

May 9, 1933.

A. Y. DODGE

1,908,411

BRAKE

Original Filed Oct. 4, 1926

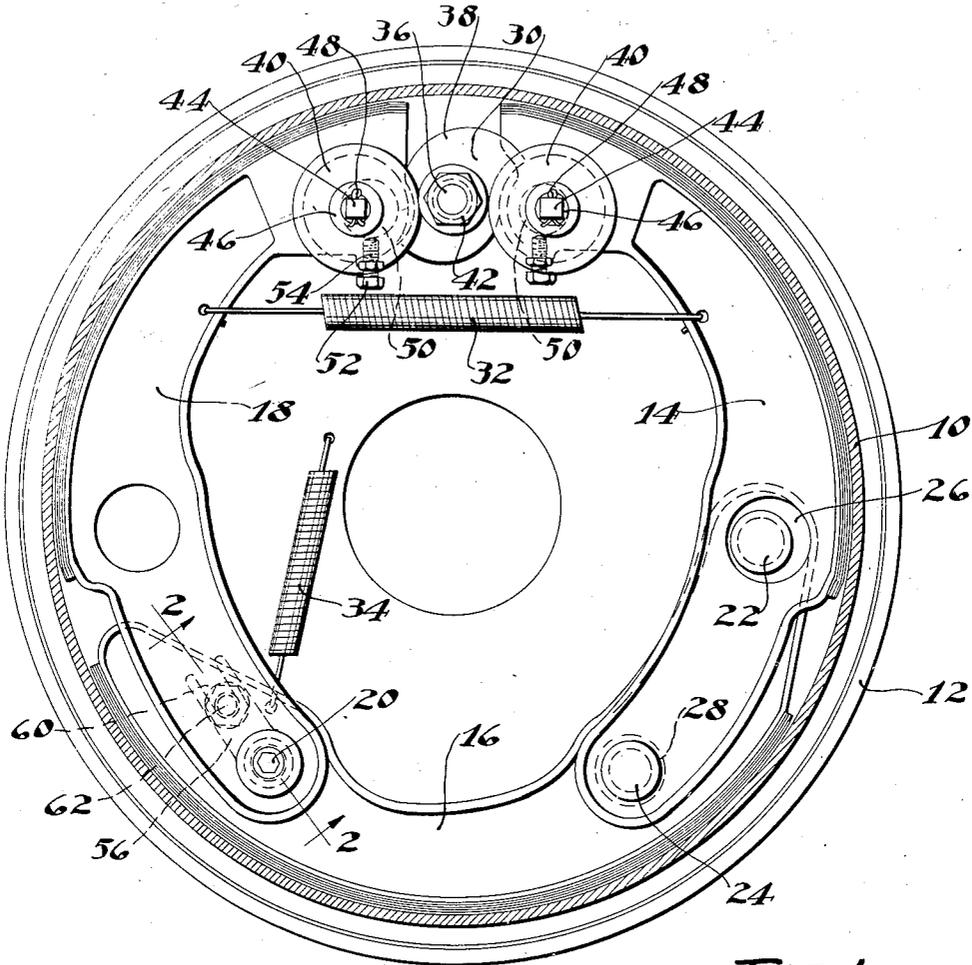


FIG. 1

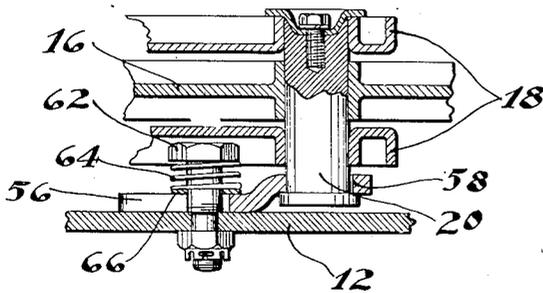


FIG. 2

INVENTOR.
ADIEL Y. DODGE

BY

O. H. Fowler

ATTORNEY.

UNITED STATES PATENT OFFICE

ADIEL Y. DODGE, OF SOUTH BEND, INDIANA, ASSIGNOR TO BENDIX BRAKE COMPANY,
OF SOUTH BEND, INDIANA, A CORPORATION OF ILLINOIS

BRAKE

Original application filed October 4, 1926, Serial No. 139,389. Divided and this application filed March 7,
1931. Serial No. 520,776.

