(No Model.)

G. S. SHEFFIELD.

HAND CAR.

No. 265,987. Patented Oct. 17, 1882.

Fig. 1.

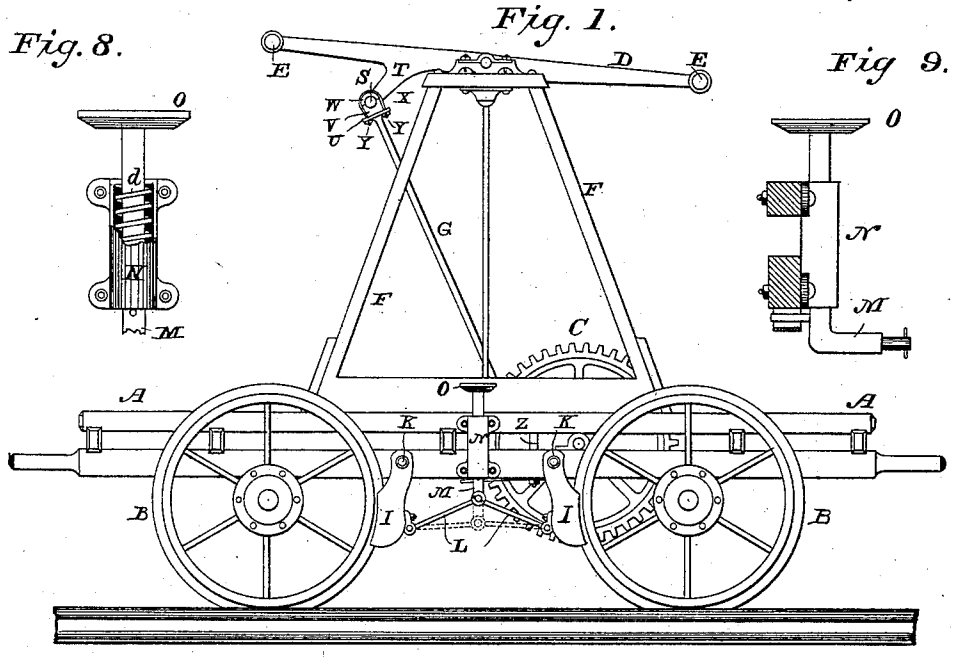


Fig. 8.

Fig. 9.

Fig. 3.

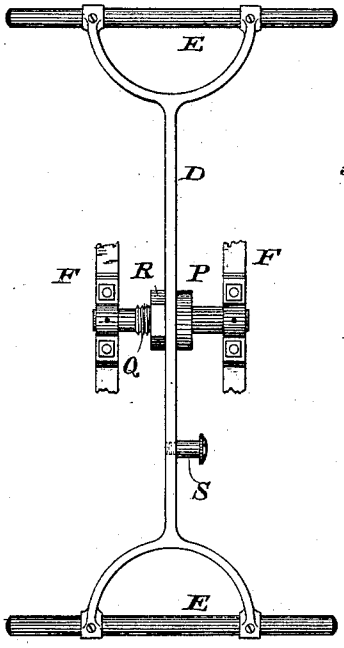


Fig. 2.

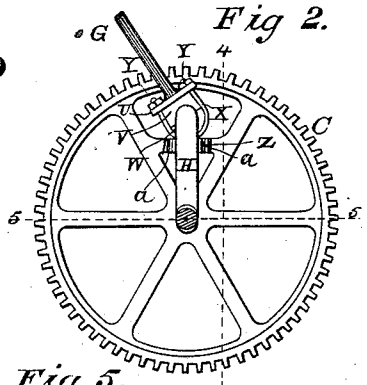


Fig. 4.

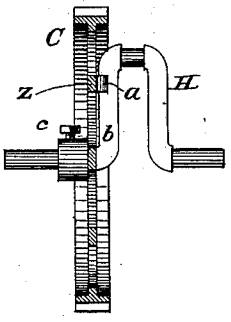


Fig. 5.

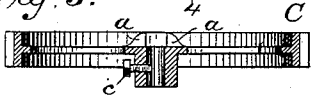


Fig. 6.

