

(No Model.)

T. L. McKEEN.
CAR COUPLING.

No. 445,817.

Patented Feb. 3, 1891.

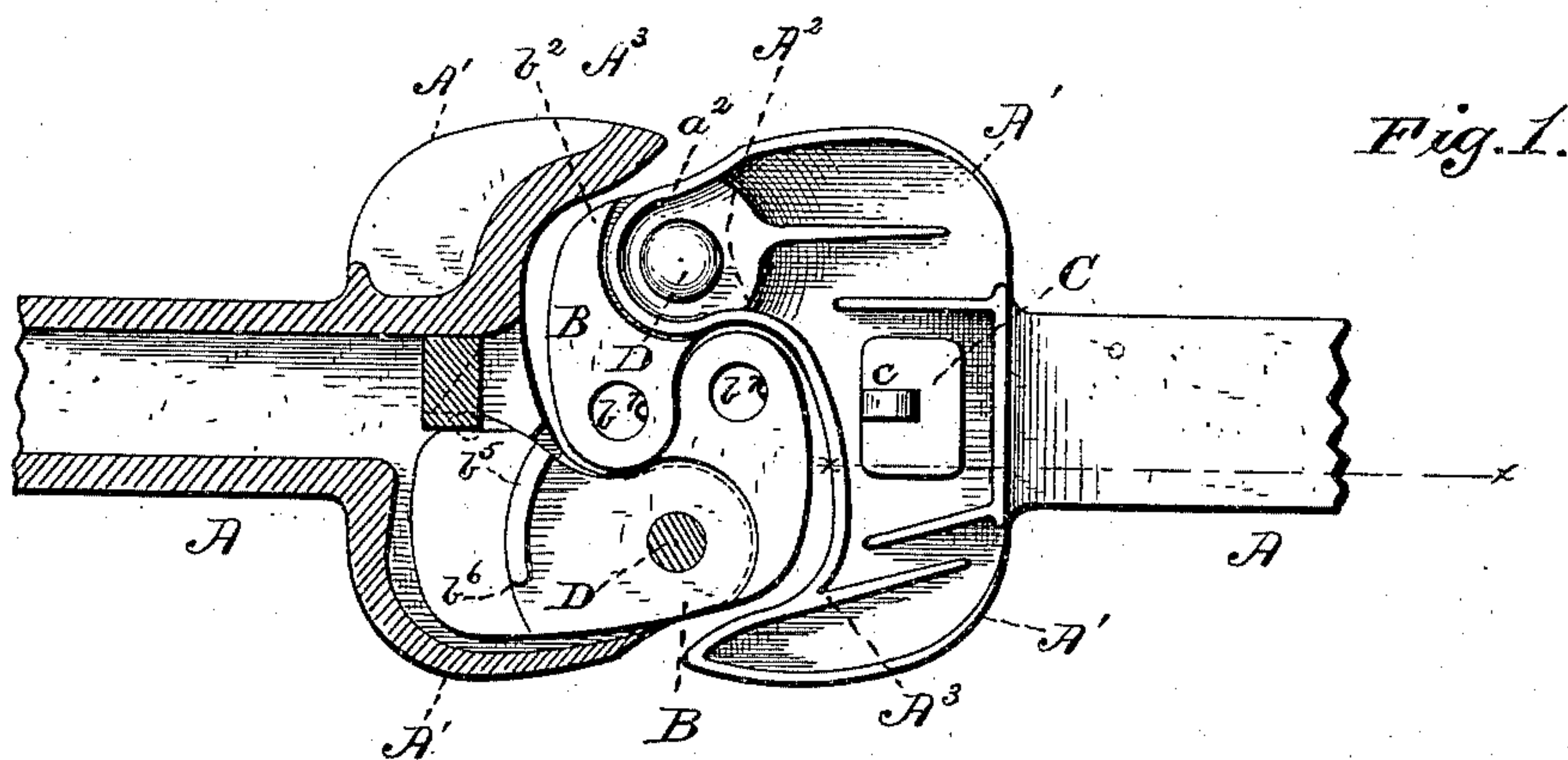


Fig. 1.

