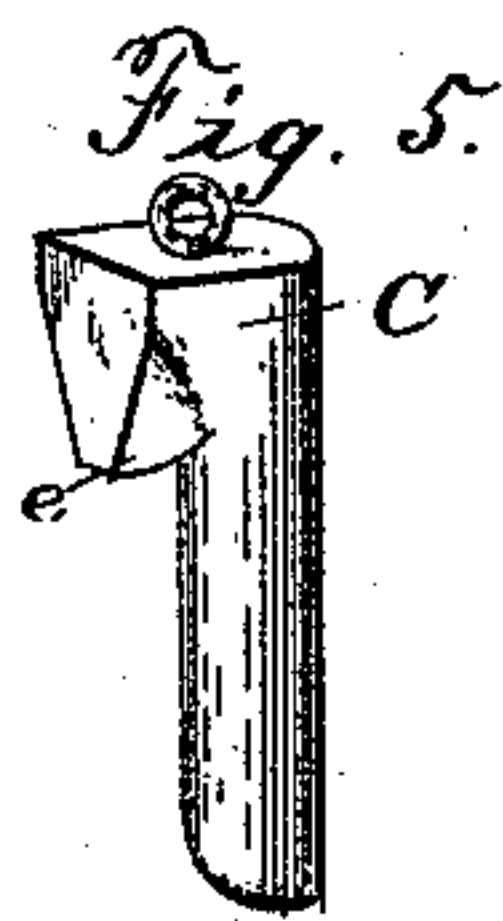
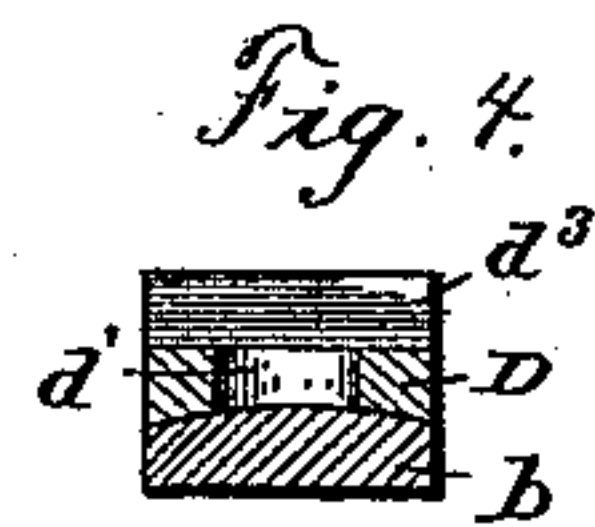
