

(No Model.)

2 Sheets—Sheet 1.

G. W. LAMB & B. G. VAN DYKE.
CAR TRUCK.

No. 450,813.

Patented Apr. 21, 1891.

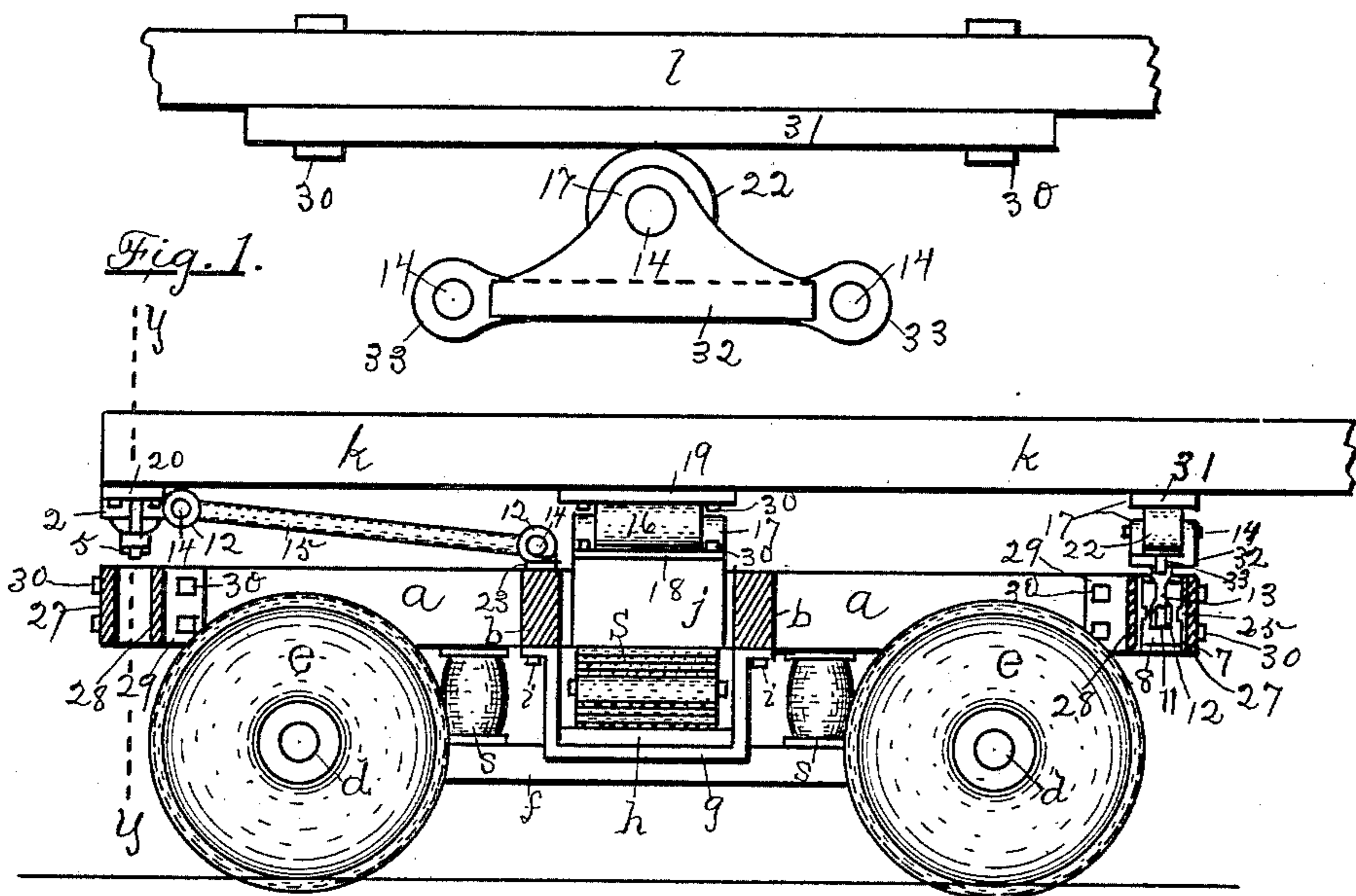


Fig. 1.

