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HAND BRAKE MECHANISM.

APPLICATION FILED JAN. 29, 1904.

NO MODEL.

Fig. 1.

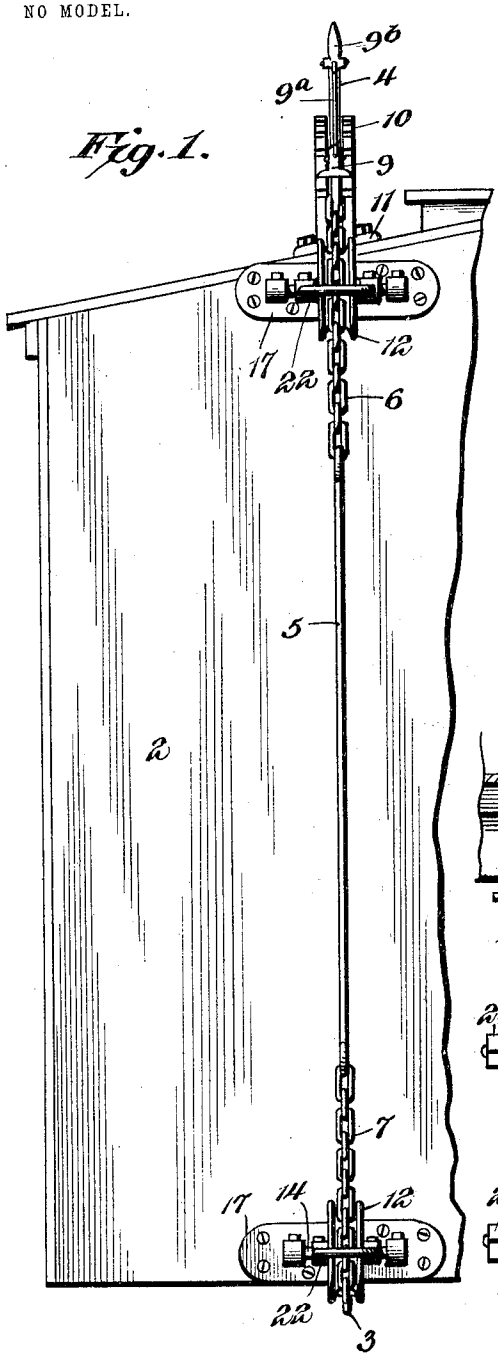


Fig. 2.

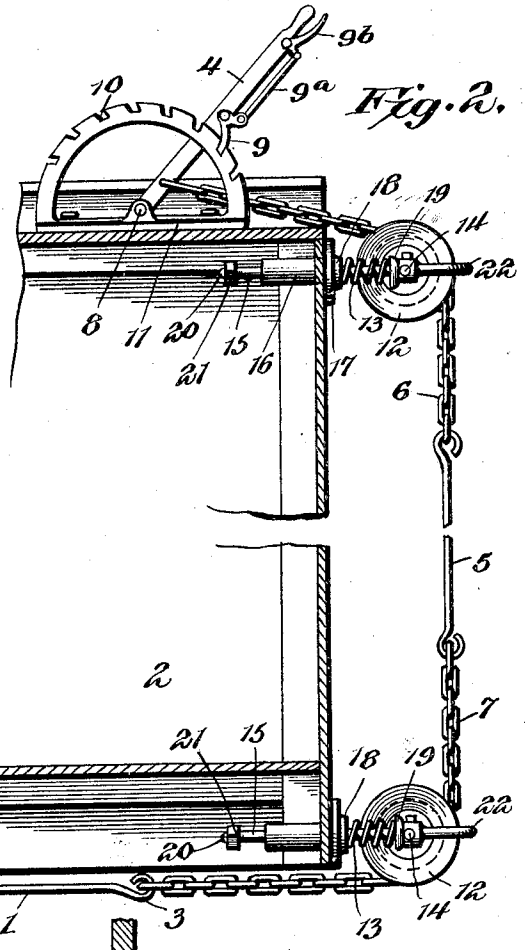
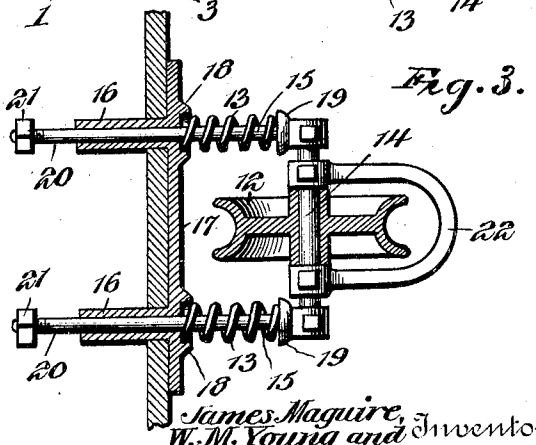


