May 26, 1931. F. H. KAYLER 1,807,243

COUPLER

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Fig. 1.

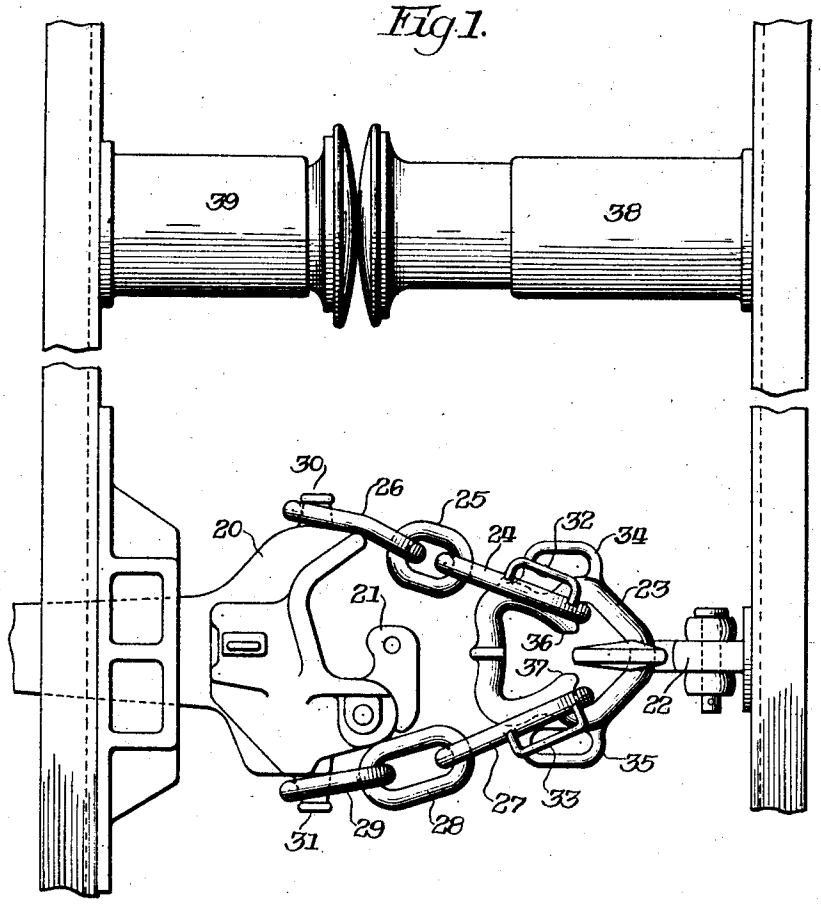
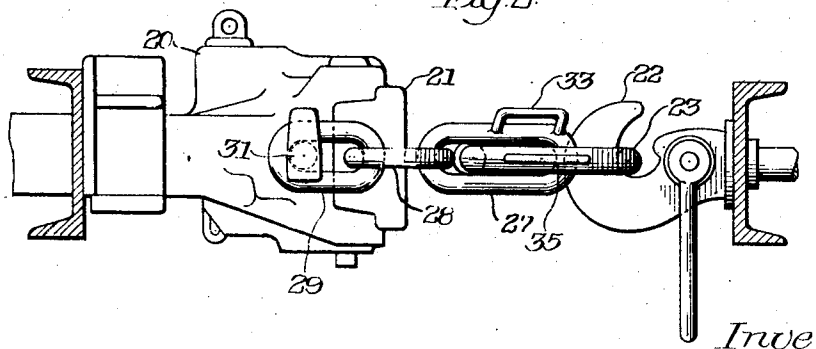



Fig. 2.




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Fig. 3.

