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W. H. DELAHAYE

1,963,958

BRAKE

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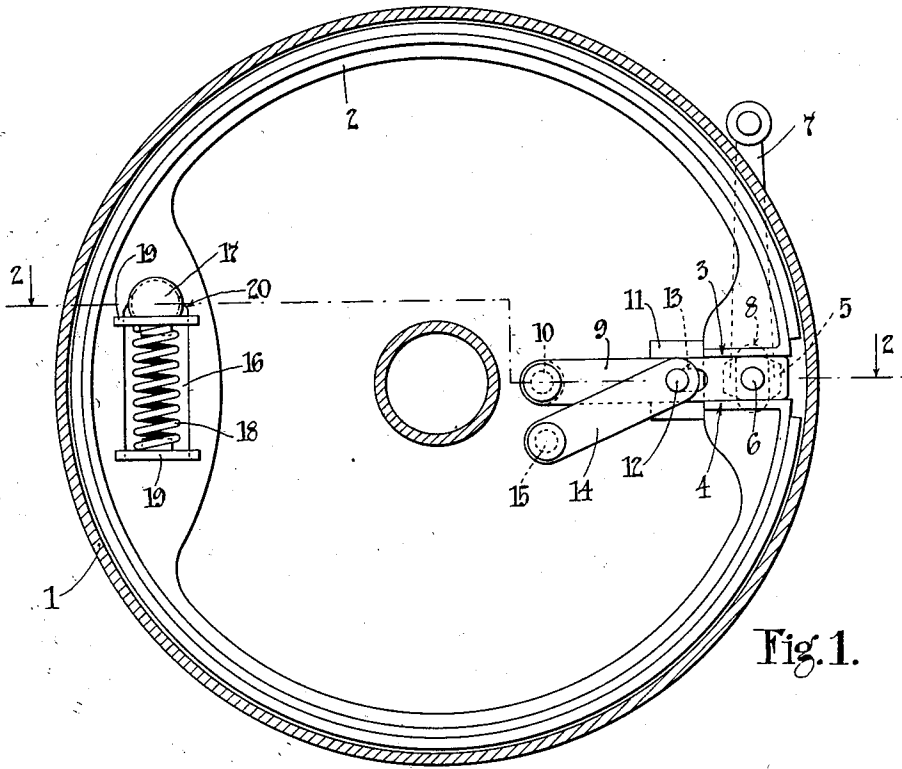


Fig. 1.

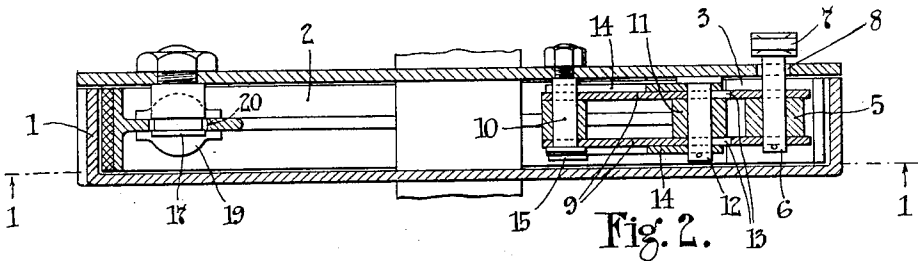


Fig. 2.

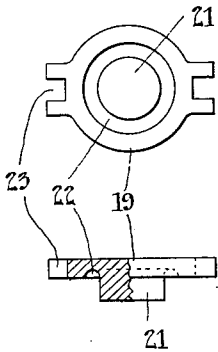


Fig. 3.

Fig. 4.

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BRAKE

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Ind.

Application December 2, 1929, Serial No. 410,936

10 Claims. (Cl. 188—78)

The object of this invention is to provide an extremely simple and reliable brake in which a powerful servo application is obtained. In such brakes, it is customary to have at least two shoes but in the applicant's novel construction the servo action is obtained by allowing a single shoe to partake of the revolution of the drum against the action of a powerful spring. The applying means and that adapted to develop a servo action due to the movement of the shoe is also of a very simple construction.

One embodiment of the invention is shown in the drawing in which

Figure 1 is a sectional elevation on line 1—1 of Figure 2;

Figure 2 is a section on line 2—2 of Figure 1; and Figures 3 and 4 are respectively plan and elevation of the spring seats to be later described.

Referring to the drawing, 1 represents the usual brake drum and 2 is the single shoe which extends practically the entire circumference of the drum and is sufficiently resilient to permit it to be expanded into contact with the drum. This shoe is provided with the customary cam engaging faces 3 and 4 adapted to be engaged by any suitable cam 5, which is mounted on a shaft 6 operated by a lever 7. Unlike the usual cam brake, the shaft 6 is not mounted in the stationary flange of the axle but has a movement with respect thereto, passing freely therethrough, a clearance slot 8 being provided. The shaft 6 is journaled in a pair of links 9, which are pivoted on the fixed pivot 10. Between these links a block 11 is adapted to slide. This block is mounted to have an outward movement on any circumferential movement of the shoe 2 and this movement is utilized by allowing the block to engage the ends of the shoe and apply to them an outward thrust, thus augmenting the expansive effort of the cam 5 in direct proportion to the rate of rotation of the drum. The means for accomplishing this will now be explained. A pin 12 passes through the block and also freely through slots 13 in the links 9 and at its extremities are mounted the outer ends of a pair of links 14, which are pivoted at their opposite ends on a fixed pivot 15. As the links 9 and 14 are mounted on different pivots it will be seen that any movement of the combined linkage in one direction will result in the described outward movement of the block on the links 9.

