F. L. IRWIN & J. E. TESSEYMAN.

BOX CAR CONSTRUCTION.

APPLICATION FILED JAN. 18, 1908.

913,142.

Patented Feb. 23, 1909.

5 SHEETS—SHEET 1.

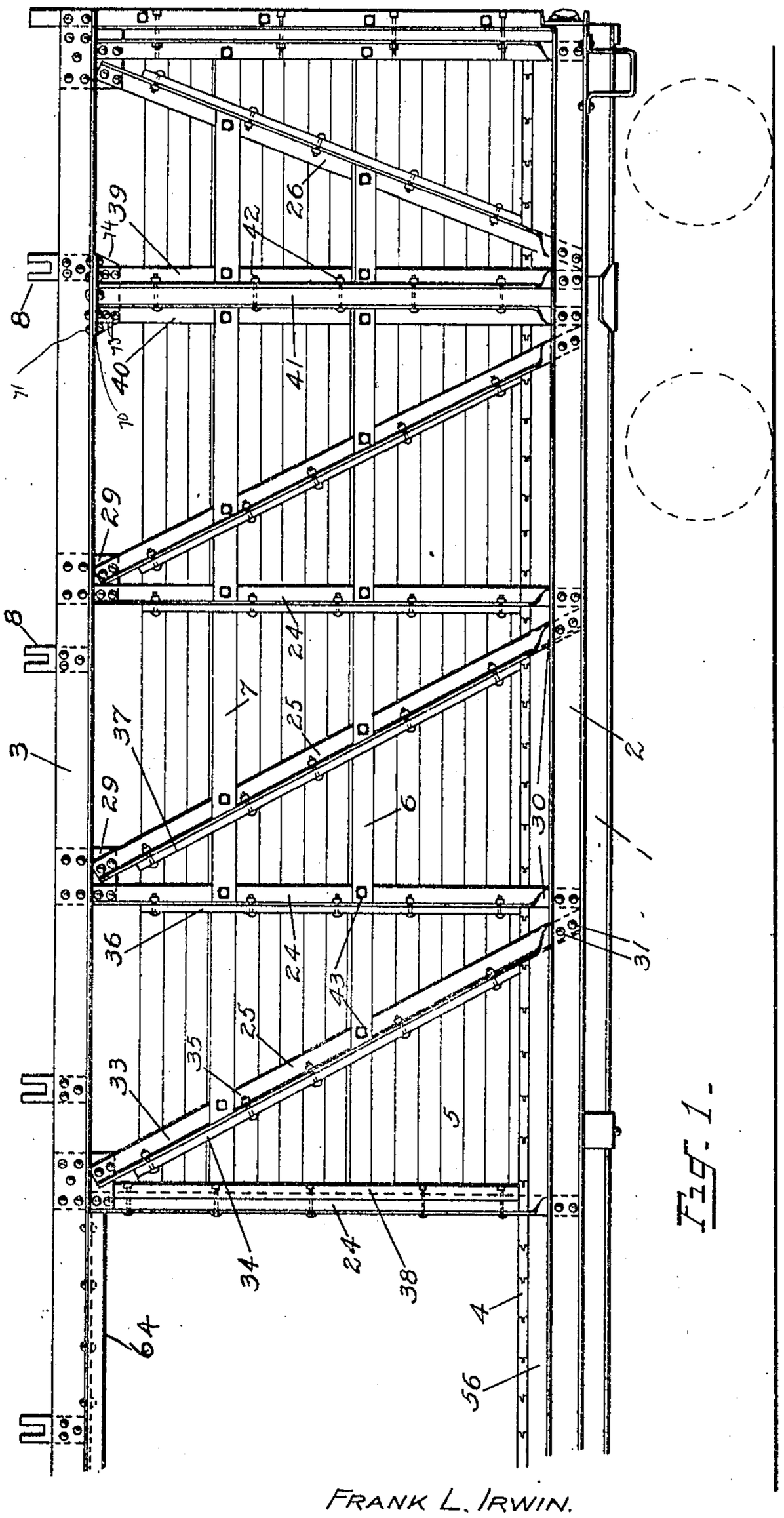

FIG. 1.

