No. 774,967. PATENTED NOV. 15, 1904.

G. I. KING.

CAR CONSTRUCTION.

APPLICATION FILED JULY 20, 1904.

NO MODEL. 5 SHEETS—SHEET 1.

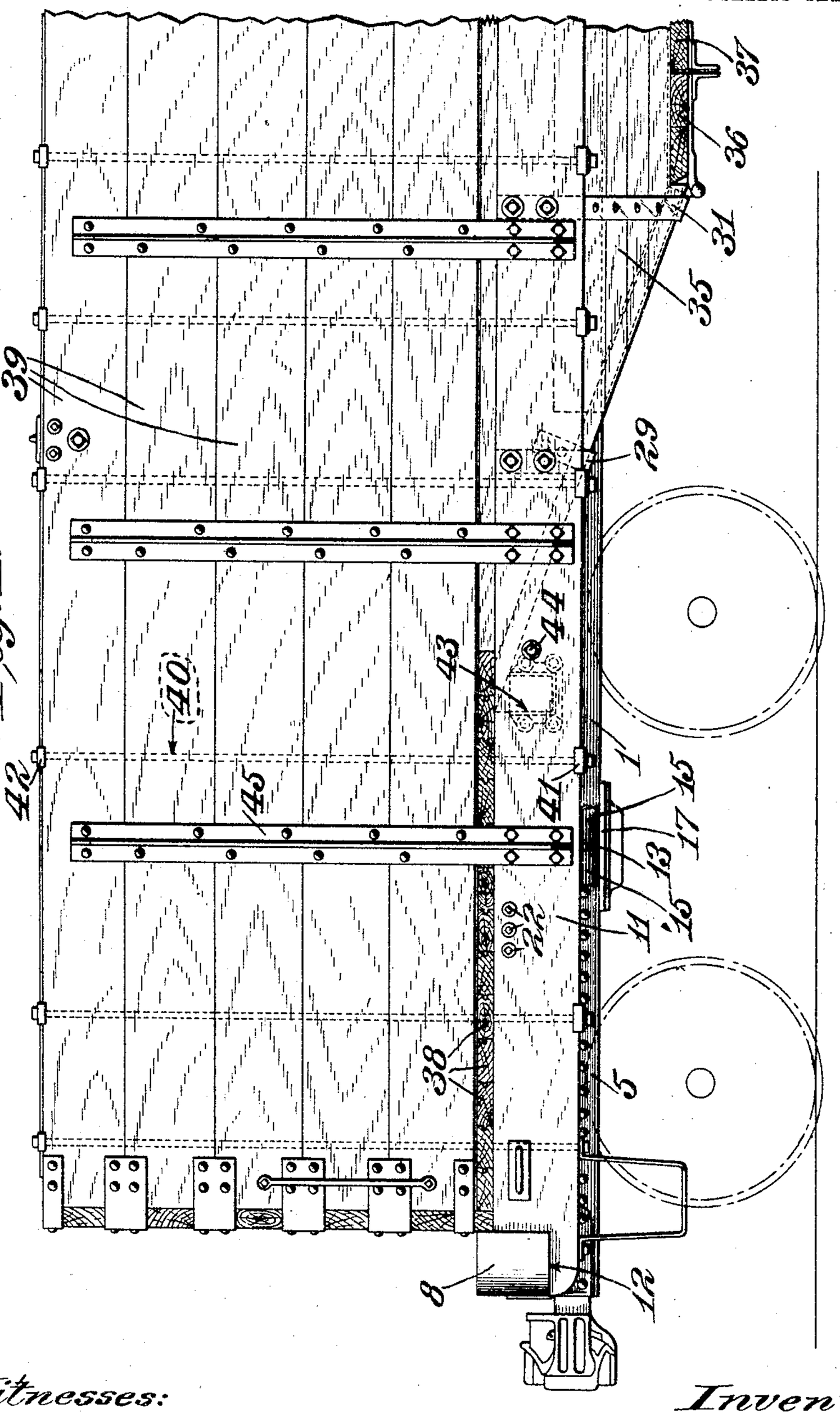

Fig. 1.

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B. F. Funk

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Attys.

