

(No Model.)

3 Sheets—Sheet 1.

C. N. GRANT.
ROLLER TOBOGGAN.

No. 602,442.

Patented Apr. 19, 1898.

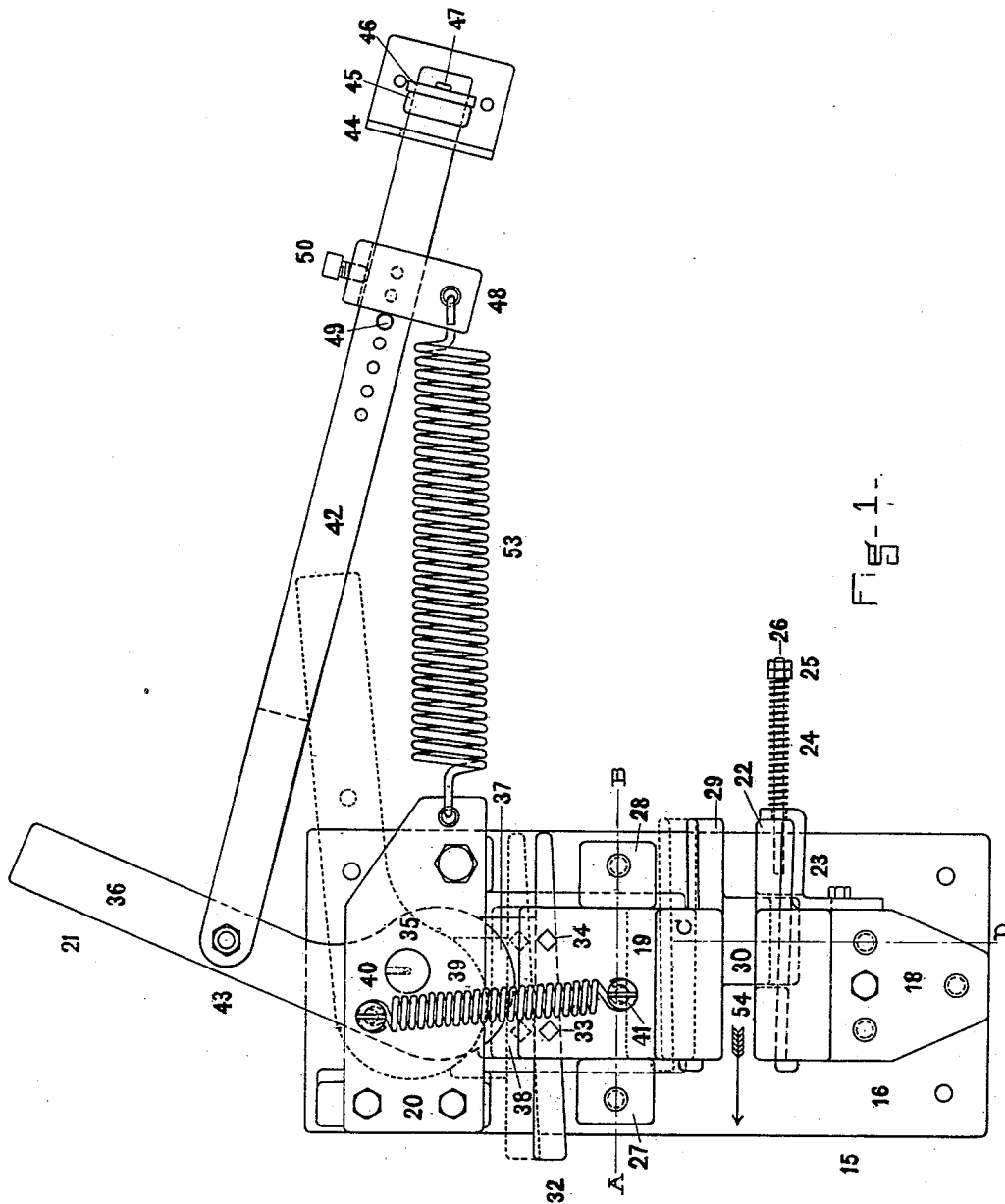


Fig. 1.