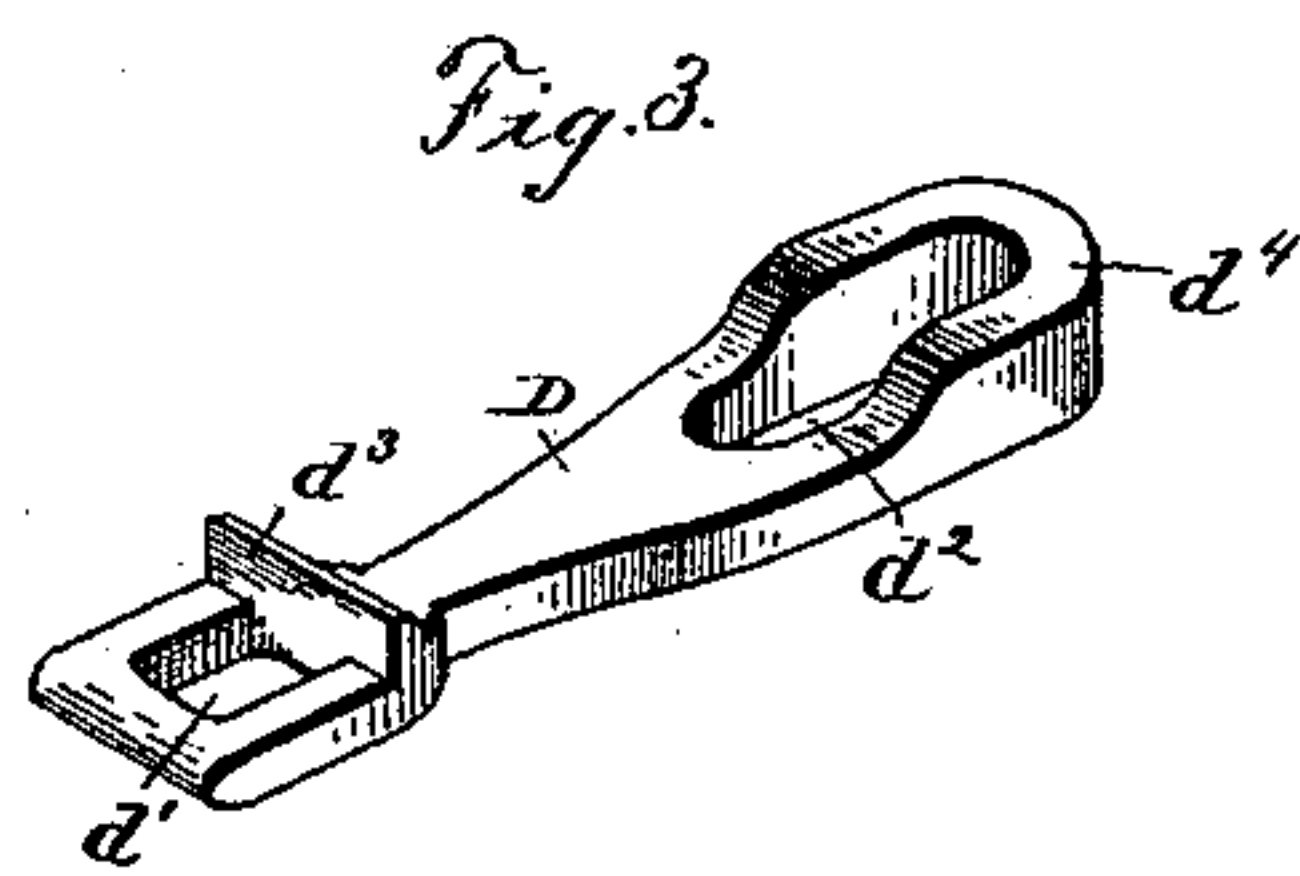