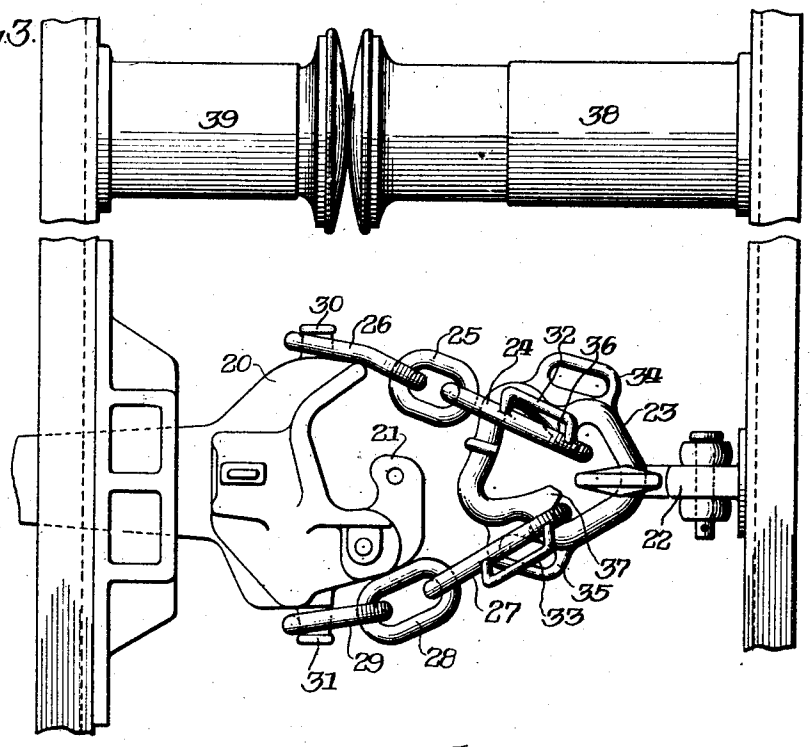
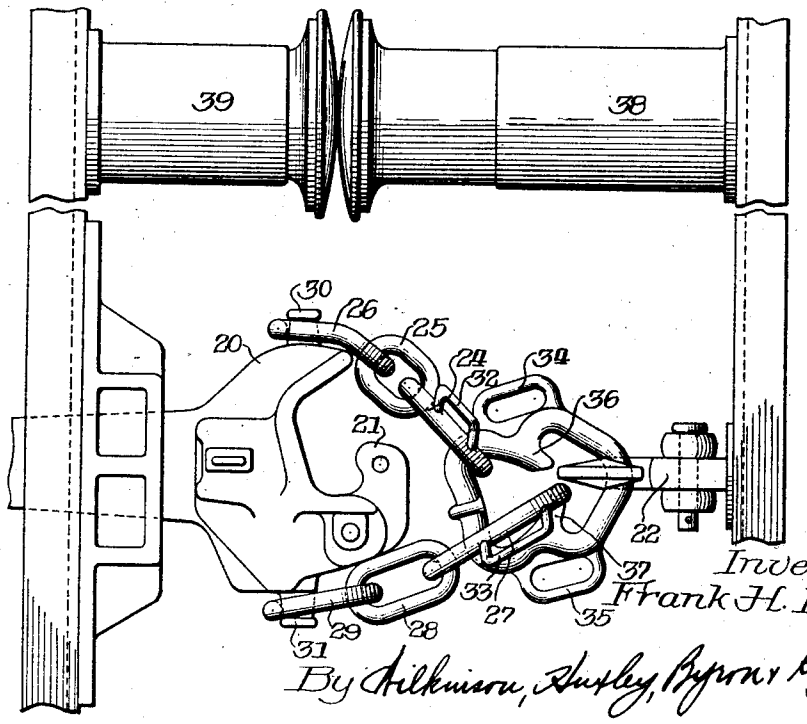



Fig. 4.




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COUPLER

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Fig. 5.

