No. 812,540. PATENTED FEB. 13, 1906.

D. M. WILSON.

AUTOMATIC CAR COUPLING.

APPLICATION FILED SEPT. 27, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

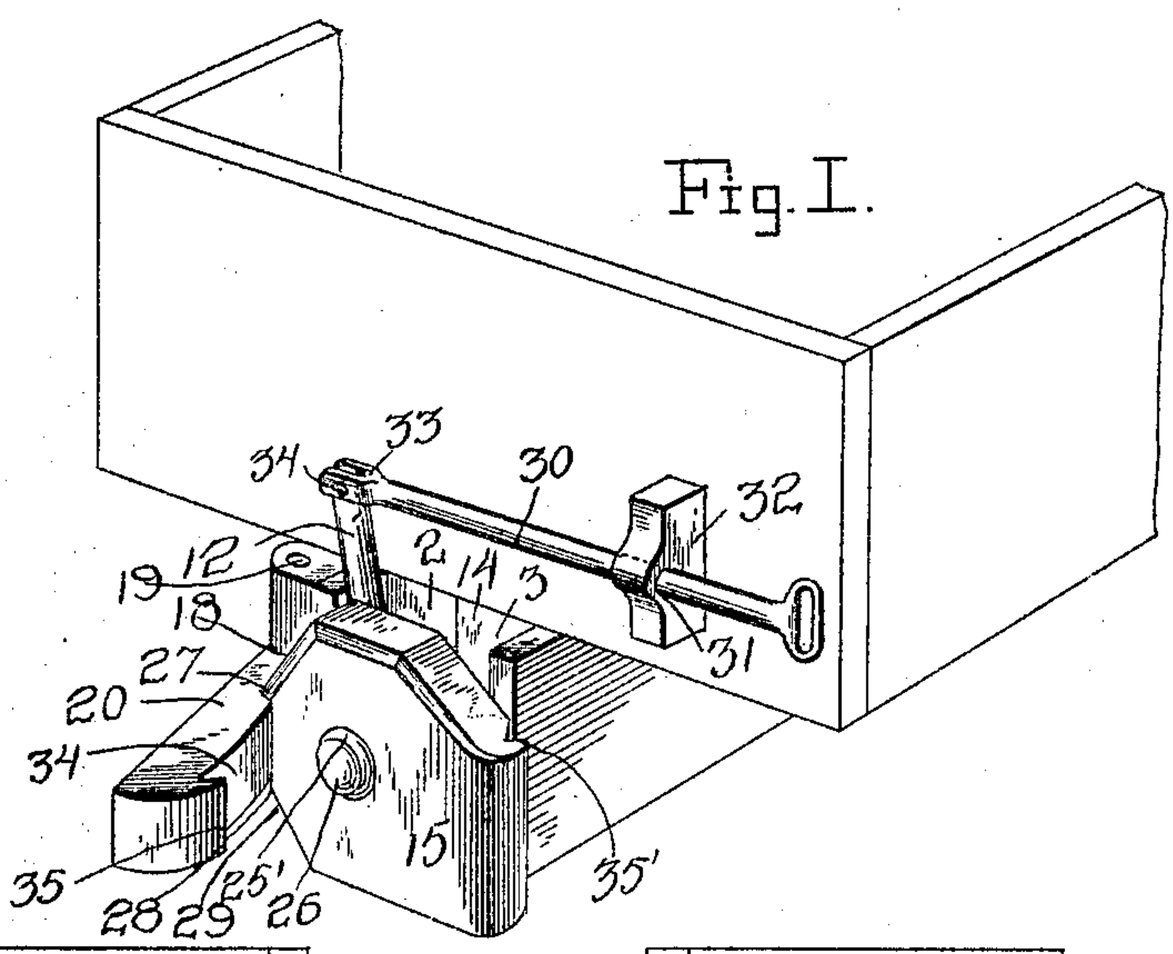


Fig. 2.

