

S. WINTER.
CAR COUPLING.

APPLICATION FILED FEB. 12, 1908. RENEWED AUG. 16, 1909.

951,896.

Patented Mar. 15, 1910.

2 SHEETS--SHEET 1.

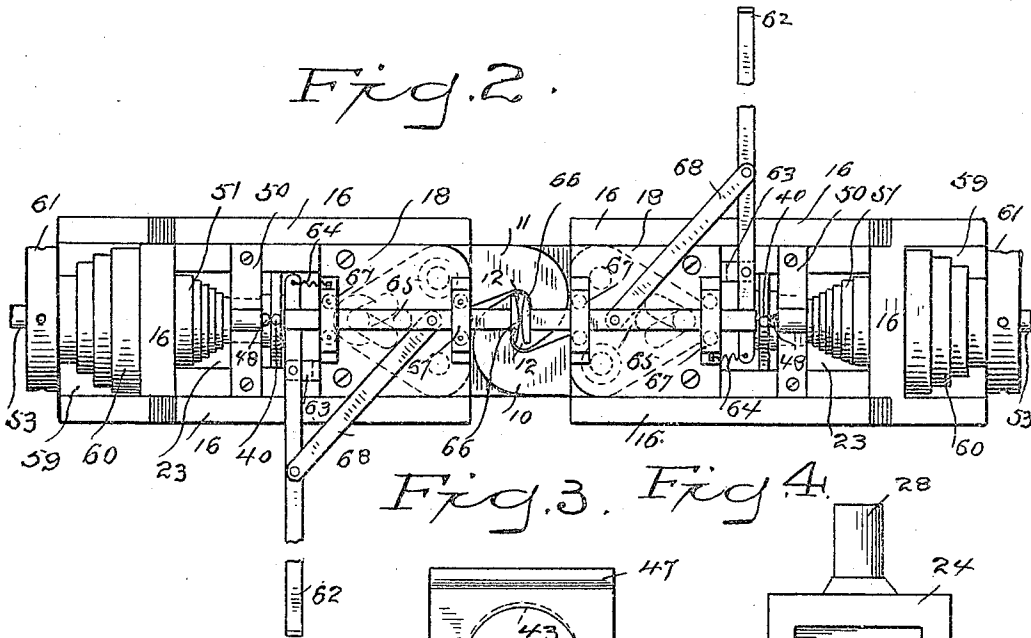
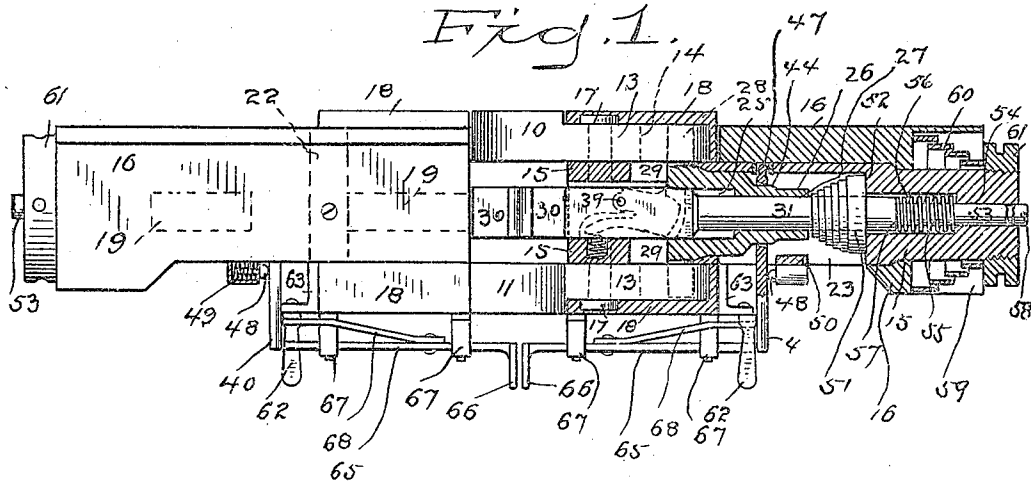
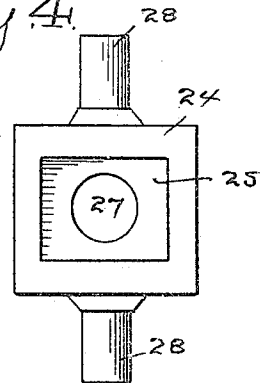
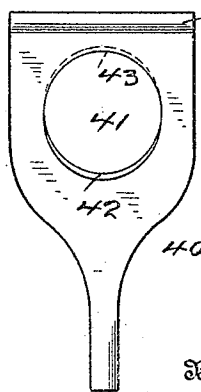


