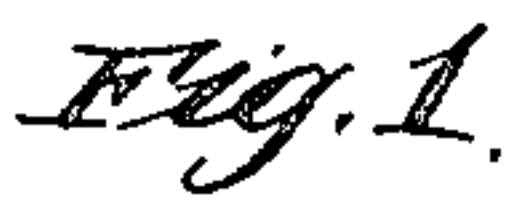


J. B. QUINN.
CONCRETE CAR.
APPLICATION FILED APR. 21, 1909.

2 SHEETS—SHEET 1.



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John B. Quinn

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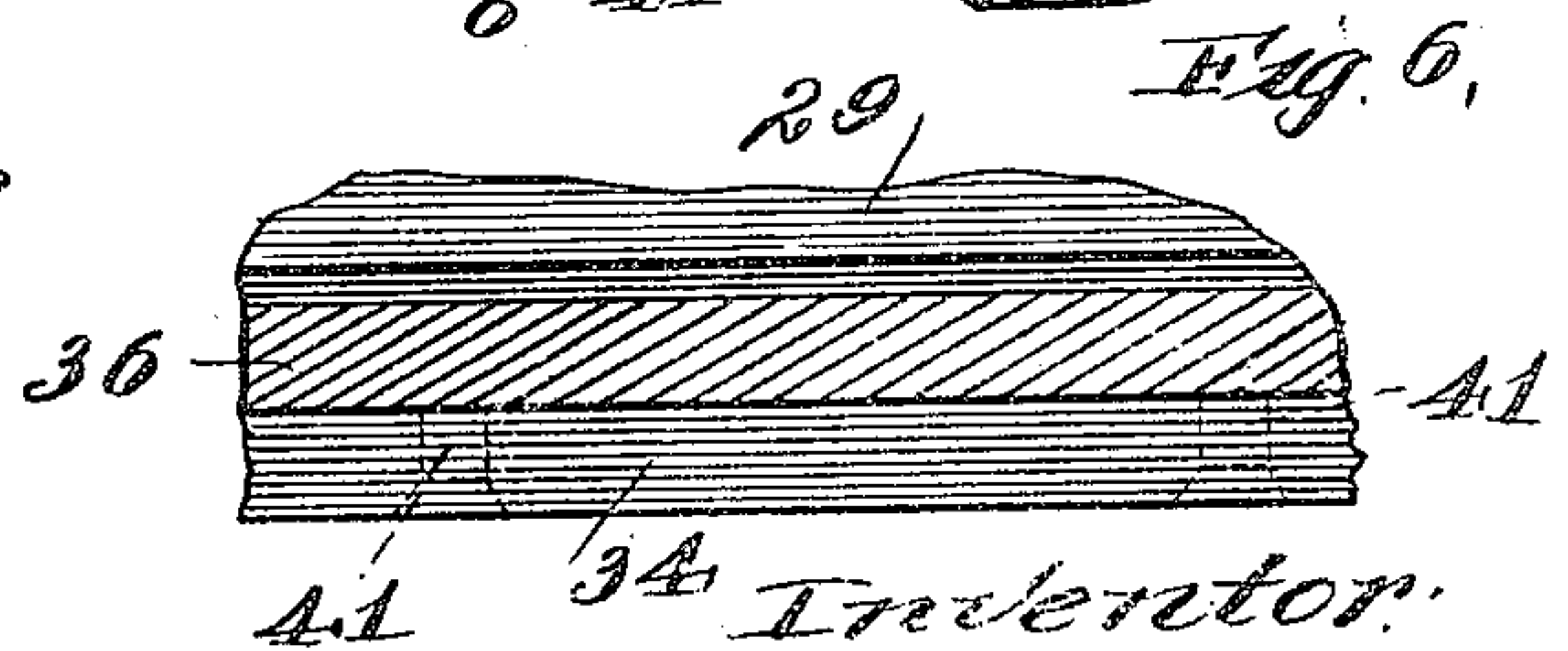
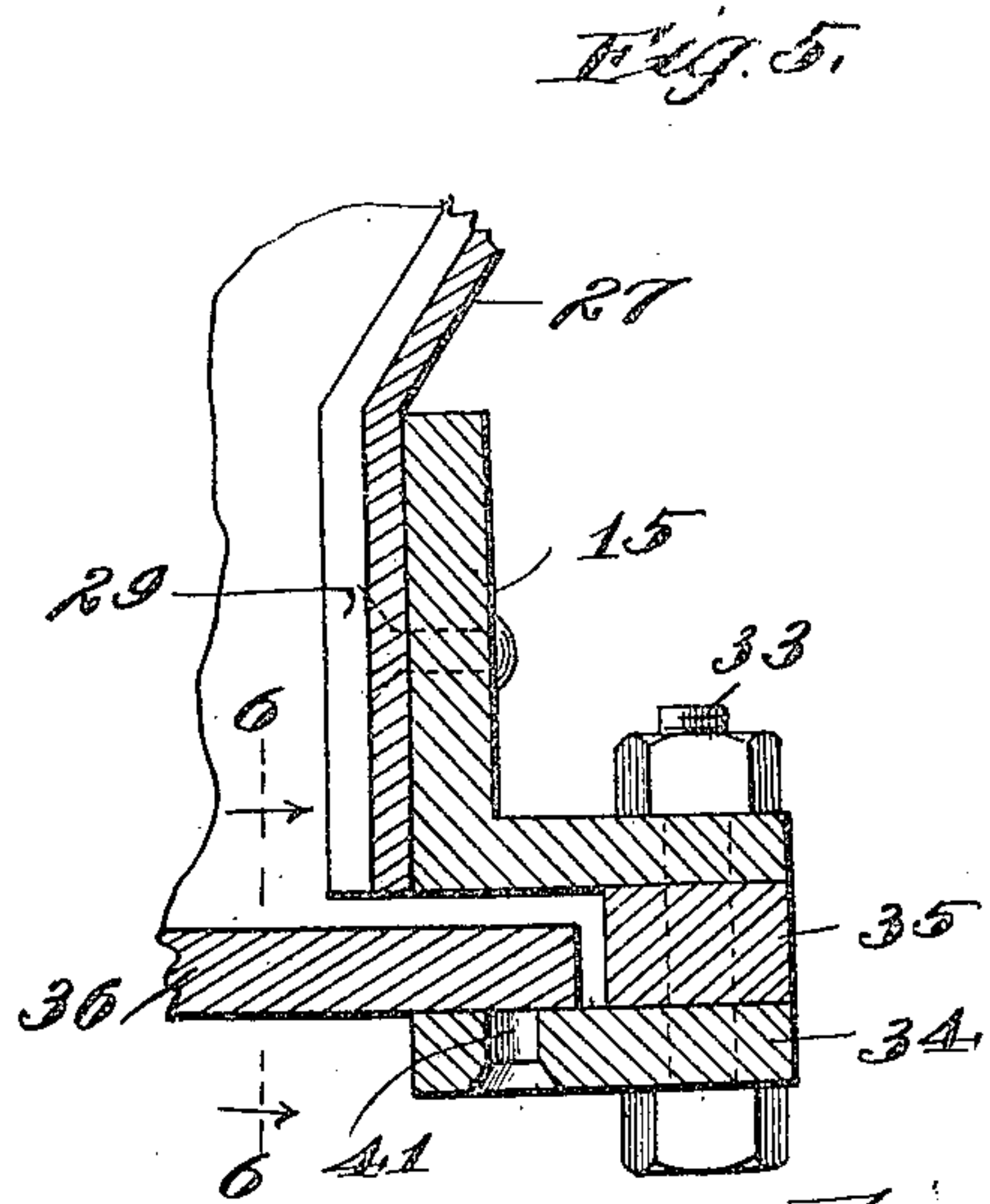
