

No. 864,540.

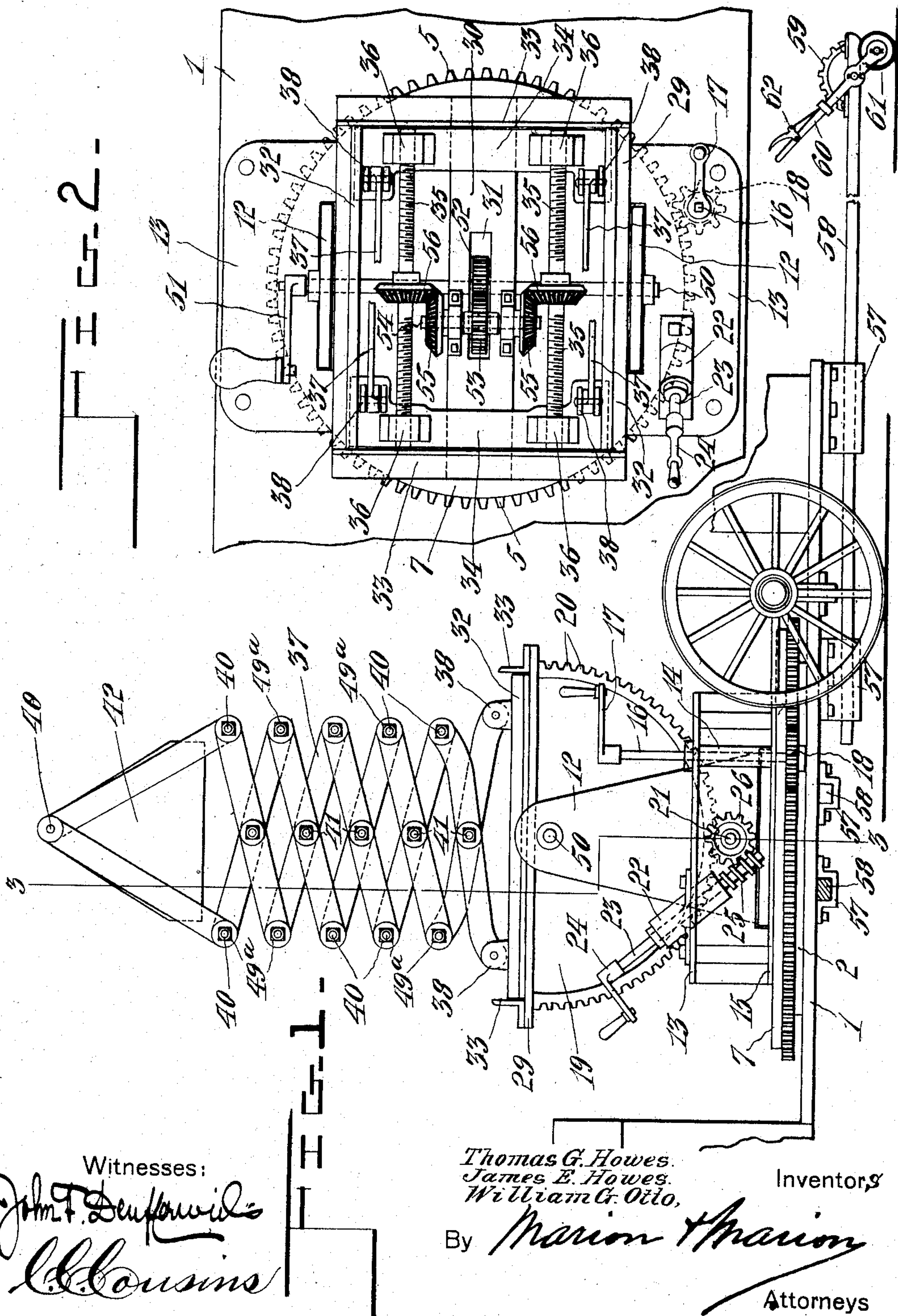
PATENTED AUG. 27, 1907.

T. G. & J. E. HOWES & W. G. OTTO.

FIRE ESCAPE.

APPLICATION FILED NOV. 10, 1906.