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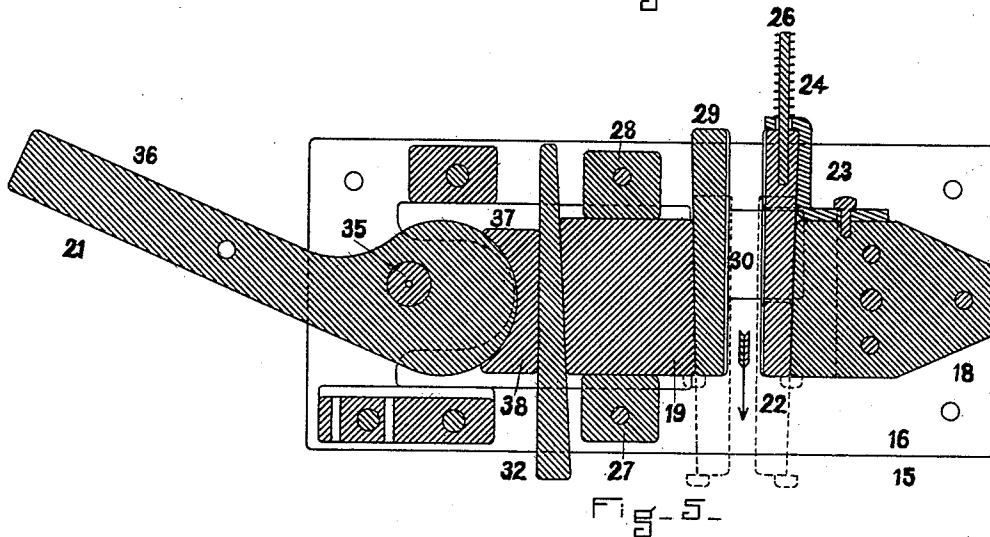
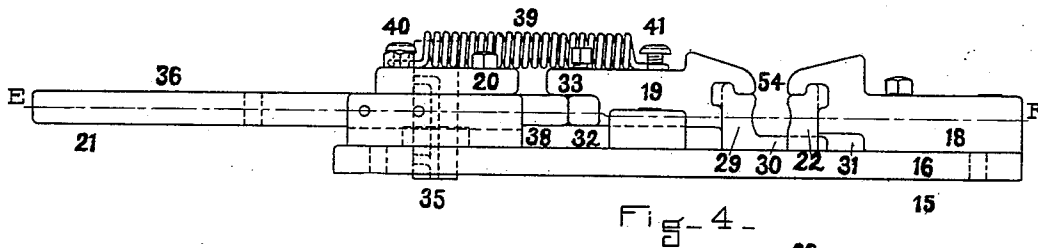
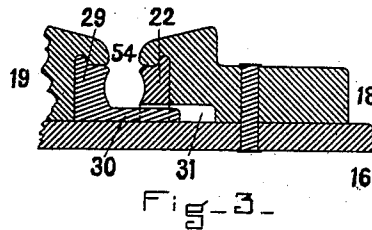
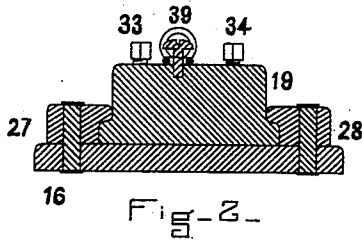
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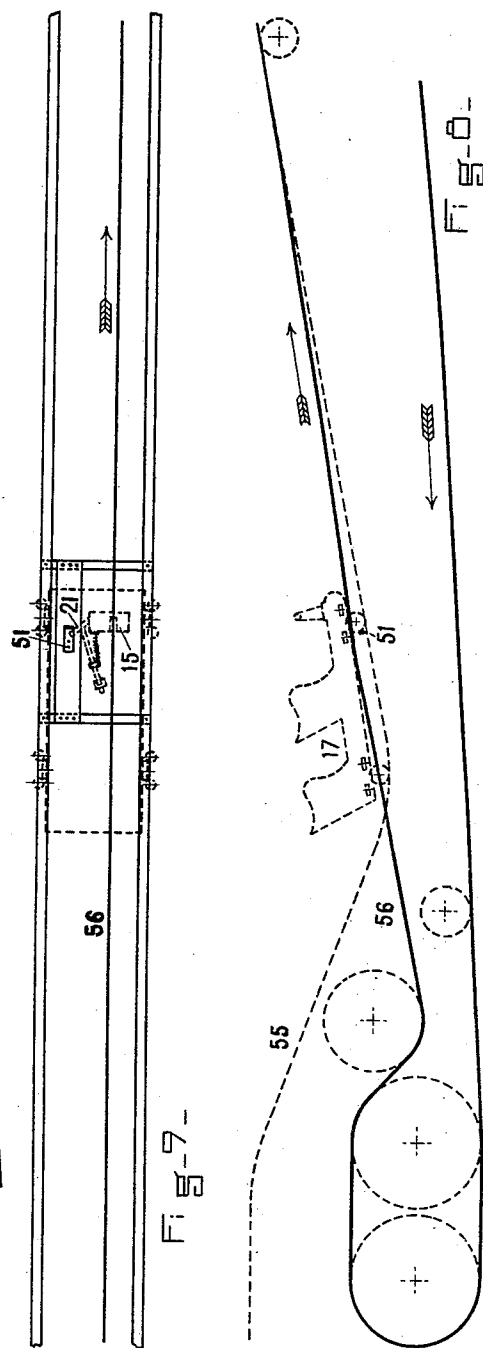
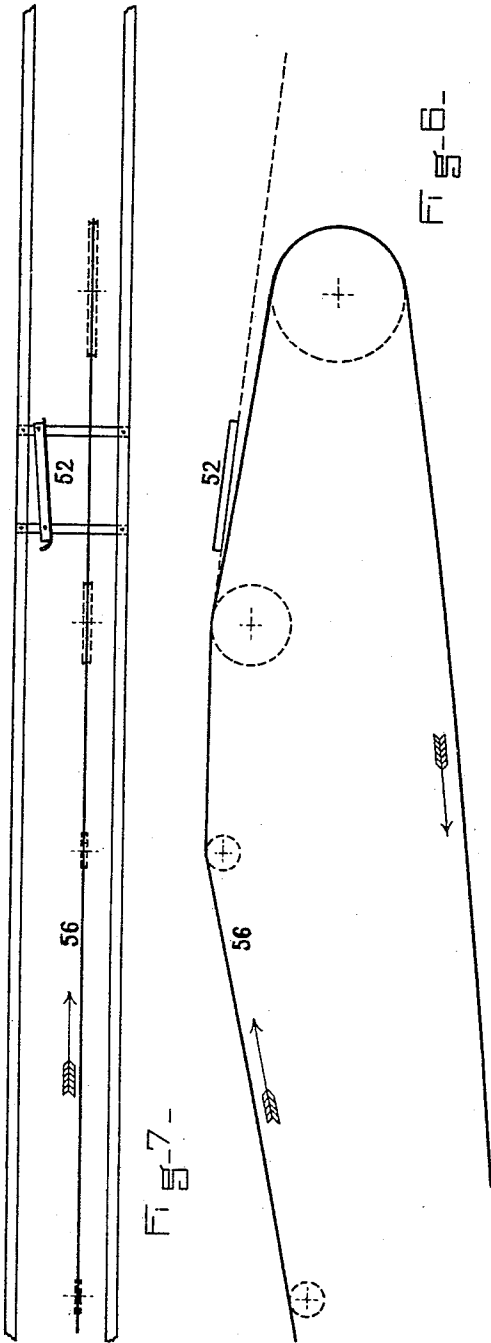
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UNITED STATES PATENT OFFICE.