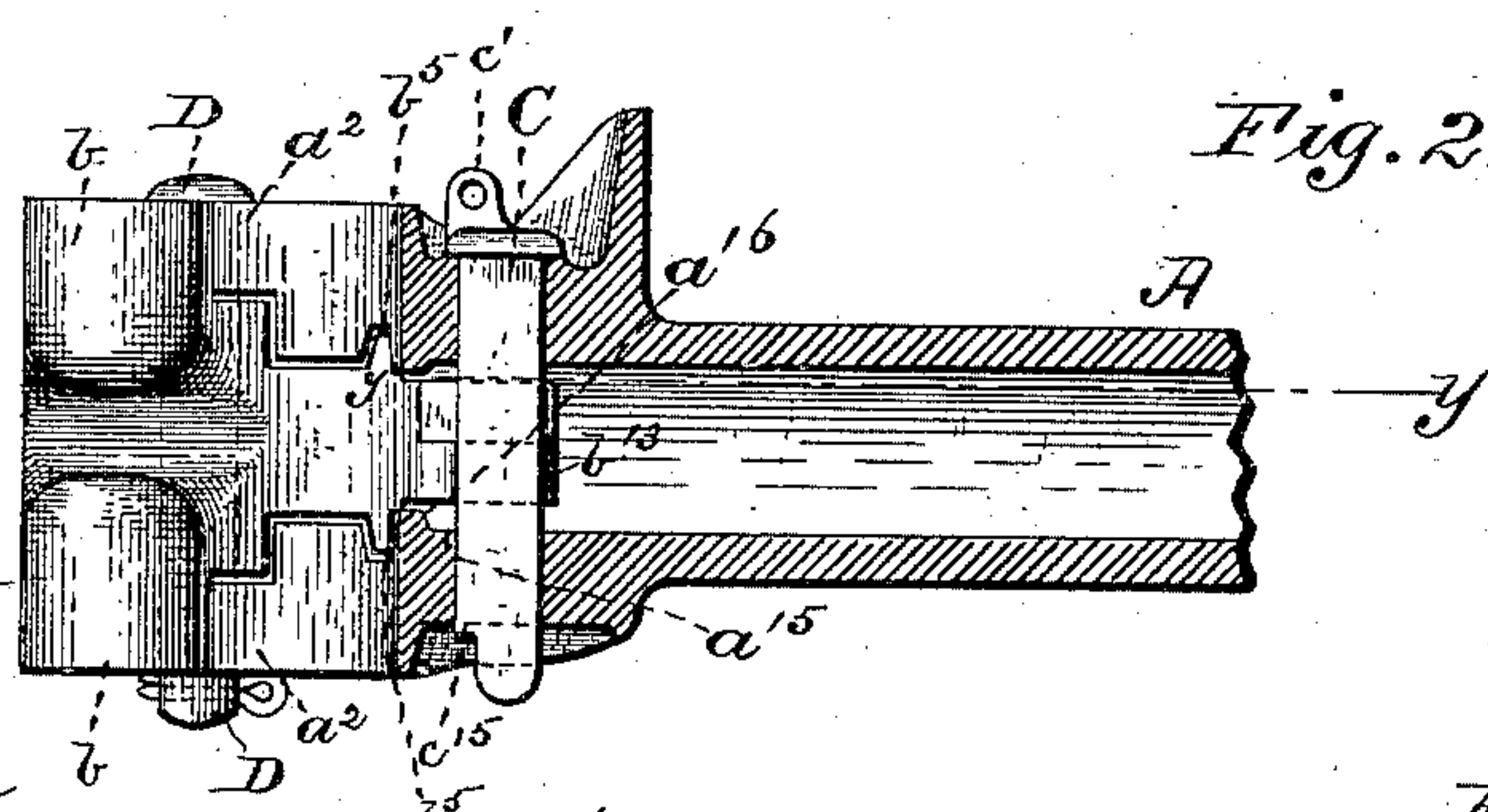


Fig. 2.

