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J. SNEED

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BRAKE

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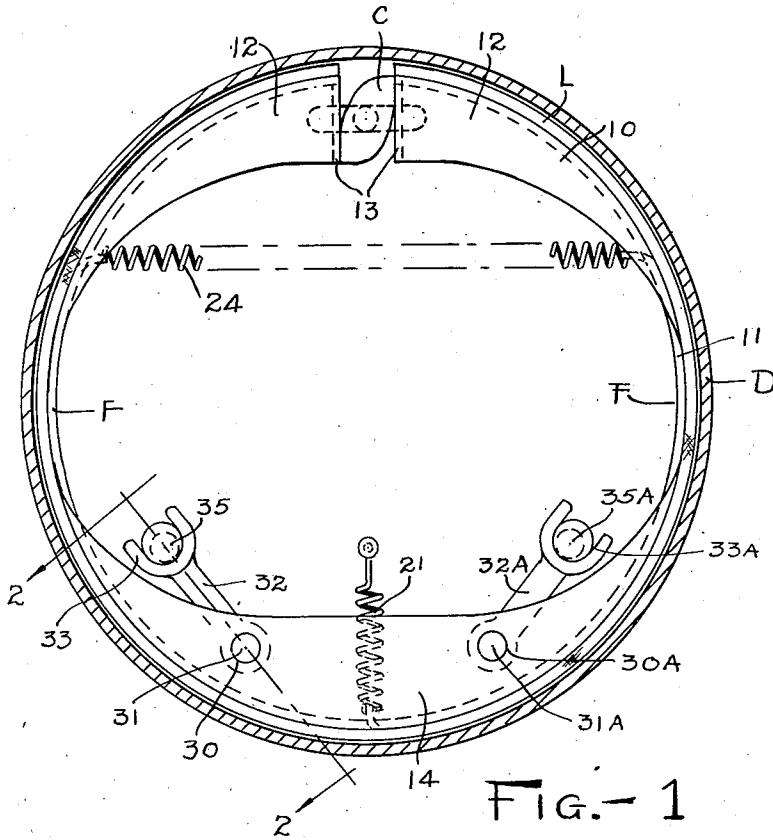


FIG.-1

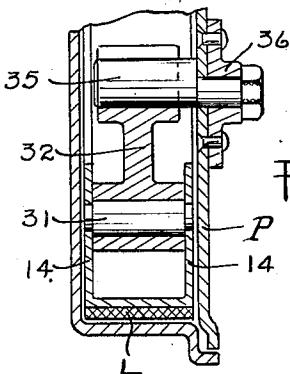


FIG.-2

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BRAKE

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This invention relates to brakes and particularly to the type adapted for use on motor vehicles.

It is among the objects of my invention to construct a brake which will be equally effective regardless of the direction of drum rotation. Other objects include provisions for a self-energizing effect in the operation of the brake. Another object is to provide a unique anchorage and connections and adjustments therewith, which shall compensate for wear and modify the characteristic of the brake within certain limits. Another object is to provide a brake shoe having characteristics of flexibility and rigidity, which lend themselves to the other features of my invention.

Other objects will appear from the following description of my invention, a preferred form of which is shown in the accompanying drawings. The essential characteristics are summarized in the claims.

In the drawings, Fig. 1 discloses a general layout of the brake mechanism; and Fig. 2 is a section taken along the line 2—2 on Fig. 1.

Referring particularly to Fig. 1, D represents the usual brake drum in which the shoe 10 is mounted. The shoe 10 may comprise a lining supporting portion 11 and may have inwardly extending radial side flanges 12 at the adjacent ends of the shoe, and similarly formed flanges 14 in the mid-portion of the shoe. Suitable lining L is carried by the shoe. A conventional floating cam C is disposed between the free ends of the shoe and may be mounted on a suitable shaft which may be rotated in the usual manner by means not shown. The side flanges 12 in the ends of the shoe may be intumed to form a cam engaging surface as at 13. A retraction spring 24 is shown to draw the ends of the shoe against the cam.

Referring also to Fig. 2, I show the mid-portion or bottom portion of the shoe channelled in cross section with the side flanges 14 as mentioned above. These side flanges have a pair of aligned openings 30 and 30A

in which pins 31 and 31A are mounted. On the pins are journaled links 32 and 32A respectively, the ends of which links are bifurcated as at 33 and 33A respectively to engage anchor pins 35 and 35A. The anchor pins 35 and 35A are carried by the backing plate P each with a suitable bracket as shown in Fig. 2. The anchor pins may present an eccentric surface to the bifurcated or slotted ends of the links 32 and 32A so that the relative position of the shoe with relation to the drum may be changed by partial rotation by either or both of the anchor pins. A spring 21 extends from the mid-portion of the shoe to the backing plate and raises the shoe upwardly keeping the links in engagement with the anchor pins and maintaining the shoe normally out of contact with the drum.

In operation, supposing the rotation of the drum to be clockwise, the ends of the shoe are spread by the cam until an initial contact is made with the drum, whereupon the shoe is urged circumferentially in a clockwise direction. The links 32 and 32A having been in contact with anchor pins 35 and 35A because of the tension of the spring 21, are now moved according to the movement of the shoe. That is, the link 32A is drawn downwardly away from the anchor pin, whereas the link 32 is merely swung around the anchor pin 35 as a center. The pin 30 describes an arc and carries the mid-portion of the shoes radially in that arc. In this manner the whole mid-portion of the shoe is forced to contact with the drum and the free end of the shoe on the right, as viewed in Fig. 1, acts as a servo shoe for the mid-portion of the shoe. It will be noted that the ends of the shoes and the mid-portion are comparatively rigid by reason of the reinforcing flanges but between these portions are comparatively flexible portions F, F so that the ends are free to move relative to the mid-portion. A self-energizing or servo effect is given to substantially two-thirds of the whole shoe in each operation.

