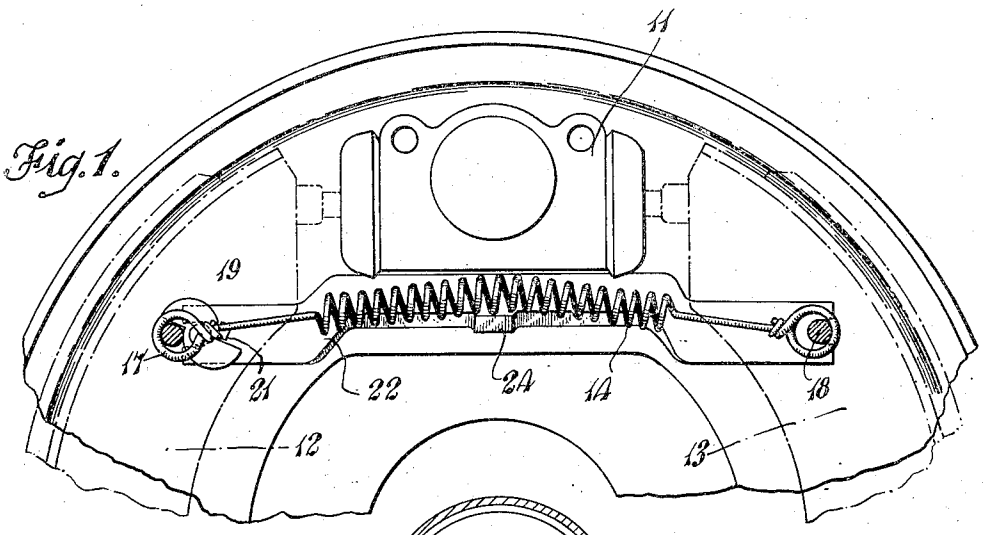
Dec. 13, 1938. E. C. S. CLENCH 2,140,219

ADJUSTING MEANS FOR BRAKES

Filed Dec. 30, 1936

Fig. 1.



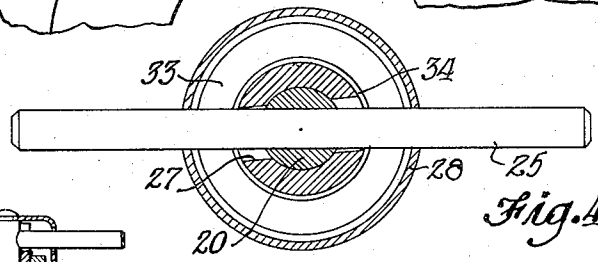


Fig. 4.

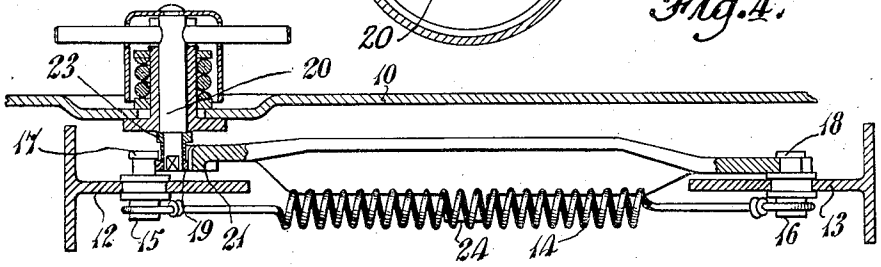


Fig. 2.

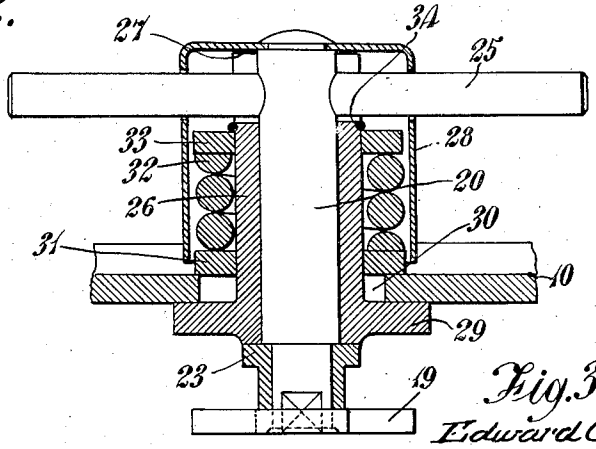


Fig. 3.

