

No. 684,834.

Patented Oct. 22, 1901.

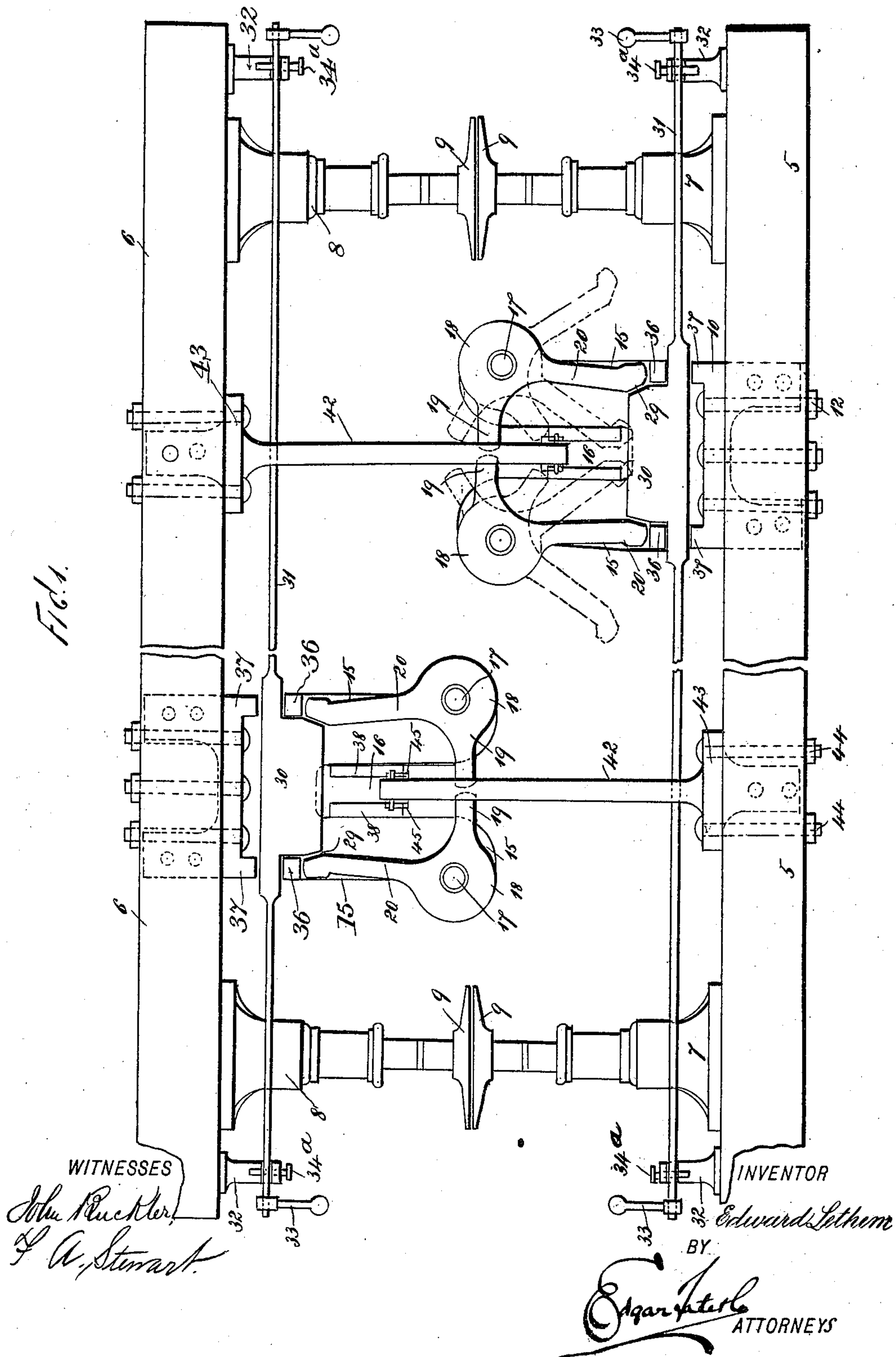
E. LETHEM.
CAR COUPLING.

(Application filed Nov. 27, 1899.)

(No Model.)

4 Sheets—Sheet 1.

FIG. 1.



No. 684,834.