In the form of my invention shown herewith, I have positioned the anchor pins sub-

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stantially 120° from each other. The middle flexible portions F, F of the shoe occupy small arcs and are disposed within about 100° of the end of the shoe so that the distances from the one end of the shoe around to the opposite end of the flange 14 or to the most remote end of the rigid middle portion of the shoe, is substantially 250°. Since the reinforced or channelled mid-portion of the shoe moves in a body when it is urged into engagement, it will be seen that in operation substantially 250° of friction surface is brought into operation by the servo action whenever the brake is applied.

From the foregoing, it will appear that I have provided a highly efficient brake which will be equally effective regardless of the direction of drum rotation and which has inherent in its construction a modified self-energizing effect. Various modifications in form and degree will occur to one skilled in the art, and while I have shown a preferred form of my invention, I do not care to be limited in the scope thereof other than by the claims appended hereto.

I claim:

1. In a brake, the combination of a drum, a pair of anchor pins spaced apart, relatively rigid friction means spaced between said anchor pins, a link pivoted to said friction means and engageable with one of said pins when the drum rotation is clockwise, a second link pivoted to said friction means and engageable with the other of said pins when the drum rotation is counter clockwise, and additional relatively flexible friction means angularly displaced beyond said anchor pins and adapted to serve said first named means regardless of the direction of drum rotation.

2. In a brake, the combination of a substantially annular brake shoe having a comparatively rigid middle portion, a brake drum, expanding means disposed between the ends of the shoe, an anchor pin, a link pivotally mounted in the said rigid portion of the shoe and having a pivotal and slidable engagement with said pin.

3. In a brake, the combination of a brake drum, a substantially annular brake shoe, expanding means disposed between the adjacent ends of the shoe, said shoe being relatively rigid throughout that portion opposite said expanding means and having flexible parts between the ends and the said rigid portion, anchor pins spaced from each other and adjacent the extremities of said rigid portion, and means connecting said rigid portion of the shoe to said anchor pins, whereby one or the other of said pins take the braking torque depending upon the direction of drum rotation, said means comprising a pair of links diverging from the median line of the brake and connected to said rigid portion of the shoe at their near ends and engaging the anchors at their far ends.

4. In a brake, the combination of a brake drum, a brake shoe, said brake shoe being formed as a split ring with a relatively rigid middle portion and with relatively flexible portions adjacent thereto, and means for anchoring said shoe at points near the extremities of said relatively rigid middle portion, said means comprising a pair of links pivotally mounted in said rigid middle portion at symmetrically spaced points relative to said rigid middle portion and engageable with anchoring means.

5. In a brake, the combination of a brake drum, a brake shoe, said brake shoe being formed as a split ring with relatively rigid end portions and a relatively rigid middle portion opposite said end portions and with relatively flexible portions symmetrically disposed therebetween, and means for anchoring said shoe at points near the extremities of said relatively rigid middle portion, comprising links pivotally supported in spaced parts of said middle rigid portion and extending in divergence to each other to engagement with anchoring means.

6. In a brake, the combination of an anchor pin, a substantially annular brake shoe having a relatively rigid middle portion channelled in cross section and having inwardly extending radial side flanges, said side flanges having a pair of aligned openings, a pin journaled in said openings, and a link carried by said pin and engaging said anchor.

7. A brake having a pair of anchor pins, a brake shoe comprising relatively flexible and relatively rigid portions, one of the relatively rigid portions being channelled in cross section and having inwardly extending radial side flanges, said side flanges having two pair of aligned openings symmetrically disposed with relation to the ends of said shoe and to the vertical axis of the brake and having a pair of pins mounted in said openings for connecting said shoe with symmetrically disposed anchors, and links carried by said pins and engaging said anchors.

8. A brake comprising a fixed supporting part, a drum, a relatively rigid shoe part, a pair of spaced anchors carried by the fixed supporting part, a pair of links each pivotally mounted in the shoe part and at opposite ends thereof and inclined away from each other and having pivotal and slidable engagement with said anchors, whereby said shoe moves bodily about one of said anchors when the shoe is forced into engagement with the drum and whereby all of the braking torque is transmitted through one of said links to the exclusion of the other in either direction of drum rotation.

9. A brake comprising a fixed supporting part, a drum, a friction device engageable with the drum including at least a shoe part engageable with less than half the drum,

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a pair of anchors carried by said fixed supporting part and disposed generally adjacent the opposite ends of said shoe part and spaced inwardly therefrom, a pair of links
5 pivotally connected in opposite halves of said shoe part and extending in divergence to said anchors and pivotally engaging said anchors, each link also providing a slidable connection between one of said anchors and
10 said shoe part, and means for moving said shoe part into engagement with said drum.

10. A brake according to claim 9 wherein said anchors are adjustably positionable relative to said fixed supporting part.

15 In testimony whereof, I hereunto affix my signature.

JOHN SNEED.