Sept. 5, 1933. L. K. SNELL 1,925,286

BRAKE

Filed March 12, 1930

Fig. 1.

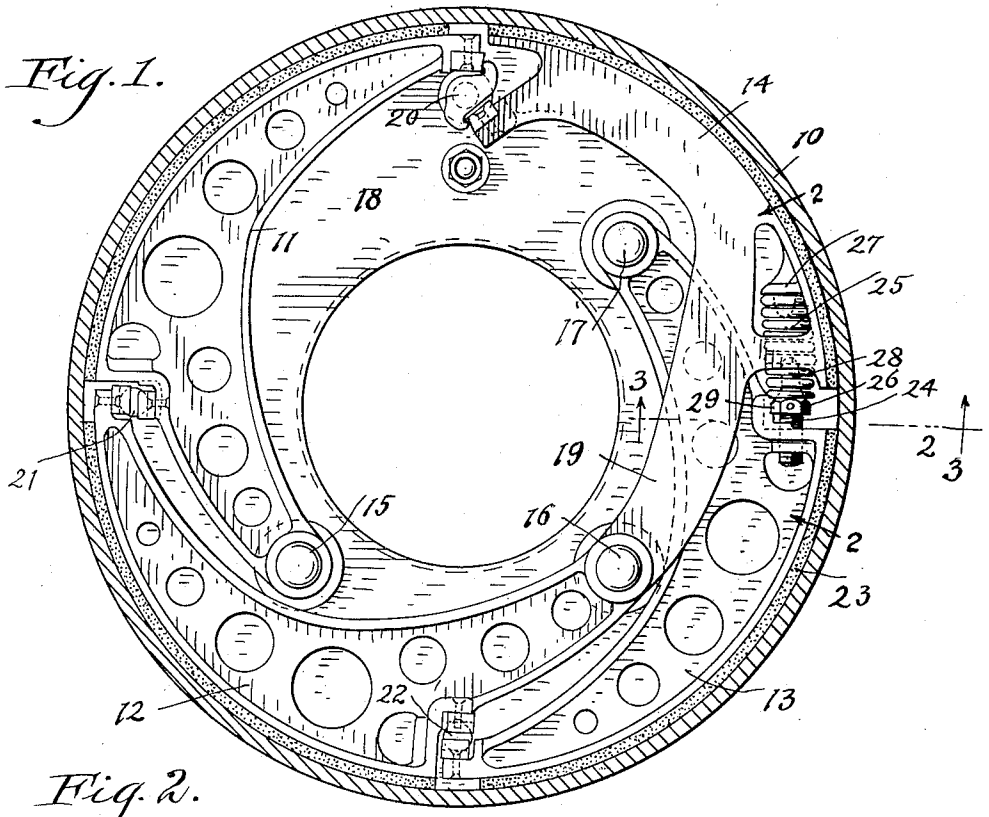


Fig. 2.

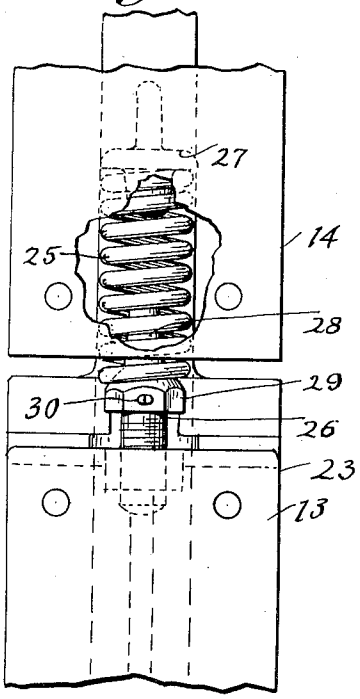
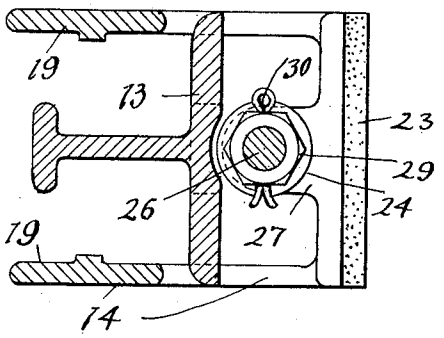


Fig. 3.