Fig. 3. Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

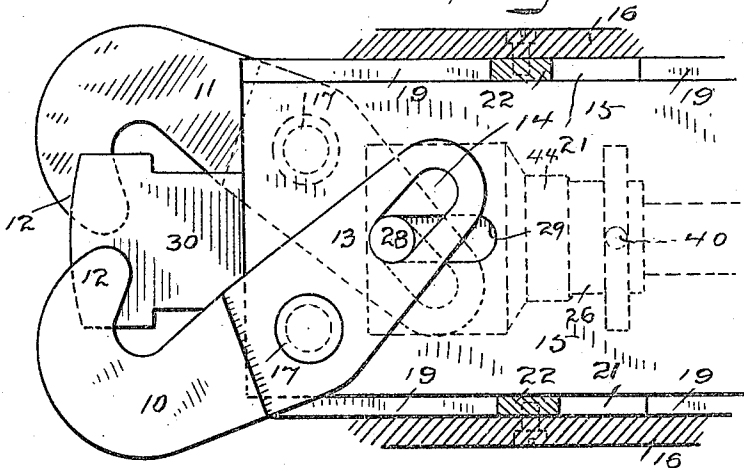


Fig. 6.

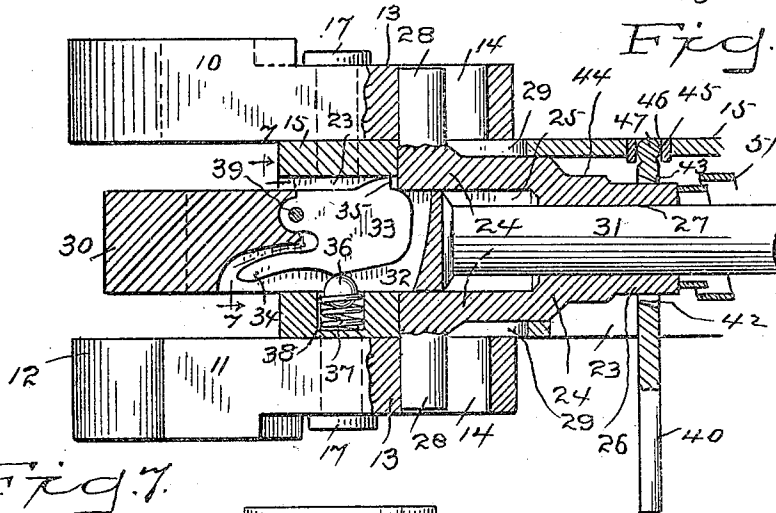


Fig. 7.