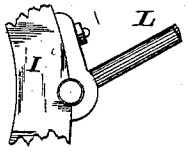
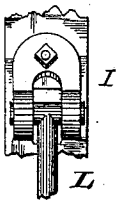


Fig. 7.



WITNESSES

Wm A. Skinkle.

Geo W. Young.

INVENTOR

George S. Sheffield.

By his Attorneys

Baldwin, Hopkins, & Peyton.

UNITED STATES PATENT OFFICE.

GEORGE S. SHEFFIELD, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO THE SHEFFIELD VELOCIPEDE CAR COMPANY, OF SAME PLACE.

HAND-CAR.

SPECIFICATION forming part of Letters Patent No. 265,987, dated October 17, 1882.

Application filed July 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. SHEFFIELD, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Hand-Cars, of which the following is a specification.

My improvements relate to several different parts of a hand-car, and are succinctly stated at the end of my description, in my claims.

In the accompanying drawings, illustrating a hand-car and its different parts embodying my improvements, Figure 1 is an elevation of a hand-car viewed from one side. Fig. 2 is a side elevation of the main driving gear-wheel. Fig. 3 is a top or plan view of the walking-beam. Figs. 4 and 5 are cross-sections of the main gear-wheel shown in Fig. 2, drawn respectively upon the dotted lines 4 4 and 5 5 of Fig. 2. Fig. 6 is a side view and Fig. 7 a front view of a section of one of the brakes and a part of its operating devices shown in side elevation, as applied to the car-wheels in Fig. 1. Fig. 8 shows a step and foot-rod provided with a coiled spring and a spring-barrel, partly in section, so as to display the spring and foot-rod in place within the barrel. Fig. 9 is a side view of the step, angular foot-rod, and barrel, and a flat spring working against a pin projecting inwardly from the foot-rod.

A indicates the main frame of the hand-car; B, the wheels; C, the main driving gear-wheel gearing with a pinion (not illustrated) fixed on the axle of one pair of wheels.

D indicates the walking-beam provided with handles E; F, its supporting-frame, and G the connecting-rod between the walking-beam and the crank H of the main driving gear-wheel.

I indicates the brake-shoes pivoted to the main frame at K.

L indicates a pair of rods or toggle-levers, pivoted at their outer ends to the lower portions of the brakes and at their inner ends to the foot or toe of the foot-rod M, which rod works vertically within the barrel N.

From the foregoing description and by reference to the drawings the general outlines of the construction of the car will be understood, and it will be perceived that to drive it the walking-beam is operated by means of its handles in the usual way, and that to stop it pressure by means of the foot or otherwise is applied to the step O, which will cause the brake-shoes to press against the peripheries of the front and rear wheels through the instrumentality of the foot-rod and the toggle-levers. There may, of course, be a set of brake mechanism upon each side of the car, if desired.

I will now proceed to describe more exactly what are my improvements as specified in my claims, so as to distinguish them from subject-matter which is old in hand-cars.

In the ordinary hand-car the walking-beam and its rock-shaft are usually cast in one piece, or else the rock-shaft is welded or shrunk or otherwise rigidly fixed to the walking-beam. It is desirable in practice that the walking-beam may be adjusted on the rock-shaft and be readily removable therefrom. Therefore instead of constructing and connecting the beam and its rock-shaft in the usual manner, I provide a shoulder or collar, P, or equivalent stop upon the rock-shaft, and also a screw-thread, Q. I then provide a hole through the center of the walking-beam and slip it to place upon the shaft against the collar, and then when properly adjusted screw a nut, R, tightly against it and clamp it in place between the collar and the nut. This renders it easy to adjust the beam relatively to the rock-shaft, and also to remove it at will, and in case either the beam or the shaft is broken but one of these parts need be replaced, which is a material economical advantage.