Inventor
Lyle K. Snell
Kerr Hudson & Kent
Attys

Patented Sept. 5, 1933 1,925,286

UNITED STATES PATENT OFFICE

1,925,286

BRAKE

Lyle K. Snell, Detroit, Mich., assignor to Eaton Manufacturing Company, Cleveland, Ohio, a corporation of Ohio

Application March 12, 1930. Serial No. 435,187

8 Claims. (Cl. 188—78)

This invention relates generally to brakes, and more particularly to a releasing mechanism for multiple shoe vehicle brakes.

It is an object of this invention to provide an improved form of brake releasing mechanism, which is of simplified construction, and which is very efficient in operation.

Another object of this invention is to provide a brake releasing mechanism in which a single spring means is employed for urging the shoes toward released position.

The invention may be further briefly summarized as consisting in certain novel combinations and arrangements of parts hereinafter described and particularly set out in the appended claims.

In the accompanying sheet of drawing,

Figure 1 is a sectional elevation showing a vehicle brake embodying my invention,

Figure 2 is a fragmentary elevational view taken in the direction indicated by the line 2—2 of Fig. 1, and

Figure 3 is a transverse sectional view taken on line 3—3 of Fig. 1.

In the drawing illustrating one embodiment of my invention I have shown a vehicle brake of the type disclosed in my copending application, Serial No. 400,776, filed October 19, 1929, and as illustrated in Fig. 1 this brake is provided with a brake drum 10 and with a plurality of shoes 11, 12, 13 and 14 arranged to cooperate with the drum. The shoes 11, 12 and 13 are pivotally mounted, respectively, upon the anchor pins 15, 16 and 17 which are carried by the backing plate 18. The shoe 14 is also pivotally mounted upon the anchor pin 16, this shoe being provided with an arm 19 having an opening through which the arm of the shoe 13 extends. A rotatable actuating cam 20 is arranged between the adjacent free ends of the shoes 11 and 14. Suitable means is provided for rotating this actuating cam for wedging these shoes apart and into engagement with the drum.

The shoes 11 and 12 are arranged with portions thereof overlapping, and likewise, the shoes 12 and 13 are arranged with portions thereof overlapping. A roller 21 is interposed between the overlapping portions of shoes 11 and 12, and a similar roller 22 is interposed between the overlapping portions of shoes 12 and 13, so that outward movement of shoe 11, upon an application of braking force at its free end, causes movement to be imparted to shoe 12 through the roller 21, and, in turn, movement of the shoe 12 transmits motion to the shoe 13 through the roller 22. Each of the shoes is provided with a section of suitable brake lining 23, for frictional engagement with the inner surface of the drum.

It will be noted that in the arrangement of shoes illustrated, the shoes 13 and 14 are arranged heel to heel, or in other words, with portions of their pivoted ends in adjacent spaced relation and with the pivot arm of the shoe 13 crossing or extending through the pivot arm of the shoe 14. For moving all of the shoes toward released position I provide releasing mechanism 24 arranged between the heel portions of the shoes 13 and 14. This release mechanism may be constructed in various forms, but as herein illustrated it comprises a coiled spring 25 and an adjusting screw 26. The spring is arranged with one end thereof extending into the opening of the arm 19 and seating upon the abutment member 27 carried by the shoe 14, and with its other end surrounding the extension 28, provided at one end of the adjusting screw. The opposite end of the adjusting screw is threaded for engagement in a threaded opening provided in the heel portion of the shoe 13. This screw is preferably formed with a hexagon portion 29, so that the screw can be easily turned for adjusting its position relative to the abutment 27, and thus varying the compression of the spring. In this arrangement, it will be readily seen, the hexagon portion of the adjusting screw can be conveniently engaged by a suitable wrench through the space between the heel portions of the shoes before the drum has been assembled in position. If desired a suitable pin 30 may be provided to extend through the hexagon portion of the screw to prevent the same from turning after adjustment has been made.

