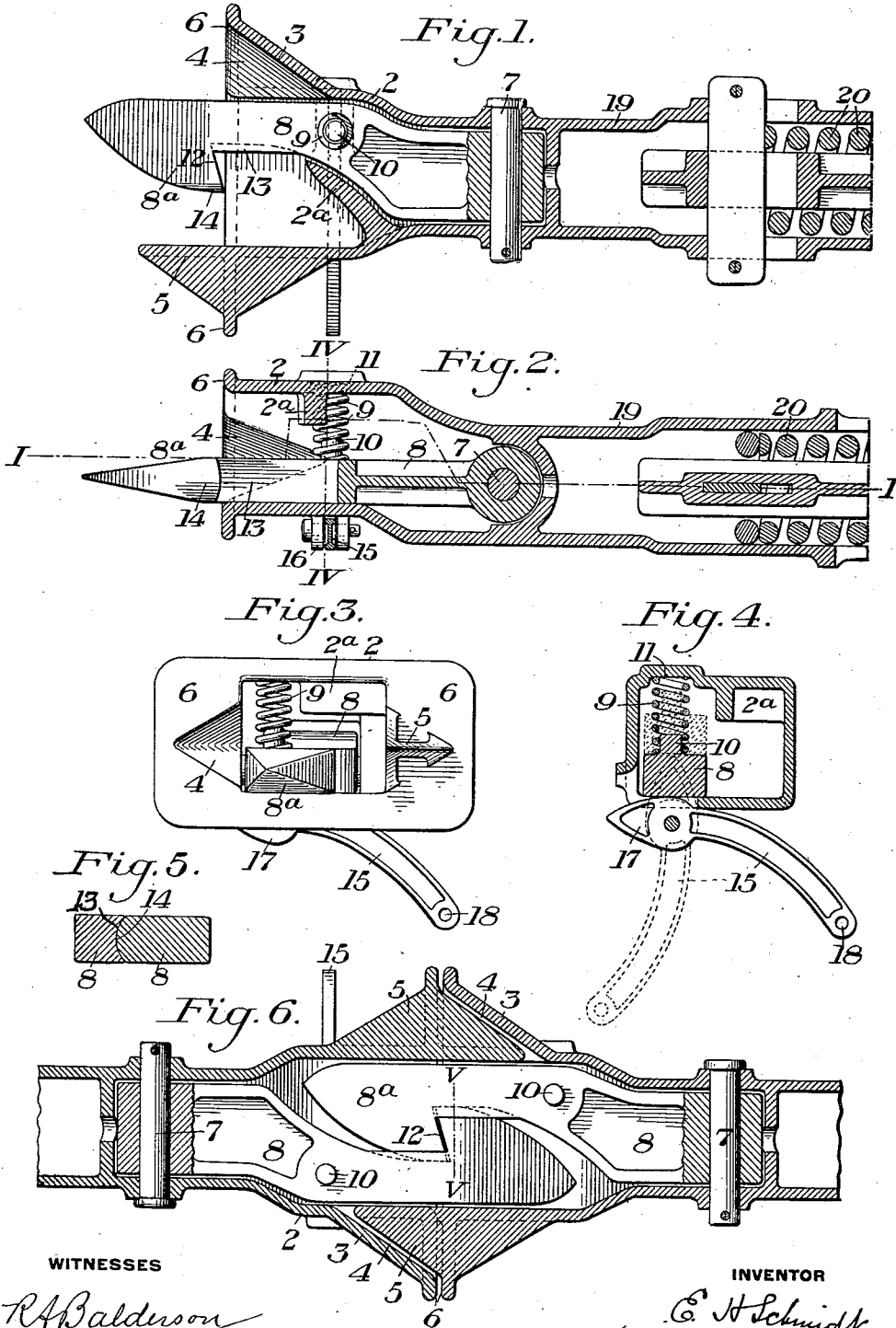


E. H. SCHMIDT.
COUPLING.

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1,017,630.

Patented Feb. 13, 1912.



WITNESSES

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UNITED STATES PATENT OFFICE.

ERNEST H. SCHMIDT, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLE-
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COUPLING.

1,017,630.

Specification of Letters Patent.

Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that I, ERNEST H. SCHMIDT, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Couplers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional plan view showing one form of my improved coupler, the section being taken on the irregular line I—I of Fig. 2; Fig. 2 is a sectional side elevation of the same; Fig. 3 is a front elevation; Fig. 4 is a cross section on the line IV—IV of Fig. 2; Fig. 5 is a detail cross section on the line V—V of Fig. 6, showing the interfitting of the hook surfaces; and Fig. 6 is a sectional plan view showing two couplers interlocked.

My invention relates to couplers adapted particularly for street railway service and the object of the invention is to provide a simple, cheap and effective device of this character.

One of the objects of the invention is to arrange the interlocking hook members so that gravity will tend to turn them to normal position, and a further object is to provide an automatic centering arrangement.

Another object is to provide such interfitting engagement of the hooks as will give a lock-to-the-lock feature.

In the drawings, 2 represents the head of the coupler, whose outer surface is flared outwardly and forwardly at the sides. One of these flaring portions 3 is recessed in angular or wedge-shaped form, as shown at 4, while on the opposite side is a similarly shaped forwardly projecting web portion 5, arranged to enter the corresponding recess 4 of the interlocking coupler. The recess and projection extend rearwardly and forwardly, respectively, from the flat buffing face 6, into which the flaring sides of the head merge.

