

F. L. IRWIN & J. E. TESSEYMAN.
DOOR FOR HOPPER CARS.

APPLICATION FILED FEB. 21, 1908.

906,530.

Patented Dec. 15, 1908.

3 SHEETS—SHEET 1.

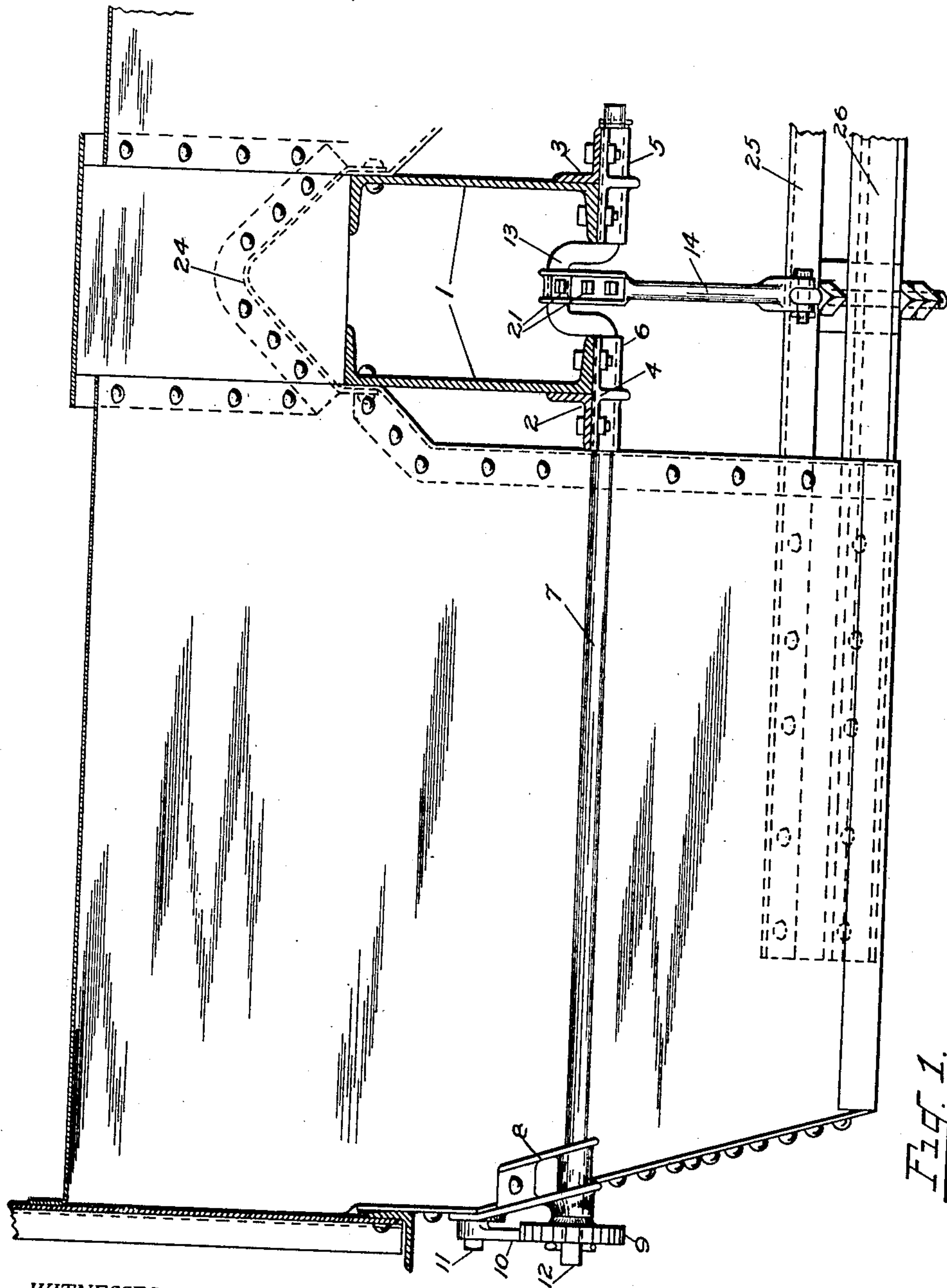


Fig. 1.

