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J. W. BARTH.

AUTOMATIC CAR COUPLING.

APPLICATION FILED FEB. 11, 1903.

NO MODEL.

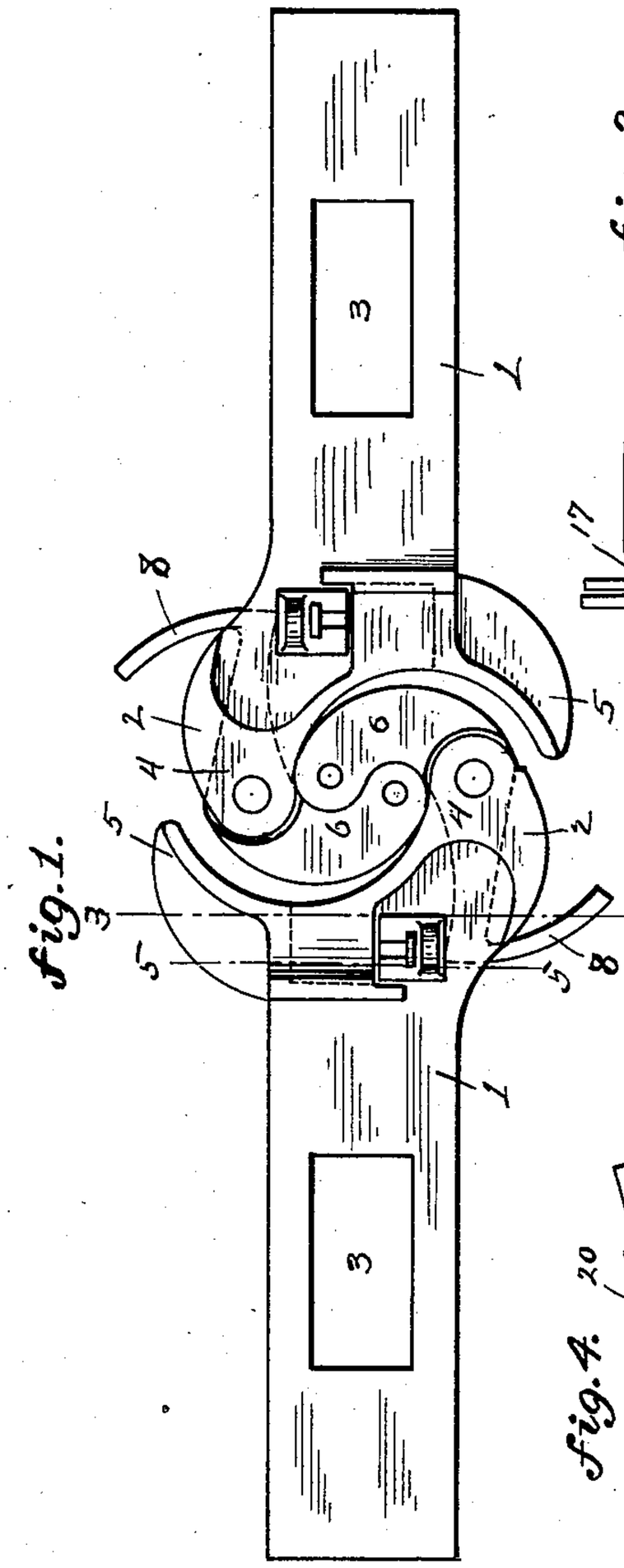


Fig. 1.