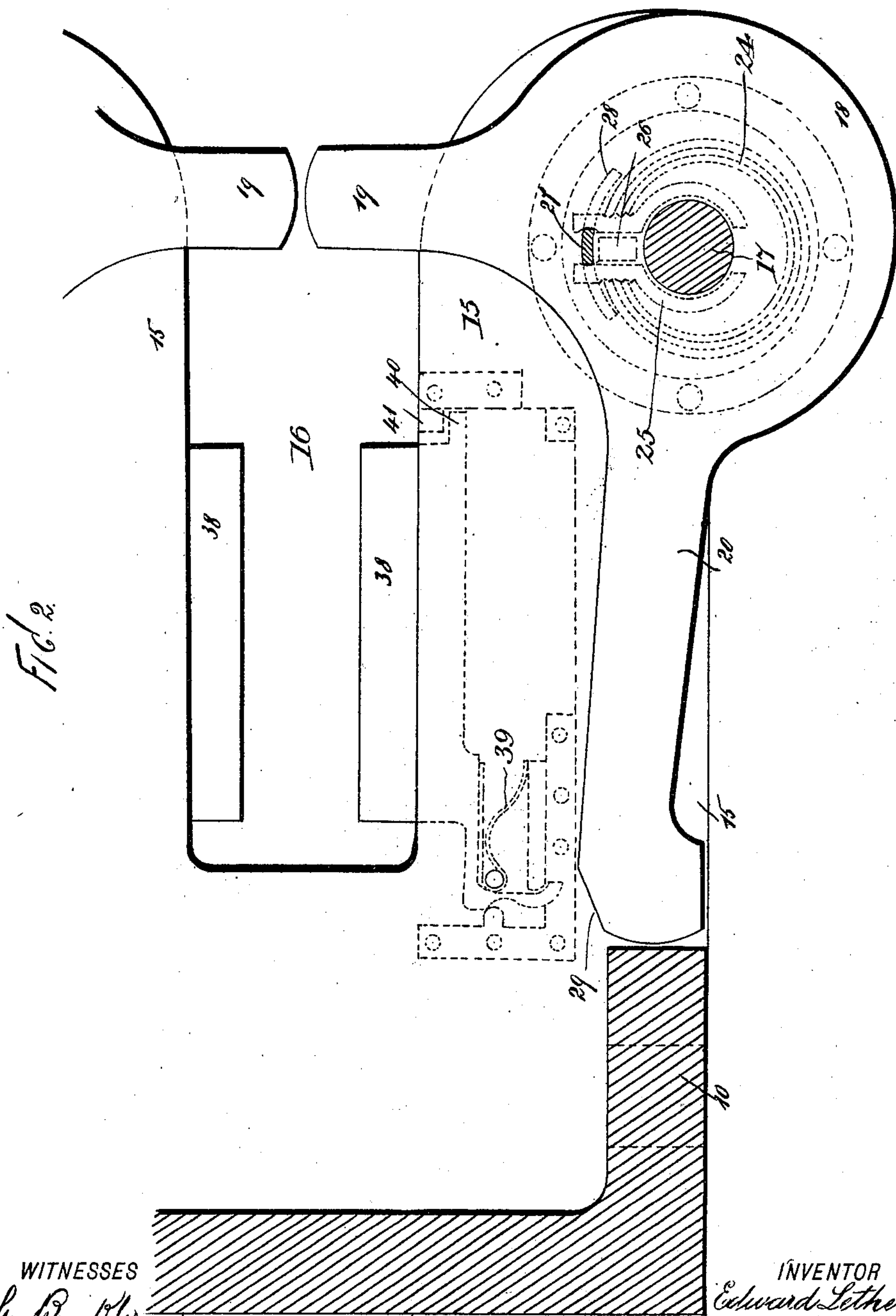
Patented Oct. 22, 1901.

E. LETHEM.
CAR COUPLING.

(Application filed Nov. 27, 1899.)

(No Model.)

4 Sheets—Sheet 2.



WITNESSES

Wm. R. R. R.
L. A. Stenmark

INVENTOR

Edward Lethem

BY

Edgar Lethem
ATTORNEYS.

No. 684,834.

