(No Model.) 2 Sheets—Sheet 1.

P. H. MURPHY.

CAR COUPLING.

No. 469,166. Patented Feb. 16, 1892.

Fig. I.

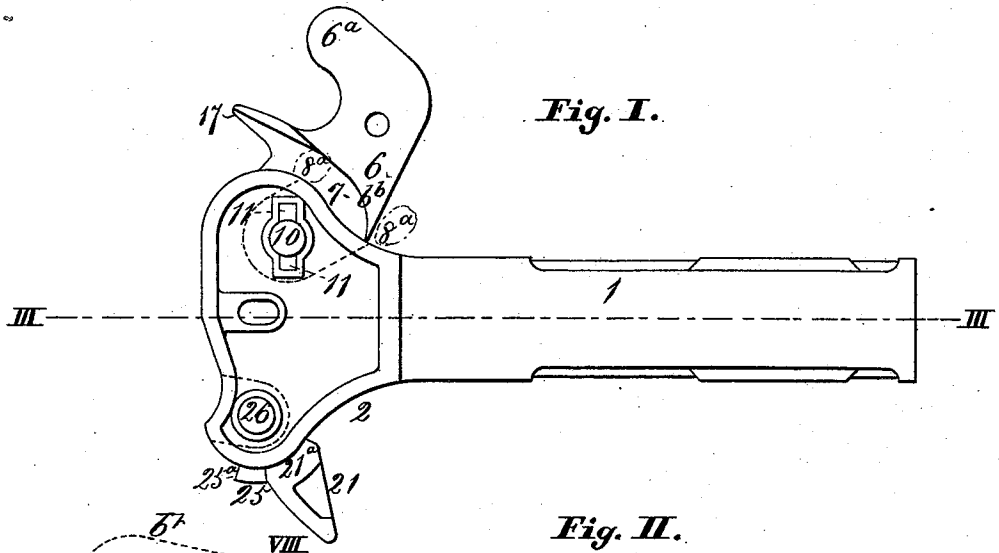


Fig. II.

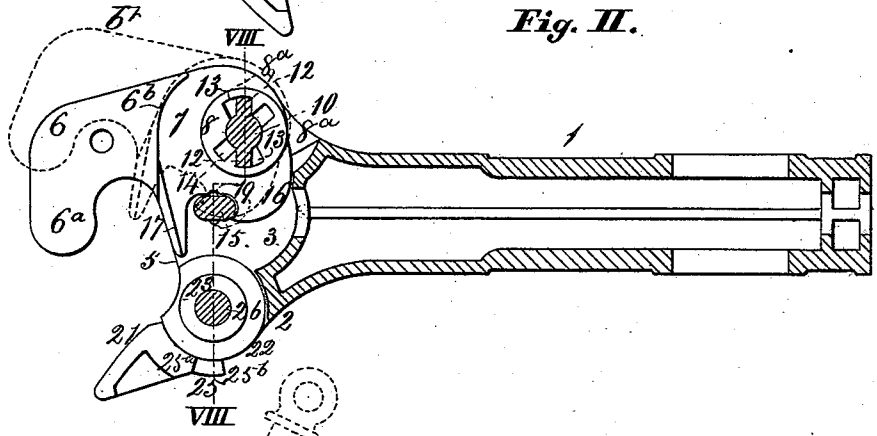
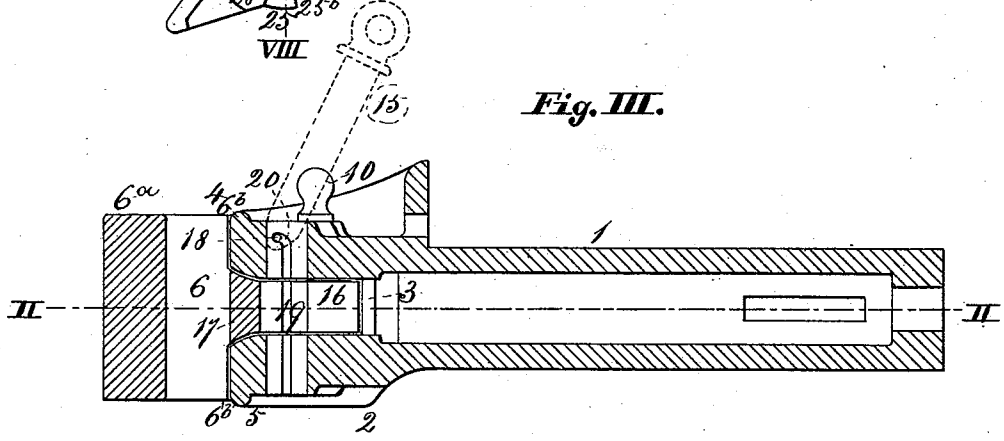