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NO MODEL. 5 SHEETS—SHEET 2.

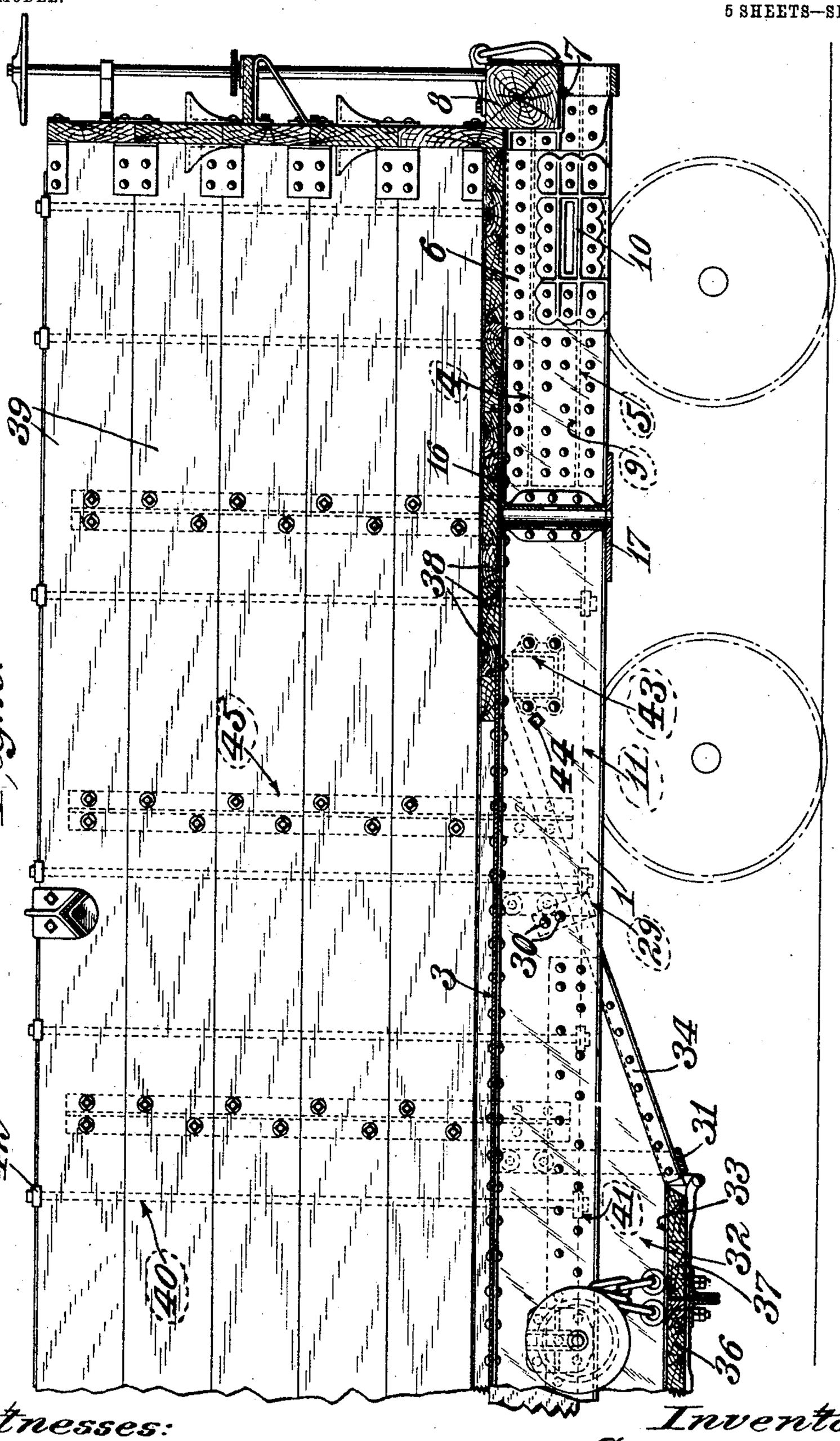

Fig. 2.

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NO MODEL. 5 SHEETS—SHEET 3.

