

No. 894,535.

PATENTED JULY 28, 1908.

W. F. RICHARDS.
CAR COUPLING.

APPLICATION FILED OCT. 21, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

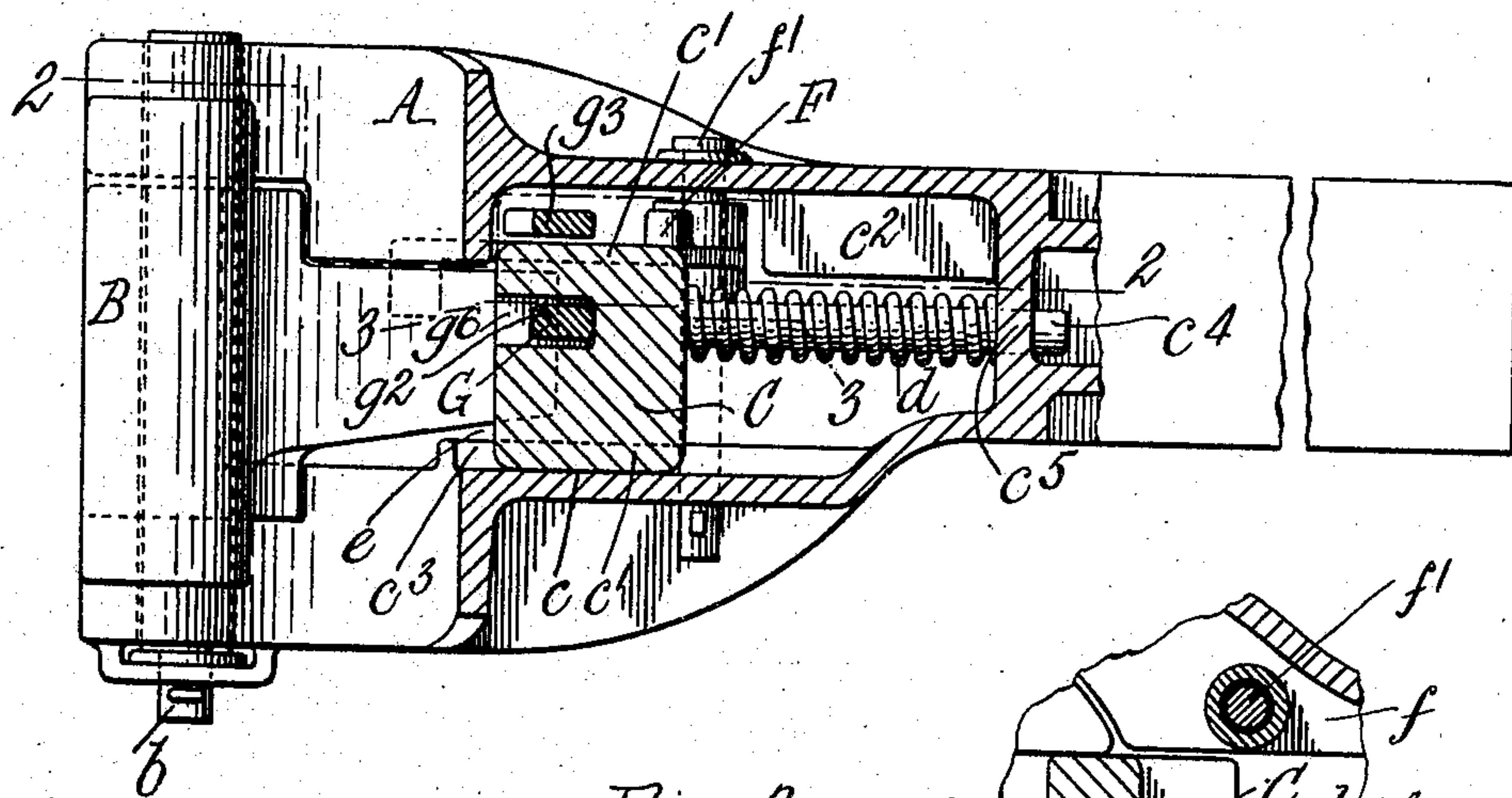


Fig. 3.

