(No Model.)

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C. N. GRANT.

ROLLER TOBOGGAN.

No. 513,570. Patented Jan. 30, 1894.

Fig-1.

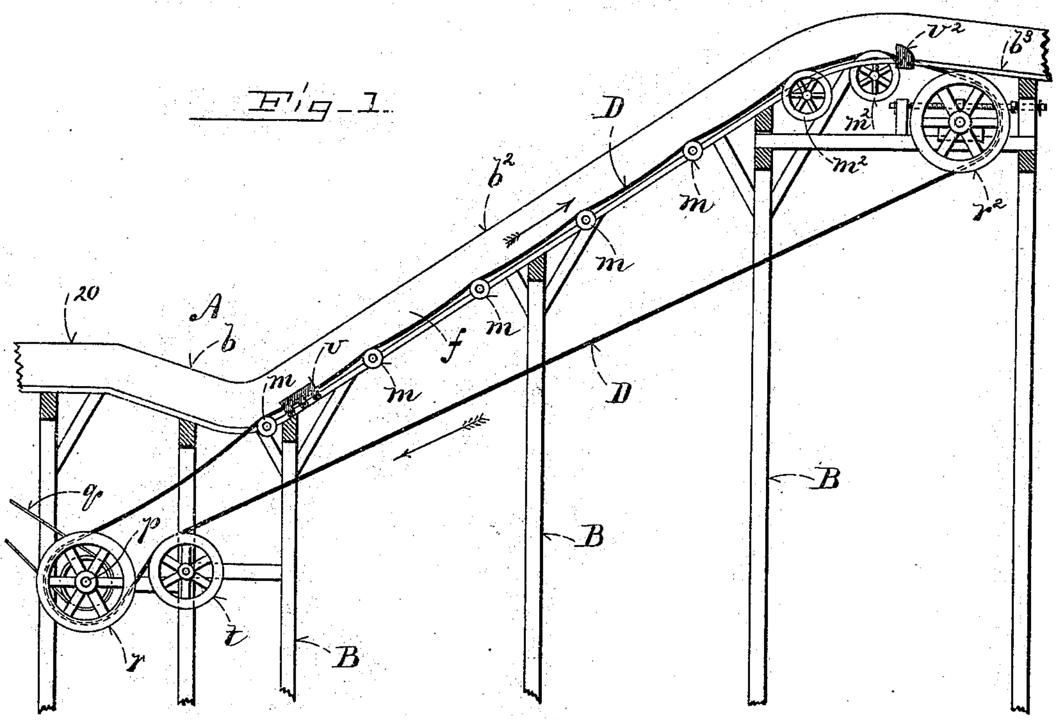

