

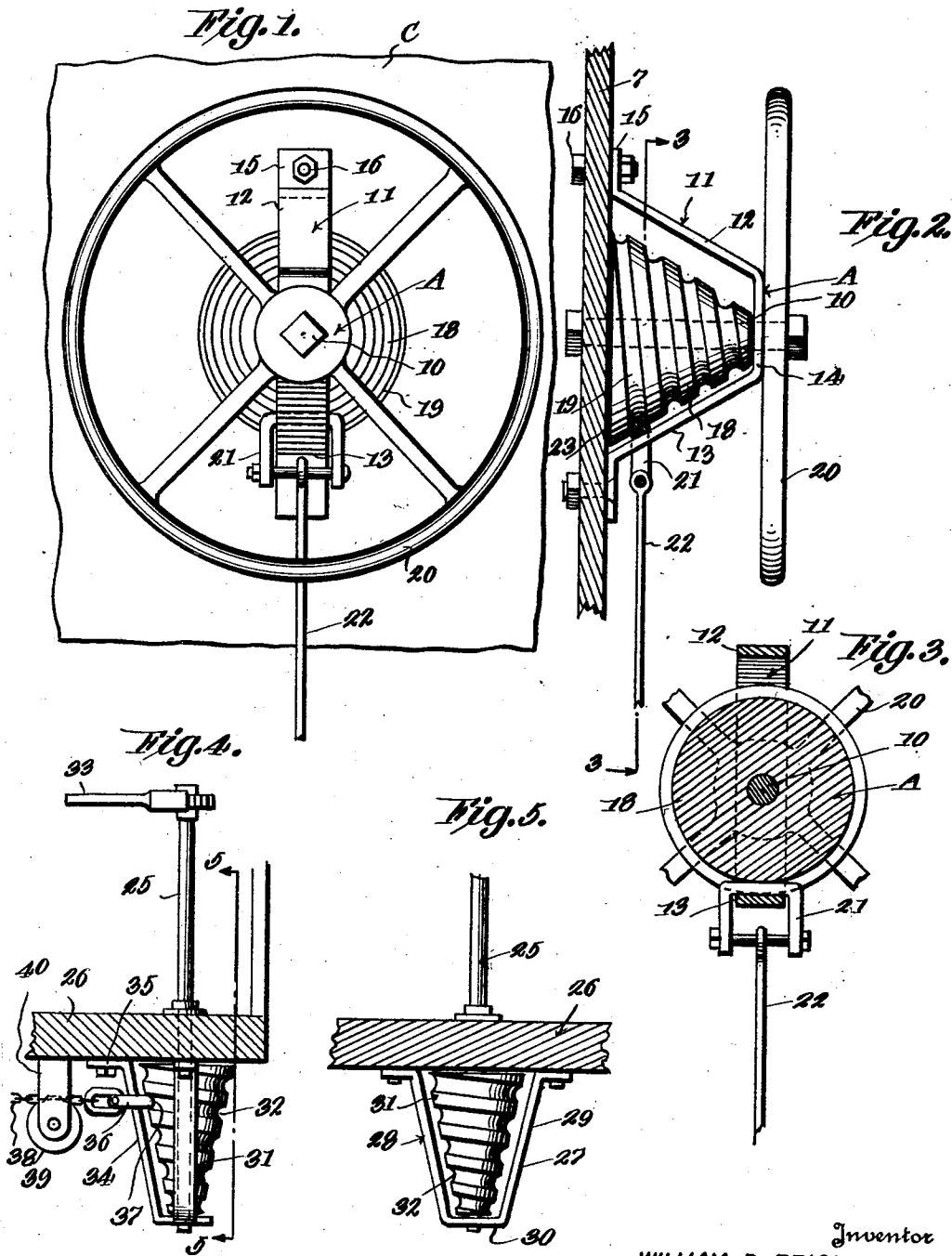
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RAILWAY CAR HAND BRAKE

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## UNITED STATES PATENT OFFICE

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## RAILWAY CAR HAND BRAKE

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This invention appertains to brakes, and more particularly to hand brakes of the type generally used in connection with railroad rolling stock.

One of the primary objects of my invention is to provide a hand brake embodying a novel operating drum for exerting a pull on the brake chain or rod, the drum being so constructed as to obtain desired leverage for operating the brake chain and for eliminating the use of the conventional locking ratchet wheel and dog.

