

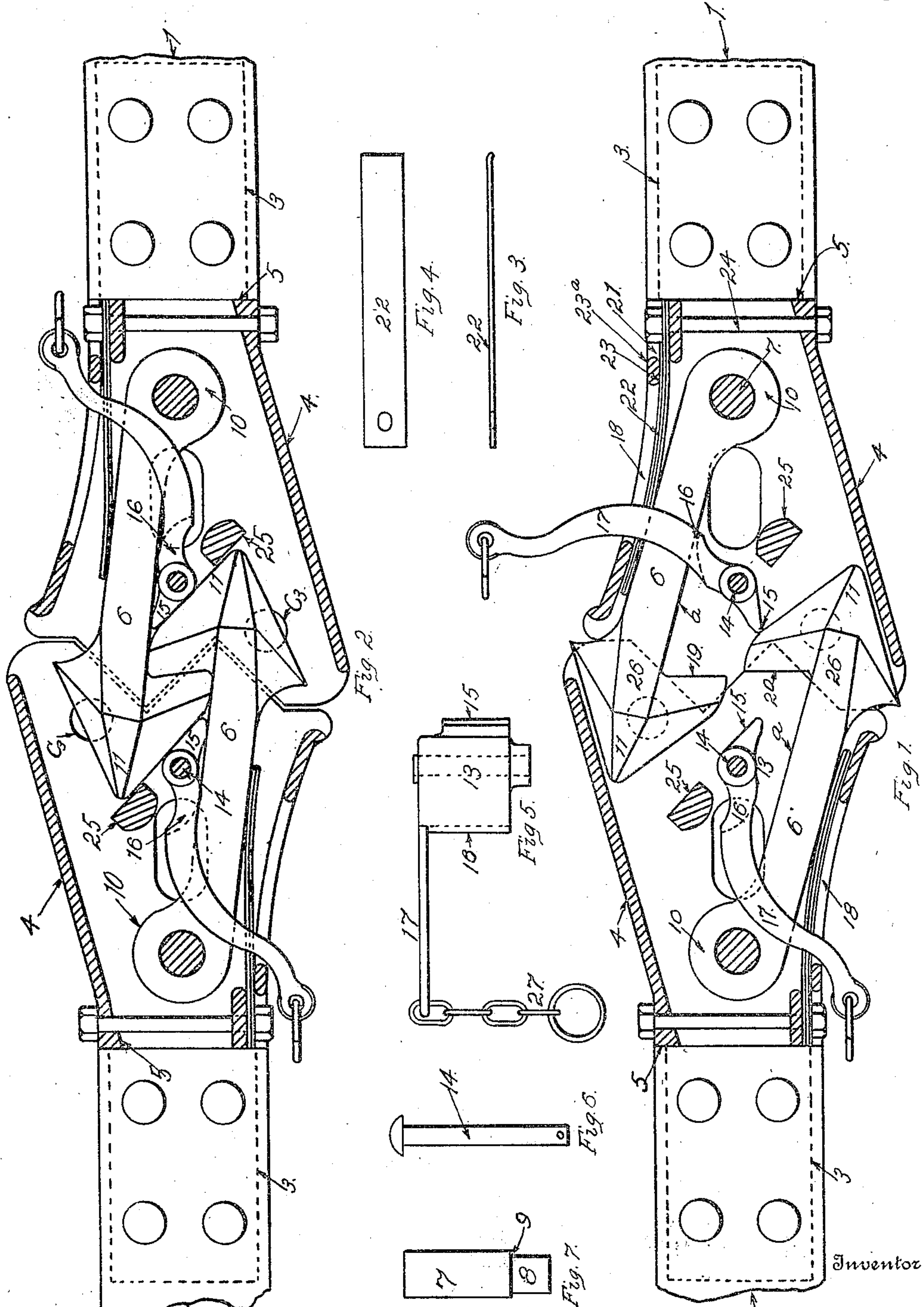
No. 886,554.

C. H. TOMLINSON.
CAR COUPLING.

PATENTED MAY 5, 1908.

APPLICATION FILED JAN. 23, 1907.

