

No. 609,124.

Patented Aug. 16, 1898.

E. B. SKINNER.  
ELECTRIC BRAKE.

(Application filed Oct. 30, 1897.)

(No Model.)

Fig. 1.

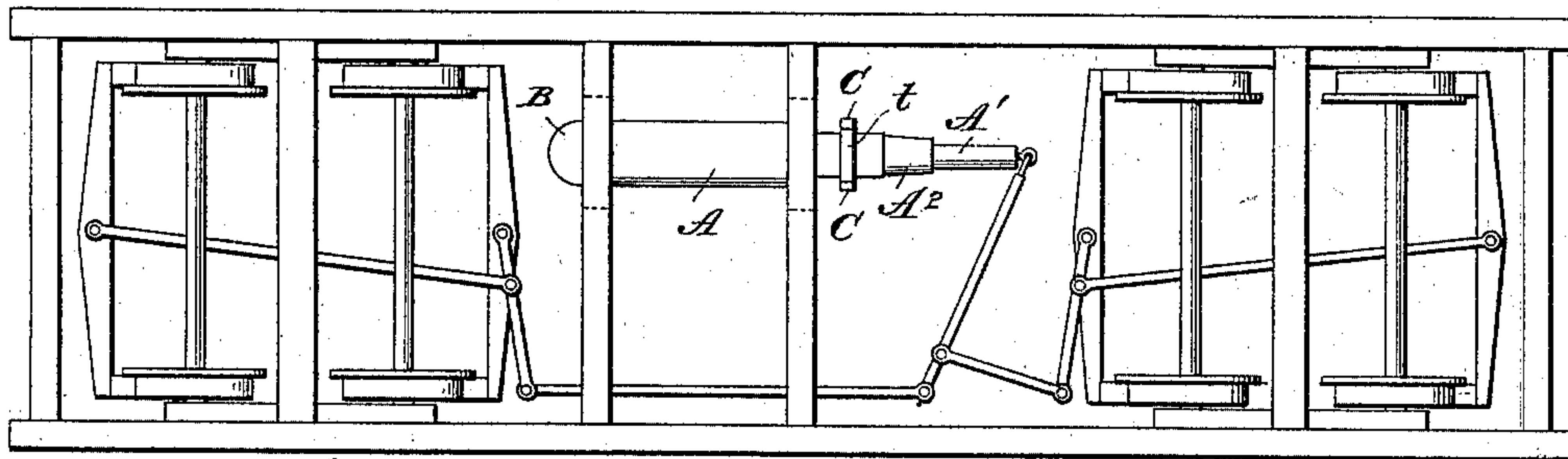


Fig. 2.

