

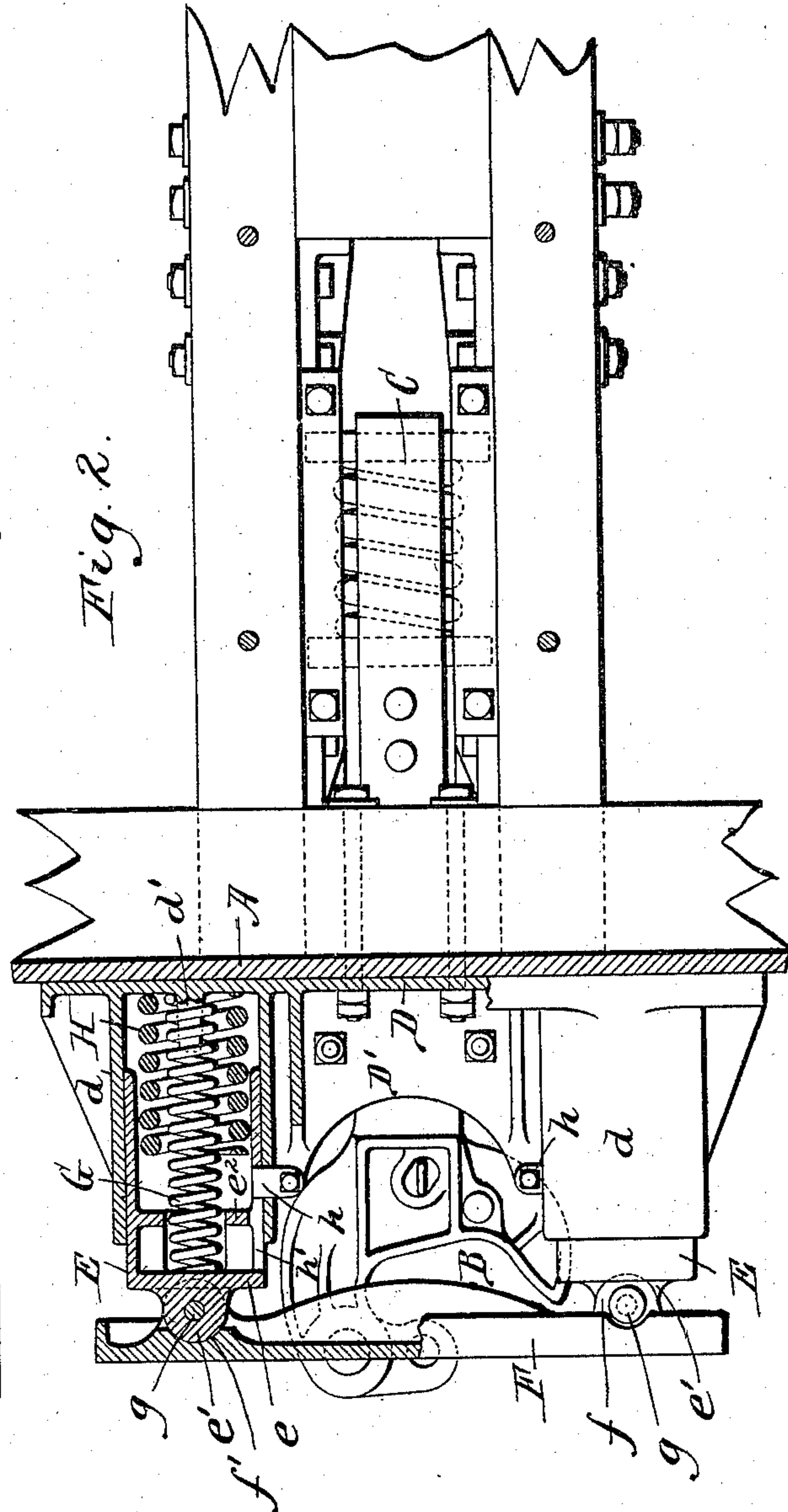