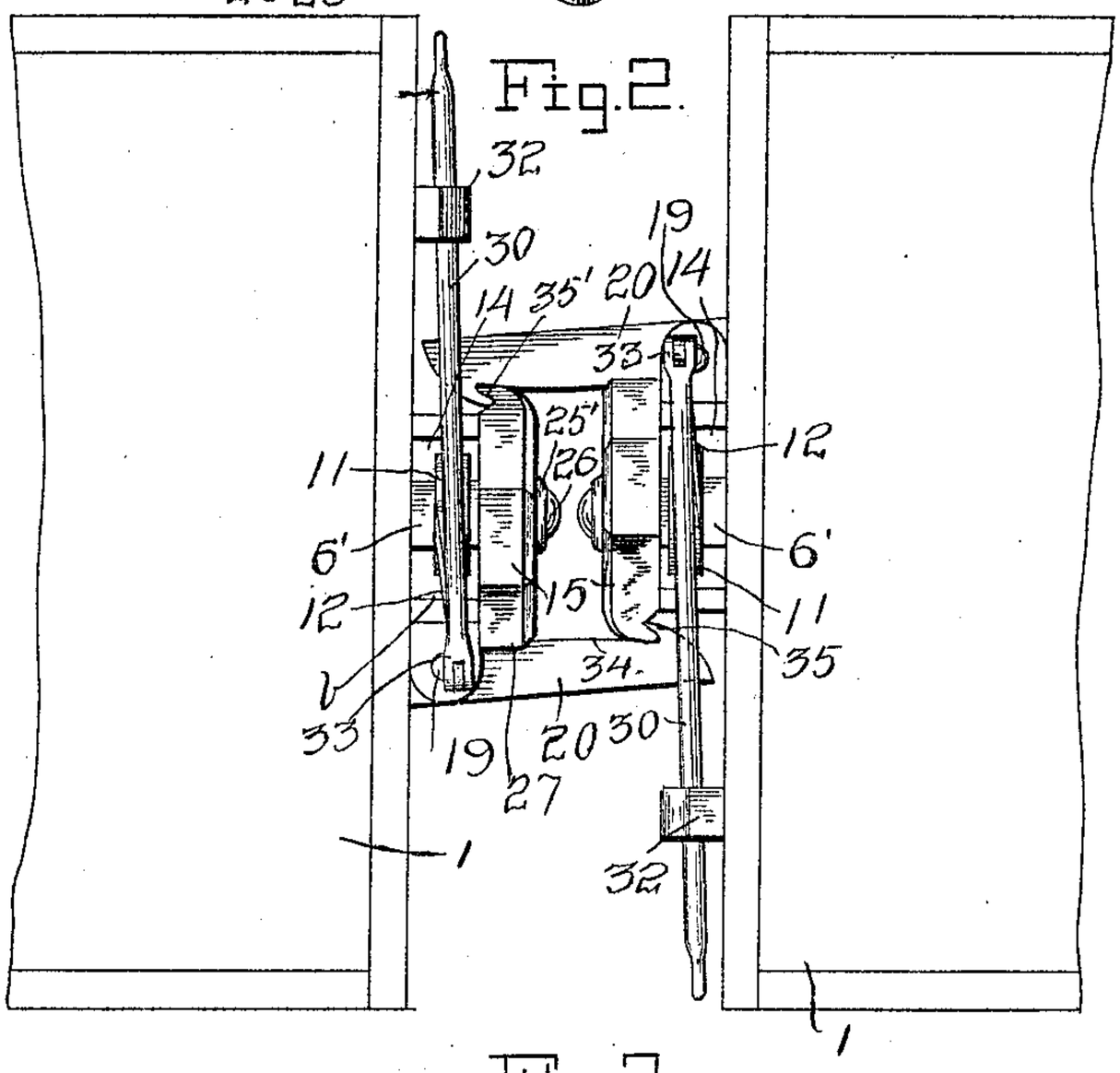
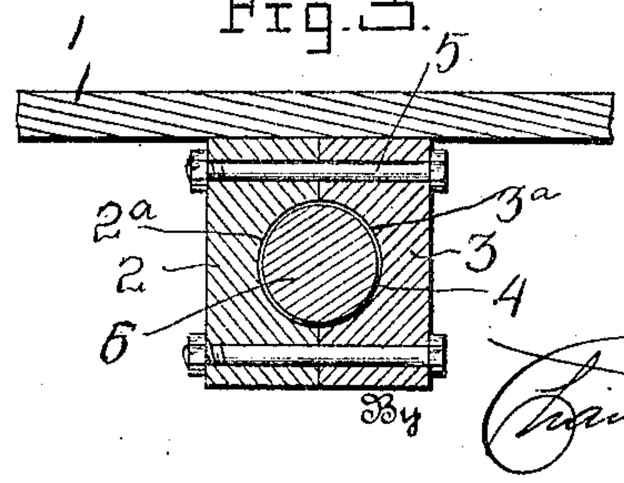


Fig. 3.