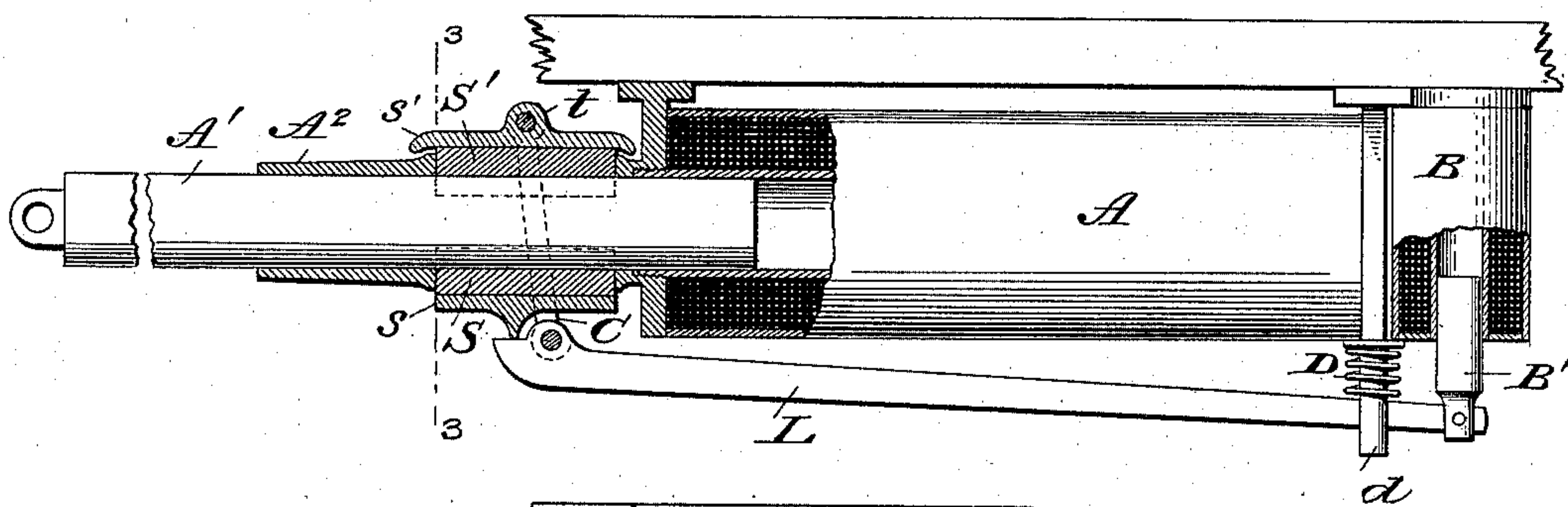
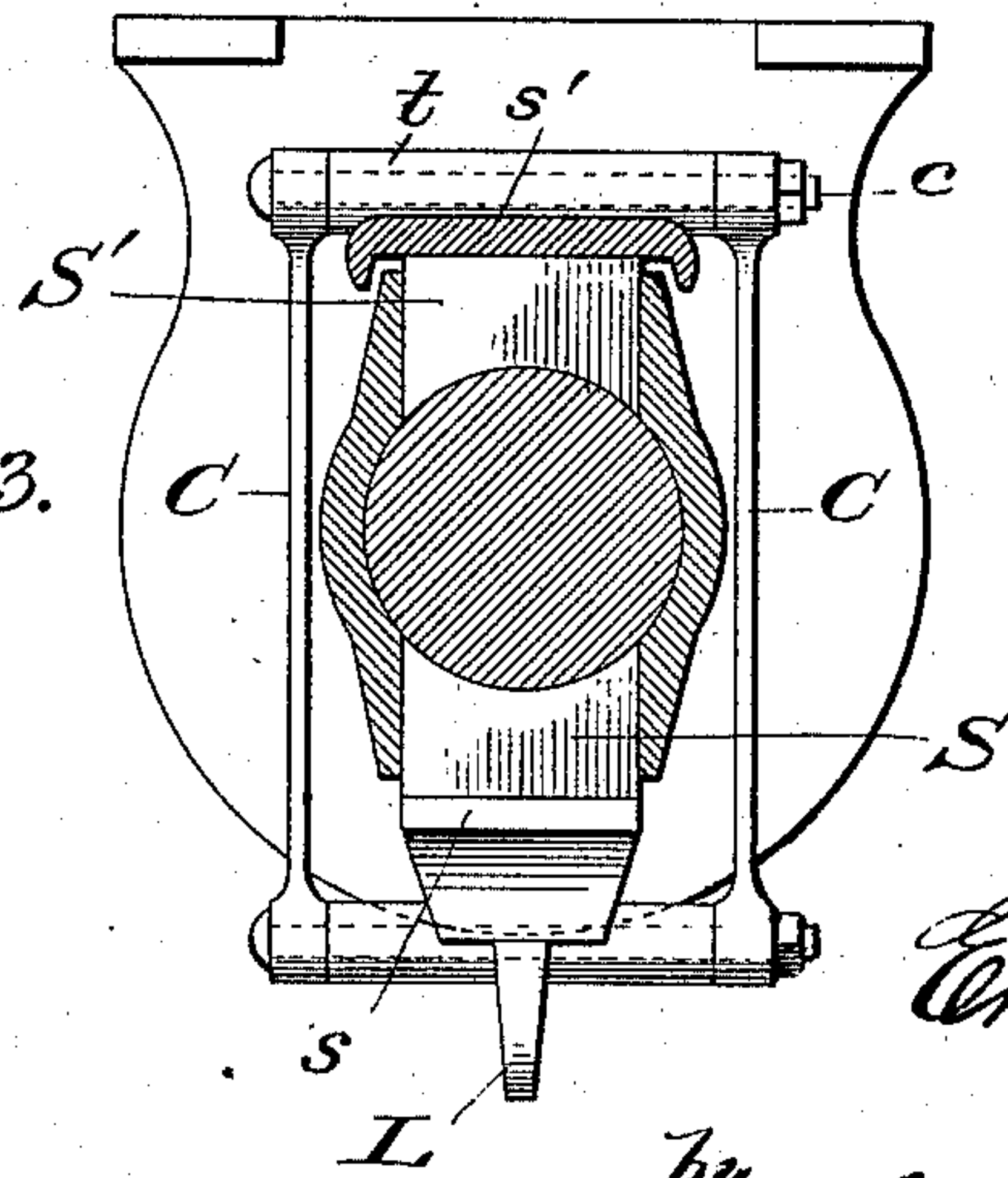


Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ERNEST B. SKINNER, OF OGDEN, UTAH.

## ELECTRIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 609,124, dated August 16, 1898.

Application filed October 30, 1897. Serial No. 656,878. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST B. SKINNER, a citizen of the United States of America, residing at Ogden, in the county of Weber and State of Utah, have invented certain new and useful Improvements in Electric Brakes; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in electric brakes of that class in which a solenoid is used to draw in a plunger when an electric current is applied, and thereby actuate the brake mechanism.

The present invention is designed more especially as an improvement upon my electric brake which was patented November 14, 1893, No. 508,851.

In the accompanying drawings, Figure 1 is a plan view showing the application of my improvement to a car-truck, the car-body being removed. Fig. 2 is a side elevation, partly in section, showing my improved clutch for the plunger or piston of the magnet or solenoid. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1.

The electric brake which I will now proceed to describe may be applied to cars in any suitable manner, and the circuit may be as shown in my prior patent hereinbefore referred to.

A B refer to solenoids or magnets having plungers or pistons A' B', the plunger or piston A' being connected to the brake mechanism in any suitable manner, so that when the circuit is formed the plunger or piston will be drawn within the solenoid to set the brakes.

One of the leading objects of my invention is to provide an electric brake with an improved clutch which will not act deleteriously upon the magnet or plunger and at the same time provide one that will hold the plunger or piston secure without forcing it against the inner side walls of the solenoid, and in which the full amount of power applied to the lever will be transmitted to the clutch, said clutch being designed to act when the circuit is broken. One of the ends or heads of the so-

lensoid A has a projecting portion or tube A<sup>2</sup>, which is provided on opposite sides with openings, the walls of the tube adjacent to said openings projecting outwardly. In the openings are placed shoes S S', which are preferably of wood, though they may be of any other suitable material, and to these shoes are fastened plates s s', one of said plates having its ends turned toward the plunger or piston A', and the same is provided with a central bearing t, through which passes a bolt c, to which are attached links C C, which links engage with a lever L. The lower shoe s has a centrally-projecting portion with which the end of a lever L engages, and said lever is of sufficient length to extend to the plunger B' of the solenoid B. The head or end of the solenoid A has formed integral therewith or carries a pin d, which may be slotted for the passage of the lever, and between the solenoid and lever is interposed a spring D, said spring serving to move the lever so that it will draw upon one of the shoes and push upon the other, forcing both of the brake blocks or shoes simultaneously and with equal power against the plunger or piston of the solenoid A.

In operation when the current is turned on by a suitable switch the plunger B' of the solenoid B will be drawn inward, which compresses the spring and releases the shoes or brake-blocks, and the electric current also draws the plunger A' inward to set the brakes of the car. As soon as the current is released or turned off the solenoids A B the spring will move the lever so as to draw the upper shoe and push the opposite one in engagement with the plunger A', so as to hold said plunger against movement until released by the current. It is obvious that the weight of the plunger B', the power of the spring, and the weight of the long arm of the lever all coact.

An electric brake provided with a double clutch, as hereinbefore described, possesses many advantages over a single brake-block, as a single brake block or shoe will force the plunger or piston to one side, so that the friction will be against one side of the magnet, and this in practice may be so great as to cause undue wear and a rapid deterioration of the parts, which is avoided by the use of a



pair of shoes, as hereinbefore described. It will also be noted that it is immaterial whether the plunger fits loosely within its chamber or not.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electric brake, a solenoid and plunger therefor for operating the brake mechanism, a second solenoid disposed at right angles to the first-mentioned solenoid, a lever connected at one end to the plunger of the smaller solenoid and at the other end to links which are connected to a plate carrying a shoe, a plate having a projecting portion for engagement with the end of the lever beyond the links, a shoe carried by said plate and a spring positioned between the plunger of the smaller solenoid and the links to operate upon the lever, adjacent to the plunger of the smaller solenoid, substantially as shown and for the purpose set forth.

2. In an electromagnetic brake, a brake for the plunger or piston of the main solenoid consisting of two plates one of them carrying links to which a lever is pivoted, a plate having a projecting portion for engagement with the lever beyond the links, a slotted pin or projection through which the lever passes, a

spring which encircles said slotted pin so as to bear upon the lever, and a piston or plunger for compressing the spring so as to release the brake-blocks carried by the plates from the brake-operating plunger or piston, substantially as shown and for the purpose set forth.

3. In combination with the magnets or solenoids A, B, having pistons or plungers which are drawn within the same by the current, a lever connected to the plunger of the smaller magnet, a spring mounted on a pin *d* so as to act upon the lever; together with a pair of shoes or blocks, one shoe being connected to the lever by links and the other shoe frictionally engaging with the lever so that the combined weight of the lever, plunger B', and force of the spring will operate when the current is off to draw one of the shoes or blocks against the plunger or piston, and push upon the other plunger or block, substantially as shown and for the purpose set forth.

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

ERNEST B. SKINNER.

Witnesses:

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CHAS. H. BARTON.