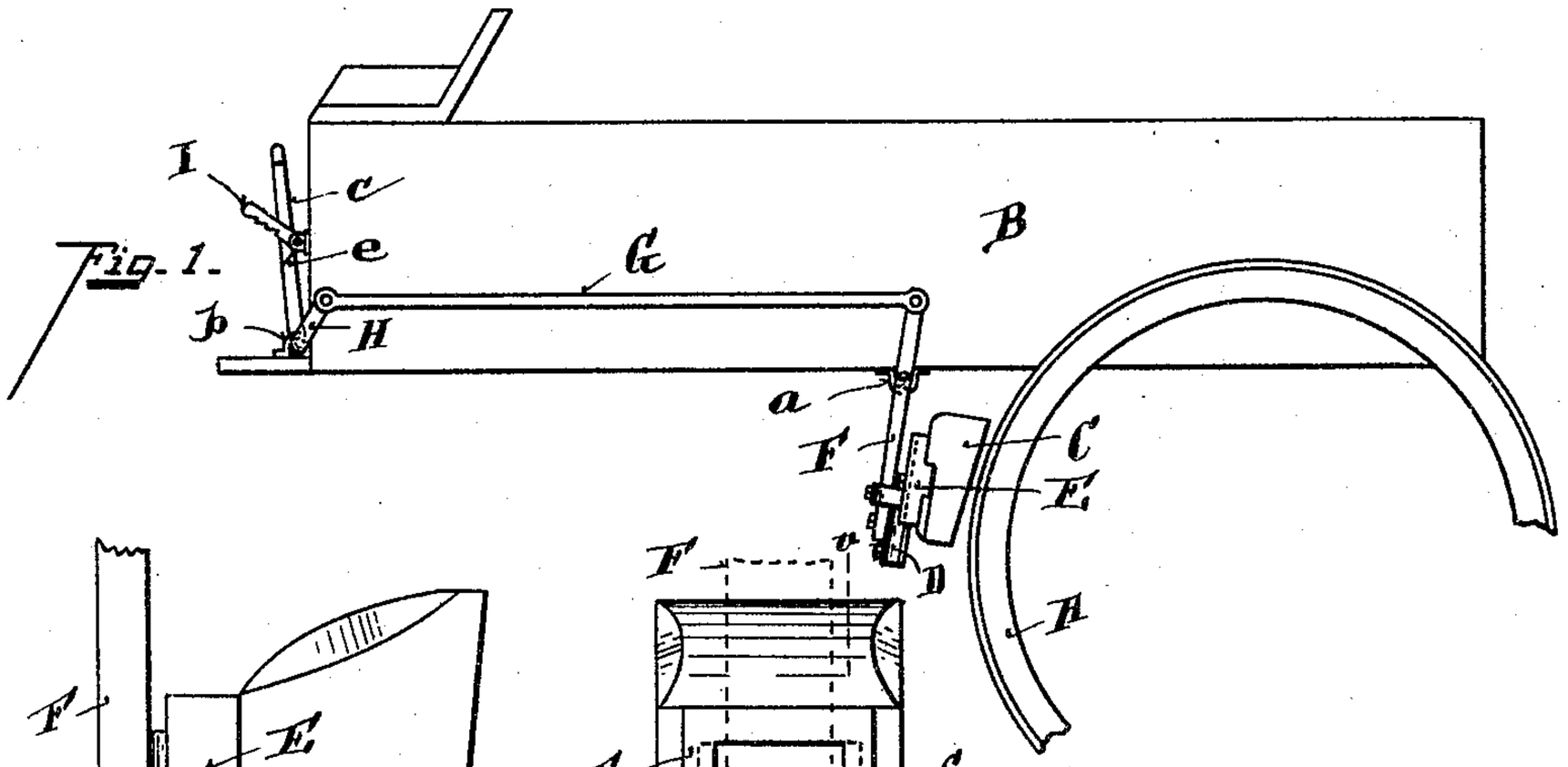
No. 783,375. PATENTED FEB. 21, 1905.