Fig. 2.

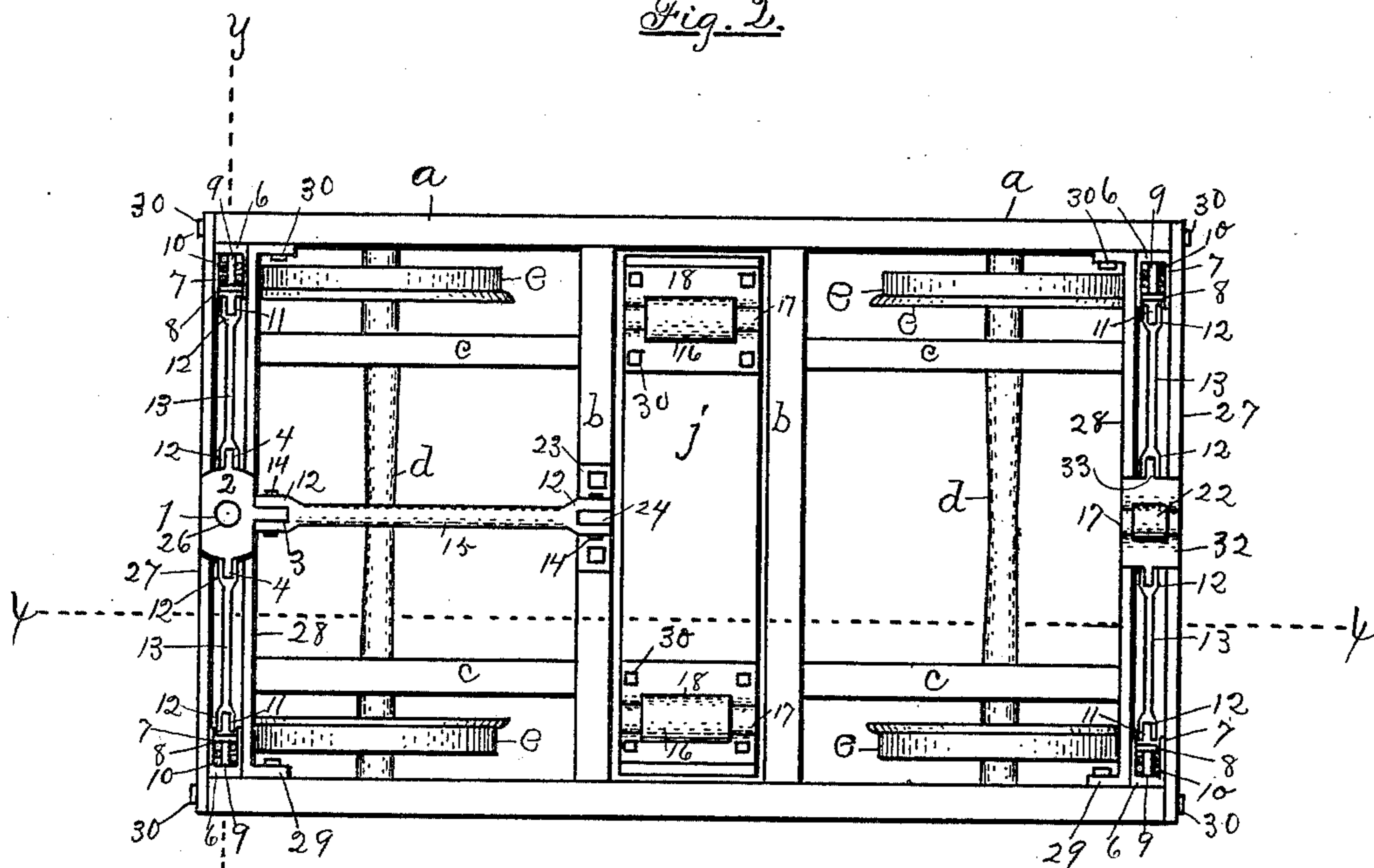


Fig. 3.