Fig. III.



Attest:

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Arthur O. Knight

Inventor:

Peter H. Murphy.

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Attys.

(No Model.) 2 Sheets—Sheet 2.

P. H. MURPHY.

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Fig. V.

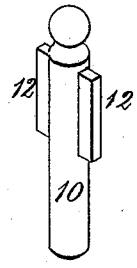


Fig. IV.

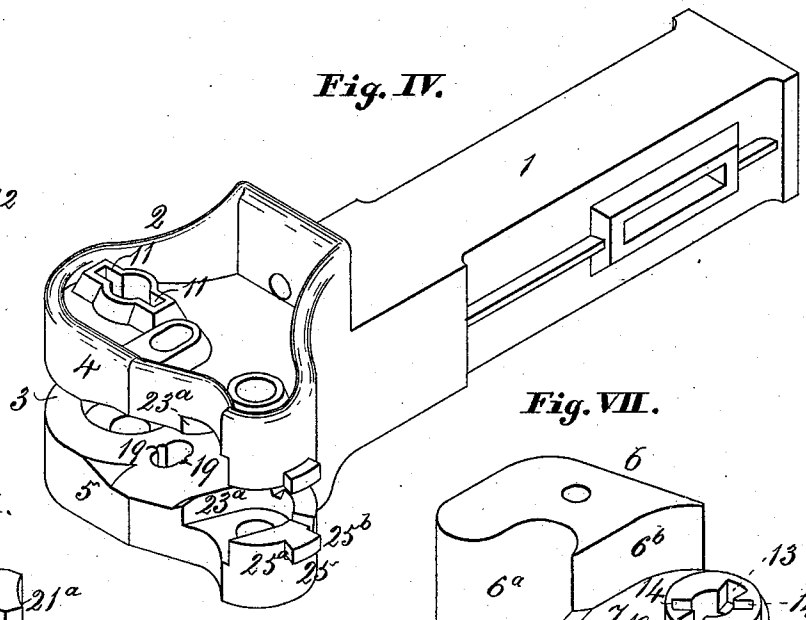


Fig. VII.

Fig. VI.

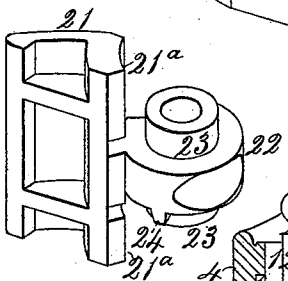


Fig. VIII.

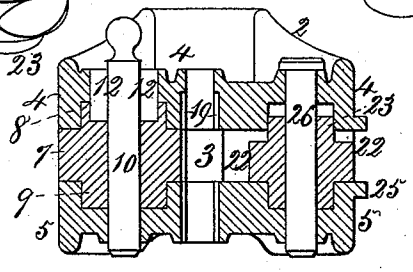


Fig. IX.

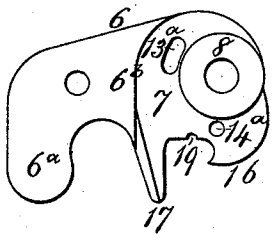


Fig. X.

