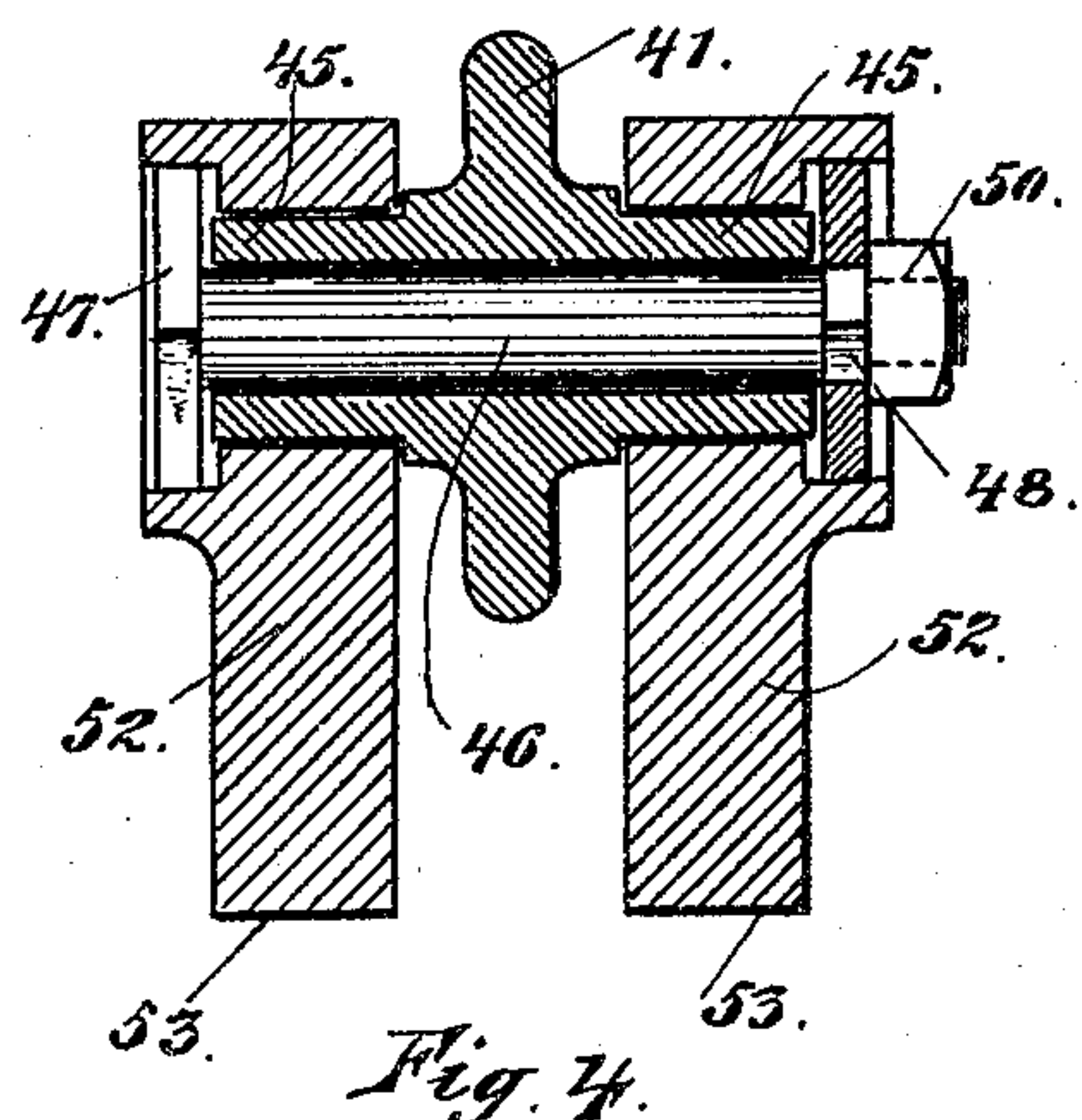
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2 SHEETS—SHEET 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

ANTON BECKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOSEPH S. RALSTON, OF CHICAGO, ILLINOIS.

DUMPING MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 794,274, dated July 11, 1905.

Application filed February 25, 1905. Serial No. 247,305.

To all whom it may concern:

Be it known that I, ANTON BECKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Dumping Mechanism for Cars, of which the following is a specification.

My invention relates to freight-cars, and particularly to those having a level floor, such as is illustrated in my two prior United States patents, Nos. 763,947 and 763,841, issued June 28, 1904.

My invention is an improvement upon the operating means shown in both of those patents—an improvement upon the floor-door construction when wood or other material than iron or steel is to be used.