Witnesses

Henry F. Senger.
John Garlick

Inventors

Benjamin S. van Dyke,
George W. Lamb,

Attorney

E. P. Robbins, M. E.

(No Model.)

2 Sheets—Sheet 2.

G. W. LAMB & B. G. VAN DYKE.
CAR TRUCK.

No. 450,813.

Patented Apr. 21, 1891.

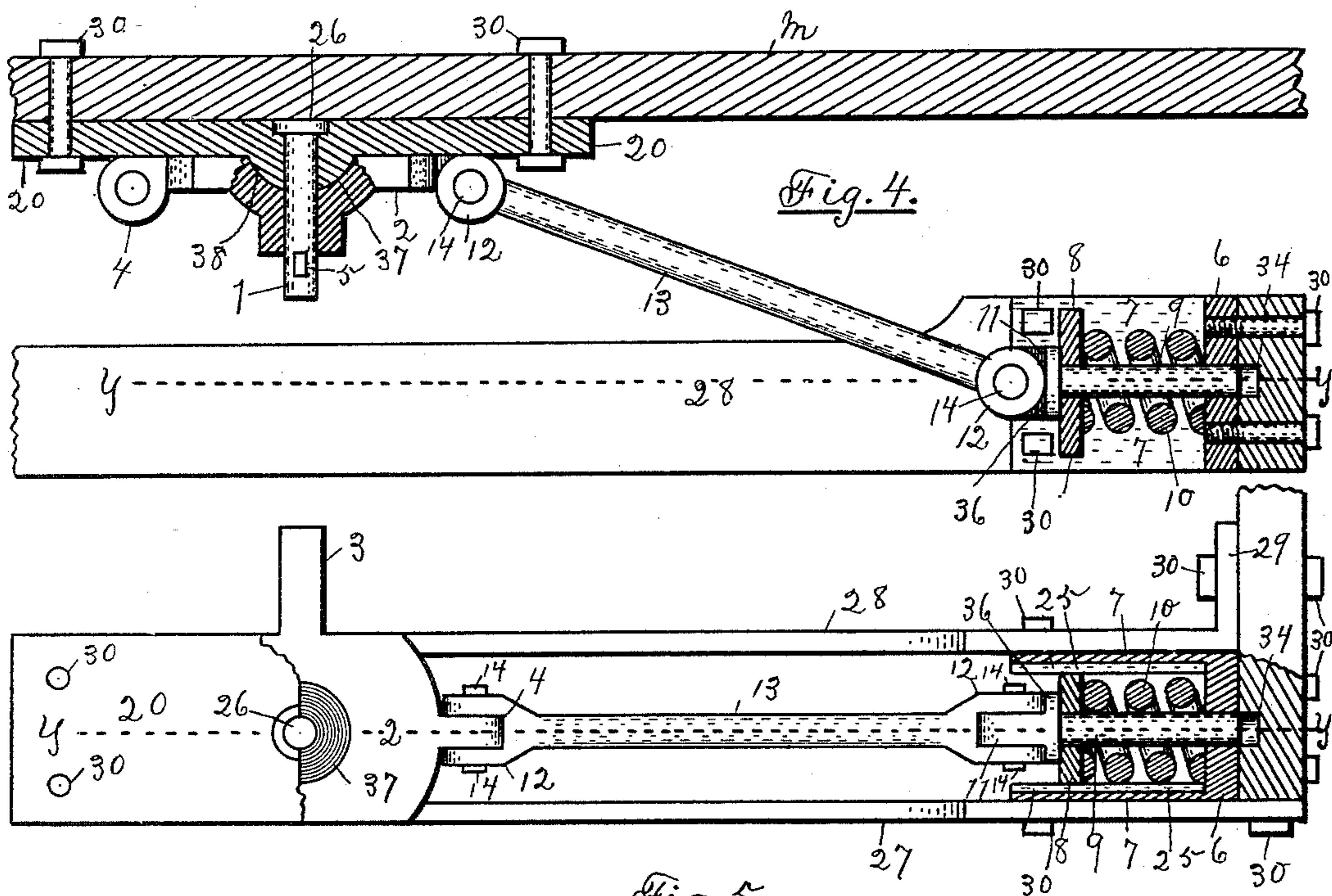


Fig. 5.