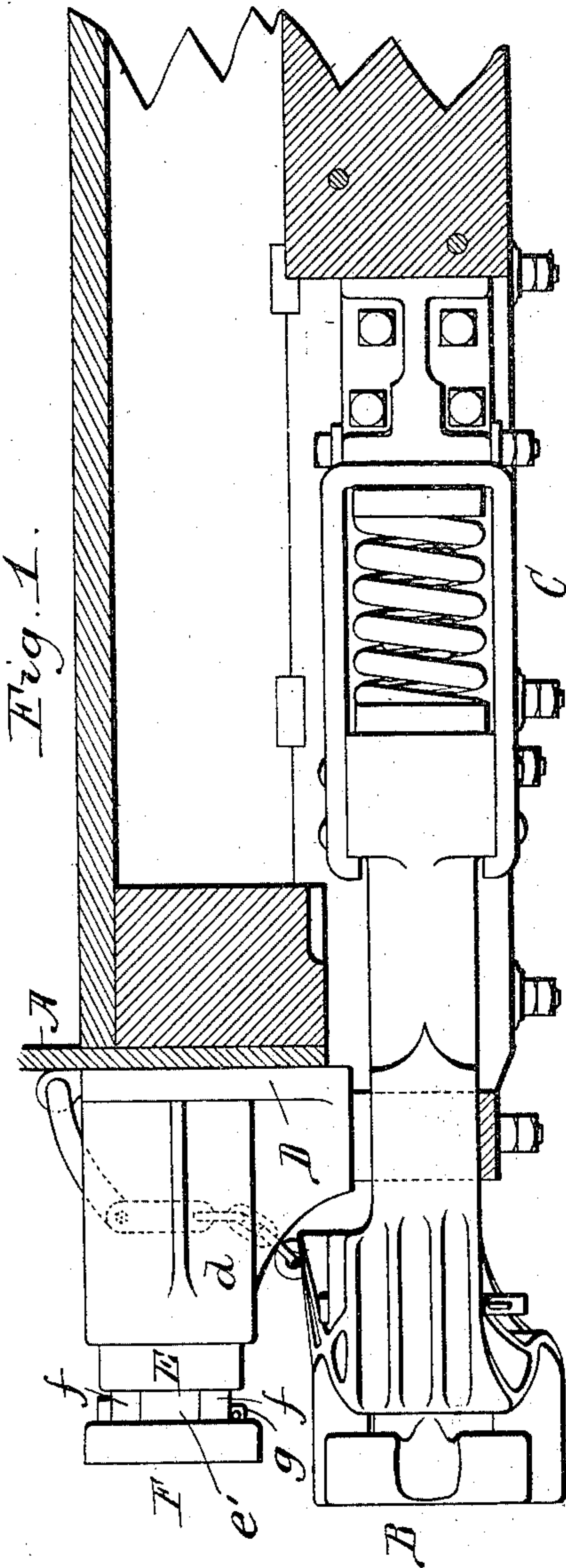
(No Model.)