WITNESSES:

Horace L. Irwin
Q. Rager

INVENTORS:

FRANK L. IRWIN,
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Geo. W. Rightmire
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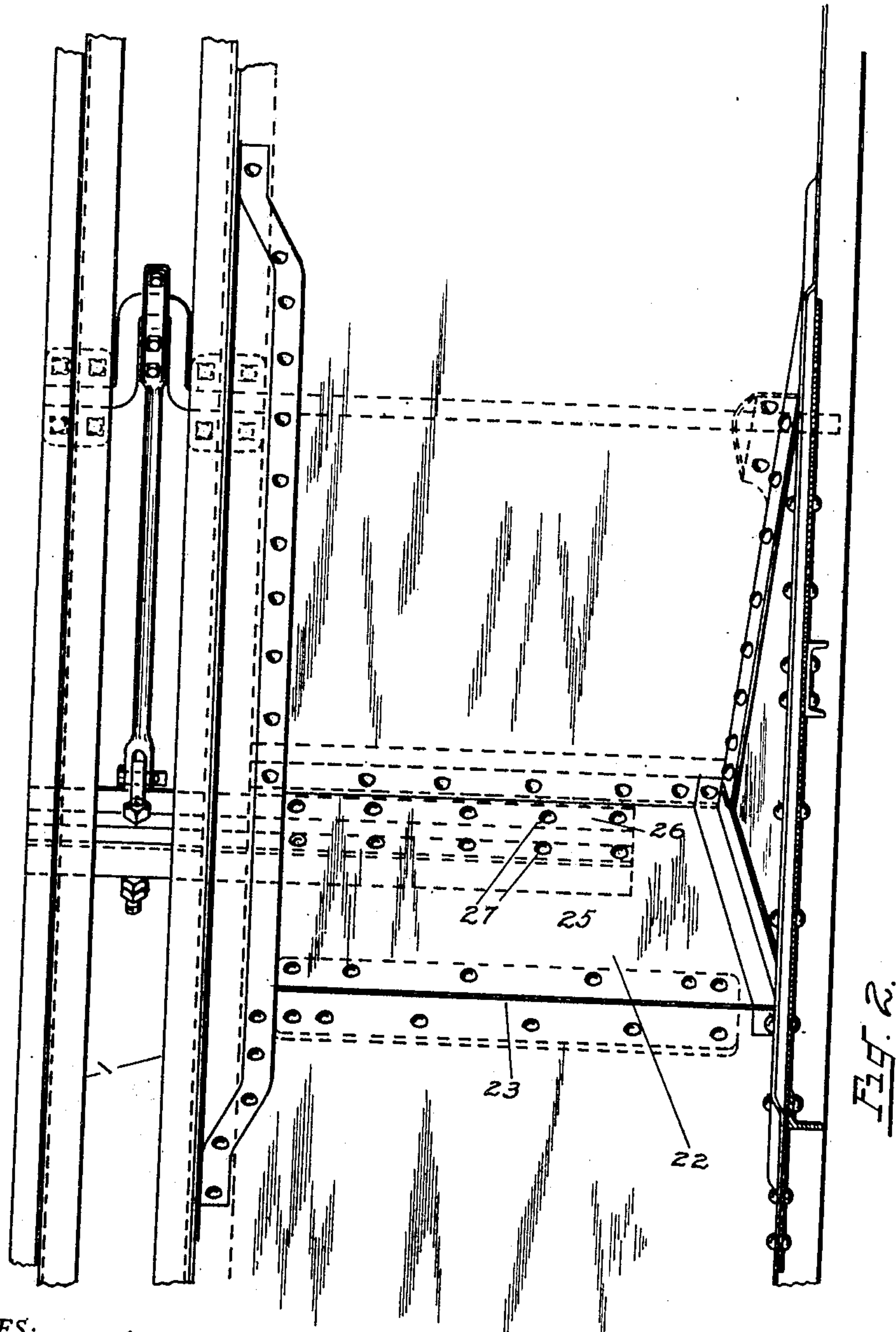