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ADJUSTING MEANS FOR BRAKES

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Application December 30, 1936, Serial No. 118,380
In Great Britain January 4, 1936

5 Claims. (Cl. 188—79.5)

This invention relates to adjusting means for brakes, and it relates especially to vehicle brakes of the kind in which the interior curved surface of a rotating drum is engaged by one or more arcuate brake shoes, said shoe or shoes being normally held in a retracted position by means of one or more "pull-off" springs and being provided with actuating means whereby it or they are moved outwardly into frictional engagement with the aforementioned curved surface of the drum.

It is the primary object of the present invention to provide improved means whereby the clearance existing when the brake is "off" can be maintained manually at a constant and comparatively small value, by the occasional actuation of a brake-adjusting member requiring no skill for its actuation.

The invention accordingly provides a brake-adjusting device for facilitating the manual regulation of the shoe clearance, said device being constructed integrally with the brake assembly and comprising in combination with a spindle carrying a cam, an arm or equivalent for progressively rotating the cam, and means providing a predetermined amount of lost motion between the arm or equivalent and a non-rotating part of the brake assembly. As a further feature the improved integral brake-adjusting device may comprise an adjustable stop for limiting the off movement of the shoe concerned, means connected with the stop for manually regulating the latter, and an intermediate member interposed between the stop on the one hand and the non-rotating part of the brake assembly on the other hand, said intermediate member being connected with one of these parts by means allowing a predetermined amount of lost motion, and with the other of said parts by a holding device which is adapted to withstand the force exerted upon the stop by the usual pull-off springs, but which can be overcome by the manual regulating means. The stop for limiting the off movement of the shoe can conveniently be in the form of a rotatable cam.

Examples of brake-adjusting devices incorporating the invention are shown in the accompanying drawing, in which:—

Figure 1 is a fragmentary side elevation of a brake assembly with the brake drum removed and the shoes shown in broken lines;

Figure 2 is a plan partly in section corresponding to Figure 1;

Figure 3 is a fragmentary sectional plan showing the manually-actuated part of the device in Figure 2, but to an enlarged scale;

Figure 4 is a sectional view, partly in elevation, showing the lost motion connection of the tommy bar and sleeve.

In the embodiment shown in Figures 1 to 3, the back plate of a hydraulically actuated brake assembly is indicated at 10, and carries a wheel cylinder unit 11 adapted to spread apart a pair of brake shoes shown in broken lines at 12 and 13, these being mounted in any suitable manner, such for example as by pivots (not shown) disposed at the lower part of the back plate 10. The brake shoes 12 and 13 are normally urged away from the drum by means of one or more pull-off springs, one of which is indicated at 14, both ends of said spring being looped for engagement with studs 15 and 16 securely fastened to the shoes 12 and 13 respectively. The opposite ends 17 and 18 of the two studs are used for limiting the inward movement of the two shoes, and for this purpose a cam 19 shaped so that each half is approximately in the form of an involute as seen in Figure 1, is securely fastened to a spindle 20, and is adapted to be engaged directly by the part 17 of the stud 15 for limiting the off movement of the shoe 12. At its opposite side the periphery of the cam 19 is engaged by a lug 21 formed upon a link or strut 22, which latter is notched at its right hand end so as to straddle the part 18 of the stud 16. In order to support the other end of the link 22 the latter is also notched so as to straddle a collar 23 carried upon the spindle 20, while a tongue 24 provided upon the link 22 engages with the central part of the spring 14, and thus prevents said link from rattling.

