

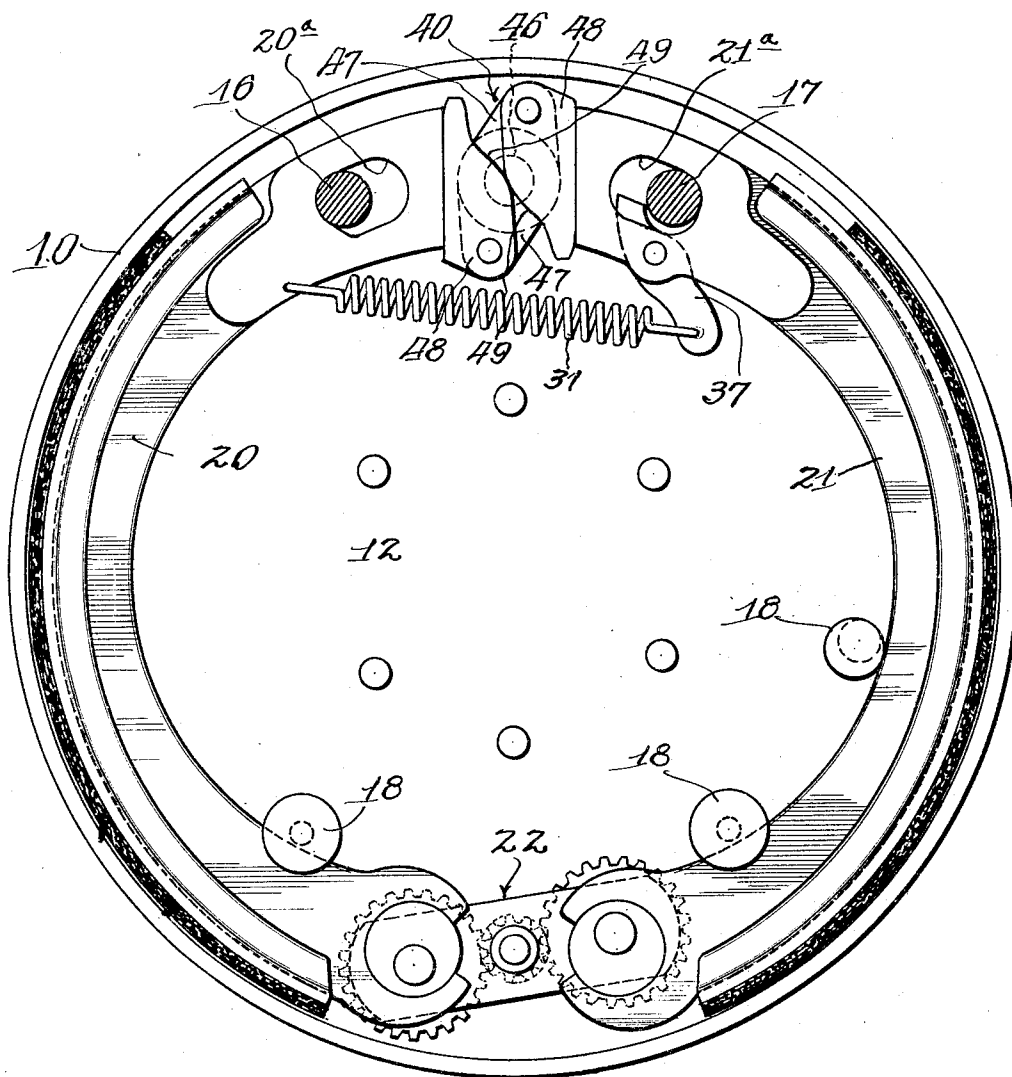
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BRAKE

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UNITED STATES PATENT OFFICE

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BRAKE

Application filed April 17, 1929. Serial No. 355,732.

This invention relates to improvements in brake mechanism for motor vehicles, and more particularly to servo brakes operable in either direction of rotation of the wheel.

The principal object of the invention is to provide an improved and simplified construction whereby at least one of the anchor pins normally forms a fixed pivot point for its respective shoe while in idle position, and yet limited radial movement of the shoe relative to said anchor is permitted to position said shoe relative to the drum when the brake is applied.

The invention may best be understood by reference to the accompanying drawing, in which

The figure is a face view of a brake constructed in accordance therewith.

In the embodiment illustrated in the drawing, the brake drum 10 is carried by the wheel in the usual manner, and the backing plate 12 is mounted on the wheel spindle (not shown) and having the brake mechanism carried thereon.

The braking mechanism shown herein comprises two substantially similar shoes 20 and 21 arranged in reversed position relative to each other, and suitably connected together at their unanchored ends as by a floating link

22. In the form shown, said link is provided with eccentric devices for adjusting the effective length thereof, as disclosed in detail in my copending application bearing Serial No. 343,585, filed March 1, 1929, but as said adjustment devices form no part of the present invention, detailed description thereof is omitted herein.

