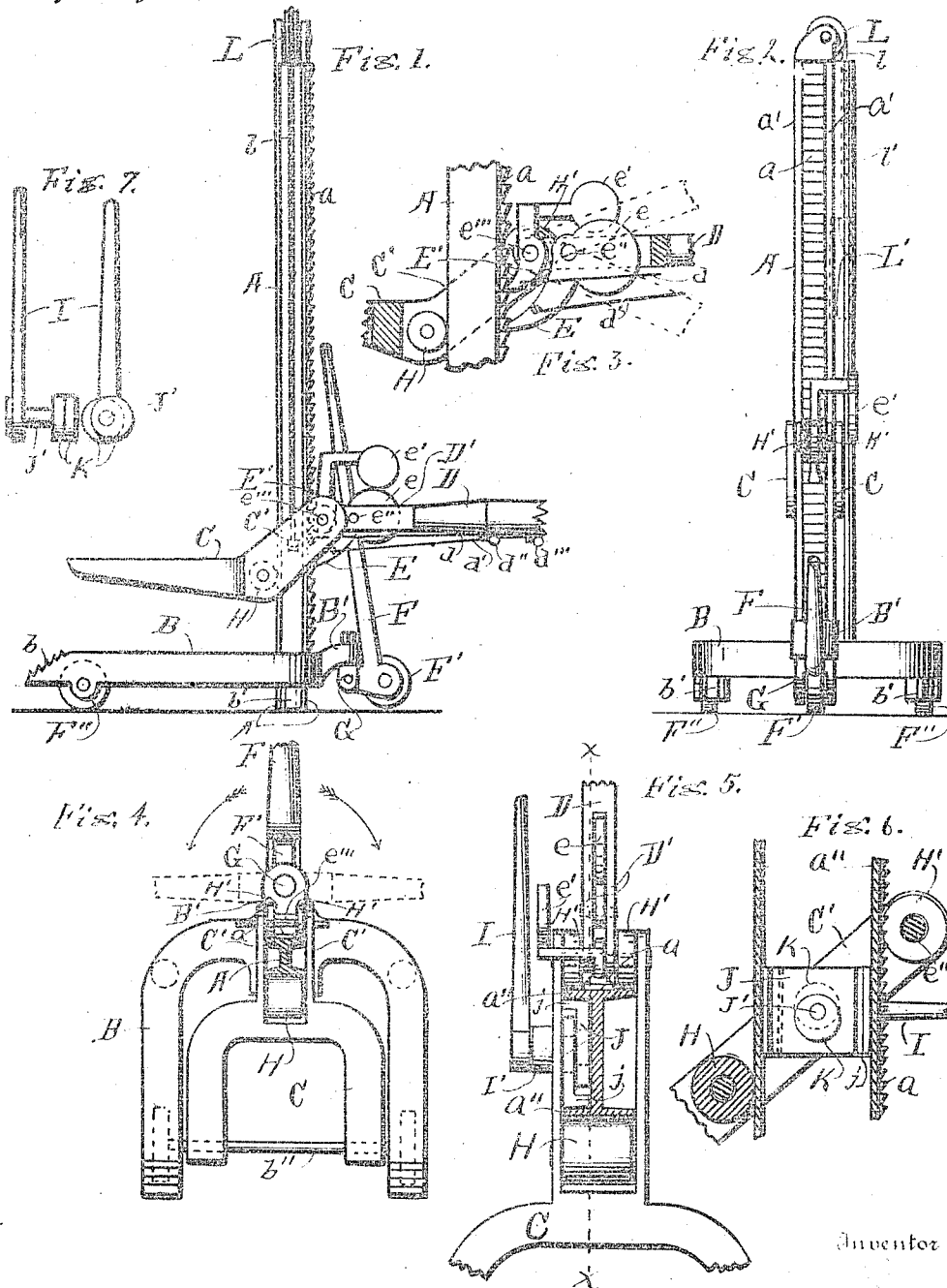


E. C. RICHARDSON.
LIFTING IMPLEMENT.
APPLICATION FILED JUNE 24, 1911.

1,029,823.

Patented June 18, 1912.



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EDWIN C. RICHARDSON, OF GRAND RAPIDS, MICHIGAN.

LIFTING IMPLEMENT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN C. RICHARDSON, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Lifting Implements, of which the following is a specification.

My invention relates to improvements in appliances for raising heavy packages to, or lowering them from different heights, and its objects are: first, to provide an implement for raising and lowering packages with which the actuating lever will travel with the elevating platform; second, to provide an implement for raising and lowering packages that may be readily moved from place to place with or without its load, and, third, to provide an implement of the kind named with which the raising elements may be disengaged and the elevator platform and its load may be lowered by means of a friction brake. I attain these objects by the mechanism illustrated in the accompanying drawing, in which,—

Figure 1 is a side elevation of the implement. Fig. 2 is a front elevation of the same. Fig. 3 is a detailed view showing the relative position of the lever and pawls with the standard. Fig. 4 is a plan of the main platform and the elevating platform with the standard shown in section, and the elevating lever removed to show the position of the lever that raises and lowers the platform. Fig. 5 is a sectional plan of the standard showing the relative positions of the elevating platform and lever. Fig. 6 is a sectional elevation of the flanges of the standard on the line *xx* of Fig. 5 to disclose the position and action of the friction brake shoes. Fig. 7 shows a side, and an edge view of the lever and eccentrics with which the brake shoes are operated.