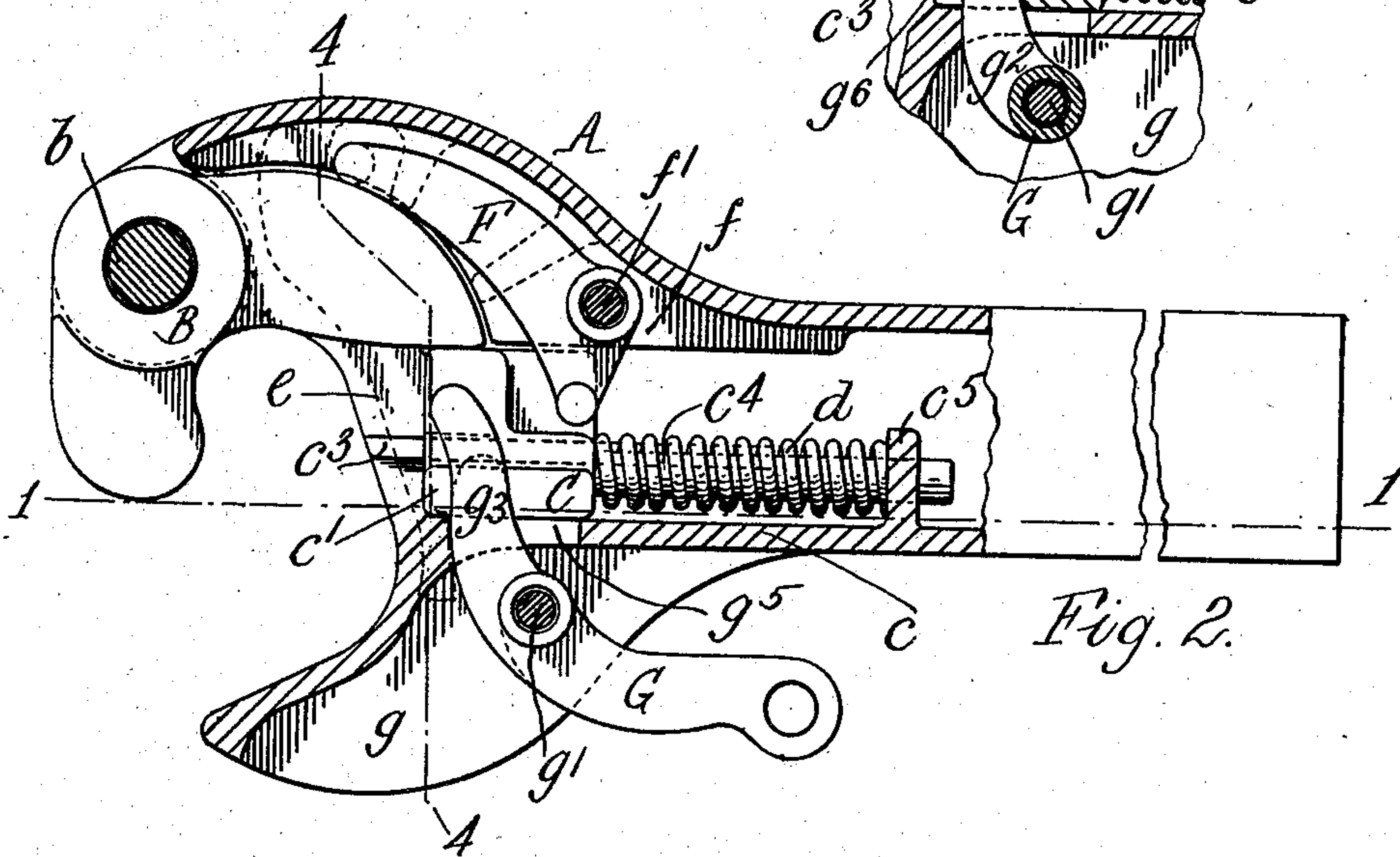