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2 SHEETS—SHEET 2.

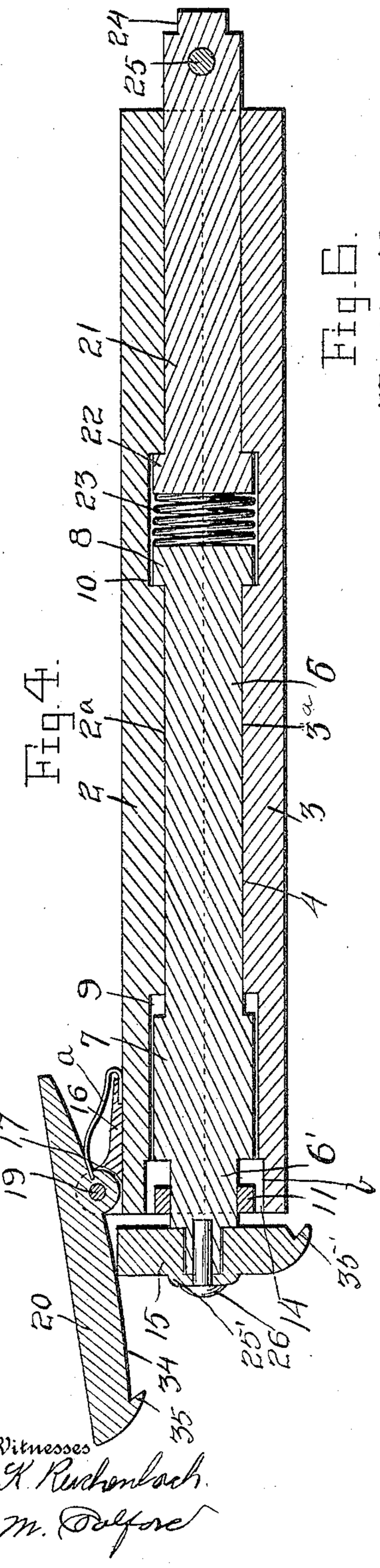

Fig. 4.

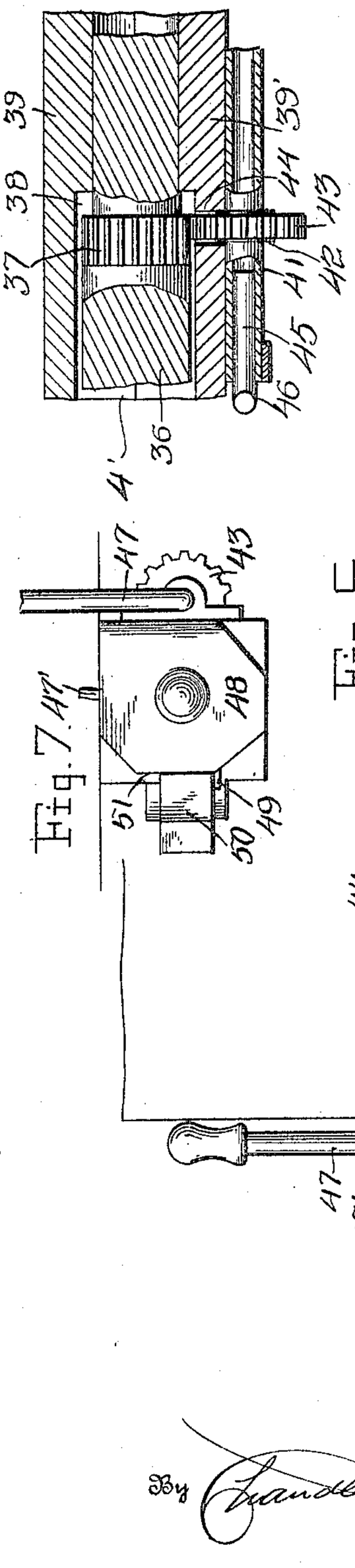

Fig. 6.

Fig. 7.

