

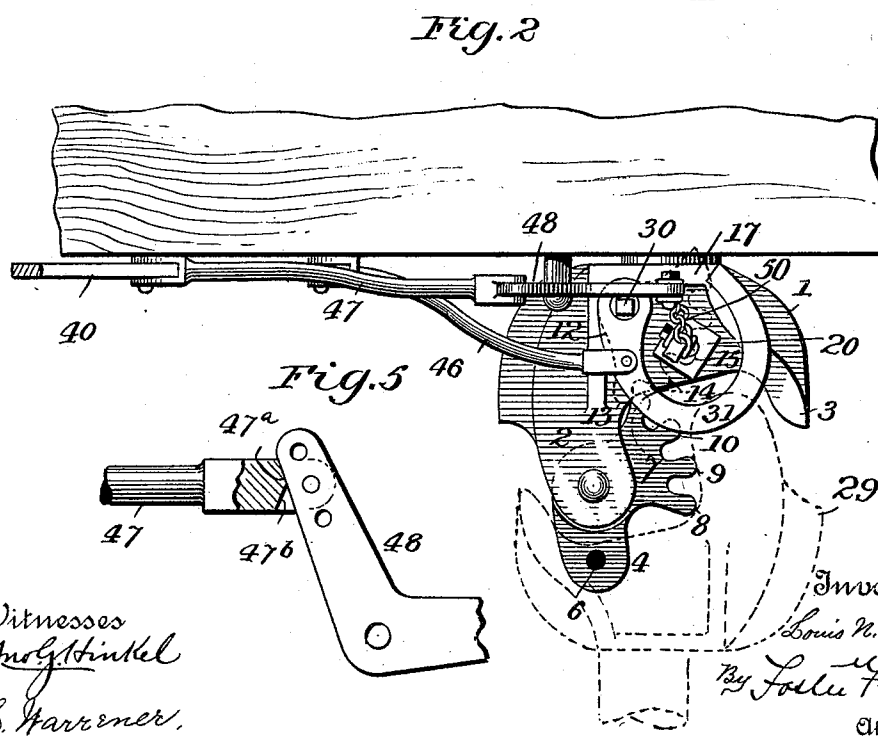
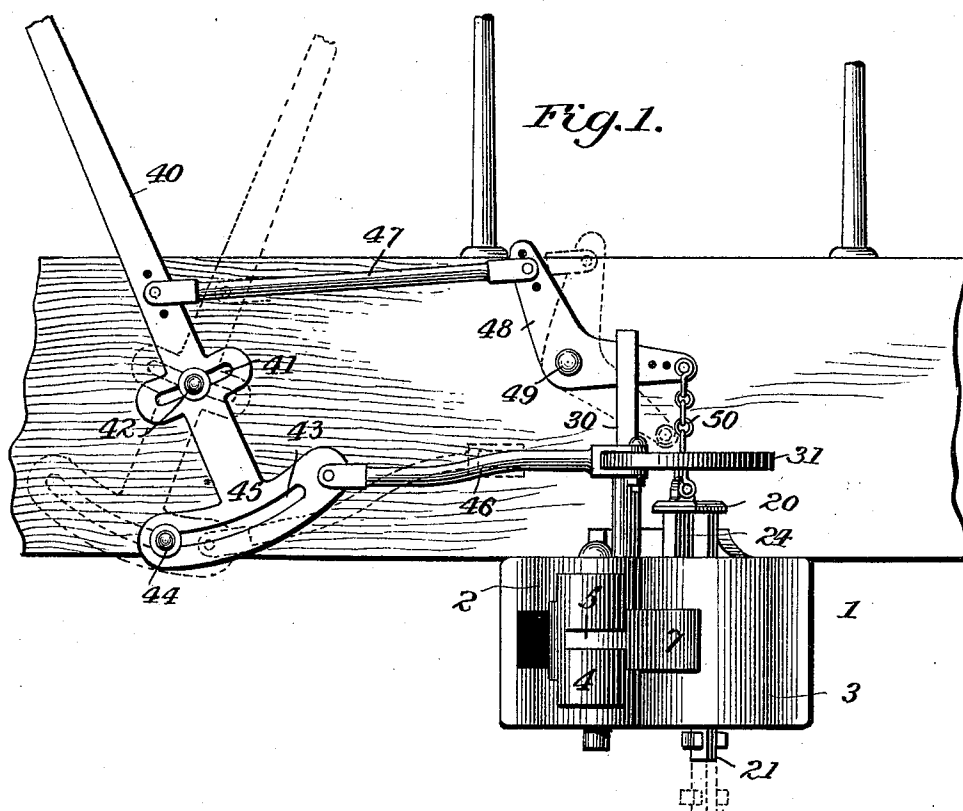
(No Model.)