3 SHEETS—SHEET 1.



Witnesses

Pearl Cushman
David J. Davies

34

Charles H. Tomlinson
John H. Cross
Attorney

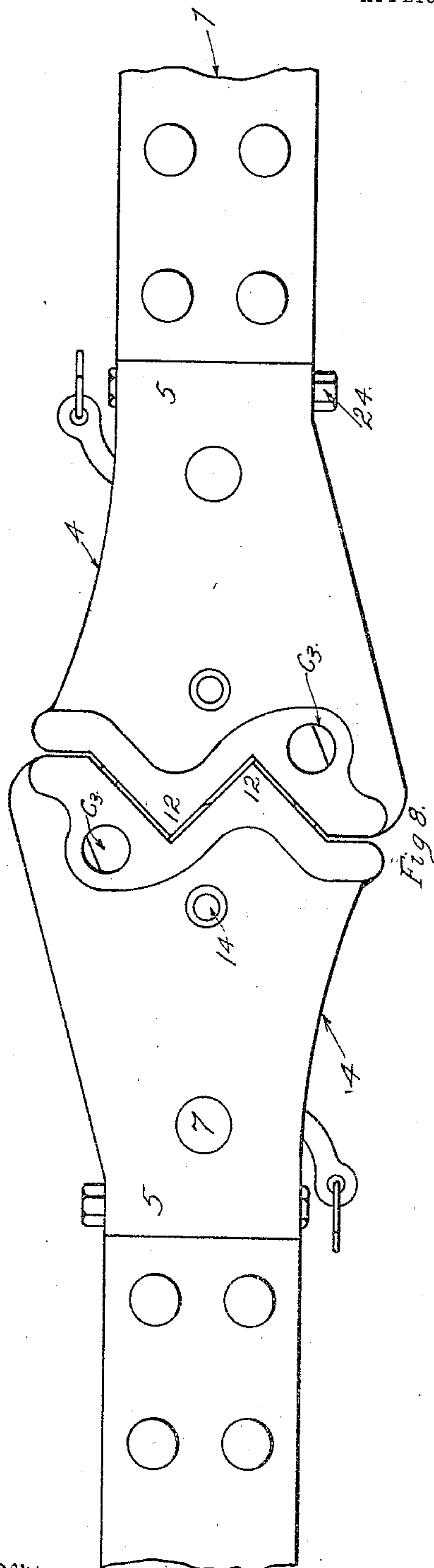
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