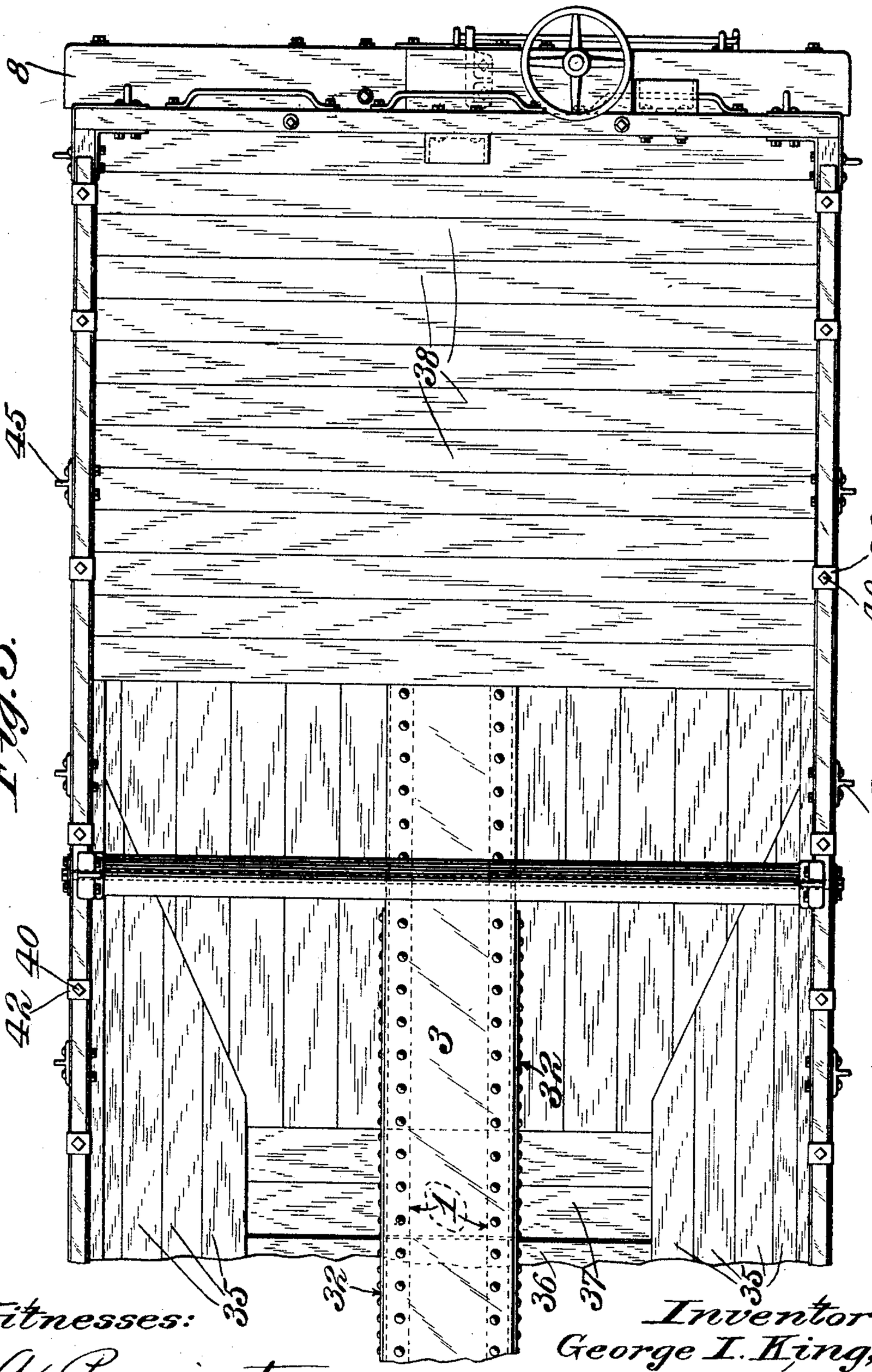

Fig. 3.

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NO MODEL. 5 SHEETS—SHEET 4.