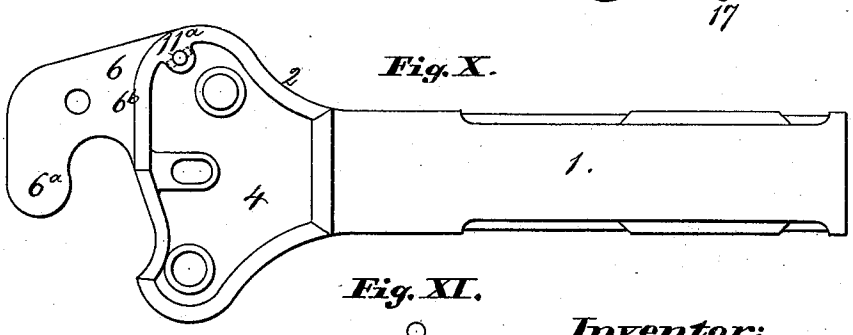
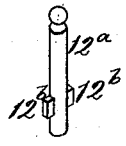


Fig. XI.



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Attys.

UNITED STATES PATENT OFFICE.

PETER H. MURPHY, OF EAST ST. LOUIS, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 469,166, dated February 16, 1892.

Application filed July 29, 1891. Serial No. 401,085. (No model.)

To all whom it may concern:

Be it known that I, PETER H. MURPHY, of East St. Louis, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Car-Couplers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention applies to the class of automatic couplers having swinging hooks engaged by the approach of the draw-bars and secured by a drop-pin.

The points of novelty will be set forth in the claims.

Figure I is a top view of the coupler in condition for use in conjunction with an ordinary pin-coupler upon the other car. Fig. II shows the body and head of the draw-bar in horizontal section taken at II II, Fig. III, with the knuckle and guide in top view and in the position they occupy when coupled. The dotted lines show the knuckle and coupling-pin in position ready for coupling. Fig. III is a longitudinal vertical section taken at the line III III, Fig. I, the knuckle or hook being, however, in the position seen in Fig. II. Fig. IV is a perspective view of the draw-head or body of the coupler, the movable knuckle or hook, and the guide being removed to show the interior construction. Fig. V is a perspective view of the pin for limiting the swing of the knuckle and holding it in its retracted position. Fig. VI is a perspective view of the pivoted guide. Fig. VII is a perspective view of the knuckle or coupling-hook. Fig. VIII is a transverse vertical section of the coupler, taken at VIII VIII, Fig. II. Fig. IX is a top view of the knuckle, showing a modification. Fig. X is a top view of the coupler in its modified form, the knuckle being in position of engagement and the guide removed. Fig. XI is a perspective view of the pin for limiting the movement of the knuckle, the pin being adapted for use with the form of coupler shown in Figs. IX and X.

1 is the body of a draw-bar, and 2 is the head.

3 is a recess extending through the head transversely to receive the hubs of the knuckle and guide and the end of the coupling-link, where such is used. This transverse recess 3 divides the front portion of the head into an upper part 4 and a lower part 5. The main part 7 of the hub of the knuckle 6 has a vertical thickness nearly equal to the height of the opening or recess 3.

8 and 9 are circular upward and downward projections of the hub, that turn in the recesses of the parts 4 and 5, respectively, and thus form, with the pin 10, the pivotal connection of the knuckle. The pin occupies pin-holes in the parts 4 and 5. At the sides of the pin-hole in part 4 are recesses 11, extending vertically through the part 4 to receive wings or splines 12, extending from the opposite sides of the pin. The purpose of this construction is to prevent the turning of the pin.