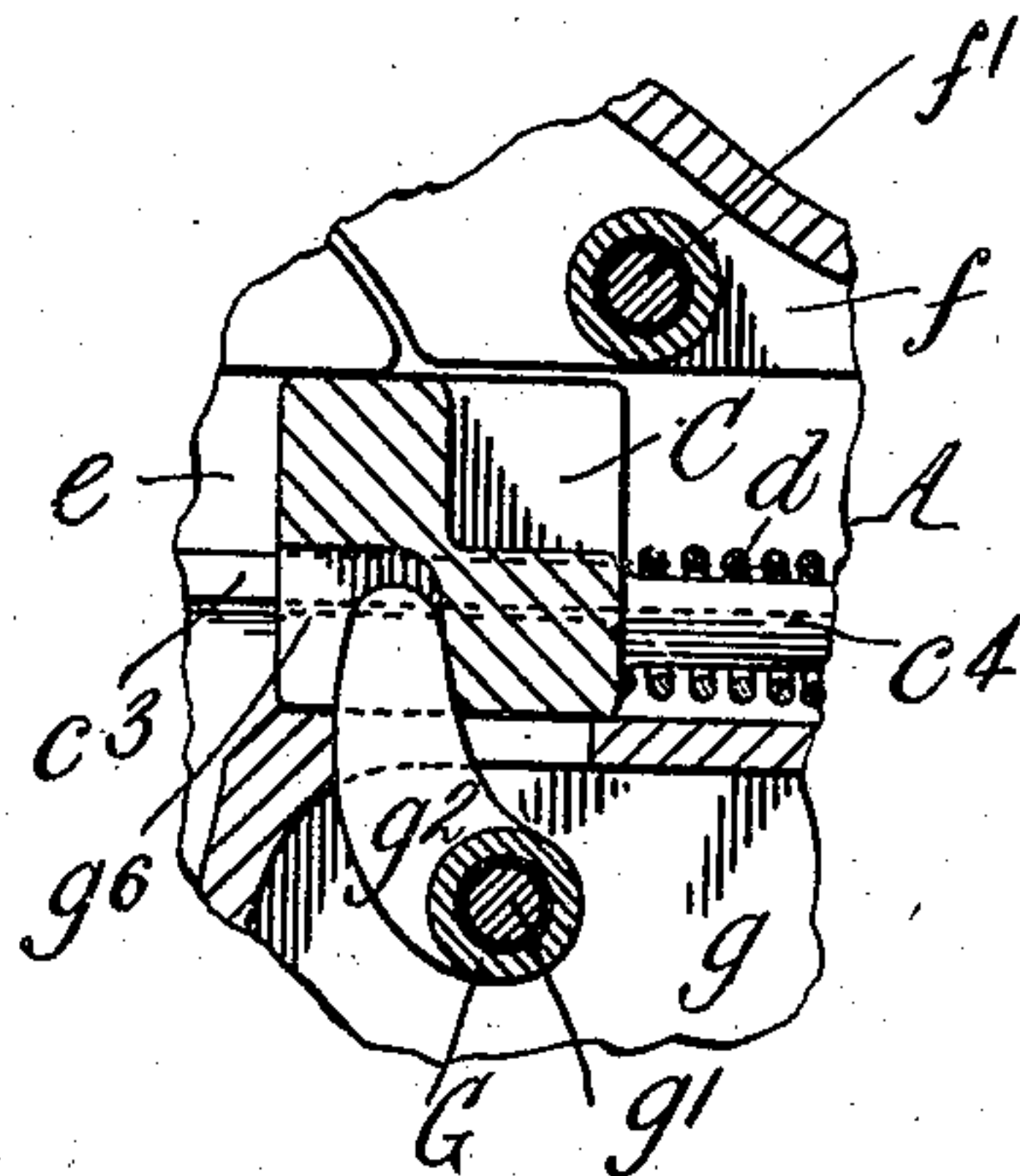