The invention is also an improvement upon the floor-door operating mechanism of said Patent No. 763,841.

For convenience the drawings and specifications of the above-mentioned patents will be referred to from time to time in this specification.

My invention relates more specifically to a novel form of lever-and-pawl construction for use in operating either of the floor-door operating mechanisms of my former patents, but particularly the one shown in Patent No. 763,841; and it also more broadly consists in the use of a novel form of hinge by which the floor-doors of either of said patents may be made of wood or other soft material requiring thickness without sacrificing either the uniform level of the floor of the car or the ability to tilt the floor-doors to dump the load, as described in both of the above-mentioned patents.

My invention consists in mechanism capable of accomplishing these objects, which greatly adds to the efficiency and utility of the cars of my former patents, which can be easily and cheaply made, and which is not readily liable to be broken or get out of order when in use.

It also consists in the details of construction, which will be hereinafter more fully described and claimed as the specification proceeds.

Referring to the drawings, Figure 1 is a partial side elevation showing the end of a carlike that of my former patent, No. 763,841, with my improved devices. Fig. 2 is a sectional detail view at right angles to Fig. 1 on the line 2 of Fig. 1. Fig. 3 is an end view of the lower corner of the car, showing my improved ratchet mechanism applied thereto. Fig. 4 is a sectional detail view through the center of the pawls on line 4 of Fig. 3. Fig. 5 is a side and Fig. 6 a front view of a pawl removed from the structure of Fig. 4. Fig. 7 is a detail view of an auxiliary shaft shown in Fig. 4, upon which the pawls are mounted. Fig. 8 is a detail view of a washer adapted to fit upon the shaft shown in Fig. 7. Fig. 9 is a sectional detail view through the floor-doors at the center of the car, showing my improved form of hinge. Fig. 10 is a plan view, broken away on all sides, taken along the center line of the car-floor, showing the way the floor-doors fit together when in the position of Fig. 9.

As shown in my prior patents above referred to, I prefer to make a car in which the load-carrying floor-doors are normally level, making a level-floor car, are pivoted back to back at the top of a central girder running along the center of the car, and are adapted to swing downward from the sides of the car to discharge the load at the side of the track; but instead of using the central steel girder and steel floor-doors of my former patent I provide a central girder 15, made partly of wood and partly of metal, as shown in Fig. 2. Upon the top of this girder 15 are a series of hinge-castings 16, having threaded through them hinge rods or pins 17, running the length of the car on which the floor-doors 18 are hinged. These floor-doors 18 are, as shown, made of wood. In order to allow for the use of the necessary thickness of wood to give the doors sufficient strength, while allowing the doors to tilt downward about the hinge-pin 17 to the dotted position of Fig. 1, I provide my novel form of hinge. This is best illustrated in Fig. 9, where we see that each opposite leaf of the hinge consists of a horizontal flat plate 21, substantially flush and level with

the floor, a knuckle 22, inclosing the hinge-pin 17 above referred to, an angular portion 23, extending downwardly from the plate 21 and away from the knuckle 22, and a horizontal portion 24, covering and protecting the under side of the wooden door 18 for some distance away from the knuckle and hinge-pin. There is quite a notch or recess 25 between the plate 21 and the angular portion 23 of the hinge, in which the point of the door material proper is adapted to fit and be protected, as shown in Fig. 9. By this construction just described I am able, as shown in Fig. 9, to provide two opposing floor-doors which fit up substantially tight against each other in the center line 27 of the car, thereby making a level-floor car when the doors are closed, as shown in Fig. 9 and in full lines of Fig. 2, this while permitting the doors to tilt to the dotted-line position of Fig. 18 for discharging the load without the doors binding upon or being obstructed by the central girder 15. When I have attempted to use wooden floor-doors without these improved hinges, I have found that the wood of the doors chipped off badly along the center line 27, thereby destroying the level of the car-floor and causing portions of the load to cling thereto, thereby injuring the efficiency of the car, and I have also found that with any other form of hinge it is exceedingly difficult to securely fasten a door tapered off like those shown in the figure to the hinge, so that the wood of the floor-door will not be torn off from the hinge in operation. In the construction here shown the point of the wooden floor-door entering the recess 25, heretofore described, and the door being secured to the hinge by bolts or screws 29, passing through the plate 24 into the wood of the door, this tearing is impossible in practice.