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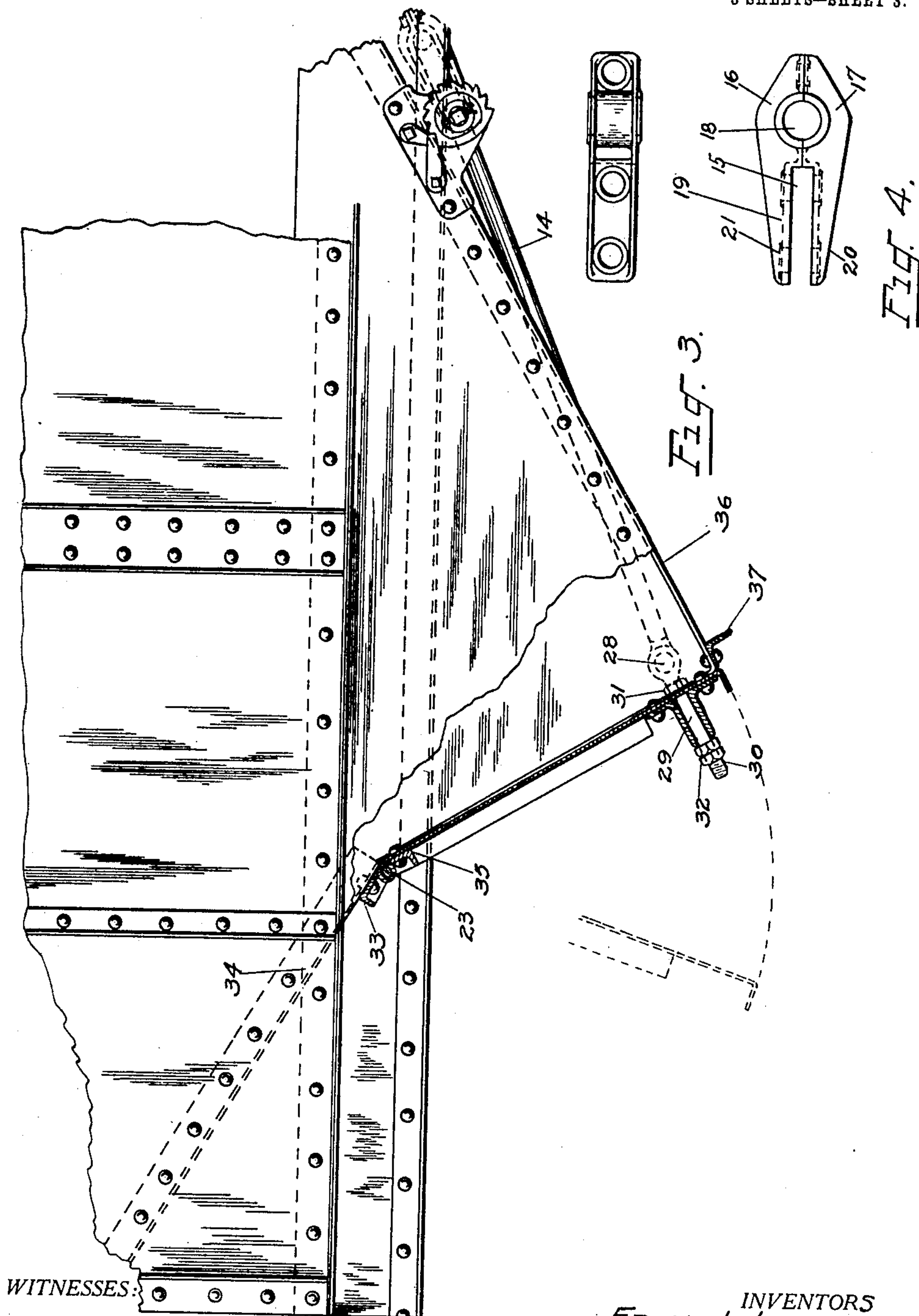
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UNITED STATES PATENT OFFICE.