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Fig_2_

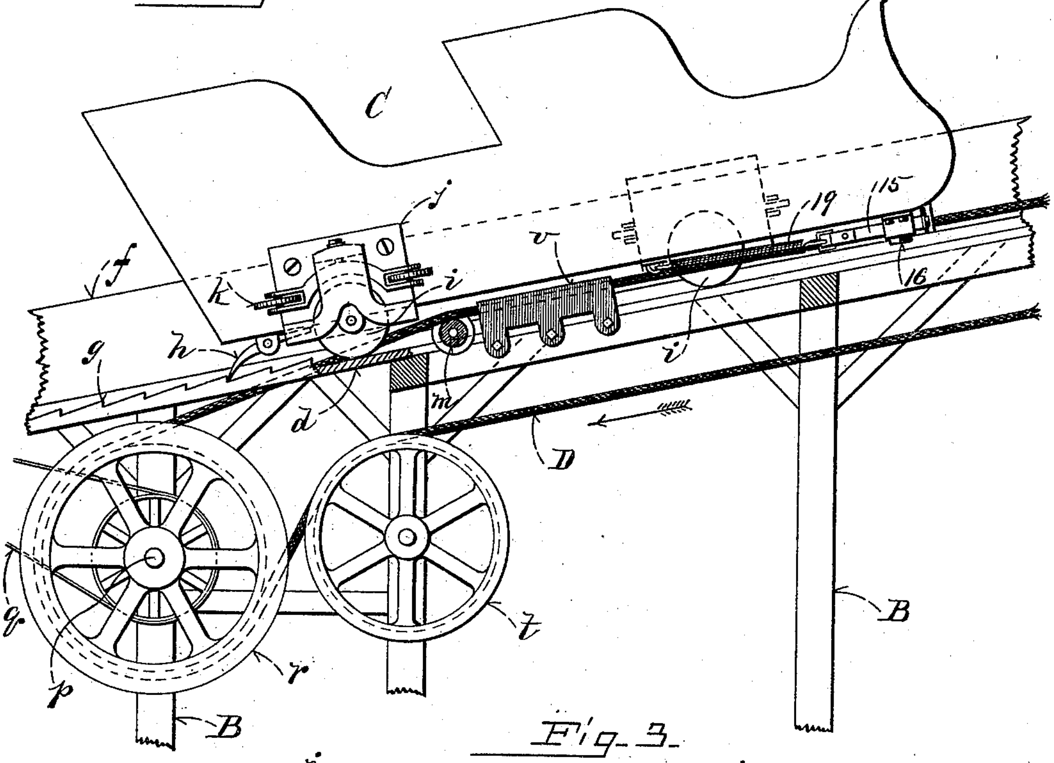
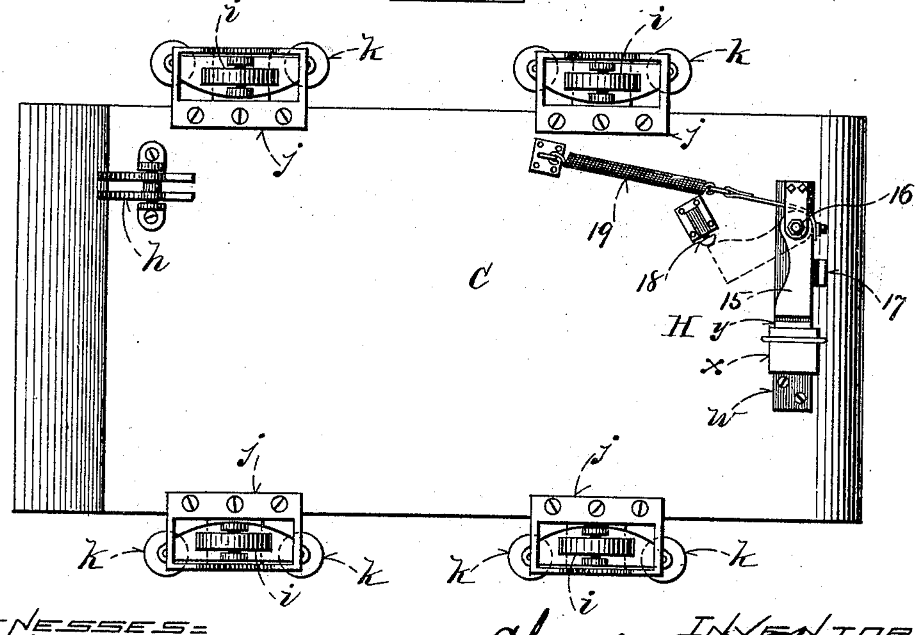


Fig_3_



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No. 513,570.

Patented Jan. 30, 1894.

