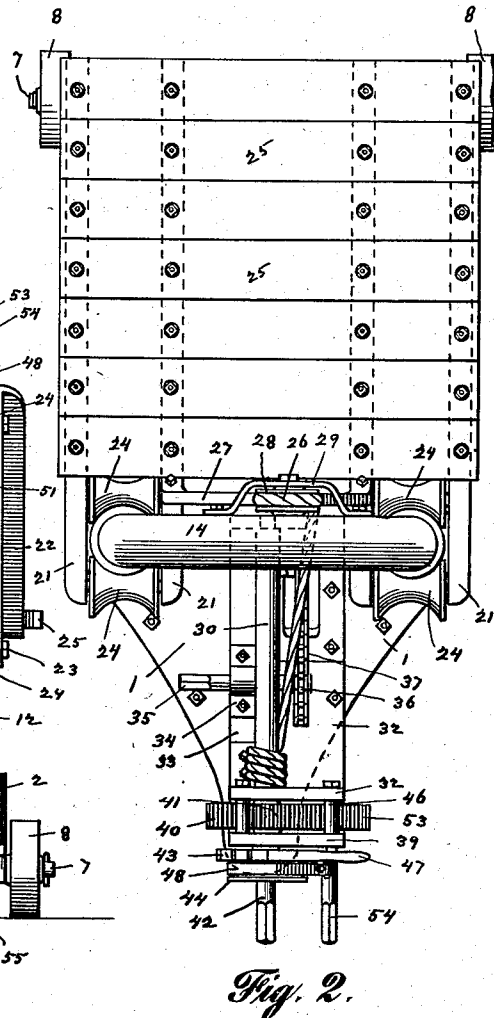
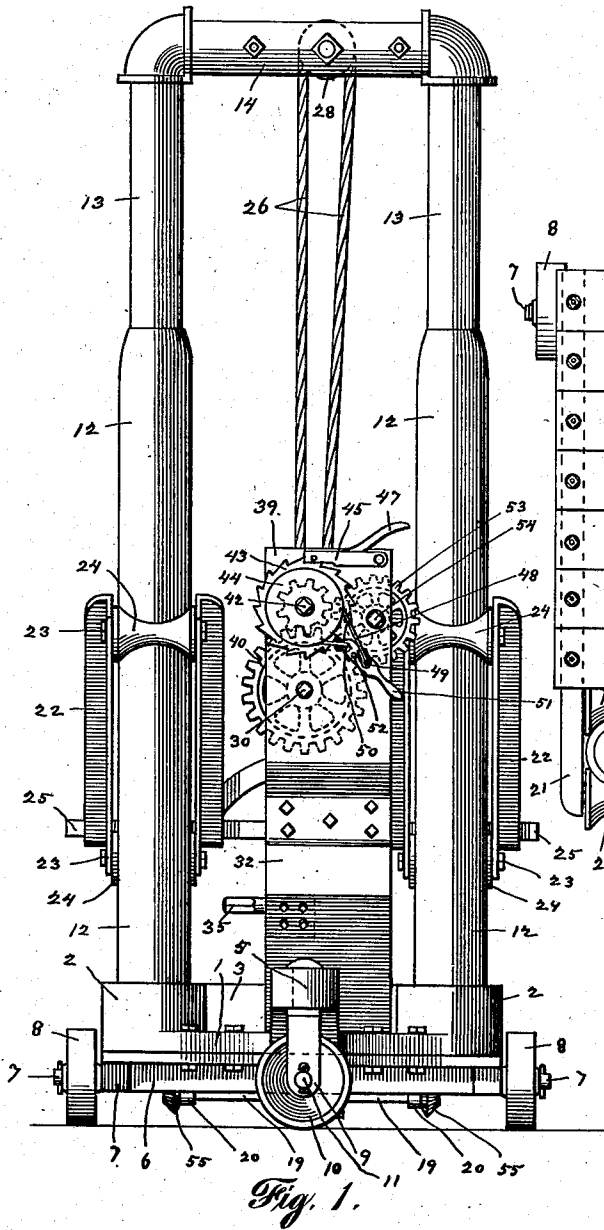


S. B. MINNICH.
 PORTABLE TELESCOPING ELEVATOR.
 APPLICATION FILED DEC. 8, 1908.

937,256.

Patented Oct. 19, 1909.