This invention relates to brakes and is illustrated as embodied in an internal expanding automobile brake.

The present invention is a division of my pending application Serial No. 139,389, filed October 4, 1926, and is made under the requirements of the United States Patent Office under provision of Rule 42.

An object of the invention is to provide novel means for adjusting the brake.

An important feature of the invention relates to an automatically adjusted stop for the friction means comprising a part which is frictionally gripped to resist shifting and which is shifted from time to time as the brake lining wears. In one very desirable arrangement the automatically adjusted stop engages the pivot connecting two of the shoes and is slotted to receive a friction clamp on the backing plate of the brake.

The above and other objects and features of the invention, including various combinations of parts and desirable structure, will be apparent from the following description of the illustrative embodiment shown in the accompanying drawing, in which:

Figure 1 is a vertical section through the brake just inside the head of the brake drum illustrating the brake shoes in side elevation; and

Figure 2 is a section substantially on the line 2—2 of Figure 1.

Referring to the drawing for more specific details of the invention 10 represents a rotatable drum, at the open side of which is arranged a suitable support or backing plate 12 and within which are arranged three shoes 14, 16, and 18. The shoes 14 and 18 are forked at their ends to straddle opposite ends of the shoe 16, shoe 18 being connected to shoe 16 by a pivot 20 and shoes 14 and 16 are anchored respectively on pivots 24 and 22. The pivot 22 passes through a relatively large opening 26 in the shoe 14, while the pivot 24 passes through a relatively large opening 28 in the shoe 16. As shown, the shoes 14 and 18 are interchangeable.

The brake is intended to be applied by means such as a double cam device 30, against

the resistance of a return spring 32, the shoe 16 being applied by shoe 18 against the resistance of an auxiliary return spring 34. The cam device 30 includes a sleeve keyed or otherwise secured on a camshaft 36 and provided with spaced cams 38, only one of which is shown, engaging grooves in rollers 40 on the ends of the shoes 14 and 18 or their equivalents.

The sleeve formed with the two cams 38 is held against axial movement on the shaft 36 by a nut 42, and the rollers 40 are grooved to receive the cams 38, thus interlocking with the cams to hold the shoes against lateral movement. Preferably the grooves in the rollers are slightly wider than the cams 38, the grooves being filleted at opposite sides so that the cams will automatically center themselves in the grooves. Preferably the rollers are mounted on pivots 44 and are retained by washers 46 and pins 48. The pivots 44 have eccentric portions 50 positioned in openings in the webs of the shoes 14 and 18 so that the rollers may be adjusted by turning the pivots on these eccentric portions.

To facilitate this adjustment the ends of the pivots may be squared to receive a socket wrench. The pivots are secured in any desired position of angular adjustment by set screws 52 threaded through the lower parts of the webs of the shoes and which may be provided with suitable locknuts 54.

The major feature of the present invention relates to automatically adjusting the idle position of the shoe 16, as the lining wears during the life of a brake. In one very simple embodiment of the invention, this automatically adjusted stop device includes a part 56 having an opening for one end of the pivot 20 which is slightly larger than the diameter of the pivot as indicated at 58, at least in the direction of movement of the pivot when the brake is applied. This clearance is equal to the desired backward movement of the shoe when the brake is released. As shown, part 56 is forked to form a slot 60 embracing a bolt 62 on the backing plate 12. A coil spring 64, confined between the head of the bolt 62 and a friction washer 66 engaging part 56, serves to hold the stop

part 56 frictionally clamped in any position to which it may be moved.

When the brake is applied, after taking up the clearance the pivot 20 is moved until shoe 16 engages the drum, and drags the part 56 with it against the resistance of the friction washer until the brake is fully applied. Then when the brake is released, the spring 34 pulls the shoe 16 away from the drum until the pivot 20 engages the opposite side of this opening in part 56, but the spring 34 is not sufficiently strong to shift the part 56, thus the shoe 16 is held in an idle position which is automatically determined by the amount of clearance 58.