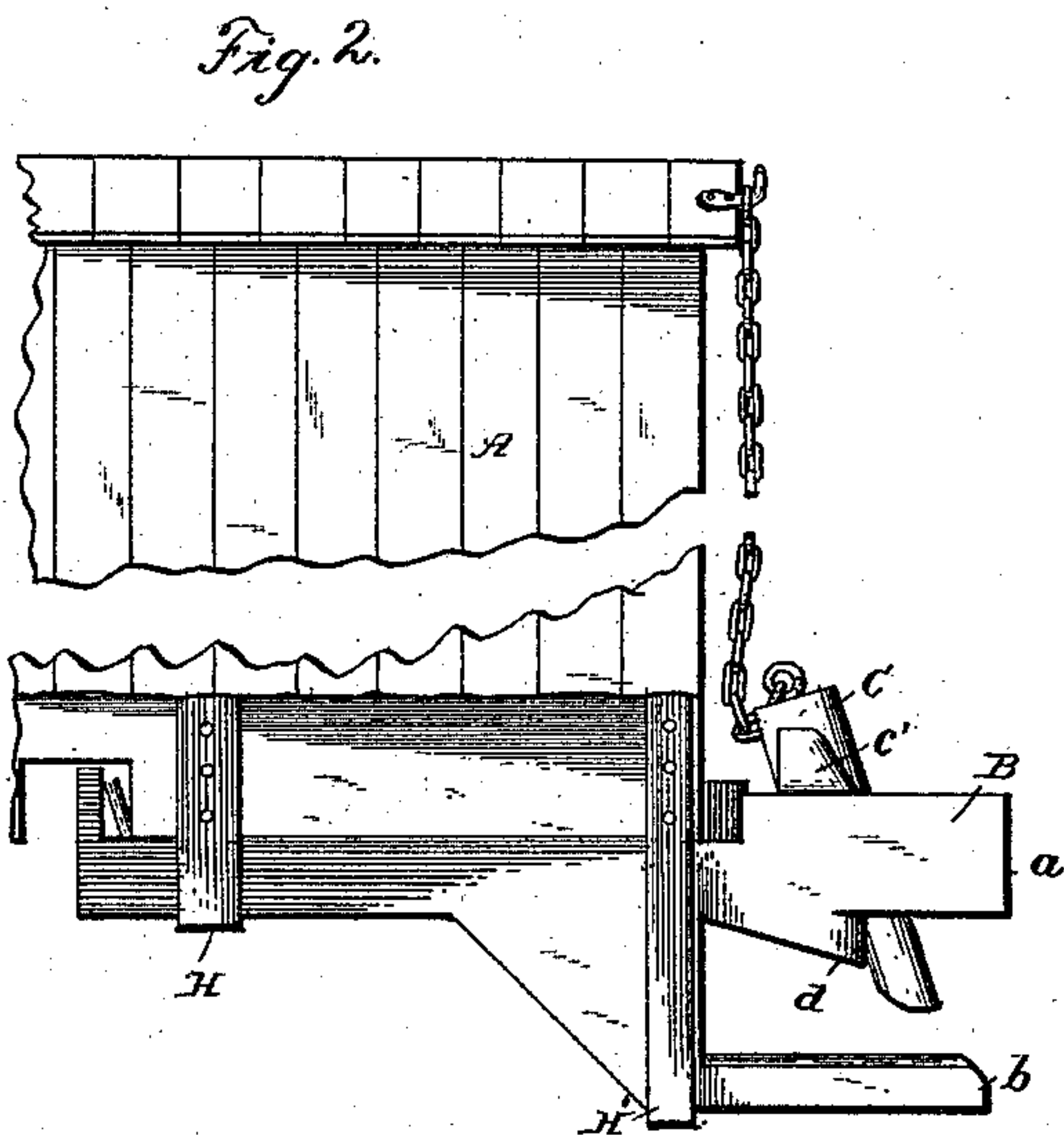
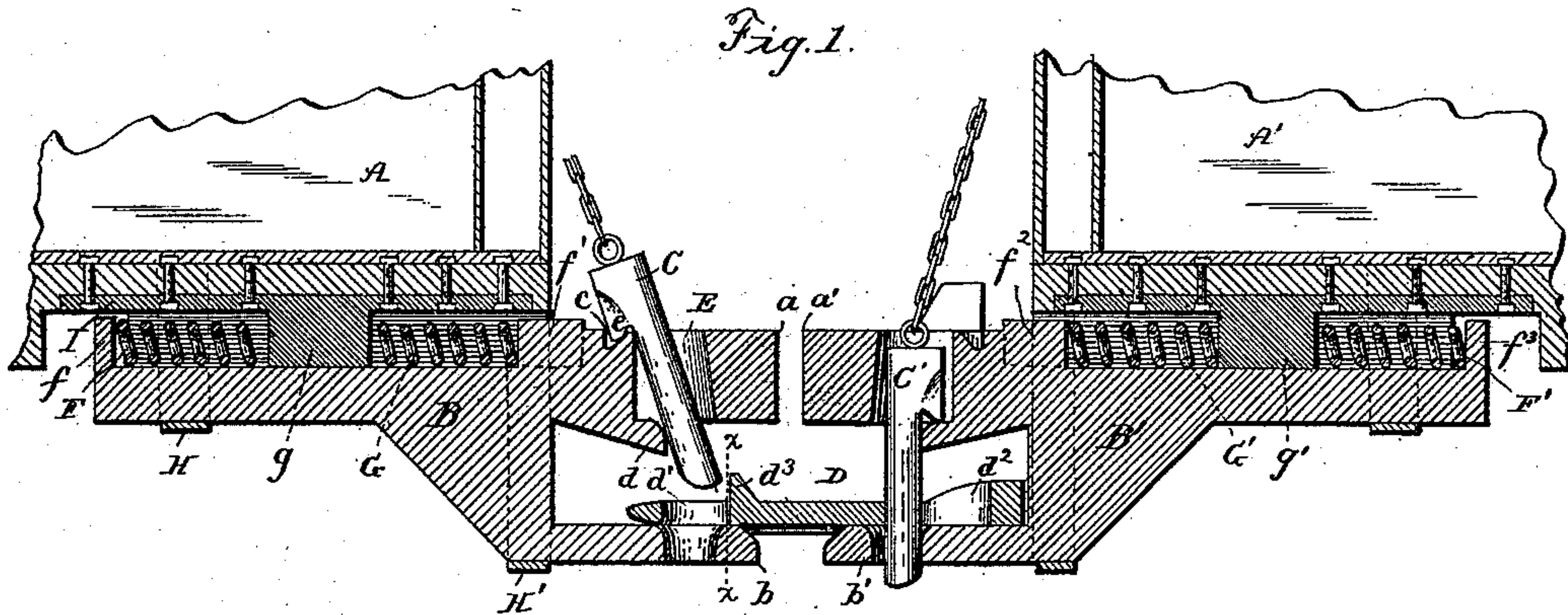


