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HYDRAULIC BRAKE

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3 Claims. (Cl. 188—91)

My present invention relates to improvements in hydraulic brakes, and particularly to improvements over my copending application for hydraulic brakes, Serial No. 128,612, filed March 2, 1937, which has matured into Patent No. 2,115,273, issued April 26, 1938.

One of the principal objects of these improvements is to provide a novel and extremely simple means of operatively connecting a radially reciprocable compression means to an eccentric, for reciprocating the compression means as the means and eccentric are revolved relatively.

Another object of this invention is the provision of a compression means, for a brake of this class, which has a spring means for separating mutually reciprocating members and forcing one of the same to engage an eccentric which reciprocates said latter member.

Still another object is the provision of a novel combination of a hydraulic compression means and a resilient mechanical means for operatively connecting the compression means to a relatively revolving eccentric.

An important object also of this invention is the provision of a hydraulic brake having a plurality of radiating compression devices or hydraulic cylinders in which at least one of the latter is always functioning, when the brake is fully applied, to cause maximum braking effect.

With these and other objects in view, as will appear hereinafter, I have devised a brake mechanism having certain novel features of construction, combination, and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawing and to the characters of reference thereon, which form a part of this application, in which:

Fig. 1 is a fragmentary elevation of the outer side of an automobile wheel incorporating my invention in one form, portions being broken away to facilitate the illustration;

Fig. 2 is a longitudinal sectional view thereof taken through 2—2 of Fig. 1; and,

Fig. 3 is a fragmentary section thereof showing particularly the mounting of the eccentric and the means for shifting the same, the section being taken at 3—3 of Fig. 1.

The specific embodiment of this invention is shown in the drawing as applied to the rear wheel of a vehicle, although it is also applicable to the front wheels.

The housing, designated 1, is stationary and revolubly supports and encloses a spindle or drive shaft 2 which extends from one end of the former. At the latter end of the housing is secured a backing plate 3. A wheel hub 4 is mounted on the portion of the drive shaft extending from the housing. This hub carries, and may be secured to the outer side of the axial portion of, a wheel 5, which will hereafter be referred to as a revoluble member, this member being revoluble with respect to the housing 1.

At the inner side of the wheel, inwardly from the periphery thereof, is provided a flange 5a, over or around which extends the peripheral portion 3a of the backing plate 3.

The peripheral portion of the wheel has an annular fluid reservoir 11 which is intercepted by a plurality of radially arranged and equiangularly spaced casings or cylinders 12. The cylinders 12 communicate at their diametrically opposite sides freely with the reservoir through narrow longitudinal slots or ports 12a, that is, without the provision or necessity of restricting or regulating valves. The ports are made narrow so as to obtain a uniformly increasing, but a somewhat retarded brake application.

In the cylinders are reciprocally mounted plungers or pistons 13 which are urged inwardly, that is from the inner ends of the cylinders, by compresion springs 14 located between the outer heads of the cylinder and piston.

At the inner ends of the pistons, and parallel to the axis of the wheel, are cylindrical rollers 15, the intermediate portion 15a being of larger diameter. The larger intermediate portions of all rollers ride in an annular groove 16a of an eccentric 16. This eccentric loosely encircles the shaft and hub and is vertically shiftable and is provided at its inner side with claw-like lugs 16b which embrace four vertical guide rod portions 17 mounted at the adjacent side of the backing plate 3. These guide rod portions 17 are mounted on the backing plate 3 by means of brackets 17a.

The specific construction of the rollers and the mounting thereof, with respect to the pistons and eccentric, prevent rotation of the pistons and rollers about the axis of the pistons.

In order laterally to shift the eccentric, or to raise or lower the same, I have provided a shifting rod 21 which extends through the backing plate parallel to the axis of the shaft. To the end of the rod 21, inside of the backing plate, is an operating eccentric 22 which is located in a transverse slot 23a in a bracket 23 at the inner side and upper portion of the eccentric, the bracket being positioned between the wheel or revoluble member and the backing plate.