In the ordinary hand-car the attachment of the connecting-rod to the walking-beam is usually made by means of an eye or pivot of any ordinary construction, so that when lost motion occurs, as it will do very soon in practice on account of wear, there is no means of adjustment to take it up, and it continues to increase and renders the connecting parts more liable to break, more difficult to work, and jerky and noisy in operation. To overcome this difficulty I provide a suitably-turned wrist-pin, S, and a pin-hole, preferably in a downward projection, T, of the walking-beam, and shrink the pin very tightly into its hole. I then provide a journal-box in two parts for the

pin upon the end of the connecting-rod, as follows: The rod is provided with a head or plate, U, upon which rests one part of the box V. The other part or cap, W, is placed over the pin and over the first part, and the two parts are held securely in place by means of a U-bar, X, passing through holes in the head of the connecting-rod and clamping down securely upon the box by means of nuts Y. With this careful securing of the wrist-pin and with exact fitting of the box to the pin there will be no play or lost motion, and it will not rapidly occur by wear, because the material for the parts of the box can be selected with reference to its anti-frictional and durable qualities; but when wear has taken place and lost motion begins to be manifest it can readily be remedied by detaching the parts and grinding off the contact faces of the sections of the box, and then adjusting them to place and securing them, as before.

In the ordinary hand-car the main driving gear-wheel is secured to the crank-shaft either by means of a set-screw or a key connecting the hub of the wheel with the shaft. In this style of fastening the strain all comes upon the holding screw or key, which is very liable to get loose and is very insecure. To provide against this difficulty, I cast or otherwise secure a cross-bar, Z, upon the main driving gear-wheel extending from one radial arm to another, and provided with two lugs, *a*, between which is a radial crank-recess. The radial recess for the crank-arm may be formed by lugs projecting from one of the radial arms of the wheel or otherwise in the manufacture of the wheel. In connecting the crank and main driving-wheel together I place the crank-arm *b* between these lugs in the recess, where it is neatly fitted, and a set-screw, *c*, or any other appliance may be employed to connect the hub of the wheel with the shaft, merely to prevent its slipping longitudinally out of place on the shaft. By this means the strain is taken away from the hub and parts which usually attach it to the shaft and carried radially outward to a point on the crank-arm nearly, or it may be quite, to where the driving-power of the connecting-rod from the walking-beam is exerted upon the crank, which affords great security. There is thus provided such an extent of bearing-surface between the crank-arm and the holding-lugs that the crank-shaft can never become in any way loose in its connection with the main driving gear-wheel.

The brake mechanism has already been partly described, and it only remains to add that the coiled spring *d* is so applied to the foot-rod within the barrel N as to tend to elevate the rod and normally to elevate it sufficiently to withdraw the faces of the brake-shoes from contact with the peripheries of the wheels. A flat spring, *e*, working against the pin *f* or the like, may be employed instead of the coiled spring. When it is desired to apply the brakes, pressure upon the step, as above stated, is applied by the foot, which forces the brake-shoes against the peripheries of the wheels, and when the pressure is relieved the spring immediately withdraws the brake-shoes from contact with the wheels automatically through the instrumentality of the toggle-levers or other equivalent connecting mechanism between the foot-rod and brake-shoes which may be employed.

Having thus described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the walking-beam of a hand-car provided with a central rock-shaft hole, a rock-shaft adapted to pass through the hole in the beam, these two parts being secured together adjustably and detachably by means of a thread on the rock-shaft and a clamping-nut, substantially as set forth.

2. In combination with the walking-beam of a hand-car, a turned wrist-pin rigidly attached thereto, and a pitman-rod provided with the head or plate U, the two parts of the journal-box V and W, and the U-bar X, and nuts Y, all constructed and operated as set forth.

3. A main driving-gear for a hand-car, provided with a radial recess for the crank-arm, substantially as set forth.

4. The combination, with the main driving-gear, of the cross-bar Z and lugs *a*, forming a recess for the crank-arm, substantially as set forth.

5. In a hand-car, the combination, with the brake-shoes and toggle-levers, of a foot-rod provided with a retracting-spring and having a step upon which the weight of a person may be thrown so as to break both front and rear wheels at one side of the car, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

GEORGE SOLYMAN SHEFFIELD.

Witnesses:
ALBERT C. TITUS,
O. P. SLOTE.