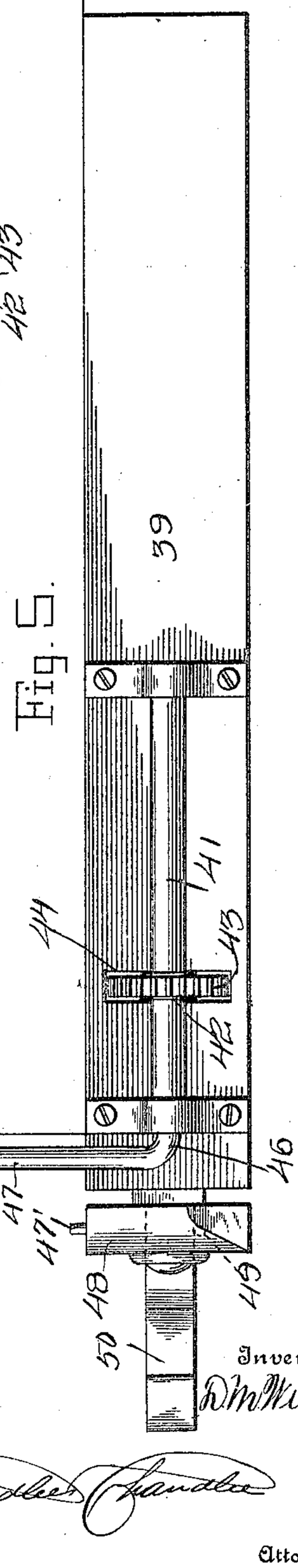

Fig. 5.

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AUTOMATIC CAR-COUPLING.

No. 812,540. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed September 27, 1904. Serial No. 226,248.

To all whom it may concern:

Be it known that I, DAVID M. WILSON, a citizen of the United States, residing near Maynardville, in the county of Union and State of Tennessee, have invented certain new and useful Improvements in Automatic Car-Couplers; and I 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.

This invention relates to car-couplings, one object being to provide an exceedingly simple, inexpensive, durable, and efficient means for coupling and uncoupling cars without necessitating the brakeman or other person to go between the cars.

Another object of the invention is to provide a coupling of the character named wherein an automatic uncoupling of the cars will be effected in the event of the locomotive accidentally leaving the track.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings forming a portion of this specification, and in which like characters of reference indicate similar parts in the several views, Figure 1 is an end view of a portion of a car provided with the present coupler. Fig. 2 is a top plan view showing the end portions of two cars connected with the present coupler. Fig. 3 is a transverse section through the bottom of the car and through the draw-timbers. Fig. 4 is a horizontal longitudinal sectional view through the draw-timbers and the coupling-jaws. Fig. 5 is a side elevation of a modified form of the invention, and Fig. 6 is a vertical sectional view through a portion of a modified form of invention. Fig. 7 is a front elevation of the modified form of the invention.

Referring now to the accompanying drawings, and more particularly to Figs. 1 to 4, inclusive, the reference character 1 designates a car-body of any desired variety, having secured to its bottom by any suitable means two draw-timbers 2 and 3 of any suitable material, each timber having its inner face provided with a longitudinal groove 2^a and 3^a, respectively, throughout its length, forming when the timbers are secured tightly together by means of the bolts 5 a longitudinal bore 4, circular in cross-section, designed to receive support and shield the mechanism to be now described. It might be stated here that the longitudinal bore need not necessarily be circular in cross-section, for a rectangular form in cross-section would answer the purpose as well.

Loosely fitted within the forward end of the aforesaid bore is a solid bar 6 of any suitable material and formation in cross-section corresponding to the cross-sectional bore and provided at each end with a head 7 and 8, the former being disposed at the forward end of the bore and of greater length than the latter, each, however, fitting in the recesses 9 and 10, formed in the bore of the timbers, the said recesses being of such length with relation to the respective heads working therein as to allow a little play of the bar 6 longitudinally of said bore.

The head 7 of the bar 6 is not formed on the extreme outer end of the latter, as is the head 8, there being a slight continuation 6′ of the said bar beyond the head 7 for the reception of the eye 11 of the lever 12, each draw-timber 2 and 3 being so disposed beneath the body of the car as to project slightly in advance of the corresponding end of the latter, each being notched, as at *b*, to form an open space 14 between the corresponding end of the car and the inner side faces of the timbers to permit the lower end of the lever 12 to work therein between the end of the car and the fixed jaw 15, which latter is secured directly to the projecting ends of the timbers 2 and 3.