CHARLES N. GRANT, OF HULL, MASSACHUSETTS.

ROLLER-TOBOGGAN.

SPECIFICATION forming part of Letters Patent No. 602,442, dated April 19, 1898.

Application filed July 20, 1897. Serial No. 645,276. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. GRANT, a citizen of the United States, residing at Hull, in the county of Plymouth and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Roller-Toboggans, of which the following is a specification.

My invention relates to improvements in roller-toboggans, and it is designed as an improvement in part on my roller-toboggan as secured to me by United States Letters Patent No. 513,570, dated January 30, 1894, and No. 528,224, dated October 30, 1894.

It has for its object the special construction and arrangement of the cable-grip, which, being automatic, simple, and efficient in its character, insures great efficiency and durability of all the essential parts of a successfully-conducted roller-toboggan slide.

Figure 1 is an inverted plan of the cable-grip. Fig. 2 is a section of Fig. 1 on line A B. Fig. 3 is a section of Fig. 1 on line C D. Fig. 4 is a front view of Fig. 1. Fig. 5 is a section of Fig. 4 on line E F. Fig. 6 shows inside elevation and in partial outline the top portion of the ascending incline of a roller-toboggan slide; and Fig. 7 is a plan of Fig. 6, in which the bottom rails are shown, to the cross-pieces of which is fastened the upper cable-grip striker. Fig. 8 represents in side elevation and in partial outline the starting and lower portion of the ascending incline of a roller-toboggan slide, the rail-line, car, cable-drive, and cable-carrying sheaves being shown by dotted lines; and Fig. 9 is a plan of a portion of Fig. 8, in which the bottom rails are shown, to the cross-pieces of which is fastened the lower cable-grip striker, and the cable-grip is shown in dotted outline in its position beneath the toboggan-car, which is represented by dotted lines.