Fig-4-

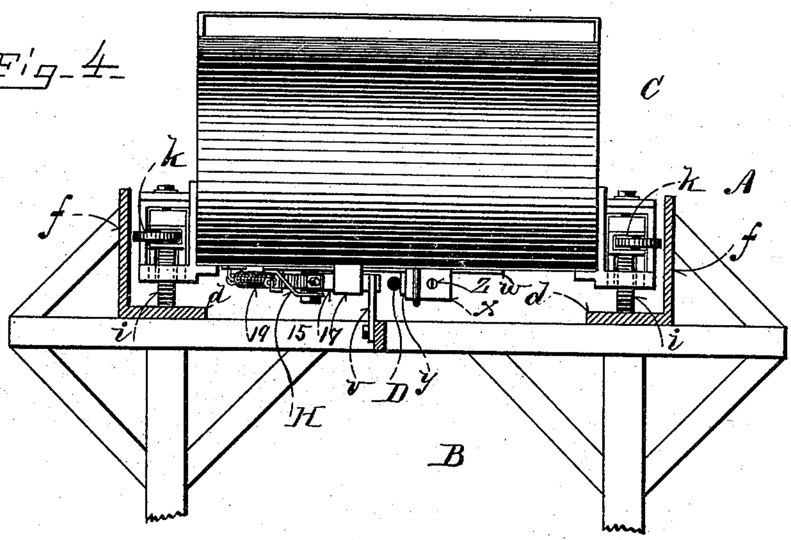


Fig-5-

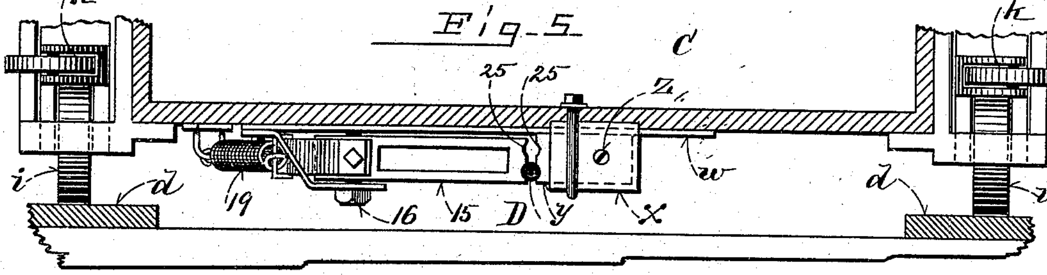
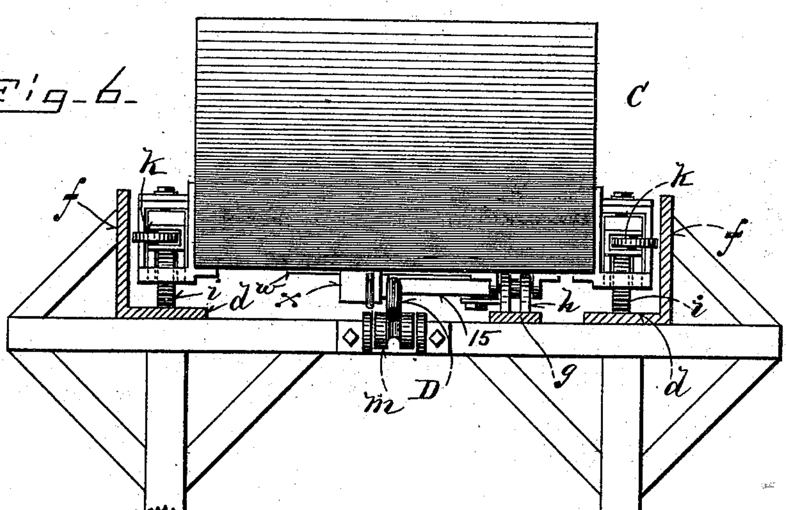


Fig-6-



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ROLLER-TOBOGGAN.

SPECIFICATION forming part of Letters Patent No. 513,570, dated January 30, 1894.

Application filed October 10, 1892. Serial No. 448,382. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. GRANT, of Haverhill, in the county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Roller-Toboggans, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional elevation showing a portion of the trestle of my improved roller-toboggan-slide, illustrating the method of mounting the cable for conveying the cars on the incline; Fig. 2 an elevation enlarged showing the car attached to the cable; Fig. 3 a bottom plan view of the car; Fig. 4 a front elevation of the same, the trestle being shown partly in section; Fig. 5 a cross-section of the car enlarged showing the operation of the cable clutch; and Fig. 6 a rear elevation looking from the left in Fig. 2.

Like letters and numerals of reference indicate corresponding parts in the different figures of the drawings.

My invention relates especially to an improvement in roller toboggan slides or roller coasters, such improvement being designed to facilitate the passage of the car at the incline of the trestle or track, the object being to simplify the mechanism in ordinary use and obviate the necessity of employing elevators for returning the cars to the starting-point whereby a continuous or endless track may be employed.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation:

In the drawings, A represents the track considered as a whole, said track being mounted on a series of vertical supports, B, or any other suitable form or frame, and being provided with continuous series of inclines, b, b^2.

C represents the car which is adapted to travel on the track and descend the inclines by gravity, the ascent of said car on said inclines being accomplished by mechanism hereinafter described and which constitutes particularly my invention.

The track, A, has rails, d, upon which the car-wheels travel and from the outer edges of which guard-boards, f, project vertically. Between said rails on the cross-bars of the trestle-work a ratchet, g, shown in Figs. 2 and 6, is mounted and is engaged by dogs, h, on the car, C, to prevent backward movement of the car in ascending the inclines should any of the actuating mechanism break.

The car, C, is provided with vertically rotating wheels, i, mounted in castings, j, and with horizontally rotating wheels, k, journaled in the same castings and bearing against the guard-boards, f. This car may be of any suitable form and the wheels may be mounted in any suitable manner other than that described.

