(No Model.) 2 Sheets—Sheet 1.

A. HITT.

HAND CAR.

No. 553,617. Patented Jan. 28, 1896.

Fig. 1,

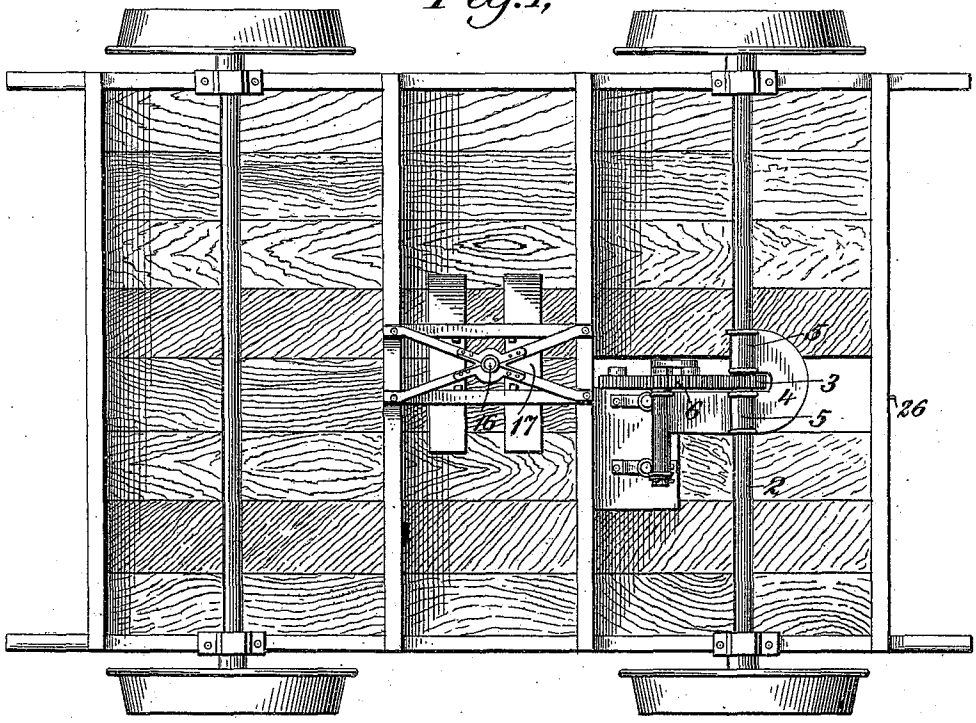

Fig. 2,

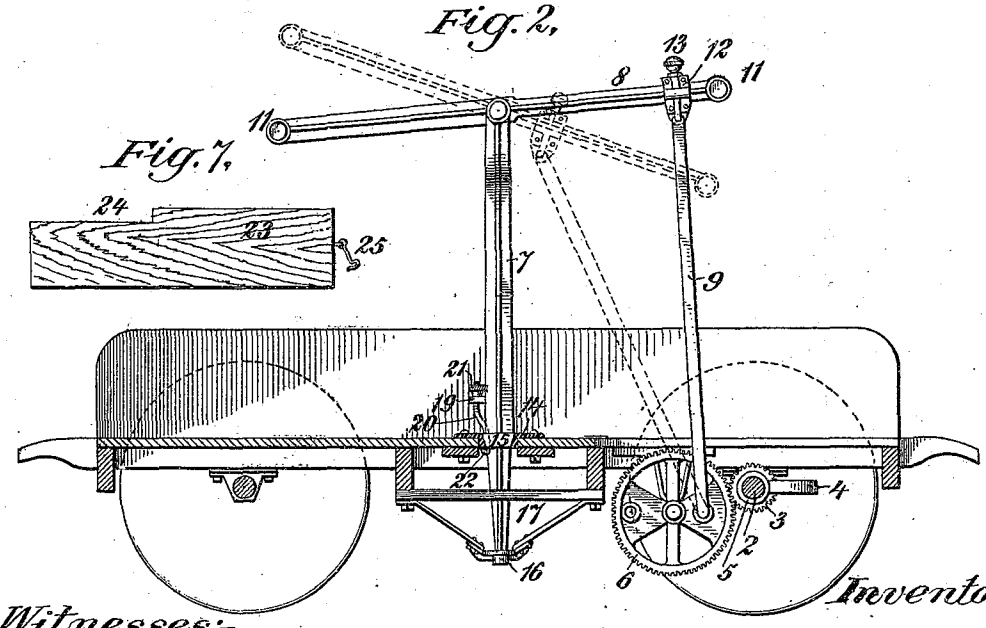

Fig. 7,

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P. Lewis Anderson

Inventor:
Adrian Hitt

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3,

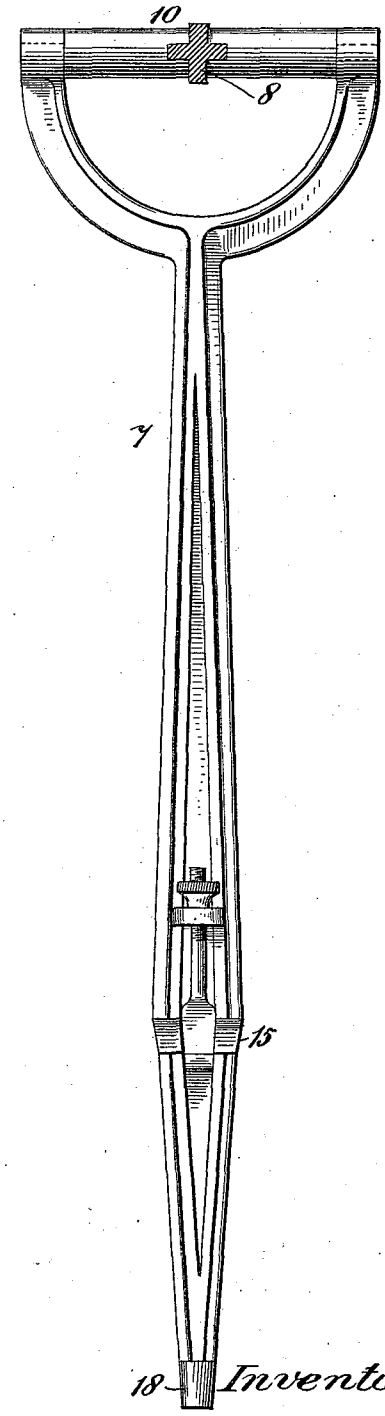


Fig. 4.

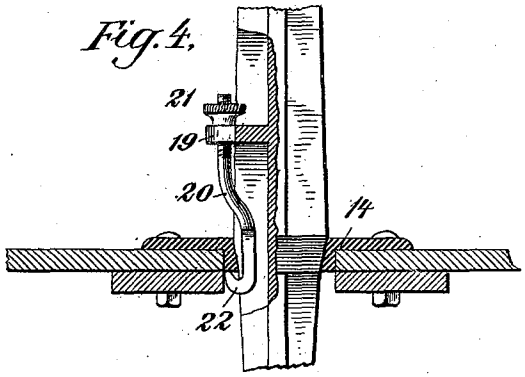


Fig. 5,

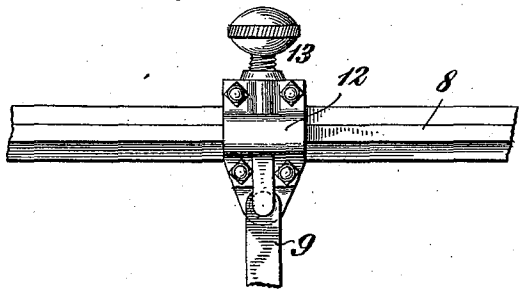
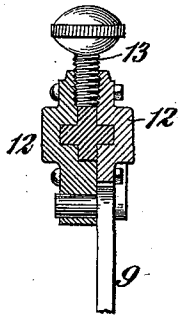


Fig. 6,



Witnesses:-

O. N. Nayward

P. Lewis Anderson

Inventor:

Adrian Hitt

UNITED STATES PATENT OFFICE.

ADRIAN HITT, OF JERSEY CITY, NEW JERSEY.

HAND-CAR.

SPECIFICATION forming part of Letters Patent No. 553,617, dated January 28, 1896.

Application filed January 4, 1895. Serial No. 533,800. (No model.)

To all whom it may concern:

Be it known that I, ADRIAN HITT, of Jersey City, New Jersey, have invented a new and useful Improvement in Hand-Cars, of which the following is a description, referring to the accompanying drawings, which form a part of this specification.