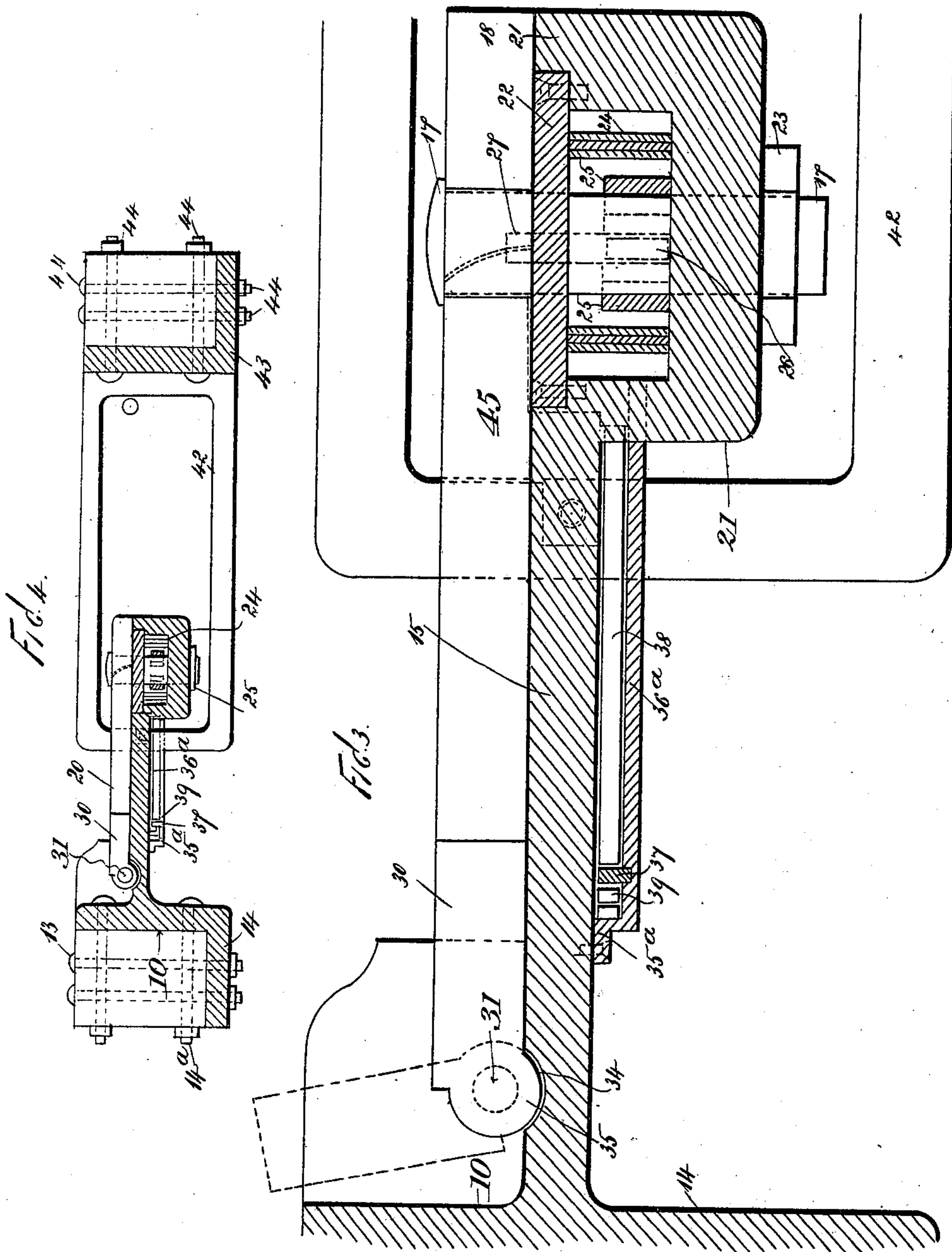
Patented Oct. 22, 1901.

E. LETHEM.
CAR COUPLING.

(Application filed Nov. 27, 1899.)

(No Model.)

4 Sheets—Sheet 3.



WITNESSES
John Ruppel,
L. A. Stenmark

INVENTOR
Edward Lethem
BY
Edgar V. Fitch
ATTORNEYS

No. 684,834.

Patented Oct. 22, 1901.

E. LETHEM.
CAR COUPLING.

(Application filed Nov. 27, 1899.)

(No Model.)