(No Model.)

A. H. S. DAVIS.
CAR COUPLING.

No. 408,593.

Patented Aug. 6, 1889.



Witnesses

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UNITED STATES PATENT OFFICE.

ALEXANDER H. S. DAVIS, OF WASHINGTON, DISTRICT OF COLUMBIA, AS-
SIGNOR OF ONE-FOURTH TO WILLIAM T. ARRICK, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 408,593, dated August 6, 1889.

Application filed November 22, 1888. Serial No. 291,578. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER H. S. DAVIS, a citizen of the United States, residing in the city of Washington, in the District of Columbia, 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 improvements in automatic car-couplers, the object of which is to automatically couple cars by securing the coupling-pin in a raised position, and in such a position that the pin will be released and allowed to drop by gravity into its locked position when the cars come together.

Another object is to provide means for relieving shocks caused by the concussion in the operation of coupling and by the sudden starting of the engine.

A further object is to simplify the construction of automatic car-couplers, whereby strong and durable couplers of this type may be made at a comparatively small cost.

With these objects in view my invention consists in certain features of construction and combination of parts, which will be first described, and then specifically pointed out in the claims.

In the drawings, Figure 1 is a vertical longitudinal section of two cars with the coupling pin and link in the position they arrive at just before the pin is released. Fig. 2 is a side elevation of one end of a car, showing the draw-head thereof with the coupling-pin secured in its raised position. Fig. 3 is a detail view of the coupling-link. Fig. 4 is a section on the line *xx* of Fig. 1, and Fig. 5 is a detail view of the coupling-pin.

Referring now by letter, A and A' are cars provided with my coupling device, and B and B' are the draw-heads of the same. The draw-heads are flexibly secured to the main central foundation-timbers of the car, as shown, and are constructed with two projecting parts or jaws *a b a' b'*, each part suitably perforated for the reception of the coupling-pins C and C', and the lower part serving to support the coupling-link D. The part

a of the draw-head is notched upon its upper surface at *c*, and has extending along its lower surface the projection *d*, which forms a ledge upon the inner surface of the hole E. Corresponding with the notch *c* is a projecting lip *e* upon the pin C. This projecting lip fits into the notch *c* of the draw-head, and the lower part of the coupling-pin rests against the ledge *d*. By this means the pin is held in a raised and inclined position, (clearly shown in Fig. 1;) but as a security against accidental displacement of the lip of the pin C from its seat in the notch *c* by jar or otherwise flanges or lugs *c'* are provided upon the sides of the notch *c*, between which the upper part of the pin C, rectangular in cross-section, fits. Accidental movement of the pin from its place is thereby prevented.

The coupling-pin may be provided with a ring at its upper end, to which and the top of the car a chain is attached for the obvious purpose of uncoupling from the roof of a car.

