

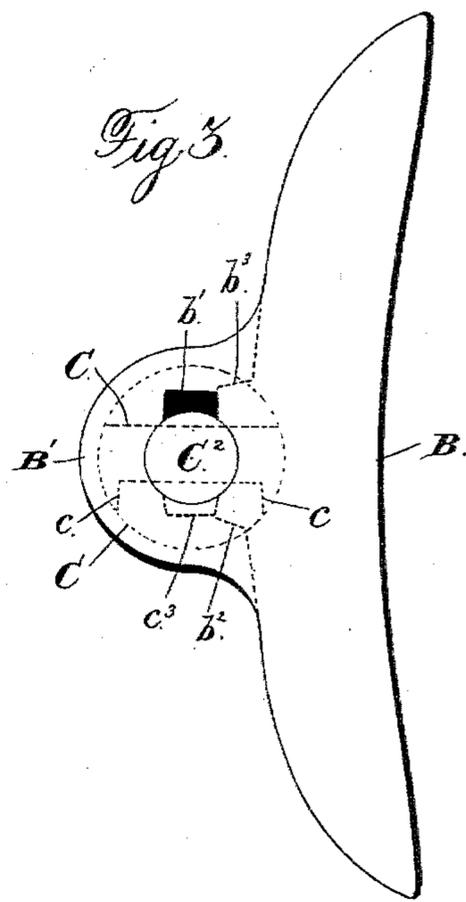
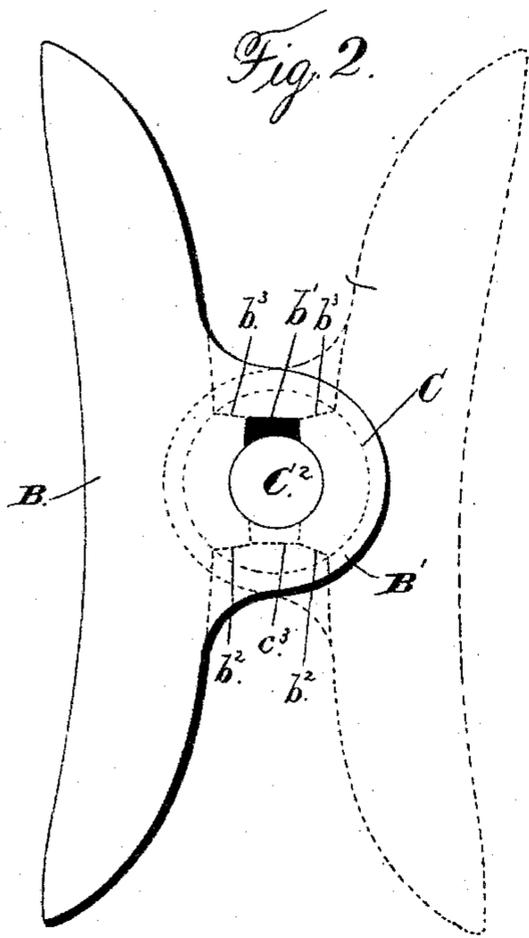
