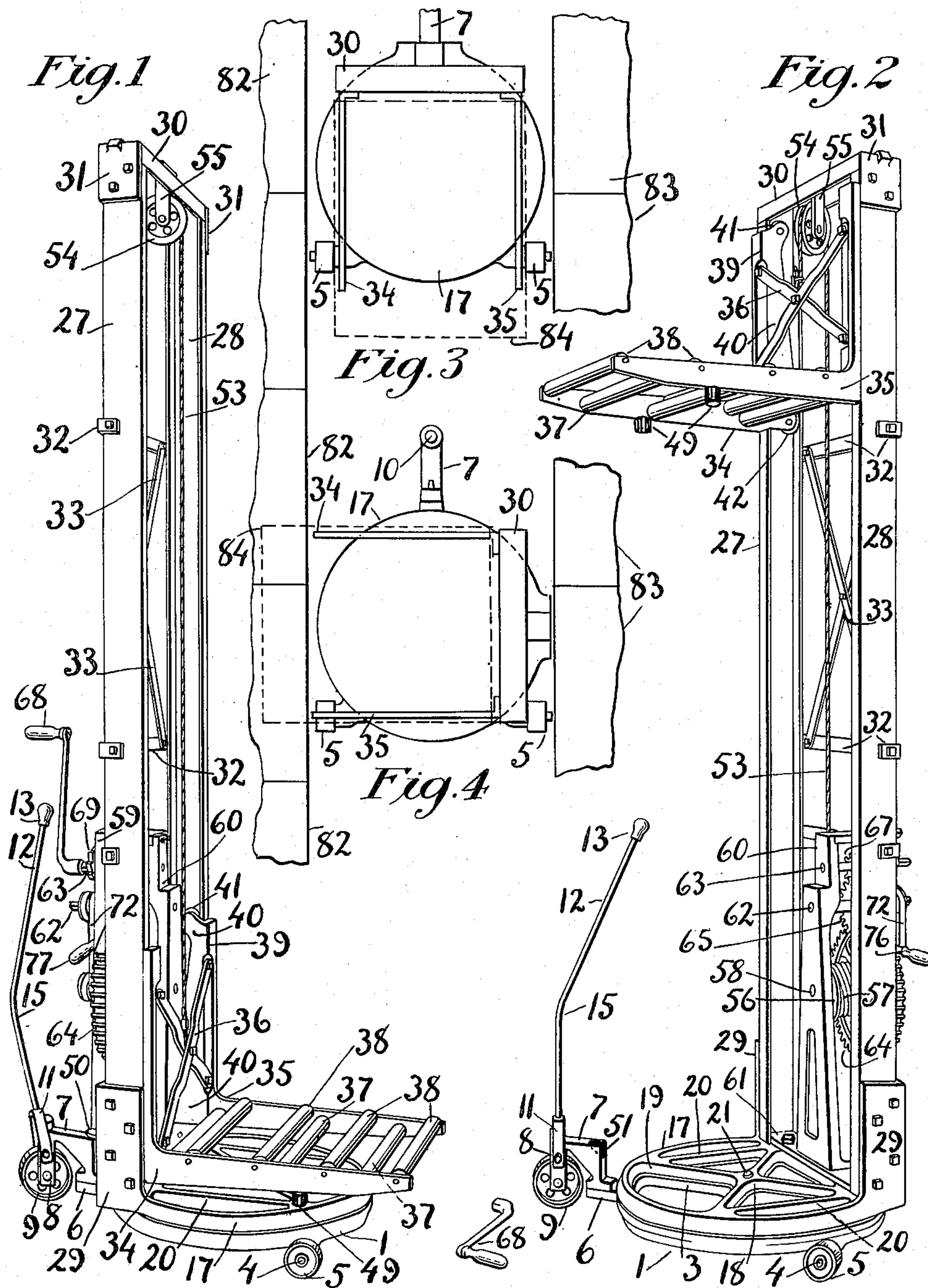


T. J. McCARTHY.  
REVOLVING PORTABLE ELEVATOR.

