E. B. FIELD.

Improvement in Combined Extension Skid and Ladder.

No. 129,468. Patented July 16, 1872.

Fig: 1

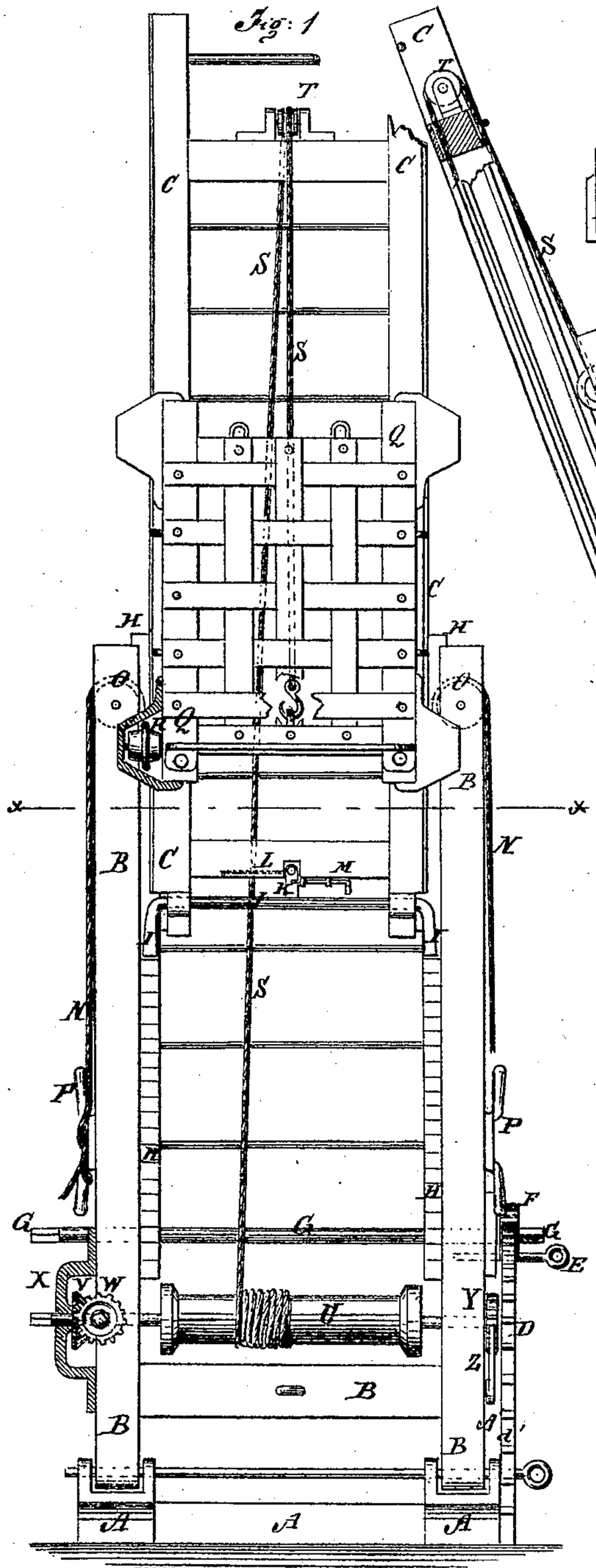

Fig: 3

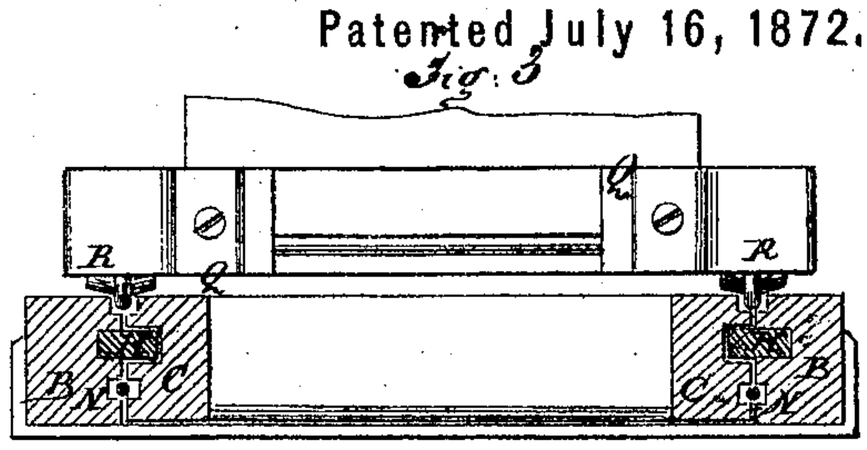

Fig 2

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129,468

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN COMBINED EXTENSION SKIDS AND LADDERS.

Specification forming part of Letters Patent No. 129,468, dated July 16, 1872.

Specification describing a new and useful Improvement in Combined Extension Skid and Ladder, invented by EMANUEL B. FIELD, of Yonkers, in the county of Westchester and State of New York.

