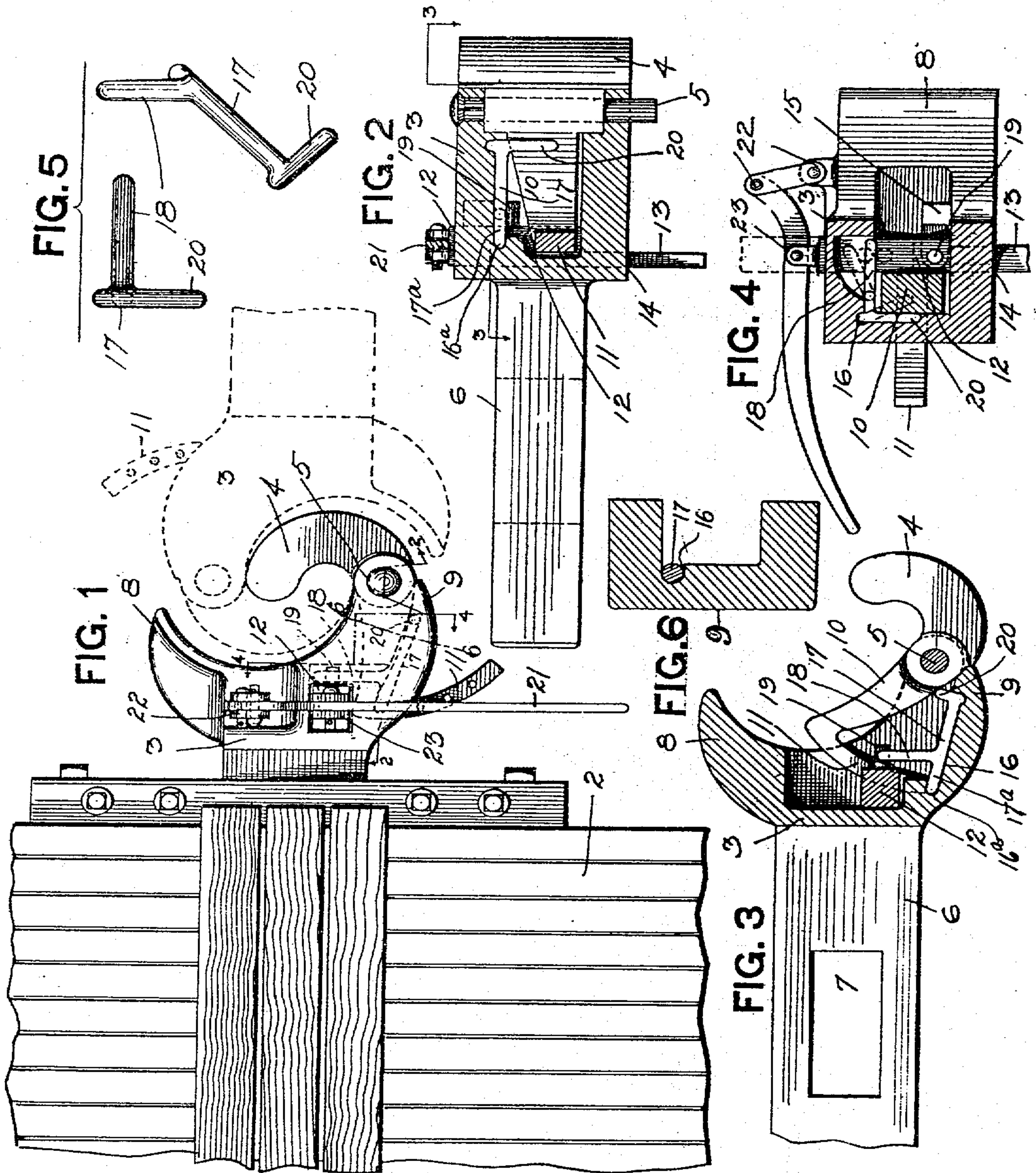


J. KAISER.
CAR COUPLING.
APPLICATION FILED JULY 8, 1904.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN KAISER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO JOHN W. BARTLE, OF PITTSBURG, PENNSYLVANIA.

CAR-COUPLING.

No. 797,583.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed July 8, 1904. Serial No. 215,750.

To all whom it may concern:

Be it known that I, JOHN KAISER, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to car-couplers, and more particularly to the Janney type of coupler, although it may be applied to any Master Car-Builders' coupler.

The object of my invention is to provide means for throwing the knuckle open in order to put the coupler into position to automatically lock with the coupler of another car.

With couplers heretofore in use it has been necessary after unlocking the knuckle for the brakeman to seize the same and throw it out to position for coupling. This is a dangerous operation and has frequently resulted in loss of life or limb. The object of my invention is to overcome this difficulty and provide a coupler in which the knuckle is thrown open sufficiently far to couple even with a locked knuckle on another car and by the mere operation of a lever or other device in such position that the brakeman is not exposed to danger.