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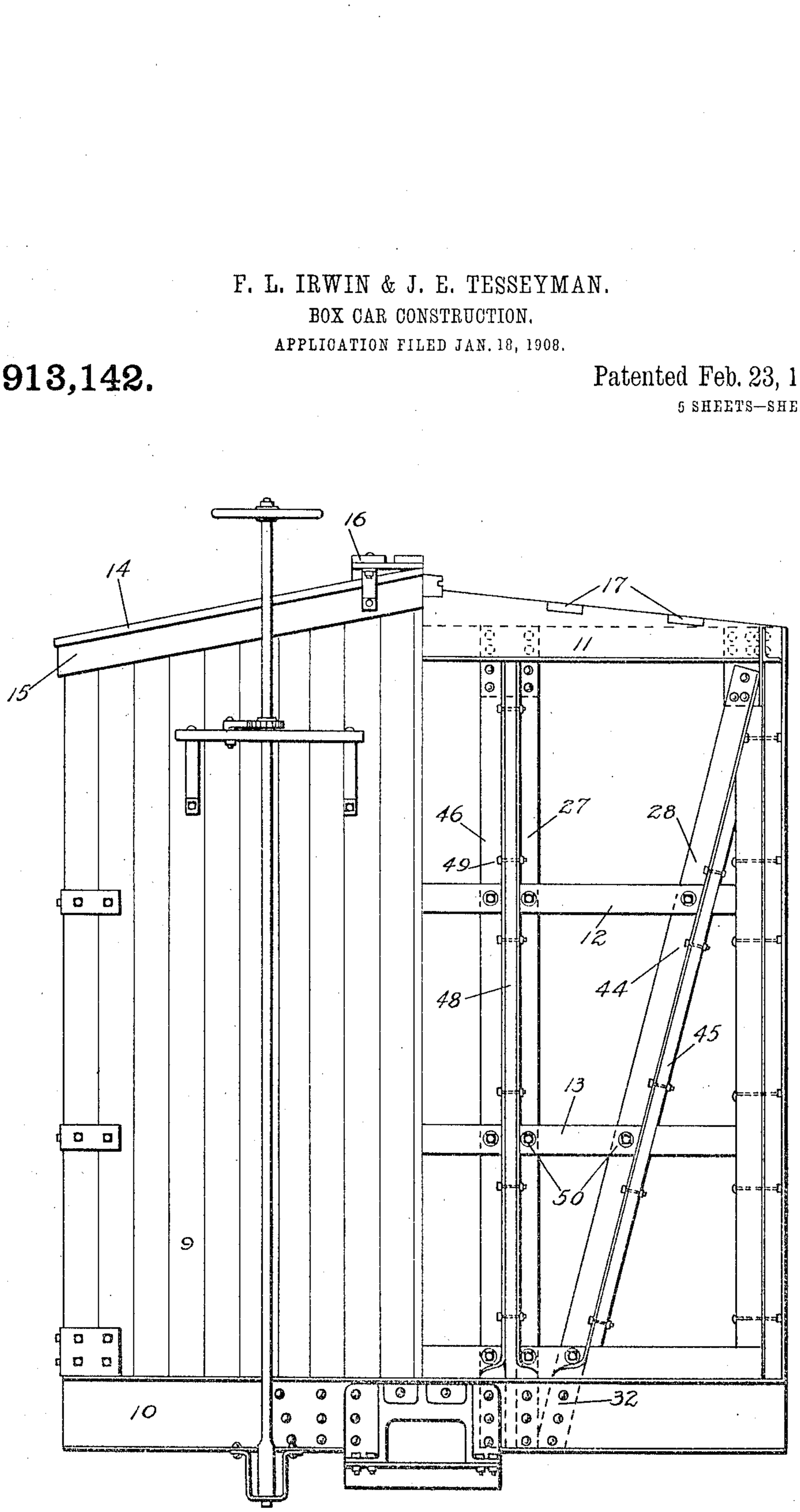

Fig. 2.