My invention is an improvement in some respects and in others a distinct departure from the hand-car and apparatus which forms the subject-matter of my Patent No. 505,830, dated October 3, 1893.

The object of the present invention is to improve the action by which the car is propelled, and to provide a simple adjustment so that on upgrades where more work and less speed is desired the driving or propelling mechanism may be adjusted to such requirements, while on a level or downgrade it may be adjusted for greater speed and less work.

Another object is to simplify the construction and give greater reliability, rigidity and durability to the mechanism.

To these and certain other incidental ends and purposes which will be more fully apparent from the detailed description which follows, my invention, in its preferred form, is embodied and illustrated in the apparatus and its several parts, constructed, arranged, combined and used in a manner similar to that herein described, illustrated and claimed.

In the accompanying drawings, Figure 1 is an inverted plan or bottom view of a car. Fig. 2 is a side elevation, partly broken away, in section to show my mechanism. Fig. 3 is an enlarged detail view of the standard or upright to which the handle-bar of my hand-car is pivoted. Fig. 4 is a detail view of the screw, lock or retaining device by which my upright is drawn firmly into its seat and held rigidly in place. Figs. 5 and 6 are side elevation and cross-section of the sliding-box adjustment by which the stroke of the handle-bar is regulated and the hand-car thereby adjusted for heavy work or high speed; and Fig. 7 shows a detachable board which fits in the deck of the car, leaving a slot through which the connecting-link of my apparatus plays.

Throughout the drawings like figures of reference indicate like parts.

The frame and wheels of the hand-car are clearly indicated in Figs. 1 and 2, and as my invention relates particularly to the propelling mechanism for turning one of the axles, I will confine my description to such mechanism in its connection with such axle. The axle to which my mechanism is applied is shown at 2. At about the center of the axle is mounted the small spur-wheel or pinion 3 turning with the axle. A bracket 4 loosely hung upon the axle by means of the sleeves, at either side of the pinion 4, and suspended at its other end directly from the body of the car, forms the bearing for a larger gear-wheel 6, which meshes with the pinion 3. A vertical standard or upright 7 forms the fulcrum or pivot for the horizontal handle-bar 8, and by means of a connecting rod or link 9 the motion of the handle-bar is transmitted to the gear-wheel 6, thereby propelling the hand-car.

The handle-bar 8, upright 7, and connecting-link 9 may be entirely disconnected from the car, leaving the deck perfectly clear for use as a push-car. This is accomplished by fitting the upright to a socket, from which it may be readily detached and withdrawn, while the link 9 is pivotally secured at its lower end to the gear-wheel 6 by means of a stud and nut, or by any other readily-detachable connection. The details of this connection between the link and the gear are not essentials of my invention and I will not therefore set them forth more at length. The details of the socket or seat into which the upright 7 is inserted will be described below.

The handle-bar 8 is pivoted to the head of the upright 7, as clearly shown in Fig. 3. The head of the upright forms a fork or bifurcated head, between the arms of which the transverse pivotal portion of the handle-bar is mounted. The details of this pivotal connection may be of any desired construction, but one of its simplest forms is a bolt inserted through the sleeve 10 formed by trunnion-shaped projections from the center of the handle-bar, the bolt being secured in the ends of the forked head of the upright. The ends of this bolt are indicated by dotted lines in the figure. The pivot or center of motion of the handle-bar is preferably about three feet above the deck of the car, so that the handles 11 at either end of the car may be conveniently operated by the workmen that are using the car, the vibratory motion of the handles being approximately a vertical reciprocating motion. The upper end of the connecting rod or link 9 is pinned, or other otherwise pivot-

ally secured to a sliding box 12 carried by and sliding upon the handle-bar 8. A set-screw 13 or other clamping or locking device is employed to retain the sliding box 12 in fixed position upon the handle-bar, but by adjusting the box upon the bar a longer or shorter stroke will be had and the mechanism thereby regulated to give high speed and short stroke, or long stroke where slower speed and more work is required, as in climbing grades, for it is clear that the nearer the sliding box 12 is to the center of the handle-bar the greater will be the leverage and the longer the stroke of the handle-bar, while for running on the level or downgrade, or with no load, the box 12 may be placed near the end or handle 11 of the bar, and the stroke of the handles be thereby made very short.