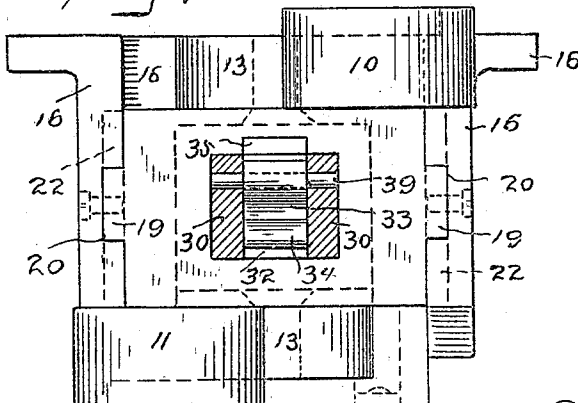
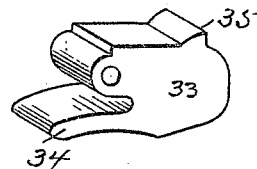
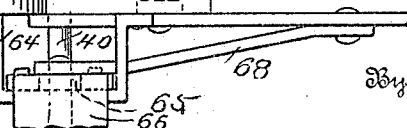


Fig. 8.



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CAR-COUPLING.

951,396.

Specification of Letters Patent.

Patented Mar. 15, 1910.

Application filed February 12, 1908, Serial No. 415,532. Renewed August 18, 1909. Serial No. 513,190.

To all whom it may concern:

Be it known that I, STEPHEN WINTER, a subject of the Emperor of Austria-Hungary, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Car-Coupling, of which the following is a specification.

This invention relates to a new and useful car coupling, the essential features of which are that the hooks are swung to the engaging position by the heads, are locked in the engaging position and when released are automatically swung to the disengaging position.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements and combinations which will be hereinafter described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings forming a part of this specification, in which like characters of reference indicate the several parts: Figure 1 is a view partly in side elevation and partly in vertical section showing two couplings with the swinging hooks in the engaging position; Fig. 2 an inverted plan view corresponding therewith; Fig. 3 an enlarged view of the locking lever detached; Fig. 4 a front elevation on the same scale of the operating block detached; Fig. 5 a plan view on an enlarged scale of a single coupling showing the swinging hooks in the disengaging position, the casing appearing in horizontal section; Fig. 6 a view corresponding with Fig. 5 partly in side elevation and partly in vertical section. Fig. 7 a front elevation corresponding with Figs. 5 and 6, the sliding head being in section on the line 7-7 in Fig. 6; and Fig. 8 is a perspective of the engaging dog detached.

10 denotes an upper swinging hook and 11 a lower swinging hook. These hooks are provided with engaging portions indicated by 12 which face inward toward each other and with shanks 13 having longitudinal slots 14. The hooks are pivoted respectively to the upper and lower sides of a carrier 15 which may move longitudinally in a casing 16. The hooks are shown as pivoted at approximately their mid-length by headed pins 17 which are retained in place by upper and lower cap plates 18 secured to the carrier. The carrier is provided on opposite sides with ribs 19 which lie in grooves 20 in the casing. Each rib is pro-

vided with a recess 21 and lying in each recess is a rib or block 22 formed upon or secured to the casing. The engagement of the ends of ribs 19 with ribs or blocks 22 limits the reciprocation of the carrier as will be more fully explained. The carrier is provided with a longitudinal opening 23 closed on the top and sides but partly open at the bottom. Lying within this opening is a longitudinally movable operating block 24. The operating block is provided at its forward end with a recess 25, at its rear end with a shank 26 having a longitudinal opening 27 through it and on its upper and lower sides with pins 28 which extend through slots 29 in the upper and lower plates of the carrier and engage the longitudinal slots 14 in the shanks 13 of the swinging hooks.

30 denotes the sliding head which lies between the swinging hooks, that is above the lower hooks and below the upper hooks, as clearly shown in Fig. 6. The head extends into longitudinal opening 23 in the carrier and into recess 25 in the forward end of the operating block and is provided with a shank 31 extending through opening 27 in shank 26 of the operating block.