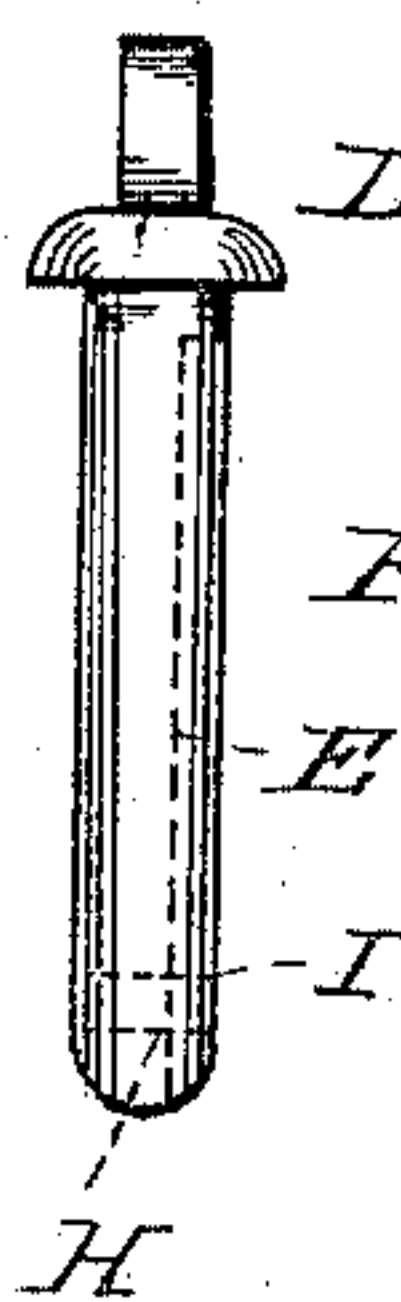


Fig. 7.

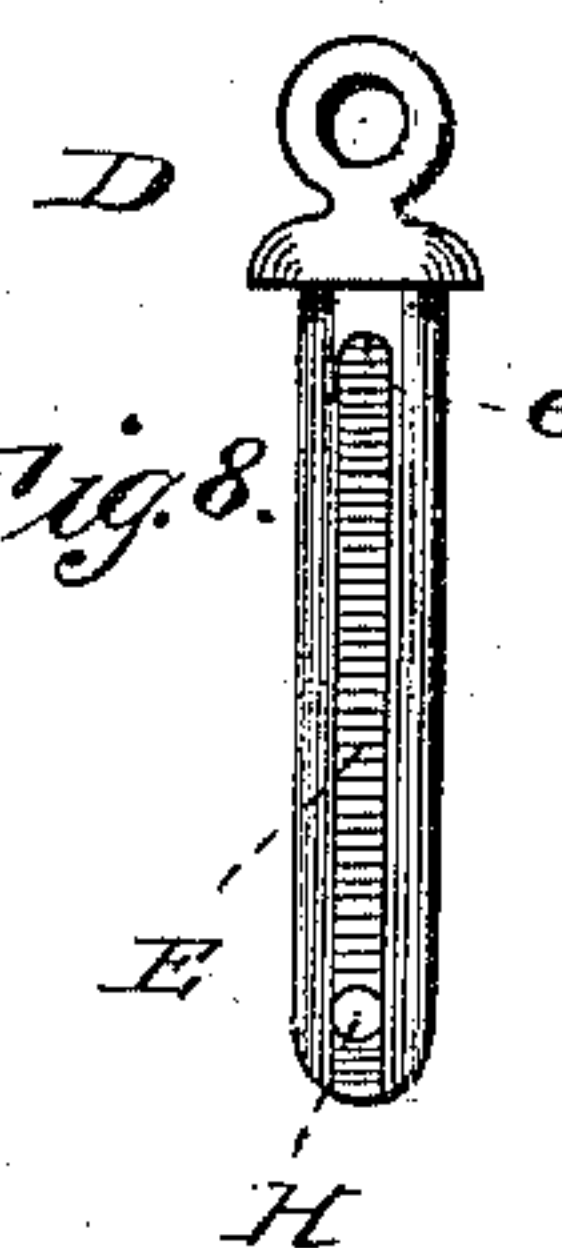


Fig. 8.