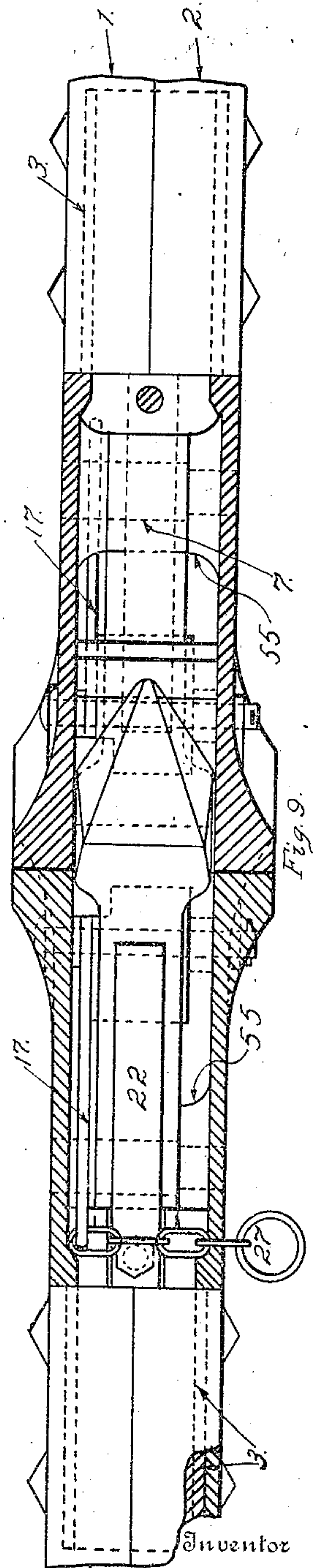
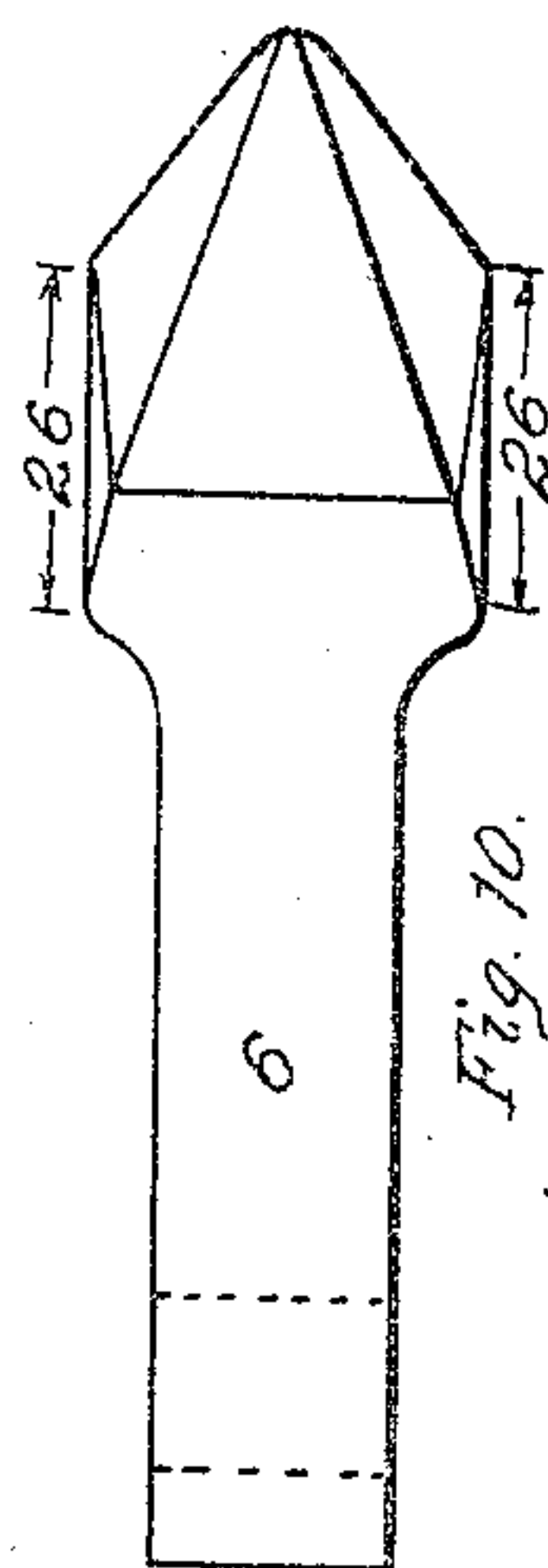
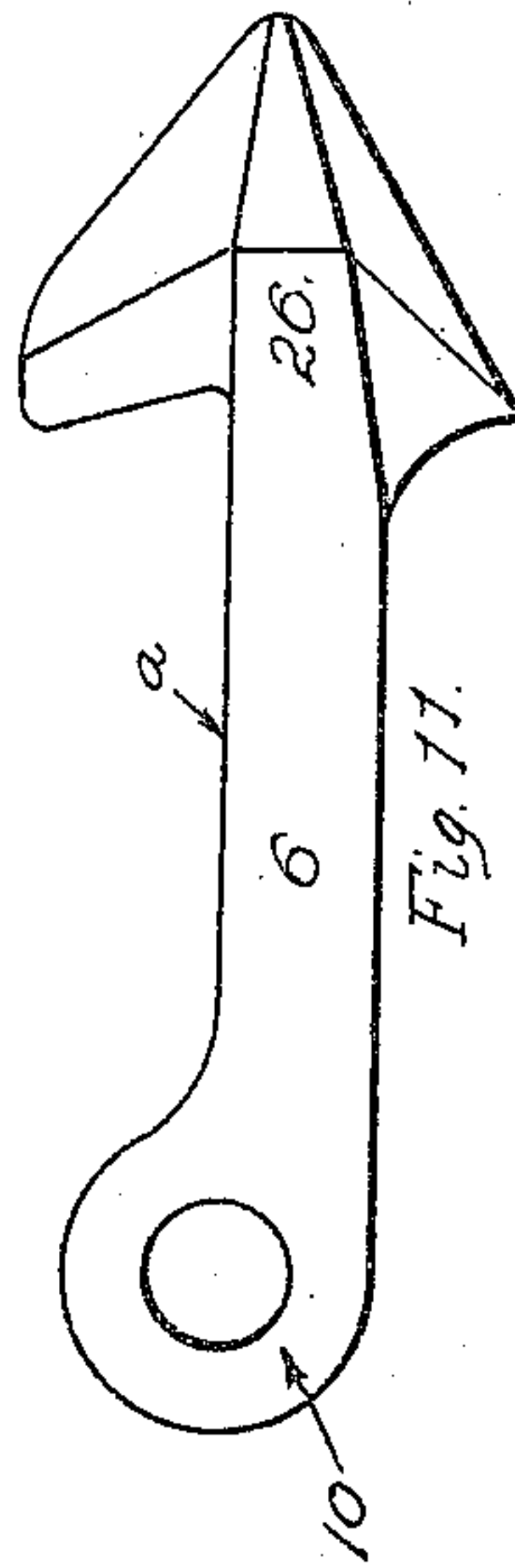
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3 SHEETS—SHEET 2.