FRANK L. IRWIN AND JOHN E. TESSEYMAN, OF COLUMBUS, OHIO, ASSIGNORS TO THE
RALSTON STEEL CAR COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

DOOR FOR HOPPER-CARS.

No. 906,530.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed February 21, 1908. Serial No. 417,194.

To all whom it may concern:

Be it known that we, FRANK L. IRWIN and JOHN E. TESSEYMAN, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Doors for Hopper-Cars, of which the following is a specification.

Our invention relates to improvements in hopper cars, especially in the construction and operation of the doors, and consists primarily in the provision of a transverse crank shaft having an arm connected with the doors.

It consists further in improved means for connecting the doors in pairs to be simultaneously operated.

It consists further in improved means for connecting the crank shaft and the door connecting arm.

It consists in the foregoing and other features of construction which will be hereinafter specifically set forth.

In the drawings which are hereto attached and hereby made a part of this specification, Figure 1 is a cross section of a hopper showing the door operating means and the manner of mounting the same upon the car underframe construction; Fig. 2 is a plan view of a hopper showing the door and the door operating means; Fig. 3, is a side view of a hopper broken away to show the door and the door operating means; Fig. 4 is a clamping member for connecting the door operating arm to the crank shaft. It is not deemed necessary to show a complete car as the construction of hoppers as generally employed is well understood.

Referring to the drawings 1 is the center sill construction of a car reinforced at its lower sides by means of the angles 2 and 3; 4 and 5 are brackets secured to the center sill and the angles, and having the tubelike portion 6 formed thereon for the reception of a crank shaft 7; the crank shaft has its bearings in the tubular portion of the said brackets and in the bracket 8 formed at the side of the car and secured thereto; at its outer end said crank shaft 7 carries the ratchet wheel 9 adapted to be engaged by the dog 10 pivoted at 11. Said shaft 7 is squared at its outer end as shown at 12 for the application thereto of a wrench for rotating or oscillating said shaft; the crank 13 formed on said shaft is positioned between

the center sills. Arm 14 is secured to the crank 13 by means of the separable clamp member 15 shown in Fig. 4, formed of the two portions 16 and 17; when these are positioned together, an opening 18 is left between them for the reception of the crank 13 of the shaft 7; also these portions are so formed as to constitute jaws 19 and 20 adjacent their ends, for engagement with the end of the door operating arm 14. When the parts are properly positioned upon the crank shaft and the end of the door operating arm, bolts 21 are inserted therethrough to fix the clamp member firmly upon the crank shaft and the door operating arm. This construction renders it easy to connect the arm and the crank shaft, and easy also to disconnect the same, and thereby provides a construction which is conveniently positioned and removed when repairs are necessary.

The door 22 is hinged to the bottom of the car at 23, and a similar door is provided on the opposite side of the center ridge 24, but which need not be shown. The two doors are connected by the members 25 and 26 secured to each of the doors by means of the rivets shown at 27, so that the doors thus connected will be actuated simultaneously, and only one arm connected to the crank shaft will be necessary for operating said doors. The arm 14 is formed with a joint 28 therein, and the outer end 29 of said arm is threaded as shown at 30 and provided with the nuts 31 and 32, whereby the arm may be adjusted as demanded by the conditions under which the car is operated, thereby preventing the door or the operating parts from becoming loose and rattling.

Adjacent the ends 23 we provide a hinge 33 extending transversely of the end slope sheet 34, and the hinge 35 extending transversely of the door, and the flanged construction shown produces a very strong hinge. Transversely of the hopper bottom slope sheet 36 we provide the angle 37 secured thereto adjacent the edge with which the door comes in contact, and thereby reinforces the mouth of the hopper.

We have aimed to secure strength, durability and simplicity in our construction and believe we have accomplished these objects in the car illustrated; there are no complicated parts which are difficult to adjust and keep in order, and whenever it is desired to

open the hopper doors, a wrench may be applied to the end 12 of the crank shaft and the same readily rotated, and when it is desired to close the doors, the shaft may be
5 easily rotated in the opposite direction, and the engagement of the dog with the ratchet on the crank shaft will maintain the door in any desired position.

What we claim is:

- 10 1. In a hopper car, a center sill formed of a pair of oppositely faced channels, an angle secured to each of said channels along the outer face of the lower edge thereof, a tubular bearing member secured to the under
15 face of said angle and channel, a crank shaft mounted in said bearing member transversely of said car, drop doors hinged upon the bottom of said car, spaced apart oppositely disposed angles secured to said doors
20 connecting the same, and an operating arm mounted on said crank shaft at one end and being positioned between and adjustably engaging said spaced apart angles at its other

end, and means for operating said crank shaft.

- 25 2. In a hopper car having bottom drop doors hinged thereon and arranged in pairs, angle members spaced apart connecting said doors, a crank shaft suitably mounted on said car, an operating arm having one end
30 positioned between said angle members and adjustably secured thereto, a separable member so constructed as, when united, to embrace said crank shaft loosely, and to form
35 jaws for the reception of the other end of said operating member, means for securing said jaws thereto, and means for actuating said crank shaft.

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

FRANK L. IRWIN.

JOHN E. TESSEYMAN.

Witnesses:

HORACE S. KERR,

A. RAGER.