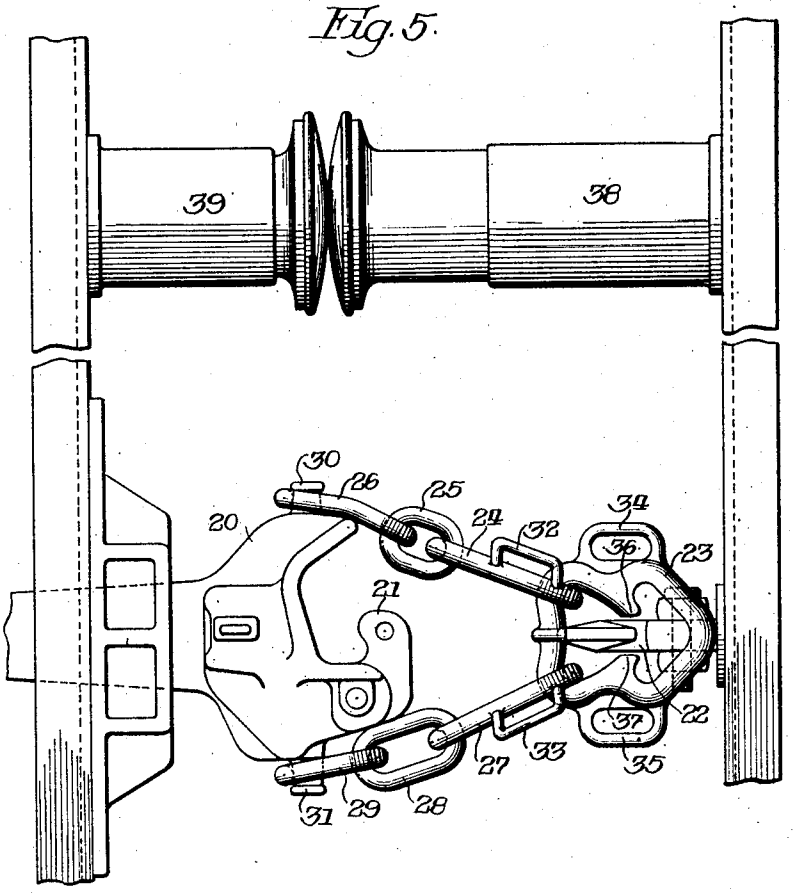
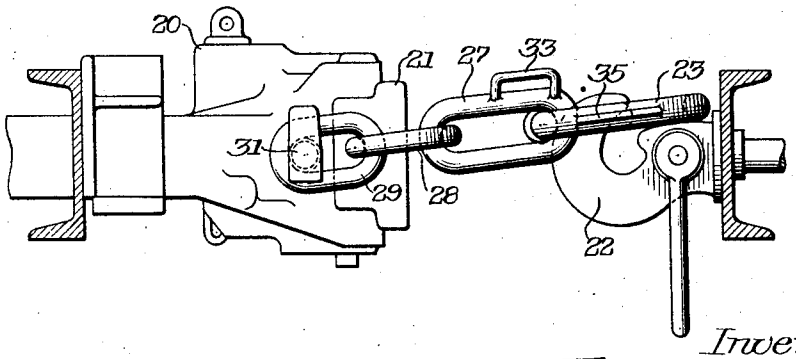



Fig. 6.




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COUPLER

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Fig. 7.

