Nov. 19, 1946. L. H. STRAYER 2,411,394

TOY TRAIN COUPLER

Filed March 22, 1944

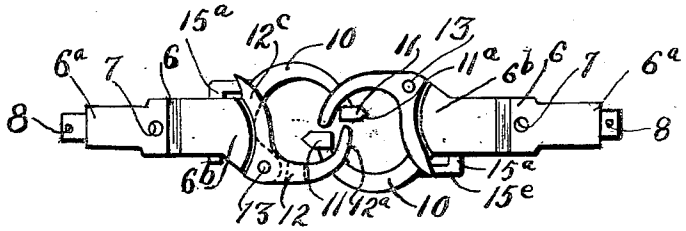


Fig. 1

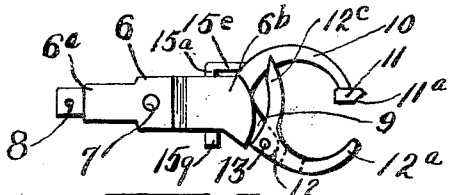


Fig. 2

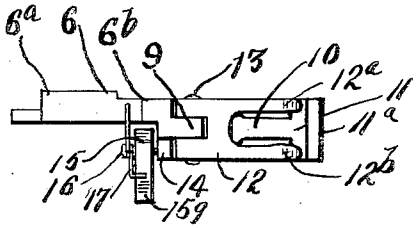


Fig. 3

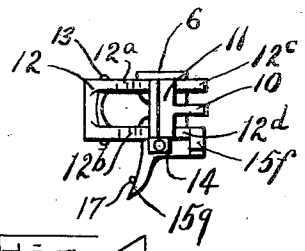


Fig. 4

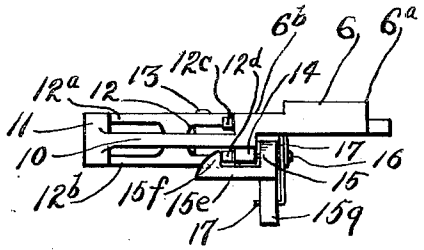


Fig. 5

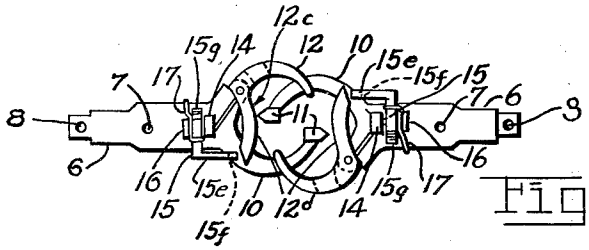


Fig. 6

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TOY TRAIN COUPLER

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Application March 22, 1944, Serial No. 527,601

9 Claims. (Cl. 213—209)

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This invention relates to improvements in couplers for connecting cars on other units into a train, and has particular reference to an improved coupler for connecting the cars of a toy train.

Objects of the invention are to provide a coupler of the character above indicated which can be manufactured at a low cost; which will be strong and durable; which will be automatic in operation when used with a like coupler, and which is provided with means automatically operable to couple or uncouple the cars, while the same are relatively in motion.

The above objects are accomplished and other obvious ends attained by the novel construction hereinafter described with reference to the particular embodiment thereof disclosed in the drawing, it being understood that the invention is not confined to the particular form shown and that changes and modifications may be made which come within the scope of the claims hereunto appended.

In the drawing:

Figure 1 is a top plan view, on an enlarged scale, of two identical toy train couplers constructed in accordance with the invention, the same being shown in a coupled condition.

Figure 2 is a similar view showing one coupler in an uncoupled or open position.

Figure 3 is a front elevational view of the coupler at the left of Figure 1, or a rear elevational view of the coupler at the right of Figure 1.

Figure 4 is an end elevational view of the coupler, as seen from the inner or couplings ends of either of the couplers in Figure 1.

Figure 5 is a rear elevational view of the improved coupler at the left of Figure 1 or a front elevational view of the coupler at the right of Figure 1.

Figure 6 is a bottom plan view of the two coupler units shown in Figure 1, but with the couplers in open positions either for a coupling or an uncoupling operation.