Centrally of the trestle-work between the rails on each incline, b^2, there is arranged a series of grooved pulleys, m, m^2, shown in Fig. 1, the pulleys, m^2, at the crest of the incline being of greater diameter than the pulleys, m. A shaft, p, journaled on the trestle is driven by a belt, q, connecting with any suitable source of power. On said shaft there is a grooved pulley, r, and at the crest of the incline there is a similar pulley, r^2. Connecting said pulleys and passing over the pulleys, m, m^2, and an idler, t, there is an endless wire cable, D, said cable moving centrally of the track from left to right, as viewed at the incline, b^2. At the bottom of the incline, b^2, there is a trip or striker, v, and a similar striker, v^2, being located at the crest of the incline. These strikers are parallel with, and adjacent the cable, D.

On the bottom of the car at its forward end there is a clutch mechanism for automatically and detachably securing the car to the cable. This clutch mechanism comprises a casting, w, bolted to the bottom of the car and provided with a socket, x, in which a detachable wooden plug, y, (see Fig. 5,) is held by screws, z. A tongue, 15, is pivoted at, 16, to the casting its outward movement being regulated by a stop, 17, on the car, and its inward movement by an adjustable stop, 18, shown in Fig. 3. Said tongue is pulled by a spring, 19, which normally holds it in alignment with the plug, y.

In the use of my improvement the car being loaded and presuming the point, 20, in

Fig. 1, to be the starting point, the car descends the incline, b, by gravity; the cable is traveling in the direction indicated by the arrows. The clutch-tongue, 15, is engaged by the striker, v, and thrown inward into the position indicated by dotted lines in Fig. 3, enabling the cable to pass between the block, y, and said tongue, as shown in Fig. 4. As soon as the car has advanced sufficiently for the tongue, 15, to pass the striker, v, the spring, 19, throws said tongue outward and the cable is clutched thereby between it and said block fastening the car securely thereto. Said car is carried by the endless cable rapidly and steadily up the incline, b^2. The clutch-mechanism being above the level of the pulleys, m, m^2, and the cable held securely therein, said cable is lifted and held out of contact with each succeeding pulley as the clutch mechanism passes it, represented in Fig. 6, so that there is no contact between said mechanism and pulleys, said pulleys acting solely as a support for the upper arm of the cable. I employ wooden plugs in the sockets, x, as they can be readily and cheaply replaced when worn, and afford a better frictional hold on the cable, particularly when a wire cable is employed than does metal. The tongue may also be formed of wood if desired and said tongue and plug may be provided with grooves, 25, as shown in Fig. 5, to receive the cable, if preferred. As soon as the car reaches the crest of the incline, as b^2, and a descent or level portion as b^3, commences the second striker or trip, v^2, engages the tongue, 15, throwing it inward and releasing the cable from said clutch; the cable ending at the pulley, r^2, at the crest of the incline, b^2, the car is freed to begin the descent by gravity.

It will be understood that as many inclines, as b^2, for the car to ascend may be employed in the track as desired, the track being endless and terminating at the starting point, 20. For each of the ascents, as b^2, a cable, D, is employed terminating at the crest of said ascent. All of such cables may be driven from one source of power and may be continuously connected by the intermediate pulleys said cables not being exposed in the track on any descent, as b^3, as the impetus attained by the car on such descent is sufficient to drive it up a succeeding incline far enough to have the first striker, v, on such incline operate the clutch mechanism and attach the car to the corresponding cable. This method of actuating the cars greatly lessens the cost by obviating the necessity of using elevators to return the cars to the starting point from the end of the slide as is necessary when such slide terminates vertically below or above such starting-point as in an ordinary form of construction. Should the grip or clutch fail to operate to attach the car to a cable on ascending the incline, the car will at once stop and be held by the dogs, h, in a manner which will be readily understood without a more explicit description.

It will be understood that where the ascents of the track are so short that the impetus of the car received from a preceding descent is sufficient to drive it over said ascent the cable mechanism is omitted.

Having thus explained my invention, what I claim is—

The combination with a car body of a fixed gripping jaw on the under side thereof; a movable gripping jaw pivoted to swing in a horizontal plane, a contractile spring attached at one end to the car, a strap attached at one end to said spring and at its opposite end to the shank of said pivoted jaw, and stops for regulating the movement of said pivoted jaw, substantially as described.

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