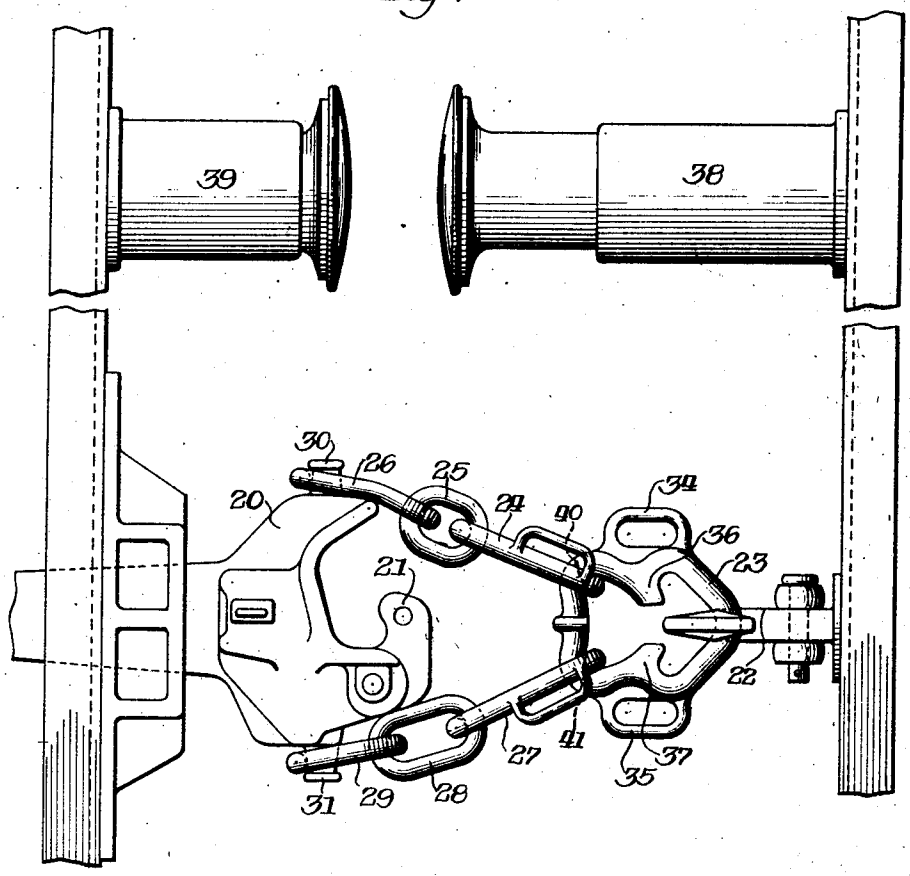
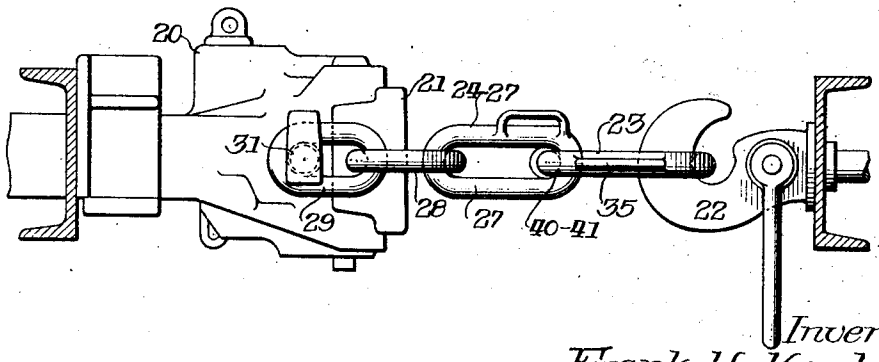



Fig. 8.