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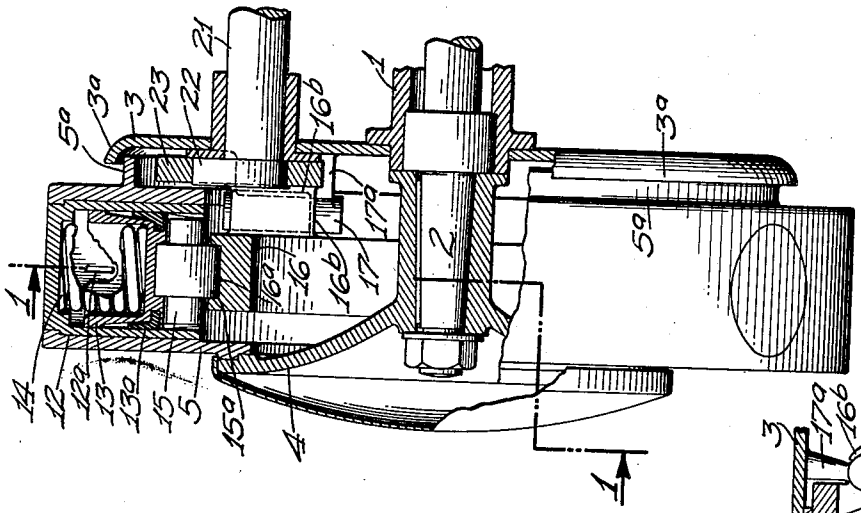


FIG. 2.

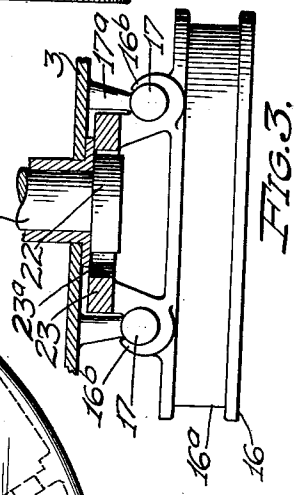


FIG. 3.

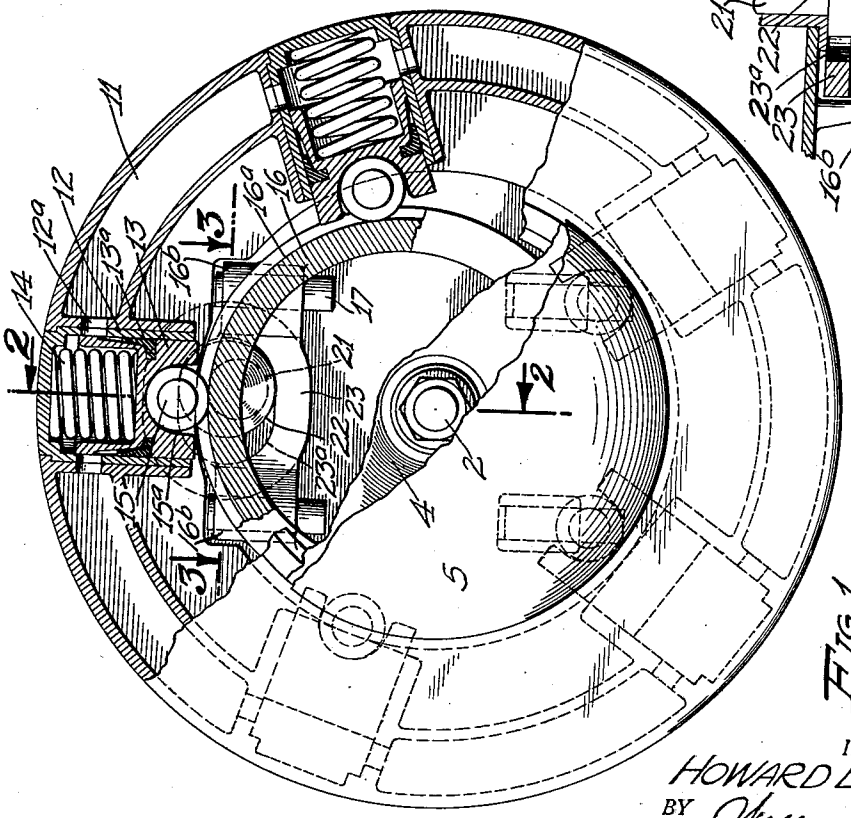


FIG. 1.

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