2 SHEETS—SHEET 1.



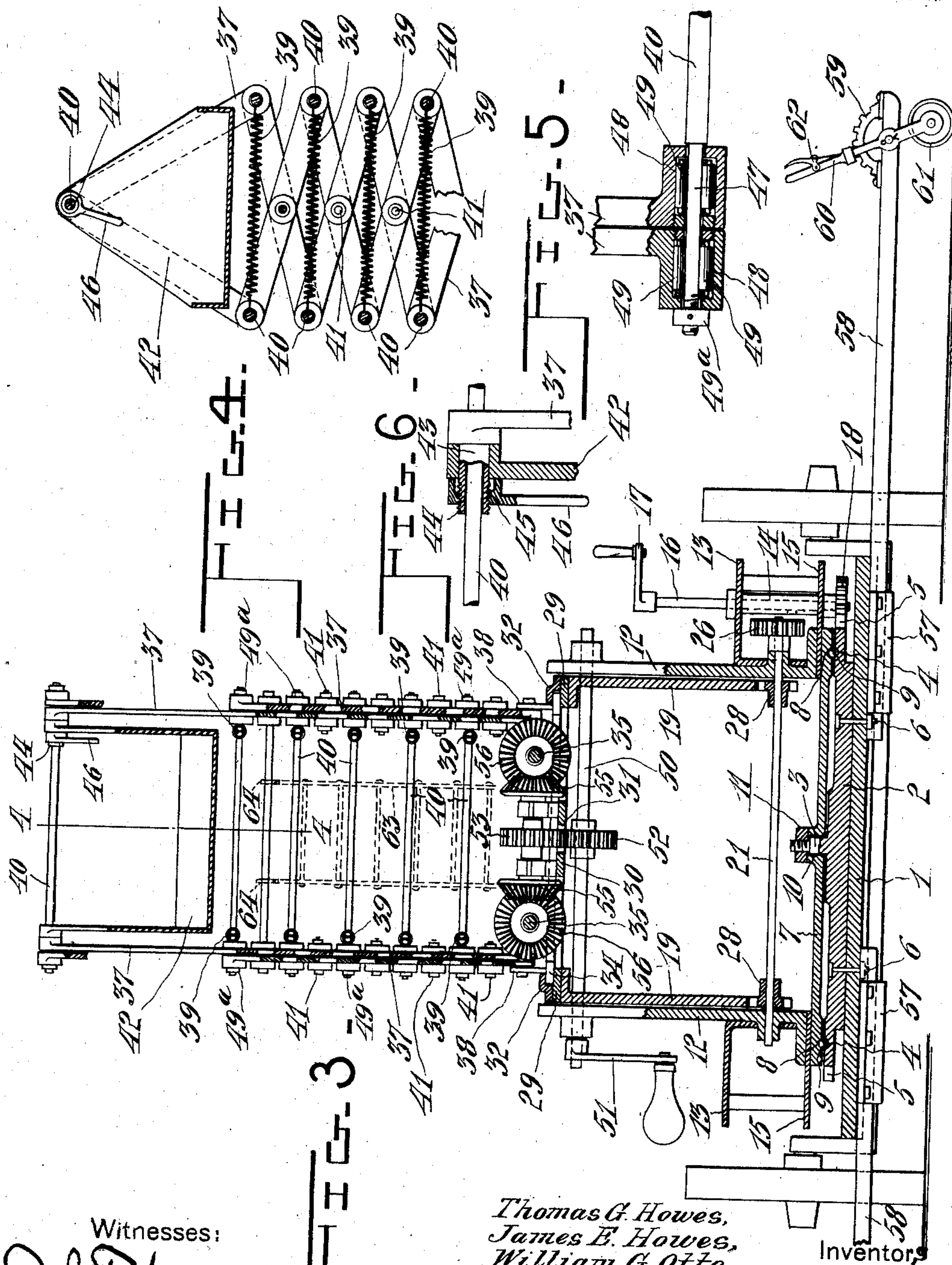
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2 SHEETS—SHEET 2.



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FIRE-ESCAPE.

No. 864,540.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed November 10, 1905. Serial No. 286,667.

To all whom it may concern:

Be it known that we, THOMAS GOTLIFF HOWES and JAMES EDGAR HOWES, residing at Moosomin, district of Assiniboia, North-West Territories, Canada, and WILLIAM GOTTLIEB OTTO, residing at Vars, county of Russell, in the Province of Ontario, Canada, all subjects of the King of Great Britain, have invented certain new and useful Improvements in Fire-Escapes; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to portable fire escapes; the object of the invention is to provide a construction which will permit the ladder of the fire escape to be readily and quickly extended; a further object is to provide an improved means for rotating the fire escape; a further object is to provide means for preventing movement of the swinging platform, and for bracing the structure carrying the fire escape; and the invention consists of the construction, combination and arrangement of parts as herein illustrated, described and claimed.