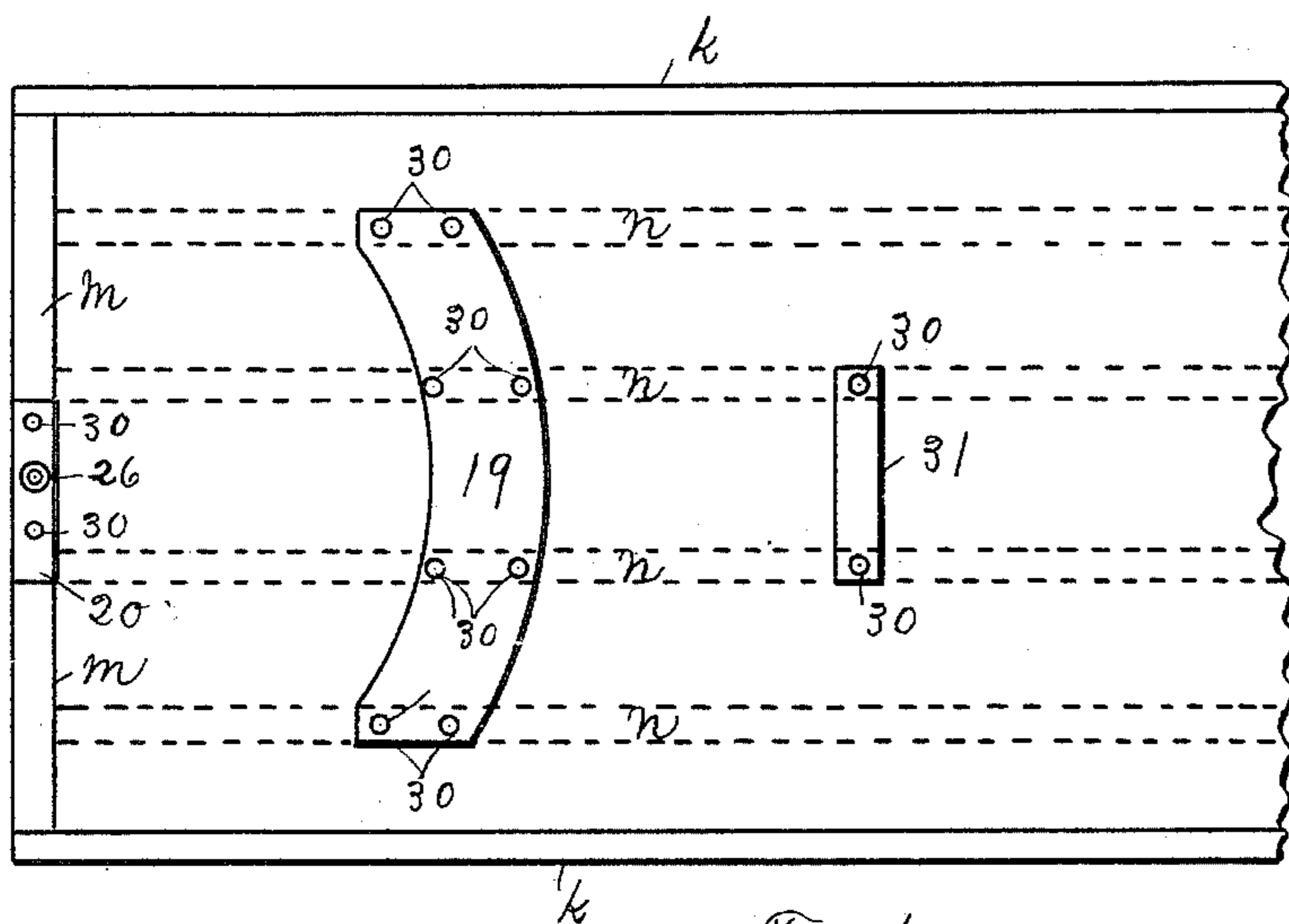


Fig. 6.