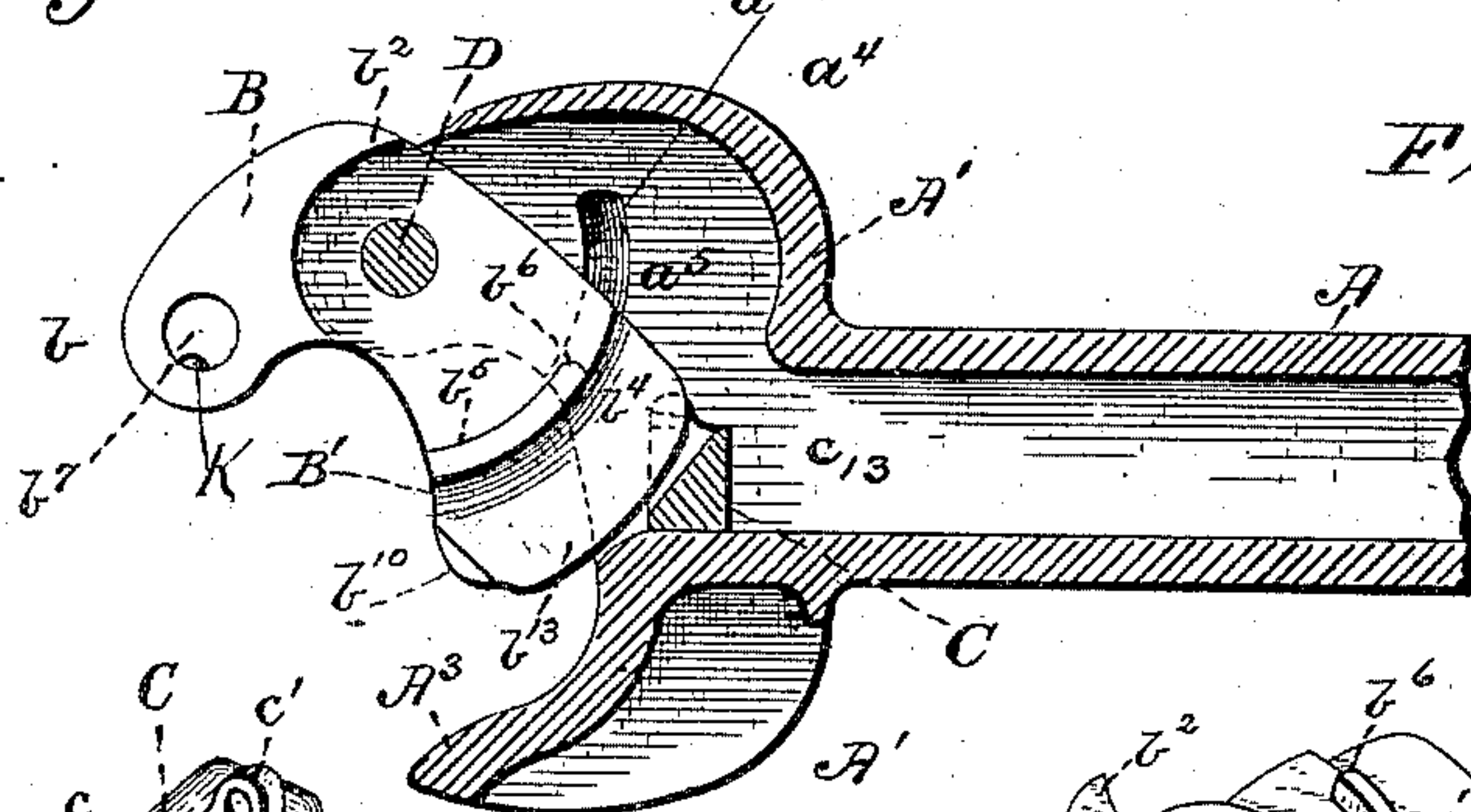


Fig. 3.