2 Sheets—Sheet 1.

W. F. RICHARDS.
CAR BUFFER.

No. 533,418.

Patented Jan. 29, 1895.



WITNESSES:

Chas. F. Burkhardt
Theo. L. Popp

W. F. Richards INVENTOR.
By Wilhelm Rimmer
ATTORNEYS.

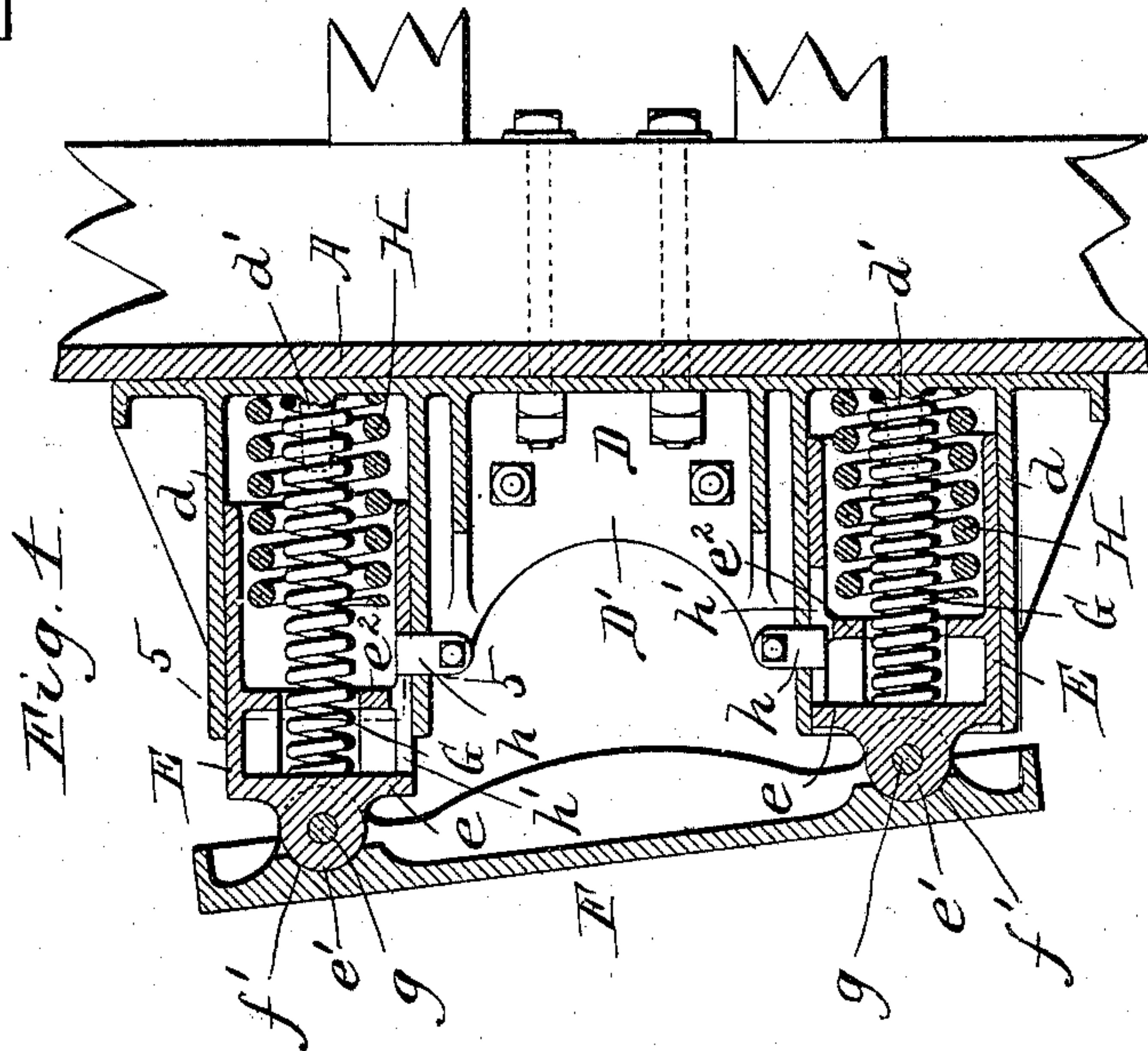
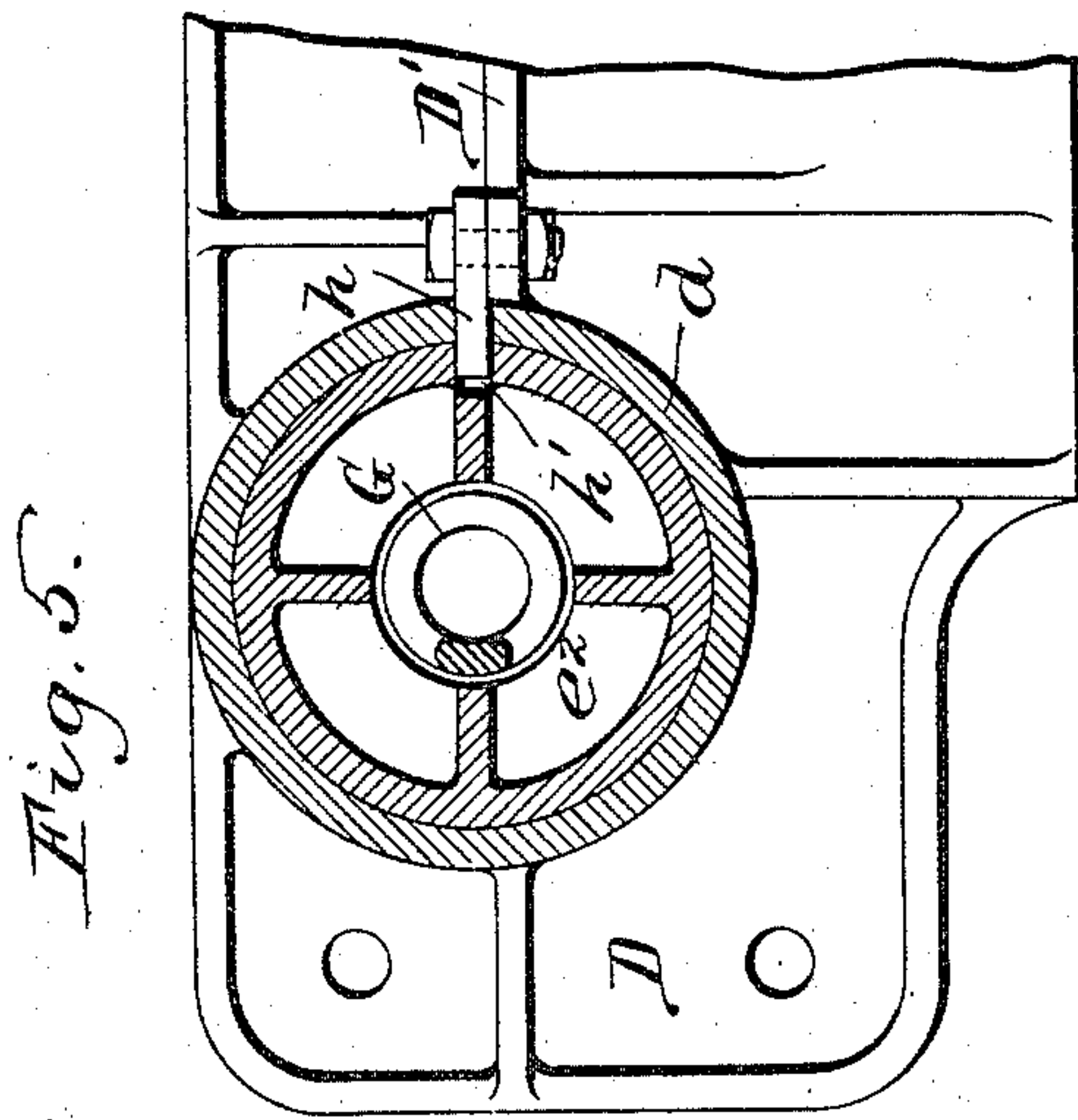
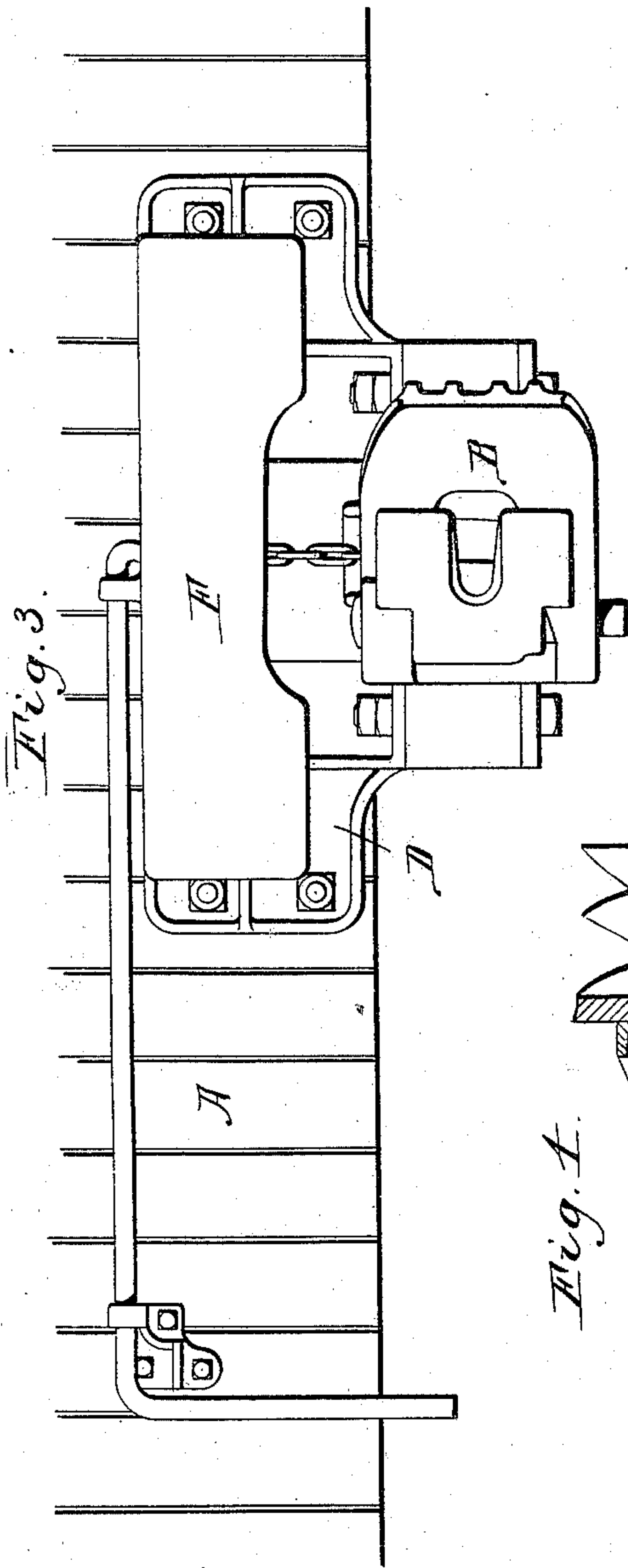
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UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, ASSIGNOR TO THE GOULD COUPLER COMPANY, OF NEW YORK, N. Y.