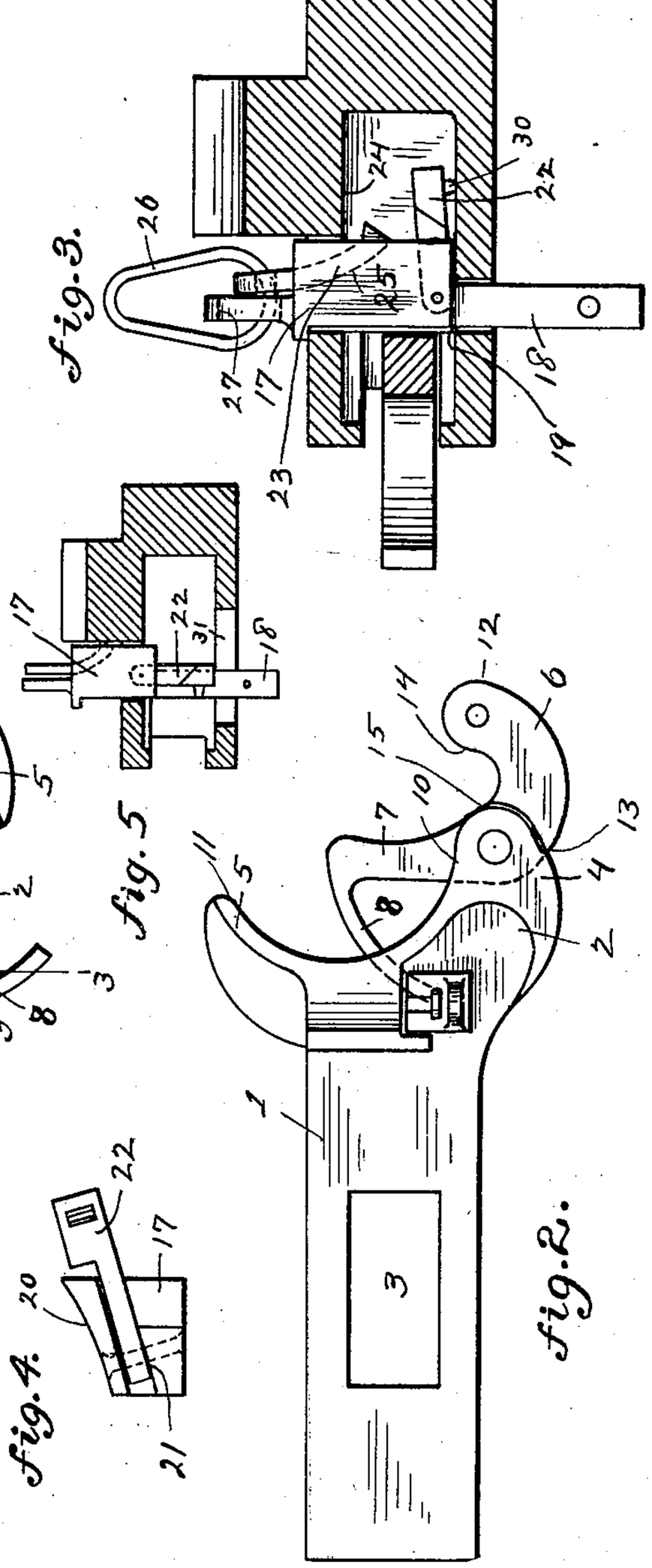


Fig. 3.

Fig. 5




Fig. 4.

Fig. 2.

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No. 742,379. Patented October 27, 1903.

# UNITED STATES PATENT OFFICE.

JOHN W. BARTH, OF PITTSBURG, PENNSYLVANIA.

## AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 742,379, dated October 27, 1903.

Application filed February 11, 1903. Serial No. 142,833. (No model.)

*To all whom it may concern:*

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

My invention relates to car-couplers; and its object is to provide a coupler of the Janney type so shaped that the strain on the couplers is greatly reduced when passing around curves, and so that couplings can be more easily effected on curves, and also so that the draft is always in the central longitudinal line of the couplers.

Automatic couplers of the Janney type heretofore used have their knuckles and heads so shaped that two locked couplers have only a limited lateral movement one with reference to the other and so that on curves the draft is not in the central longitudinal line of the coupler. This imposes a severe strain on the knuckles and coupling-horns when the cars pass around curves and also makes it difficult to effect couplings on curves by reason of the limited extent to which the knuckles open.