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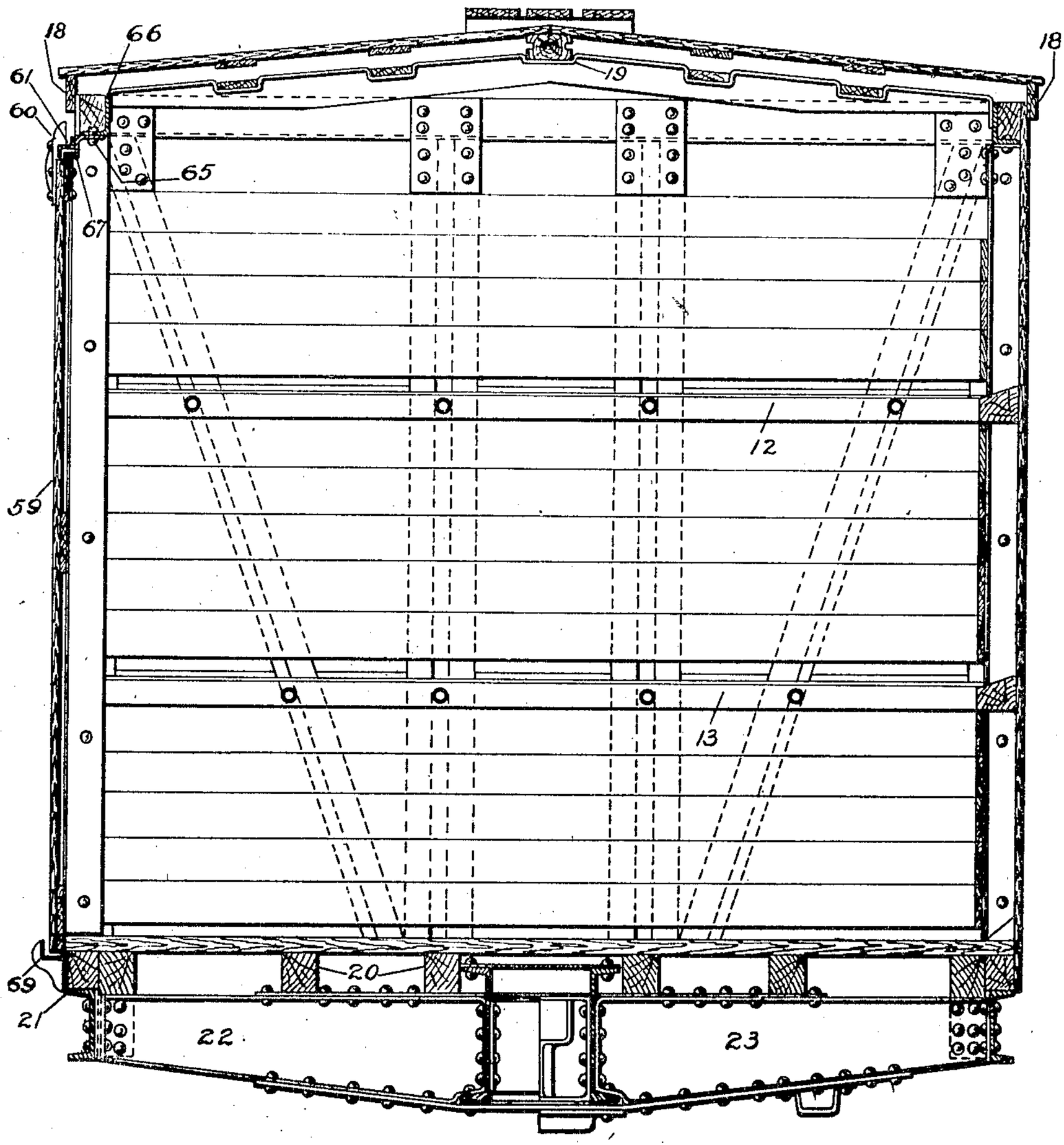

Fig. 3.