4 Sheets—Sheet 4.

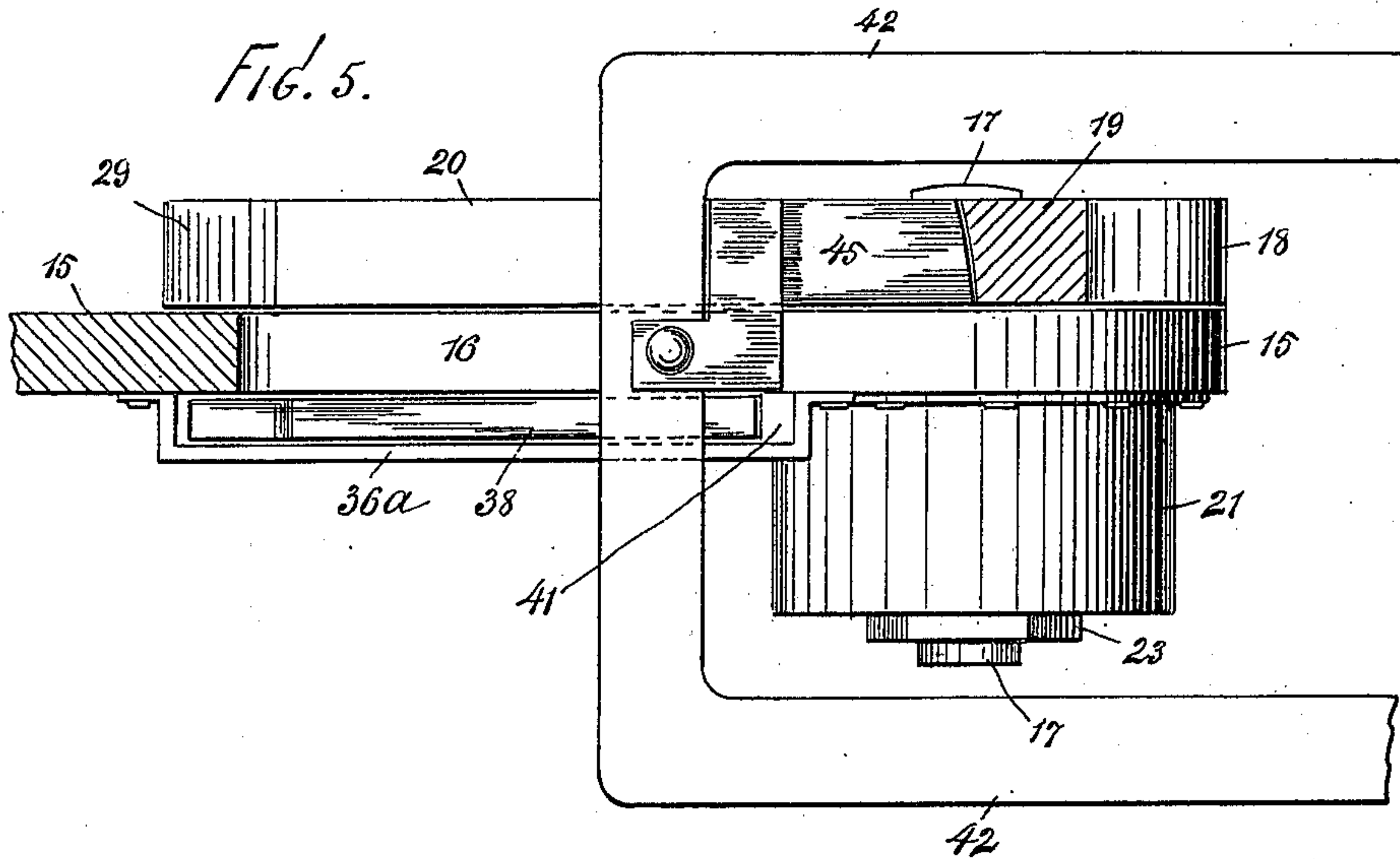


Fig. 7.

