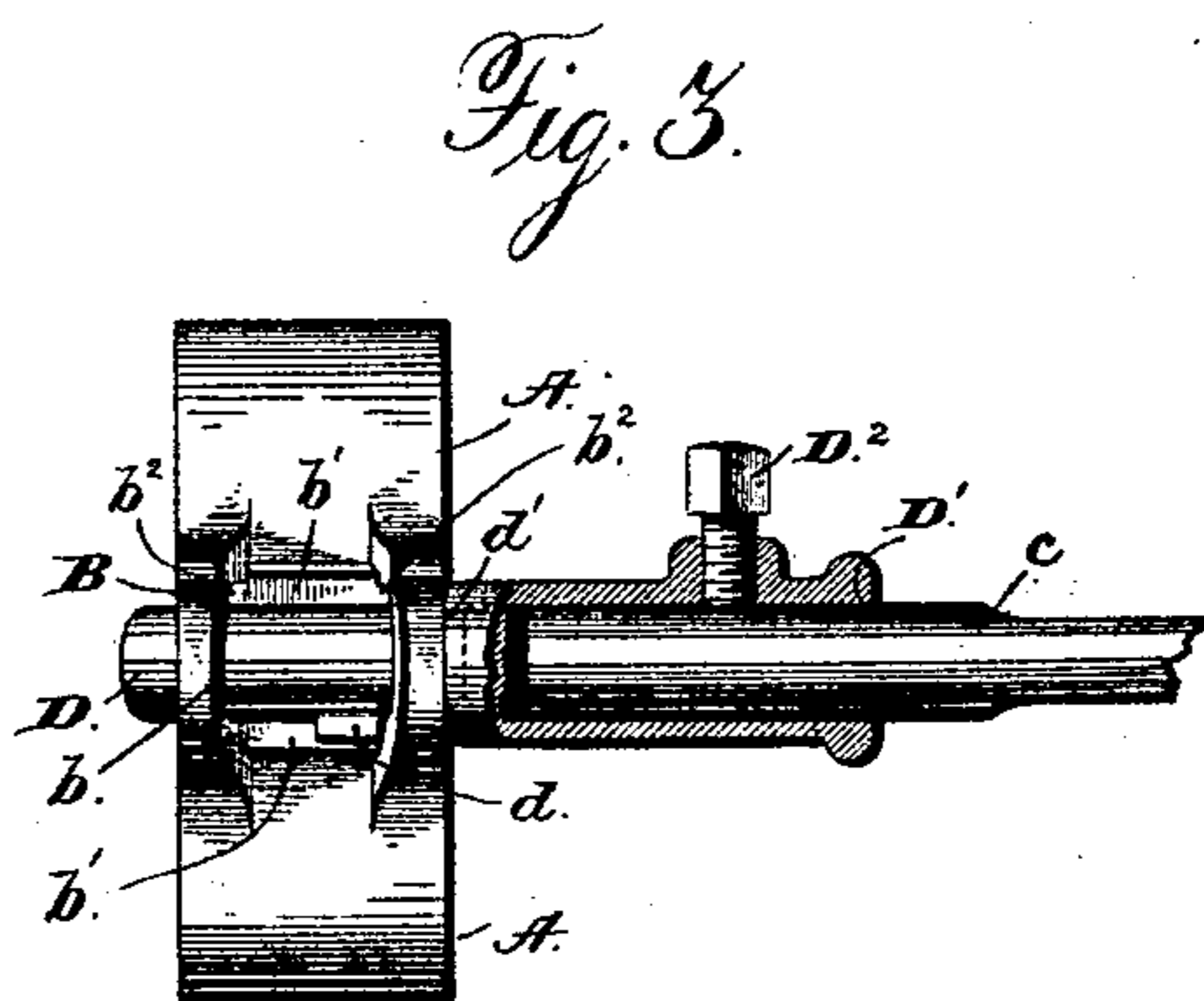