Witnesses

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3 SHEETS—SHEET 3.

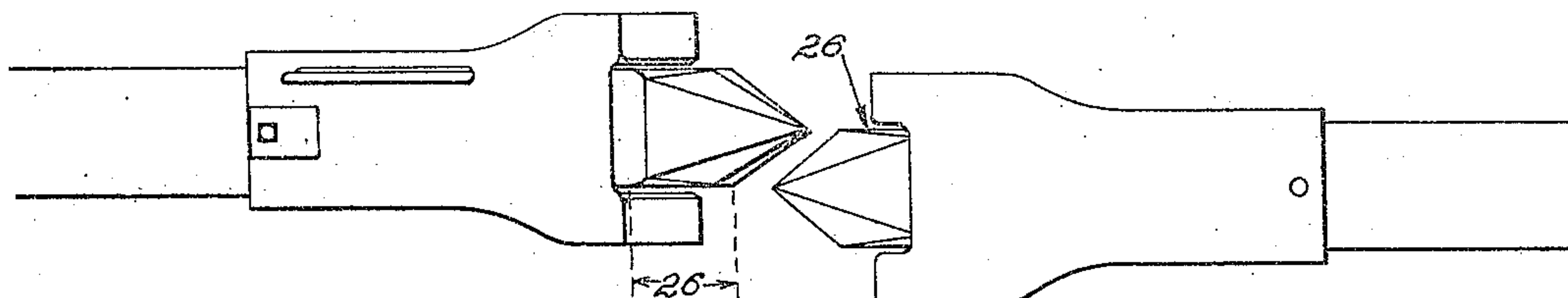


Fig. 12.

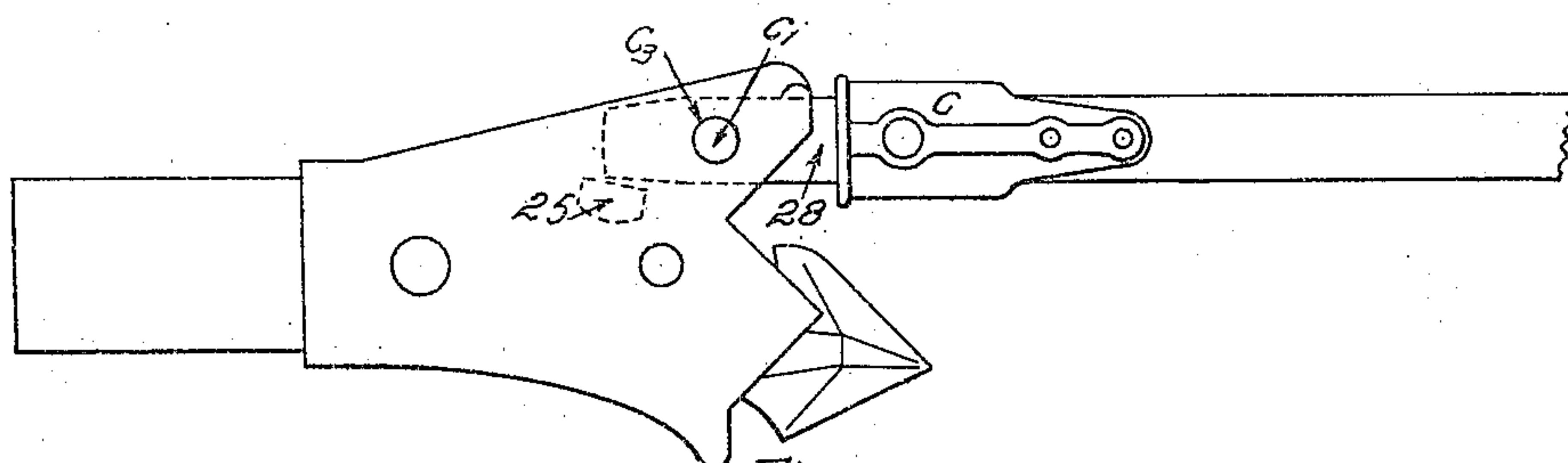


Fig. 13.