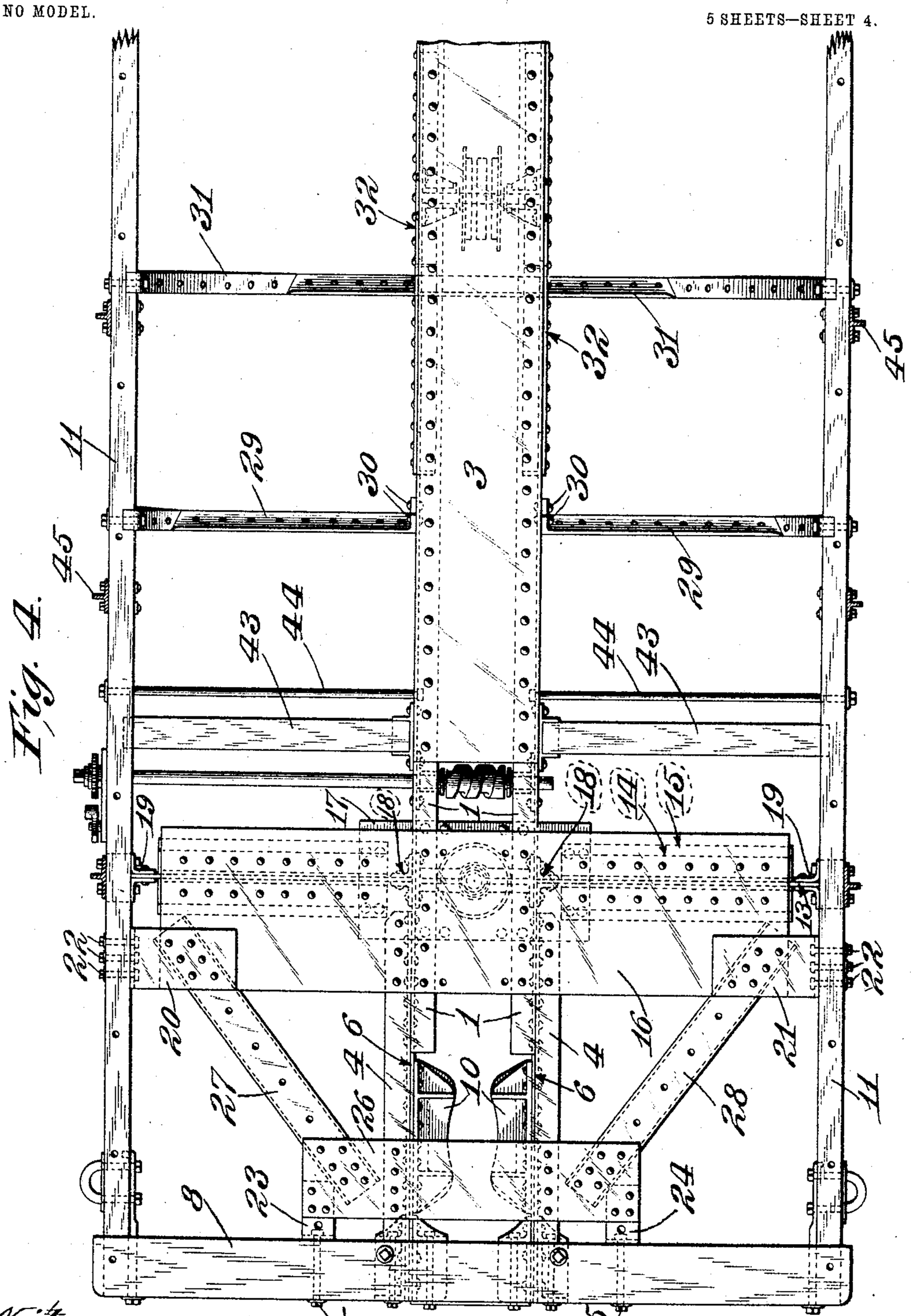

Fig. 4.

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NO MODEL. 5 SHEETS—SHEET 5.

Fig. 5.