The mounting of the shoe to allow the required movement will now be described. A fixed pivot 17 is provided to anchor the shoe which is slotted at 16. Between the pivot 17 and the end of the slot

a heavy spring 18 is mounted being seated on members 19 which are provided with seats 22, bosses 21 to centre the spring and slots 23 in the flanges to engage the web of the shoe. The slot 16 is of sufficient width to allow the shoe to engage the drum and may have at its upper end a cam surface 20 adapted to engage the pivot 17 and draw the shoe away from the drum when the brake is released.

The above is a description of one form of the brake and it is to be understood that various modifications may be made. It is not essential that the links 9 and 14 be duplicated provided that the construction is such that the parts move freely without any binding. It is the intention of the applicant to cover all such modifications as fall within the scope of the appended claims.

I claim:

1. In a brake of the class described, in combination with a fixed support, an anchor on said support, a floating shoe, and a coil spring acting between the anchor and the shoe, the anchor and the point of engagement of said spring with said shoe being substantially equidistant from the ends of the shoe.

2. In a brake of the class described, in combination with a fixed support, an anchor on said support, having spaced parts, a floating shoe having a part embraced between and guided by said parts and having a circumferential movement in regard to said anchor, and resilient means acting between the anchor and said shoe.

3. In a brake of the class described, in combination with a fixed support, an anchor on the support, a floating shoe guided by said anchor, said anchor passing through a slot in said shoe, a spring mounted in said slot and engaging said anchor, means causing said shoe to engage a surrounding brake drum and means actuated by movement of the shoe relative to the fixed support to provide an additional applying effort on the shoe.

4. In a brake of the class described and in combination with a fixed support, an anchor on the support, a brake shoe having a slot to cooperate with the anchor and having its free ends adjacent one another, a spring operating between the anchor and the shoe and urging the shoe in a reverse direction relative to the normal direction of rotation of the part to be braked, the anchor and the shoe having cooperating surfaces in this position to hold the shoe away from the surface of a drum carried by the part to be braked, means to expand the free ends of the shoe to cause the shoe to engage the drum and means operated

by movement of the shoe with the drum to further apply the brake.

5 In a brake of the class described, and in combination with a fixed support, a floating shoe mounted on a fixed anchor and adapted to have circumferential movement in regard thereto, resilient means opposing the said movement, a pivoted link lying between the free ends of the said shoe, means carried by the said link to expand the shoe, and means also carried by the link adapted on swinging movement of the link to exert an additional applying effort on the shoe.

10 6. In a brake of the class described, and in combination with a fixed support, a shoe mounted for limited circumferential movement on the support, said shoe having its free ends adjacent one another and presenting opposed cam engaging surfaces, a link lying in the radial plane passing through the gap between the free ends of the shoe, said link being pivoted adjacent the axle carrying the fixed support, a cam journaled in the free end of the link adapted to engage the surfaces on the ends of the shoe, means sliding on the link adapted to engage the ends of the shoe, and a connection between the sliding means and the fixed support, so placed that swinging movement of the link with the shoe will cause outward movement of the sliding means on the link to cause an additional applying effort to be exerted on the ends of the shoes.

15 7. A brake as set forth in claim 6, said links having spaced parallel arms to receive said sliding means and said cam, the sliding means being provided with ways to receive said arms, and said cam being fixed to a shaft journaled in the free extremities of the arms, the means for op-

erating the sliding means consisting of links pivoted at one end to the support adjacent the pivot for the first mentioned links and connected at the other end to a pivot passing through the block and extending beyond the first mentioned links, said links being slotted to permit said sliding movement.

8. In a brake of the class described and in combination with a fixed support, an anchor on said support adjacent the periphery thereof, a shoe mounted thereon to have a limited circumferential movement, the said shoe surrounding the major portion of the circumference of the support and having its free ends separated by a comparatively small gap, floating expanding means mounted in the gap and means operated by the circumferential movement of the floating applying means to further apply the brake.

9. A brake as claimed in claim 8, the said shoe being slotted to receive the anchor which normally occupies one end of the said slot, the slot and the anchor having cooperating surfaces to hold the shoe away from the cooperating drum when in the "off" position and a spring mounted in the slot and held therein by spring seats slidably engaging the web of the shoe.

10. In a brake of the class described, a fixed support, an anchor on said support, a floating shoe adapted for movement with respect to said anchor, the anchor being immediately adjacent a part of the shoe, and a coil spring interposed directly between said shoe and said anchor for opposing relative movement therebetween, the force on said spring acting on a line between said anchor and the point of contact of said spring with said shoe.

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65	140
70	145
75	150