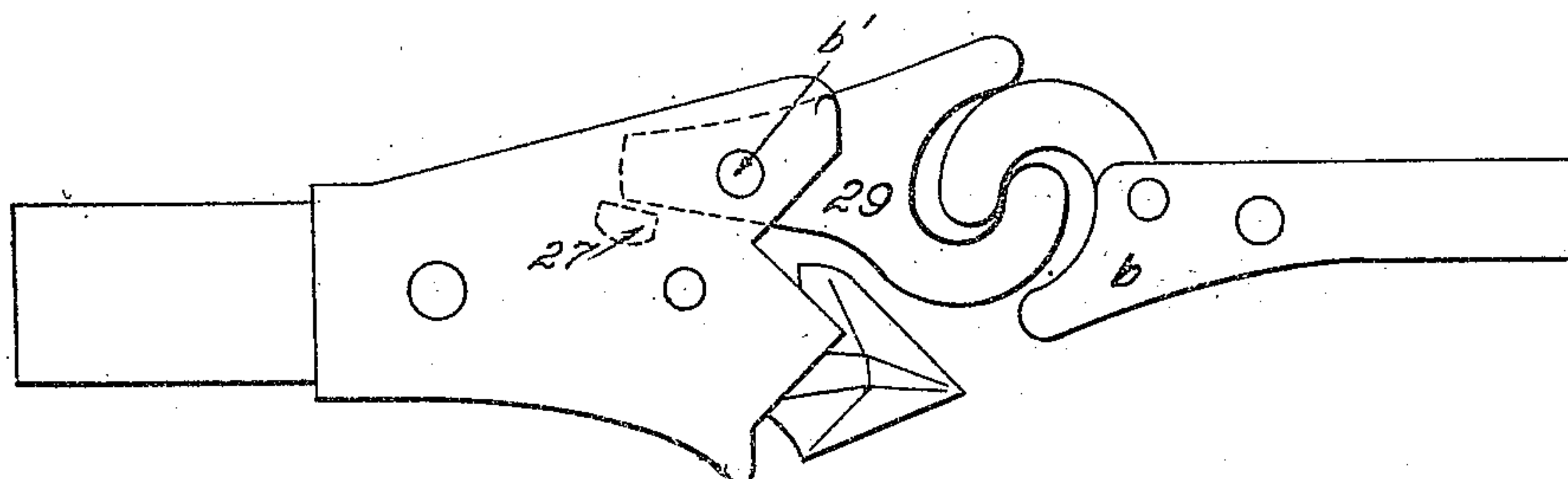


Fig. 14.

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UNITED STATES PATENT OFFICE.

CHARLES H. TOMLINSON, OF MANSFIELD, OHIO, ASSIGNOR TO THE TOMLINSON COUPLER COMPANY, OF DENVER, COLORADO, A CORPORATION OF SOUTH DAKOTA.

CAR-COUPLING.

No. 886,554.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed January 23, 1907. Serial No. 353,730.

To all whom it may concern:

Be it known that I, CHARLES H. TOMLINSON, a citizen of the United States, residing in the city of Mansfield, county of Richland, and State of Ohio, have invented certain new and useful Improvements in Car-Couplers; and I do 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to car-couplers of the twin-jaw type, having substantially arrow-pointed heads and more particularly to improvements in the car-couplings described and claimed in the Letters Patents No. 810,588, bearing date of January 23, 1906 (car-coupling) and No. 814,924, bearing date of March 13, 1906 (car-coupling) granted to me.

One of the objects of my present invention is to provide a car-coupling which is attached to radiating or pivoted draw-bars comprising spring actuated twin coupling devices having heads of such a contour that when they are more or less out of alinement as when the cars, to which they are secured, are upon a curve and the coupling devices forced in contact with each other that each of the devices will be deflected by the impact in such a manner and direction as to bring them in such a position laterally and vertically with reference to each other and the draw-heads as will permit them to interlock automatically with the heads inclosed within the hollow portion or chamber of the draw-heads and the forward notched counterpart extremities of the draw heads abutting against each other.

Another feature of my invention is the construction of the heads of the coupling devices in such a way as to provide a flat portion which, when the coupling devices are interlocked and the draw-heads abutting each other, extends into the hollow portion of the draw-heads and prevents vertical movement. The flat portion being of such a size as will correspond with and fit between the upper and lower walls of the draw-heads thereby effectually preventing vertical movement of the draw-heads when coupled.