2 Sheets—Sheet 1.

L. N. SINGIN.
CAR COUPLING.

No. 570,211.

Patented Oct. 27, 1896.



Witnesses
Jno. G. Hinkel
C. Harriner.

Inventor
Louis N. Lingin,
by
The Freeman
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

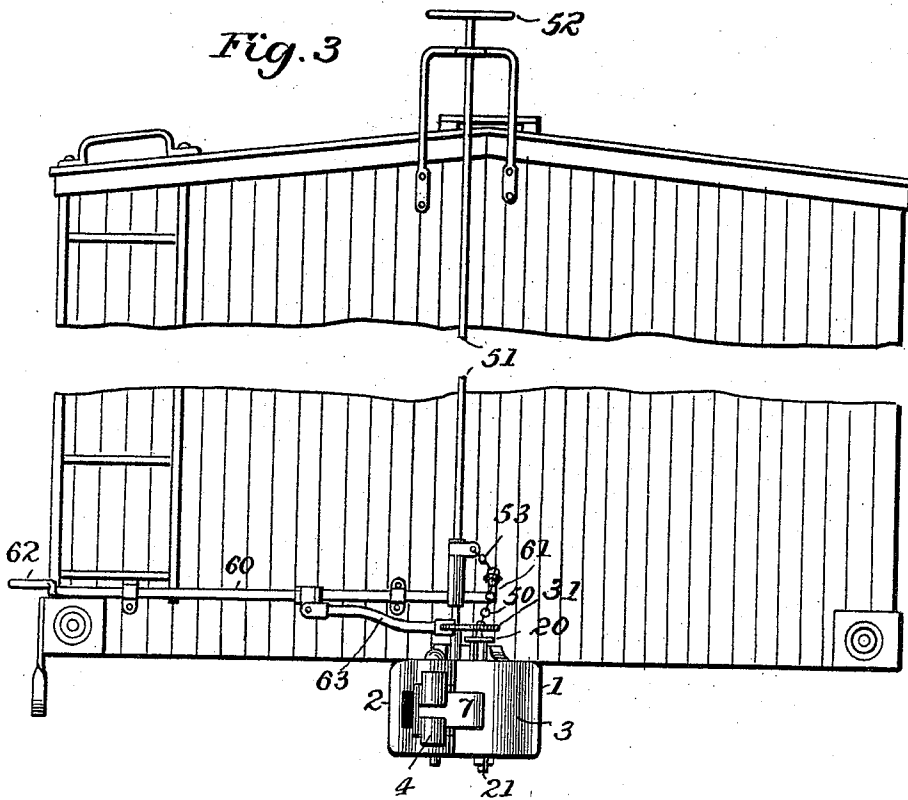
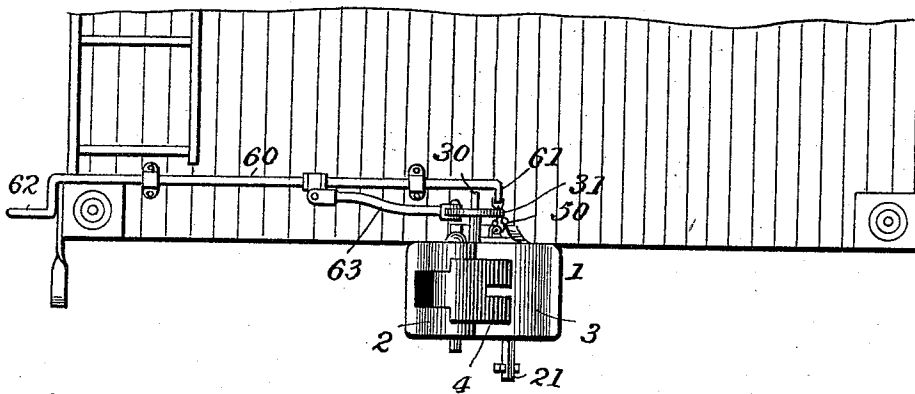


Fig. 4.



Witnesses
Geo. G. Hinkel
E. Warren

Inventor
Louis N. Singin.
By *Lester Freeman*
Attorney.

UNITED STATES PATENT OFFICE.

LOUIS N. SINGIN, OF WALLS, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 570,211, dated October 27, 1896.

Application filed August 14, 1896. Serial No. 602,808. (No model.)

To all whom it may concern:

Be it known that I, LOUIS N. SINGIN, a citizen of the United States, residing at Walls, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplers, and more particularly to the means for operating the couplers under all conditions so that the trainman will not have to go between the cars or expose himself to danger; and to these ends my invention consists in the various features of construction and arrangement of parts, substantially as hereinafter more particularly set forth.