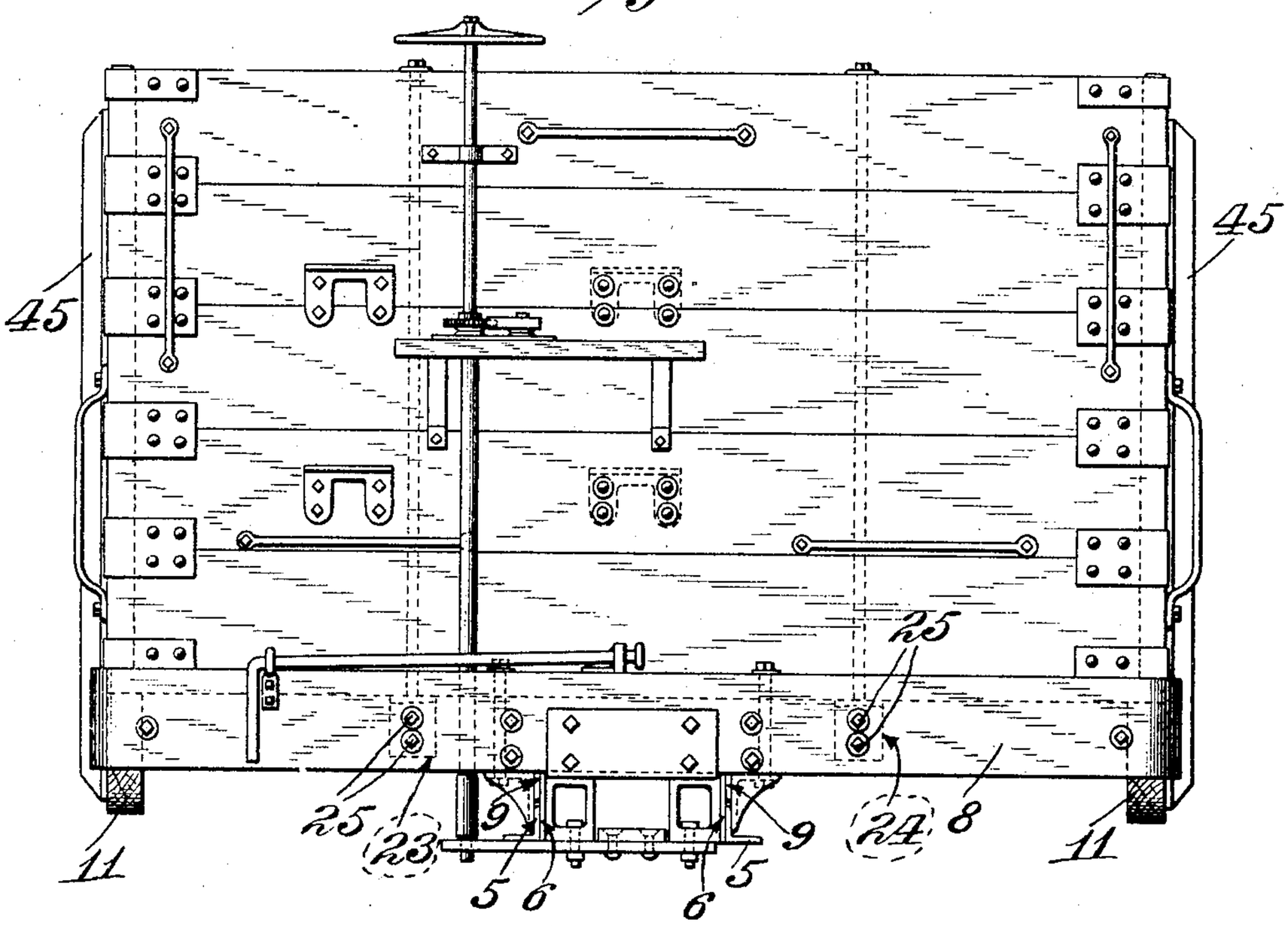


Fig. 6.