There now remains to be described the means by which I obtain a rigid support for the upright and at the same time provide for its ready introduction and removal into its seat or socket.

The details of the frame or seat are clearly shown in Figs. 1, 2 and 4, while the upright 7 is shown in full in Fig. 3. A plate 14 having a central hole or perforation beveled and neatly fitted to the corresponding surface 15 upon the upright forms the upper seat or bearing within which the upright 7 is fixed. The lower seat or step 16 is formed in a plate rigidly supported by the depending frame or bracket 17. The foot of the upright 7 is formed to tightly fit this step 16, so that when in place the foot 18 wedges in the step 16 and the surface 15 wedges in the plate 14, giving a firm and rigid support to the upright. To effect this wedging and to prevent the loosening and rise of the upright 7, I provide the screw-locking device shown in Fig. 4, by which the upright 7 may be drawn down and firmly wedged in its seat. A lug or ear 19 is formed upon the upright two or three inches above the plate 14, and through this is inserted the screw-threaded hook-shaped drawing-rod 20, provided with the nut or milled head 21. The hook portion 22 of this screw-threaded rod 20 is dropped through and drawn up against the under face of the plate 14, and the nut or milled head 21 is then tightened up, drawing upon the rod 20 and firmly drawing the upright 7 down into its seat or seats 14 and 16.

In the broader aspect of my invention various other locking devices may be employed, the screw-lock which I have shown being merely one preferred specific form.

To remove the upright with the handle-bar and other parts above the deck of the car and convert the car into a flush-deck push-car, it is only necessary to loosen the nut or head 21 and draw the hook 22 out of engagement with the plate 14, (the cross-shaped section of the upright 7 leaving a space for the ready withdrawal of the hook 22,) disconnect the lower end of the connecting-link 9 from the gear-wheel 6 and then lift the upright and link from the car, leaving the deck perfectly clear.

To facilitate the attaching and the disconnecting of the link 9, I provide the removable section of deck 22. (Shown in Fig. 7.) When in place in the deck this leaves only a slot 24 through which the link 9 plays; but by unfastening the hook 25 from the eye 26, Fig. 1, this section of the deck may be taken out, leaving a corresponding space through which the gear-wheel may be readily gotten at. This removable section of the deck also facilitates the oiling of the gears and other parts below deck. The upright, with the handle-bars and link 9, may be replaced by inserting the upright in its seat or step and reconnecting the link 9 with the gear 6.

I have now set forth one preferred embodiment of my invention. I have purposely omitted the enumeration of many modifications and details which may be made by mere skill in the art, because to set these forth at length would obscure rather than make clear the more essential features of my invention.

I claim, however, and desire to secure by these Letters Patent of the United States, together with all such modifications and additions as may be so made by mere skill in the art, and with only the limitations as expressed or by law implied in view of the related arts, as follows:

1. In combination in a hand car, the axle 2, the driving pinion 3 mounted thereon, the frame or bracket 4 hung upon the said axle and depending from the body of the car, the gear wheel 6 mounted in the said frame or bracket 4 and meshing with the said pinion 3, substantially as set forth.

2. In combination with the upright 7, handle bar 8, and connecting rod or link 9, the box or slide 12 adjustably mounted upon the said handle bar, and to which the said rod or link 9 is pivotally secured, and means for securing the said box or slide in fixed position, substantially as set forth.

3. In combination in a convertible hand and push car, the removable upright 7 provided with the bearing or seating surfaces 15 and 18, the deck plate 14 provided with a seat fitting the said surface 15, and the seat or step 16 fitting the said surface 18 and means for holding or locking the said removable upright 7 firmly in place, substantially as set forth.

4. In combination with the removable upright and the seats, steps, or socket, therefor, the screw threaded hook or rod 20 detachably engaging a portion or part in fixed relation to the said seats, steps, or socket, and the nut or head 21 for drawing upon the said hook or rod 20 to draw the said upright firmly into its seats, steps or socket, substantially as set forth.

In testimony whereof I have hereunto set my hand, at New York, this 31st day of December, 1894.

ADRIAN HITT.

Witnesses:
NELSON S. CARR,
JOHN J. FOX.