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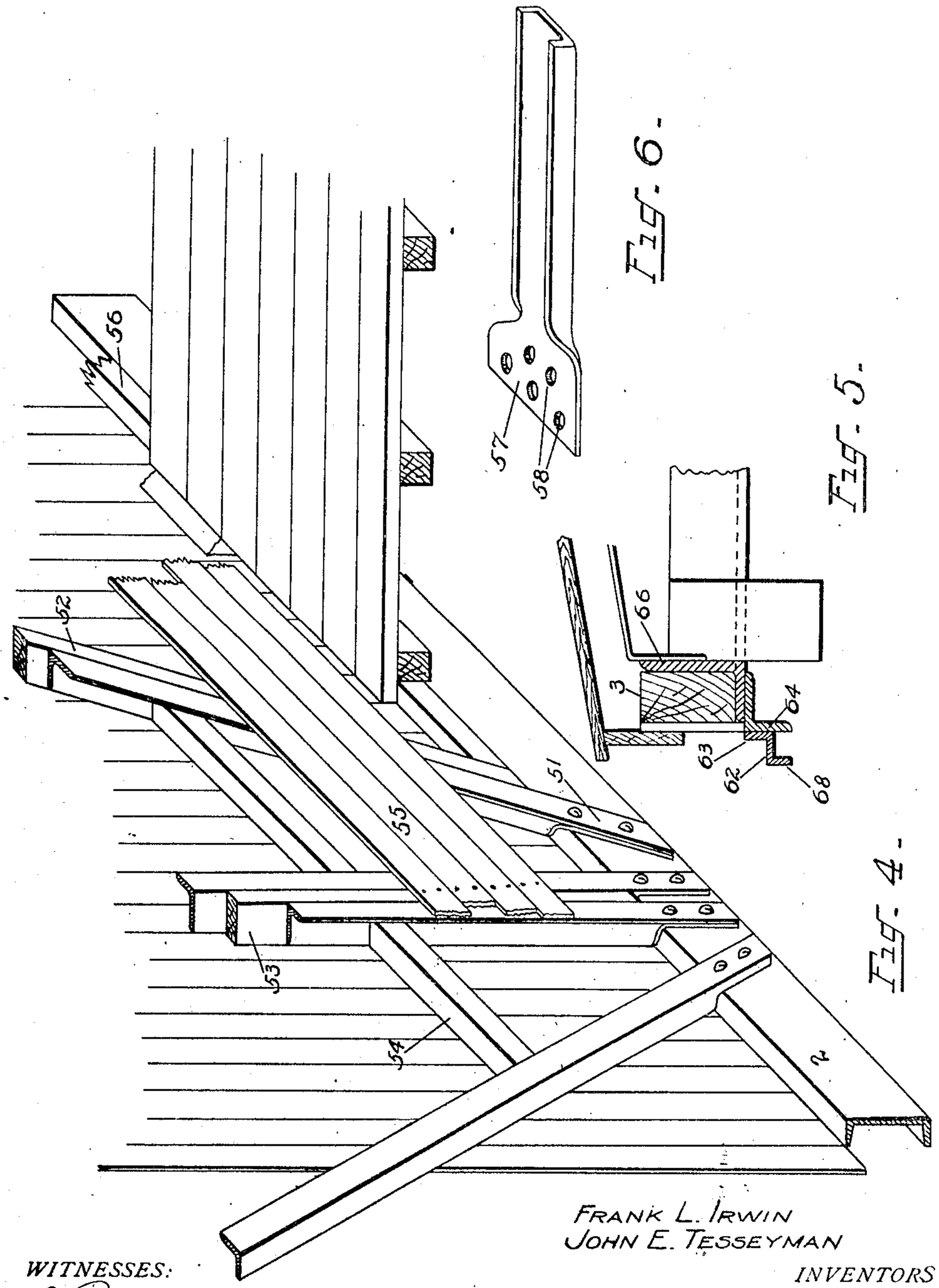

Fig. 4.