The invention comprises, generally stated, the combination, with the coupler or draw-head and knuckle pivoted therein, of mechanism which when the knuckle is unlocked will throw it open into position for automatically coupling with another coupler, all as herein-after described and claimed.

In the accompanying drawings, Figure 1 is a plan view of the end portion of a car, showing the coupler in top view, the coupler of the adjoining car being shown in dotted lines. Fig. 2 is a section on the line 2-2, Fig. 1. Fig. 3 is a section on the line 3-3, Fig. 2. Fig. 4 is a section on the line 4-4, Fig. 1. Fig. 5 shows two views of the tumbler; and Fig. 6 is a section on the line 6-6, Fig. 1.

The numeral 2 designates the end portion of a freight-car fitted in the ordinary manner with any suitable Master Car-Builders' coupler. The coupler-head 3 is provided with a shank 6, having an opening 7, so that when the shank is inserted in an opening in the draw-bar it can be locked therein by means of the usual coupling pin or hook of the draw-bar engaging the hole 7.

The head 3 is provided with the usual horns 8 and 9, as customary, and the knuckle 4 is pivoted to the horn 9 by means of the pin 5. The knuckle 4 is provided with a tail 10, which projects back into the usual recess in the head and is adapted to be locked therein by means of the vertically-movable pin 12, fitting in openings in the head. The tail of the knuckle is provided at its rear end with a hook-shaped or segmental arm 11, arranged to project when the knuckle is locked through an opening in the side of the head. The forward face of the draw-head, the outer face of the knuckle, the inner face thereof, and the end thereof are shown in the drawings as formed on curves which are arcs of circles. This, however, is not an essential of my invention, as the latter can be adapted to any form of Master Car-Builders' coupler.

The locking-pin 12 is provided with the reduced extension 13, which passes through an opening in the floor of the coupler-head in order to guide the pin. The floor of the head is provided with a recess or depression (not shown) into which the lower end of the body of the locking-pin fits, so that said pin has a support both at the top and bottom. This locking-pin lies in front of the tail 10 of the knuckle when the latter is locked. To the lower end of the locking-pin is pivoted a latch 15, which when the coupling-pin is raised will fall into a vertical position, with its end resting on the floor of the coupler-head, so that the locking-pin cannot again drop in front of the tail of the knuckle. When the knuckle swings open, the latch 15 swings into a horizontal position and rides on the segmental arm 11, and the locking-pin 12 is held up thereby. By this arrangement the brakeman need only raise the coupling-pin and can then leave the same even though the cars do not immediately pull apart. This avoids the necessity of the brakeman's retaining hold of the uncoupling-lever until the cars pull apart.

In the coupler-head there is formed a seat 16, this seat being located at the outer and upper corner of the recess in said head. In this recess is mounted the tumbler 17, which forms the means for throwing the knuckle open. This tumbler is mounted for its entire length in the recess 16 and is backed on its outer and upper sides by the solid metal of the coupler-head. As a consequence it is impossible to bend or break said tumbler. The

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tumbler at one end has an extension 17^a, which projects into a socket 16^a, formed in the head. In this way the tumbler is held securely in place and cannot easily drop out. The tumbler 17 has an arm 18, which lies in the path of a stud or projection 19 on the locking-pin 12, and also an arm 20, which is adapted to engage the tail 10 of the knuckle and throw the same open. These two arms project substantially at right angles with reference to each other, and when the knuckle is closed the arm 20 is in substantially a vertical position behind the tail of the knuckle. When the locking-pin 12 is lifted, the stud 19 engages the arm 18 of the tumbler and rocks the same to move the arm 20 against the tail of the knuckle to force the latter open, as shown in Fig. 3.

The arm 20 bears against the tail 10 of the knuckle very close to the pivotal point of the latter less than one-fourth the distance from the pivotal axis of the knuckle to the end of its tail, the drawings showing the same bearing against the tail substantially one-sixth of this distance, so that a greater leverage is obtained, and it is possible by a very small additional upward movement of the locking-pin 12 to throw the knuckle open wide enough for coupling with another coupler which has its knuckle locked. It is essential that the arm 20 be not forced against the tail 10 of the knuckle until the latter is fully unlocked. The stud 19 on the locking-pin 12 is therefore so located that it will not contact with the arm 18 of the tumbler until said pin has been raised to such an extent that the tail of the knuckle is free to swing underneath the same. For practical reasons the locking-pin can be given only a very slight additional upward movement, and this slight additional upward movement must be sufficient to throw the knuckle wide open. It is therefore essential that the arm 20 bear against the tail of the knuckle very close to the pivotal point of the latter in order that this slight additional upward movement of the locking-pin will throw the knuckle wide open.