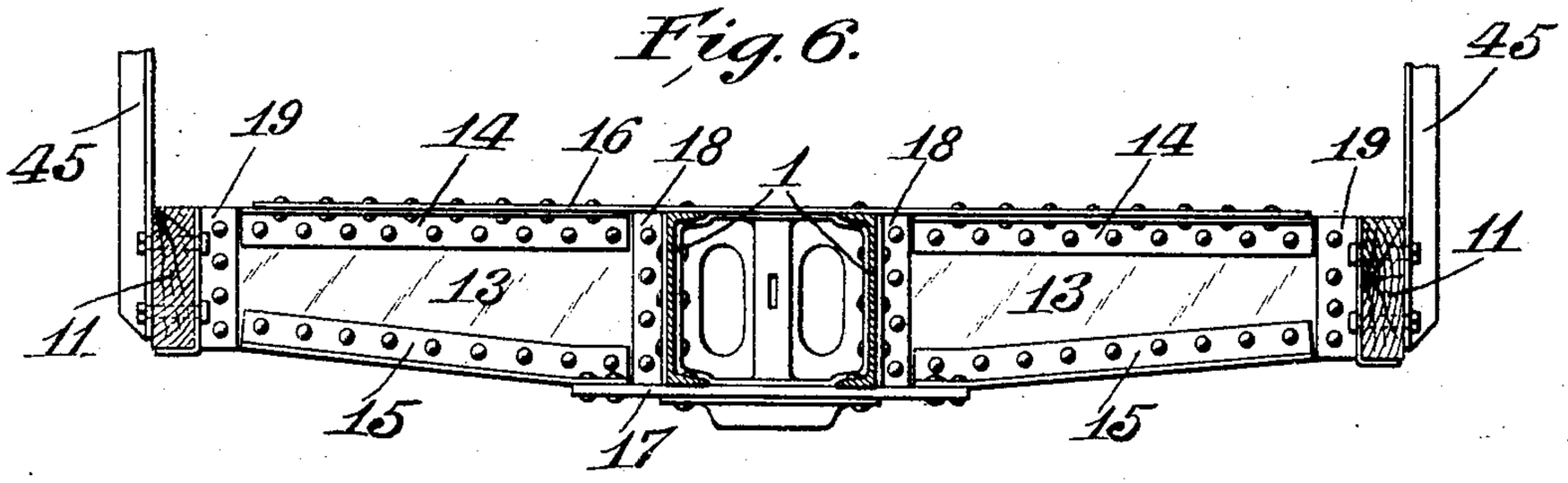
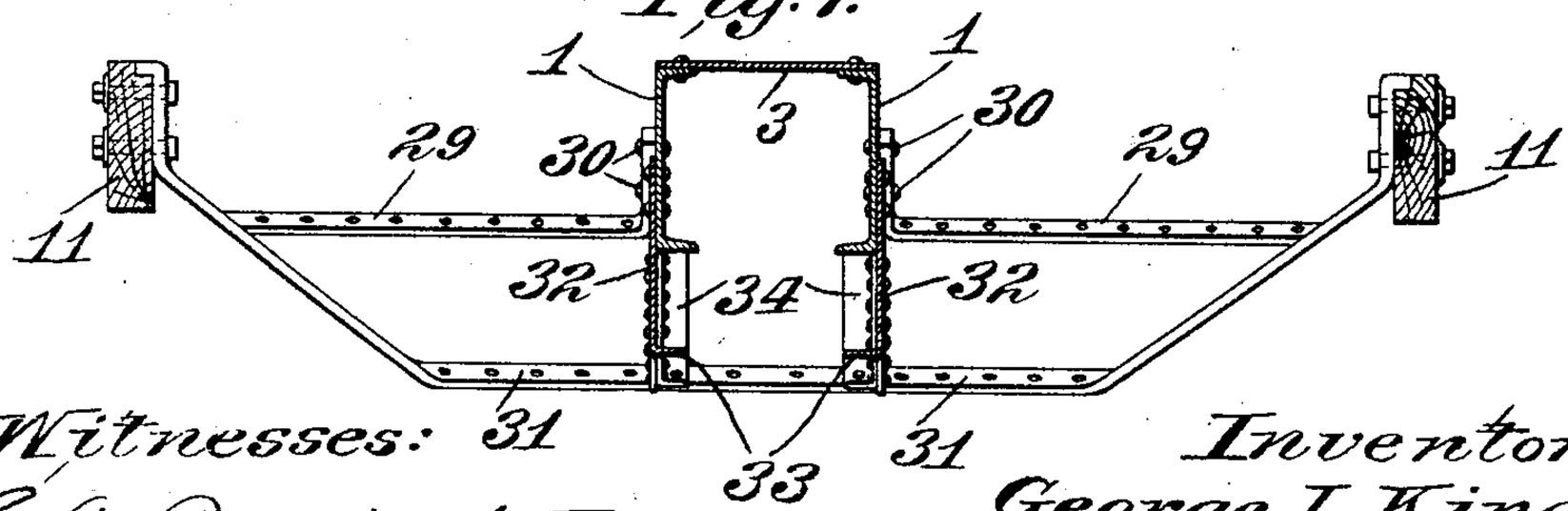


Fig. 7.