Fig. 6.

Fig. 5.

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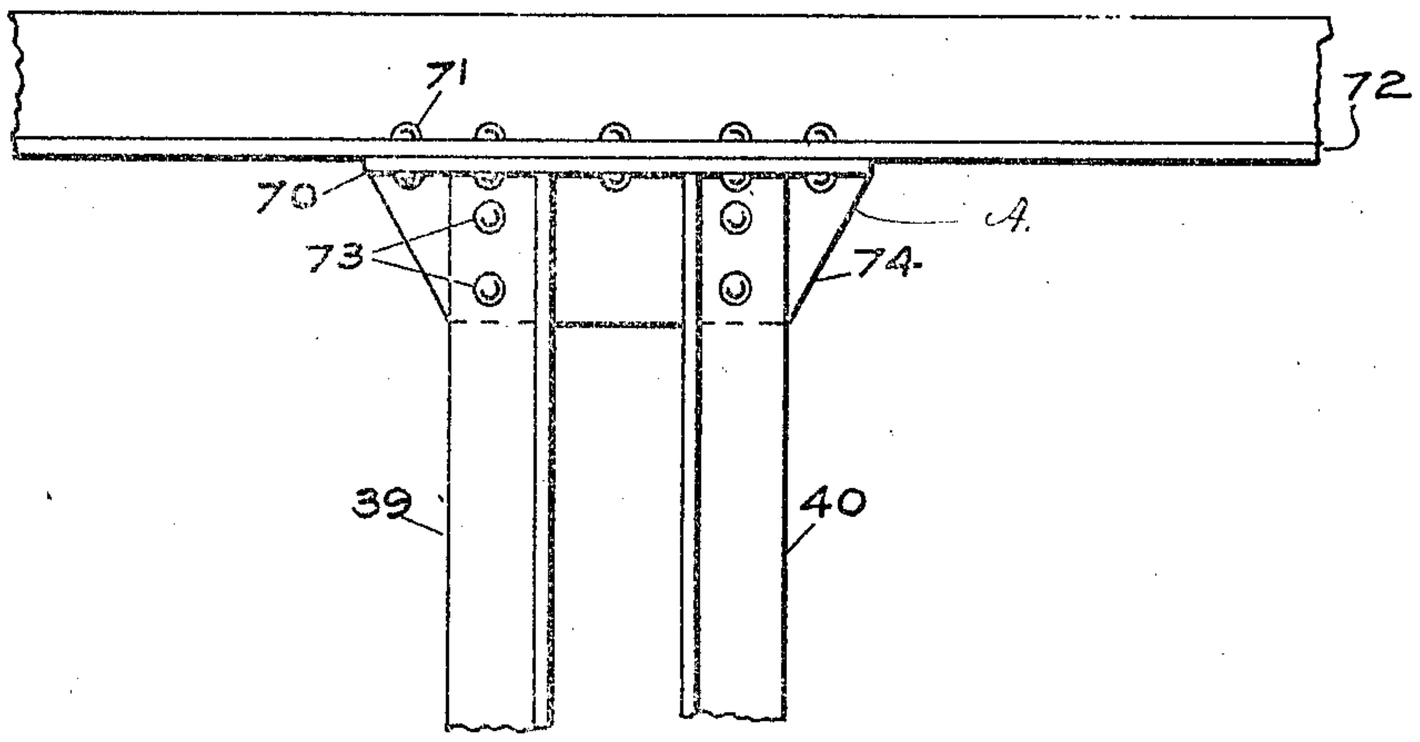

Fig. 7.