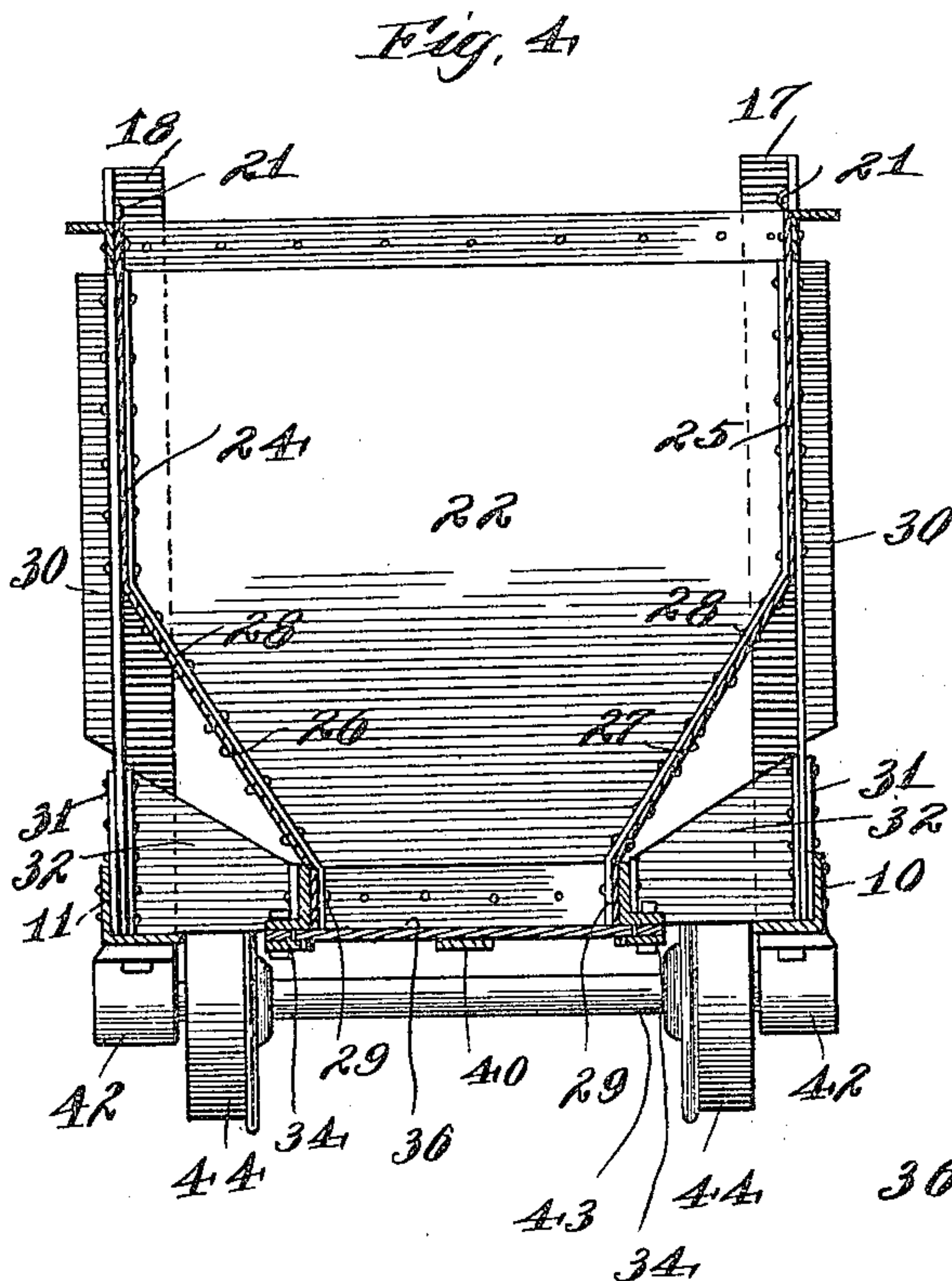
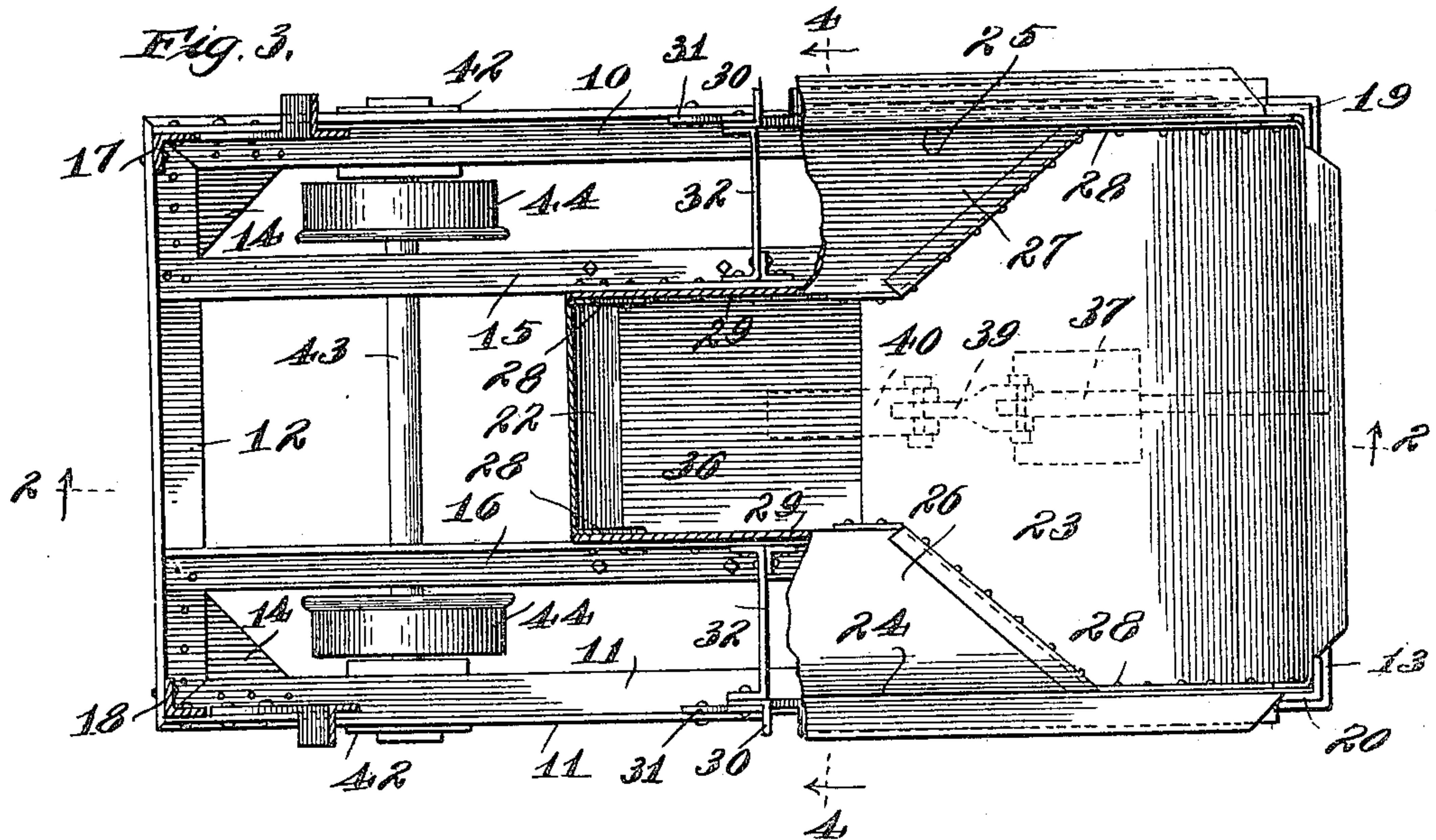
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CONCRETE CAR.