One of the essential features of my present invention is the construction of the heads of

the coupling devices with a flattened portion which extends beyond the forward or abutting extremities of the draw-heads to such an extent that the flattened portions of the heads will enter the chambers of the opposed draw-heads and aline both draw-heads with each other before the abutting extremities contact with each other.

Another object of my invention is the method employed of constructing cams for each draw-head which are pivoted in the chamber of each draw-head in such a way as to act upon the shank of one coupling device and the inclined or arrow-pointed head of the opposed coupling device whereby, when movement is imparted to the operating lever, one extremity of the cam exerts a pressure against the face of one coupling device and the other extremity against the shank of the other, unlocking the coupling.

Another object of my invention is to form the contacting faces of the jaws of the coupling devices slightly inclined toward the shank so that when they are uncoupled the faces of the jaws will be on a plane with each other permitting them to interlock readily leaving the jaws hooked together when coupled.

Further objects of my invention consists in constructing the cam and operating lever integral for actuating the coupling devices, and providing means of coupling to a foreign coupling device or draw-head and affording protection for the coupling devices and operating mechanism when coupled to a foreign type of coupler.

The invention consists primarily in a car coupling secured to a pivotal or radiating draw-bar comprising hollow draw-heads with counterpart notched forward extremities and spring actuated coupling devices pivotally mounted therein whereby vertical and lateral movement is prevented no matter whether the cars to which they are attached are making a curve or on a straight track and means to couple and uncouple the car-coupling when the cars are upon a curve or straight track.

In the drawings, Figure 1 is a horizontal section showing two of my improved draw-heads with their coupling devices uncoupled. Fig. 2 is a horizontal section showing my improved draw-heads with the coupling devices coupled or interlocked. Figs. 3 and 4 are top and side views, respectively, of one

of the leaf springs used to actuate the coupling devices. Fig. 5 is a side elevation of the cam showing lever arm made integral therewith and chain attached to the arm. Fig. 6, 5 is a detail view of the bolt upon which the cam, shown in Fig. 5, is journaled. Fig. 7, is a detail view of a pin which passes through the hollow portion of the draw-head and is secured to the upper and lower walls to provide a means of pivotally attaching the coupling devices in each draw-head. Fig. 8 is a top or plan view of my improved draw-heads showing them as they appear with the coupling devices interlocked. Fig. 9 is a vertical 15 section of Fig. 8, taken through the center showing the coupling device and its actuating cam in side elevation. Figs. 10 and 11 are detail views of one of the coupling devices. Fig. 12 is a side view of the draw-heads showing the projecting ends of the coupling devices out of alinement when the cars are on a curve or approaching each other upon a different grade with the inclined or arrow-pointed heads about to contact with each other whereby the draw-heads and coupling devices are deflected by impact and forced to aline with each other for coupling purposes. Fig. 13 is a plan 30 view of one of the draw-heads showing method of coupling it to a foreign coupling of the link and pin type. Fig. 14 is a plan view of one of the draw-heads showing method of coupling to a foreign coupling of the knuckle type.

35 In the drawings, the members 1 and 2 comprise a radiating draw-bar composed of channel iron and is adapted to fit over the rear end 3 of each draw head 4. The draw-heads are formed hollow with the side walls thereof diverging outwardly from the rear extremities 40 (5) to the forward extremities forming chambers with an enlarged opening which gradually decreases in width toward the rear extremities. The purpose of these chambers 45 is to provide means of pivotally mounting therein the coupling devices 6 and operating mechanism described more particularly hereinafter. In the rear extremities of each draw-head suitable apertures are provided 50 into which a pin 7 is fitted and secured to the top and lower wall of the draw-head. The pin 7 is preferably formed with a reduced portion 8 leaving a shoulder 9 which rests upon the boss 55 of the draw-head thereby supporting the pin. The rear extremity 10 of each coupling device 6 is pivotally mounted upon the pins 7 leaving the arrow-pointed heads 11 protruding beyond the counterpart notched forward extremities 12 of each draw-head. The throw or pivotal movement of the coupling devices is shown in Figs. 1 and 2 which figures show the relative movement required of each coupling device to couple or 60 uncouple them as desired. In each draw-

in alinement therewith a double-faced cam 13 is pivotally journaled upon a pin 14 leaving the cam interposed between the shank of one coupling device and the inclined or arrow-pointed head of the opposed coupling 70 device and contacting therewith when the forward extremities of draw-heads are abutting each other. When movement is imparted to the cam, one face 15 of the cam will act upon the inclined head of the opposed 75 coupling device and the other face 16 will act upon the part (a) of the other coupling device forcing them to move outwardly and uncouple. A curved operating arm 17 is made integral with each cam 13 and extends 80 outside the draw-head through the elongated slot or recess 18 formed in the side wall of the draw-head.