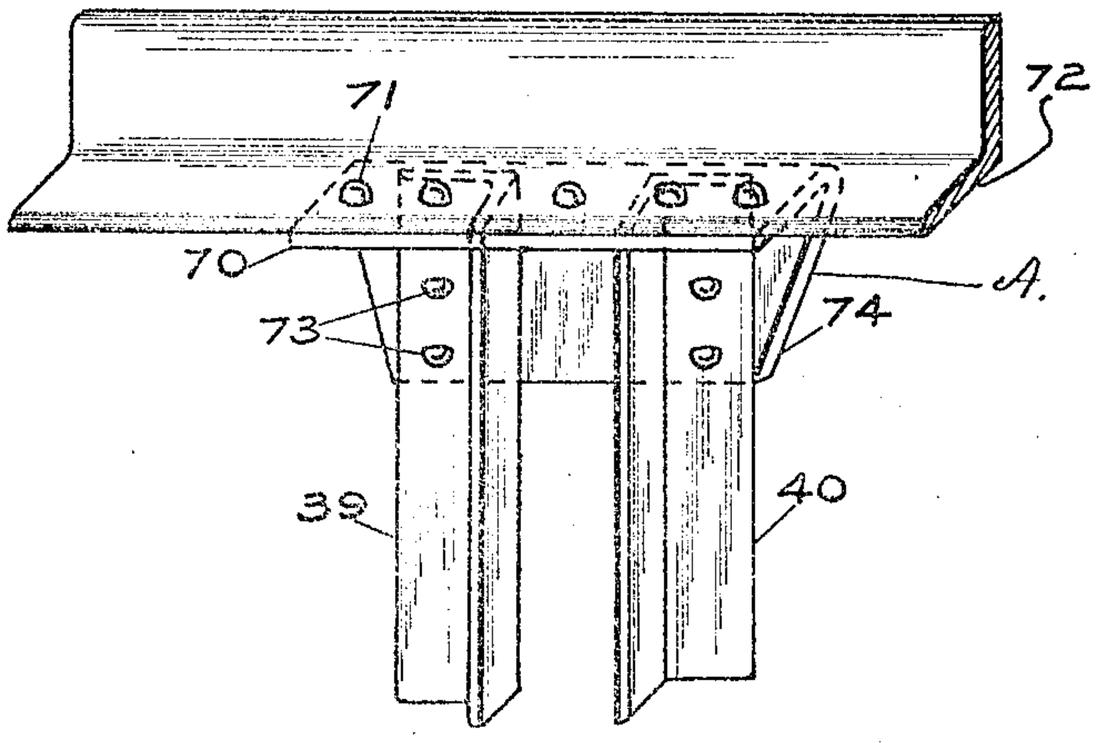

Fig. 8

WITNESSES:

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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.

BOX-CAR CONSTRUCTION.

No. 913,142. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed January 18, 1908. Serial No. 411,518.

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 Box-Car Constructions, of which the following is a specification.

Our invention relates to improvements in the construction of box car frames, and consists especially in the provision of greatly strengthened end posts and braces and side posts and braces.

It consists further in the provision of additional means for securing the lining thereto.

It consists further in the provision of improved means for securing the flooring thereto.

It further consists in the provision of an improved construction supporting and adjacent to the upper door track.

It further consists in the provision of all these parts and combinations thereof in a form which is greatly simplified and which may be provided at less expense than has hitherto been possible, and which is further of greater strength than the usual box car construction.

Referring to the accompanying drawings which are hereto attached and hereby made a part of this specification, Figure 1 is a side view of approximately one-half of a car box having our improved frame construction embodied therein; Fig. 2 is an end view of a car box with the sheathing removed from one side thereof to disclose our improved end frame construction; Fig. 3 is a transverse section through a car box having our improvements thereon, at a cross bearer on the left and at a bolster on the right; in this figure is disclosed our improved construction for strengthening the support for the upper door track; Fig. 4 is a perspective of a portion of the interior of one side of a car box having our improved frame construction therein, being partly in section; Fig. 5, is an enlarged view of the construction shown at the door hanger in Fig. 3; Fig. 6 is a modification of the frame pieces used for braces and for posts, being a channel instead of the angle shown in the various figures herein; Fig. 7 is a detail of the member shown at A in Fig. 1, in place, the frame parts being broken away, and Fig. 8 is a view of the same construction shown in Fig. 7.