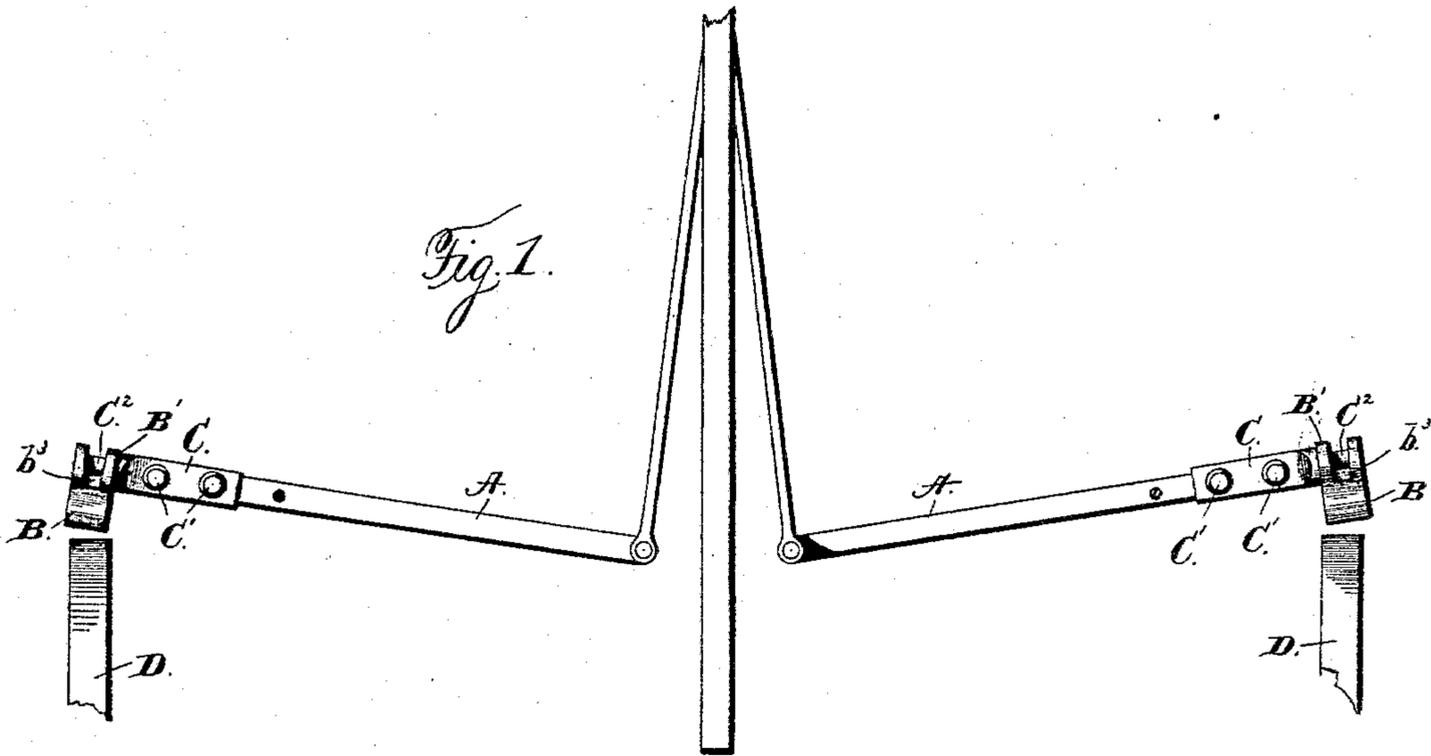
(No Model.)