The plate 16 is secured in any suitable manner upon the timber 2 and has its forward end enlarged, as at 17, and bifurcated intermediate its ends, as at 18, for the pivotal reception by means of a suitable pivot-pin 19 of a pivotal jaw 20, the inner face of the rear of the pivotal jaw having a flat or other form of spring *a* contacting therewith to throw its forward end inwardly toward the fixed jaw

15, the spring, if it be a flat one, having one of its ends fitted between the plate 16 and the adjacent face of the timber 2.

Fitted in the bore 4 in the rear of the aforesaid bar 6 is another bar 21, having its inner end provided with a head 22, designed to fit loosely in the aforesaid recess 10 and normally in engagement with the shoulder of said recess opposite to the shoulder with which the head 8 of the aforesaid bar 6 normally contacts. There is a helical spring 23 disposed between the head 22 of the bar 21 and the head 7 of the bar 6 to give a cushioning effect to the bars 6 and 21 when the cars are bumped together in the act of coupling. In other words, the spring 23 may be termed a "buffer-spring." The outer end of the bar 21 may or may not be reduced, as at 24; but it may be provided with a perforation in which is fitted a pin 25, which may be secured to the car in any suitable manner for the purpose of preventing undue longitudinal movement inwardly of the bar 21 when the cars are bumped together, thereby also preventing undue strain upon the head 22, as by the shoulders of the latter being forced against the corresponding shoulder of the recess 10. The fixed jaw 15 is formed of metal or any other suitable material and has a projecting portion 25′ standing out from the center of its face, piercing which and the end 6′ of the aforesaid bar 6 is a suitable headed pin 26, designed to secure the fixed jaw in position, the said projecting portion serving to prevent the fixed jaws meeting squarely over the entire area of their meeting faces.

Since the timbers, the pivoted jaw, the fixed head, and other adjunctive parts of each coupling member are precisely the same, a detailed description of but one is deemed sufficient. Therefore it will be understood that when the cars are coupled together the shoulder 27 of each of the fixed jaws bears upon the upper face of the corresponding pivoted jaw 20 with the shoulder 28 of each fixed jaw, the latter being formed as the result of the inclined face 29 at the bottom of one side edge of each fixed jaw being disposed slightly beneath the under face of the pivoted jaw. Now when it is desired to uncouple the cars it is simply necessary for the brakeman or other hand to pull outwardly upon the free end of the arm 30, slidably supported in the perforation 31 of the bracket 32, which latter is secured in any suitable manner upon the corresponding end of the car, causing the aforesaid lever 12, to which the bifurcated end 33 of the operating-arm 30 is secured by a pivot-pin 34, to be pulled from the inner face of one of the draw-timbers 2 or 3 to the inner face of the opposite timber. Such manipulation of the lever 12 through a pull upon the operating-arm 30 causes the bar 6, about which the eye 11 of the lever 12 tightly fits, to turn through a portion of a revolution and turn the fixed jaw accordingly, the shoulder 28 of the latter riding upon and against the inner face of the bulging portion 34 of the pivoted jaw 20, forcing the latter laterally and causing the hooked portion 25 of the jaw to become disengaged from the groove 35′ of the opposite fixed jaw 15. If desired, the pivoted jaw may be held in its outward position by simply resting upon the shoulder 28 of the fixed jaw; but a more substantial means is to permit the inner face of the pivoted jaw to rest against the inclined face 29 of the fixed jaw. Of course when it is desired to couple the cars it is done automatically by simply pushing the operating-lever 30 inwardly to return the aforesaid coupling members to their normal positions and rolling the cars together. Obviously the operating-arm 30 may be eliminated from the structure, in which event, however, the brakeman or other hand would be compelled to go between the cars to manipulate the lever 12. Therefore in the use of the operating-arm 30 the necessity of going between the cars and endangering life is obviated.

I wish it understood that the rear end of the bar 21 may have its outer end provided with the fixed jaw and other connections similar to the fixed jaw and connections located at the front of the car, so that a series of cars may be provided for coupling and uncoupling by my improved device. Obviously, too, the draw-timbers would be provided for the respective ends of the car for the reception and operation therein and therewith of the aforesaid coupling elements.