In the accompanying drawings forming part of this application, we have illustrated one form of embodiment of our invention, in which drawings similar reference characters designate corresponding parts, and in which:

Figure 1 is a side elevation; Fig. 2 is a plan view of the invention with the lazy-tongs ladder removed; Fig. 3 is a vertical section taken approximately on line 3—3 of Fig. 1; Fig. 4 is a vertical section taken approximately on line 4—4 of Fig. 3; Fig. 5 is a horizontal section taken through one of the joints of the lazy-tongs ladder; and Fig. 6 is a vertical section, partly in elevation, showing the construction of the connection between the swinging platform and the ladder.

Referring to the drawings, 1 designates a wheeled supporting body. Disposed on the body 1 is a bearing plate 2, provided with a central, integral screw-threaded lug or projection 3, and provided on its upper surface with a raceway 4. The bearing plate is secured to the body 1 by means of the bolts 6, and on its periphery is provided with the teeth 5.

Disposed on the bearing plate 2 is an upper bearing plate 7, provided with a raceway 8, registering with the raceway 4 in the bearing plate 2. Disposed in the raceways 4 and 8, are balls 9. The upper plate 7 is provided with a central opening 10, through which is disposed the lug 3, and the upper plate is maintained in position by means of the nut 11, which is in screw-threaded engagement with the lug 3.

Carried by the upper plate 7 are two flanged pedestals 12. Secured on each of said pedestals and extending outward, is a flanged member 13, one of which

supports the upper end of a bearing sleeve 14, the lower end of which bearing sleeve is supported by a plate 15, which plate is secured between the lower face of the pedestal 12 and the upper face of the bearing plate 7, there being a corresponding plate 15 similarly secured on the opposite side of the plate 7.

Disposed through the sleeve 14 is a rod 16, provided on its upper end with a crank 17, and having secured on its lower end a pinion 18 in mesh with the teeth 5 of the lower bearing plate 2. When the rod 16 is turned by means of the crank 17, the pinion 18 being in mesh with the teeth 5, the upper bearing plate 7 is caused to rotate on the lower bearing plate carrying the mechanism supported thereby.

Pivotally supported by the upper ends of the flanged pedestals 12, are a pair of segmental disks 19, provided with teeth 20. Carried adjacent the lower ends of the flanged pedestals 12, is a shaft 21. Carried by one of the flanged members 13, is a bearing sleeve 22, through which is disposed a rod 23, having at its upper end a crank 24, and having formed on its lower end a worm gear 25 in mesh with a pinion 26 secured on the outer end of the shaft 21.

Secured on the shaft 21 are pinions 28, in mesh with the teeth 20 of the segmental disks 19. When the rod 23 is turned by means of the crank 24, the worm gear 25 causes rotation of the shaft 21, and the rotation of the pinions 28 carried by said shaft causes the segmental disks to be rocked on their pivotal support, so that the ladder of the device is moved to a different vertical plane.

Carried by the upper ends of the segmental disks 19, is a rectangular frame 29, provided with a central cross brace 30, having an opening 31 centrally thereof. Secured to the ends of or formed integral with the rectangular frame 29, are flanges 32, and secured on the sides or formed integral with the rectangular frame, are angle irons 33, adapted to receive the ends of the slidable transverse members 34. Disposed across the transverse members 34 are oppositely screw-threaded members 35, disposed through the interiorly screw-threaded lugs 36 on said transverse members.

Pivotally connected to the transverse members 34 are the double lazy tongs 37, lugs 38 being provided on the transverse members, to which the lower ends of the lazy tongs may be pivotally connected. The ends of the members forming the lazy tongs are connected by helical springs 39, adapted to assist in overcoming the weight of the lazy tongs, and to cause the extension thereof. The lazy tongs are connected in pairs by means of the connecting rods 40, which are connected only to the ends of the members forming the lazy tongs. One connecting rod is disposed centrally in the ends of the uppermost pair of members of the lazy tongs. The members of the lazy tongs

other than the two uppermost members, are connected intermediate of their ends by means of the pivots 41. The oppositely screw-threaded members being actuated as hereinafter described, the transverse members 5 34 may be caused to travel away from or towards each other, their ends being guided by the flanges of the angle irons 32. Movement of the transverse members away from each other is limited by means of the angle irons 33.

10 Pivotaly disposed on the uppermost connecting rod 40, is a platform 42, adapted to swing on a bushing 43 secured on said connecting rod 40 and provided at one end with screw-threads 44. Disposed on the screw-threaded end of the bushing 43, is an interiorly screw- 15 threaded collar 45, having an integral handle 46. Rotation of the collar 45 by means of its handle, forces the upper part of the platform 42 against the inner face of the adjacent lazy tongs, thereby binding the platform so that its pivotal movement is limited. The ends of 20 the connecting rods 40 are of less diameter than the body portions thereof, as shown at 47 (Fig. 5), and the adjacent portions of the lazy tongs are formed with chambers 48. Disposed in the chambers 48 and around the reduced ends 47 of the connecting rods, are friction 25 reducing members, preferably such as rollers 49, and said connecting rods are held in position by any suitable means, such as the nuts 49^a.