APPLICATION FILED APR. 21, 1909.

Patented June 28, 1910.

962,465.

2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN B. QUINN, OF CHICAGO, ILLINOIS, ASSIGNOR TO SHNABLE & QUINN, OF CHICAGO, ILLINOIS, A COPARTNERSHIP.

CONCRETE-CAR.

962,465.

Specification of Letters Patent. Patented June 28, 1910.

Application filed April 21, 1909. Serial No. 491,283.

To all whom it may concern:

Be it known that I, JOHN B. QUINN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Concrete-Cars, of which the following is a specification.

My invention concerns containers for concrete and the like such as are ordinarily used for transporting the material from the mixer to the dumping or discharge point. In the usual and ordinary practice when separate skips are used with individual trucks, the latter block the trackway from the mixer while the skips are being raised by derrick or otherwise and dumped, with the consequent hindrance and delay in the prompt and efficient transportation of the concrete. Furthermore, such loaded skips or buckets must necessarily be placed or deposited on their separate trucks with some little care, otherwise they become overbalanced and topple over. When sidewise tipping cars are used for carrying the concrete from the mixer to a retaining wall, such as is frequently employed in connection with railway embankments, it is necessary to construct a separate track-supporting trestle alongside the wall in order that the contents of the car when dumped may enter the compartment provided or formed by the temporary planking. In the use of tipping or side dumping cars of this character the concrete when dumped is spread out and scattered, separating to some considerable extent the binding cement and the crushed stone which, as is obvious, should if possible be maintained in a compact mass. To overcome these disadvantages and generally to improve the conditions of transportation or carrying and dumping the concrete, I have invented a new type or style of hopper-shape car having the truck rigidly fastened thereto so that the combined body and truck may be raised by derrick and deposited on another track directly over the wall to be formed, such entire removal of the carrier or container eliminating all tendency to block the trackway from the mixer. Such car is desirably provided or supplied with a sliding discharge door, which may be opened to a greater or less extent as is required to permit the concrete to fall in a thin or shallow stream having but slight tendency to