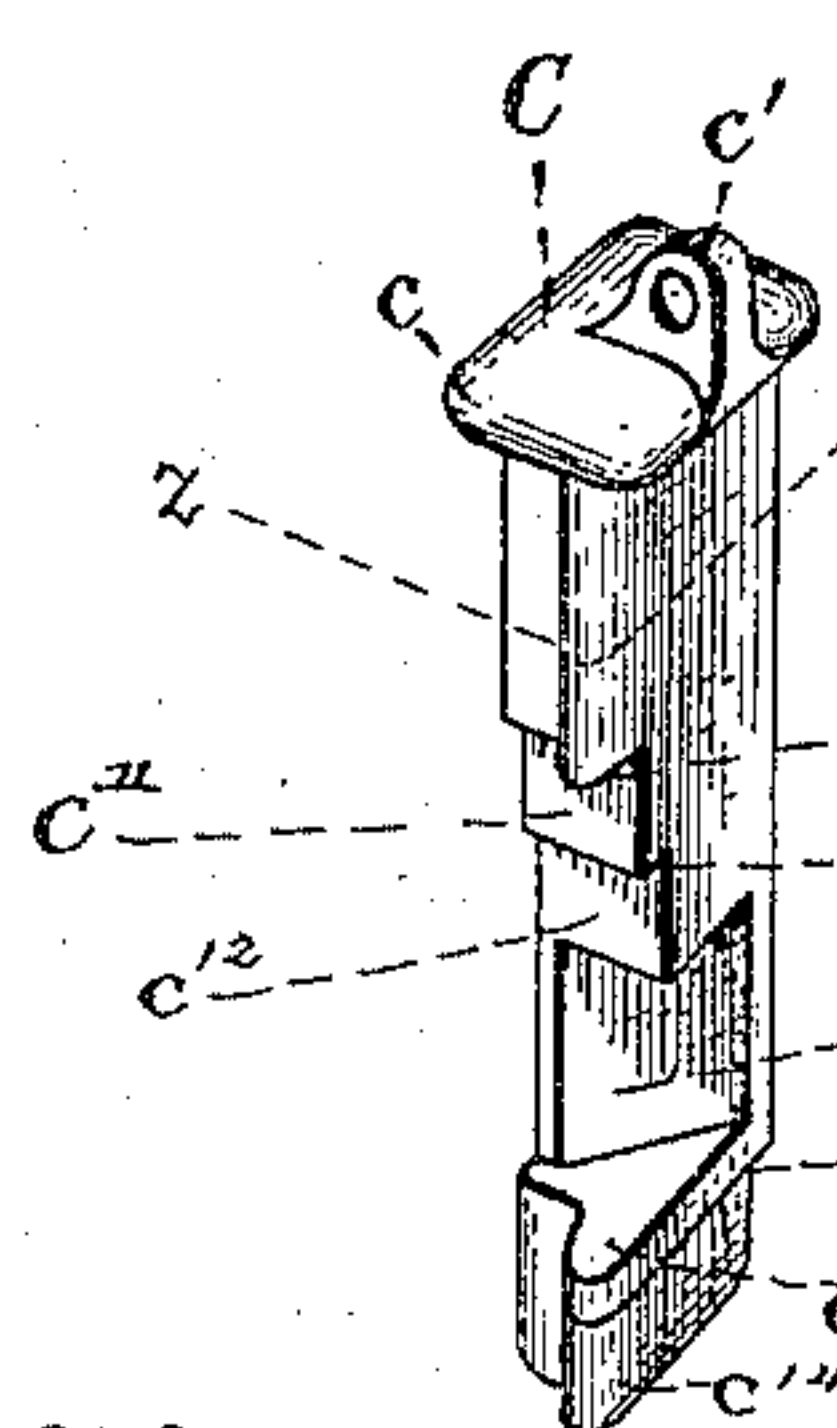


Fig. 5.

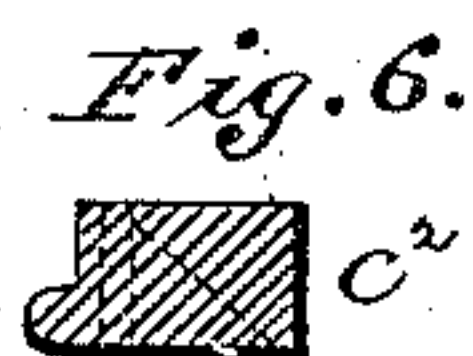


Fig. 6.