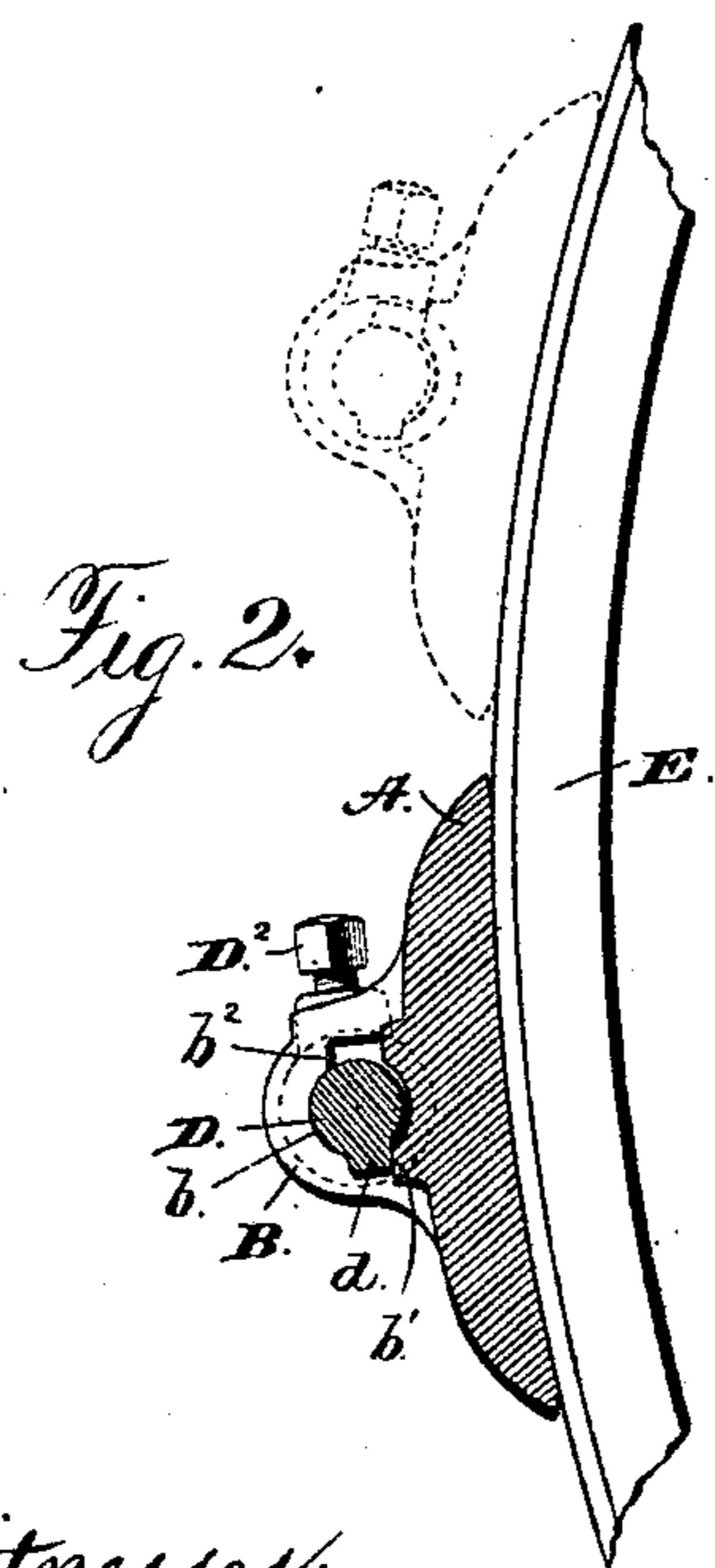