The means used for positioning the cam 19 are shown more clearly in Figure 3, from which it will be seen that the spindle 20 provided with a tommy bar 25 for manual actuation is rotatably mounted within an intermediate member in the form of a sleeve 26, which latter is formed with a wide slot 27 at its upper part so as to permit the tommy bar 25 to have a prescribed amount of rotational play sufficient to produce the desired normal clearance of the brake shoes. Formed in one with the spindle 20 is a dust cover 28. The sleeve 26 is flanged at 29 and passes through an aperture 30 in the back plate 10, which aperture is elongated laterally so as to permit the two shoes 12 and 13 to centre themselves each time the brake is adjusted. The sleeve 26 is held frictionally in position by means of a washer 31 having a relatively strong coiled compression

spring 32 pressing it against the plate 10, said spring reacting at its outer end against a washer 33 which is held by a retaining ring 34.

In designing the cam 19 the slope of the periphery is made sufficiently steep for the pull-off springs to be able to rotate said cam and the spindle 20 as far as is permitted by the lost motion between the tommy bar 25 and the notch 27, this movement determining the magnitude of the immediate shoe clearance when the brake is off. In order to restore this clearance when wear of the linings has taken place the tommy bar 25 is rotated manually (in the clockwise sense as seen in Figure 1), the initial movement taking up the aforementioned backlash. If the shoes are not then in contact with the drum surface any further movement of the tommy bar 25 is imparted to the sleeve 26 and rotates the latter in opposition to the frictional drag produced by the spring 32. When, therefore, the tommy bar 25 is released the shoes are withdrawn only to the extent determined by the play in the notch 27.

What I claim is:—

1. In a two-shoe drum brake assembly having a back plate and shoe applying means, including an adjusting device for regulating the "off" movement of the shoes, comprising an actuating member, a stop member connected therewith, an intermediate member connected frictionally with the back plate of the brake assembly, and a loose coupling device acting between said intermediate member and said actuating member, whereby the adjusting device has a single actuating member which, with its loose coupling device, is operatively independent of the brake applying means and is connected with both brake shoes to limit the clearances thereof simultaneously by manual actuation.

2. In a two-shoe drum brake assembly having a back plate and shoe applying means, including an adjusting device for regulating the "off" movement of the shoes, comprising an actuating member, a stop cam connected rigidly therewith, an intermediate member connected frictionally with the back plate of the brake assembly, and a loose coupling device acting between said intermediate member and the actuating member, whereby the adjusting device has a single actuating member which, with its loose coupling device, is operatively independent of the brake applying means and is connected with both brake shoes to limit the clearances thereof simultaneously by manual actuation.

3. In a two-shoe drum brake assembly having a back plate and shoe applying means, including an adjusting device for regulating the "off" movement of the shoes, comprising an actuating member, a stop cam connected rigidly therewith, an intermediate member connected frictionally with the back plate of the brake assembly, and a loose coupling device acting between said intermediate member and the actuating member, said intermediate member consisting of a sleeve, which is rotatable relative to the back plate of the brake, and laterally slidable for enabling it to centralize the shoes, whereby the adjusting device has a single actuating member which, with its loose coupling device, is operatively independent of the brake applying means and is connected with both brake shoes to limit the clearances thereof simultaneously by manual actuation.

4. A brake assembly according to claim 1, wherein the adjusting device is disposed closer to one shoe than to the other, said one shoe being adjusted directly, and the other shoe through the medium of a thrust link.

5. In a two-shoe drum brake assembly having a back plate, shoe applying means, and a pull-off spring for retracting the shoes, an adjusting device for regulating the retracting movement of the shoes, including an actuating member, a stop cam connected rigidly therewith and coacting with the shoes, the slope of said cam being sufficiently steep to enable the pull-off spring to rotate said cam, an intermediate member connected frictionally with the back plate of the brake assembly, and a loose coupling device acting between said intermediate member and the actuating member, whereby the adjusting device has a single actuating member which, with its loose coupling device, is operatively independent of the brake applying means and is connected with both brake shoes to limit the clearances thereof simultaneously by manual actuation.

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