3 SHEETS—SHEET 1.



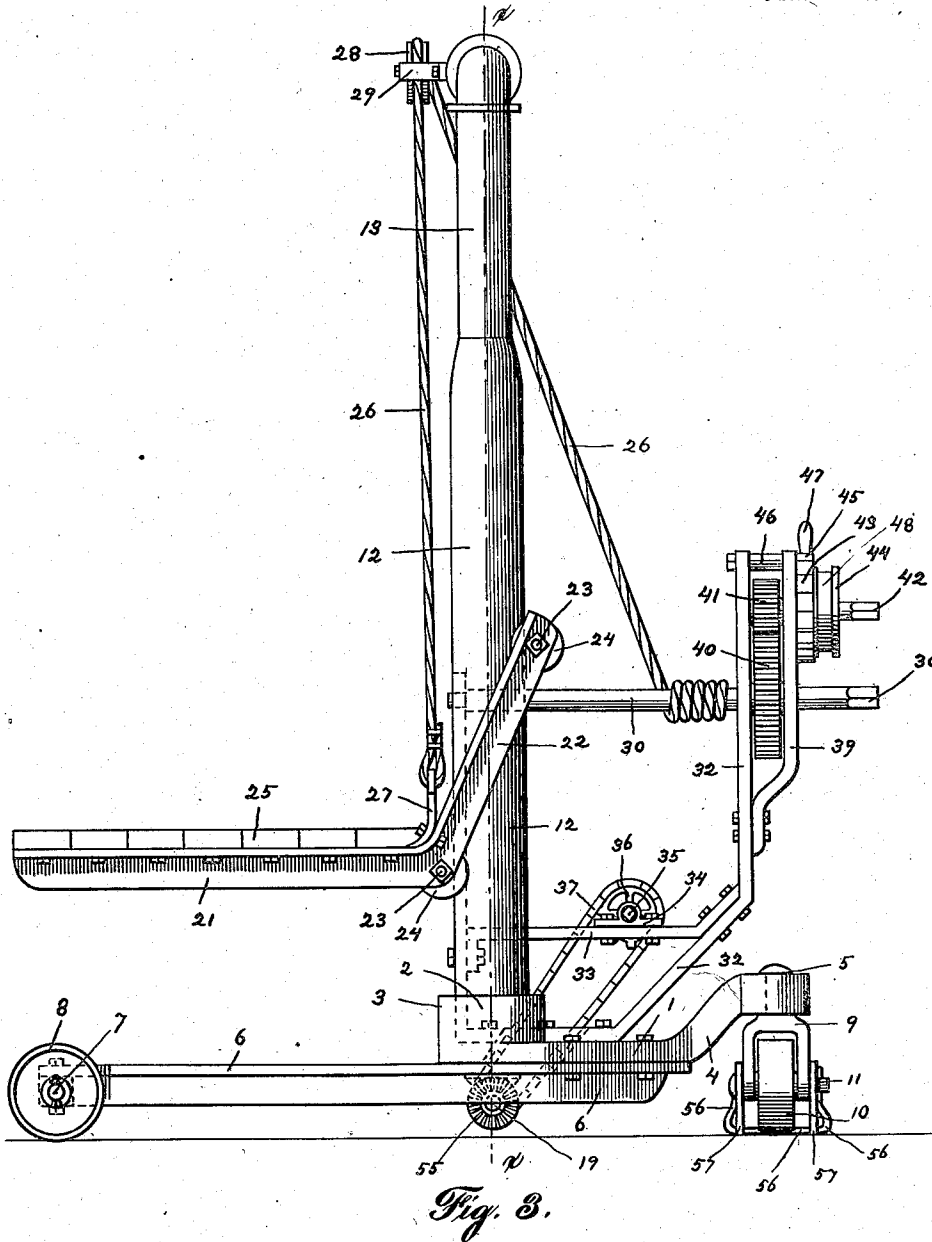
WITNESSES:
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WITNESSES:

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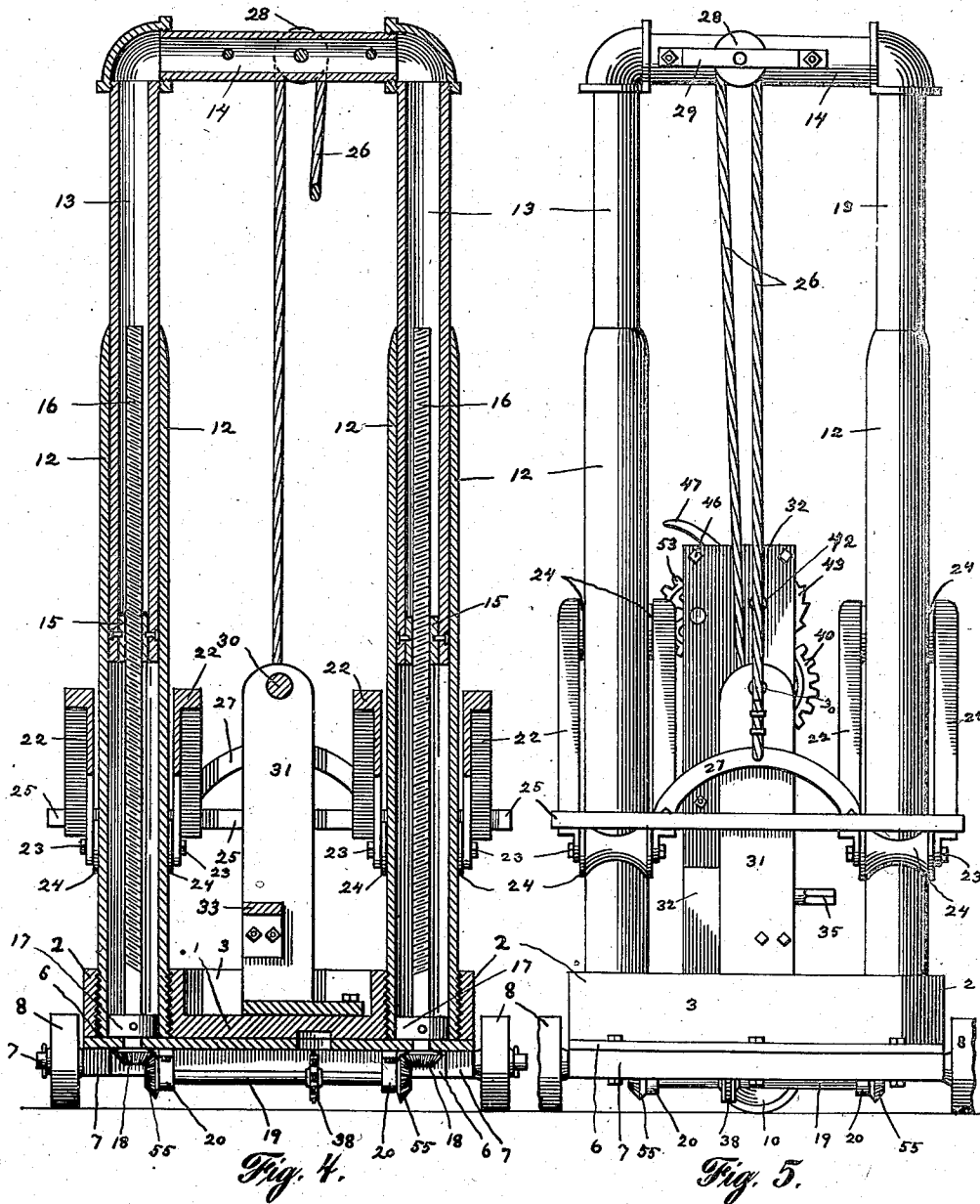
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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PORTABLE TELESCOPING ELEVATOR.

937,256.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed December 8, 1908. Serial No. 466,452.

To all whom it may concern:

Be it known that I, SIMON B. MINNICH, a citizen of the United States, residing at Landisville, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Portable Telescoping Elevators, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to a portable elevator or hoist, such as is used to elevate merchandise in store-houses and for like purposes, and it more fully relates to that class of elevators or hoists which are designed to be readily moved from place to place, either while not in use or after the merchandise is placed thereon and moved to another location before elevating.

The objects of the invention are to produce a device of this kind that will have ample lifting power, be simple of operation and readily portable; and also by my novel construction of telescoping, the height may be reduced at will to enable the apparatus to be moved through low doorways and to be operated in buildings with low ceilings.

With these and other objects in view my invention consists in certain novel construction and combination of parts as will hereinafter be fully described and claimed in the annexed specification and illustrated in the accompanying drawings forming part of the application, but it is fully understood that while I have here described my invention as illustrated in the accompanying drawings, it is fully understood that slight changes may be made in the construction and combination of the parts, without departing from the spirit of the invention.

In the drawings:—Figure 1, is a rear elevation of the apparatus, showing the elevator in a partly raised position. Fig. 2, is a top plan view of the same. Fig. 3, is a side elevation of the same, with the drawing handle added. Fig. 4, is a vertical sectional view taken on the line X X of Fig. 3, looking toward the front. Fig. 5, is a front elevation of the apparatus.