It will be understood from the foregoing that two cars may be uncoupled by the use of the single lever, and as a matter of fact by constructing the bars 6 and 21 of a single piece and by connecting the fixed jaw and adjunctive parts to both ends thereof not only two adjacent cars could be uncoupled and coupled by a single lever, but also a third car in the rear of the second of two adjacent cars. It is thought that the illustration of the coupling and uncoupling of three cars in view of the foregoing is unnecessary.

In Figs. 5 and 6 of the drawings I have shown a modified means of coupling and uncoupling cars. In this arrangement the forward bar 36 is the same as the bar 6 in the other arrangement, except that I mount upon the same at its inner end in any suitable manner a gear 37, working in the recess 38 of the bore 4′ of the timbers 39 and 39′. Exteriorly of the timber 39 is journaled a shaft 41, upon which is mounted a bushing 42, to which latter is secured a gear-wheel 43, designed to work through the opening 44 in the timber 39 and mesh with the gear 37 upon the aforesaid bar 36. The shaft 41 is preferably hollow, as clearly shown in Fig. 6, and secured within one end of the said shaft is the

bent end 45 of the operating-lever 46, which may or may not have the operating-arm 47. The shaft 41, the bent end 45, and the operating-arm 47 may obviously be formed in one piece and of the same material. It is obvious also that the shaft 41 need not necessarily be hollow, but may just as well be solid, with the operating-arm 47 secured thereto in any suitable manner. At any rate, in view of the disposition of the operating-arm 47, in this modified form of the invention it is not necessary to form a notch in the top of each of the projecting ends of the timbers 39 and 39′, as is done in the first form described, to limit the movement in either direction of the operating-arm, the latter in the modified form being limited in its shifting movement through the instrumentality of the pin or stop 47′ upon the top of the fixed jaw 48 and the pin or stop 49 upon the side thereof, both of which pins or stops are met interchangeably by the pivoted jaw 50 as the fixed jaw is rotated by the operating-arm 47. In other words, when the bar 36, carrying the fixed jaw 48, is rotated through the instrumentality of the aforesaid gears 37 and 43 and operating-arm 47 the latter is pulled outwardly toward the brakeman or other hand, causing the fixed jaw 48 to rotate to the right from the stop 49, the latter limiting the movement of the operating-arm 47 in one direction, the shoulder 51 of the fixed jaw serving to engage the pivoted jaw 50 and force it outwardly, uncoupling the said jaw from the opposite fixed jaw and remaining in its outward position until the operating-arm is pushed inwardly, permitting the pivoted jaw to return to its normal position and be rotated to coöperate with the opposite fixed jaw in the act of automatically coupling the cars.

It will be seen that in both forms of my invention the operating-arms are normally held between the cars, but in easy reach to obviate the necessity of the brakeman or other hand entering the space between the adjacent ends of the cars.

If the locomotive fitted with my improved coupler should leave the track, causing the locomotive to overturn or to run upon a level lower than that of the cars in the rear—say, for instance, four or five inches—the coupling-jaws would become disengaged automatically, permitting the latter to remain upon the track. Of course in railroad construction any unevenness in the rails is not such as to amount to four or five inches in a space equal to that between coupled cars, and therefore there is no danger of the cars becoming accidentally uncoupled while the locomotive and all the trucks or cars are upon the rails.

What is claimed is—

1. A car-coupling including draw-timbers, each timber having a groove formed in its inner face for alinement one groove with the other to form a bore, means for securing the draw-timbers together, draw-bars arranged in spaced alinement in said bore, a spring disposed between the inner ends of said draw-bars, a fixed jaw secured to the outer end of one of said draw-bars, a pivoted jaw mounted upon one of said timbers adjacent said fixed jaw, and a lever for operating said jaws.

2. In a car-coupling, a car, draw-timbers secured to the bottom of the car and projecting beyond one end of the car, each timber having a longitudinal groove in its inner face for coöperation one groove with the other to form a bore, draw-bars arranged in spaced alinement in said bore, a spring arranged between the inner ends of the said draw-bars, a fixed jaw mounted upon the outer end of one of said bars, a pivoted jaw mounted adjacent said fixed jaw, and means passed through the projecting end of said timbers for operating said jaws.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID M. WILSON.

Witnesses:
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LEE HAMILTON.