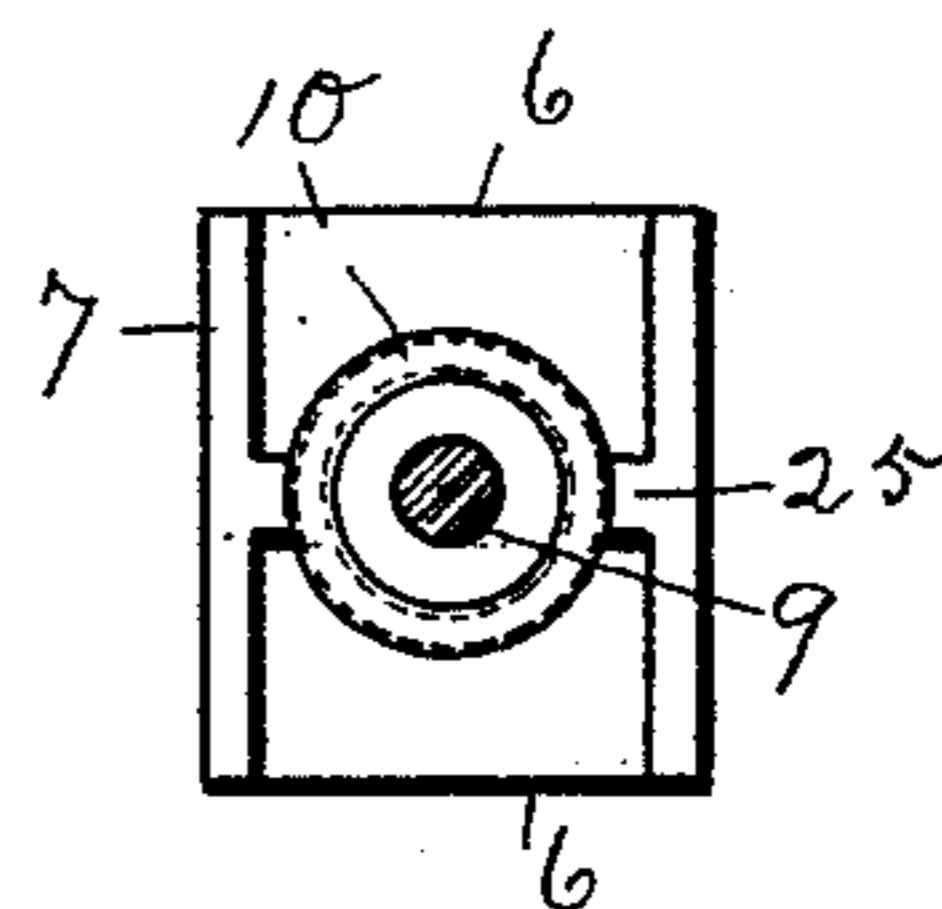


Fig. 7.

Witnesses

Henry F. Lenzel
John Garlick

Inventor

Benjamin S. van Dyke,
George W. Lamb,
Attorney
E. P. Robbins, M. E.

UNITED STATES PATENT OFFICE.

GEORGE W. LAMB, OF CUMMINSVILLE, AND BENJAMIN G. VAN DYKE, OF IVANHOE, ASSIGNORS OF ONE-THIRD TO CHARLES F. HESSER, OF NORWOOD, OHIO.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 450,813, dated April 21, 1891.

Application filed September 10, 1890. Serial No. 364,535. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. LAMB, of Cumminsville, and BENJAMIN G. VAN DYKE, of Ivanhoe, both in the county of Hamilton and State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Railway-Cars; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in railway-cars.