Referring to the drawings, the invention will be best understood by means of a detailed description of the coupler unit shown at the left of Figure 1, like parts of the coupler unit at the right of Figure 1 being given like numerals. The numeral 6 denotes a drawbar which is provided intermediate the length thereof with a bore 7 for receiving a pin or bolt by which it may be pivotally attached, for example, to a car or other unit of a toy train to swing relatively thereof in a horizontal plane. A reduced

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rear end extension 6*a* of drawbar 6 is provided with a bore 8, spaced from bore 7, adapted to receive a spring device (not shown) for yieldably holding the drawbar in alignment with said center line of the car or train unit to which it is pivotally attached. An oppositely extending forward end portion 6*b* of the drawbar is substantially wider than the portion 6*a* and is provided with an apertured lug or flange 9 at one side of the longitudinal center line of the drawbar.

A fixed jaw 10 on the forward end of drawbar portion 6*b* is arched laterally outwardly and inwardly substantially in the same horizontal plane as flange 9, the free end of said jaw terminating just short of the drawbar center line.

The free end of said fixed jaw 10 is provided with a vertical bar 11 forming a T head.

The numeral 12 denotes a relatively movable jaw having a base portion provided with a recess in which the flange 9 is received, a pin 13 being positioned through aligned bores in the base portion and flange 9 whereby the jaw 12 may swing substantially in the horizontal plane of fixed jaw 10. The jaw 12 is provided with spaced parallel prongs which curve oppositely of fixed jaw 10 in the closed position of the jaws (Figure 1), the free ends of said prongs 12*a* and 12*b* terminating in closely spaced relation to or in contact with the bar 11 in said closed position.

The jaw 12 is provided with an integral lever 12*c*, which is an extension of prongs 12*a* and 12*b* and extends substantially in the same horizontal plane as jaws 10 and 12. When the jaw 12 is in the closed position thereof the free ends of the prongs of the lever 12*c* extend at opposite top and bottom sides of fixed jaw 10 and project beyond the same, as shown in the drawing.

A rectangular lug 14 projects downwardly from the drawbar 6 at the forward end portion 6*b* thereof, and a latch 15 is pivotally connected to the rear end face of said lug by means of a pin 16. The latch 15 has an arm 15*a* which extends beyond one lateral edge of the drawbar 6 and is provided with a forwardly projecting member 15*e* having an upwardly extending head 15*f* for engaging the lower lever 12*d* to retain it in the closed position thereof, against the yielding action of a suitable spring 17. The head 15*f* has a downwardly inclined forward face which, when the lever 12*c* is swung to closed position, is engageable by the lower prong 12*c* yieldingly to urge latch 15 downwardly, and thereby releasably lock the jaw 12 in said closed

position. The latch 15 is also provided with a downwardly projecting lever 15*g* which is disposed to be operated by a cam (not shown) which may be mounted on the ties or other structure between the rails of a track, automatically to open the jaws 12 and uncouple the units of the train.

The T-head 11 of the fixed arm 10 is provided with forwardly inclined cam face 11*a*, which may be engaged by a like cam face of another coupler unit to guide the respective fixed arms of the units toward proper coupling relation thereof.

In use the drawbar 6 is secured to the floor or chassis of a toy car, engine or other train unit, preferably by a pin or bolt (not shown), and a spring or other means may be secured to the part 6*a* yieldingly to hold the drawbar 6 in longitudinal alignment with the center line of the train. Any suitable means, such as a relatively fixed cam, may be employed to engage the lever 15*g* when the train is moved past it, thereby yieldingly to disengage the latch 15 and automatically open the jaw 12 while the train is in motion. With the jaws 12 of two coupler units thus opened, when the train cars or units are relatively moved toward each other, the main body of the fixed jaw 10 of each coupler unit will be received between the spaced prongs 12*a* and 12*b* of the other, and the respective bars 11 will be moved to engage the levers 12*c* and thereby operate the jaws 12 to a closed position. With this movement latch 15 engages the lever prong 12*d* and securely locks the couplers in coupled relation, as shown in Figure 1.

While the improved coupler unit has been described in reference to a preferred position, it will be understood that the same may be operated in any position and that the terms upper, lower, lateral, etc., apply to the coupler wherever used when placed in the position shown.

Having thus illustrated the invention and described the same in detail, what is claimed is:

1. In a coupler of the character described, a drawbar; an outwardly arched fixed jaw projecting forwardly from one lateral side of the forward end thereof, a vertical bar forming a T-head on the forward end of said fixed jaw; a swinging jaw hinged to the other lateral side of the forward end of said drawbar, said swinging jaw terminating in parallel prongs curved inwardly toward said vertical bar; parallel levers projecting laterally inward from the base of said swinging jaw, said fixed jaw positioned between said levers with the ends of the levers projecting laterally beyond the fixed jaw when the swinging jaw is in a closed position; and a spring catch for engaging one of said levers to hold the swinging jaw in a closed position.