The object of my invention is to provide an automatic coupler of the Janney type having the knuckle and front face of the head and horns shaped on curves which are arcs of a circle, so that two such couplers when locked together can roll or rock one on the other, thus permitting the couplers to assume a large angle one with reference to the other without imposing the usual severe strain on said couplers and also keeping the draft in the central longitudinal line of the coupler in all positions, besides enabling the knuckles to swing open very wide, thus insuring the locking together of the knuckles when making couplings on curves.

My invention also comprises a detent for the locking-pin which will prevent said pin from jumping up under the jolting of the train and thus accidentally uncouple the cars.

The invention also comprises certain details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view showing two of my couplers locked together. Fig. 2 is a plan view of one thereof, showing the knuckle thrown open. Fig. 3 is a transverse section on the line 3 3, Fig. 1, showing the locking means for the coupling-pin. Fig. 4 is a detail bottom view of the locking-pin; and Fig. 5 is a section on the line 5 5, Fig. 1.

My coupler is of a modified Janney type, having a shank 1 and head 2, as is ordinary in couplers of this kind. The shank is provided with the vertical hole 3, so that the coupler-shank can be inserted in the opening of a draw-bar and locked therein, the coupling-pin or coupling-hook of the draw-bar engaging the hole 3 in the shank of the coupler. This permits my coupler to be applied to cars not equipped with automatic couplers, so that such cars can be readily coupled with those already equipped with automatic couplers, as more fully described and claimed in my application filed February 11, 1903, Serial No. 142,834.

The head of the coupler is provided with the horns 4 and 5, as is usual in Janney couplers, except that they are differently shaped, as will hereinafter appear. Pivoted in the horn 4 is the knuckle 6, provided with a tail 7, which has at its rear end the hook-shaped segmental arm 8. The forward face of the draw-head, the outer face of the knuckle, the inner face thereof, as well as the end thereof, are all formed on curves which are arcs of circles. For instance, the draw-bar face from the point 10 to the point 11 is the arc of a circle, while the outer face of the knuckle from the point 12 to the point 13 is also an arc of a circle struck about a radius of less length than the arc forming the forward face of the draw-head. The inner face of the knuckle from the point 14 to the point 15 is also the arc of a circle struck about a still lesser radius, and the end of the knuckle from the point 14 to the point 12 likewise is a curve formed on the arc of a circle. It will thus be seen that all of the contacting faces of the knuckles and draw-heads of two interlocking couplers are formed on curves which are arcs of circles, so that said couplers can roll or rock freely over each other and permit a considerable angular relation of the coupler-shanks one with reference to the other without bringing any decided strain on any part of the coupler. Fur-

thermore, no matter what the angular relations of two locked couplers may be the draft is always in the central longitudinal line of the couplers.

The coupler-knuckle is so pivoted in the head that it is capable of swinging open very widely, as shown in Fig. 2, thus insuring the interlocking of two adjacent couplers in coupling cars on sharp curves, when necessarily the couplers will be presented to each other at a considerable angle.

The head of the coupler is provided with a vertical opening for receiving the locking pin or block 17, this pin being provided with a small extension 18, which passes through an opening in the lower wall of the coupler in order to guide the pin. The floor of the coupler-head is formed with a recess or depression 19, into which the lower end of the coupling-block 17 fits, so that said block has a support both at the top and bottom. This coupling pin or block lies in front of the tail 7 of the coupler when the latter is closed, and preferably the face of the coupling-block is formed on a curve, as shown at 20, Fig. 4, and the front face of the guiding projection 18 is likewise curved, as shown at 21, Fig. 4, in order that the segmental arm 8 on the tail of the knuckle can pass the same and still permit the coupling-block to be positioned well forward with reference to the tail of the knuckle.

To the lower end of the coupling-block 17 is pivoted a latch 22, which when the coupling-pin is raised will fall into a vertical position, with its end resting on the floor of the draw-head, so that the coupling-block cannot again drop in front of the tail of the knuckle. By this arrangement the brakeman need only raise the coupling-pin and can then immediately leave the same even though the cars do not immediately pull apart. When the knuckle swings open, the latch 22 rides on the tail thereof and the coupling-block 17 is held up thereby.