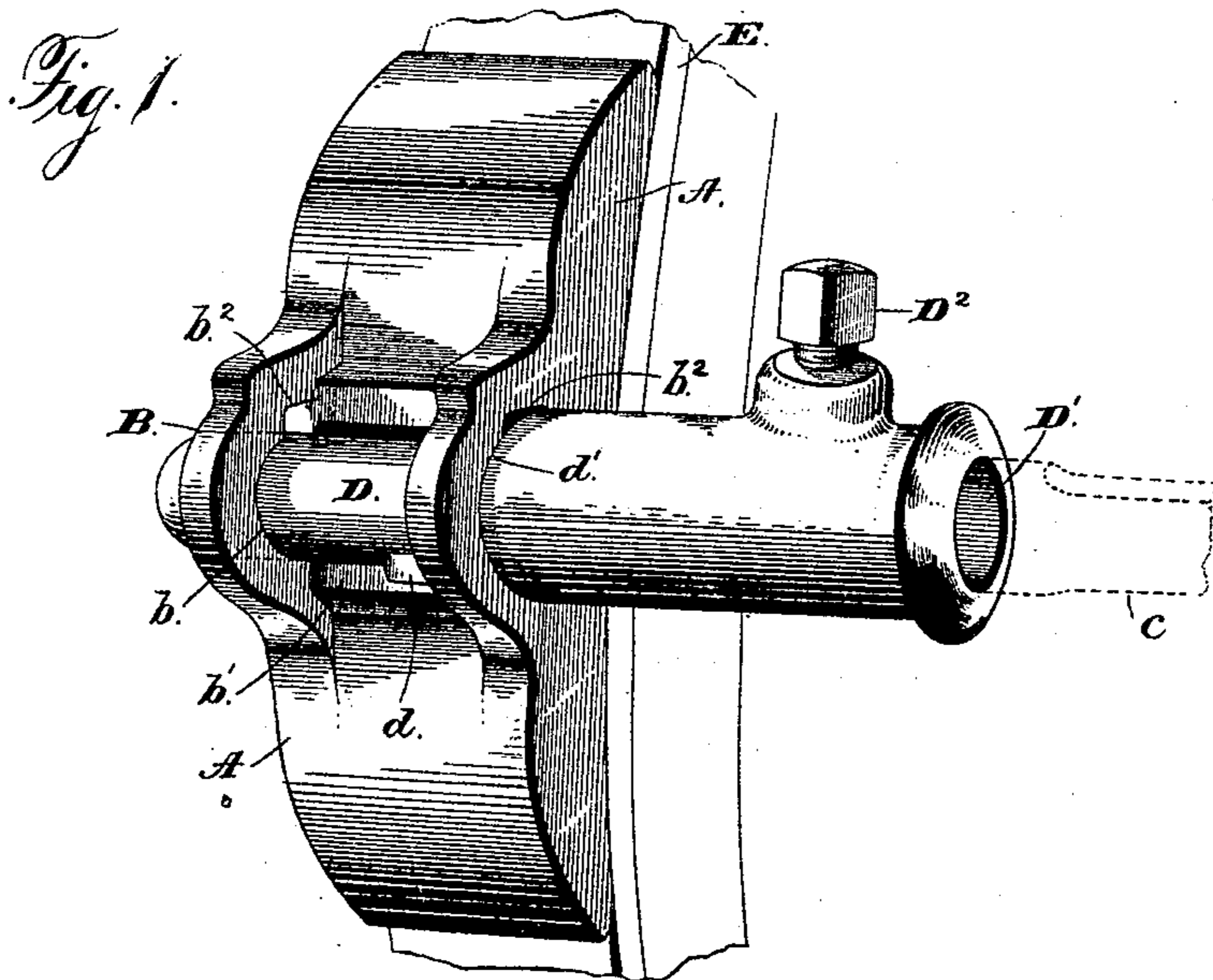