2 Sheets—Sheet 1.

T. S. SMITH.
BRAKE FOR VEHICLES.

No. 412,132.

Patented Oct. 1, 1889.



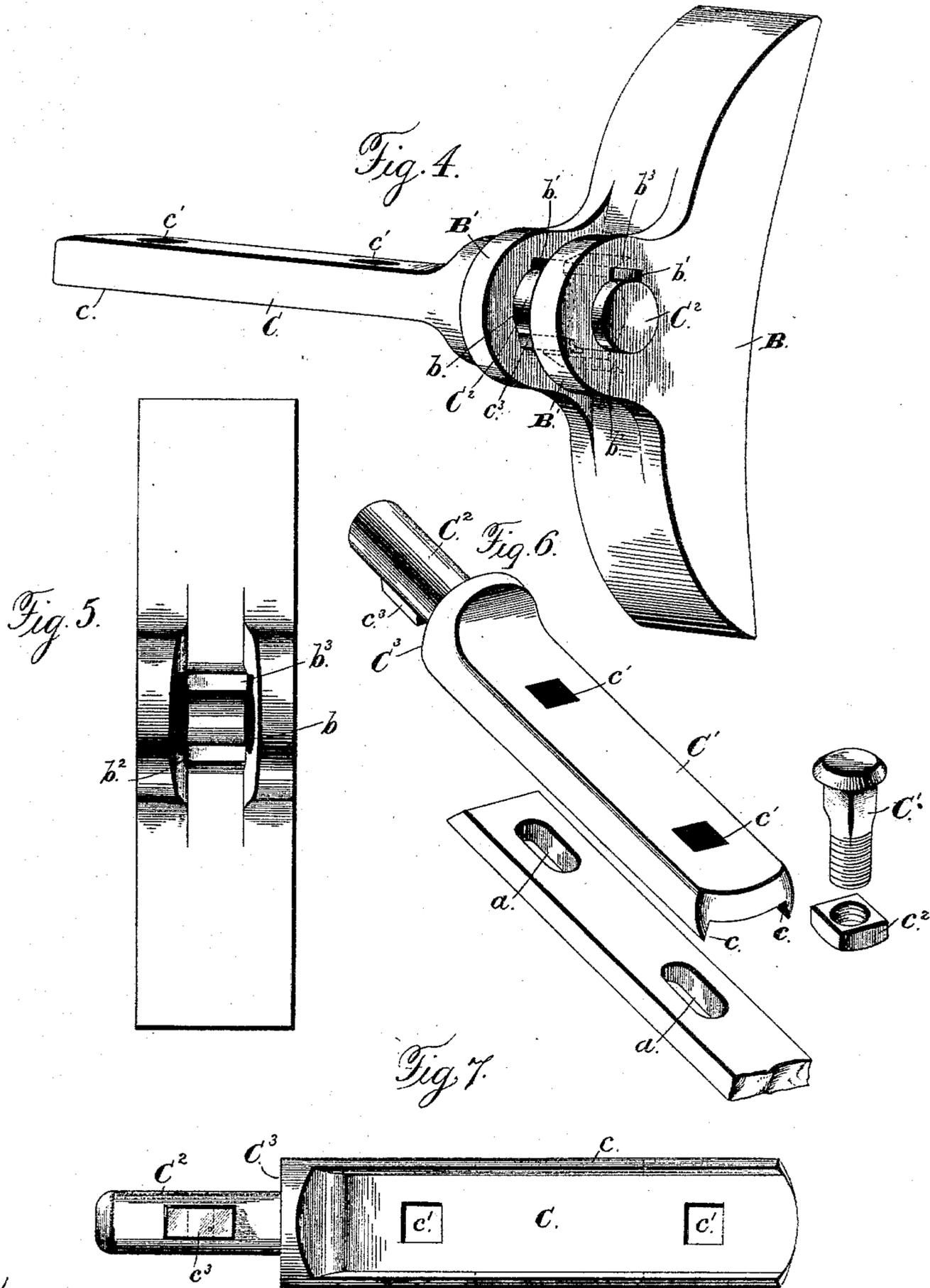
Witnesses:
 Jas. E. Hutchinson.
 Henry C. Hazard

Inventor:
 Thomas S. Smith
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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. 412,132, dated October 1, 1889.

Application filed July 16, 1889. Serial No. 317,717. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. SMITH, of Washington city, in the District of Columbia, have invented certain new and useful Improvements in Brakes; 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 in plan view a pair of brake-levers with my improved brakes thereon; Fig. 2, a view in side elevation of one of the levers with the brake thereon; Fig. 3, a similar view of the other lever and brake; Fig. 4, a perspective view of one of the levers with the brake attached; Fig. 5, a detail view showing in elevation the back of one of the brake-blocks; Fig. 6, a detail perspective view showing the adjustable brake-block-carrying piece and the end of the brake-lever detached from each other, and Fig. 7 a detail bottom plan view of the brake-block-carrying head or piece.

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 and in the construction, arrangement, and combination of the parts thereof, as hereinafter specified.

In my United States Patent No. 401,224 I show and describe a brake in which the block is attached to the brake-bar or brake-block-carrying piece without screws or other detachable pieces in such a way that while it can be easily and quickly put in place it cannot work or be taken off of the bar or carrying-piece as long as the wheel upon which it is to act remains in position.

My present invention as covered in this application is intended to be an improvement upon my said patented brake.

As will be seen from the drawings and the following description, my new brake is so constructed that while, as in my other one, the brake-block is securely retained in place without screws, pins, or other detachable devices, it is made reversible or interchangeable, so that it can be applied to either end of a brake-bar or to either one of a pair of brake-levers. In other words, the brake-blocks for both sides of a wagon are duplicates of each

other, so that they can be cast in the same mold.

In my new brake I also provide for the adjustment of the position of the brake-block to compensate for or accommodate any change in position of the wheel-tire with reference to the brake bar or lever.

In the drawings, A A designate two brake-levers for carrying and moving the brake-blocks. Such levers are, however, not necessary in connection with my invention. Any desired form of brake-bar or brake-block-carrying device can be used instead.