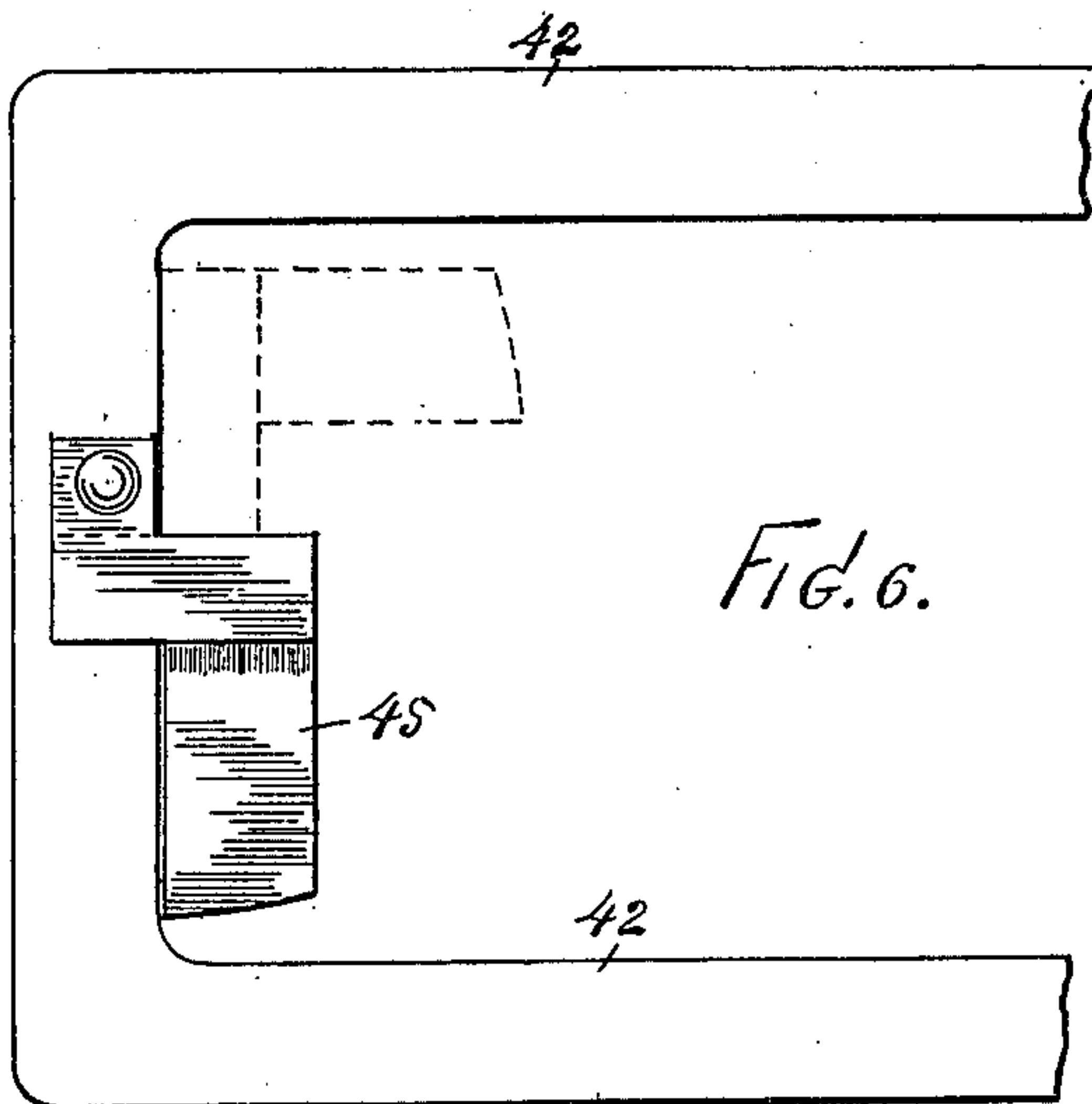
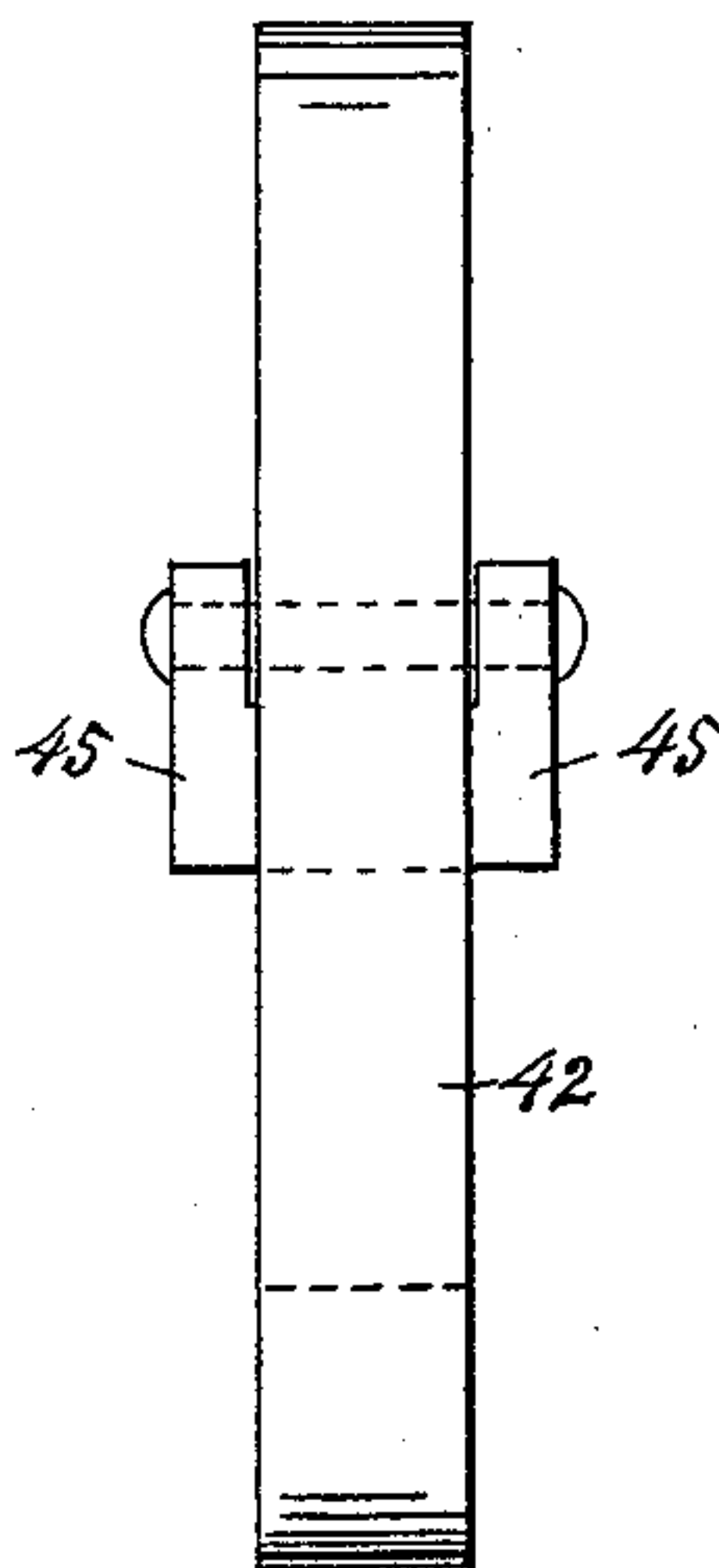