The object of our invention is to devise a new means for supporting a car-body upon the trucks in a pivotal manner.

Our invention consists in the use of a pivotal connection between the trucks and the car-body located at each end of the car instead of intermediate the ends, as is the case with cars heretofore constructed and used; also, in means providing for a central and uniform displacement of the weight of the car-body upon the truck-framing and freedom of lateral motion of the truck under the car-body; also, in means furnishing an elastic or yielding connection between the car-body and the truck-frame.

Figure 1 shows a detail of construction of a roller device. Fig. 2 is a side view of a car-truck and a portion of a car-body framing connected thereto, certain parts of the truck being in section along the plane $x x$, Fig. 3, and the safety-beams c being omitted. Fig. 3 is a top view of a truck having our improvements. Fig. 4 is a mid-sectional view of the end parts of a car-truck and car-body along the plane $y y$, Figs. 2, 3, and 5. Fig. 5 is a top view of the end parts of a car-truck and car-body, partly in section, along the plane $y y$, Fig. 4. Fig. 6 is a bottom view of one end of a car-body having our improvements. Fig. 7 shows a detail of construction.

Letters are used to indicate ordinary parts of a truck and a car-body. Numbers are used to indicate parts comprised in our improvements.

The same letters and numbers refer to the same parts in different figures.

a are the wheels, 27 and 28 the end sills,

b the transoms, c the safety-beams, j the bolster, d the axles, e the wheels, f the equalizing-bars, s the equalizing-bar springs, S the bolster-springs, h the spring-plank, and g the spring-bar hangers, of a truck.

k are the side sills, m the end sill, and n the intermediate sills, of a car-body.

Each end of a car-body is supported by the bolster of the truck; but the king-bolt is placed at the end of the car-body and directly over the end pieces of the truck-framing, as shown in Figs. 2 and 3. The parts, in combination with the king-bolt, are attached to and carried by the end sills m of the car-body, as shown in Figs. 2, 3, 4, 5, and 6. Rollers 16, Figs. 2 and 3, are attached to and carried by the bolster j , and a plate 19, Figs. 2, 3, and 6, is secured to the bottom of the car-body, which rests and rolls upon the rollers. A roller 22 is supported by the inner end of the truck-framing, and a plate 21, Figs. 2, 3, and 6, is attached to the bottom of the car-body and rests upon and rolls on the roller 22.

The above description gives a general idea of the essential features of the invention.

The invention will now be described in detail. The truck-framing ends are made of two parallel flat metal bars 27 and 28, attached at their ends to the ends of the wheel-pieces a . The piece 27 is placed exteriorly, and has its ends secured to the ends of the wheel-pieces a by bolts 30. The piece 28 is placed within the piece 27, and has elbows 29 at its ends secured to the insides of the wheel-pieces a by bolts 30. The truck king-bolt plate 2 is supported and held in position by means of transverse links 13, hinged thereto at 4, and to a device between the end pieces 27 and 28 on each side and contiguous to the wheel-pieces a , Figs. 2, 3, 4, and 5. The device to which the outer ends of the link 13 is connected consists of a thick end part 6, secured to the inside of the wheel-piece a by bolts 30, Figs. 4 and 5, side extensions 7, Figs. 2, 3, 4, and 5, secured to the end pieces 27 and 28, a pin 9, having sliding bearings and a hinge-eye 11 at its inner end to hinge to the outer end of the link 13, a follower 8, and a spring 10. The parts 6 7 form a box or casing closed at the outer end and on the sides and open at the inner end and at top and bot-

tom and is made to fit the space between the end pieces 27 and 28. The sides 7 have horizontal central ledges 25, Figs. 1, 5, and 7, which support and guide the follower 8, secured on the pin 9, that has a boss 36 to retain the follower 8 in position. The outer end of the pin 9 slides in a hole in the end part 6, and a hole 34 is made in the wheel-piece *a* to allow the pin 9 to play freely in its bearings. A spring 10 is placed and held around the pin 9 between the end part 6 and the follower 8.

