

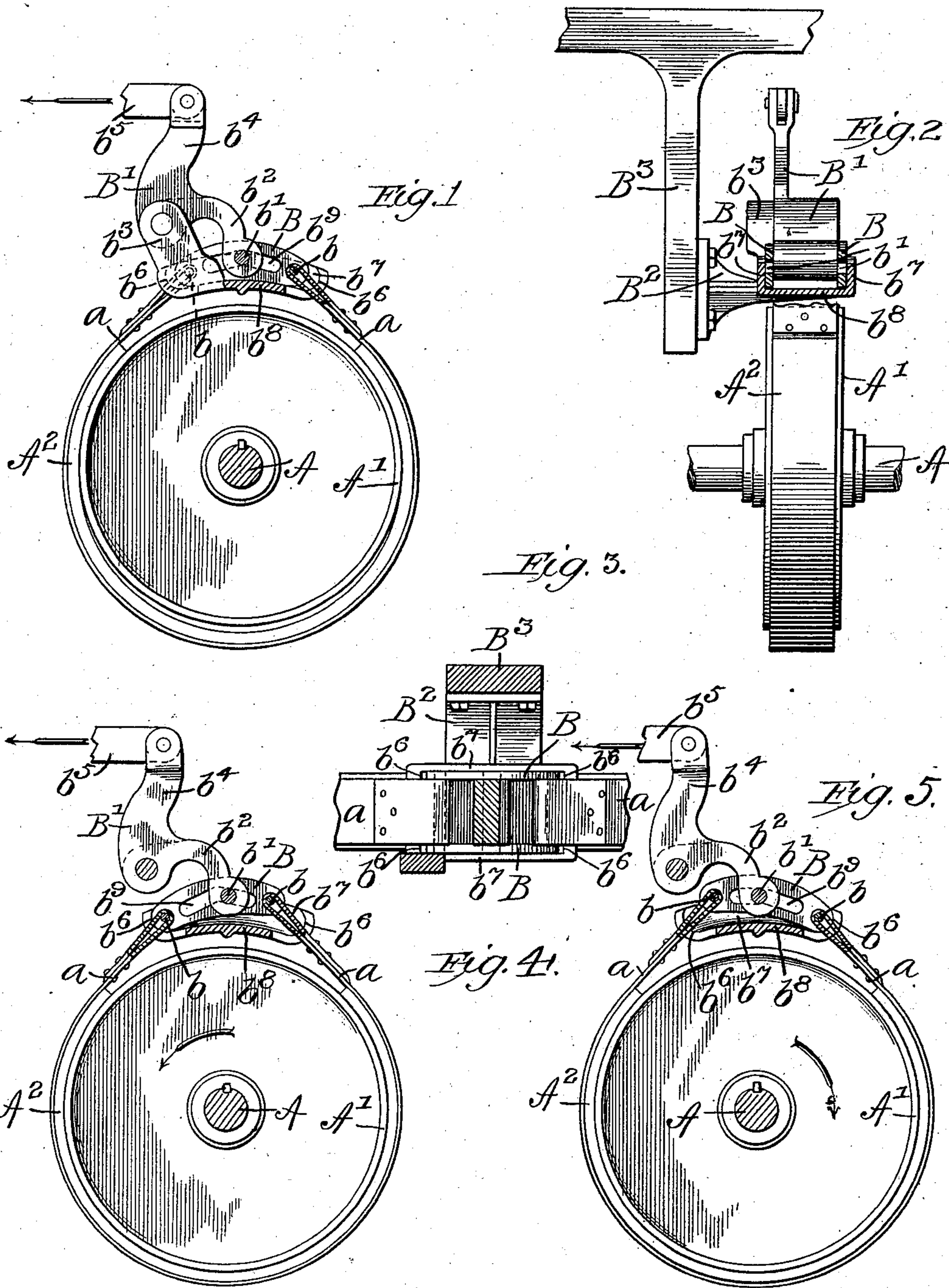
No. 698,262.

Patented Apr. 22, 1902.

W. A. CROWDUS.
BRAKE.

(Application filed July 18, 1901.)

(No Model.)



Witnesses;
Harold H. Barnett.
Edu. Barnett.

Inventor
Walter A. Crowdus.
By Geo. W. Waldo,
Atty.

UNITED STATES PATENT OFFICE.

WALTER A. CROWDUS, OF CHICAGO, ILLINOIS.

BRAKE.

SPECIFICATION forming part of Letters Patent No. 698,262, dated April 22, 1902.

Application filed July 18, 1901. Serial No. 68,764. (No model.)

To all whom it may concern:

Be it known that I, WALTER A. CROWDUS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented an Improved Brake, of which the following is a specification.

This invention relates to brakes, and relates particularly to band-brakes.

A primary object of the invention is to provide a brake designed and adapted for use on motor-vehicles, whereby the shaft or axle to which it is applied may be effectively "braked" when rotating in either direction, thus making provision for stopping the vehicle when going in either direction, either ahead or backward. My improved brake is, however, equally adapted for braking any shaft designed to rotate in opposite directions.

The invention consists of the various features, combinations of features, and details of construction hereinafter described and claimed.

In the accompanying drawings, a brake of my invention is fully illustrated.

Figure 1 is a side view of a brake of my invention, partly in section, showing the parts in normal position—that is, the brake being released. Fig. 2 is an end view, partly in section, thereof. Fig. 3 is a partial top plan view thereof, and Figs. 4 and 5 are views showing the position of parts for braking the shaft or axle when rotating in opposite directions.

