

(No Model.)

T. W. BOYLE.

WEIGHING ATTACHMENT FOR HAND TRUCKS.

No. 252,070.

Patented Jan. 10, 1882.

Fig. 1.

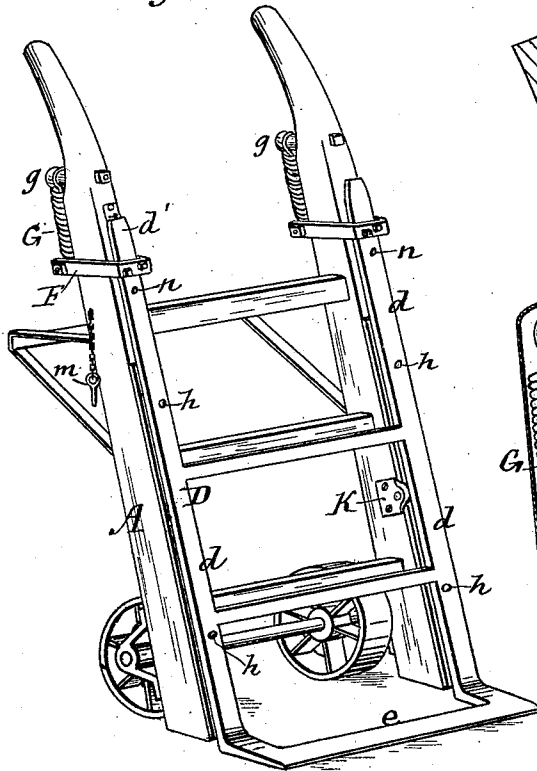


Fig. 2.

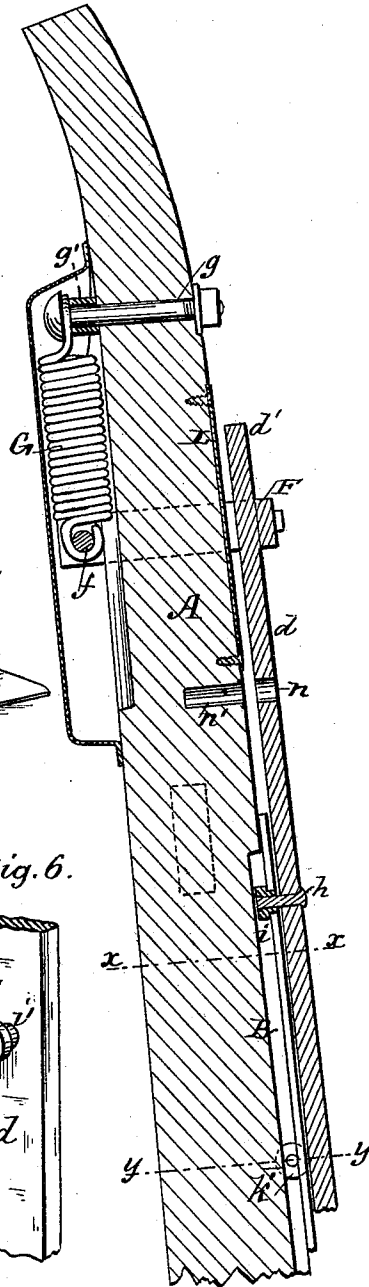


Fig. 3.

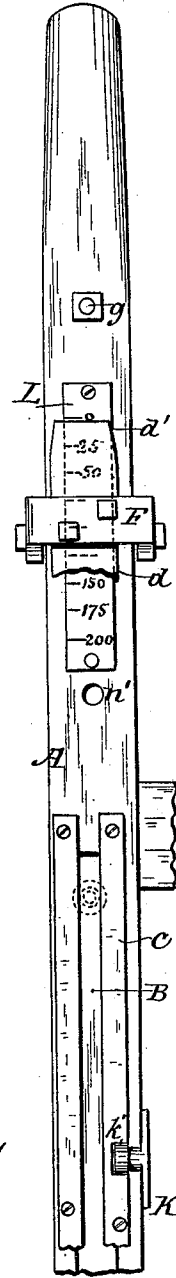


Fig. 4.

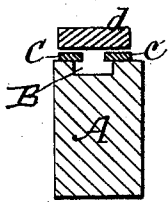


Fig. 5.

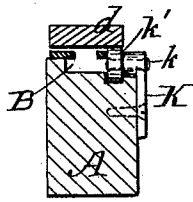
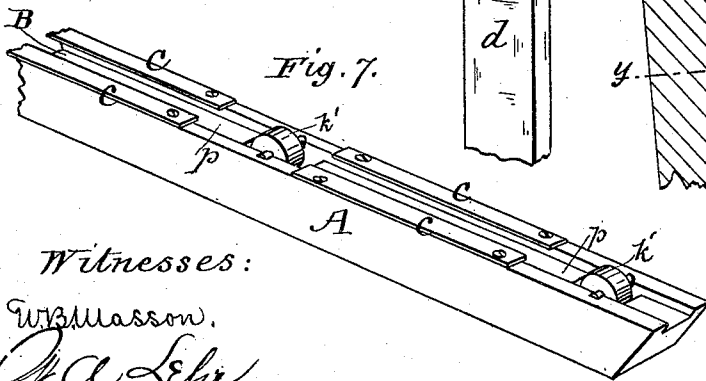


Fig. 6.



Fig. 7.



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THADDEUS W. BOYLE, OF AUGUSTA, GEORGIA.