Carried by the upper ends of the flanged pedestals 12, is a shaft 50, adapted to serve as the pivotal support for 30 the segmental disks 19. Secured on one end of the shaft 50, is a crank 51, and secured on the shaft intermediate of its ends is a pinion 52, working through the slot 31 in the cross brace 30, hereinbefore described, and in mesh with a gear 53 secured on a shaft 54, carried by the cross brace 30. Disposed on each end of the 35 shaft 54, is a bevel gear 55, in mesh with bevel gears 56 on the oppositely screw-threaded members 35. When the shaft 50 is turned by means of the crank 51, the pinion 52 causes rotation of the gear 53, which movement is communicated by means of the bevel gears 55 40 and 56 to the oppositely screw-threaded members 35, causing movement of the members 34, as herein described, so that the lazy tongs are extended or withdrawn thereby.

45 Secured to the under side of the wheeled supporting body 1, are a plurality of guide brackets 57. Slidably disposed in the guide brackets 57 are braces 58, provided at their outer ends with segmental racks 59. Pivoted to each brace adjacent each of said racks, is a 50 lever 60, carrying on its lower end a roller 61, and at its opposite end a pawl 62, adapted to engage said segmental rack 59. When the lazy tongs are extended to elevate the platform 42, and the segmental racks 19 are moved on their pivots to throw the upper end of the 55 lazy tongs beyond the center of gravity, the braces 58 are extended to prevent the apparatus from tipping. By means of the levers 60 and their connecting parts,

the outer ends of the braces 58 may be adjusted to the inequalities of the surface on which the apparatus is placed. 60

A flexible ladder 63 is provided with a hook 64, adapted to engage the connecting rod 40, which connects the ends to the uppermost members of the lazy tongs 37.

Having thus fully described our invention, what we 65 claim as new and desire to secure by Letters Patent is:—

1. In a device of the character described, the combination comprising a wheeled supporting body, a rotatable plate carried by the body, supporting pedestals carried by 70 the plate, flanged members carried by the pedestals, a sleeve carried by the flanged members, a rod disposed in the sleeve, a worm gear on the rod, a shaft carried by the pedestals, a pinion on the outer end of the shaft in mesh with the worm gear, a plurality of pinions on the said 75 shaft intermediate of its ends, a plurality of segmental plates supported by the pedestals and provided with teeth in mesh with said pinions on said shaft intermediate of its ends, and an extension ladder supported by said segmental plates. 80

2. In a device of the character described, the combination comprising a wheeled supporting body, pedestals supported thereby, a shaft carried by the pedestals, a frame rockably supported on the shaft, a pinion on said shaft, a 85 shaft supported by said frame and driven by said pinion, bevel gears on said shaft, transverse members carried by said frame and provided with interiorly screw-threaded lugs, oppositely screw-threaded rods disposed through said lugs, bevel gears on said rods in mesh with said bevel gears 90 on said shaft supported by the frame, and an extension ladder carried by said transverse members.

3. In a device of the character described, the combination comprising two pairs of rockably and rotatably supported lazy tongs, a rod connecting the upper ends of said 95 lazy tongs, a bushing disposed on said rod and provided with a screw-threaded end, a platform pivotaly disposed on said bushing adjacent said lazy tongs, and a collar disposed on the screw-threaded end of said bushing adjacent said platform and provided with a handle. 100

4. In a device of the character described, the combination comprising a wheeled supporting body, a rotatable extension ladder carried by said supporting body, means for rocking said ladder, a plurality of guides carried by 105 said body, braces slidably disposed in said guides, and means for elevating and permitting the depression of said braces.

5. In a device of the character described, the combination comprising a wheeled supporting body, an extension ladder carried by said body, a plurality of guide members 110 secured to said body, braces slidably disposed in said guide members, a segmental rack on each of said braces, a lever pivoted to each of said braces adjacent said rack, a rotatable member carried by one end of said lever, and a pawl carried by said lever and adapted to engage said rack.

In witness whereof we have hereunto set our hands in 115 the presence of two witnesses.

THOMAS GOTLIFF HOWES.

JAMES EDGAR HOWES.

WILLIAM GOTTLIEB OTTO.

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