H. F. VON HAGEL, JR.

BRAKE.

APPLICATION FILED MAR. 8, 1904.

Fig. 1.



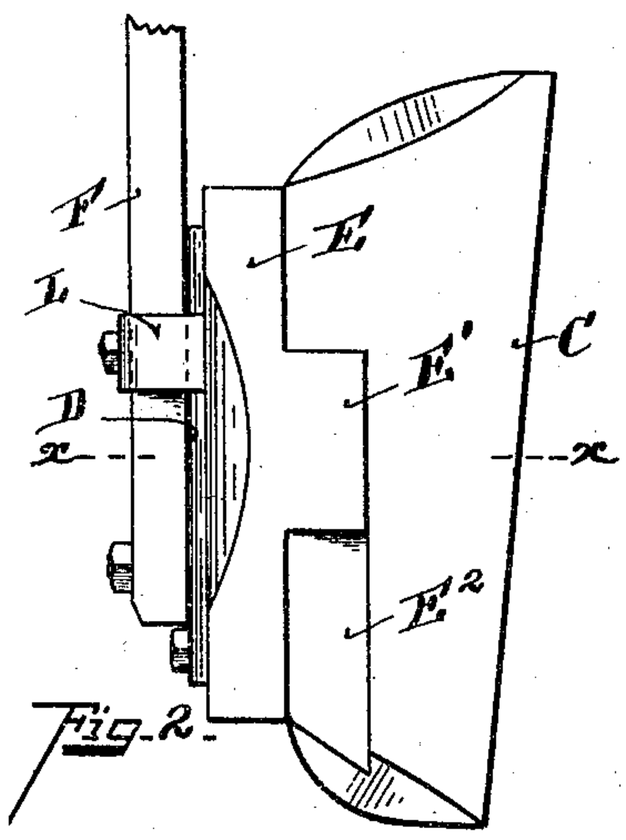


Fig. 2.

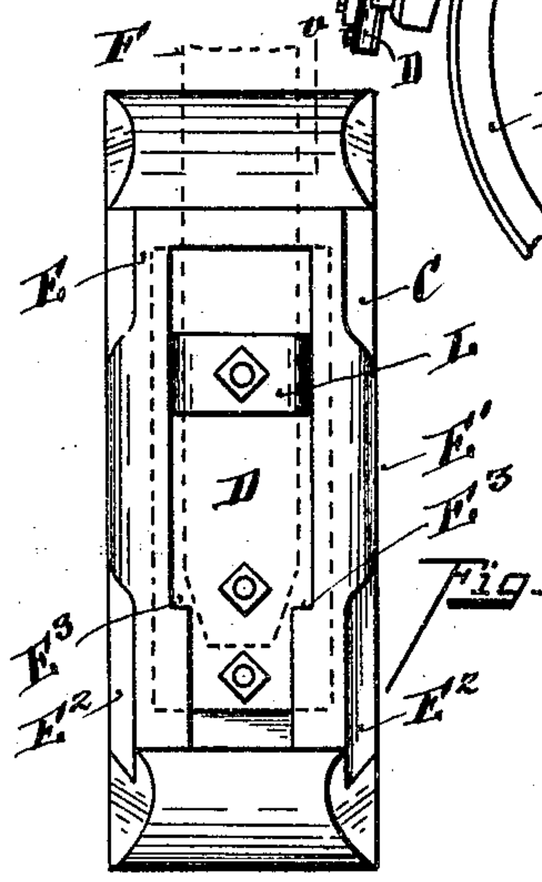


Fig. 3.