Referring now to the drawings, A designates a revoluble shaft, as the axle of a motor-vehicle, A' a brake-drum secured to said shaft or axle, and A² a brake-band applied to said drum A'. All of the foregoing elements are old and well known in the art and may be of any usual or approved construction.

The ends of the strap *a* of the brake-band A² are attached to pins *b*, the ends of which are secured in the members of a link B, which is pivoted upon a pin *b'*, supported so as to be movable toward and from the brake-drum A'. With this construction it is obvious that movement of the pivot-pin *b'* away from the brake-drum A' will cause the brake-band A² to grip the brake-drum A'; also, that the strain on opposite ends of said link will be unequal owing to the friction between said brake band and drum, which will operate to draw down

one end of said link and correspondingly raise the other in a manner to cause said brake-band A² to most effectively grip said brake-drum.

In the preferable construction shown the pivot-pin *b'* is secured in the arm *b*² of a bell-crank B', pivoted to an arm *b*³ on a bracket B², secured to a rigid support B³. It is thus obvious that a strain on the arm *b*⁴ of the bell-crank B' in the direction indicated by the arrow will operate to raise the pivot-pin *b'* and link B and cause the brake-band to grip the brake-drum in the desired manner. Desired pivotal movement to apply the brake may be imparted to said bell-crank by means of a hand or foot lever (not shown) connected thereto by means of a rod *b*⁵. Frictional engagement of the brake-band A² with the rotating brake-drum A' will obviously tend to impart movement to said brake-band circumferentially of said brake-drum in the direction of rotation of said brake-drum. In order to prevent such movement of said brake-band, means are provided independent of what may properly be termed the "brake-operating" mechanism, adapted to maintain said brake-band practically in fixed adjustment relatively to said brake-drum. As shown, said means comprise rigid stops applied to the link B, adapted to prevent movement of said link circumferentially of said brake-drum. In the specific construction shown said stops consist of shoulders *b*⁶ on flanges *b*⁷ on a plate *b*⁸, forming part of the bracket B², said shoulders *b*⁶ projecting inwardly beyond the sides of the link B. As shown, also, the distance between the shoulders *b*⁶ at opposite ends of said link is slightly greater than the length of said link, and to provide for movement of said link to bring the ends thereof into engagement with said shoulders slots *b*⁹ are formed in the link members, which are engaged by the pivot-pin *b'*. Said slots preferably consist of similar downwardly-inclined sections symmetrically disposed on opposite sides of the center of said link. Said slots will thus tend to return said link B, and thus the brake-band A², to its normal position when the brake is released. The plate *b*⁸ preferably extends over the top of the brake-drum A' beneath the link in such position that the link B will rest thereon when the brake is released. Said plate will thus

form a support for said link B and for the brake-band A² when said brake is released or in what may be designated their "normal" positions.

5 With this form of the brake the movable parts are normally in the position shown in Fig. 1, in which the brake is released. When it is desired to brake the shaft rotating in either direction, the bell-crank B' is moved
10 pivotally to raise the pin b', and thus the link B, until the brake-band A² grips the brake-drum A', whereupon said brake-band is shifted automatically in the direction of rotation of said brake-drum until the ends of said link
15 strike the shoulders b⁶. The relative positions of the movable parts to brake the shaft rotating in opposite directions are shown in Figs. 9 and 10 of the drawings, the direction of rotation in each instance being indicated
20 by the arrows. It will thus be seen that when the brake is applied the link B will be automatically shifted into position to most effectively brake the shaft rotating in either direction.

25 Besides its automatic operation, as described, a great advantage of this form of brake is that the pull or strain of the brake is sustained almost entirely by the shoulders b⁶ on the bracket B², thus reducing the power
30 necessary to apply the brake and relieving the operator from the strain thereof.

I claim—

1. The combination with a revoluble shaft, of a drum secured thereto, a brake-band applied thereto, a slotted link to which the ends
35 of said brake-band are attached, a lever, a pin therein which engages the slot in said link and stops which limit the movement of said link circumferentially of said brake-
40 drum, substantially as described.

2. The combination with a revoluble shaft, of a drum secured thereto, a brake-band applied to said drum, a slotted link to which

the ends of said brake-band are attached, the slot in said link comprising symmetrical inclined sections, a lever, a pin secured therein which engages the slot in said link, a plate or saddle on which said link rests when in normal adjustment and stops adapted to limit the movement of said link circumferentially
50 of said brake-drum, substantially as described.

3. The combination with a revoluble shaft, of a drum secured thereto, a brake-band applied to said drum, a slotted link to which
55 the ends of said brake-band are attached, the slot in said link comprising inclined sections, a lever and a pin therein which engages the slot in said link, substantially as described.

4. The combination with a revoluble shaft, of a drum secured thereto, a brake-band applied to said drum, a slotted link to which
60 the ends of said brake-band are attached, a lever, a pin therein which engages the slot in said link and a fixed plate which extends over the brake-drum beneath said link, substantially as described.

5. The combination with a revoluble shaft, of a drum secured thereto, a brake-band applied to said drum, a slotted link to which
70 the ends of said brake-band are attached, a lever, a pin therein which engages the slot in said link, a fixed plate which extends over the brake-drum beneath said link, flanges on said plate which extend upwardly on opposite sides of said link and shoulders on said
75 flanges which extend inwardly beyond the sides of said link, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature, in presence
80 of two subscribing witnesses, this 5th day of July, A. D. 1901.

WALTER A. CROWDUS.

Witnesses:

M. S. SOMERVILLE,
JOHN A. MCKEOWN.