Fig. 3.



Witnesses
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No. 770,298. Patented September 20, 1904.

UNITED STATES PATENT OFFICE.

JAMES MAGUIRE, WILLIAM MARTIN YOUNG, AND FRANK YOUNG, OF RENO, NEVADA.

HAND-BRAKE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 770,298, dated September 20, 1904.

Application filed January 29, 1904. Serial No. 191,196. (No model.)

To all whom it may concern:

Be it known that we, JAMES MAGUIRE, WILLIAM MARTIN YOUNG, and FRANK YOUNG, citizens of the United States, residing at Reno, in the county of Washoe and State of Nevada, have invented a new and useful Hand-Brake Mechanism, of which the following is a specification.

The new invention relates to improvements in mechanism for operating car-brakes by hand.

The object of the present invention is to improve the construction of hand-operating mechanism for car-brakes and to provide a simple and comparatively inexpensive apparatus adapted to be readily applied to freight-cars and capable of enabling the brakes of a car to be quickly set without liability of the brakeman falling between the cars.

A further object of the invention is to provide a brake-operating mechanism which will enable car-brakes to be operated with a minimum amount of exertion and which will place the brakes of a car completely under the control of a brakeman, whereby cars may be accurately stopped or "spotted," thereby greatly facilitating switching and shifting cars in distributing the same, making up the trains, and the like.

Another object of the invention is to provide a brake-operating mechanism adapted to permit the brakes to be applied with only a predetermined amount of pressure, thereby effectually preventing the wheels from becoming locked and sliding along the rails and becoming flattened thereby.

The invention also has for its object to provide a brake-operating mechanism which will distribute the strain throughout the connecting means and which will yieldably maintain the same at the desired tension, whereby the brake-operating mechanism will be capable of taking up the jars and vibrations and of preventing the wheels from becoming locked should the same expand under an application of the brakes.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is an end elevation of a portion of a car provided with brake-operating mechanism constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is an enlarged detail sectional view illustrating the manner of yieldably mounting the guide-pulleys.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a rod arranged beneath the body 2 of a car and designed to be connected in the usual manner with the brakes of the car, and as the said brakes are designed to be of the ordinary construction a description and illustration of the same is unnecessary. The rod, which is provided at its outer end with a hook 3, is connected with an operating-lever 4 by connecting means, preferably consisting of an upright rod 5 and upper and lower chains 6 and 7 or other suitable flexible connections. The rod 5 is provided at its terminals with hooks for engaging links of the upper and lower chains, and the connecting means between the operating-lever 4 and the brake mechanism may be shortened to take up any slack by engaging the hooks of the rods with the different links of the chains.

The operating-lever, which is fulcrumed at its lower end by a bolt or pin 8, is provided with a pivoted dog or pawl 9, which is adapted to engage a curved ratchet 10, consisting of a pair of segmental sides. The segmental sides of the ratchet are provided with ratchet-teeth and are preferably formed integral with a base portion 11, and the latter is provided with upwardly-extending ears to receive the lower end of the operating-lever 4. The base portion 11 is bolted or otherwise secured to the car, as clearly shown in Figs. 1 and 2 of

the drawings. The pawl or dog 9, which is pivoted at one end, is adapted when free to move to automatically engage the ratchet, and when the lever is swung inward the dog is carried successively into engagement with the ratchet and is adapted to lock the operating-lever at any adjustment. The pawl or dog is connected by a rod 9^a with a latch-lever 9^b, fulcrumed on the operating-lever adjacent to the handle or grip portion thereof and adapted to be grasped simultaneously with the same, whereby the pawl or dog may be readily disengaged from the ratchet when it is desired to release the brakes.