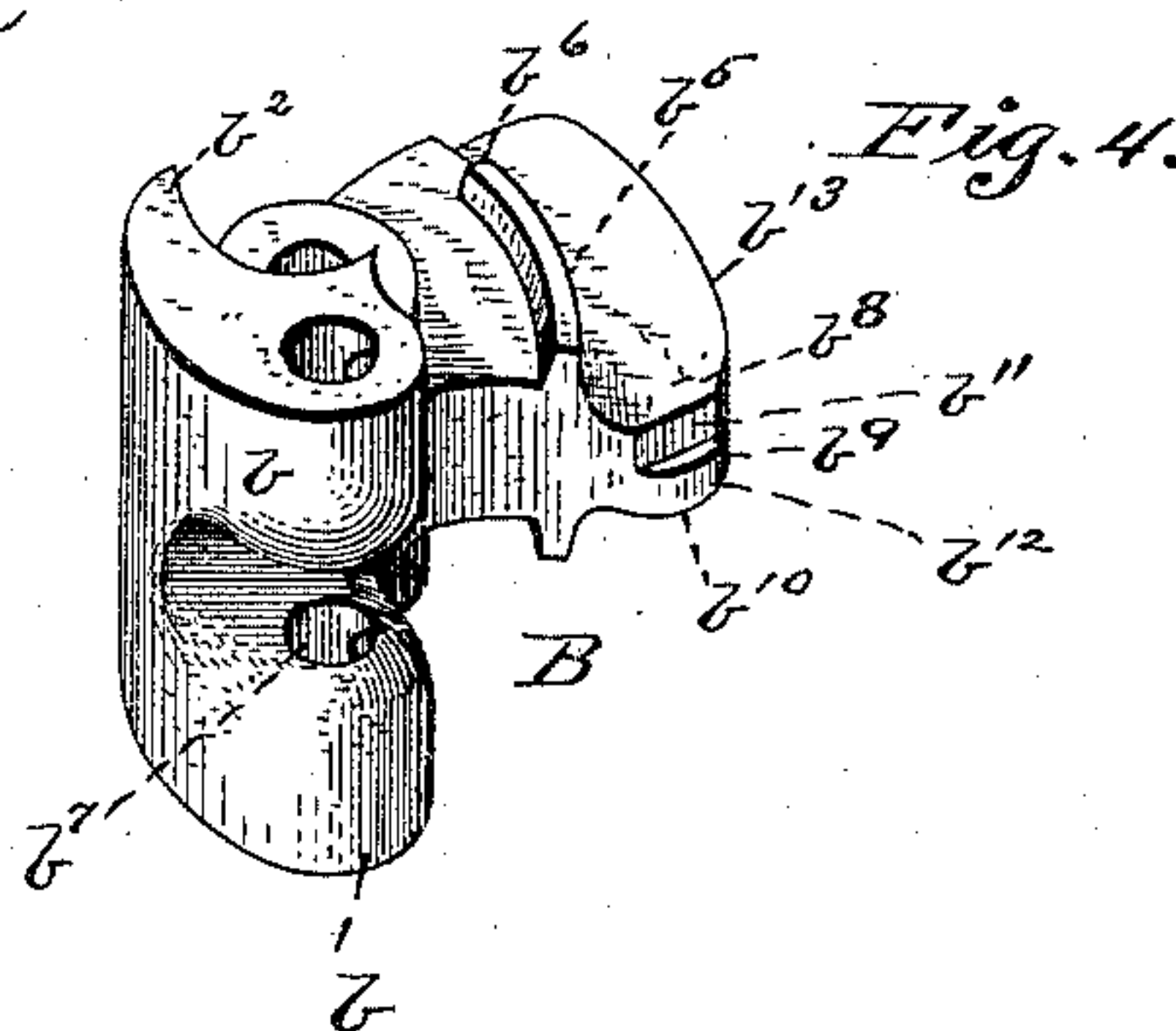


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS L. MCKEEN, OF NEW YORK, N. Y., ASSIGNOR TO THE THURMOND
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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 445,817, dated February 3, 1891.

Application filed October 25, 1890. Serial No. 369,348. (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 Couplings for Railway-Cars; 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 car-couplers, and is more especially applicable to that class of couplers called the "twin-jaw" type.

The object of my invention is to provide for certain structural improvements in the coupler described in Letters Patent No. 431,415, dated July 1, 1890, and Letters Patent No. 430,709, dated June 24, 1890.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a top plan view showing two of my couplings hooked together, the one to the right being shown in projection and the one to the left being shown in section made by the horizontal plane yy , Fig. 2. Fig. 2 represents a vertical section made in the right-hand coupler, Fig. 1, by the plane xx . Fig. 3 represents a section made by the horizontal plane yy , Fig. 2. Fig. 4 represents a perspective view of my coupling-hook removed from the coupler. Fig. 5 represents a perspective view of my improved locking-bar. Fig. 6 represents a cross-section of the same, made by the plane zz , Fig. 5. Figs. 7 and 8 represent views of my improved coupling-pin, Fig. 7 being shown in perspective and Fig. 8 in cross-section.