(No Model.)

T. S. SMITH.  
BRAKE FOR VEHICLES.

No. 436,090.

Patented Sept. 9, 1890.



Witnesses:  
Jas. E. Hutchinson.  
Henry C. Hazard.

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# UNITED STATES PATENT OFFICE.

THOMAS S. SMITH, OF WASHINGTON, DISTRICT OF COLUMBIA.

## BRAKE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 436,090, dated September 9, 1890.

Application filed May 9, 1890. Serial No. 351,198. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS S. SMITH, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Brakes for Vehicles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my improved brake device; Fig. 2, a view of a section of the brake on line  $xx$  of Fig. 1, looking from the outer side of the brake-shoe; and Fig. 3, a view, partly in elevation and partly in section, showing the back of the brake-shoe, the stem supporting the same, and the end of the brake bar or lever secured in the stem-socket.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improved brake; and to this end my invention consists in the brake device and in the parts thereof, constructed, arranged, and combined substantially as hereinafter specified.

The special purpose of my invention has been to so construct a brake-shoe and the means for supporting the same and attaching it to the brake bar or lever that the brake-shoes for the wheels on both sides of a wagon can be made of precisely the same shape and construction, and the angle at which a brake-shoe will stand can be adjusted at will to bring the shoe-face parallel with that portion of the tire of a wheel to which it is to be applied.

In different makes of wagons the brake bars or levers often stand at different heights with reference to the wheels to be acted upon, so that the brakes will strike the wheel-tires higher up or lower down. As the wheel-tires at different heights stand at different angles with relation to a vertical line or to the plane of movement of the brake bars or levers, the brake-shoes, according as they are to be applied higher up or lower down on the wheel-tire, must stand at different angles in order that their faces may be parallel to the tire portion upon which they are to act.

In order to make a brake device which will be applicable to all different makes of wagons,

whether the brake bars or levers are higher or lower, it is therefore necessary that the form of attachment for supporting the brake-shoe and attaching it to the brake lever or bar shall be capable of being turned axially to any desired extent and fastened to the bar or lever as turned. With this necessity in view, I have invented the brake with its attaching device, as shown in the drawings, in which  $A$  designates the brake-shoe, which, like that shown and described in my United States Patent No. 412,132, has on its back the two lugs or ears  $B B$ , having the openings  $bb$  in line with each other.

On the back of the shoe, between the ears thereon, is a stop or abutment  $b'$ , for a purpose to be hereinafter set forth, and each opening  $b$  has an offset  $b^2$ , situated at a point well out of line with the abutment or stop-face. As shown, such offset is nearly diametrically opposite to said face.

The device which I use for supporting the shoe and attaching it to the end  $c$  of a brake bar or lever has a stem  $D$  to enter and pass through the openings  $bb$  in the shoe-ears  $B B$ , with a lug  $d$  on its periphery to engage the stop or abutment  $b'$ . The offset  $b^2$  in each ear is adapted to allow the passage of this lug when the stem is turned to bring the lug and offset into line, and is then moved longitudinally through the ear. A shoulder  $d'$  on the attaching device serves to engage the outer side of an ear when the lug is in engagement with its inner side, as shown in Fig. 3. With this construction when the stem is turned to bring its lug out of line with the offset  $b^2$  in the ear-opening the shoe will be effectually held from longitudinal movement on the stem and cannot get off of the latter until the shoe or the stem is turned to bring the lug and offset in line again. For receiving the end  $c$  of a brake lever or bar the attaching-piece has a socket  $D'$ , preferably cylindrical in shape, as shown. A set-screw  $D^2$  on this socket serves to engage the bar or lever end and fix the attaching-piece thereto at any desired adjustment around or along the same. I prefer to have both the socket and the portion of the brake lever or bar to be engaged thereby cylindrical, as the socket can then be rotated until the lug on its stem

stands at any desired angle, and by means of the set-screw fixed at any point to which it may be turned.

The operation and manner of using my invention is briefly as follows: The stem D, with its lug *d* in line with the offsets in the shoe-ears B B, is inserted in the ear-opening *b b*, and then either the stem or the shoe is turned to get the lug and offsets out of line and bring the stem-lug against the stop or abutment *b'*. With the latter on the under side of the ears or ear-openings, as shown in the drawings, it will be so engaged by the lug *d* that the shoe will be held from swinging down around the stem under the influence of its weight. The shoe can then, by means of the lug on the stem D, be held with its face upright or at different angles to a vertical plane according as the stem is rotated to change the lug's position. As shown in Fig. 2, by turning the attaching-piece so as to bring the stem lug toward or from the wheel to which the brake is to be applied the face of the shoe can be changed in inclination, so as to be parallel with and capable of being applied to portions of the wheel-tire E lower down or higher up on the wheel. By the proper turning of the attaching-piece and its stem my brake can be adapted for use on any wagon whether the brake lever or bar thereon is high up or low down with reference to the wheels to which the brake is applied. With the socket and set-screw the brake-shoe-supporting attachment can be adjusted on the bar or lever end not only to change the angle of the shoe, as set forth above, but also longitudinally, so as to move the shoe in or out to bring it in proper line with the wheel-tire and fixed as adjusted.