Another important object of my invention is the provision of a hand brake embodying a conical shaped operating brake drum provided with a spiral groove extending from one end thereof to the other, with an inclined plane arranged in predetermined relation to the brake drum, the inclined plane slidably receiving the operating yoke for the pull chain or rod, the yoke being received in the spiral groove, whereby upon turning of the drum the yoke can be fed from one end of the inclined plane to the other, the inclined plane and the wall of the groove of the drum constituting a locking wedge for holding the yoke in its desired adjusted position eliminating the use of the ordinary ratchet wheel and pawl.

Another salient object of my invention is the provision of novel means for mounting the inclined plane and conical winding drum relative to one another, whereby a compact and efficient structure will be had.

A still further object of my invention is to provide a novel hand brake for railroad cars of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market and incorporated with a railroad car at a small cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:—

Figure 1 is an end elevation of my improved mechanism.

Figure 2 is a side elevation of the same, the end wall of the railway car being shown in vertical section, parts of my mechanism being likewise shown broken away and in section.

Figure 3 is a detail section taken through my improved mechanism on the line 3—3 of Figure 2 looking in the direction of the arrows.

Figure 4 is a vertical section illustrating a slightly modified form of my invention.

Figure 5 is a section taken on the line 5—5 of Figure 4 looking in the direction of the arrows.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates one form of my improved brake mechanism as illustrated in Figures 1 to 3 inclusive.

My improved mechanism A comprises a rotatable brake shaft 10 rotatably supported in a horizontal plane by a supporting bracket generally indicated by the reference character 11. This bracket is of a substantially U-shape and includes the upper and lower diverging legs 12 and 13 and the connecting bight portion 14. The terminals of the legs 12 and 13 have formed thereon the attaching ear 15 through which extends the retaining elements 16. These retaining elements 16 extend through the end wall 7 of the railroad car indicated by the reference character C. It is to be noted that the brake shaft 10 likewise rotatably extends through the end wall 7 of the car C and through the bight portion 14 of the bracket 11. The shaft 10 is arranged closer to the leg 13 than the leg 12, for a purpose, which will be more fully pointed out, but it is to be noted at this time that the leg 13 constitutes an inclined plane and guide.

Keyed or otherwise rigidly secured to the shaft 10 for rotation therewith is the winding drum 18 which is of a conical shape and this drum has its outer surface provided with a spiral groove 19 extending from one end thereof to the other. The winding drum 18 is arranged in relative close proximity to

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the leg 13 and is spaced a considerable distance from the leg 12. The shaft 10 likewise has secured thereto a hand wheel 20 whereby the brake shaft 10 can be relatively easily  
5 rotated.

The hanger bracket guide leg 13 slidably receives the yoke or loop 21 and this yoke or loop has pivotally connected thereto the pull rod or brake chain 22. The extreme  
10 upper edge of the yoke 21 is curved as at 23 transversely and received within the spiral groove 19.

This pull chain or rod 22 extends to the ordinary brake mechanism of the car C and  
15 my improved brake operating device functions as follows: When it is desired to apply the brakes the hand wheel 20 is rotated in a direction to cause the cone drum 18 to feed the yoke 21 up the inclined plane 13 which  
20 will cause a pull to be exerted on the brake chain or rod 22, thus bringing about the application of the brake. The yoke, the cone, and the guide leg or inclined plane 13 are so related that a wedging action will be  
25 exerted on the yoke at all times whereby when manual pressure on the hand wheel 20 is released, the yoke will be held in its adjusted position against downward sliding movement. This eliminates the use of  
30 ratchet wheel and dog locks as now commonly used on brake actuating devices.

In Figures 4 and 5 I have illustrated a slightly modified form of my invention, which comprises a vertically disposed brake  
35 shaft 25. This brake shaft 25 rotatably extends through a railroad car platform 26 into the vestibule portion thereof and the lower end thereof is rotatably mounted in a depending hanger bracket 27 carried by the car plat-  
40 form 26. This depending hanger bracket 27 is also of a substantially U-shape including the diverging legs 28 and 29 and the connecting bight portion 30. Keyed or otherwise secured to the shaft 25 for rotation therewith  
45 is the winding drum 31. This drum 31 has also a conical groove 32 formed on the outer surface thereof.