My improved coupler consists of three parts—the draw-bar A, the draft or coupling hook B, and the locking bar or bolt C.

The draw-bar proper A is cast hollow, and may be connected with the car in any convenient way. On the front end of the draw-bar A is the draw-head A', that is provided with two jaws A² and A³ to receive the adjacent coupler. The draw-head A' is constructed so that the process of annealing the cast coupler may be as uniformly carried out as possible, in order to obtain as far as practicable a

coupler having uniform strength in its various parts. The lines of curvature and the formation of the jaws are also so chosen as to offer the greatest strength with the least weight of metal. This jaw A² is provided with ears a², between which the hook B is pivoted, as usual. The bearings or ears a² for the hook and the pivot-pin D are of such a diameter or so located relatively to the outer lateral face of the jaw A² as to form a bearing-surface for the shoulder b² of the hook B, limiting the backward throw thereof.

The coupler shown in section in Fig. 3 is represented as being open, ready for coupling. Now when another coupler on a car coming in the direction shown by the arrow strikes the nose b, Fig. 3, the hook tends to turn rapidly on the pivot-pin D, and the rear face b⁴ would strike the inner face a⁴ of the draw-bar with considerable violence, tending to crack the comparatively thin cast-iron forming that part of the draw-head. To obviate any accidents therefrom we have a curved lug b⁵ engaging in the curved slot a⁵, both curves being segments of circles having a common center D. This curved lug does not go entirely across the cheek of the hook, but ends in a shoulder b⁶, which takes against the wall a⁶ at the end of the slot a⁵ just before the face b⁴ would come into contact with the face a⁴. By this arrangement I have the effect of the great structural strength of the lug b⁵, striking in the direction of its depth against a thick wall, in lieu of a heavy blow being delivered by b⁴ against a thin wall a⁴. Moreover, the lug b⁵ also still continues to act as in the coupler described in Letters Patent No. 431,415, dated July 1, 1890, as an auxiliary means of receiving the drawing and buffing strain and keeping the cars coupled should the pivot-pin D be broken, worn, or be even out altogether. The lips b b of the nose of the hook B are rounded to allow the link, when link-and-pin couplings are used, to enter freely, and they are perforated with the hole b⁷ for the admission of the pin to hold the said link.

The locking-bar C (see Fig. 5) is shown in cross-section in Fig. 6. This locking-bar slides in a vertical slot in the draw-bar, having a similar but slightly larger cross-section than that shown in Fig. 6. The cap c not only acts

as an extra stop to keep the locking-bar from slipping too far down in the slot, but it also serves to keep particles of snow, ice, cinders, &c., from getting down in between the faces of the slot and of the locking-bar. The shoulders c^8 and c^9 of the locking-bar also take against the face b^8 and shoulder b^9 of the hook, respectively, thus limiting the motion of the locking-bar downward when the hook is locked, while the shoulder c^{10} catches against the under face b^{10} of the hook and acts as a guide for the locking-bar when coupling or uncoupling. C is cut away at c^{13} to allow the rear face b^{13} of the hook to pass just clear of C in coupling and uncoupling. This space c^{13} is slightly wider than the rear face of the hook b^{13} and is in position for the passage of b^{13} when c^{10} touches b^{10} .

When the coupler is locked, the faces b^{11} and b^{12} are held by the faces c^{11} and c^{12} , respectively, and the hook B cannot turn in the pivot D.