Referring to the drawings in which the same character indicates the same part throughout, 1 is the center sill of the underframe construction, 2 is the side sill, 3 is the side plate, 4 is the floor, 5 is the lining, 6 and 7 are side belt rails or girths, 8 is the end of the carline, 9 is the end sheathing, 10 is the end sill, 11 is the end plate, 12 and 13 are end belt rails, 14 is the roof, 15 is the end fascia, 16 is the running board, 17 designates the purlins, 18 is the side fascia, 19 is the ridge pole, 20 designates the stringers, 21 designates the side nailing strip, 22 the cross-bearer and 23 the bolster.

The side and end frames of our improved car box comprise the side posts 24, the braces 25 and counter brace 26, and the end posts shown at 27 and end braces shown at 28; to the plate 3 are secured by means of rivets or in some other preferable manner the depending plate members 29 to which are secured the upper ends of the posts and braces above mentioned. These posts and braces, it will be noted, are formed of angles, and where the same are secured to the plate above or the side sill 2 below, one flange of the angle is bent laterally upon the other thereby forming the end of double thickness, as clearly appears at 30, and the rivets 31 are inserted through this double portion and the plate or side sill, thereby providing a stronger construction. The same formation of the ends of the posts and braces is also noted at the end of the car in Fig. 2 at 32. Secured to the flange 33 of the brace 25, and similarly to the posts, is a wooden member or strip 34, preferably bolted to the flange 33 as shown at 35, and to this member 34 we contemplate nailing the inside lining. Other occurrences of this wooden strip secured to the post or brace may be seen, for instance, at 36 and 37. Upon the post 24 at the door opening we secure the wooden strip 38 to which the ends of the lining may be nailed or secured.

At the bolster we provide preferably a pair of posts 39 and 40, and between the same position a wooden member 41 and secure the same to the adjacent angle posts 39 and 40 by means of the bolts shown at 42; the member A, which is formed by bending a sheet of metal at a right angle, is secured

through its flange 70 with rivets 71 to the flange 72 of the plate 3. The upper ends of the posts 39 and 40 are secured by rivets or bolts 73 to the depending flange 74. The belt rails 6 and 7 are secured to the posts and braces preferably by means of bolts 43.

At the end of the car a similar construction to the one just described for the side frame is shown, in which the brace 28 has secured thereto by means of the bolts 44 the wooden nailing strip 45, and between the pair of posts 27 and 46, we position the wooden nailing member 48 and secure the same to the adjacent posts by means of the bolts 49; the end belt rails 12 and 13 are secured to the posts and braces by means preferably of bolts shown at 50.

A clearer idea of the manner of securing the braces and posts to the side sill can be obtained from Fig. 4, the angle being shown bent to form a double securing portion at 51, the wooden nailing strip attached to said post being shown at 52, and the wooden nailing strip interposed between the posts being shown at 53, the belt rail appearing at 54; the lining is shown at 55, and the nailing strip positioned upon the side sill appears at 56.

In Fig. 6 we have shown a channel used instead of an angle for the post or brace, the channel at its ends being flattened as shown at 57 and perforated at 58 for the insertion of bolts or rivets to secure the same to the plate or side sill; in this construction the wooden nailing strip may be laid within the channel and secured thereto by means of bolts inserted therethrough, which construction it is not deemed necessary to show.

