(No Model.)

T. L. McKEEN.

CAR COUPLING.

No. 601,901. Patented Apr. 5, 1898.

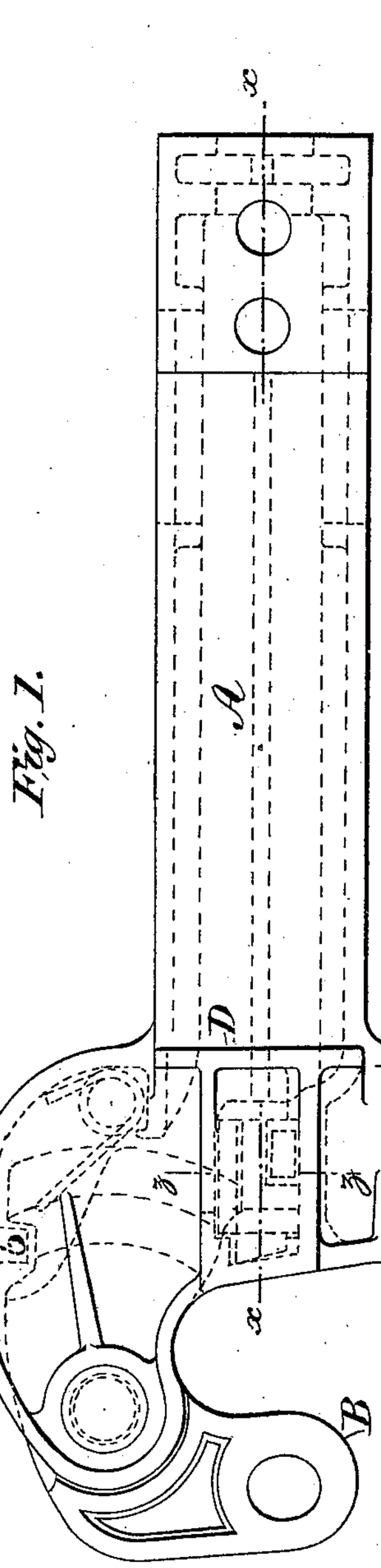


Fig. 1.