The locking-pin 12 may be raised by any suitable means accessible from the side or top of the car. In the drawings there is shown for this purpose a lever 21, fulcrumed at 22 to the coupler-head and connected at 23 to the upper end of the locking-pin 12. This lever projects out to such a position that it may be readily reached by the brakeman without going in between the cars. By merely raising this lever the knuckle 4 is not only unlocked, but is thrown open into the position shown in Fig. 3, so that it can automatically couple with another coupler even though the knuckle of the latter be locked.

By my invention the brakeman is not exposed to any danger. He can from a position of safety operate the lever 21 to lift the locking-pin 12 and to rock the tumbler 17 to throw

open the knuckle. Should the cars not at once pull apart, it is not necessary for the brakeman to retain hold of the uncoupling-lever, as the latch 15 as soon as he has raised the pin will fall into vertical position, and thus hold said pin elevated and in position for uncoupling whenever the cars pull apart.

My invention may be applied to different forms of automatic couplers with practically no change in the present construction thereof, it only being necessary to form the seat 16 in the coupler-head for the tumbler. This can be readily done and without weakening the said head. No complicated mechanism is required, and as a consequence there is little liability of breakage or getting out of order.

The tumbler is very simple of construction and is so mounted in the head that it is practically impossible to bend or break the same.

What I claim is —

1. In a car-coupler, the combination with a head, of a knuckle pivoted therein, a tumbler resting for its full length in a bearing in said head, an arm at one end of said tumbler adapted to engage said knuckle, an arm on the other end of said tumbler, and a locking-pin having means for engaging said last-named arm.

2. In a car-coupler, the combination with a head, of a knuckle pivoted therein, a tumbler comprising a shank resting for its full length in a seat formed in said head and having a projecting end seated in a socket formed in said head, an arm on said tumbler arranged to engage said knuckle, and means for rocking said tumbler.

3. In a car-coupler, the combination with a head, of a knuckle pivoted therein, a tumbler comprising a shank resting for its full length in a seat formed in said head, an arm on said tumbler, a locking-pin having means for engaging said arm to rock said tumbler, said tumbler-shank projecting beyond said arm and entering a socket formed in the head, and a second arm on said tumbler arranged to engage said knuckle.

4. In a car-coupler, the combination with a head provided with a recess, of a knuckle pivoted to said head and having a tail projecting into the recess, locking means for said knuckle, and a knuckle-opener comprising a tumbler resting in a seat formed in the walls of the head at the upper outer corner of the recess therein, whereby said tumbler is backed for its full length on its top and outer side by a solid wall of metal, said tumbler being provided with an arm for engaging the knuckle, and actuating means for said tumbler connected to the knuckle-unlocking means.

5. In a car-coupler, the combination with a head, of a knuckle pivoted therein and provided with a tail projecting into the head, a vertically-movable locking-pin, a latch pivoted to said pin and adapted when the pin is raised to fall into a vertical position and rest

on the floor of the head, knuckle-opening means, and connections therebetween to the locking-pin so arranged that said knuckle-opening means is not forced against the knuckle until the pin has been raised sufficiently far for the latch to assume a vertical position.

6. In a car-coupler, the combination with a head, of a knuckle pivoted therein and provided with a tail projecting back into the head, a vertically-movable locking-pin, a latch pivoted to said pin and adapted when the pin is raised to fall into a vertical position and rest on the floor of the head, a segmental arm on the tail of the knuckle on which the latch

rides when the knuckle is open, knuckle-opening means, and connections therefrom to the locking-pin so arranged that said knuckle-opening means is not forced against the knuckle until the locking-pin has been raised sufficiently far for the latch to assume a vertical position.

In testimony whereof I, the said JOHN KAISER, have hereunto set my hand.

JOHN KAISER.

Witnesses:

ROBT. D. TOTTEN,
ROBERT C. TOTTEN.

It is hereby certified that the name of the assignee in Letters Patent No. 797,583, granted August 22, 1905, upon the application of John Kaiser, of Pittsburg, Pennsylvania, for an improvement in "Car-Couplings," was erroneously written and printed "John W. Bartle," whereas the said name should have been written and printed *John W. Barth*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of October, A. D., 1905.

[SEAL.]

F. I. ALLEN,
Commissioner of Patents.

Corrected

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6. In a car-coupler, the combination with a head, of a knuckle pivoted therein and provided with a tail projecting back into the head, a vertically-movable locking-pin, a latch pivoted to said pin and adapted when the pin is raised to fall into a vertical position and rest on the floor of the head, a segmental arm on the tail of the knuckle on which the latch

rides when the knuckle is open, knuckle-opening means, and connections therefrom to the locking-pin so arranged that said knuckle-opening means is not forced against the knuckle until the locking-pin has been raised sufficiently far for the latch to assume a vertical position.

In testimony whereof I, the said JOHN KAISER, have hereunto set my hand.

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