spread out or separate the cement from the crushed stone.

Various other features of novelty and improvement will be made apparent from the following detailed description of a preferred embodiment of the invention, and especially the means employed for preventing the discharge door of the car from becoming set or cemented in place, thereby hindering if not entirely preventing its operation.

In the accompanying drawings—Figure 1 illustrates the manner of lifting the concrete cars to a position above the walls to be formed; Fig. 2 is a longitudinal section through a car embodying my invention, on line 2—2 of Fig. 3; Fig. 3 is a plan view of the car with parts broken away to more clearly illustrate the construction; Fig. 4 is a transverse section on line 4—4 of Fig. 3; Fig. 5 is a vertical section on an enlarged scale through one of the guides or supports for the sliding door; and Fig. 6 is a fragmentary section on line 6—6 of Fig. 5.

The car frame includes a pair of angle side sills 10 and 11 cross-connected together at their terminal portions by the angle end sills 12 and 13, the corners of this car frame having the usual strengthening and bracing gusset plates 14, 14. Inside of the side sills 10 and connected to the end sills I employ a pair of longitudinal angle intermediate sills 15 and 16 disposed with their vertical flanges inwardly, their bottom flanges being extended outwardly. At its corners the car frame has four vertical angle posts 17, 18, 19 and 20 apertured at 21 above the car body, hereinafter described, for the reception of the hooks or other attaching means of any suitable hoisting appliance.

The car body proper, which is of hopper-shape, as indicated most clearly in Figs. 2 and 4, is composed of a pair of inclined end plates 22 and 23, the edges of the upper portions or halves of which are parallel, while the lower sections of such walls or plates are tapered, as shown in Fig. 4. The side walls of this car body are composed of the two tapered plates 24 and 25, the upper sections or portions of which are vertically arranged, while the lower parts 26 and 27 converge inwardly, a convenient means of attaching such end plates or walls to the side plates being by flanges 28 turned up along the margins of the end plates and overlapping

and riveted to the side plates. The extreme lower portions 29 of such side plates are vertically disposed, lie against the inner faces of the upright flanges of the intermediate angle sills 15 and 16, and are riveted or otherwise suitably secured thereto, it being apparent, as is clearly illustrated in the figures, that the lower terminal portions of the end plates are disposed between such intermediate longitudinal sills.

Midway of the car on each side I provide an upright angle post or support 30, the outstanding flange of which is omitted or cut away for approximately one-third ($\frac{1}{3}$) of its length at its lower end, such unflanged plate portions of the two posts lying inside of the vertical flanges of the side sills and connected thereto by braces or gusset plates 31. These lower portions or parts of the posts are also connected or joined to the intermediate sills 15 and 16 by a pair of vertical, tapered, strengthening diaphragms 32.

Secured to the outstanding horizontal flanges of the intermediate sills 15 by a plurality of bolts 33 are the pair of horizontal door supporting plates 34 spaced below the flanges of the intermediate sills the required distance, an amount slightly greater than the thickness of the door, by bars 35. As is clearly illustrated, the longitudinally-slidable discharge door 36 rests at its edges upon the inwardly-extended portions of the pair of parallel plates 34, such door being operable by a bell-crank lever 37 fulcrumed on any suitable support at 38 and having its lower leg or member connected by a link 39 to a door-strap 40 bolted or otherwise secured to the bottom of the sliding door 36. It will, therefore, be apparent that by actuating the lever 37 the door 36 may be slid so as to open to a greater or less extent the bottom discharge passage or mouth of the lower portion of the hopper car, whereby the workman is enabled to readily regulate the discharge of the concrete and to prevent to a considerable extent the separation of the cement from the crushed stone during the emptying of the car. The perforations 41 in the supporting plates or strips 34 below the edge portions of the discharge door in the closed position of the latter are provided for the purpose of permitting the escape of the grout, which is a mixture of cement and water, whereby to prevent binding or cementing of the door in place. To facilitate such discharge through these openings their lower portions are countersunk or enlarged, as is clearly indicated in Fig. 5. In order that whatever cementitious material may be dropped or become lodged on the supporting plates 34, which, by the way, are more or less shielded or protected due to their position outside of the discharge mouth, may be readily dislodged, the ends of the bars 34 are left unobstructed, whereby dur-