WEIGHING ATTACHMENT FOR HAND-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 252,070, dated January 10, 1882.

Application filed May 20, 1881. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS W. BOYLE, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Weighing Attachments for Hand-Trucks, of which the following is a specification.

The object of my improvements is to combine with an ordinary hand-truck frame a weighing attachment, by means of which the weights of articles carried by the trucks may be ascertained.

In the accompanying drawings, Figure 1 is a perspective view of a hand-truck provided with my improved weighing attachment. Fig. 2 is a longitudinal section through one of the side pieces of the truck and one of the side bars of the weighing-frame. Fig. 3 is a front view of a portion of one of the side pieces of the truck with all except the upper portion of the side bar of the weighing-frame removed. Fig. 4 is a section on line *x x*, Fig. 2. Fig. 5 is a section on line *y y*, Fig. 2. Fig. 6 is a view of a portion of one of the side bars, showing its under side and the friction-roller pivoted thereto; and Fig. 7 is a perspective view of one of the side pieces of the truck-frame.

The letters A A indicate the side pieces of an ordinary hand-truck, having formed in the lower portions of their upper surfaces recesses B, as shown in Figs. 2, 3, 4, and 5. To the upper surfaces of these side pieces are firmly secured plates C C, projecting inwardly a little distance over the recesses.

The letter D designates the weighing-frame, composed of the side bars, *d*, which rest upon the upper surfaces of the side pieces of the truck, and the lifting-piece *e*, which connects the lower ends of said side bars, which are also connected by suitable intermediate cross bars.

To each of the side bars, *d*, near its upper end is firmly secured a loop, F, formed of a bent metallic bar, the ends of which are connected by a cross bar or bolt, *f*, extending across the under side of the side piece of the truck; and to this cross-bar *f* is connected one end of a spiral spring, G, the other end of which is connected to a stud or bolt, *g*, projecting from the under side of the side piece near its handle, the end of the spring being kept in position between the sleeve *g* upon said bolt and the head thereof.

From one or more intermediate points of each of the side bars, *d*, a pin, *h*, projects inwardly, and has mounted upon it a friction-roller, *i*, provided with a hub, *i'*. This hub *i'* plays between the edges of the plates C C, while the roller *i* plays in the recess B and extends laterally under said plates.

At an intermediate point of the inner side of each of the side pieces of the truck there is fixed a bracket, K, from which a pin, *k*, projects outwardly across the inner margin of said side piece, and has mounted upon it a friction-roller, *k'*, upon which rests the inner margin of the under side of one of the side bars, *d*, of the weighing-frame. These friction-rollers *i k* promote an easy longitudinal movement of the weighing-frame, while the rollers *i* retain also the weighing-frame D in position upon the frame of the truck. The side bars, *d*, have their upper ends, *d'*, projecting beyond the loops F, and under the upper portion of one of these side bars a graduated index-plate, L, is secured to the upper surface of one of the side pieces of the truck in such position as to be more or less uncovered, according to the position of the weighing-frame, which moves downwardly in proportion to the weight placed upon it, the upper end edge of the side bar indicating by its position with respect to the graduated plate the weight upon the weighing-frame in pounds. The springs G are extended when weight is placed upon the weighing-frame, and perform the ordinary function of the springs in the spring-scales. They may be inclosed with light sheet-metal shields *a'* or sunk into the handles.

When the truck is to be used in the ordinary manner, without weighing, the weighing-frame may be secured permanently in position by means of pins *m*, inserted through holes *n* in the side bars, *d*, and projecting into sockets *n'* formed to receive them in the side pieces of the truck. These pins may be also used after weighing is completed by bringing the truck down to a horizontal position, so that the lifting-piece *e* will be relieved of the weight, and the weighing-frame therefore drawn to its normal position by the springs G. Thus used, the pins *m* prevent the vibration of the weighing-frame and unnecessary strain upon the springs when the truck is being used for purposes of transportation.

In Fig. 7 one of the side pieces, A, of the

truck-frame is represented with the plates C made in short lengths and fastened to bars on each side of the path of the retaining-rollers *i* of the weighing-frame D, allowing said rollers *i* to be entered at *p* under the plates C, the friction-rollers *k'* being then preferably located within suitable bearing-boxes in the central groove, B, of the frame A.

Having now fully described my invention, I claim—

1. The combination, with a hand-truck frame, of a weighing-frame resting upon the upper surfaces of the side pieces of said truck, and provided at its lower end with a suitable lifting-piece, one or more weighing-springs connected with the truck and also with said weighing-frame, and a suitable index, substantially as and for the purpose described.

2. The combination, with the side pieces of the truck, of the weighing-frame having the side bars, *d*, and lifting-piece *e*, loops F, and the springs G, connected at one end with said loops and at the other end with the side pieces of the truck, substantially as described.

3. The combination, with the side pieces of the truck and the weighing-frame having the side bars, *d*, of suitable anti-friction devices arranged between said side bars and the side pieces of the truck, substantially as and for the purposes set forth.

4. The combination, with the side pieces of the truck, having the recesses B and plates C, partially overhanging said recesses, of the weighing-frame, having its side bars, *d*, provided with friction-rollers *i*, playing in said recesses under said plates, substantially as described.

5. The combination, with the side pieces of the truck and the weighing-frame having its side bars, *d*, arranged above said side pieces, of the friction-rollers *k'*, arranged under said side bars, substantially as and for the purpose set forth.

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Witnesses:

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