The bottom c^{14} of C is rounded somewhat to allow the easy entrance of the locking-bar in its slot. Near the bottom I have a shelf c^{15} of a depth equal to the height of the lug a^{16} , Fig. 2. The slot for the locking-bar being somewhat larger than the bar itself leaves a slight play of the bar in the said slot, and by causing the shelf c^{15} , Fig. 5, to rest on the shelf a^{15} , Fig. 2, when the coupler is open, as in Fig. 3, it will be supported in place and at the same time will be in position to allow the face b^{13} to fly back through the score c^{13} , as in coupling together two cars; but this motion backward of b^{13} will knock the shelf c^{15} from its support and will cause the locking-bar to drop into place as soon as b^{11} and b^{12} are thrown under c^{11} and c^{12} , respectively, thus working automatically.

c' is a lug on the end of the locking-bar for the lifting-chain; but any suitable means may be employed for manipulating the locking-bar from the side or from the top of the cars or from the platform thereof in coupling or uncoupling.

The coupler may be used as a link-and-pin coupler either by means of the forked nose of the hook with the hole b^7 , as already described, or the hook may be removed and the ordinary link-pin may be used to shackle a link to the draw-head A'.

To prevent any accidents due to the use of the ordinary link-pins, which are almost invariably somewhat bent from use and require to be driven into the knuckle, greatly endangering the splitting of the cast-iron, I have invented a new form of pin made of steel and intended to be permanently attached to the coupler, which I have described and claimed in another application to be filed herewith. This hook has near its outer end pin-holes b^7 , between which is the link-opening.

The pin D, which is placed within the pin-hole b^7 , is provided with a longitudinal groove or recess E, extending from a point near its top to its bottom. A transverse aperture H

is cut through the pin D to the groove or recess E, which it intersects at a point near the bottom of the pin. Within this aperture H is inserted the plug I, the ends of which are flush with the cylindrical surface of the pin D. A boss K is formed upon the upper part of the hook, which projects into the pin-hole and is of such size and shape as to fit accurately within the longitudinal groove or recess formed in the pin. It will readily be seen that the slot may be cast in the hook and the boss be on the pin, whereby the same effect would be obtained and the pin be strengthened somewhat.

The pin is easily fitted in the required position by causing the lower end of the groove E to register with the boss K, and then lowering it until the shoulder e at the upper end of the recess E rests upon the boss. When the pin has been lowered to such an extent that the aperture H is within the link-opening, the plug I may be inserted within it.

It is evident from the foregoing construction that the downward movement of the pin D will be limited by the contact of the stop e with the upper side of the boss K, and that the length of its upward movement will be determined by the contact of the end of the plug I, which projects into the recess E, with the lower side of the said boss. The plug I should therefore be located at such a distance from the bottom of the pin that in raising the latter it would pass clear of the link or link-opening.

I claim—

1. In a twin-jaw coupler, the combination of a hollow draw-head having ears thereon and a circular recess therein, said recess terminating before reaching the wall of the hollow draw-head, and holes in the said ears for a pivot-pin, with a nose-plate pivoted on the said pin and between the said ears, said nose-plate having a circular lug engaging in the circular recess in the draw-head, substantially as described.

2. In a twin coupler, the combination of a hollow draw-head A', having ears $a^2 a^2$ thereon, and a recess a^5 , forming an arc of a circle whose center is that of the pivot-pin D, said recess terminating in a wall a^6 away from the wall of the hollow coupler, with a nose-plate B, pivoted on the pin D and engaging in the ears $a^2 a^2$ of the draw-head A', said nose-plate having curved lug b^5 engaging in the recess a^5 , with a shoulder b^6 engaging a^6 , substantially as described.

3. In a twin coupler, the combination of a hollow draw-head A', having ears $a^2 a^2$ thereon, and a recess a^5 , forming an arc of a circle whose center is that of the pivot-pin D, said recess terminating in a wall a^6 away from the wall of the hollow coupler, with a nose-plate B, pivoted on the pin D and engaging in the ears $a^2 a^2$ of the draw-head A', said nose-plate having a curved lug b^5 engaging in the recess a^5 , with a shoulder b^6 engaging a^6 and having a hole in the nose, and rounded lips in

the said nose for link-and-pin coupling, substantially as described.

4. In a twin-jaw car-coupler, a draw-head
5 having arc-shaped recesses formed in the roof
and floor thereof, which terminate at a point
removed from the lateral wall of the coupler,
in combination with a hook pivoted in the
draw-head and provided with arc-shaped

flanges which engage in the said recesses, as
and for the purposes described. 10

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

THOMAS L. McKEEN.

Witnesses:

WM. M. LYDDY,
A. H. FORD.