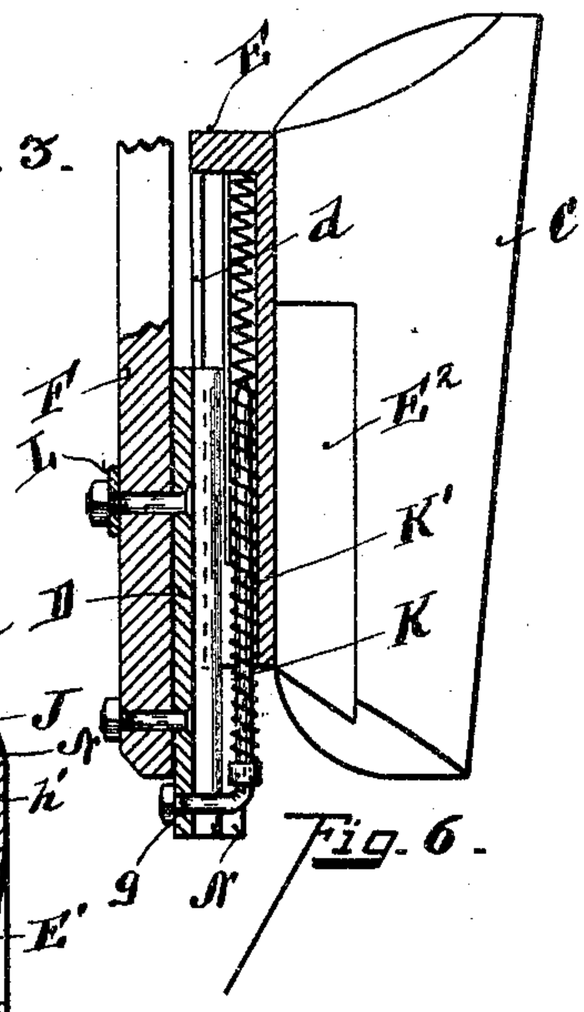


Fig. 6.

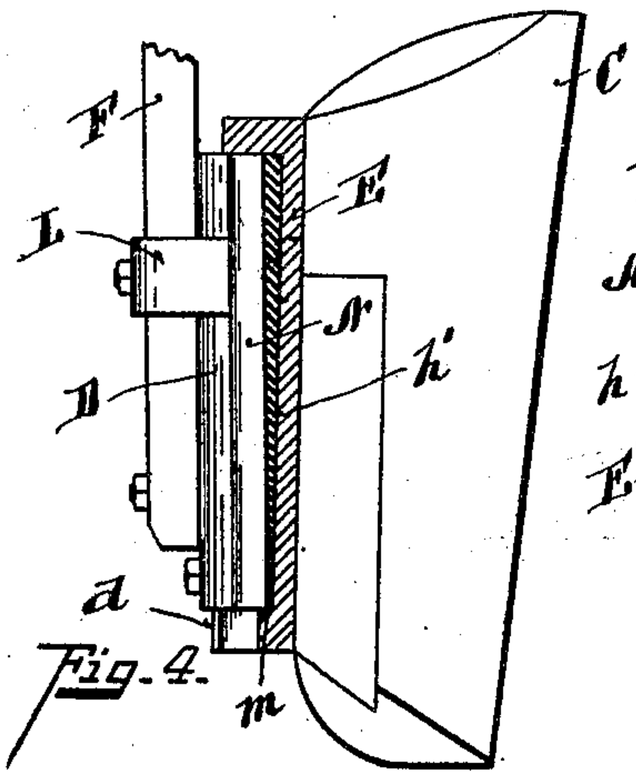


Fig. 4.