Witnesses:
G. A. Pennington
B. F. Funk

Inventor:
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No. 774,967. Patented November 15, 1904.

UNITED STATES PATENT OFFICE.

GEORGE I. KING, OF MIDDLETOWN, PENNSYLVANIA.

CAR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 774,967, dated November 15, 1904.

Application filed July 20, 1904. Serial No. 217,419. (No model.)

To all whom it may concern:

Be it known that I, GEORGE I. KING, a citizen of the United States, residing at Middletown, Dauphin county, Pennsylvania, have invented a certain new and useful Improvement in Car Constructions, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view of one end of a car constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view through a portion of said car. Fig. 3 is a top plan view of the same. Fig. 4 is a plan view of the underframing. Fig. 5 is an end view of the car. Fig. 6 is a cross-sectional view through the car immediately in front of one of the bolsters, and Fig. 7 is a detail view of the hopper-slings.

This invention relates to a new and useful improvement in car constructions.

The primary object of the invention is to provide a car possessing requisite strength, durability, and efficiency which may be conveniently constructed of metal and wood, the parts being assembled so as to avoid excessive corrosion of the steel portions and at the same time enable repairs to be made at a minimum cost for labor and material.

The center sill is illustrated as comprising two channels 1 1, the flanges of which are inturned and the top flanges are secured to a top cover-plate 3, which terminates short of the respective bolsters. The ends of the channels 1 1 extend through the bolsters, but terminate short of the end sills of the car, the ends of the channels being connected to the end sills by the top and bottom angles 4 and 5, having outwardly-disposed flanges, the vertical flanges of the angles being fastened to a plate 6, which extends to the end sills and is cut away to partly form a seat 7 for the end sills 8, which end sills preferably consist of wooden beams. The edges of the vertical legs of the angles 4 and 5 lie adjacent to a filler-plate 9, which is riveted to the web of its center-sill channel member and to the plate 6. The purpose of so constructing the center sill is primarily to facilitate repairs to bent or broken sills where the damage is done between the end sill and bolster.

11 11 designate the side sills, which are illustrated as being of wood, said side sills having tenoned portions cut away to form seats 12 for the reception of the end sills 8. The bolsters are illustrated as comprising web-plates 13, at the top and lower edges of which are the angles 14 and 15, respectively, said bolsters being provided with top and bottom cover-plates, (designated by the numerals 16 and 17.) The webs of the bolsters are secured to the center sill by the tie-plates 18 and to the side sills by the tie-plates 19.

The top cover-plate of each bolster consists of an approximately rectangular plate, the ends of which are spaced away from the side sills. The corners of the cover-plate nearest the ends of the car are connected to the side sills, however, by tie-plates 20 and 21, having downwardly-projecting flanges, which lie adjacent to the side sills and which are secured thereto by the fastening devices (illustrated as bolts) 22. Tie-plates similar to those designated by the reference-numerals 20 and 21 are secured to the end sills and are designated by the numerals 23 and 24. These tie-plates are fastened to the end sills by bolts 25. A transversely-disposed plate 26 is secured to the top angles 4 of the center-sill channels and is connected to the end sills by the tie-plates 23 and 24. The longitudinal edge of said plate nearest to the end sill may be spaced away therefrom. The plates 16 and 26 are connected together by the diagonal braces 27 and 28, which converge toward the longitudinal center of the car at the end sill. Since the wood floor lies upon the steel frame, the tie-plates 20, 21, 23, and 24 are employed to support the overhanging ends of the bolster-cover 16 and center-sill plate 26.