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COUPLER

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Fig. 9

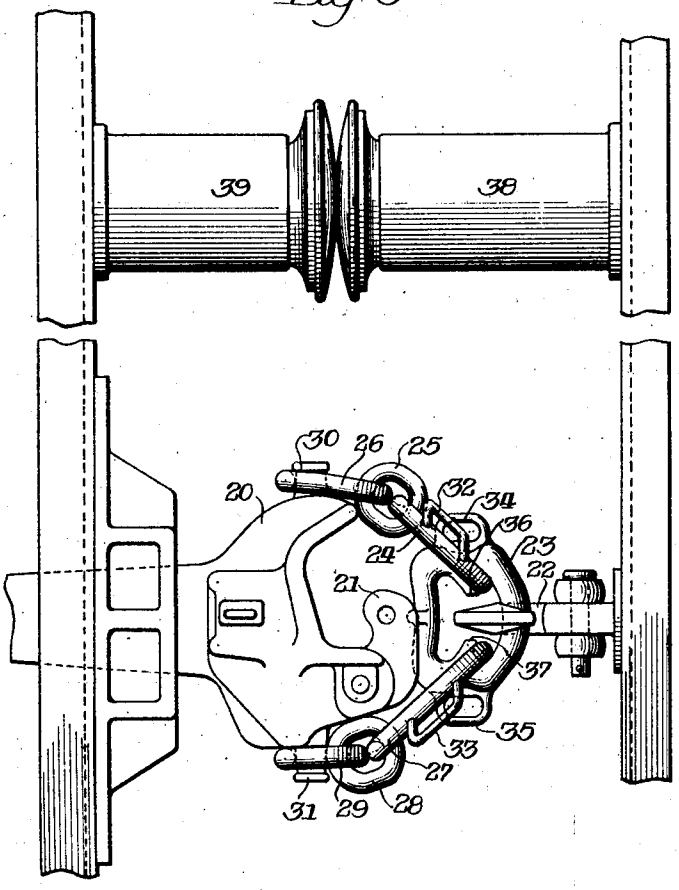
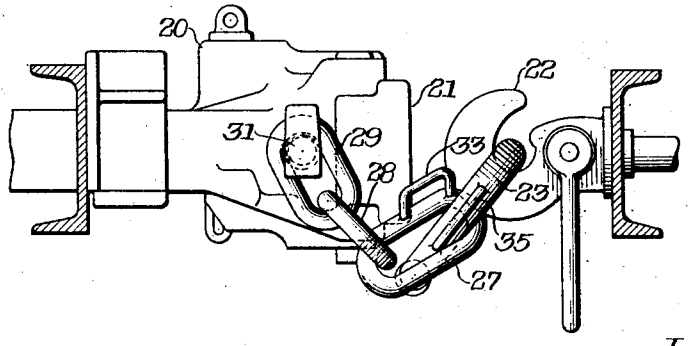



Fig. 10.




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Fig. 11.

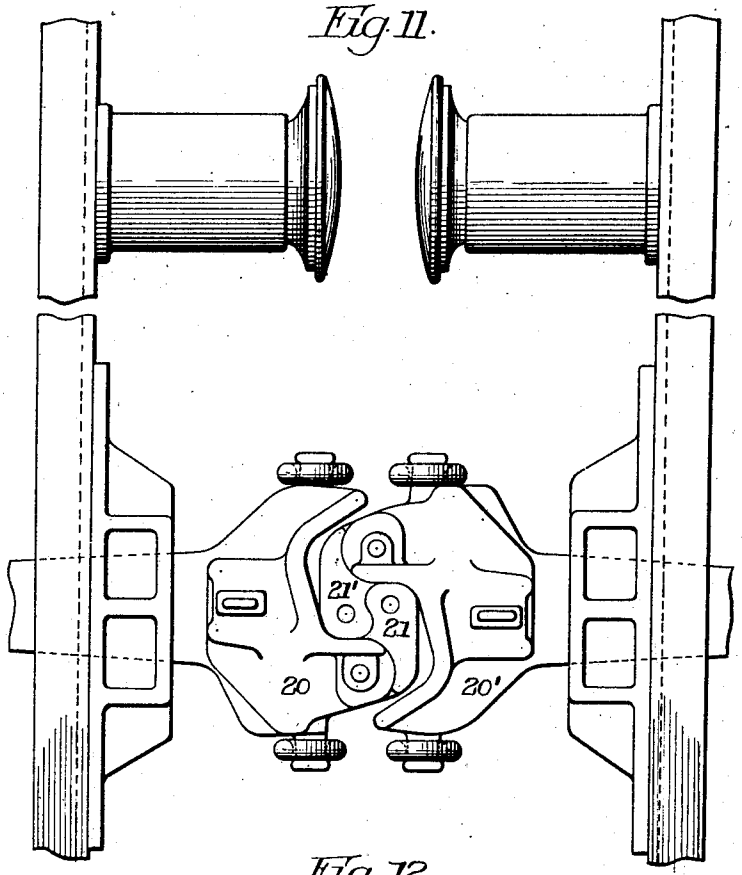
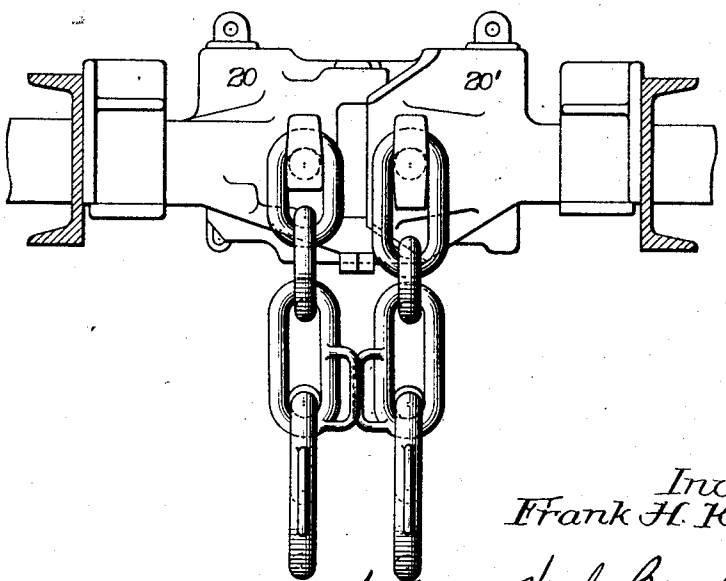