32 denotes a recess in the head at the forward end of which an engaging dog 33 is pivoted as at 39. This dog is provided with a tail piece 34 extending forward of the pivotal point and with an abutment 35 which is adapted to engage the forward end of the locking block, as clearly shown in Fig. 6. Dog 33 is retained in the engaging position by means of a ball or plunger 36 which is projected by means of a spring 37 lying in a socket 38 in the carrier. In Fig. 6 the ball or plunger is shown as retaining the dog in the engaging position. When the head is moved backward in the act of coupling, as will be more fully explained, the dog will engage the forward end of the operating block, will carry said block backward and, through the engagement of pins 28 on the operating block with slots 14 in the shanks of the hooks, will swing the latter to the engaging position. As the head moves backward, ball or plunger 36 will travel along the tail piece of the dog and will tilt the latter downward out of engagement with the forward end of the operating block. When the buffer is again moved forward, as will be more fully explained, ball or plunger 36 will travel in the

opposite direction along the tail piece of the engaging dog and will raise the latter to the engaging position again as in Fig. 6.

The operating block is locked in the retracted position, that is in the engaging position of the hooks, as in Figs. 1 and 2, by means of a locking lever 40 which is fulcrumed in the top of the carrier and is provided with an oblique opening 41 through which the shank of the operating block passes, and which, of course, prevents the locking lever from becoming separated from the carrier at its fulcrum 47 the front lower edge and the rear upper edge of said opening, indicated respectively by 42 and 43, forming points of contact which engage surface 44 on the shank of the operating block to retain the latter in position to hold the hooks in the engaging position. I have shown the top of the carrier as provided with a hardened bearing block 45 having a slot 46 to receive the rounded fulcrum 47 of the locking lever (see Fig. 6). The locking lever is retained in the locking position by means of a ball or plunger 48 which is projected by means of a spring 49 (see Fig. 1) socketed in a cross piece 50 secured to the under side of the carrier.

The locking block is thrown to its forward position when released, that is to the disengaging position of the hooks, by means of a spring 51 bearing against the rear end of the shank of said block and against a shoulder 52 on the carrier. The rear end of the shank 31 of the head is shown as reduced as at 53 and passes through a hole 54 in the rear end of the carrier. A spring 55 lying in a socket 56 in the rear end of the carrier bears against the base of the socket and against a shoulder 57 on the shank of the head and acts to return the head to its forward position as soon as cars are uncoupled. A pin 58 at the end of the coupler shank of the hook engages the rear end of the carrier and limits the movement of the head when moved forward by spring 55.

At the rear end of the casing is a recess 59 in which is a strong spring 60 which bears against the base of the recess and against a nut 61 at the rear end of the carrier and serves as a buffer spring to take up the shock of the first pull upon a heavy train. The entire pull in hauling a car being upon the carrier, it will be obvious that this spring takes up the first shock of the pull and there will be no dead pull until the entire resistance of this spring is overcome and the ends of ribs 19 engage ribs or blocks 22 on the casing.

The releasing of the operating block, which permits the hooks to be automatically swung to the disengaging position, is effected by means of a releasing lever 62 shown as pivoted to a bracket 63. The short arm 65 of lever 62 is adapted to engage locking le-

ver 40 to disengage it from the shank of the operating block, lever 62 being retained at its normal position by means of a spring 64, one end of which is connected to the inner end of the lever and the other to any fixed portion of the structure. 65 denotes a slide bar having a head 66 which is adapted to engage the head of the slide bar of a corresponding coupling. The slide bar moves in guides 67 and is connected to the releasing lever by means of a link 68. The operation of uncoupling may be performed from either side of a train, as the releasing lever upon one car will extend in one direction and the releasing lever upon the other car in the opposite direction. When either releasing lever is operated, the head 66 of the slide bar will engage the head 66 of the slide bar of the other coupling, the short arm of the operated releasing lever will operate the corresponding locking lever 40 and the slide bar of the other coupling will operate the other locking lever, the effect of which is to disengage edges 42 and 43 upon the locking levers from engaging surfaces 44 on the shanks of the operating blocks which permits the springs 51 to throw the operating blocks forward and through the engagement of pins 28 with slots 14 in the shanks of the couplers to swing the hooks of both couplings to the disengaging position as in Fig. 5.