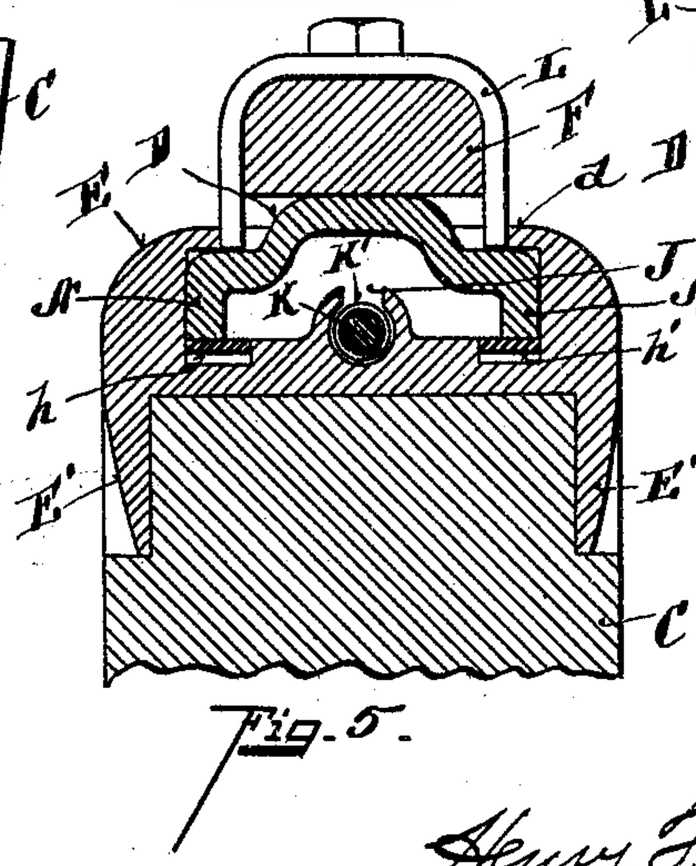


Fig. 5.

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No. 783,375. Patented February 21, 1905.

UNITED STATES PATENT OFFICE.

HENRY F. VON HAGEL, JR., OF ST. BERNARD, OHIO, ASSIGNOR OF ONE-HALF TO MARTIN SENFT, OF CINCINNATI, OHIO.

BRAKE.

SPECIFICATION forming part of Letters Patent No. 783,375, dated February 21, 1905.

Application filed March 8, 1904. Serial No. 197,179.

To all whom it may concern:

Be it known that I, HENRY F. VON HAGEL, Jr., a citizen of the United States, residing at St. Bernard, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Brakes, of which the following is a specification.

My invention relates to a vehicle-brake.

The object of my invention is to provide a brake-shoe requiring but slight pressure on the brake-lever in its initial action to bring the shoe in contact with the wheel, thence automatically brought into clutching engagement with the wheel by the rotation of the wheel and locked in its final clutching position until released by the brake-lever.

The features of my invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a wagon-body and a sectional elevation of one of the hind wheels with my improved mechanism attached to the wagon-body. Fig. 2 is a large side elevation of the brake-shoe attached to the supporting-arm. Fig. 3 is a front elevation of the brake-shoe. Fig. 4 is a section on line *v*, Fig. 3, showing shoe locked in its clutching position. Fig. 5 is a section on line *x x*, Fig. 2. Fig. 6 is a central vertical section of the shoe-supporting lever, yoke, and slide mechanism secured to the brake-shoe, which is shown in elevation.

A represents one of the rear wheels of a vehicle; B, the vehicle-body.

C represents the brake-shoe; E, a metallic yoke slidably connecting the shoe to the bracket D, which is rigidly supported upon the arm F, connected to the vehicle-body by pivot *a*.

G represents the connecting-rod pivoted to the arm F at the rear end and to a crank-arm H at the front of the body. Said crank-arm is pivoted near the front end of the body and held in place by a bearing *b*.

c represents an extended crank-arm terminating near the seat of the driver, so that it may be moved to manipulate the brake.

I represents a rack pivoted to the vehicle-body and adapted to engage with the catch *e* on the lever *c*.

The yoke or frame-piece E is provided with flanges E′ on either side, which engage in tapering or dovetailed gains E^2 on the front side of the shoes as a convenient means of fastening the frame to the shoe. Said frame is provided with a guideway having overhanging flanges *d*, within which fits the bracket D. Said bracket is rigidly secured to the arm F and held against vertical movement thereon, the brake-shoe and its frame moving vertically on said bracket D. Said frame or yoke E is provided with a second guideway J.