Fig. 2.

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2 SHEETS--SHEET 2.

Fig. 4.

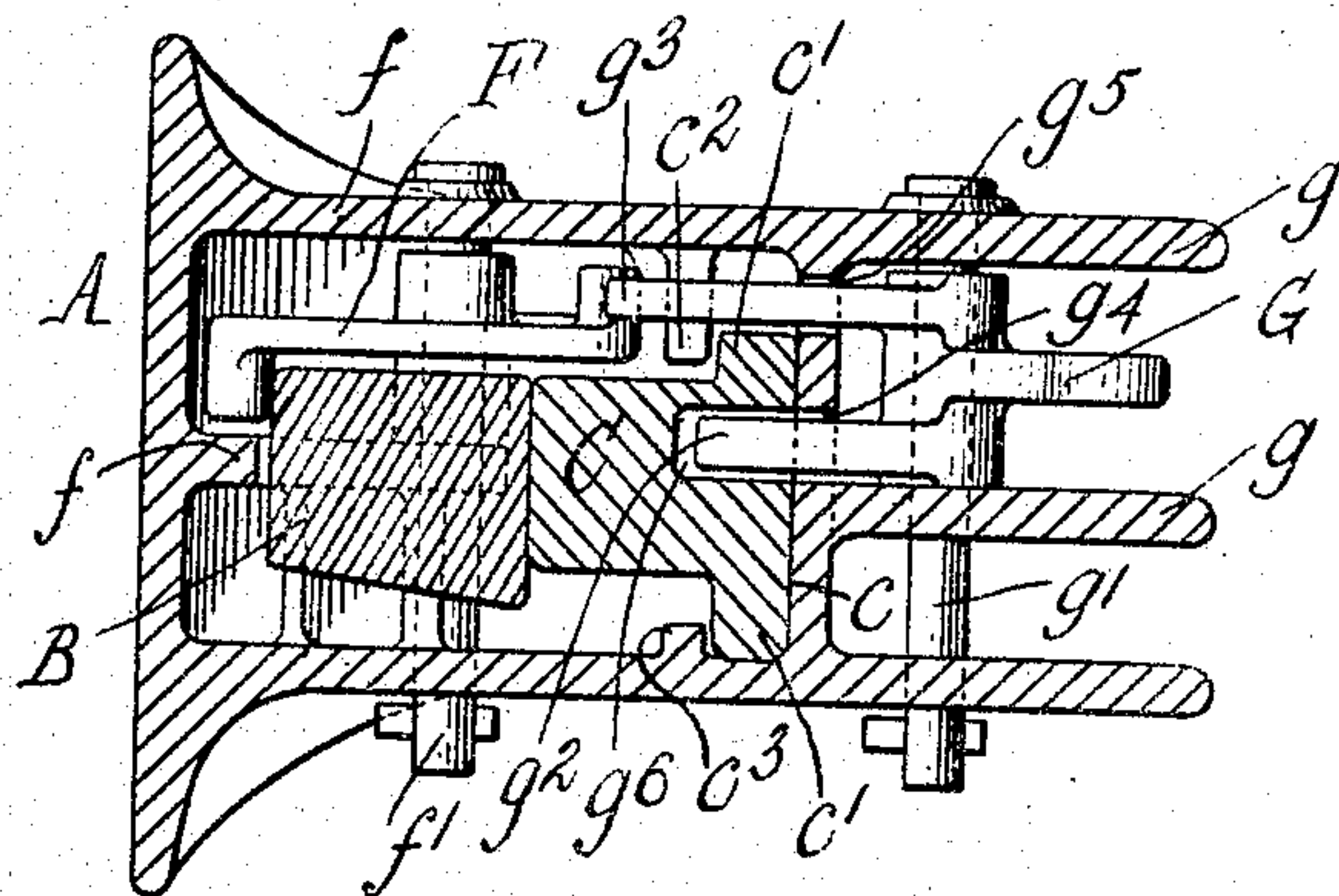
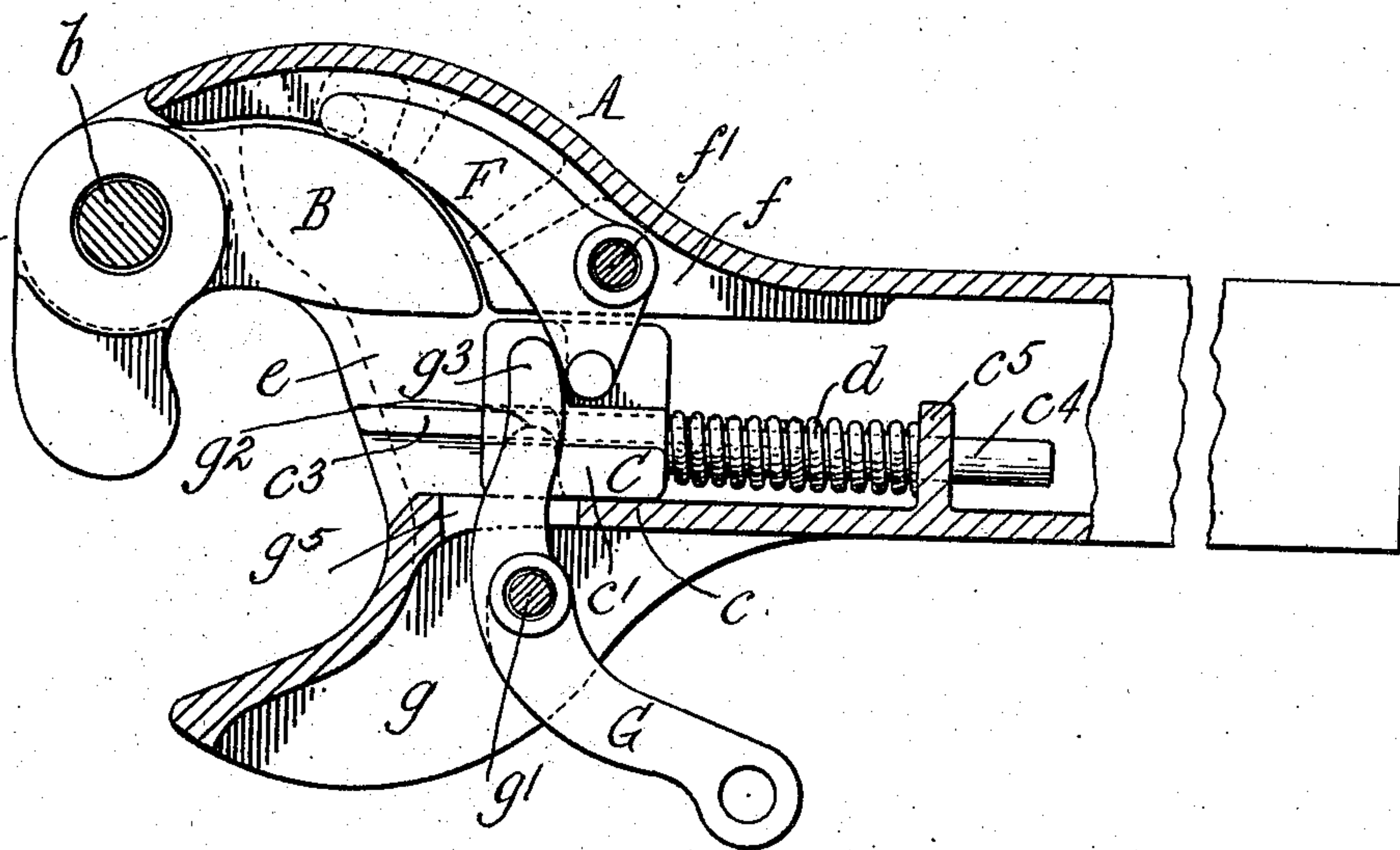


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF DEPEW, NEW YORK, ASSIGNOR TO GOULD COUPLER COMPANY,
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CAR-COUPLING.