The operation of the coupling as a whole is as follows: In the disengaging position, as in Figs. 5 and 6, the heads 30 are held at their forward position by springs 55, the operating blocks are held at their forward position by springs 51, and the engaging dog is held at the raised position by spring actuated ball or plunger 36. When two cars are run together, the heads engage and are both moved backward against the power of springs 55. Abutments 35 on the dogs engage the forward ends of the operating blocks and move the latter backward, the effect of which is through the engagement of pins 28 with the slots in the shanks of the hooks, to swing the latter to the engaging position as in Figs. 1 and 2. As the heads move backward, balls or plungers 36 will travel along the tail pieces of the engaging dogs and tilt the latter downward from the engaging position as in Fig. 6 to a position in which the abutments 35 will be below the forward ends of the operating blocks. It will be noted that each coupling comprises oppositely facing upper and lower swinging hooks so that there is a double connection between each pair of cars. The first pull when a train is started is taken up by buffer springs 60, and there is a yielding pull upon the train until the forward ends of ribs 19 upon the carriers engage ribs or blocks 22 on the casings. Disengagement of the hooks and the uncoupling of a pair of cars except through

the operation of a releasing lever is rendered impossible through the engagement of the locking levers with engaging surfaces 44 on the shanks of the operating blocks. When the operating blocks are moved backward, as already explained, from the position shown in Fig. 6 to the position shown in Fig. 1, the enlarged portions of the shanks of the operating blocks comprising engaging surfaces 44, will pass into the oblique openings 41 in the locking levers and edges 42 and 43 of said openings will make a locking engagement with said engaging surfaces and prevent backward movement of the operating blocks. The locking levers moreover are retained in the locking position by the spring actuated balls or plungers 48 which can only be retracted by the operation of one of the releasing levers. To uncouple a pair of cars, it is simply necessary to operate the releasing lever upon either car, the operation of either lever, as already explained, through the engagement of the slide bars acting to operate the other lever, and through intermediate connections to release the operating blocks and permit springs 51 to throw said operating blocks forward, the effect of which is, through the engagement of pins 28 with the slots in the shanks of the hooks, to swing the hooks of both cars to the disengaging position, as in Figs. 5 and 6. When the heads are thrown forward again springs 55, after separation of a pair of coupled cars, spring-actuated balls or plungers 36 will travel along the tail pieces of the engaging dogs and will raise said dogs to the engaging position again as in Fig. 6, ready for another coupling operation, as already described.

Having thus described my invention, I claim:—

1. In a car coupling, the combination with a swinging hook and a sliding head, of means for positively swinging the hook to and from engaging position when the head is moved backward and forward, the said sliding head being in position to abut against a similar head carried by a mating coupling member on an adjoining car.

2. In a car coupling, the combination with upper and lower swinging hooks and a sliding head lying between said hooks, of means for positively swinging the hooks to and from engaging position when the head is moved backward and forward, the said sliding head being in position to abut against a similar head carried by a mating coupling member on an adjoining car.

3. In a car coupling, the combination with a swinging hook having an engaging portion and a shank, of an operating block engaging the shank, means for moving the operating block forward to swing the hook to the disengaging position, a head, and a spring-controlled dog carried thereby which

engages the operating block in the forward position, so that when the head is moved backward the operating block will also be moved backward and will swing the hook to the engaging position.

4. In a car coupling, the combination with upper and lower swinging hooks having shanks, and a sliding head carrying an engaging dog, of an operating block engaging the shanks of the hooks, and adapted to be engaged by the dog, and means for moving the operating block forward to swing the hooks to the disengaging position, the dog engaging the operating block when the head is moved backward and swinging the hooks to the engaging position.