CAR-BUFFER.

SPECIFICATION forming part of Letters Patent No. 533,418, dated January 29, 1895.

Application filed July 21, 1894. Serial No. 518,174. (No model.)

To all whom it may concern:

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

This invention relates to a car buffer designed more especially for freight cars.

The object of my invention is the construction of a strong and simple buffer which readily adapts itself to the position of the car in rounding curves as well as in running upon straight sections of track and which can be readily applied to existing cars without weakening the end sill.

In the accompanying drawings consisting of two sheets:—Figure 1 is a fragmentary sectional elevation of a freight car provided with my improved buffer, showing the latter parallel with the end of the car. Fig. 2 is a top plan view of the buffer, partly in section. Fig. 3 is an end view thereof. Fig. 4 is a horizontal section of the buffer, showing the position assumed by the parts when the car passes over a curve. Fig. 5 is a cross section on an enlarged scale, in line 5—5, Fig. 4.

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

A is the end wall of the car, B the draw-head, and C the draft gear. These parts may be of any ordinary construction.

D is a transverse base plate or bracket secured to the end of the car body in line with the end sill and provided with forwardly projecting sockets *d* which are arranged on opposite sides of the longitudinal center line of the car and preferably connected by a reinforcing rib or web *D'*.

E E represent tubular followers or sleeves arranged to slide in the sockets *d* of the base plate and carrying a transverse buffer plate F. These followers are open at their inner ends and closed at their outer ends by heads *e* which are formed on their outer side with perforated ears *e'*. The buffer plate is provided on its rear side at or near its ends with similar ears *f* and is pivoted to the followers E by vertical pivot pins *g* which pass through the ears of the buffer plate and the followers, so as to permit the buffer plate to oscillate or

assume a position at an angle to the end of the car, as shown in Fig. 4, without causing binding of the followers in their sockets. In order to reduce the strain upon the pivots of the buffer plate, the latter is formed on its rear side with concave bearing seats *f'* which receive the adjacent convex ends of the follower ears, and the followers are formed with similar bearing seats for the ears of the buffer plate, as shown by dotted lines in Figs. 2 and 4.

G G represent light extension springs which project the followers with the attached buffer plate to their normal position and which tend to retain the buffer plate parallel with the end of the car. These springs are arranged partly in the sockets of the base plate and partly in the tubular followers, and bear at their front ends against the closed ends of the followers and at their rear ends against the base plate, the latter being preferably formed with studs *d'* which project into the rear portions of the extension springs for retaining the latter in position.

H H represent heavy buffer springs which are adapted to be compressed after the light extension springs have been partially compressed so as to oppose heavy shocks which overcome the resistance of the light springs. These heavy springs are arranged within the tubular followers and the base plate sockets around the light springs and each of such heavy springs abuts, at its rear end, against the base plate, while its front end is adapted to bear against an internal annular flange or shoulder *e²* of the follower when the buffer plate is forced inward beyond its normal position by a violent shock. The outward movement of each follower in its socket is limited by a flat horizontal stop bar or plate *h* secured to the web *D'* passing through an opening in the adjacent wall of the follower socket and entering a longitudinal slot *h'* formed in the follower. By this construction the stop bar is rigidly held in place by a single fastening bolt as the edge of the opening in the socket prevents the bar from turning on the bolt, and by arranging the bar edgewise with reference to the ends of the follower slot, it is capable of withstanding considerable strain without danger of breaking.

The heavy buffer springs are so short that the internal flanges of the followers do not come in contact with the front ends of such springs when the buffer plate is pressed inward to the ordinary extent and when one follower is moved inward farther than the other in rounding a curve, as shown in Fig. 4. Only the light springs are thus compressed by the oscillatory movements of the buffer plate and the ordinary inward movement of the plate, while the heavy buffer springs are compressed when the buffer plate, by a violent blow, is forced inward sufficiently to cause the internal flanges of the followers to bear against the front ends of said springs.

As the buffer plate is pivotally connected with the followers, the latter are free to move in opposite directions without restraint in following the oscillations of the buffer plate. The latter also serves as a tie or connection between the followers, which stiffens the same and which renders them less liable to be wrenched from their sockets by lateral strains.

The buffer has no stems which pass through the end sill and the necessity of recessing or perforating the sill is therefore avoided, thereby preventing weakening of the same.

I claim as my invention—

1. The combination with two sockets arranged on the outer side of the end sill of the

car, of tubular followers guided in said sockets, light extension springs bearing with their front and rear ends respectively against the front portions of the followers and the base portions of the sockets, short heavy buffer springs arranged in the sockets and adapted to receive the followers against their front ends when the light springs have been partially compressed, and a buffer plate pivoted with its end portions to the front ends of the followers, substantially as set forth.

2. The combination with a bracket or base plate secured to the end of the car and having a forwardly projecting socket, of a tubular follower guided in said socket, open at its rear end and closed at its front end, a light extension spring arranged in said follower and socket and bearing at its outer end against the closed front end of said follower, a heavy buffer spring adapted to bear at its front end against the follower when the light spring has been partially compressed, and a buffer carried by said follower, substantially as set forth.

Witness my hand this 12th day of July, 1894.

WILLARD F. RICHARDS.

Witnesses:

JNO. J. BONNER,
ELLA R. DEAN.