The coupling-link D (shown in detail in Fig. 3) is of peculiar construction, being slotted at *d'* and *d''* for the reception of the coupling-pins, and having a flange or projection *d'''* upon it, whose purpose is to strike the coupling-pin when in its raised position and release it. At the end *d''* this link is enlarged or weighted, so that the same will remain in a horizontal position upon the lower jaw *b'* of the draw-head. The slot *d''* is elongated to permit of free movement between the cars. The lower surface of the link is laterally concaved to fit the correspondingly-convexed upper surface of the jaws *b b'* of the draw-head, as shown in Fig. 4. This is done in order to prevent the link from turning laterally before the cars have been coupled.

The draw-head is connected to the foundation-timbers of the car by means of bands H H', riveted to the central timber and encircling the draw-head. Independent longitudinal movement of the draw-head is thereby permitted. Upon the under side of the main central timber is secured the iron plate I, grooved for the reception of springs F G, being also provided with a shoulder or abutment *g*, separating the two spring-sections. The draw-head B is provided with flanges *f*

and f' , so that when the car and draw-head are connected spaces between flanges f and g and g' and f' are formed, in which are loosely placed strong springs F G . These are designed to take up the initial shock caused by the sudden starting or coming together of the cars. Normally the springs extend beyond the ends of the grooved plate I , so that upon starting the flange f bears directly upon the spring F , and upon the coming together of the cars the flange f' bears directly against the spring G . The springs are relieved from undue strain, however, after the draw-head has been moved a certain distance forward or backward by the flanges striking the projecting portion of the grooved plate I . The springs are thus in no danger of being broken. My whole device, in fact, is constructed with great regard to strength and durability.

My invention has now been sufficiently described, it is thought, to enable its operation to be readily understood. Starting, therefore, with the cars in the position shown in Fig. 1—that is, with the pin C of the car A in its raised position ready to be released and the pin C' of the car A' in its locked position with the draw-head and link—the operation is as follows: By a movement of either car toward the other—for example, the movement of the car A' toward the car A —the connecting-link D passes within the jaws of the draw-head B , its projection d^3 strikes against the lower end of the coupling-pin C , and the latter is tripped out of connection with the draw-head B and drops by gravity into its locked position, the cars being thereby coupled. The shock caused by the concussion of the draw-heads is received by the springs G and G' , the flanges g and g' bearing against and flanges f' and f^2 resisting the springs. Upon the starting of the cars after they have been coupled the shock of the same is taken up by the springs F and F' , the flanges g and g' bearing against and flanges f and f^3 resisting the springs. The cars are uncoupled in the usual way by lifting the pin from its locked position by means of the chain connecting it to the roof of the car or by hand from the platform. The pin is fixed in its raised position, and is then ready to be again coupled.

In constructing cars provided with my invention the draw-heads B B' are made of such a relative length with reference to the connecting-link that they will come together just as the coupling-pin is released by the projection d^3 of the coupling-link, and thus prevent the pin from being jammed and held in a raised position, and also prevent the pin from being bent or broken by the force of the blow against it. The upper jaws of the draw-heads project farther than the lower ones, and thereby receive the entire shock of bumping and protect the lower jaws from heavy blows.

Having now described my invention, I claim—

1. In a car-coupling, the combination of a draw-head notched upon its upper surface and having a ledge upon the inner surface of its aperture, a coupling-pin having a projection adapted to fit into the notch in draw-head, and a coupling-link having a flange which trips the pin into its locked position, substantially as described.

2. In a car-coupling, the combination, with a draw-head notched upon its upper surface, of flanges or lugs upon each side of the notch, a coupling-pin having a projection adapted to fit into the notch in draw-head, and a coupling-link having a flange which trips the pin into its locked position, substantially as described.

3. The combination, with a car provided with shoulders or abutments, as described, of a draw-head having flanges described, interposed springs, and bands or straps, substantially as described.

4. The combination of a car, a draw-head of the form described, and springs and bands flexibly connecting the car and draw-head, substantially as described.

5. A car-coupling link slotted at d' and d^2 , and having a flange d^3 and enlarged or weighted portion d^4 , as and for the purpose described.

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

ALEXANDER H. S. DAVIS.

Witnesses:

WM. M. STOCKBRIDGE,
EDWIN L. BRADFORD.