No. 894,535.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed October 21, 1907. Serial No. 398,329.

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Depew, in the county of Erie and State of New York, have invented a new and useful Improvement in Car-Couplers, of which the following is a specification.

This invention relates more particularly to car couplers of the Master Car Builders' type having a horizontally-swinging knuckle, a knuckle lock which slides longitudinally in the coupler head into and out of locking engagement with the knuckle, an opener or kicker for swinging the knuckle open when it is unlocked, ready for coupling with another coupler, and operating means for said knuckle lock and opener.

The object of the invention is to produce an efficient and desirable coupler of this sort composed of the minimum number of parts which are of simple and strong construction and which can be economically manufactured and assembled and can be easily operated to unlock and open the knuckle.

In the accompanying drawings, consisting of two sheets: Figure 1 is a longitudinal sectional elevation in line 1—1, Fig. 2, of a car coupler embodying the invention, showing the parts locked. Fig. 2 is a sectional plan view thereof, in line 2—2, Fig. 1. Fig. 3 is a fragmentary sectional plan view thereof, in line 3—3, Fig. 1. Fig. 4 is a transverse sectional elevation thereof, in line 4—4, Fig. 2. Fig. 5 is a sectional plan view thereof, similar to Fig. 2, but showing the lock released.

Like letters of reference refer to like parts in the several figures.

A represents the coupler head, B the knuckle, which, as usual, is pivoted at one side in the head to swing horizontally by a vertical pin *b* or other ordinary means, and is provided with the usual tail adapted to extend into the coupler head for engagement with the lock, and C the knuckle lock. The knuckle, and the coupler head also, except as hereinafter specified, may be of any usual or suitable construction.

The lock C, which slides longitudinally or forwardly and rearwardly in the coupler head into and out of locking engagement with the tail of the knuckle, rests on the floor of the coupler head against a vertical wall *c* at one side of the coupler head, and is provided with upper and lower longitudinal guide ribs or projections *c'*, Fig. 4, which engage be-

tween the side wall *c* of the head and parallel upper and lower guide ribs or flanges *c²* *c³* which respectively extend downwardly from the roof and upwardly from the floor of the coupler head. The lock also preferably has a rearwardly-extending stem *c⁴* passing through a guide hole in a lug *c⁵* in the head. A spring *d*, surrounding the stem of the lock between the lock body and the guide lug *c⁵*, acts to throw the lock forwardly into locking position between the side wall *c* of the head and the tail of the knuckle, as shown in Fig. 2. The lock is slipped into place in the head through an opening *e* of suitable form in the front wall of the head. When the knuckle is closed in the act of coupling, the tail of the knuckle strikes the lock, and when the tail clears the lock the latter is thrown forwardly by its spring and locks or holds the knuckle.

F represents a kicker or knuckle opening lever which is arranged in the head at one side thereof between two of the usual internal strengthening ribs *f* of the head, and is pivoted between its ends on a suitable vertical pin *f'* in the head, or in any other suitable manner, to swing horizontally. The kicker is provided with an arm which extends forwardly and bears against the outer or rear side of the knuckle tail, and with another arm which extends laterally over the lock C. It is preferably located in a plane above the top of the tail of the knuckle, and is provided at the end of its forwardly projecting arm with a depending lug to engage the tail of a knuckle, and at the end of its lateral arm with an upwardly projecting lug adapted to be engaged by an operating lever.