While the principles of my invention may be applied to various types of car-couplers, it is intended more particularly for operation in connection with the coupler patented to me May 23, 1893, No. 497,930, and I have shown my invention in connection with such a coupler.

In the accompanying drawings, Figure 1 is an end view of a portion of a platform of a car, showing my improved coupler, together with means for operating it from the platform. Fig. 2 is a plan view of the same. Fig. 3 is an end view of a box-car or locomotive-tank, showing my improved coupler and means for operating it from the top of the car or tank. Fig. 4 represents the end of a car or tank, showing the coupler and means for operating it from the side of the car or tank; and Fig. 5 is a detail.

I do not deem it necessary herein to particularly describe the construction and operation of the coupler shown, as these are fully set forth in my patent above referred to, but it is sufficient to say that the coupling comprises a draw-head 1, of the usual construction, adapted to conform with the requirements of this class of couplers, so that it will be interchangeable with couplers of other makes, and it is provided with the projections 2 3, and the body of the draw-head is hollow for the reception of the operative parts.

Mounted in the projection 2 is a knuckle 4, provided with the usual slot 5 and pinhole 6 and with an extension 7, in the form of a sector, provided with a number of teeth 8 9 10,

&c., there being any desired number, four being shown in the drawings. Also mounted in the draw-head is a sector 12, also provided with a series of teeth 13 14 15, &c., the tooth 17, for instance, being preferably larger or thicker to form a strong bearing portion for the sector. The sector is pivotally mounted in the draw-head in such a position that its teeth normally engage with the teeth of the projection 7 of the knuckle, so as to move therewith.

In order to lock the knuckle in position, there is a locking-pin 20, which may be of any desired construction, but is shown as provided with an extension 21, passing through the draw-head, and with a part 24, shorter than the other portion, so that when the pin is raised the teeth of the sector 12 pass underneath the pin and the pin slides or moves over the face of the sector, but when the sector is in position for locking the knuckle the pin falls by gravity and the portion 24 impinges against the enlarged tooth 17 of the sector and securely locks the parts together.

So far the construction is substantially the same as shown in my prior patent, and my present improvement is intended to provide means for raising the locking-pin and positively moving the knuckle in or out to couple or uncouple the cars or set the coupler in position for coupling. In order to do this, it is necessary to provide means for positively rotating the knuckle, and to do this I mount the sector 12 upon a shaft 30, having a squared cross-section fitting a like hole in the sector, so that when the shaft is turned one way or the other the sector is partially rotated and positively moves the knuckle into coupling or uncoupling position through the medium of the intermeshing teeth. This shaft 30 projects above the draw-head, as seen in Fig. 1, and the upper end is squared or otherwise formed to readily engage the operating devices. Connected to the shaft 30 is a lever or hook 31. In order to operate the coupling, it is only necessary that this should be a short lever, but I preferably make it in the form of a hook, as best shown in Fig. 2, projecting out from the mouth or opening in the coupler, and thus I provide a means for holding the draw-head if perchance it should be drawn

out of its position by accident or otherwise. It will be seen that this hook 31 projects over the cooperating coupler 29, (shown in dotted lines, Fig. 1,) and will serve to sustain the draw-head and coupler and prevent its falling between the cars in case of accident, as above intimated. It will be understood, of course, that the hooked portion of the lever can be dispensed with, if desired, and the operation of the coupler, so far as locking and unlocking are concerned, will be the same.

It will be understood that in order to uncouple the coupling it is first necessary to raise the locking-pin 20 and then throw out the knuckle 4 into the position shown in Fig. 2, and in order to couple or set the coupler if it happens to be in the position shown in Fig. 2 it is necessary to forcibly draw in the knuckle and then allow the locking-pin to fall to lock the knuckle in position. To do this on a passenger-car, I arrange a lever 40 on the platform, the handle of which extends up within convenient reach of the trainman, and I connect to this lever the mechanism for moving the knuckle and pin. This lever may properly be designated a "compound" lever, in that it practically has two fulcrums. It is provided with a slot 41, mounted on a pin or stud 42, secured to the platform, and it is also provided with a slot or opening 43, which moves on a pin or stud 44, secured to the platform. I have shown it in the form of a slot, but the lower portion can be cut out, leaving an opening, as indicated by dotted lines, Fig. 1. The slot 43 is formed in a sector-shaped portion 45 of the lever 40, and connected to this portion of the lever is a rod 46, the other end of which is connected to the lever 31. Also connected to the lever 40 is a rod 47, which is connected to a bell-crank 48, pivotally mounted at 49 on the platform, and connected by a chain 50 with the locking-pin.

In the normal condition, with the coupler closed, the lever 40 occupies the position indicated in dotted lines, Fig. 1, and if then it is desired to uncouple it is moved toward the left or full-line position and the pin 42 moves through the slot 41, while the rod 47, through the bell-crank, raises the locking-pin 20. A further movement of the lever then forces the rod 46 toward the center of the car, rotating the sector 12 and consequently throwing the knuckle 4 into the position shown in Figs. 1 and 2.