The cable-grip 15 is constructed as follows:

To the base-plate 16, which is designed to be securely bolted to the bottom of the roller-toboggan car 17, are securely bolted the sliding-jaw carrier 18, the traveling and sliding jaw carrier 19, and the bearing-plate 20 for the operating-lever 21.

The sliding-jaw carrier 18 is provided with the sliding jaw 22, the head of which, when the jaw is disengaged from the cable, is forced

back into its position, as shown in the drawings, against the stop 23 by means of the spiral spring 24, placed between the stop and the nuts 25 of the stud 26, which is securely fastened into the sliding jaw, all as shown.

The traveling and sliding jaw carrier 19 is designed to slide in the ways 27 and 28, which are fastened to the base-plate, and it is provided with the traveling and sliding jaw 29, having the tongue 30, which engages with the recess 31 of the sliding jaw 22, by means of which engagement the jaws are compelled to slide as a pair together.

The traveling and sliding jaw carrier is provided with the wear-adjusting key 32, which is adjustably fastened to the carrier by means of the set-screws 33 and 34.

The operating-lever 21 is provided with the trunnion 35, adapted to fit into the bearings provided in the base-plate and bearing-plate. It is also provided with the arm 36 and the eccentric head 37.

Between the eccentric head and adjusting-key is placed the filler-block 38, which is kept in close contact with the eccentric head and the adjusting-key by means of the spiral spring 39, one end of which is secured to the bearing-plate 20 by the screw 40, and the other end is secured to the traveling and sliding jaw carrier 19 by the screw 41.

The operating-lever 21 is provided with the operating-lever pull-back rod 42, one end of which is loosely bolted to the arm of the lever by the bolt 43 and the other end or outer portion is free to slide in the angle-iron piece 44, which is designed to be bolted to the under side of the roller-toboggan car. The end of that portion of the pull-back rod that slides in the angle-piece is provided with the rubber bunter 45, which is held in place by means of the washer 46 and the split pin 47. The adjustable block 48 is secured to the rod by means of the taper-pin 49 and the set-screw 50. The operating-lever is held in the position as shown in Fig. 1, when out of contact with the lower cable-grip striker 51 or the upper cable-grip striker 52, by means of the spiral spring 53, one end of which is secured to the bearing-plate 20 and the other end to the block 48.

The adjustment of the automatic cable-grip is as follows: It is adjusted, as represented

in the drawings, so that the cable-receiving space 54, which is the distance between the jaw-carriers 18 and 19, will be a little less than the diameter of the cable it is designed to receive, and the cable is to travel in the direction as indicated by arrows.

The operation of the roller-toboggan is as follows: The roller-toboggan car 17 is usually started by hand onto the sharp descending incline 55, the angle of which is such (as designed) that when the car reaches the position as shown in Figs. 8 and 9 its speed will be substantially the same as that of the car-operating cable 56. It will be observed that at the beginning of the ascending incline the cable is above the rail-line, and the object of this arrangement is that when the jaws of the cable-grip are opened by the arm of the operating-lever coming in contact with the lower cable-grip striker 51, as represented in Fig. 9, the cable will be forced into its position (through the cable-receiving space 54) between the jaws 22 and 29. When the arm of the operating-lever has been pushed clear back, as represented by dotted lines in Fig. 1, then the traveling and sliding jaw 29, by reason of the eccentric action of the head of the operating-lever and the spiral spring 39, will have traveled away from the sliding jaw 22 in a direction at right angles with the direction of the line of travel of the cable. This traveling of the jaw 29 results in the opening of the space 54 to an extent amply sufficient, so that the cable will at once assume its correct position between the curved surfaces of the jaws 22 and 29. The wide-open position of the device, including the operating-lever, the filler-block, and the traveling and sliding jaw carrier and its attached parts, is shown by dotted lines in Fig. 1. Immediately after the operating-lever arm has passed the lower cable-grip striker it is pulled back instantly by the action of the spiral spring 53 and its connecting mechanism into the position as shown in Fig. 1, by which action the cable is quickly and firmly gripped by the jaws 22 and 29. These jaws are designed to slide to a limited extent in the direction of the travel of the cable, and as they are slightly tapering they will approach each other as they slide, thereby insuring under all conditions a sufficiently strong grip upon the cable. The sliding of the jaws in extent is limited by the action, construction, and arrangement of the stop 23, spiral spring 24, and the stud 26, having the nuts 25. The position of the jaws when in their extreme out position is indicated in dotted outline in Fig. 5.