The truck king-bolt plate 2 has a hemispherical depression 37, concentric with the hole 26 for the king-bolt, into which fits and works the hemispherical projection 38 on the king-bolt plate 20, attached to the end sill *m* of the car-body. The plate 2 has side lugs 4, to which the inner ends of the links 13 are connected by means of pins 14, and also a lug 3 on its inner side. A link 15 is hinged to the lug 3 by a pin 14 and to a lug 24 on the casting 23, which is attached to the top side of the adjacent transom *b* by a pin 14. The king-bolt plate 20 is secured to the underside of the end sill *m* of the car-body by means of bolts 30, Figs. 1, 4, 5, and 6, and has a depression in its upper side for the head of the king-bolt. The king-bolt is held in place by means of a key 5, Figs. 2 and 4. The link 15 connects the car-body to the truck-framing and the pull and push forces are transmitted through the link 15.

A casting 18, Figs. 2 and 3, having a roller 16 turning in bearings 17 cast on the part 18, is secured on each end of the bolster *j* by bolts 30.

A circular plate 19, Figs. 2 and 6, is secured to the under side of the car-body by bolts 30. The plate 19 may be secured to the intermediate sills *n* by bolts 30, and may be made as shown, or two separate plates may be used, one for each roller 16.

A casting 32, Figs. 1, 2, and 3, has lugs 33, with hinge-eyes, to which links 13 connect by means of pins 14. The links 13 are hinged at their other ends to pins 9 of the devices above described as being secured between the end pieces 27 and 28, whereby the casting 32 is supported at the inner end of the truck. The casting 32 has bearings 17, in which the pin 14 of the roller 22 turns.

A plate 31, Figs. 1, 2, and 3, is secured to the under side of the car-body by bolts 30, Figs. 1 and 6, and rests on the rollers 22.

Fig. 7 shows an inner end view of the box or casing 6 7, ledges 25, pin 9, and spring 10.

The relative arrangement of the parts of the invention and the mode of operation can now be explained.

The object of the invention described is to locate the pivotal connections between the trucks and the car-body at points which will cause the least possible side swing of the car ends when running on curves. By placing the king-bolts at the ends of the car-body the ends of the car are moved more nearly coin-

cident with the lateral motions of the end wheels, the ends of the same car are kept more nearly in the line of the track, and the contiguous ends of adjacent cars are held closer together laterally. Such an arrangement and mode of operation enables the cars to run without sudden sidewise end swing, and consequent lateral rotation about the pivotal connections of the car and trucks, and hence conduces to safer, faster, easier, and more comfortable travel.

We claim—

1. The combination of a railway-car body, car-trucks, a pivotal connection between the car-body and the truck located eccentrically of the truck-center toward the adjacent end of the car, and supporting parts for the car-body attached to the truck-bolster and arranged to move freely laterally under the car-body, substantially as set forth.

2. The combination of a railway-car body, car-trucks, a pivotal connection between the car-body and the truck located eccentrically of the truck-center toward the adjacent end of the car, supporting parts for the car-body attached to the truck-bolster and arranged to move freely laterally under the car-body, a bearing part attached to the under side of the car-body, and rollers interposed between the truck-bolster and the said bearing part on the car-body, substantially as set forth.

3. The combination of a railway-car body, car-trucks, a pivotal connection between the car-body and the truck located eccentrically of the truck-center toward the adjacent end of the car, castings attached to the truck-bolster, rollers carried and supported by the said castings, and a plate secured to the under side of the car-body, the truck-bolster being arranged to move transversely under the car-body and the rollers furnishing rolling contact and intervening supporting means between the bolster and the said plate on the car-body, substantially as set forth.

4. The combination of a railway-car body, car-trucks, a pivotal connection between the car-body and the truck located eccentrically of the truck-center toward the adjacent end of the car, supporting parts for the car-body attached to the truck-bolster and arranged to move freely laterally under the car-body, and other supporting parts for the car-body attached to the inner end of the truck-framing and arranged to move freely laterally under the car-body, substantially as set forth.