The door of the car is shown in Fig. 3 at 59, the hanger appearing at 60, the upper door track at 61, the latter being formed of a double angle or Z-bar 62, (see Fig. 5) secured through the flange portion 63 to angle 64. The latter is secured at 65 to the plate angle 66, the latter positioned against the inner and lower faces of the side plate 3. The angle 64 is positioned in the upper side of the side car door frame and at its ends abuts against the side posts of the door frame. It is seen that the formation of the door opening intercepts the truss construction of posts and braces, and consequently weakens the side frame of the car box at the middle portion thereof where it is least fortified against such weakening and where the load would therefore produce the greatest comparative stress.

By the introduction of the angle 64 a bracing construction is formed of the side door posts and the plate angle, reinforced by the angle 64. Not only is the bracing construction for the side of the car box formed thereby, but the supporting structure for the door itself is reinforced, and the door track is secured in a metallic support instead of the usual wooden one. The door is guided on the upper track 61 by positioning the top of the door 67 against the inner face of the depending flange 68 of the Z-bar 62; the door hanger sheave passes over the track 61 and the engagement of the upper edge of the door with the inner face of the flange 68 prevents the hanger from moving laterally away from the track. At its lower end the door is positioned on the inner side of the angular bracket 69, by which it is prevented from swinging outwardly away from the car thereby tending to remove the door from its upper track. It is seen that this construction for hanging the door and maintaining its weight is strongly braced and durable, and yet is formed of angles so disposed with respect to each other, and so connected together, that the construction has great simplicity as well as efficiency.

The foregoing description will make it clear that cur car box frame is formed with its posts and braces of angle irons or channel irons, thereby producing a structure which will withstand the effects of severe usage for a long time without need of repairs; and further, wooden members are secured to the metallic posts and braces at appropriate intervals for securing the sheathing or lining thereto; and further, that nailing strips are secured upon the posts and braces, to which the lining of the car is secured; and further, the metallic angles are doubled at the portion where the same are secured to the sills or plates, thereby producing a greatly strengthened construction at these points to obviate shearing, which effect is likely to be produced where metallic bodies are secured together by means of bolts or rivets; and further, the improved construction for supporting the door and bracing the car box at its middle point is also a valuable feature of our improvements.

What we claim is:

1. A car box frame including a wooden plate, an angle engaging the same at its side and bottom faces, an angle secured upon the lower side of said plate through said first mentioned angle, and an upper track secured to said second angle, upon which a movable door is adapted to be hung.

2. In a car box a frame including a plate along the upper side of said box, a metallic member engaging said plate upon one side and the bottom thereof and forming a support and reinforcement for said plate, an angle secured along the under face of said metallic member, and a metallic member secured to a flange of said angle, said metallic member providing a track upon which a movable door is adapted to be moved and operated and a guide thereon for said door.

3. In a car box frame having a door opening therein, a side plate, posts positioned at

the sides of said opening and secured at their upper ends to said plate, a reinforcing member abutting against said posts and united throughout its length to said plate to form a bracing construction for said car box at the door opening thereon, and a door supporting member secured to said reinforcing member.

4. In a car box frame having a door opening therein, a side plate, posts positioned at the sides of said opening and secured at their upper ends to said plate, a reinforcing angle secured to said posts at its ends and to said plate throughout its length, and a Z-bar secured to said reinforcing angle to form a track for said door.

5. In a car box, a frame having sills and plates, angle braces and posts having reinforced ends formed by folding one flange of said angle upon the other, and means for securing the said folded ends to said sills and plates.

6. In a car box frame, a plate, a sill, an angular member having one flange secured to the underside of said plate, an angle post secured to said depending flange at its upper end and folded at its lower end, and secured through said fold to said sill.

7. In a car box frame, a plate, a sill, an angular member having one flange secured to the underside of said plate and the other flange depending from said plate, a pair of angle posts spaced apart and secured at their upper ends to said depending flange and folded at their lower ends, and secured through said folds to said sill, and a wooden member positioned between said angle posts and bolted thereto.

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

FRANK L. IRWIN.
JOHN E. TESSEYMAN.

Witnesses:
GEO. W. RIGHTMIRE,
A. RAGER.