The upper chain is connected with the operating-lever at the lower portion thereof, and the upper arm is much longer than the lower arm of the lever, whereby the car-brakes may be quickly and easily applied without liability of the brakemen falling between the cars. Also with cars equipped with the improved brake-operating mechanism herein shown and described a brakeman will be enabled to set a number of brakes in a comparatively short time and in much less time than is required to set brakes operated by hand-wheels. It also obviates the necessity and danger of operating brakes by means of bars or clubs.

In order to prevent car-wheels from becoming locked, and thereby sliding along the rails and becoming flattened, the connecting means between the operating devices or lever and the brake-levers is arranged on yieldably-mounted guides, consisting of grooved pulleys or wheels 12, arranged at the ends of the car, at the top and bottom thereof, and supported by coiled springs 13, which maintain the connecting means under a yieldable tension to permit the brake to be applied only with a predetermined pressure. Any greater pressure will operate to compress the springs, and the car-wheels are thereby prevented from becoming locked. Also should the car-wheels become heated and expand the springs will yield and prevent the wheels from becoming locked and sliding along the rails. Each pulley or wheel is mounted in a yieldable bearing or bracket, consisting of a shaft or axle 14 and a pair of rods or stems 15, which extend through sockets or tubes 16 of a plate 17. The plate is pierced for the reception of bolts or other suitable fastening devices for securing it to the car, and it is provided with projecting annular flanges 18, forming sockets or seats for the inner ends of the coiled springs, which are disposed upon the outer portions of the rods or stems and interposed between the said sockets or seats and outer sockets or seats 19, which consist of flanges formed integral with the outer portions of the rods. The outer ends of the rods are provided with suitable eyes for the reception of the end portions of the shaft 14, upon which the grooved pulley is mounted. The shaft or axle 14 is clamped in the eyes of the outer ends of the rods or stems 15 by set-screws, as indicated in the drawings. The inner ends 20 of the rods or stems are threaded for the reception of nuts 21, which engage the inner ends of the sockets to limit the outward movement of the pulley or wheel. The spring-actuated pulley or wheel is interposed between the connecting means and the car and is adapted to force the connecting means outward. This movement takes up all jar and vibration and at the same time facilitates the operation of releasing the brake-shoes. When the pulley or dog is disengaged from the ratchet, the springs will operate to swing the lever outward, and thereby release the brake-shoes. The shaft 14 is provided with an approximately U-shaped guard 22, extending around the outer portion of the pulley or wheel and spaced from the same and adapted to prevent the chain from leaving the pulley or wheel. The guard is provided with sleeves or collars to fit the shaft and may be clamped to the same by set-screws, as indicated in the drawings, or be secured to the said shaft in any other desired manner.

The tubes or sockets pierce the end walls of the car and extend into the same; but the pulleys or wheels may be yieldably mounted on the car in any other desired manner.

It will be seen that the brake-operating mechanism is exceedingly simple and inexpensive in construction, that it is strong and durable and adapted to be readily applied to a car, and that the connecting means between the operating device and the brake-levers is yieldably held at a predetermined tension, whereby all jars and vibrations are taken up and the car-wheels prevented from becoming locked and sliding along the rails. Also it will be clear that the springs operate to swing the operating-lever outward when the same is released, and thereby relieve the wheels of the brake-shoes, and that they prevent any expansion of the car-wheels from operating to lock the same. Furthermore, it will be apparent that the improved operating mechanism effects a great saving of time in the application of brakes and lessens the danger of operating the same and that there is no liability of a brakeman falling between the cars while operating the brake mechanism. The operation of the brake mechanism is not effected by snow or ice, and the car is under complete control and may be accurately stopped at any point, thereby greatly facilitating the operation of switching cars in distributing the same and in making up trains and the like.