K represents a guide-rod, its lower end being bent over and rigidly secured to the bracket D, as shown at *g*. (See Fig. 6.) Around said rod K is a coil-spring held in position by the guideway J, said spring engaging at one end the rod K and at the other end the upper end of the guideway J. The object of this spring is to retract for assisting in raising the brake-shoe, the spring being compressed when the brake-shoe is carried downward. This spring is compressed by the friction of the wheel against the face of the brake-shoe, and when the brake-shoe is released by moving the operating-lever *c* the recoil of the spring K′ assists in raising the brake-shoe and its frame and is limited in its upper movement by the arms of the yoke L coming in contact with the shoulders E^3. The brake-shoe is limited in its descent by the engagement of the top of the frame E with the bracket D, as shown in Fig. 4.

In order to prevent the shoe from rising until the desired time, as when it is desired to hold the brake-shoe down when the vehicle is standing still or in backing and which is a very important feature, I provide the following locking mechanism: *h h′* represent spring-arms (see Figs. 4 and 5) which form the contact-point of the frame E with the bracket D, the said bracket having flanges N N resting on said springs (shown in Fig. 5) which are of tapered form and, therefore, when depressed provide a notch *m* of sufficient depth to allow the springs and the flanges N N to enter into said recess when the springs are depressed

and the bracket engaged against said notch of the brake-shoe frame so that as long as the pressure is on the brake-shoe it is locked into position. The brake-lever is released of its pressure on the brake, allowing the springs to move out in their normal position, and the retracted spring K′ assists in lifting the brake-shoe in the normal position. (Shown in Fig. 6.) As soon as the crank-arm is moved forward by the driver the brake-shoe will be brought into contact with the wheel, which will automatically apply the brake when the vehicle is traveling forward.

It will be observed that the bracket-support of the brake-shoe is attached to a swinging lever-arm so that the driver can quickly bring it into position and apply leverage to assist in forcing into braking position.

Having described my invention, I claim—

1. In combination with a brake-lever, a bracket rigidly secured thereto, a brake-shoe frame having a guideway slidably engaging said bracket, a brake-shoe rigidly secured to said frame, means for the engagement of the brake-shoe frame with the supporting-bracket, for limiting the descent of the brake-shoe, substantially as described.

2. In combination with a vehicle brake-lever, having a bracket rigidly secured thereto, a brake-shoe frame provided with a guideway and slidably supported on said bracket, springs on the face of the guideway forming a bearing-surface for the bracket and adapted to be depressed by the frictional engagement of the brake-shoe, means on the frame and bracket for locking the frame against vertical movement, when said springs are depressed by said frictional engagement, substantially as described.

3. In combination with a brake-shoe lever pivoted to the body of the vehicle and having an arm depending in front of the wheel, a bracket rigidly secured to said arm, a brake-shoe frame provided with ways engaging with and sliding on said bracket, springs forming the base of said frameways and serving as the pressure-transmitting device from the brake-shoe to said bracket, and means provided in said brake-shoe frame for locking the same in the downward position when said springs are compressed, substantially as described.

4. In combination with a lever-arm of a vehicle-brake, a bracket connected to the free end of said arm, a brake-shoe frame supporting a brake-shoe and provided with ways engaging with and sliding upon said bracket, a spring compression member forming the base of the ways and the contact-bearing point of the bracket, and means for locking the brake-shoe in its lowest position, when the said springs are compressed in the application of the brake and automatically unlocked by the release of the lever-arm, substantially as described.

5. In combination with a brake-operating lever of a vehicle-brake, a bracket secured to said lever and adapted to be controlled thereby, a brake-shoe provided with a frame having slidable connection with said bracket, said frame being adapted to be thrown out of its travel alinement, thereby locked in its braking position, spring compression members secured within said frame in the path of bracket travel adapted to release said locking engagement, between the bracket and frame, after the brake-lever release and means for automatically returning the brake-shoe to its normal position, substantially as described.

In testimony whereof I have hereunto set my hand.

HENRY F. VON HAGEL, Jr.

Witnesses:
OLIVER B. KAISER,
LEO O'DONNELL.