For connecting each brake-block B with its carrying lever or bar I provide a head C, consisting of a flat shank portion adapted to rest upon the end portion of the lever or bar and provided with the parallel longitudinal ribs *c c*, preferably on the under side, but not necessarily so. These ribs serve to engage the opposite sides of the lever or bar end between them, so as to inclose the same closely. In this shank portion of the head are two or more holes *c' c'* for bolts *C' C'*, which pass through longitudinal slots *a a* in the lever or bar end, and have on their lower threaded ends suitable nuts *c² c²*. With this arrangement the head can be most firmly and closely clamped to the carrying lever or bar end when the nuts on the bolts are tightened up. The ribs engaging the sides of the bar or lever effectually prevent any swinging of the head and hold it always in line with the said brake bar or lever. When the bolt-nuts are loosened, the head C can be slid in or out upon its support, as the slots *a a* allow movement of the bolts *C' C'*, and can then be fixed as slid into any desired position by tightening up the nuts again.

On the outer end of head C is a stem or shank *C²*, preferably cylindrical in general form. The end of the main portion of the head at the inner end of this stem *C²* forms a shoulder *C³*, against which the inner one of the supporting ears or lugs *B' B'* on the back of the brake-block B can bear. These ears have each a cylindrical opening *b* to receive the cylindrical stem *C²* on the head C. On such stem is a lug *c³*, adapted when the brake-block is in place on the stem to come between the two lugs or ears *B' B'*.

To admit the placing of the brake-block in position on the stem there is at one side of each opening b an offset or notch b' to allow the longitudinal passage of the lug c^3 on the stem as the block is slid longitudinally upon the supporting-stem. With this construction, if the brake-block be turned so as to bring the offsets $b' b'$ in line with the lug c^3 on the stem C^2 , such block can be slid on or off of the stem. When the block is on the stem, and is turned to take the offsets out of line with the stem-lug, such lug will effectually hold the block from slipping or working off. As the lug c^3 comes between the ears $B' B'$ on the brake-block, it can be used to prevent, by its engagement with the inner sides of such ears, the longitudinal movement of the block in either direction along the supporting-stem as long as the block remains turned, so as to keep the offsets $b' b'$ out of line with the said lug.

In order that the brake-block may be securely held upon the stem, so that it cannot get off or be removed from the same while the brake is in condition for use, and the wheel upon which it is to act is in place, the offsets in the brake-block ears $b b$ and the retaining-lug c^3 on the stem C^2 are relatively situated so as to be out of line with each other when the brake-block is in operative position, as shown in Figs. 2 and 3. The relative situation of the lug and offsets is preferably such that with the brake-block in the position just described the lug will be on the side of the stem C^2 diametrically opposite to the notches or offsets.

The wheel D , to be engaged by the brake-block, will, when in place, effectually prevent the block from being turned over, so as to bring the offsets around to the lug, so that the block can come off of the supporting-stem. As the weight of the block would tend to swing the latter downward around the stem C^2 , so as to bring its upper end into contact with the wheel D , I provide the block with a bearing b^2 , situated between the ears $b b$, in position to engage the stem-lug c^3 , so as to hold the block from swinging down beyond its proper position or against the wheel-tire. A second bearing or stop b^3 , also between the ears $b b$, serves to engage the lug c^3 and stop the movement of the block around the stem C^2 when such block has been swung half around the stem from its position just described. Such second bearing or stop is, however, not necessary, and can be dispensed with without departure from my invention. If desired, and particularly where the brake-block is a broad one, the stem-lug c^3 can have its middle portion cut away, as indicated by dotted lines in Fig. 7. As also indicated by dotted lines in said figure, portions of the ribs $c c$ between their ends can be cut away so as to make the head B lighter.