In Fig. 1 of the drawings my brake is shown applied to the tire of a wheel on one side of a wagon. The brake, as applied to the same face of the wheel on the other side, merely has the stem D inserted in the openings *b b* in the opposite direction, so that its lug *d* and shoulder *d'* will engage the other ear B.

No other change and no alteration in the construction of the brake shoe or stem are necessary to make the brake applicable to the other wheel, as described.

In applying my brake device to a vehicle the socket D' is placed on the end of the brake bar or lever with the lug *d* on the stem D turned downward, and the brake shoe or block A placed on the stem is turned so that the abutment *b'* engages the lug. The attaching-piece is then slid in or out on the lever or bar end until the brake-shoe is in line with the wheel-tire, and is turned so that the brake-shoe face, as applied to the tire, will be parallel with that portion of the latter which it is to engage. The set-screw is then turned to engage the lever or bar and fix the brake-shoe attaching-piece in the position to which it has been adjusted.

With the brake-block or shoe-face arranged so that its face will be parallel to the portion

of the tire engaged by it, there will be no strain on the set-screw as the brake is applied. All that such screw has to do is to hold the socket D' on the brake lever or bar end and prevent the weight of the brake-block from turning the attaching-piece out of its proper position.

While the brake is in position for action, the shoe cannot get off of the stem D, for the stud *d* is out of line with the offsets *b<sup>2</sup> b<sup>2</sup>* in the ear-openings *b b*, and on account of the wheel-tire the shoe cannot be swung upward and backward around the stem enough to bring the said offsets in line with the stem-lug.

Having thus described my invention, what I claim is—

1. In a brake, in combination with the brake-shoe, the piece upon which the shoe is supported having a socket to receive the end of a brake bar or lever and adapted to be turned axially on the latter, and means for fastening the bar or lever end in the socket, substantially as and for the purpose specified.

2. In a brake, in combination with the brake-shoe, the piece upon which the shoe is supported, having a socket to receive the end of a brake bar or lever and adapted to be rotated on the latter, and a set-screw on the piece to engage the bar or lever, substantially as and for the purpose shown.

3. In a brake, in combination with the brake-shoe, the piece upon which the brake is supported having a cylindrical socket to engage the end of the brake lever or bar and adapted to be turned axially on the latter, and a set-screw on the piece to engage the periphery of the bar end within the socket, substantially as and for the purpose set forth.

4. In a brake, in combination with the brake-shoe, the piece upon which such shoe is hung having a lug to engage a bearing or stop on the shoe, so as to limit the swing of the latter, and a socket adapted to receive the end of a brake bar or lever, and the set-screw to engage such end and fix it in the socket, substantially as and for the purpose described.

5. In a brake, in combination with a brake-shoe, the piece having a stem upon which the shoe is pivoted, a lug engaging a bearing or stop on the shoe, so as to limit downward swing of the latter on the stem, and a socket to receive the end of a brake lever or bar adapted to be rotated about such end, and a set-screw to engage the latter and fix the piece thereto, substantially as and for the purpose specified.

6. In a brake, in combination with the brake-shoe having the ears on its back provided with openings and a bearing or stop, the attaching-piece having a stem engaging the ear-openings and a portion provided with a cylindrical socket to receive the end of a brake bar or lever, the set-screw on such portion to engage the bar or lever, and a lug on the stem engaging the bearing or stop on the shoe, substantially as and for the purpose shown.

7. In a brake, in combination with a brake-  
shoe having ears on its back provided with  
openings and a stop or bearing between such  
ears, the attaching-piece having a stem en-  
5 gaging the ear-openings, a lug on the stem  
between the ears, a shoulder adapted to re-  
ceive one of the shoe-ears between it and the  
stem-lug, and a portion provided with a socket  
to receive the end of a brake bar or lever, and  
10 the set-screw on such socket portion of the

piece, substantially as and for the purpose  
set forth.

In testimony that I claim the foregoing I  
have hereunto set my hand this 1st day of  
April, 1890.

THOMAS S. SMITH.

Witnesses:

H. B. ZEVELY,  
HENRY C. HAZARD.