5. The combination of a railway-car body, a king-bolt located at the end of the car-body, a supporting-truck king-bolt plate having integral lugs, transversely-sliding pins having bearing parts and bearings in the end corners of the truck-framing, truck-framing having bearing and supporting parts for the said pins, and links pivotally connecting the truck king-bolt plate with the said pins, substantially as set forth.

6. The combination of a railway-car body, a king-bolt located at the end of the car-body,

a supporting-truck king-bolt plate having integral lugs, a device secured to each corner of the truck-framing adjacent the end of the car, consisting of a casing, a pin held in and
5 sliding in the casing, a spring incasing the pin and a follower secured on the pin and held against the spring, and links pivoted to the truck king-bolt plate and the said pins, substantially as set forth.

10 7. The combination of a casing secured to the corner of a car-truck and having horizontal inwardly-projecting ledges, a follower-plate having side gaps engaging and sliding on the said ledges, a pin held in the follower-
15 plate and the end of the casing and having a hinge-eye exterior to the follower-plate and arranged to slide through the casing end, and a spring arranged between the follower-plate and the end of the casing, the device forming
20 a subcombination in means for pivotally connecting a car-body to its trucks, substantially as set forth.

8. The combination of a railway-car body, a king-bolt located at the end of the car-body,
25 a supporting-truck king-bolt plate having integral lugs, transversely-sliding pins having bearing parts and bearings in the end corners of the truck-framing, truck-framing having bearing and supporting parts for the said pins,
30 a casting having a hinge-eye secured to a cross truck-frame part adjacent the truck-bolster, and links connecting the truck king-bolt plate pivotally to the said pins and to the said casting on the cross-frame part, substantially as
35 set forth.

9. The combination of truck-framing having ordinary wheel-pieces and ends formed of two parallel flat metal bars secured, as described, to the ends of the wheel-pieces, sub-
40 stantially as set forth.

10. The combination of truck-framing hav-

ing ordinary wheel-pieces and ends formed of two parallel flat metal bars secured, as described, to the ends of the wheel-pieces, a car-
body supported thereon, a king-bolt plate at- 45 tached to the under side of the car-body, a supporting-truck king-bolt plate secured pivotally to the first by a king-bolt, transversely-sliding pins having bearings in casings located and secured in the end corners of the
50 truck-framing between and to the said parallel end pieces, and links pivotally connecting the said truck king-bolt plate with the said pins, substantially as set forth.

11. The combination of a railway-car body, 55 a truck having a central bolster, a king-bolt pivotally connecting the car-body to the truck-framing at the car end, rollers having bearings in castings attached to the bolster, and a bearing-plate attached to the under side of
60 the car-body and resting and moving on the said rollers, substantially as set forth.

12. The combination of a railway-car body, a truck, a king-bolt pivotally connecting the car-body to the truck-framing at the car end, 65 a bearing-plate attached to the under side of the car-body vertically over the truck inner end pieces, a casting having a roller supported thereon and having integral hinge-eyes, transversely-sliding pins having bearing parts and
70 bearings in the corners of the truck-framing adjacent the center of the car, and links pivotally connecting the said casting having the roller and the said pins, substantially as set forth. 75

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

GEORGE W. LAMB.

BENJAMIN G. VAN DYKE.

Witnesses:

EDWARD P. ROBBINS,

HENRY F. LENZER.

Correction in Letters Patent No. 450,813.

It is hereby certified that the residences of the patentees in Letters Patent No. 450,813, granted April 21, 1891, upon the application of George W. Lamb and Benjamin G. Van Dyke, for an improvement in "Car-Trucks," were erroneously written and printed "George W. Lamb, of Cumminsville, and Benjamin G. Van Dyke, of Ivanhoe, Ohio," whereas said residences should have been written and printed *George W. Lamb, of Ivanhoe, and Benjamin G. Van Dyke, of Cumminsville, Ohio*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 5th day of May, A. D. 1891.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

C. E. MITCHELL,
Commissioner of Patents.