When the car has been pulled by the cable to the top of the ascending incline and starts upon its gravity return trip to the starting-point in the usual manner, it is necessary that it should be disengaged from the cable, and this is accomplished in the following manner: When the arm of the operating-lever of the cable-grip comes in contact with the upper cable-grip striker 52, the jaw 29 is

drawn away from the jaw 22, leaving the cable free to drop out of the cable-grip through the cable-receiving space 54, as it will readily do, as at that point the rail-line is above that of the cable. As soon as the car has passed the upper cable-grip striker the jaws 22 and 29, if they have slid forward, will be forced back at once into the position as shown in Fig. 1 by the spiral spring 24. The construction and arrangement of the tongue 30 of the jaw 29 and the recess 31 of the jaw 22 is such, as shown and previously described, that while the jaw 29 may travel away from jaw 22 in a direction at right angles to the line of travel of the cable both jaws are compelled to operate as a pair together in sliding in lines nearly parallel with the line of travel of the cable.

My invention possesses many advantages in the successful operation of a roller-toboggan slide. The car is picked up by the cable quickly and surely without jerking the car, the cable-grip is positive and easy in its application, and its gripping and releasing of the cable is accomplished without subjecting the apparatus to injuriously severe blows and shocks, thereby insuring a long life to the cable. The gripping and releasing movement of the traveling and sliding jaw being in a direction at right angles with the line of travel of the cable and such movements always occurring or taking place at a time when the car and cable are traveling at substantially the same speed, it has been proved by me that the great tendency to injure the cable by tearing up its strands which exists in all other cable-grips known to me does not exist to any serious extent in my apparatus.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a cable-grip, the combination of jaw-carriers, jaws adapted to slide in said carriers, means for imparting a direct positive grip of the jaws upon the cable, and elastic cushioning devices for effecting an elastic connection between the cable and the car without sliding friction and wear on the cable.

2. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier provided with a traveling and sliding jaw, an operating-lever having an eccentric head, and spring-actuated mechanism for holding said lever normally in open position.

3. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier having a traveling and sliding jaw, and provided with a wear-adjusting key adjustably fastened thereto, an operating-lever having an eccentric head, and a filler-block disposed between said eccentric head and the adjusting-key.

4. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier having a traveling and sliding jaw, and provided

with a wear-adjusting key adjustably fastened thereto, an operating-lever having an eccentric head, a filler-block disposed between said eccentric head and adjusting-key, and means for holding said filler-block in close contact with the eccentric head and adjusting-key.

5. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier having a traveling and sliding jaw, and provided with a wear-adjusting key adjustably fastened thereto, an operating-lever having an eccentric head, a bearing-plate for operating-lever, a filler-block disposed between said eccentric head and adjusting-key, and a spiral spring having one end thereof attached to said bearing-plate and the other end to said traveling and sliding jaw carrier for holding said filler-block in close contact with the eccentric head and adjusting-key.

6. In a cable-grip, the combination of a sliding-jaw carrier provided with a sliding jaw, a traveling and sliding jaw carrier provided with a traveling and sliding jaw, an operating-lever having an eccentric head, spring-actuated connecting mechanism connecting said traveling and sliding jaw carrier and said eccentric head, and a spring-actuated pull-back rod for said lever.

7. In a cable-grip, the combination of a

sliding jaw, a traveling and sliding jaw, an operating-lever for said jaws, a pull-back rod for said lever having an adjustable block secured thereto, and a spiral spring connecting said adjustable block with the bearing-plate of said lever.

8. In a cable-grip, the combination of a sliding jaw, a traveling and sliding jaw having a tongue interlocking with said sliding jaw, an automatically-operating lever for said jaws, and spring-actuated means for limiting the longitudinal movement of said jaws and for forcing them back into normal position.

9. In a cable-grip, the combination of a sliding jaw, a traveling and sliding jaw having a tongue interlocking with said sliding jaw, an automatically-operated lever for said jaws, a stop for limiting the longitudinal movement of said jaws, a stud passing through said stop and fastened at one end to said sliding jaw, and having a nut at its opposite end, and a spiral spring disposed between said nut and stop for drawing said jaws back into normal position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES N. GRANT.

Witnesses:

E. FRANK. WOODBURY,
GEORGE L. DOLBEARE.