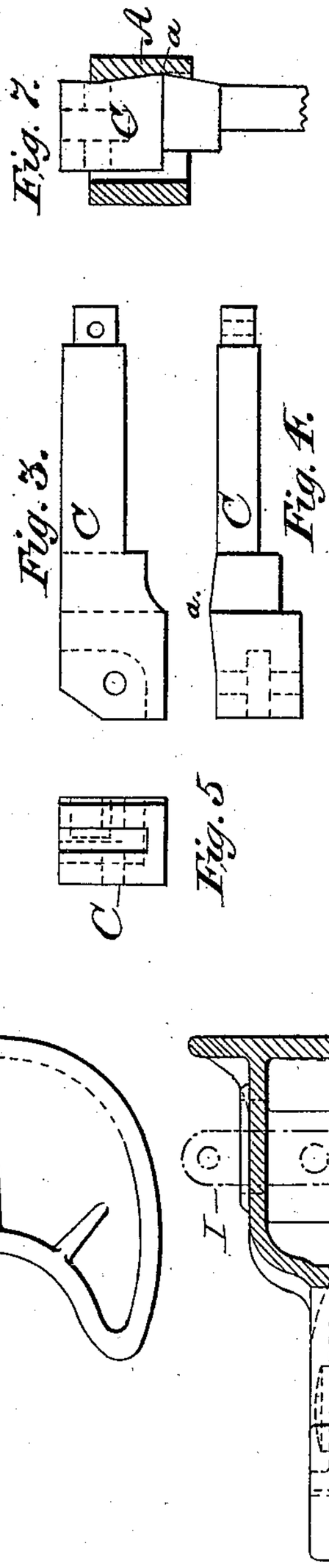


Fig. 2. Fig. 3. Fig. 4. Fig. 5

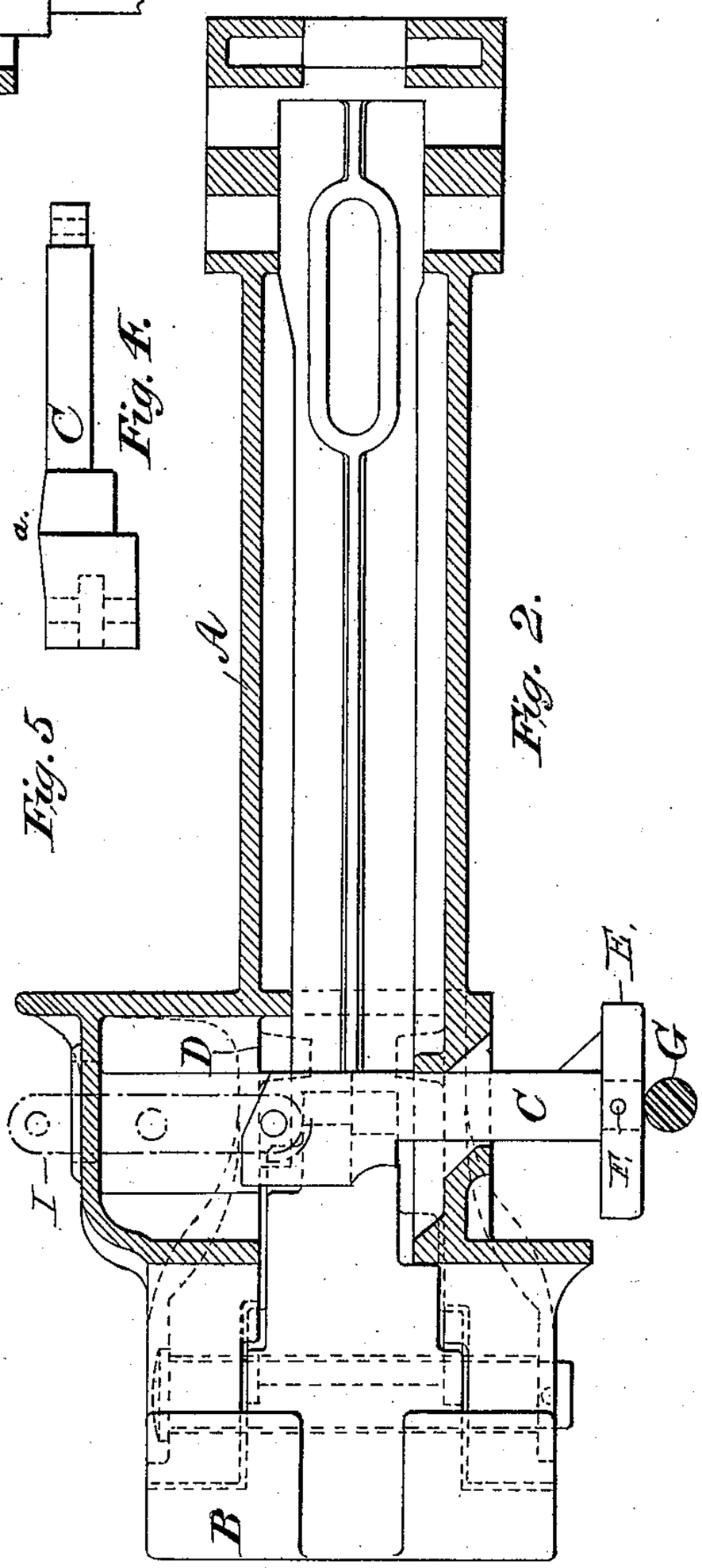
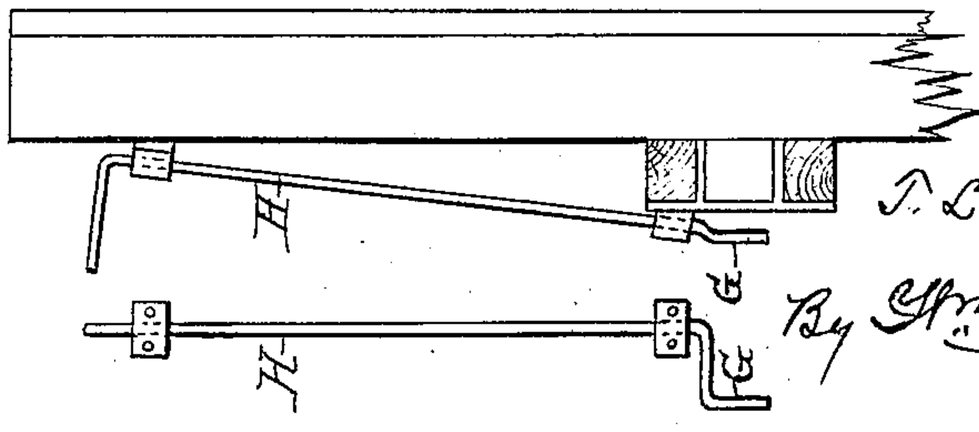