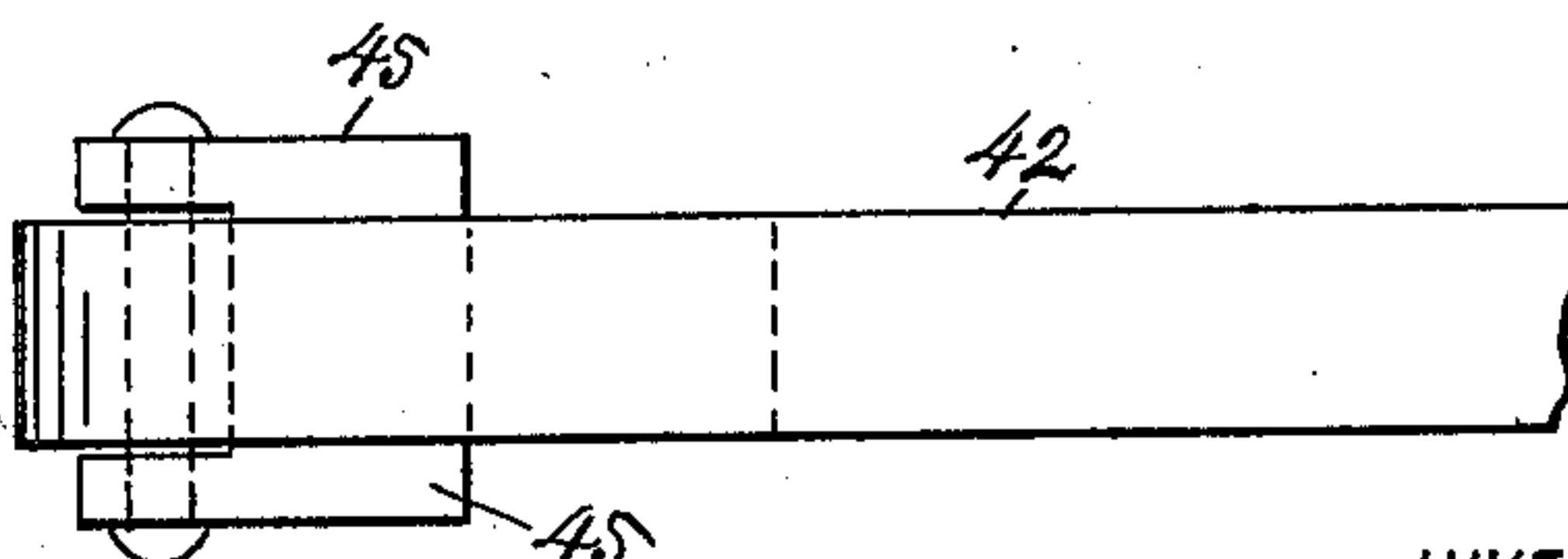