13 and 14 are recesses in the top of the projection or boss 8 to receive the splines 12 and thus limit the turning of the knuckle, as in case of the recesses 13, and to lock it in position in case of the recesses 14, the lower part of the splines fitting snugly the recesses 14. When the splines are in the recesses 14, the knuckle is fixed in the position seen in in Fig I, being out of position for use. The recesses 13 are wider than the splines, and consequently when the splines are therein the knuckle has a limited movement, as indicated in Fig. II by the full and dotted lines, the dotted lines indicating its position before coupling and the full lines indicating its position after coupling. When the pin 10 is drawn upward, lifting the splines above the recesses 13 14, the knuckle may be turned freely from its rearward position shown in Fig. I to the position shown in full lines in Fig. II. When in the latter position, its hook 6^a may engage a similar hook upon the draw-bar of the other car. It is held in this position by the coupling-pin 15, as seen in Fig. II, the coupling-pin engaging the front side of the projection 16 on the hub of the knuckle.

17 is a projection or tongue extending from the hub of the knuckle, the position and form of the tongue being such that the hook 6^a of the other car as the cars approach will impinge against the tongue and carry the knuckle into the coupling position. (Shown in full lines in Fig. II.)

The coupling-pin 15 has near its lower end a cross-pin 18 extending diametrically through it and with ends projecting from the sides of the coupling-pin. The sides of the coupling-pin hole have channels 19 for the passage of the ends of the pin. These channels are vertical from the bottom to near the top, where they curve forward, so as to give means for holding up the pin, the upper part of the latter being thrown backward, as shown by dotted lines in Fig. III, carrying the cross-pin ends into the forwardly-curved parts 20 of the channels 19. The concussions of the knuckles as they come together in coupling two cars will throw the upper end of the coupling-pin outward and withdraw the ends of the pin 18 from the parts 20 of the channels. The pin 15 now descends, engaging the projection 16.

In order to guide the knuckles in their approach toward each other in the coupling of the cars and to hold them in their coupled position, a guide or guard 21 is provided, which forces the hooks 6^a together transversely as they approach and prevents their lateral escape when coupled.

In order to enable the use of the device with a contiguous car having an ordinary draw-bar, this guide must admit of throwing back similarly to the knuckle 6, and for this purpose the hub 22 of the guide has cylindrical projections or bosses 23 on the upper and under side, that turn in open-sided recesses 23^a of the parts 4 and 5 of the head 2. In order to lock the guide in its two positions, as seen in Figs. I and II, respectively, the hub has on its under side at the periphery a tooth 24, that engages against the ends of a projection 25 upon the outside of the head. When the guide is in active position, as seen in Fig. II, the tooth engages against the front end 25^a of the projection, and when in the retired position (seen in Fig. I) it engages against the rear side 25^b of the projection. In order to allow the tooth to pass over the projection 25, the guide is liftable in its bearings, as indicated in Fig. VIII. The guide turns one a pivot-pin 26.

In the modification shown in Figs. IX, X, and XI the splines 12 of the pivot-pin 10 and the recesses 11 of the head and 13 14 of the knuckle are dispensed with, and in their place the knuckle has recesses 13^a 14^a and the head has a pin-hole 11^a, in which is a vertically-movable pin 12^a. This pin is passed into the pin-hole 11^a in the upper part 4 of the head from beneath before the knuckle is put in position. The pin has projections 12^b, which enter recesses at the sides of the pin-hole, such recesses being indicated by dotted lines in Fig. X. These projections 12^b are to prevent the removal of the pin, the recesses not extending to the top of the pin-hole. When the point of the pin 12^a is in the circular recess 14^a, the knuckle is locked in its position of retreat, as seen in Fig. I. When the point-pin is in the elongated recess 13^a, the knuckle is limited to movement from the positions shown, respectively, by dotted and full lines in Fig. II—that is to say, from a position ready for coupling to the coupled position.

In putting the knuckle in position the bosses 8 and 9 are passed into the recesses in which they turn through the open sides of such recesses. (See Figs. I and II, in the former of which the position of the open recess is shown by dotted lines and the latter partly by dotted and partly by full lines at 8^a.)