The device is positive and reliable in an emergency, and should the air fail to set the brakes, as often happens, and the brakemen be compelled to hurry to the tops of the cars to set the brakes by hand there will be comparatively little danger, and the operation may be quickly performed without employ-

ing the clubs and bars that are ordinarily used in setting the brakes by hand.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a brake-operating mechanism the combination with an operating device, of means for connecting the operating device with the brake mechanism of a car, and a yieldable guide receiving the connecting means and maintaining the same under a yieldable tension, substantially as described.

2. In a brake-operating mechanism the combination with an operating device, of flexible means for connecting the operating device with the brake mechanism of a car, and a yieldable guide receiving the flexible connecting means and maintaining the same at a yieldable tension, said guide being interposed between the connecting means and the car, substantially as described.

3. In a brake-operating mechanism the combination with an operating device, of connecting means, and a yieldably-mounted pulley or wheel receiving the connecting means and maintaining the same at a yieldable tension, substantially as described.

4. In a brake-operating mechanism the combination with an operating device, of a flexible connection extending from the operating device to the brake mechanism of the car, a pulley or wheel receiving the flexible connection and interposed between the same and the car, and a spring holding the pulley or wheel in engagement with the flexible connection to maintain the latter at a yieldable tension, substantially as described.

5. In a brake mechanism, the combination with an operating device, a flexible connection extending therefrom, a bracket or bearing, a spring engaging the bracket or bearing, and a pulley or wheel mounted in the bracket or bearing and receiving the flexible connection and being actuated by the spring to maintain such connection at a yieldable tension, substantially as described.

6. In a brake-operating mechanism, the combination with an operating device, of a flexible connection extending therefrom, a pulley or wheel receiving the flexible connection, a slidable bracket or bearing having the pulley or wheel mounted on it, and a coiled spring for actuating the slidable bracket or bearing for maintaining the flexible connection at a yieldable tension, substantially as described.

7. In a brake-operating mechanism, the combination with an operating device, of a flexible connection extending from the operating device, a socket, a bracket or bearing having a stem slidable in the socket, a pulley or wheel carried by the bracket or bearing and engaging the flexible connection, and a coiled spring mounted on the stem and seated against the socket and arranged to hold the pulley or wheel in engagement with the flexible connection, substantially as described.

8. In a brake-operating mechanism, the combination with an operating device designed to be mounted upon the top of a car, a flexible connection extending from the operating device to the bottom of the car for actuating the brake mechanism thereof, and upper and lower yieldable guides interposed between the flexible connection and the car, and comprising spring-actuated brackets or bearings, pulleys or wheels mounted on the brackets or bearings and forced outward by the springs thereof to maintain the flexible connection at a yieldable tension, substantially as described.

9. In a brake-operating mechanism, the combination with an operating device, and a flexible connection, of a pulley or wheel receiving the flexible connection, a bracket or bearing carrying the pulley or wheel and provided with stems, and springs mounted on the stems and located at opposite sides of the pulley or wheel for holding the same yieldably in engagement with the flexible connection, substantially as described.

10. In a brake-operating mechanism, the combination with an operating device, and a flexible connection, of a plate having inwardly-extending tubes and provided with flanges forming exterior seats, stems slidable in the tubes, and provided with means for engaging the same, said stems being also provided with flanges forming seats, springs disposed on the stems, and engaging the seats, and a pulley or wheel carried by the stems and yieldably held in engagement with the flexible connection by the said springs, substantially as described.

11. In a brake-operating mechanism, the combination with an operating device, and a flexible connection, of a pair of rods or stems having eyes at their outer portions, means for yieldably mounting the rods or stems on a car, a shaft or axle carried by the stems, a pulley or wheel carried by the shaft or axle and engaging the flexible connection, and a guard mounted on the shaft or axle and arranged to retain the flexible connection on the pulley or wheel, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JAMES MAGUIRE.
WILLIAM MARTIN YOUNG.
FRANK YOUNG.

Witnesses:
O. H. MACK,
E. H. WINTER.