As shown in my former patent, No. 763,841, I operate the floor-doors 18 by means of a shaft 30, journaled in or adjacent to the cross bearers or bolsters 32 of the car, there being upon this shaft 30 crank-arms 34, bearing crank-pins 35, on which are journaled wheels 36, bearing upon the under side of the floor-doors, preferably in a channel or other suitable track 37. The operation of the door is accomplished by rotating this shaft 30, with the attached mechanism just described, from the upper to the lower position of Fig. 2, thereby allowing the door to open by gravity, and back again to the original position, thereby closing the door. I accomplish this rotation of the shaft 30 by improved mechanism, which I will now describe. On the end of shaft 30 I rigidly mount two ratchet-pawls 40, there being, however, a space between them in which I loosely journal an operating-lever 41. On this operating-lever at a short distance from the teeth 43 of the ratchet-wheel 41 are two oppositely-extending hubs 45, and through these hubs 45 and the lever

41 I loosely journal an auxiliary shaft 46. This shaft has on one end a fixed head 47, preferably larger than the hubs 45 and non-circular in form, so that a pawl or other mechanism engaging it cannot be rotated. Also non-rotatably mounted upon the opposite end of the shaft 46 at 48 is a corresponding non-circular washer 49, held in place by the nut 50. Journaled upon the hubs 45, heretofore described, are locking-pawls 52, having their points 53 adapted to engage the teeth 43 of the ratchet-wheels 40. The bases 55 of these pawls have non-circular recesses 56 cut into them, in which the non-circular head 47 of shaft 46 and non-circular washer 49 on that shaft are respectively adapted to fit, so that both pawls are secured to the shaft, and rotating the shaft to reverse one pawl with reference to the ratchet-wheel 40 will at the same time reverse the other pawl. By this construction I have two pawls simultaneously engaging the ratchet-wheels 40 on opposite sides of the operating-lever 41, with the result that in moving the lever to rotate the shaft 30 to operate the floor-doors there is no side strain or wrench upon the lever as there is when only one pawl is used, as shown in my former patent, No. 763,841. At the same time I am able to reverse the pawls so as to operate the lever in the opposite direction by simply reversing one pawl.

In order to lock the shaft 30 in any particular position while operating the lever 41 with the pawls 52 in the usual way, I provide a locking-pawl 58, pivoted at 59 to the end of the car, this pawl bearing upon one portion of the inner ratchet-wheel 40, which, as shown in Fig. 1, is made slightly wider than the outer pawl to allow for this.

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

1. In a car, in combination with load-retaining doors, a shaft adapted to be rotated to operate said doors, two ratchet-wheels upon said shaft, an operating-lever journaled upon said shaft between said ratchet-wheels, pawls on opposite sides of said lever, each engaging one of said ratchet-wheels and a mechanical connection between the pawls so that they move in unison.

2. In a car, in combination with load-retaining doors, a shaft adapted to be rotated to operate said doors, two ratchet-wheels upon said shaft, an operating-lever, journaled upon said shaft between said ratchet-wheels, reversible pawls on opposite sides of said lever each engaging one of said ratchet-wheels and a mechanical connection between the pawls so that they move in unison.

3. In a car, in combination with load-retaining doors, a shaft adapted to be rotated to operate said doors, two ratchet-wheels upon said shaft, an operating-lever upon said

shaft between said ratchet-wheels, a supplemental shaft journaled upon said operating-lever, pawls rigidly mounted upon said shaft on opposite sides of said lever each adapted
5 to bear against one of said ratchet-wheels whereby said pawls move in unison as described.

4. In a car, in combination with load-retaining doors, a shaft adapted to be rotated
10 to operate said doors, two ratchet-wheels upon said shaft, an operating-lever journaled upon said shaft between said ratchet-wheels, hubs upon opposite sides of the lever adjacent to said ratchet-wheels a supplemental
15 shaft through the lever journaled in said hubs, non-circular members upon opposite ends of the supplemental shaft and two pawls, each bearing on one of the ratchet-wheels, each journaled on one of said hubs
20 and secured to one of said non-circular members upon the auxiliary shaft whereby said pawls move in unison.

5. In a car having a central girder and a load-carrying floor-door pivotally mounted at substantially the top thereof adapted to
25 form a level car-floor; the combination of a central girder, having a central hinge-pin on the top thereof and above the level of the lower surfaces of the doors, and level floor-doors principally made of wood or similar
30 material hinged to said hinge-pins, the hinge proper being of metal and formed in the lines 21, 24 and upwardly-inclined surfaces 23, 23 as described to protect the edges of the doors proper, while maintaining a level floor, and
35 also allowing the doors to swing down for dumping purposes as described.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

ANTON BECKER.

Witnesses:

DWIGHT B. CHEEVER,
HOWARD M. COX.