Referring to the drawings in which like figures of reference indicate corresponding parts in all the views, 1, indicates a triangular base plate which is formed with the two circular bosses 2, near the front end and integral therewith and connected to each other and to the plate 1, by the wall 3, while

the rear end or apex of said base 1, terminates in the goose neck 4, which is formed with a vertical bearing 5, in the body thereof. Said base plate 1, is supported and secured upon the frame 6, (which is here shown as constructed of angle-iron) and to the forward end of said frame 6, within said angle is secured the axle 7, upon the ends of which are secured the wheels 8, while pivotally mounted within the vertical bearing 5, in the goose neck 4, is the forked shaft 9, within the forks of which is mounted the wheel 10, by the pin 11, which completes a three wheeled truck, and it may be here stated that any well known form of a drawing handle 56, may be attached to said swivel wheel for the purpose of guiding and propelling said apparatus, and also for anchoring the apparatus in place by gripping the wheel or floor by the points 57. Within said bosses 2, are screw-threaded or otherwise secured the lower ends of the tubular hollow posts 12, which extend upward in a vertical relation to the base and parallel to each other, while within the upper portion of said posts 12, are slidably mounted in a telescoping manner the tubes 13, which have their upper ends joined together by the cross-bar 14. Within the lower ends of said tubes 13, are rigidly secured the plugs or nuts 15, which are engaged by the elevating screws 16, which are threaded therethrough, and which are here shown as having right and left hand threads. Said elevating screws 16, are provided near their lower ends with the collars 17, which are rigidly secured thereon and which are designed to be rotated within the lower ends of the hollow posts 12, and with their lower surfaces bearing upon the frame 6, thus supporting the tubes 13, upon the elevating screws 16, and within the tubes 12; while the lower ends of said screws 16, beyond the collars 17, project through said frame 6, and have rigidly secured thereon the bevel gears 18, which are in mesh with the bevel gears 55, which are rigidly secured upon the ends of the horizontal shaft 19, which is mounted in the bearings 20, which are secured to the under surface of the frame 6.

It may here be noted that while I have here shown the elevating screws 16, to have right and left hand threads, respectively, and the bevel gears 55, to be in mesh with the inner sides of the gears 18, one of said gears

55, may be faced the other way and brought into mesh with the outer side of one of said gears 18, thus allowing the two elevating screws to be of the same thread.

5 The elevator platform or conveyer is constructed of the supports 21, which are preferably of angle-iron and which are formed with the upwardly and rearwardly extending portions 22, which are placed one on
10 each side of the posts 12, and which are secured in pairs by the shafts 23, and upon said shafts 23, are rotatably mounted the rollers 24, which are formed with a curved face to conform to the outer diameter of the
15 posts 12, and are adapted to roll thereon, the lower ones against the forward side, and the upper ones against the rear side of said posts and also upon the tubes above said posts in the same manner, thus retaining the supporting portions 21, in a horizontal position, while upon the upper surface of said
20 supporting portions 21, is secured the platform 25, which also serves to retain said supports in a properly spaced and rigid manner.

25 The elevator raising and lowering mechanism consists of the cable or chain 26, one end of which is secured to the yoke 27, which is secured to the supports 22, and is then carried up and over the sheave wheel 28,
30 which is mounted in the bracket 29, secured to the cross-bar 14, and thence downward with its end secured to the winding shaft 30, which is mounted in and between the bearing plates 31, and 32, which have their
35 lower ends secured to the base 1.

Near the lower ends and between the bearing plates 31, and 32, is secured the cross-brace 33, while upon said cross-brace 33, is
40 mounted the bearing 34, within which is rotatably mounted the shaft 35, which is squared at one end to receive a wrench or hand-crank, and upon its other end is rigidly secured the sprocket wheel 36, which is belted by the sprocket chain 37, to the
45 sprocket wheel 38, which is rigidly secured upon the shaft 19, and which operates the telescoping device. The bearing plate 32, is provided with the outer bearing plate 39, secured thereto; while between said plates
50 32, and 39, is mounted the spur gear 40, rigidly secured upon the winding shaft 30, and in mesh with the pinion 41, which is rigidly secured upon the short shaft 42, which is rotatably mounted in said bearing
55 plates 32, and 39.

Upon the shaft 42, without the bearing plate 39, is rigidly secured the ratchet wheel 43, and the brake band drum 44, while the
60 end of said shaft 42, is squared to admit of a hand-crank (not shown) to rotate the same. The action of the ratchet wheel 43, is controlled by the dog 45, which is pivoted on the end of the stud 46, and which is operated by the hand lever 47. The brake band 48, is
65 passed around the drum 44, and has its ends

secured by the pins 49, and 50, to the brake lever 51, which is mounted upon the stud 52, projecting from the plate 39, and is intended to regulate and control the lowering of the elevator platform.