Fig. 6



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UNITED STATES PATENT OFFICE.

THOMAS L. McKEEN, OF NEW YORK, N. Y.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 601,901, dated April 5, 1898.

Application filed November 20, 1897. Serial No. 659,323. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. McKEEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of car-couplers known as "twin-jaw" couplers provided with a vertical or direct gravity-lock. In couplers of this type a fruitful source of trouble has been found in that the gravity-lock in many constructions requires that an opening shall be made in the top and bottom of the draw-head, thus not only weakening the structure, but at the same time permitting the admission of rain, snow, and dirt through the upper opening, which tends in a large degree to detract from the proper operation of the knuckle and gravity-lock; and it has been found also in the use of the ordinarily-constructed couplers that the lock has a tendency to creep up while the train is being hauled up heavy grades and frequently to such an extent as to unlock the knuckle, thus permitting the train to separate and result in serious wreckage, and to avoid this tendency it has been proposed to provide the gravity-lock with a locking-pin or other means to prevent its upward movement. My invention has for its objects to overcome all of these disadvantages and to provide a lock which will render it unnecessary for the upper part of the draw-head to be pierced at all and enabling the lower portion to be formed with a much smaller opening than usual, thus securing greater strength in the draw-head.

My invention also has for its object to provide a construction which shall prevent any tendency of the upward creeping of the gravity-lock and likewise to avoid the tendency of the lock being pulled up and unlocked as sometimes occurs when the draft-rigging (by which the couplers are attached to the cars) becomes slack, causing the chain by which the lock is lifted to pull upon the lock to such an extent as to unlock the couplings.

With these ends and objects in view my invention consists in the construction and arrangement hereinafter more fully described and claimed.

In order that those skilled in the art to which my invention appertains may know how to make my improved coupler, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, in which—

Figure 1 is a top or plan view of a coupler embodying my invention. Fig. 2 is a vertical longitudinal section on the line *x x* of Fig. 1. Fig. 3 is a side view of the locking-block. Fig. 4 is a front or edge view of the locking-block. Fig. 5 is a top view of the locking-block; Fig. 6, a detail view showing any suitable crank-bar which is secured to the car and adapted to lift the locking-block. Fig. 7 is a vertical section on the line *z z* of Fig. 1, showing the relation of the inclines on the side of the locking-block and the "draft" inclines in the draw-head.

Similar letters of reference indicate like parts in the several figures of the drawings.

A is the draw-head, B the knuckle, and C the gravity-lock.