In the operation of the device, brake applying force is supplied to the shoes by rotation of the actuating cam 20 to swing the shoes outwardly about their pivots into engagement with the drum, so that when the brake is applied the spring 25 is compressed between the heel portions of the shoes 13 and 14. When the brake applying force is relieved the spring 25 presses the pivoted ends of the shoes 13 and 14 apart, thus moving them towards released position. Releasing movement thus imparted to the shoe 13 is transmitted to the shoe 12 through the bearing 22, and in turn, is transmitted to the shoe 11 through the bearing 21. It will thus be seen that the single spring means which I have provided acts directly upon the shoes 13 and 14 to urge them towards released position, and indirectly upon the shoes 12 and 11 to move them toward released position also.

It will now be readily seen that I have provided an efficient form of brake releasing mechanism which is of extremely simple construction, and which can be quickly assembled and very easily adjusted.

While I have shown and described the device of my invention in a detailed manner, it should be understood, however, that I do not intend to limit myself to the precise details shown and described, but regard my invention as including such changes and modifications as do not involve a departure from the spirit of the invention and the scope of the appended claims.

Having thus described my invention what I claim is:

1. In a brake the combination of a brake drum, a pair of brake shoes arranged to cooperate with said drum, means for applying braking force to said shoes, and means for releasing the brake comprising an abutment on each of said shoes, and a spring engaging said abutments, one of said abutments being adjustable to regulate the action of said spring.

2. In a brake the combination of a brake drum, a support adjacent said drum, a plurality of brake shoes for cooperation with said drum including a pair of shoes having rigid arm portions pivoted on said support and also having opposed abutment means spaced from the pivot points for said arm portions and brake releasing means cooperating with the opposed abutment means of said pair of shoes.

3. In a brake the combination of a drum, a plurality of shoes for cooperation with said drum, means for applying braking force to said shoes, brake releasing means comprising a spring normally under compression for urging one of said shoes toward released position, and means whereby another of said shoes is urged toward released position by force transmitted from said one shoe.

4. In a brake the combination of a drum, a support, a plurality of shoes pivoted on said support for cooperation with said drum, means for applying braking force to said shoes, brake releasing means comprising a spring normally under compression for urging one of said shoes toward released position, and means whereby another of said shoes is urged toward released position by force transmitted from said one shoe.

5. In a brake the combination of a drum, a series of shoes for cooperation with said drum, said shoes being arranged so that braking force is transmitted from shoe to shoe in one direction through said series and brake releasing force from shoe to shoe in the opposite direction through said series, means for initially supplying braking force to said series, and a spring normally under compression for initially supplying brake releasing force to said series.

6. In a brake the combination of a drum, a support adjacent said drum, a plurality of substantially rigid individual shoes independently pivoted on said support for cooperation with said drum, said shoes being arranged in a circumferentially extending series including a pair of shoes having opposed abutment means thereon, and means cooperating with said abutment means for releasing all of the shoes of said series.

7. In a brake the combination of a drum, a support adjacent said drum, a plurality of substantially rigid individual shoes independently pivoted on said support for cooperation with said drum, said shoes being arranged in a circumferentially extending series including a pair of shoes having opposed abutment means thereon, and means for releasing all of the shoes of said series including a compression spring interposed between said abutment means.

8. In a brake the combination of a drum, a support adjacent said drum, a plurality of substantially rigid individual shoes pivoted on said support for cooperation with said drum, said shoes being in a circumferentially extending series including a pair of shoes arranged heel to heel, said pair of shoes being provided with opposed abutment means located at a greater radial distance from the axis of said drum than the pivots for said shoes, and a compression spring interposed between said abutment means for releasing all of the shoes of said series.

LYLE K. SNELL.