70 While the proportion of the gears 40, and 41, is such that the winding and raising of the elevator platform will be easy under a load, I have also provided the gear 53, which also meshes with the gear 40, and is mounted
75 upon the shaft 54, which is rotatably mounted in the bearing plates 32, and 39, and which is also provided with a squared end for a hand-crank, and owing to the fact that said gear 53, is of much greater diameter
80 than the gear 41, by its use the operation of winding will be much faster, but the leverage will not be obtained to elevate such a heavy load as by the gear 41.

85 The operation of the apparatus as a whole is as follows:—The desired height of the telescoping device is attained by the operation of the elevating screws raising or lowering the nuts and tubes by the revolution of the bevel gears, sprockets and chain, and as
90 actuated by the shaft. The desired height having been reached after having passed the apparatus through a doorway, the elevator platform may be raised by rotating either
95 the shaft 42, or the shaft 54, according to the weight of the load, and lowered by disengaging the dog from the ratchet and allowing the cable to unwind from the shaft and as regulated by the band brake.

100 Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. An apparatus of the class described, comprising a base plate in the form of a truck, upright hollow posts having their
105 lower ends secured to said base plate and in a parallel relation with each other, hollow tubes slidably mounted within said posts and connected together at their upper ends, and having the walls of their lower ends thick-
110 ened and screw-threaded, elevating screws mounted within said hollow tubes and posts having their body portions threaded through the lower ends of said tubes and their lower
115 ends rotatably mounted in and extending through said base plate, bevel gears secured upon the lower projecting ends of said screws, a horizontal shaft mounted under
120 said base plate, bevel gears secured upon said shaft and in mesh with said bevel gears upon said screws, and means for rotating said shaft, an elevating platform slidably mounted upon said posts and tubes, means for raising and lowering said plat-
125 form and means for controlling the speed of said raising and lowering.

2. An apparatus of the class described, comprising a movable platform, telescoping
uprights formed of tubes slidably mounted within each other, a base plate secured to 130

the lower ends of the outer pair of uprights, a cross-bar secured to the upper ends of the inner pair of uprights, elevating screws contained within said telescoping uprights with
 5 their lower ends mounted in bearings in said base plate and having their body portions screw-threaded within the lower ends of said upper telescoping tubes and adapted by their rotation to raise and lower said upper tubes
 10 within said lower tubes, means for rotating said screws, an elevating platform formed with angular supports embracing the sides of said telescoping uprights, rollers rotatably mounted between the sides of said angular supports and adapted to roll in contact
 15 with the surface of said uprights, and means for raising and lowering said elevating platform.

3. An apparatus of the class described,
 20 comprising a base plate, wheels supporting said base plate, telescoping uprights mounted upon said base plate, elevating screws mounted in bearings in said base plate and screw-threaded into the sliding members of
 25 said telescoping uprights and adapted for extending and contracting said telescoping uprights, an elevating platform slidably mounted upon said uprights, bearing plates secured to said base plate, a main winding-shaft mounted in said bearing plates, and
 30 means for operating the same, a pulley mounted near the upper end of said telescoping uprights, and a lifting cable passed

over said pulley and having one end secured to said elevating platform and the other end
 35 secured to said winding-shaft and adapted to be wound thereon.

4. An apparatus of the class described, comprising telescoping uprights joined together at their upper ends and mounted
 40 upon a movable base, an elevating platform slidably mounted upon said uprights, a forward bearing plate and a rear bearing plate secured upon said base and an outer bearing plate secured to said rear bearing plate and
 45 spaced therefrom, a main winding shaft mounted in said bearing plates, a main gear secured upon said winding shaft and adapted to rotate the same, a hand-crank shaft mounted in said bearing plates parallel and
 50 adjacent to said winding shaft, a pinion secured upon said shaft and in mesh with said main gear, a ratchet wheel secured upon said hand-crank shaft and a brake drum secured upon said shaft in contact with said
 55 ratchet wheel, a ratchet dog pivoted upon said outer bearing plate and adapted to engage said ratchet, and a band brake mounted upon said outer bearing plate and adapted to engage said brake drum.
 60

In testimony whereof I affix my signature in presence of two witnesses.

SIMON B. MINNICH.

Witnesses:

WM. J. COULTER,
 MABEL L. LEFEVRE.