G represents a lever for operating both the lock and the kicker or knuckle opener. This lever is pivoted outside of the head adjacent to the vertical wall *c* thereof in any suitable manner to swing horizontally, for instance, the lever is located between two of the usual exterior strengthening ribs *g* of the head, and is fulcrumed on a vertical pivot pin *g'* passing through holes in said ribs and in the lever. One end of the lever extends outwardly and rearwardly from the pivot and is adapted for connection to the usual lever or crank shaft on the car for operating the coupler. The other end of the lever is preferably forked or provided with two arms *g²* *g³* which extend into the head through suitable holes *g⁴* *g⁵* in the side wall *c* thereof. The arm *g²* enters a

recess g^6 in the front end of the lock C, while the other arm g^3 thereof, which is preferably longer than the arm g^2 , projects transversely over the top of the lock C and is adapted to strike the end lug on the lateral arm of the kicker F.

By swinging the outer end of the operating lever G forwardly, its arm g^2 will engage and shove the lock rearwardly until it clears the end of the tail of the knuckle, thus releasing the knuckle, and its longer arm g^3 will then strike the end lug of the lateral arm of the kicker or knuckle opening lever, so that by a continued movement of the operating lever the kicker will be swung on its pivot and will swing the knuckle open or into position for coupling. The forward swing of the inner end of the operating lever G is limited by the engagement of its arms g^2 g^3 with the front ends of the holes g^4 g^5 through which said arms enter the head, so that the lever constitutes a stop to limit the forward movement of the lock and to prevent its displacement or removal from the head except by first detaching and removing the operating lever from the head.

The described construction produces a very strong, desirable and inexpensive coupler. There are few parts to the locking and knuckle opening mechanism, including the operating device, and no links or devices connecting the lock and kicker to each other or to the operating lever are required, thus enabling the parts to be more quickly and easily assembled. The relative arrangement of the parts also enables them to be made large and strong. As the lever G acts directly upon the kicker F as well as the lock C, and neither of these devices is actuated by or through the instrumentality of the other, both work smoothly and freely and it is possible to unlock and open the knuckle with little exertion.

I claim as my invention:

1. In a car coupler, the combination of a head, a knuckle, a knuckle lock arranged in the head, a lock-operating lever pivoted to the head at one side thereof to swing hori-

zontally and having a part arranged to operate said lock, and a knuckle opening lever fulcrumed in the head at the opposite side thereof and arranged to open the knuckle, said operating lever also having a part arranged to operate said knuckle opening lever, substantially as set forth.

2. In a car coupler, the combination of a head, a knuckle, a knuckle lock arranged in the head, a knuckle opening lever pivoted in the head at one side of said lock and adapted to engage the knuckle to open it, and an operating lever pivoted to said head at the opposite side of said lock and having a part arranged to engage and operate said lock and another part arranged to engage and operate said knuckle opening lever, substantially as set forth.

3. In a car coupler, the combination of a head, a knuckle, a knuckle lock arranged in the head, a knuckle opening lever pivoted in the head at one side of said lock and adapted to engage the knuckle to open it, and an operating lever pivoted externally on said head at the opposite side of said lock and extending into said head and having a part arranged to engage and operate said lock and another part arranged to engage and operate said knuckle opening lever, substantially as set forth.

4. In a car coupler, the combination of a head, a knuckle, a knuckle lock arranged to slide longitudinally in the head, a knuckle opening lever pivoted in the head at one side of said lock to swing horizontally to open the knuckle, and an operating lever pivoted to said head at the opposite side of said lock to swing horizontally and having a part arranged to engage and operate said lock and another part which extends across said lock to engage and operate said knuckle opening lever, substantially as set forth.

Witness my hand, this 18th day of October, 1907.

WILLARD F. RICHARDS.

Witnesses:

C. W. PARKER,

C. B. HORNBECK.