In Fig. 1, one of the operating lever arms is shown in a position substantially at right 85 angles with the draw-heads which is the limit of the throw, required to release or uncouple the coupling devices. One part of the cam acts upon the shank of one coupling device and one upon the head of the opposed 90 coupling device leaving the jaws thereof on a plane with each other and the rear portion of the heads in close proximity to the side walls. The jaws 19 and 20 of the coupling devices are slightly inclined toward the 95 shank in order to provide means of hooking them together as shown in Fig. 2 to prevent any tendency of the coupling devices from pulling apart when coupled. One of the side walls of each draw-head at its rear ex- 100 tremity is undercut and a slot 21 formed contiguous thereto and communicating with the chamber of each draw-head. One or more leaf springs 22 are securely attached to the undercut portion of each draw-head with the 105 free ends passing through the slot 21 of each draw-head and resting upon the undercut portion of the draw-head and against the face 23 of the portion 23^a formed in the side wall of each draw-head. The free ends of the 110 leaf springs engage the shanks of the coupling devices and exert a pressure thereon normally forcing them toward each other for the purpose of interlocking with each other. The leaf springs 22 are attached to each 115 draw-head by the bolt 24 which passes through suitable apertures provided in the side walls and the end of the springs. In each draw-head a post 25 is made integral and so positioned as to be in close proximity 120 to the heads of the coupling devices when the jaws are interlocked or coupled to protect them against injury or damage by impact. (See Fig. 2). These posts also perform another function which will be described here- 125 inafter.

A portion 26 of the heads of the coupling devices between points indicated by the arrows on Fig. 10 is flattened and made of such a size as will fit between the upper and lower 130

walls of the draw-heads so that when they are brought together for the purpose of coupling each draw-head is forced to aline with the other vertically. When the heads of the opposed coupling devices come in contact with each other the arrow-pointed heads enter the chamber and force each draw-head to move in such a direction as to bring them in alinement, vertically, with each other when the heads of each coupling device are inclosed within the chamber of the opposed draw-heads. A chain 27 is attached to the end of the operating lever 17 for convenience in actuating the cam to release the coupling devices. In Fig. 13 I have shown one of my coupling devices coupled to a foreign coupling (c) which is accomplished by using a link 28 and coupled in the usual manner by the pin (c') which is inserted in the aperture (c³) of the draw-head (see Fig. 2).

In Fig. 14 I have shown one of my coupling devices coupled to a foreign coupling (b) of the knuckle type which I accomplish by the use of an auxiliary knuckle 29 which is attached to one of my draw-heads by a pin (b') inserted in the aperture (c³) of the draw-head. (See Figs. 2 and 8.) Attention is called to the fact that the vertical post 25 provides a protecting means for my coupling when coupled to any type or class of couplers and guards it against injury from any cause while coupled. This feature is of especial advantage as it affords facilities for coupling my coupler to any type of coupling without inconvenience or damage.

The operation of my coupling is as follows: When the cars are on a straight track, the protruding arrow-pointed or inclined heads of the coupling devices are substantially alined and as the cars approach each other the impact of the heads against each other forces the jaws of the coupling devices to the proper position to interlock automatically through the medium of the leaf springs which engage the shank and normally force the jaws of the coupling devices toward each other. When it is desired to release or uncouple the coupling devices, the double cam is actuated by the operating lever 17 as shown in Fig. 1, forcing the cam to engage the shank of one coupling device and the head of the opposed coupling device thereby counteracting the tension of the springs and releasing the coupling devices from each other and holding them in the position shown in Fig. 1 until the cars are uncoupled. When the cars are approaching each other for the purpose of coupling on a grade or curve, the draw-head is swung to a position substantially in alinement with the opposed draw-head through the medium of the radiating draw-bar and the impact between the arrow-pointed or inclined heads deflects the draw-heads in such a direction as to bring the draw-heads substantially in alinement with

each other, vertically. The notched forward extremities of the draw-heads abut against each other and laterally aline each draw-head and coupling device with the opposed coupling device and draw-head and the flattened portions 26 of the heads of each coupling device enters the chambers of the opposed draw-head thereby alining each of the draw-heads with each other vertically and effectually preventing vertical movement of the draw-heads when coupled.