The lock C, as will be seen, is made of such a shape that it is strongest and heaviest where the knuckle engages it and where the lock bears against the vertical wall on the opposite side, and, as will be seen most clearly at Fig. 4, the side face of the lock C is slightly inclined in each direction from the point *a* to correspond with the natural draft of the draw-head casting resulting from the drawing of the cores from the boxes, and that the inclines fitting each other prevent all tendency of the lock to creep upwardly and hold it securely in place until it is lifted positively by suitable lifting mechanism hereinafter described. What is meant herein by the "natural draft" of the draw-head is the incline naturally given in order that the cores used in the casting may be drawn from the boxes, as is well understood in the art of casting. This same effect may be produced by making slight inclines from the top inwardly on the face of the knuckle and outwardly on the face of the lock. The lock, as will be seen, is stepped so as to constitute, as it were, three sections, the larger being the top, and then offset a half-inch, preferably, or any suitable

distance to make a shoulder to engage a corresponding offset on the tail of the knuckle which is greater than the distance between the tail of the knuckle and the vertical rib D in the wall of the draw-head, and consequently the lock is prevented from dropping from the hood on top of the draw-head or farther than is necessary to make a perfect coupling, and thus maintaining its proper vertical position. These offsets perform another function—namely, permitting the cars to be coupled on a much sharper curve than could be done if the faces of the lock and knuckle were straight. The reduction in the size of the lock does not affect the bearing-surface of the lock, as it is the same width. The lock is again stepped to constitute, as it were, a third section which, having no strain exerted upon it, is reduced so as to decrease the size of the hole in the bottom of the draw-head, which simply serves as a guide and in order that a shoe E may be readily secured to the lower extremity of the lock by a suitable pin F. The purpose of the shoe E is to provide a surface sufficiently long in the longitudinal direction of the draw-head against which the crank-arm G of a suitable rod or bar H, applied by brackets to the end sill of the car and the draft-timbers, may contact for the purpose of lifting the lock C, thus enabling the crank-arm G to be effective for its designed purpose in proportion to the length of the said shoe E. Any other suitable means may, however, be employed to lift the lock C, though I prefer to use the shoe and the crank-rod H, for the reason that any slack in the draft-rigging will in no wise tend to unlock the couplers; but, on the contrary, the couplers may be pulled all the way out and the lock would remain in position. The shoe E is made longer than the distance the draft-rigging when in proper condition will move under draft or buffing, and hence the trainmen will be warned when the draft-rigging is too slack for proper service.

The lock C, with the shoe E removed, is placed in position (after removing the knuckle B) by passing it, with the smaller section in advance, into the mouth of the draw-head and then down through the opening in the lower portion, which opening is inclined, as shown in Fig. 2, to facilitate this movement. It is then turned into vertical position and lifted and the knuckle secured in position and the shoe E attached, thus securing the locking-block C in proper operative position without the use of any extraneous devices.

If it should be desired to use my improved lock in such manner as to operate it from above instead of below, it may be formed with a slot or mortise at the top, as shown at Fig. 5, to receive the lower end of a comparatively thin plate I, (shown in broken lines at Fig. 2,) which is secured in place by a cotter-pin, which may be put in position by raising the lock C until the cotter-pin hole in the top is coincident or registers with a hole in the side of the draw-head, (shown in dotted lines at Fig. 2,) when the cotter-pin may be readily inserted.

As it is necessary to support the lock on the tail of the knuckle when the latter is wide open, I make it somewhat wider than usual, and not desiring to increase the width of the draw-head and yet desiring to use a vertical rib *b* to take the back blow of the knuckle I notch the flanges of the knuckle, as shown at Fig. 1.

Having described the construction and advantages of my improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the draw-head provided with a comparatively narrow vertical rearwardly-inclined channel, and the knuckle B constructed as described, the gravity locking-block C formed with a thickened upper portion, an attenuated lower portion, and adapted to be placed in operative position through the mouth of the draw-head and retained therein solely by the knuckle B, substantially as and for the purpose set forth.

2. In combination with a draw-head having the usual draft inclines resulting from drawing the cores from the boxes, a locking-block C tapered in both directions on one of its sides to correspond with the draft-lines in the draw-head, whereby the natural creeping tendency of the locking-block is prevented as hereinbefore set forth.

3. In combination with the draw-head A and knuckle B, the lock C provided with a removable shoe E, whereby the latter may be removed when assembling the parts, and then secured in position to constitute an extended contact-surface for the lock-lifting device, substantially as described.

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

THOMAS L. McKEEN.

Witnesses:
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