Fig. 8.



WITNESSES

F. W. Stewart
M. H. Laverie

INVENTOR

BY *Edward Lethem*

Edward Lethem
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD LETHEM, OF LONDON, ENGLAND.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 684,834, dated October 22, 1901.

Application filed November 27, 1899. Serial No. 738,309. (No model.)

To all whom it may concern:

Be it known that I, EDWARD LETHEM, a subject of the Queen of Great Britain, residing at Pimlico, London, in the county of London, England, have invented certain new and useful Improvements in Car-Couplings, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to car-couplings; and the object thereof is to provide a coupling whereby cars and other vehicles may be readily connected or disconnected; and the invention consists in the construction and arrangement of parts, as fully described in the following specification, of which the accompanying drawings form a part, in which like reference characters note like parts in the several views, and in which—

Figure 1 is a plan view of the end beams of two cars with each of which is connected my improved device. Fig. 2 is a plan view, partly in horizontal section, of a portion of Fig. 1 upon an enlarged scale, several of the interior parts being shown in dotted lines. Fig. 3 is a vertical sectional view of a portion thereof, and Fig. 4 is a vertical sectional view of another portion thereof upon a diminished scale; Fig. 5, a sectional side elevation showing details of the construction; Figs. 6 and 7, side and end views, respectively, of details of the construction shown in Fig. 5; and Fig. 8, a plan view thereof.

Referring more particularly to the drawings, I have shown at 5 and 6, respectively, the end beams of two cars which are broken away centrally. Connected with the end beam 5 is a pair of buffers 7, and connected with the end beam 6 is a pair of buffers 8. The buffers 7 and 8 operate in connection with each other, being provided with heads 9. Connected with each of the end beams 5 and 6 is a draw-head 10, secured thereto by means of bolts 12 and 13, passing through the inner flanged end 14 thereof, which, as shown in Figs. 1 and 4, laps under the end beam with which it is connected. The draw-heads 10 are provided with two forwardly-directed members 15, which are separated by oblong spaces 16, and pivotally connected with the outer end of each of the members 15, as at

17, is a head 18. Each of the heads 18 is provided with a short arm 19 and a long arm 20, extending approximately at right angles thereto.

Referring more particularly to Fig. 3, each of the draw-head members 15 is provided upon its under side with a casing 21, which is preferably formed integrally therewith and is provided with a detachable top 22. The pivot-bolts 17 pass through the heads 18, through the detachable tops 22 of the casings 21, centrally through said casings, and are secured at their lower ends beneath said casings by means of nuts 23. A plurality of segmental band-springs 24 are placed within the casings 21, surrounding the pivot-bolts 17, as shown in dotted lines in Fig. 2. They bear at their ends pairs of clamping-plates 25, the inner ends of which, as shown in dotted lines in Fig. 2, are placed about the pivot-bolts 17 and the outer ends of which are separated by pins 26, as shown in dotted lines in Figs. 2 and 3, which are secured to the lower portions of the casings 21. The arms 27 (shown in Figs. 2 and 3) are connected to the under surfaces of the heads 18 and project downwardly through the slots 28, (shown in dotted lines in Fig. 2,) which slots are segmental in form and extend downwardly between the outer ends of the clamping-plates 25.

By means of the slots 28 of the arms 27, which are arranged as shown in the drawings, the shorter arms 19 of the heads 18 are directed laterally of the draw-heads 10 and extend normally partially across the spaces 16, which separate the members of said draw-heads 10. With the shorter arms 19 in the position shown in full lines in the drawings the longer arms 20 of the heads 18 extend inwardly of the draw-heads 10 to the inner ends thereof and are beveled upon the inner sides, as at 29.

Mounted upon the inner end of each of the draw-heads 10 is a locking-plate 30, which is rounded at its inner ends, as shown in Fig. 3, and connected with each of the locking-plates 30 and extending parallel with the end beam of the car is an operating-rod 31, which is journaled to the end beam of the car, as at 32, and provided with a crank 33, by means of which it may be operated. The inner end of each of the draw-heads 10 is provided with a

curved groove 34, within which the correspondingly-curved end 35 of the locking-plate 30 operates. Lugs 36 are provided upon the inner portion of each of the draw-heads 10, adjacent to either end of the locking-plates 30, and the operating-rods 31 operate between said lugs 36 and lugs 37, formed upon each of the draw-heads 10.

Each of the journals 32 is slotted, and mounted therein is a pin 34^a, which passes through corresponding slots in the corresponding operating-rods 31, and by means of said pins and slots each of said operating-rods may be locked to secure the connected locking-plates 30 in position between the longer arms 20 of the heads 18 or in a raised position. It is evident that when the locking-plates 30 rest upon the draw-heads 10 between the arms 20 of the heads 18 said heads will be prevented from rotation by any force applied to the inner sides of the shorter arms 19.