It will be understood that while the knuckle and guide are secured in position by the pintle or pivot pins 10 and 26, yet the pins are not wholly relied upon to resist the strain upon knuckle and guide, as the bearing of the bosses 8, 9, and 23 in their sockets, together with the shoulders 6^b of the knuckle and 21^a of the guide, take the larger part of the strain, such shoulders bearing against the outer faces of the parts 4 and 5, which are concentric with the pintle-pins 10 and 26.

The operation of the coupler may be briefly described as follows: Preparatory to coupling, the splines 12 are made to enter the recesses 13 of the knuckle 6 and the knuckle set outward in the position shown by dotted lines in Fig. II. The guide 21 is also placed in its active position, as seen in the same figure. As the cars approach each other, the knuckles of each car impinge against the projection 17 of the other knuckle and cause them to interlock and take the position seen in full lines in Fig. II. As the knuckle reaches this position the coupling-pin 15 descends and engages the projection 16 and locks the knuckle. When the parts have the construction shown in Figs. IX, X, and XI, the pin 12^a is made to engage in the recess 13^a and the operation is the same. When a draw-bar of ordinary construction is to be coupled with the draw-bar above described, the pin 10 or 12^a, as the case may be, is raised and the knuckle 6 thrown back into the inactive position seen in Fig. I, the guide 21 is raised to clear the tooth 24 from the projection 25, and is then turned back into the inactive position seen in Fig. I and allowed to descend, locking the tooth 24 against the rear end 25^b of the projection 25. The coupling-pin is now placed in the position shown by dotted lines in Fig. III and the parts are in position for the engagement of the ordinary coupling-link.

I claim herein as new and of my invention—

1. In a car-coupler, the combination of the head 2, provided with a recess 3, adapted to receive an ordinary coupling-link, and a pin-hole adapted to receive a coupling-pin, the knuckle 6 and guide-block 21, pivoted in said head and both adapted to be turned back out of the way into inactive position, recesses in the head adjacent to the knuckle and guide-block, and means carried by said knuckle and guide-block adapted to engage in said recesses for holding the knuckle and guide-block in their inactive position, whereby the improved

coupler can be coupled to a draw-bar of ordinary construction, substantially as herein set forth.

2. The combination, in a car-coupler, of the head 2, the guide 21, having pivotal connection therewith, and means for locking the guide in its active and inactive positions, consisting, essentially, of teeth or projections on the adjacent parts of the head and guide, substantially as and for the purpose set forth.

3. The combination, in a car-coupler, of the coupling-knuckle 6, the guide 21, pivoted in the head 2 and capable of vertical movement in its bearing, and the tooth 24 and projection 25 upon the guide and head, respectively, and adapted to operate substantially as set forth.

4. The combination, in a car-coupler, of the knuckle 6, pivoted to the head 2 and provided with recesses substantially as 13 and 14, and a detent device adapted to engage in either of the said recesses for holding the knuckle in either active or inactive position, substantially as and for the purpose set forth.

5. The combination, in a car-coupler, of the coupling-pin 15, having a cross-pin 18 projecting from its sides near the end, and vertical grooves 19 in the inside of the head 2, adapted to receive the ends of the cross-pin for guiding the coupling-pin 15 in its vertical movement, said grooves 19 having upper curved portions 20 for holding the pin in raised position, substantially as set forth.

6. The combination, in a car-coupler, of the pivoted knuckle 6, having recesses 13 and 14, the pivot-pin 10, having splines 12, and the head 2, provided with recesses 11, adapted to receive the splines, substantially as and for the purpose set forth.

7. The combination, in a car-coupler, of the pivoted knuckle 6, provided with recesses 13 and 14, the head 2, provided with recesses 11, and the pivot-pin 10, having splines 12, adapted to engage in the recesses 11 and either the recesses 13 or 14 for holding the knuckle 6 in active or inactive position, the recesses 13 being wider than the splines 12 to allow of a limited movement of the knuckle when it is in its active position, substantially as and for the purpose set forth.

PETER H. MURPHY.

Witnesses:
SAML. KNIGHT,
BENJN. A. KNIGHT.