To prevent the coupling-pin from jumping up under the jolting of the cars and unlocking the knuckle, I provide a detent 23, adapted to project underneath the upper wall 24 of the coupler-head and prevent the pin from jumping up. This detent is curved, as shown, in one plane, but is straight in the other plane, and is mounted in the coupling-pin in a groove which has a curved or sloping wall 25, so that when said detent slides down into said groove its end will project out beyond the sides of the pin and lie underneath the top wall of the coupler-head. The mere raising of the detent, however, causes it to slide upwardly on the inclined wall 25, thus permitting its end to pass inside of the face of the coupling-pin. As a convenient means for raising this detent the ordinary raising-link 26 for the coupling-pin is connected thereto, and said link is so connected to the pin and detent that the latter will have a slight upward movement before the pin is raised, thus first raising the detent and drawing it within the groove in the pin. A convenient arrangement for effecting this movement of the detent before the pin is elevated is by providing the upper end of the pin with a vertical slot 27, so that the link can be raised to a considerable height before the pin is disturbed.

The latch 22 is provided on its under surface with a boss or projection 30, which serves to hold the latch off the floor of the draw-head, and thus will prevent the latch from freezing tight in wet or cold weather. The floor of the draw-head is also provided with a slot 31, which will permit water to drain out and also will permit the insertion of a rod, stick, or the like to trip the latch 22 and permit the relocking of the knuckle in case the brakeman has accidentally uncoupled the wrong car.

The operation and manner of using this coupler will be readily understood from the foregoing description and is not essentially different from that of the standard Janney coupler. The knuckles of my coupler, however, swing open very much wider than those of the Janney couplers, so that couplings on curves can be more easily effected, there not being the same danger of the knuckle of one coupler striking that of the other coupler, so as to close the same without locking the knuckles together. The shaping of the forward end of the draw-head and of the knuckles on curves which are arcs of circles permits two couplers to roll or rock upon each other and assume a considerable angle one with reference to the other, so that in passing around curves the usual strain imposed upon the couplers is not present. The locking-pin, furthermore, by means of the detent described is prevented from jumping up under the jolting of the trains, so that accidental uncoupling is to a large extent avoided. At the same time the locking-detent for the pin is so connected to the pin that the mere act of raising the latter will first draw the detent within the pin, so as not to interfere with the free upward movement of the locking-pin.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A car-coupler of the Janney type comprising a head provided with two horns, a knuckle pivoted to one of said horns, and a locking device for said knuckle, the inner concave face of the knuckle, the outer convex face thereof, and the concave end of the head, all being formed as arcs of circles of different radii.

2. A car-coupling of the Janney type comprising a head provided with two horns, a knuckle pivoted to one of said horns, and a locking device for said knuckle, the inner concave face of the knuckle, the outer convex face thereof, the end of said knuckle, and the concave end of the head all being formed as arcs of circles.

3. In a car-coupling, the combination with a head, of a knuckle pivoted therein, a locking pin or block for said knuckle, a latch pivoted

to the lower end of said pin and adapted to rest on the floor of the head, and a boss or projection on the lower face of said latch for holding the same above the floor of the head.

4. In a car-coupler, the combination with a head, of a knuckle pivoted therein, a locking pin or block for said knuckle provided with a curved or sloping groove, a detent slidably mounted in said groove, means for raising said detent, and a latch pivoted to the lower end of said pin so as to swing transversely of the head and adapted to rest on the floor of the head when said pin is raised.

5. In a car-coupler, the combination with a head, of a knuckle pivoted therein, a locking pin or block for said knuckle provided with a curved or sloping groove, a detent slidably mounted in said groove, said detent being bent in one plane and being straight in the other plane, and a latch pivoted to the lower end of said pin so as to swing transversely of the head and adapted to rest on the floor of the head when the pin is raised and to ride on the tail of the knuckle when the latter swings open.

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

JOHN W. BARTH.

Witnesses:
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