The centrally-disposed hopper which is provided for the car is supported in suitable slings. The slings which are farthest from the transverse center of the car are designated by the reference-numeral 29. These slings extend from the side sill to the center sill and are fastened to the outer side of the center sill by suitable rivets 30, the opposite ends of

the slings being parallel with the sides and top of the side sills and bolted thereto. Those slings which are positioned at points adjacent to the doors of the hopper are designated by the numeral 31. These slings extend from side sill to side sill and pass below the center sills, but are connected thereto by the center hopper-plates, (designated by the numeral 32.) These hopper-plates are riveted to the center sill, being carried by the respective channels, and are provided with approximately horizontal flanged edges 33, against which the doors may abut when the hopper is closed. The inclined edges of the hopper are also flanged and strengthened by the angles 34, which are riveted thereto. The outer sides of the hoppers consist of a plurality of planks 35, which are fastened to the slings.

36 and 37 designate the doors, which are of usual construction.

38 designates the transverse flooring-strips, which are suitably fastened to the side sills. The sides of the car are composed of a plurality of longitudinally-disposed wooden sections 39, through which the tie-rods 40 pass, said tie-rods also passing through the side sills and having nuts bearing against washers 41, similar washers 42 saddling the top edges of the uppermost side section. The ends of the car are similarly constructed.

43 designates spacing-beams which are tenoned into the side sills and rest in pockets secured to the center sill. These beams assist in preventing warping of the side sills in one direction, and the tie-rods 44 assist in preventing warping in the opposite direction, said beams and tie-rods materially strengthening the car.

45 designates one of the upper side braces, of which there may be a suitable number.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. An underframing for cars comprising side sills and end sills, center sills consisting of channels which terminate short of the end sills, the flanges of the center sills being turned inwardly, outwardly-disposed connecting devices for connecting the end sills to the center sills, said devices having outwardly-disposed flanges, and plates connected to the channels of the center sills and to the end sills as well as to the connecting devices; substantially as described.

2. In an underframing for cars, the combination with channeled center sills terminating short of the length of the car, angles connected to the webs of the channels, plates connected to the angles and to the webs of the center sills, said plates having portions of their ends cut away to form end-sill seats, end sills in the seats, and side sills connecting the end sills; substantially as described.

3. In an underframing for cars, the combination with end sills, side sills, and center sills, including bolsters, a top cover-plate for each bolster and shorter than the distance between the side sills, tie-plates connecting the ends of the cover-plates to the side sills, and diagonal braces connected to the cover-plate and converging toward the center sills; substantially as described.

4. In an underframing for cars, the combination with end sills, side sills, and center sills, including bolsters, a top cover-plate for each bolster and shorter than the distance between the side sills, tie-plates connecting the ends of the cover-plates to the side sills, diagonal braces connected to the cover-plate and converging toward the center sills, and a second plate positioned between each bolster and the adjacent end of the car, said plate being secured to the diagonal braces; substantially as described.

5. In an underframing for cars, the combination with end sills, side sills, and center sills, including bolsters, a top cover-plate for each bolster and shorter than the distance between the side sills, tie-plates connecting the ends of the cover-plates to the side sills, diagonal braces connected to the cover-plate and converging toward the center sills, a second plate positioned between each bolster and the adjacent end of the car, said plate being secured to the diagonal braces, and means for securing the corners of the second plate to the end sill; substantially as described.

6. In an underframing for cars, the combination with side sills, center sills and end sills, two sets of hopper-slings, each set comprising sling members one of which extends from side sill to side sill, hopper-plates connected to the center sills and to the sling, and coöperating slings connected to the side sills and the webs of the center sills; substantially as described.

7. An underframing for cars comprising center sills having inturned flanges, a cover-plate connected to the flanges, side sills, end sills, beams interposed between the side sills and center sills, the ends of the beams being mortised in the side sills, and connecting-rods projecting through the webs of the center sills and through the side sills; substantially as described.

8. A metallic frame for cars, consisting of center sills, side sills, bolsters and end sills, and extensions on the ends of the center sills and side sills having seats for the reception of the end sills; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 9th day of July, 1904.

GEORGE I. KING.

Witnesses:
WM. A. CROLL,
JOHN H. FRANK.