This implement is constructed with a standard A, mounted on a base B and having a series of teeth or serrations *a* on the front surface upon which the points of the pawls E and E' act for raising and lowering the elevator platform C. This platform is made with the body C and with two arms C', one of which is situated on each side of the standard A and a roller is placed between them at H to travel upon the back surface of the standard, and two similar rollers, H', to travel upon the plain surfaces *a'* on the front surface of the standard to

lessen friction to the minimum when handling heavy loads.

The appliances for actuating the elevator platform C consists of a lever D that is fulcrumed to the arms C' as at *e'''*, see Figs. 1 and 3, and has a pawl E fulcrumed to this lever, as at *e''* and another pawl E' fulcrumed to the end upon the pin *e'''* to which the lever itself is fulcrumed to the arms C'. These pawls have counter weights *e* and *e'*, respectively, in position to throw and hold them, normally, in engagement with the teeth *a* on the standard. It will be readily understood that if the lever D is raised upward, as indicated by the upper set of dotted lines in Fig. 3, the pawl E' will be held in firm engagement with the teeth *a* on the standard and the pawl E will be carried upward with the lever to engage teeth higher up on the standard, and if the lever is drawn downward as indicated by the lower set of dotted lines in Fig. 3, the pawl E will be made to engage the teeth on the standard and will act as the fulcrum over which the lever acts, and the pawl E' and the elevator platform C will be raised accordingly. If desiring to lower the platform with the lever D the operator draws first on the rod *d* to relieve the pawl E' and then raises the end of the lever, and when the lever has been raised to the desired height he releases the pawl E' and allows it to engage the teeth on the standard when he draws on the rod *d'* and releases the pawl E and lowers the lever to the desired distance, and continues this action until the platform has been lowered to the desired position.

d'' and *d'''* are rings on the rods *d* and *d'* respectively, with which to conveniently handle them.

To facilitate the handling of the platform C I place a sheave L at the top of the standard A and pass a cable or cord *l* over it, securing one end of said cable to the arm C' of the platform C, and the other end to a weight L', shown in dotted lines inside of the tube *V* in Fig. 2, which weight is designed to act as a counterpoise for the platform C, and will rise and lower as the platform lowers and rises. When desiring to lower the platform C by friction, I provide a brake consisting of two shoes J, see Figs. 5 and 6, which are provided with a hole through each for the reception of the eccentric wheels K, shown in solid lines upon the front shoe, and in dotted lines

upon the back shoe, in Fig. 6, which eccentrics are mounted on a short shaft, J', that passes through the arm C' of the platform C, and the boss I', thereon, and has a lever I attached to its outer end by means of which said eccentrics may be actuated to force the shoes firmly against the inner surfaces of the flanges a'' of the standard A with sufficient force to govern the descent of the platform and its load, perfectly, or to draw them simultaneously away from said flanges to leave the platform free to be raised and lowered at the pleasure of the operator.

The platform B is provided with two wheels F'' near the back end, and with one adjustable wheel F' at the front end. It also has two legs b' at the front end, and the lower end of the standard A extends down below the platform to the same plane as the lower ends of the legs b' so that when handling a load the entire weight of the load may be made to rest upon the floor or other supporting element. If it is desired to move the implement and its load, or the implement alone, the lever F is drawn down to practically the position indicated in Figs. 2 and 4, when the wheel F' will be forced under the platform and will raise the front end of the implement sufficiently to clear the legs b' from the floor when the implement may be wheeled to any location desired. It will be seen that the lever F has an offset that is fulcrumed to the swiveled bearing G which is pivotally supported in the arm B', projecting from the end of the platform B.

b represents a series of serrations formed on the ends of the arms of the platform B for the purpose of forming a holding element for the edges of packages when loading them upon the platform C, and b'' represents a strengthening bar across between the two arms of the platform B. The end of the lever D next to the standard A is bifurcated, as shown at D', for the reception of the pawls E and E' between the arms D' that forms this end of the lever.

When moving the implement from place to place in a building or other place, the lever F may be carried from side to side, as indicated by the arrows and dotted lines in Fig. 4, to guide the platform in any direction desired.

In the construction of the shoes J I form a protecting wing j to one side of each shoe, of sufficient length or depth to just cover the thickness of the body of the shoe, as shown in Fig. 5.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In an implement for raising and lowering packages, a supporting platform, a standard supported on said platform and having upwardly inclined teeth on one surface, a vertically movable platform having arms projecting by said standard, wheels journaled between said arms to travel upon the front and back surfaces of the standard, a lever pivotally mounted concentric with one set of said wheels, and pawls mounted in said lever in position to alternately engage the teeth on the standard and raise or lower the platform at the pleasure of the operator.

2. In an implement for raising and lowering packages, a supporting platform, a standard supported on said platform and having upwardly inclined teeth on one surface, a vertically movable platform having arms to project by the standard, an antifriction roller to travel on one surface of the standard and two antifriction rollers to travel on the other surface of the standard and one on each side of the teeth, a lever pivotally mounted between the arms concentric with the wheels, a pawl mounted on said lever concentric with the wheels, a pawl pivotally mounted on the lever some distance from the wheels, counter weights to hold said pawls normally in engagement with the teeth, rods for manipulating said pawls to disengage them from the teeth, said pawls so arranged that when the free end of the lever is raised one pawl will engage the teeth and the other pawl will be raised, and when the free end of the lever is carried downward the other pawl will engage the teeth and the first pawl and the platform will be raised, carrying the lever and platform together.

Signed at Grand Rapids Michigan June 20th 1911.

EDWIN C. RICHARDSON

In presence of—

MICHAEL COLLETON,
ITHIEL J. CILLEY.