ing the closing sliding operation of the door such material will be engaged by the door and pushed along over the ends of such bars. Due to this construction these guiding supports are at all times maintained in a comparatively clean condition so that the door is prevented from becoming cemented or otherwise unintentionally immovably fixed in position.

The under faces of the side sills 10 and 11 are equipped with journal boxes or bearings 42, bolted or otherwise fixedly secured thereto and adapted to accommodate the axles 43 of the carrying wheels 44. Obviously, then, the car with its wheels or truck forms a unitary structure which may be readily lifted or hoisted in any approved manner.

The operation of concrete cars of this character is substantially as follows: The cars having been loaded or charged at the mixer, they are rolled along the trackway 45 from which they can be readily lifted by the derrick 46, the latter having hooks or similar fastening means adapted to engage or take in the apertures 41 of the corner upright posts. Such derrick may lift the loaded car onto the trackway 47 directly above the embankment wall to be formed, such trackway being supported on the upright timbers 49 and 50 which are necessarily employed for holding and maintaining the temporary planking 51 of the form in place. When the load of the car is discharged from such trackway it drops in a compact mass in the chamber or compartment formed by the planking, there being but slight if any tendency for the separation or disassociation of the cement from the crushed rock. The derrick 46 is also capable of lifting the car to a position indicated in the right hand part of Fig. 1 above any suitable form having confining walls 52, the car being dumped or its contents discharged while being supported by the derrick, as indicated, no supplemental trackway in this particular instance being employed. Inasmuch as the entire car including the truck is lifted and raised from the trackway leading from the mixer, the tendency to blocking such trackway is entirely eliminated, as occurs in those instances where the skip or containers are separate from the trucks on which they ride.

Having described this invention in detail, advantages and features other than those herein specified will become apparent to those skilled in the art, and in addition it is to be understood that the invention is not limited and restricted to the precise structural features shown and described, since these are susceptible of considerable modification without departure from the substance and essence of the invention and without the sacrifice of any of its benefits and advantages.

I claim:

1. In a device of the character described, the combination of a hopper-shaped car-body having means for the attachment of a hoisting device, a discharge door in its lower portion, means whereby said door may be opened and closed, and a truck fixedly secured to said car-body whereby the body and truck may be raised together, substantially as described.

2. In a device of the character described, the combination of a hopper-shaped car-body having means for the attachment of a hoisting device, a sliding discharge door in the bottom of said car-body capable of opening varying amounts, means whereby said door may be slid to open and close the same, and a truck fixedly secured to said car-body whereby the body and truck may be raised together, substantially as described.

3. In a device of the character described, the combination of a hopper-shaped car-body having means for the attachment of a hoisting device, a sliding discharge door in its bottom capable of opening and closing the discharge opening of said car varying amounts, means whereby said door may be opened and closed, including a bell-crank and a link connecting said bell-crank to said door, and a truck fixedly secured to said car-body whereby said truck and body may be raised together, substantially as described.

4. In a device of the character described, the combination of a car-body having means for the attachment of a hoisting device and a discharge opening, a sliding door capable of opening and closing said discharge opening, means whereby said door may be slid, and supports on which said door slides, said supports having holes therethrough for the escape of the grout and covered by the door when the latter is in closed position, substantially as described.

5. In a device of the character described, the combination of a hopper-shaped car-body having means for the attachment of a hoisting device and a discharge opening in its bottom, a truck fixedly secured to said car-body whereby the two may be raised together, a sliding door capable of opening and closing said discharge opening, a door operating mechanism including a bell-crank and a link connecting said bell-crank with said door, and supports with unobstructed ends on which said door slides, said supports having holes therethrough for the escape of the grout and covered by the door when the latter is in closed position, substantially as described.

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