I claim—

1. In a car coupler, the combination of two hollow draw-heads pivotally connected with their respective cars, coupling devices pivotally mounted in the respective draw-heads and normally spring held in the coupled position, the said coupling devices protruding from the draw-heads in front and adapted to interlock for coupling purposes, said coupling devices also having arrow-pointed heads with flattened horizontal portions protruding from the draw-heads and adapted to enter and fit the chamber of the opposed draw-head to prevent independent vertical movement, the forward extremities of the draw-heads being provided with counterpart notched extremities located in the rear of the forward extremities of the coupling devices to prevent independent lateral movement of the draw-heads when the cars are coupled.

2. In a car coupler, comprising two hollow draw-heads pivotally connected with their respective cars, coupling devices pivotally mounted in the respective draw-heads and normally spring held in the coupled position, a double-faced cam interposed between the shank of one coupling device and the inclined head of the opposed coupling device having an operating arm made integral therewith, a vertical post secured to the upper and lower wall of the draw-heads and adapted to guard and protect the operating mechanism and coupling devices.

3. The combination of two draw-heads and the coupling devices pivotally mounted therein, the said coupling devices having the heads thereof provided with horizontal flattened portion and adapted to aline fit and enter the chamber of the opposed draw-head to prevent vertical movement when coupled.

4. In a car coupler, the combination of a hollow draw-head pivotally connected to a car, a spring actuated device pivotally connected with a draw-head and having an arrow-pointed coupling extremity with a horizontal flattened portion made contiguous projecting beyond the forward extremity of the draw-head with the face of the jaw inclined toward the shank, means connected with the draw-head and arranged to act on the coupling device to throw it to unlocked position, the forward extremity of each draw-head notched to interlock with the corresponding extremity of the opposed draw-head.

5. In a car coupler, the combination of a draw-head, of a spring actuated coupling device pivoted in the draw-head, said coupling device having its head flattened and adapted to enter the chamber of an opposed draw-head to prevent vertical movement, an unlocking double faced cam having an arm made integral therewith extending outside the draw-head whereby the cam is operated to unlock the coupling.

6. In a car coupling with a draw-bar pivotally connected to a car, a draw-head secured thereto, a coupling device pivotally mounted within the chamber of the draw-head, the forward extremity of said draw-head having recesses and projections adapted to abut against an opposed draw-head having counterpart recesses and projections whereby lateral movement of the draw-head is prevented, means to actuate the coupling device, a post located within the chamber of the draw-head and adapted to protect and guard the operating mechanism and coupling device whereby a foreign coupler can be coupled without inconvenience or damage.

7. In a car coupling comprising hollow draw-heads pivotally connected to the car body, coupling devices pivotally mounted within said draw-heads with the forward extremities protruding beyond the forward extremities of the draw-heads, means so located as to be interposed between the shank of one coupling device and the inclined head of the opposed coupling device when they are in locked position for uncoupling purposes, the said coupling devices having their heads formed arrow-pointed with contiguous horizontal flattened portions flattened to fit between the upper and lower walls of the op-

posed draw-heads to prevent vertical movement, the forward extremity of each draw-head notched to correspond with the forward extremity of the opposed draw-head and adapted to interlock to prevent lateral movement.

8. In a car coupling, the combination of two hollow draw-heads secured to a radial draw-bar, coupling devices pivotally mounted in the rear extremities of said draw-heads with the heads projecting beyond the forward extremity of each draw-head, said heads provided having horizontally disposed flattened portions adapted to enter and fit between the upper and lower walls of the draw-heads to prevent vertical movement, uncoupling means comprising a double-faced cam, an operating arm made integral secured to each draw-head as described.

9. A car coupling comprising a draw-head, a coupling device pivotally mounted thereon, a cam to actuate said coupling device, a vertical post provided in said draw-head to protect the coupling device and prevent excessive movement of any foreign connecting means.

10. In a car coupler, the combination of a draw-head, a spring actuated coupling device mounted thereon, means of actuating the coupling device consisting of a double faced cam pivotally mounted on the draw-head with an operating lever made integral therewith.

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

CHARLES H. TOMLINSON.

Witnesses:

DAVID J. DAVIES,

JOHN H. COSS.