5. In a car coupling, the combination with upper and lower swinging hooks having slotted shanks and an operating block having pins engaging said slots, of means for moving the operating block forward to swing the hooks to the disengaging position, a sliding head and a spring-controlled dog carried thereby which engages the operating block to move said block backward and swing the hooks to the engaging position.

6. In a car coupling, the combination with upper and lower swinging hooks having slotted shanks and a sliding operating block having pins engaging said slots, of a head lying intermediate the hooks, an engaging dog pivoted to the head, means for retaining said dog in position to engage the operating block when the latter is at the forward position, a spring for retaining the operating block and a spring for retaining the hook in the forward position.

7. In a car coupling, the combination with upper and lower swinging hooks having slotted shanks and a sliding operating block having pins engaging said slots, of a head lying intermediate the hooks, an engaging dog pivoted to the head and provided with a tail piece extending forward of the pivotal point, and a spring-controlled plunger engaging said dog to hold the latter in position to engage the operating block when the latter is in the forward position and engaging the tail piece to tilt the dog out of the engaging position when the head is moved backward.

8. In a car coupling, the combination with a swinging hook and a sliding operating block engaging said hook, of a sliding head, a dog pivoted to the head and engaging the operating block, a spring for moving the operating block forward to swing the hook to the disengaging position, backward movement of the head and dog carrying the operating block backward and swinging the hook to the engaging position, and means for locking the operating block when the hook is in the engaging position.

9. In a car coupling, the combination with a swinging coupler and a sliding operating

block engaging said hook, of a sliding head, means on said buffer for engaging the operating block, means for moving said block forward to swing the hook to the disengaging position, backward movement of the head causing said block to swing the hook to the engaging position, and means for locking the operating block.

10 In a car coupling, the combination with a swinging hook, a sliding operating block engaging said hook and a sliding head, of means on said head for engaging the operating block to move the hook to the engaging position, means for locking the operating block and a spring for moving the operating block forward when released.

11. In a car coupling, the combination with a swinging hook, a sliding operating block engaging said hook and a sliding head, of means on said head for engaging the operating block to move the hook to the engaging position, a locking lever having an oblique opening through which the shank of the operating block passes, the edges of said opening engaging said shank to lock the operating block, means for retaining the locking lever in the locking position and means for operating said lever to release the operating block.

12. In a car coupling, the combination with a swinging hook, a sliding operating block engaging said hook and a sliding head, of means on said head for engaging the operating block to move the hook to the engaging position, a locking lever having an oblique opening through which the shank of the operating block passes, the edges of said opening engaging said shank to lock the operating block, a spring actuated plunger for retaining the locking lever in the locking position and a releasing lever for actuating the locking lever to release the operating block.

13. In a car coupling, the combination with a swinging hook, a sliding operating block engaging said hook and a sliding head,

of means on said head for engaging the operating block to move the hook to the engaging position, a locking lever having an oblique opening through which the shank of the operating block passes, the edges of said opening engaging said shank to lock the operating block, a spring actuated plunger for retaining the locking lever in the locking position, a releasing lever for actuating the locking lever to release the operating block and a spring for moving the operating block forward when released to swing the hook to the disengaging position.

14. In a car coupling, the combination with upper and lower swinging hooks, a sliding operating block whereby said hooks are operated, a sliding head and means on said head for engaging the operating block to move it backward, of a locking lever for locking the operating block, a releasing lever for actuating the locking lever and a spring for moving the operating block forward when released.

15. In a car coupling, the combination with a swinging hook and an operating block by which said hook is operated, of a sliding head by which the operating block is moved backward, means for locking the operating block and a spring for moving said block forward when released.

16. In a car coupling, the combination with a swinging hook and an operating block by which the hook is operated, of a sliding buffer, a spring-actuated dog carried by the head and engaging the operating block, a lever for locking the operating block, a spring for moving said block forward when released and a releasing lever for actuating the locking lever.

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

STEPHEN WINTER.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.