A pair of anchor pins or lugs are mounted in spaced relation on the backing plate 12, one pin 16 serving the shoe 20 and the other pin 17 similarly serving shoe 21. The shoes 20 and 21 are provided with slots 20a and 21a respectively, through which the pins project, said slots in this case being elongated circumferentially of the drum, and also having relatively wide end bearing surfaces, so to permit radial sliding movement of the shoes relative to their respective pins when in anchoring engagement therewith.

Braking pressure is applied to the shoes by

any suitable spreading device, in the form shown, said device being indicated generally at 40 and disposed generally between the anchored ends of said shoes. The equalizer device 40 is operated by a shaft 46 extending through the backing plate 12 and having a cross arm 47 thereon. A pair of equalizer links 48—48 are pivotally mounted at opposite ends of the cross arm 47, said equalizer links being each provided with opposed curved surfaces 49—49 which normally engage each other on a line coincident with the axis of the operating shaft 46, as shown in the figure. The arrangement is such that by rotation of the operating shaft 46, the equalizer links 48—48 tend to spread apart, but said links may be spread more in one direction than the other, depending upon the direction of the rotation of the drum, but maintaining substantially uniform pressure upon the shoes through the rolling action of the engaged surfaces 49—49.

Referring now more particularly to the features forming the subject matter of the present invention, I provide a lever 37 pivoted on shoe 21 adjacent the inner margin of slot 21a and having one end projecting into engagement with the anchor pin 17 in a general direction tending to urge the shoe 21 away from the drum, and also maintaining said shoe in anchoring engagement relative to said pin, as clearly shown in the figure of the drawing. Suitable tension is applied to the lever for this purpose, in the form shown, a spring 31 being connected to the other shoe 20 so as to provide also the sole tension means tending normally to hold the shoes in idle contracted position against stops 18, 18 carried by the backing plate.

The construction above described is particularly designed for a wheel rotating normally in a counterclockwise direction in which case pin 17 forms the anchor for the system, although, of course, servo action is also provided in the opposite direction in case of reversal of the wheel. However, as most of the braking effort is usually required in one direction only, but one shoe 21 is here shown as provided with a positioning lever 37.

The operation of the device is as follows:

With the wheel and drum rotating in a counterclockwise direction as above suggested, the shoes are normally maintained in contracted and idle position by spring 31, and by action of lever 37 against anchor pin 17, the anchored end of shoe 21 is urged away from the drum. In this position, pin 17 forms a substantially fixed point for pivotal movement of said shoe, until the brake is applied. When the brakes are applied, and pin 17 takes the braking thrust from shoe 21, the thrust is sufficient to overcome the tension of spring 31 acting through lever 37, and permit the shoe to move radially along the pin 17 as necessary to position itself automatically in concentric relation with the drum. When braking pressure is relieved, the parts return to their initial idle position, as shown.

It will be further noted, that the pin 17 is normally maintained in position at one end of the slot 21a so as to immediately take the thrust of said shoe at the instant the brakes are applied, and thus eliminate any shock or noise which would result if the shoe were floating loosely on the pin, as for instance, in the case with shoe 20 on pin 16. It is manifest that a similar lever could be furnished for shoe 20, if desired, but as already explained above, the added complication may readily be dispensed with on account of the fact that such brakes are used so little in the reverse direction, that an occasional noise from this source is not usually objectionable.

I claim as my invention:

1. In a brake, a drum, two shoes and anchor means therefor affording servo action in either direction of rotation of said drum, one of said shoes having a slot in which its respective anchor is engaged, and a lever pivotally mounted on said shoe and yieldingly engaging said anchor in a direction opposed to the braking thrust of said shoe.

2. In a brake, a drum, two shoes and anchor means therefor affording servo action in either direction of rotation of said drum, one of said shoes having a slot in which its respective anchor is engaged, a lever pivotally mounted on said shoe and acting on said anchor in a direction opposed to the braking thrust of said shoe, and a tension spring connected between said lever and the opposite shoe.

3. In a brake, a drum, two shoes and anchor means therefor affording servo action in either direction of rotation of said drum, one of said shoes having a slot in which its respective anchor is engaged, a lever pivotally mounted on said shoe and acting on said anchor in a direction opposed to the braking thrust of said shoe, and a tension spring connected between said lever and the opposite shoe, said spring forming the sole means for contracting said shoes.

4. In a brake, a drum, two shoes and an-

chor means therefor affording servo action in either direction of rotation of said drum, one of said shoes having an enlarged slot in which its respective anchor is engaged to permit radial movement of said shoe relative to said anchor, and a lever pivotally mounted on said shoe and yieldingly acting on said anchor in a direction opposed to the braking thrust of said shoe and to urge said shoe away from the drum.

5. In a brake, a drum, two shoes and anchor means therefor affording servo action in either direction of rotation of said drum, one of said shoes having an enlarged slot in which its respective anchor is engaged to permit radial movement of said shoe relative to said anchor, a lever pivotally mounted on said shoe and acting on said anchor in a direction opposed to the braking thrust of said shoe and to urge said shoe away from the drum, and a tension spring connected between said lever and the opposite shoe.

Signed at Racine this 4th day of April, 1929.

EARL G. GUNN.