Figure 1 is a front view of my improved machine, parts being broken away to show the construction. Fig. 2 is a side view of the same, parts being broken away to show the construction. Fig. 3 is a detail cross-section of the same taken through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved extension skid to enable barrels of flour and other heavy articles to be conveniently carried up a flight of stairs to an upper floor or down a flight of stairs to the basement, and which may also be adjusted for use as an extension ladder for the use of firemen, carpenters, masons, and others; and it consists in the construction and combination of various parts of the machine, as hereinafter more fully described.

A is the base-frame of the machine, which should be made of such a size as to give a firm and stable support to the machine. To the middle part of the side bars of the base-frame A are detachably but securely pivoted the lower ends of the side bars of the lower length B of the extension part B C of the machine, so that the extension part B C may be raised into a vertical position or adjusted at any desired angle upon either side. To the side of the base-frame A is attached a semicircular bar, frame, or plate, D, along the side of which the side bar of the lower length B moves when being raised and lowered. In the bar D are formed a number of holes to receive a pin, E, which is passed through one of said holes and into a hole in the said side bar of the said lower length B, to hold it securely in any position into which it may be adjusted. Along the upper edge of the bar D are formed teeth *d'*, into which mesh the teeth of the small gear-wheel F attached to the shaft G, which revolves in bearings attached to the side bars of the lower length. The ends of the shaft G project and are squared off to receive a crank or cranks for turning the said shaft, and thus raising and lowering the machine. H are bars, which are let into and secured to the inner sides of the side bars of the lower length B, and which have ratchet-teeth formed upon one of their sides. The ratchet-bars H enter grooves in the outer sides of the upper length C, and serve as ways for the said length C to move up and down upon. I are pawls, formed upon or attached to the ends of the rod J, to take hold of the teeth of the ratchet-bars H and hold the extension length C securely in any position into which it may be raised. The rod J works in bearings attached to the lower ends of the side bars of the upper length C, and to its central part is rigidly attached an arm, K, the upper end of which enters a notch in the lower cross-bar of the length C. The arm K is held out to hold the pawls I against the teeth of the bars H by a spring, L, attached to said cross-bar, and which presses against the said arm K. The arm K is held back, when required for lowering the length C, by a bolt, M, secured to the cross-bar of said length C, and which is slid across the said arm K. N are ropes, the ends of which are attached to the lower parts of the side bars of the length C. The ropes N pass up through grooves in the adjacent sides of the side bars of the lengths B C, over pulleys O pivoted in slots in the upper parts of the side bars of the length B, down along the outer sides of said side bars, and are secured to belaying-cleats P or other convenient fastenings attached to the lower parts of said side bars, so that the length C can be readily raised and lowered by operating the said ropes N. Q is a truck for raising and lowering articles upon the extension skid or ladder. The truck or car Q is provided with a rack, net-work, or other bottom, with an upwardly-projecting plate or railing to keep the articles in place upon the car while being raised and lowered, and with a rope for securing said articles. To the under side of the truck or car Q, at or near its corners, are pivoted wheels R, which are let into said frame or are placed in boxes attached to said frame so as to project but little below its surface, as shown in Figs. 2 and 3. The wheels R are made wide and with a flange around their centers, as shown in Figs. 1 and 3. The adjacent edges of the upper side of the side bars of the lengths B C are beveled off or rabbeted to form grooves to receive the central flanges of the wheels R as shown in Fig. 3. With this construction,

when the car or truck Q is upon the lower part of the lower lengths B the outer ends of the wheels R roll along the upper surface of the side bars of said length. When the car Q is upon the upper part of the length C the inner ends of the wheels R roll along the upper sides of the side bars of the said lengths C. When the car Q is passing along the overlapped parts of the lengths B C the wheels R roll along the upper sides of the side bars of both lengths, as shown in Figs. 1 and 3. S is a rope, which has a hook attached to one end to hook into an eye-bolt, staple, or other device attached to the frame of the truck Q. The rope S passes over a pulley, T, pivoted to the center of the upper cross-bar of the length C, passes down, and is attached to a shaft or drum, U, pivoted to the lower part of the side bars of the length B. The projecting end of one journal of the shaft or drum U is squared off to receive the crank, by which the said drum or shaft is revolved to raise or lower the car Q. To the said journal of the shaft or drum U, near its end, is attached a bevel-gear wheel, V, into the teeth of which mesh the teeth of the bevel-gear wheel W, the journals of which are at right angles with the length of the shaft or drum U, and the end of its upper journal is squared off to receive a crank, so that the drum may be conveniently revolved, whatever may be the position of the lengths B C. The gear-wheels V W should be covered with a box or casing, X, to protect them from obstruction or injury. To the other journal of the shaft or drum U is attached a ratchet-wheel, Y, with the teeth of which the pawl Z engages to prevent the shaft or drum U from turning back, and thus to hold the car securely in any position into which it may be raised. The pawl Z is held against the teeth of the ratchet-wheel Y.

When the device is used as an extension skid the base-frame A and toothed rack D may be detached, if desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with the upper length C and the racks H of the lower length B, the journaled rod J provided with the pawl ends I I, and the arm K entering a notch of the cross-bar and engaging with the spring L and bolt M, to operate as and for the purpose specified.

2. The wheels R, having a flange formed around their centers, in combination with the lengths B C provided with grooves to receive said flange, substantially as herein shown and described, and for the purpose set forth.

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Witnesses:
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