While one illustrative embodiment has been described in detail, it is not my intention to limit the scope of the invention to that particular embodiment or otherwise than by the terms of the appended claims.

I claim:

1. An automatic stop for a brake comprising a plate having a slot at one end and an opening at the other end, clamping means resisting shifting of the plate including a bolt passing through the slot, and a shifting device including a part extending through the opening, which is slightly smaller than the opening.

2. An automatic stop for a brake comprising a plate having a slot and an opening, clamping means resisting shifting of the plate including a bolt passing through the slot, and a shifting device including a part extending through said opening, which part is slightly smaller than said opening.

3. A brake comprising a member moved in applying the brake, a part engaged by the member after a predetermined brake-applying movement, and means for frictionally gripping the end of the part and imposing a drag thereon to resist shifting, the part being shifted bodily by brake-applying movement of the member after it engages the part.

4. A brake comprising a member moved in applying the brake, a part engaged by the member after a predetermined brake-applying movement having a slotted portion on the opposite side of the member, a holding device frictionally engaging the slotted portion, and gripping means carried by the holding device and resisting movement of the part.

5. A brake comprising a member moved in applying the brake, a part engaged by the member after a predetermined brake-applying movement having a slotted portion on the opposite side of the member, a holding device passing through the slotted portion, and a friction washer carried by the holding device engaging the part.

6. A brake comprising a member moved in applying the brake, a part engaged by the member after a predetermined brake-applying movement having a slotted portion on

the opposite side of the member, a holding device passing through the slotted portion, and a friction washer carried by the holding device engaging the part, together with a stop on the end of the device and a spring confined between the stop and the friction washer.

7. A brake comprising a friction member and an adjacent support, and means for determining the released position of the friction member including interengaging parts carried respectively by the friction member and the support, one of the parts having an opening embracing the other part and larger than the other part to permit a predetermined substantially unrestricted applying movement of the friction member, the part having the opening being shifted bodily by the other part in case of excessive movement of the friction member.

8. A brake comprising a friction member and an adjacent support, and means for determining the released position of the friction member including interengaging parts carried respectively by the friction member and the support, one of the parts having an opening embracing the other part and larger than said other part to permit a predetermined substantially unrestricted applying movement of the friction member, the part having the opening being shifted bodily by the other part in case of excessive movement of the friction member, together with clamping means resisting shifting of the part having the opening.

9. A brake comprising a friction member and an adjacent support, and means for determining the released position of the friction member including interengaging parts carried respectively by the friction member and the support, one of the parts having an opening embracing the other part and larger than the other part to permit a predetermined substantially unrestricted applying movement of the friction member, the part having the opening being shifted bodily by the other part in case of excessive movement of the friction member, together with clamping means resisting shifting of the part having the opening, the clamping means including an attaching bolt passing through a slot in the part having the opening.

10. A brake comprising friction means having a positioning part movable therewith, a backing plate on which the friction means is mounted, and a stop having a lost-motion engagement with said part at one end and frictionally gripped to the backing plate at its other end in a manner permitting it to be shifted bodily lengthwise by said part on applying the brake after excessive wear.

11. A brake comprising friction means having a positioning part movable therewith, a backing plate on which the friction means is mounted, and a stop positioned to engage said part at one end after a predetermined

brake applying movement and yieldingly gripped to the backing plate at its other end in a manner permitting it to be shifted bodily lengthwise by said part on applying
5 the brake after excessive wear.

12. A brake comprising a rotatable drum, a friction member having a positioning part movable therewith, a backing plate on which the friction member is mounted, and a stop
10 loosely engaging said part to arrest it after a predetermined brake-applying movement, said stop being frictionally related to the backing plate in a manner permitting it to be bodily shifted circumferentially of the
15 drum by said part.

13. A brake comprising a rotatable member, a friction member having a positioning part movable with the friction member, a supporting member on which the friction member
20 is mounted, and a stop loosely engaging said part to arrest it after a predetermined brake-applying movement, said stop being frictionally movable bodily in the direction of rotation of the rotatable member.

25 In testimony whereof, I have hereunto signed my name.

ADIEL Y. DODGE.

30

35

40

45

50

55

60

65