Fig. 12.




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Patented May 26, 1931 1,807,243

# UNITED STATES PATENT OFFICE

FRANK H. KAYLER, OF ALLIANCE, OHIO, ASSIGNOR TO AMERICAN STEEL FOUNDRIES, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY

## COUPLER

Application filed August 6, 1928. Serial No. 297,595.

This invention pertains to coupling mechanisms, and more particularly to a transitional coupling device for railway vehicles.

In general, the M. C. B. automatic coupler is standard equipment on all cars throughout the United States and Canada, but the manually operated screw and draw bar hook types are still used to a large extent in many other countries. Though the automatic coupler is gradually being introduced, it has not wholly replaced other types and until it becomes universal, there is the necessity of providing a transitional coupling attachment for such equipped cars in order that they can be used in general mixed service, and interchanged from one line to another.

The device described in the accompanying application and illustrated in the attached drawings, permits the manual connecting of cars equipped with the aforementioned M. C. B. and screw and hook couplings and the ready automatic connection of cars, each of which are provided with M. C. B. heads. Such coupling operations entail no more danger to the operator than is existent with the present devices. When the automatic couplers become universal, the transition attachments may be removed.

It is therefore an object of this invention to provide a device similar in operation to the present screw coupling, yet which permits adjustments to be made more easily and quickly.

Another object is to provide devices adapted to be applied to automatic couplers permitting cooperation between pairs of automatic or hook couplers.

Still another object is to provide a device which assumes an unobstructing position when inoperative and one which is operative with couplers of the top and bottom operated type.

A further object is to provide a simplified and inexpensive form of device which cannot be accidentally detached in service and which in its application requires no changes in the coupler head which will in any way detract from its efficiency.

Still further object is to provide transitional coupler mechanism in which the parts thereof are particularly designed and constructed to cooperate in a manner to meet the various requirements under actual service and manufacturing conditions.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation as will be more fully described and particularly pointed out in the specification, drawings and claim appended hereto.

In the drawings, wherein like reference characters are used to designate like parts,

Figure 1 is a partial top plan view of the end sills of two railway cars, one of which is provided with the M. C. B. automatic coupler and the other with the draw bar hook coupler, the transitional coupling device being illustrated in normal draft operation.

Figure 2 is a side elevation of the arrangement shown in Figure 1.

Figure 3 indicates the device in the first position for releasing slack, preparatory to uncoupling.

Figure 4 indicates the transitional mechanism in the second position for releasing the slack preparatory to uncoupling.

Figures 5 and 6 are a top plan view and side elevation respectively of the transitional device being uncoupled and lifted clear of the draw bar hook.

Figures 7 and 8 are a top plan view and side elevation of the transitional coupling mechanism in draft in use during the process of shunting or switching cars.

Figures 9 and 10 indicate position of the transitional device in buff; and

Figures 11 and 12 are top plan and side elevation of M. C. B automatic couplers in operative position, showing disposition of the transition device.