This shaft 25 can be rotated in any preferred way, but I prefer to use a ratchet  
50 operating handle 33, carried by the upper end of the shaft.

In rear of the winding drum 31 and between the legs 28 and 29, I provide an inclined plane or guide strip 34. This strip is  
55 arranged in relative close proximity to the winding drum and has its upper end bolted or otherwise secured as at 35 to the lower surface of the car platform, while its upper end is secured in any preferred way to the  
60 hanger bracket 27.

A sliding yoke or loop 36 is mounted on the guide leg or inclined plane 34 and the outer surface thereof is curved transversely  
65 32. One end of this loop or yoke 36 has con-

nected thereto the brake chain 38, and in this particular instance the brake chain is trained over the guide pulley 39 rotatably supported by the depending hanger bracket 40 which is  
70 arranged in rear of the hanger bracket 27.

In operation of this form of my improved brake actuating mechanism, it can be seen that upon rotation of the shaft 25 in the desired direction the yoke or loop 36 will be  
75 fed along the inclined plane 34 due to the spiral groove 32 which will exert a downward pull on the inner end of the brake chain and an upward pull on the body portion thereof, thus bringing about the setting of  
80 the brake. The arrangement of the yoke 37 relative to the inclined leg 34 and the cone 31 is such that the yoke will be wedged in place against accidental movement and thereby eliminating the use of locking ratchet  
85 wheels and pawls. When it is desired to release the brake it is merely necessary to turn the shaft 25 in the opposite direction which will feed the yoke 34 upward toward the car platform 26.

From the foregoing description, it can be seen that I have provided an exceptionally  
90 simple and durable device embodying a minimum number of parts and which will effectively function to bring about the desired result.

Changes in details may be made without departing from the spirit or the scope of this invention, but:—

What I claim as new is:

1. In a hand brake mechanism, a rotatable  
100 brake shaft, a conical drum rotatable with the brake shaft provided with a spiral groove on its periphery, an inclined leg arranged in close proximity to the drum and stationary relative thereto, and a yoke slidable on  
105 the inclined plane having a portion thereof received in said groove.

2. In a hand brake mechanism, a rotatable  
110 brake shaft, means for rotating the brake shaft, an inclined plane arranged adjacent to the brake shaft, a loop slidable on the inclined plane, a pull member connected with the loop, and means rotatable with the brake  
115 shaft for sliding the loop on the inclined plane.

3. In a hand brake mechanism, a rotatable  
120 brake shaft, means for rotating the brake shaft, a loop arranged at one side of the brake shaft, an inclined plane receiving the loop, a cone rotatable with the brake shaft having a spiral groove on its outer face receiving  
125 the loop, and a pull member pivotally connected with the loop.

4. In a hand brake mechanism, a support, a bracket connected with the support, a brake  
130 shaft rotatable in the bracket and support, the bracket including an inclined leg, a cone drum received in the bracket and secured to the shaft for rotation therewith provided with a spiral groove, the cone drum being

arranged in close proximity to the inclined leg, a yoke slidable on the inclined leg received in said groove, and a pull member connected with the yoke.

5 5. In a hand brake mechanism, a support, a bracket connected with the support, a brake shaft rotatable in the bracket and support, the bracket including an inclined leg, a cone  
10 drum received in the bracket and secured to the shaft for rotation therewith provided with a spiral groove, the cone drum being arranged in close proximity to the inclined  
leg, a yoke slidable on the inclined leg received in said groove, a pull member con-  
15 nected with the yoke, and a guide pulley receiving an intermediate portion of said pull member.

6. In a hand brake mechanism, a support, a bracket of substantially V-shape secured  
20 to one face of the support and including a pair of diverging legs and a connecting bight portion, a brake shaft rotatable in the bight portion and support, and arranged in closer proximity to one leg than the other, a cone  
25 drum secured to the shaft for rotation therewith arranged adjacent to the closely located leg, said cone drum having a spiral groove extending from one end thereof to the other, a yoke slidable on the closely located leg  
30 having a transverse arcuate face received in the spiral groove, and a pull member connected with the yoke.

In testimony whereof I affix my signature.

WILLIAM D. PRICE.

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