The operation of the parts of my brake, which will be understood from the foregoing description and the drawings, is briefly as

follows: Each brake-block is put upon the stem C^2 of the respective head by being turned to bring the offsets $b' b'$ in line with the stem-lug c^3 , then being slid longitudinally upon the stem until the lug c^3 is between the ears $B' B'$, and then being turned to bring the offsets out of line with the lug and the bearing or stop b^2 into engagement with the said lug. As indicated hereinbefore, this engagement of the lug c^3 with the stop or bearing b^2 on the brake-block holds the block from turning or rocking down too far upon the stem, so as to bring its wheel-engaging face out of proper position with reference to the wheel. The stem-lug c^3 then serves the double purpose of holding the block upon the supporting-stem and keeping it from swinging or rotating down around such stem. With the stem-lug adapted to come between the supporting-ears $B' B'$ instead of beyond the outer side of one of them, and with the lug engaging bearing surface or stop b^2 , situated also between such ears instead of on the outer side of one of them, the stem C^2 can be made shorter, as it needs only to be long enough to engage the openings $b b$ in both ears, and does not have to project through and beyond the latter, and the blocks can be cast or otherwise made as exact counterparts of each other. They are interchangeable and reversible, the one form of block being capable of use with the block-carrying head at either side of a vehicle, as indicated in the drawings, wherein Figs. 2 and 3 show the same form of block applied for use on the right and left side of a vehicle. The block can also be made to face either way with reference to its respective head, as indicated by the dotted and full lines in Fig. 2. To change the direction in which it will face when properly in position on a head, all that is necessary is to take it off of the head-stem C^2 , turn it around to bring to the inward side the ear which was before outward, then slip it back on the stem and swing it around the latter until its stop b^2 engages the stem-lug and its wheel-engaging face is turned in the desired direction.

By making my brake-blocks interchangeable and exact counterparts of each other I am enabled to save considerable expense in casting, as they can, as indicated hereinbefore, all be formed in the same mold. With the blocks as made I can also prevent injurious unequal wear of the blocks by changing them about, putting one in place of the other.

My brake-block-carrying head, made adjustable in and out upon the brake bar or lever, as hereinbefore described, enables me to use a narrow and light brake-block. Said block need not be any wider than the tire of the wheel which it is to engage, as any change in the position of such tire, either from use or as the result of a tire resetting, can be compensated for by the adjustment of block-carrying head in or out on the brake lever or bar. It will be observed also that, as in the case of the brake-blocks, they are exact du-

plicates of each other and can be cast in the same mold.

Having thus described my invention, what I claim is—

5 1. In combination with a piece having the stem for supporting the brake-block provided with a lug, the brake-block having the two ears with openings through which the supporting-stem passes situated on opposite
10 sides of the stem-lug, substantially as and for the purpose shown.

2. In combination with the brake-block supporting stem provided with a lug, the brake-block having the two ears with openings to
15 receive the supporting-stem, and the stop between the ears to engage the lug on the stem to limit the swing of the block around the latter, substantially as and for the purpose set forth.

20 3. In combination with the supporting-stem having the lug, a brake-block having the ears provided with stem-receiving openings with offsets, and the lug-engaging stop between such ears out of line with the offsets
25 from the stem-receiving openings, substantially as and for the purpose described.

4. In combination with a suitable head provided with a lug, the brake-block provided
30 with the two ears on its back, each having a stem-receiving opening with an offset, and a stop between the ears to engage the stem-lug when the block has been turned to bring the offsets in the ear-openings and the lug on the stem diametrically opposite each other, sub-
35 stantially as and for the purpose specified.

5. In combination with the brake-block,

supporting-stem having a lug on its under side, the brake-block having the two ears on its back provided with the stem-receiving openings and the offsets from such openings,
40 and with a stop to engage the lug on the under side of the stem, such stop and the offset from the openings in the ears being out of line with each other, substantially as and for the purpose shown.

6. A brake-block having on its back the two ears, with openings for the reception of a supporting-stem and offsets from such open-
45 ings, and a stop projection between the two ears out of line with the offsets, substantially as and for the purpose set forth.

7. In combination with a head adapted to be attached to a brake bar or lever and hav-
50 ing a stem provided with a lug projecting from the stem-periphery between its two ends, a brake-block having the two ears adapted to engage the stem on opposite sides of the lug
55 thereon, each provided with a stem-receiving opening with an offset or notch to admit the passage of the stem-lug as the block is slid
60 longitudinally upon the stem, and the stop on the block between the ears out of line with the offsets or notches adapted to be engaged by the lug on the stem, substantially as and
65 for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of July, A. D. 1889.

THOMAS S. SMITH.

Witnesses:

C. J. WILLIAMSON,
HENRY C. HAZARD.