The angular beveled recess and the corresponding projection act to guide the couplers into exact alinement with each other for coupling, whether the couplers are out of alinement either vertically or horizontally. When the couplers are in buffing contact, the flat buffing faces also assist these wedge portions in maintaining proper alinement.

Through the rear portion of the coupler head or shank extends a horizontal pivot pin 7, on which is pivoted the coupling or hook member 8, whose thickness is much less than the vertical height of the coupler cavity, so that the hook may swing in a vertical direction on this pivot within this cavity. In its normal horizontal position, the flat lower face of the hook rests on the flat floor of this cavity, and is preferably firmly pressed against the floor by means of a spiral spring 9, inserted between the hook and the roof of the cavity. This spring preferably engages a suitably shaped upwardly projecting boss 10 on the hook member and a recess 11 in the roof of the coupler head, which recess may be formed within an upwardly projecting boss cast integral with the head. The projecting end portion 8^a of this hook member is hook-shaped and is also provided with top and bottom faces which converge toward each other outwardly, giving a wedge shape in vertical longitudinal section. The side edges are also curved, preferably on a taper to give a sort of arrow head shape. These four tapering faces are clearly shown in Fig. 3, thus forming a point at the front end of the hook. Owing to this pointed shape of the hook, when the couplers approach each other, one of the hook members will be lifted by the sloping faces of the other against the compression of its spring 9. This action will continue until both hook members have entered sufficiently far within the opposing draw heads so that their pulling faces 12 will interlock, upon which, the spring 9, assisted by gravity, will return the lifted hook member to its normal position resting upon the lower wall of its coupler head. In this position, the couplers are firmly interlocked, as shown in Fig. 6, and are in position for either buffing or draft.

In order to provide a lock-to-the-lock or an anti-creeping device, while allowing for disengagement of the hooks, I form the surfaces 13 in the neck of the hook concave, and the outer surfaces 14 of the hook convex, so that when the two hooks are in interlocking engagement, these convex and concave surfaces will interfit, as shown in Fig. 5, which is a cross section on the line V—V of Fig. 6. There are, of course, two sets of these convex and concave surfaces in en-

gagement when the hooks are interlocked, and this provides for the lock-to-the-lock, preventing accidental disengagement or creeping upwardly of one of the hooks relatively to the other. The action of the concave and convex surfaces, respectively, in forming a lock-to-the-lock, is further assisted by the fact that the surfaces 12 of the hooks are undercut, instead of being at right angles to the line of draft. This gives the hooks a tendency to draw laterally toward each other when a tension is put on them, and makes it still more difficult for them to become accidentally unlocked, as long as this tension is exerted.

I preferably provide the interior of the coupling head with a rib 2^a, depending from the upper wall thereof, for the purpose of assisting the portions 4 and 5 in bringing two approaching couplers into alinement. When one of the hook members is lifted against the compression of its spring as it approaches the other hook member, the lifted hook will be raised sufficiently high to come into engagement with this curved rib portion of the coupler head which it is entering. In case the approaching coupler and raised hook are out of line with the coupler which is about to receive the hook, this rib will help to guide the hook member and coupler and center them in a manner similar to the projections 5 and recesses 4.

Various forms of uncoupling mechanism may be provided with this form of coupler, as all that is necessary is to swing one of the hooks upwardly against the action of its spring in order to unlock. In the form shown, I provide an unlocking lever 15, which is transversely pivoted to lugs 16, at the bottom of the coupler head, and is provided with a cam-shaped end 17, so arranged that when the lever is pulled down, by an engagement of an uncoupling connection with its eye 18, the cam will force the hook upwardly by rolling and sliding contact therewith, thus freeing it from the opposing hook by upward movement against the pressure of the spring. This lever will give sufficient pressure to force one of the hooks upwardly, in spite of the recess connection between their surfaces. It will be understood that I do not wish to limit myself to this form of unlocking mechanism, as other

means for forcing one of the hooks upwardly may be easily devised.

I have shown the coupler shank 19 as forming a portion of a draft rigging, a part only of which rigging is illustrated, 20 being one of the springs therefor. This draft rigging, however, forms no part of the present invention, but is covered in a separate application filed concurrently herewith.

The advantages of my invention will be apparent to those skilled in the art. Owing to the horizontal positioning of the pivot, gravity assists the action of the springs in holding the hooks in normal position and the concave and convex surfaces prevent accidental disengagement and act as lock-to-the-lock. Flat buffing faces are provided and at the same time, the hooks are guided into proper interlocking relation by the web-shaped recesses and projections, as well as by the pointed shape of the hook. The coupler is simple, effective in action and not liable to get out of order.

I claim:

1. A coupler having at one side a tapering recess and at the other side a tapering projection, said parts being arranged to coact with a similar recess and projection on an opposing coupler to center the parts, the coupler head also having an interior guiding and centering rib, and a vertically movable hook member, the said rib acting as a guide for the entering similar hook member of an opposing coupler, substantially as described.

2. A coupler having at one side a tapering recess and at the other side a tapering projection, said parts being arranged to coact with a similar recess and projection on an opposing coupler to center the parts, the coupler head also having an interior guiding and centering rib, said rib extending downwardly from the upper inner wall of the head, and a vertically movable hook member, the said rib acting as a guide for the entering similar hook member of an opposing coupler, substantially as described.

In testimony whereof, I have hereunto set my hand.

ERNEST H. SCHMIDT.

Witnesses:

CHESTER K. BROOKS,
FRED J. TRUMPER.