Referring to Figures 1 and 2, it will be noted that the device consists of the M. C. B. coupler 20, and a transitional link assembly to be later described in detail. The transitional coupler proper may take the form of the yoke or link 23, engageable with the draw bar hook 22 and attached to the M. C. B. coupler head 20 by means of the links 24, 25, 26, 27, 28 and 29, links 26 and 29 engaging the horizontal shouldered bosses 30 and 31

respectively. These bosses are preferably cast integral with the coupler head and are provided with shoulders for retaining the linkage thereon.

The chain links 24 and 27 may be provided with the handles 32 and 33 to facilitate operation, and safety of the employee, similar handles 34 and 35 being provided on the yoke 23.

When the transitional device is used under normal draft conditions, links 24 and 27 are held in operating position by means of inwardly projected draft lugs 36 and 37 of yoke 23. In this position, the transition assembly is adjusted to its short length, all slack being taken up as when the old hook coupling is screwed home. It should be noted that the outer portion of the draft gear hook 22 will, under these conditions, lie within the yoke between the draft lugs to thereby limit any possibility of the side links 24 and 27 being accidentally displaced from their position when in service.

In order to uncouple the cars it is necessary to remove the side links 24 and 27 from the draft lugs, the procedure of which is clearly illustrated in Figures 3 and 4. With the brakes of one car set or the wheels blocked, the other car is forced against it by the locomotive, thus compressing movable buffers 38 against the fixed buffer 39. The transitional chain mechanism is now slack, and by partially rotating the yoke 23 in a clock-wise direction, the chain link 24 may be swung clear of lug 36. After this is done, yoke 23 may be swung in the opposite direction, or counter-clockwise, and a chain link 27 is lifted clear of the lug 37.

These side chain links can then pass between the draw bar hook and the lugs and dropped to the rear cross member of the draft link as indicated in Figure 5.

To uncouple the cars, yoke 23 is pulled towards the car sill supporting the hook coupler as indicated in Figures 5 and 6 so that it may then be lifted clear of the hook 22.

In switching service, when quick operation is desirable and slack not a particular disadvantage, the device may be used as indicated in Figures 7 and 8, in which the links 24 and 27 are engaged with the notches 40, 41 of the yoke 23 instead of with the draft lugs 36 and 37, as in regular service and in this connection, there is some slack and clearance between the buffers 38 and 39.

Figures 9 and 10 indicate the position of the transitional coupling mechanism in pusher service or at other times when slack is produced as in buff, in this case, the thrust being transmitted through the buffers 38 and 39. Note that the movable buffer 38 is compressed solid and that the transition chain and yoke hangs slack, but that a clearance exists between the ends of the draft hook 22 and the coupler head knuckle 21.

Figures 11 and 12 indicate the action when two cars both equipped with the transition coupling assembly and M. C. B. automatic heads are connected under this condition the automatic coupler heads alone function, the knuckle 21 of coupler 20 engaging with knuckle 21′ of coupler 20′, the transition coupling assemblies hanging slack and inoperative, but in no way interfering with the automatic action.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown, as various and other embodiments of said device will of course occur to those skilled in the art.

I claim:

The combination with an automatic car coupler and a hook car coupler, of a transitional coupler device comprising a yoke and a pair of linkages having terminal links loosely interlinked with the yoke and opposite terminal links connected to opposite sides of the automatic coupler head, the yoke being disposed in a substantially horizontal position and receiving the hook of the hook coupler engaged with one end of the yoke, the longitudinal sides of the yoke having inwardly directed lugs aligned transversely of the yoke for pulling engagement with the links which engage the yoke, the hook of the hook coupler lying between the lugs and closing the space therebetween to prevent disengagement of the links therefrom in the normal pulling position of the yoke, said yoke capable of being turned alternately in opposite directions on the hook to withdraw the lugs from the hook far enough to permit disengagement of the links from the lugs.

Signed at Alliance, Ohio, this 2nd day of August, 1928.

FRANK H. KAYLER.