2. In a coupler of the character described, a drawbar; an outwardly arched fixed jaw projecting forwardly from the forward end thereof, a T-head on the forward end of said fixed jaw; a swinging jaw hinged to the forward end of said drawbar; said swinging jaw terminating in parallel prongs curved inwardly toward said head; parallel levers projecting laterally inward from the base of said swinging jaw, said jaw positioned between said levers, and a spring catch for engaging one of said levers to hold the swinging jaw in a closed position.

3. In a coupler of the character described, a drawbar; an outwardly arched fixed jaw projecting forwardly from one lateral side of the forward end thereof, a vertically disposed T-head on the forward end of said fixed jaw; a swinging jaw hinged to the other lateral side of the forward end of said drawbar, said swinging jaw terminating in parallel prongs curved laterally inward toward said head, a lever projecting laterally inward from the base of said swinging jaw, and a spring catch for engaging said lever to hold the swinging jaw in a closed position.

4. In a coupler, a drawbar; a fixed jaw projecting forwardly from one lateral side of the forward end thereof; a swinging jaw hinged to the other lateral side of the forward end of said drawbar, said swinging jaw terminating in prongs curved inwardly toward said fixed jaw; parallel levers projecting laterally inward from the base of said swinging jaw, said fixed jaw positioned between said levers with the ends of the levers projecting laterally beyond the fixed jaw when the swinging jaw is in a closed position; a spring catch for yieldingly engaging one of said levers releasably to hold the swinging jaw in a closed position; and a bar projecting downwardly from said catch, said bar adapted to be yieldingly moved laterally to disengage said catch.

5. In a coupler of the character described, a drawbar, a laterally arched fixed jaw projecting from the forward end thereof, said fixed jaw having a vertically disposed T-head; a swinging jaw, hinged to the forward end of said drawbar for limited turning movement on a vertical axis toward and from said head, said swinging jaw terminating in spaced, parallel prongs curved inwardly toward said head, means on said swinging jaw engageable by the head on the fixed jaw of a like coupler to close said swinging jaw and a spring catch automatically operable to hold said jaw in a closed position.

6. In a coupler unit of the character described, a drawbar, an outwardly arched jaw projecting from the forward end thereof; a swinging jaw hinged to said drawbar for movement to and from the first named jaw, said swinging jaw terminating in prongs curved toward the first named jaw, said prongs being spaced to receive therebetween said outwardly arched jaw of another like coupler unit when said like coupler units are relatively moved into coupling relation, an automatically operable lock for holding said jaws in a closed coupling position; and a lever operable to release said lock.

7. In a coupling of the character described, two oppositely presented like couplers, each comprising a drawbar having a relatively wide forward end portion; a fixed jaw and a swinging jaw projecting forwardly therefrom, said fixed jaw having a T-head, said swinging jaw terminating in two spaced prongs curved laterally toward said head with each of the prongs positioned to contact with an end of said head; means on said swinging jaws engageable by the head on the fixed jaw of each coupler to move said swinging jaws to a closed position, spring catches automatically operable to lock said swinging jaws in a closed position, and means for releasing said catches.

8. In a coupling of the character described, two oppositely presented like couplers, each comprising a drawbar having a relatively wide forward end portion; a fixed jaw and a swinging jaw projecting forwardly therefrom, said fixed jaw having a T-head, said swinging jaw terminating in two spaced prongs curved laterally toward said head with each of the prongs positioned to contact with an end of said head; means on said swinging jaws engageable by the head on the fixed jaw of each coupler to move

said swinging jaws to a closed position, spring catches automatically operable to lock said swinging jaws in a closed position, a lever depending from each drawbar, said levers operable to unlock said catches whereupon the head on each fixed jaw will engage a swinging jaw and move the same to an open position.

9. In a coupler unit of the character described, a drawbar, a relatively fixed jaw on said drawbar, a relatively movable jaw on said drawbar, said jaws being spaced apart and terminating in closely adjacent free ends in a closed coupling position thereof, said movable jaw being movable in a plane substantially parallel to the

plane of said fixed jaw, a lever arm on said movable jaw extending toward said fixed jaw, said fixed jaw having an element on the free end thereof projecting toward the plane of said movable jaw for engaging the lever arm of a like coupler unit to close the jaws thereof and for engaging the movable jaw of said like coupler unit in closed coupled relation of said like units, and spring actuated means operable by closing movement of said movable jaw for yieldingly releasably locking the same in said closed position.

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