It will be understood that the knuckle cannot be thrown open until the locking-pin is raised. Consequently the rod 46 may be said to form a fulcrum for the lever 40 while the bell-crank is being operated to lift the locking-pin. When the pin is lifted to the proper position, the bell-crank 48 impinges on an abutment 47^a, Fig. 5, which prevents the further sidewise movement of the rod 47, and this rod then becomes, so to speak, the "fulcrum," and the lower portion of the lever 40 is forced inward, turning the shaft 30 and through the sector opening the knuckle, as

shown. Pins 42 and 44 slide through their respective slots and help to support the lever in position. If now it is desired to close the knuckle, the first movement of the lever 40 loosens the chain 50 of the locking-pin and then a further movement rotates the sector in a direction to close the knuckle, which being accomplished the pin falls into locking position. It will thus be seen that, as before stated, the lever 40 has two fulcrums, and during the first part of the movement the rod 47 is moved inward, so that the bell-crank occupies the position shown in dotted lines, when it comes against the abutment 47^b, Fig. 5, and prevents further movement in that direction. Then the rod 47 becomes a "fulcrum," so to speak, and the rod 46 is thrown outward, rotating the shaft 30 and drawing the knuckle into coupling position, when the pin 20 falls by gravity and locks it. All the motions are positive, and it will be seen that the locking-pin is first moved or released and then the knuckle is operated and that these movements are positive and certain.

If desired, the lever need only be operated sufficiently to raise the locking-pin, when the knuckle can be drawn open by moving the car connected to it, or by further moving the lever the knuckle can be forcibly drawn open and forcibly shut.

In Fig. 4 I have shown a means for operating the knuckle from the side of the car, in which there is a horizontal rod 60, having a bent end 61, connected to the chain 50 of the locking-pin 20, and a handle 62, by means of which the rod 60 is rotated to lift the locking-pin. Mounted on the rod 60, so as to permit the latter to rotate and to move longitudinally with it, is a bar 63, which is connected to the hook 31.

In order to uncouple, the rod 60 is first partially rotated to lift the locking-pin and is then pushed bodily inward to move the lever or hook 31 and rotate the knuckle, and when the knuckle is to be closed the rod 60 is drawn outward, closing the knuckle.

The device shown in Fig. 3 provides for operating the coupler from a box-car or the tank of the engine. The coupler is the same and has the squared projection on the shaft 30. Fitting on this is a vertical rod 51, having a hand-wheel 52, extending above the car or tank, and loosely connected to this rod, so as to permit it to rotate, is a link 53. This link may be connected directly to the locking-pin 20, but preferably I use it in connection with the means for operating the knuckle from the side of the car, and in that instance I connect the link to the bent end 61 of the lever 60. In order to operate the coupler from the top of the car or tank, the rod 51 is raised slightly, as shown in the drawings, lifting the locking-pin, when the rod is rotated positively, throwing the knuckle open or closed, as before described. This operation from the top of the car does not interfere with the operation of the knuckle from the side of the car by means

of the rod 60. It will thus be seen that I provide the coupler with a squared shaft connected to the sector, so as to positively move the knuckle in or out, and I attach a lever or
5 hook to this shaft and operate it by a rod or other connection, to which rod is connected the locking-pin, so that the locking-pin can be raised before the knuckle is opened and can be released so that it can fall by gravity
10 when the knuckle is closed.

What I claim is—

1. In a coupler of the class described, the combination with a squared shaft connected to a sector for moving the same, of a lever
15 connected to said shaft, means for operating the lever, and connections between said means and the locking-pin, substantially as described.

2. In a coupler of the class described, the
20 combination with a squared shaft, of a lever connected to the shaft, a rod connected to the lever, a compound lever mounted on the car-platform, a bell-crank also mounted on the platform and connected to said compound
25 lever, and a chain connecting the bell-crank

with the locking-pin, substantially as described.

3. In a coupler of the class described, the combination with a squared shaft, of a lever, a compound lever having slots mounted on
30 the platform, a connection between the lever and the lever on the squared shaft, another connection between the lever and the bell-crank, and a chain connecting the bell-crank to the locking-pin, substantially as described. 35

4. In a coupler of the class described, the combination with a squared shaft, of a compound lever, connections between one end of the compound lever and the squared shaft for
40 rotating the same, a bell-crank, a connection having abutments for the bell-crank, and a chain between the bell-crank and locking-pin, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of
45 two subscribing witnesses.

LOUIS N. SINGIN.

Witnesses:

F. L. FREEMAN,
HARRY Y. DAVIS.