Secured to the underside of each of the head members 15 and adjacent to the inner edges thereof is an inner flanged end 35^a of an outwardly-directed keeper-plate 36^a, between which and the adjacent draw-head member 15 is pivoted at its inner end, as at 37^a, a dog 38, actuated by means of a coil-spring 39. (Shown in section in Fig. 3 and in dotted lines in Fig. 2.) The tension of each of the springs 39 tends to force the dogs 38 inwardly to occupy the position in the space 16, separating the draw-head members 15. The dogs 38 are prevented from being projected fully into said spaces by means of their ends 40 engaging stops 41, as shown in Fig. 2 in dotted lines, and secured to the under sides of the draw-head members 15.

The link member of my improved coupling consists of an oblong link 42, which is rigidly connected at its inner flange end 43, which laps about one of the car end beams 5 and 6 and is secured thereto by means of bolts 44. Each of the links 42 is provided at its outer end with an angular pivoted dog 45, and these dogs 45 project laterally of the links with which they are connected. When the links 42 are passed between the arms 19 of the heads 18 and into the spaces 16, said dogs 45 engage the ends of the dogs 48 and are raised thereby into the position shown in Figs. 1 and 3, in which position the outer ends of the dogs 45 engage the arms 19 and prevent the links from approaching said arms 19 after said links have been moved into their final operative position. The links 42 and the dogs 45 and the parts connected therewith are clearly shown in detail in Figs. 5 to 8, inclusive.

I preferably arrange upon each of the end beams of the car, at either end thereof, a buffer 8, and intermediate to said buffers one of the links 42 and one of the draw-heads 10, with its connected parts, are mounted.

The operation of my improved coupling will be fully understood from the foregoing description when taken in connection with the

accompanying drawings and the following description thereof. When the end beams 5 of the two cars approach each other, the links 42 engage the ends of the arms 19 of the heads 18 and swing them inwardly into one of the positions shown in dotted lines in Fig. 1, and this motion of said arms 19 flexes the spring-segments 24, swinging about one of the clamping-plates 25 in each of the casings 21, the other clamping-plate being held stationary by the pin 26. As soon as the links 42 pass into the spaces 16 to such an extent that the dogs 45 engage and are raised by the dogs 38 the arms 19 are retracted into their normal position by means of the segment-spring 24 within the casings 21, and said links are locked in position, as will be evident, as the arms 20 bear against the ends of the locking-plates 30. When, as described, the dogs 45 are raised, they may remain in a raised position as long as the links 42 extend beyond the arms 19. When the cars are passed about the curve in a road-bed of a railway, the links 42 are enabled to move freely between the said dogs 38, which are pivoted, and the sets of buffers 9 operate and prevent the links 42 from extending too far into the spaces 16. When it is desired to uncouple the cars, the pins 34^a are withdrawn from the slots in the operating-rods 31, and said rods 31 are oscillated to turn the locking-plates 30 upwardly, withdrawing the same from their position between the arms 29. The links 42 may then be withdrawn from the spaces 16, forcing about the heads 18 by means of the arms 19, which are swung into one of the positions shown in dotted lines in Fig. 1. After the links 42 are withdrawn from the spaces 16 the heads 18 resume their normal position under the actuation of the segment-springs 24, which operate as above described.

It is evident that my improved coupler above described may be considerably varied as regards the construction and arrangement of parts thereof and that it may be applied to a wide range of vehicles, all without departing from the spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a coupler of the class described, a draw-head, a spring-actuated device arranged therein, a link which enters said draw-head and passes between said spring-actuated device and which is provided with a dog which operates in connection with said spring-actuated devices, and which is maintained thereby in position wherein a close engagement of said draw-head and said link is maintained and means for operating said dog, substantially as shown and described.

2. In a coupler of the class described, a draw-head provided with two spaced members, spring-actuated dogs connected with said members adjacent to the edges thereof, and a coupling-link provided with a pivoted dog which, when said coupling-link is engaged

with said draw-head, is engaged with said
spring-actuated dogs to lock said coupling-
link in engagement with said draw-head and
means for operating said pivoted dog, sub-
stantially as shown and described.

5 In testimony that I claim the foregoing as
my invention I have signed my name, in pres-

ence of the subscribing witnesses, this 8th day
of November, 1899.

EDWARD LETHEM.

Witnesses:

GEORGE WILLIAM MACEY,
EDWARD VALENTINE.