APPLICATION FILED MAY 9, 1906.

2 SHEETS—SHEET 1.



Witnesses:  
Chas. D. King,  
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T. J. McCarthy  
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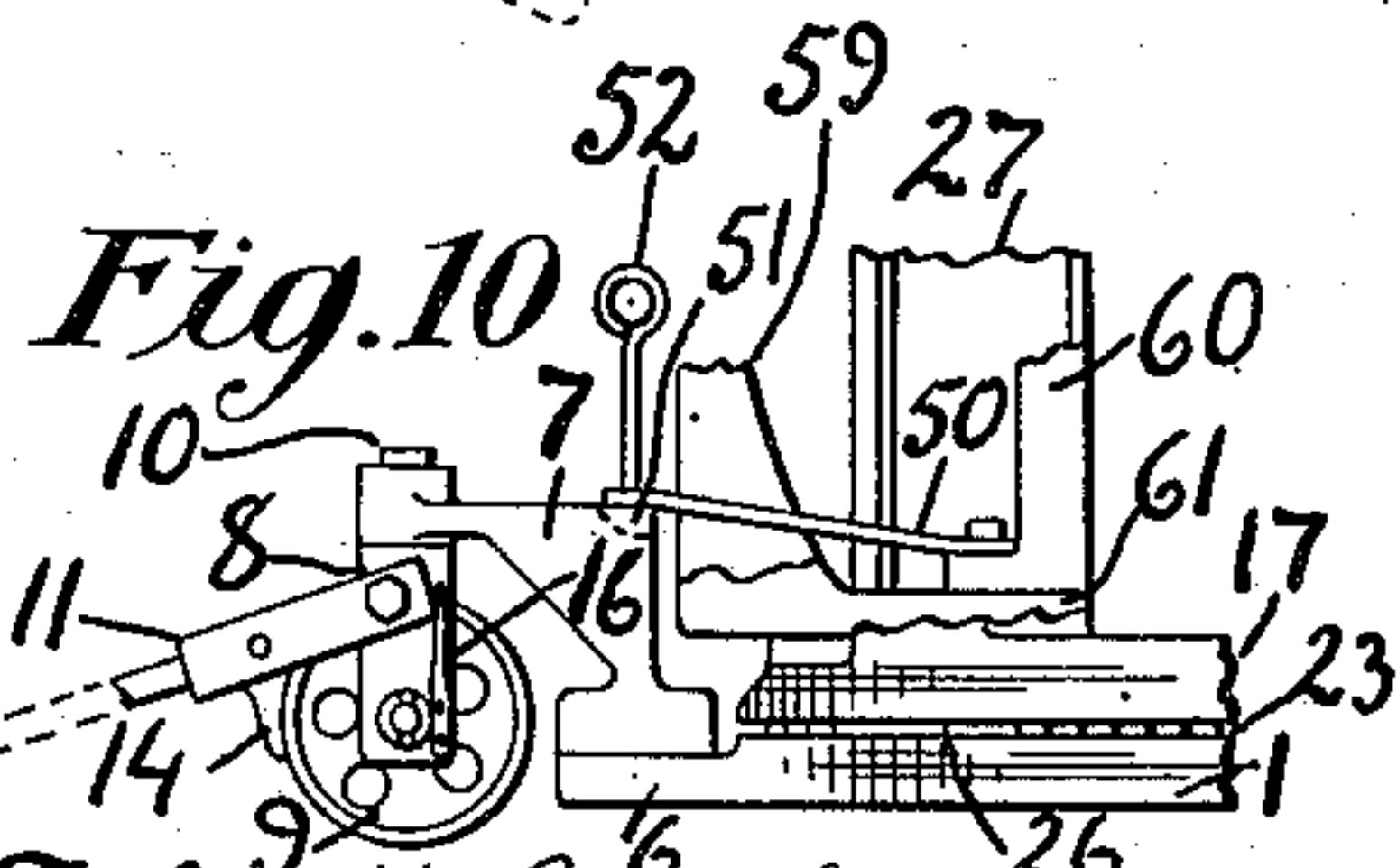
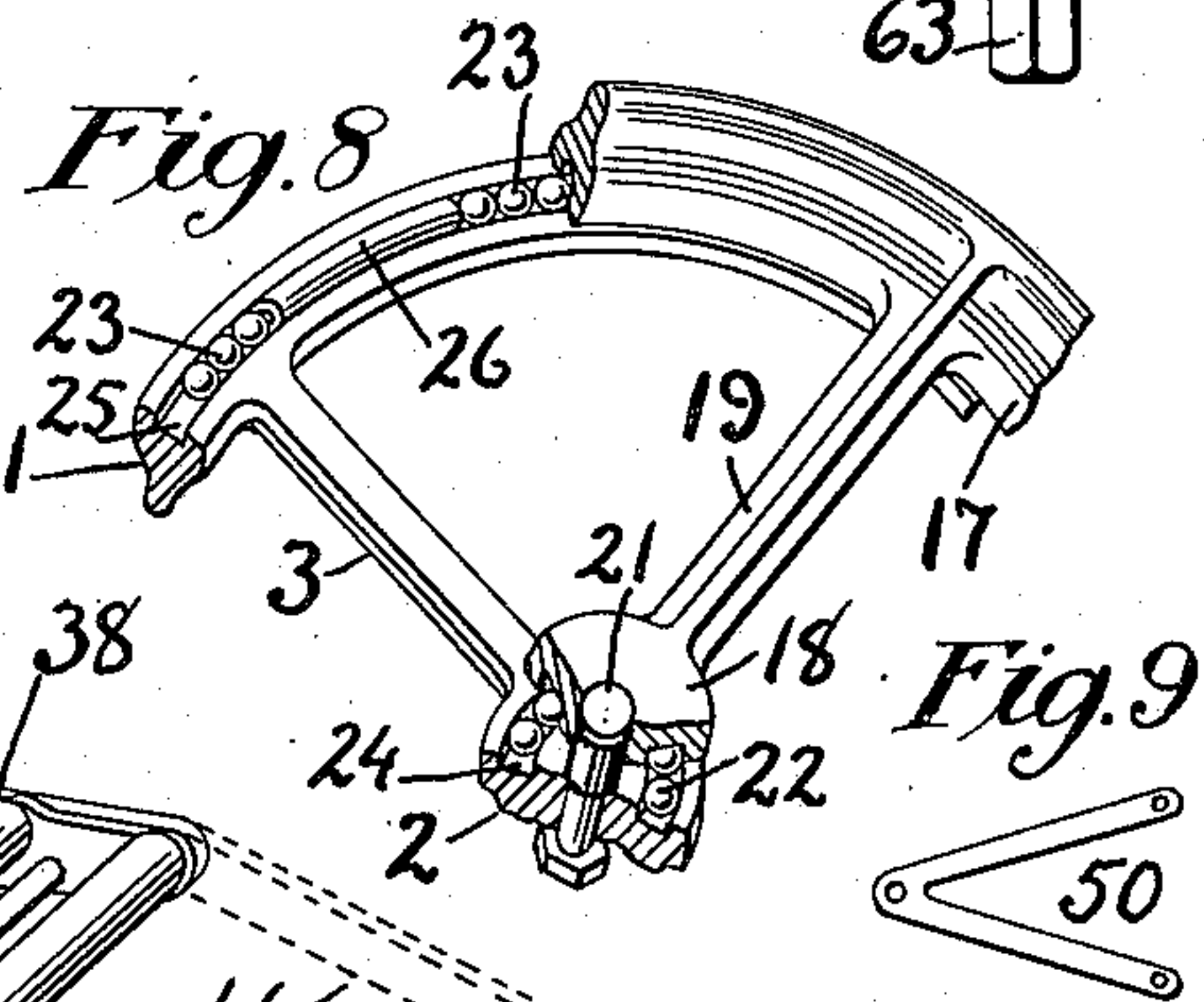
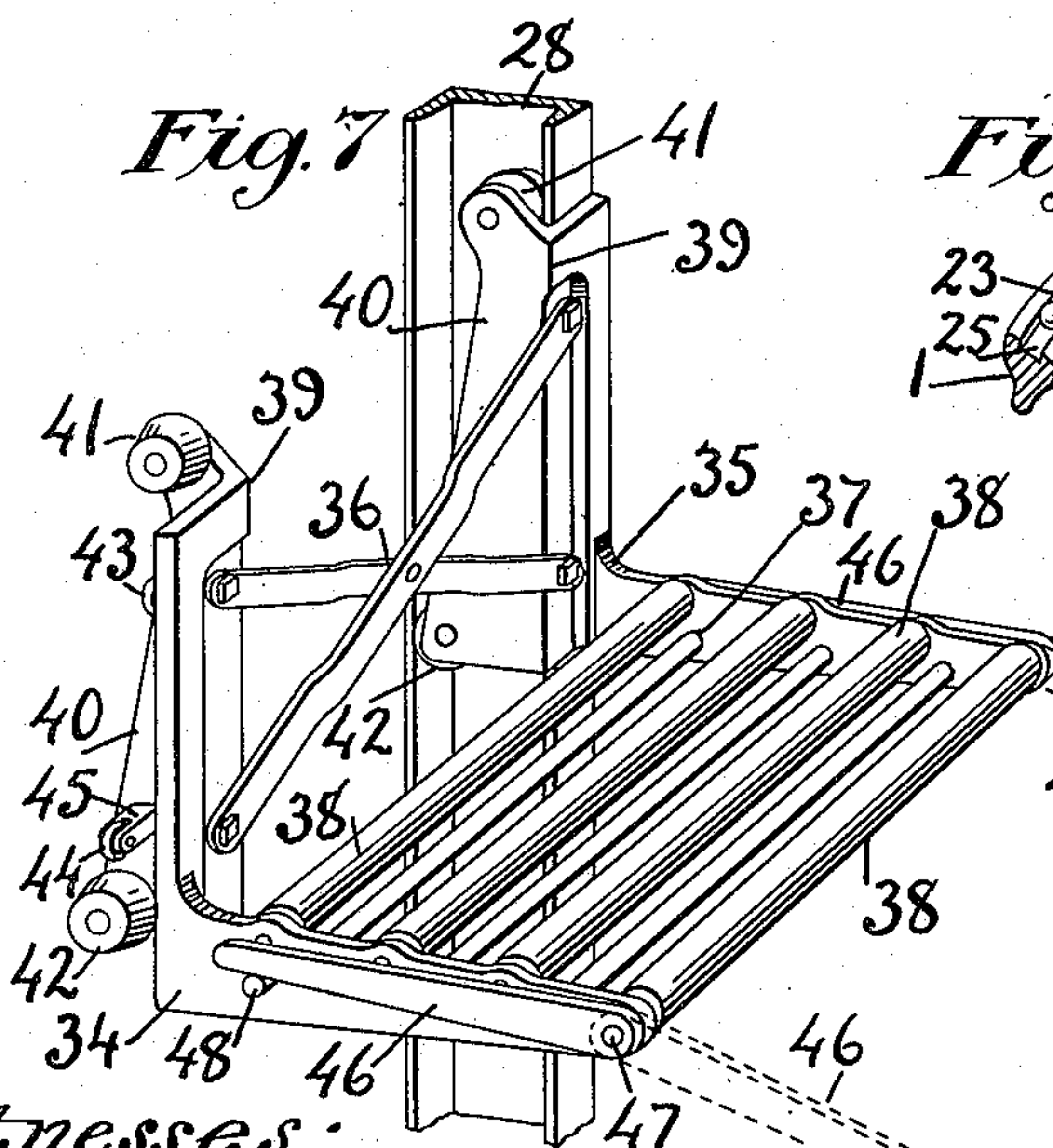
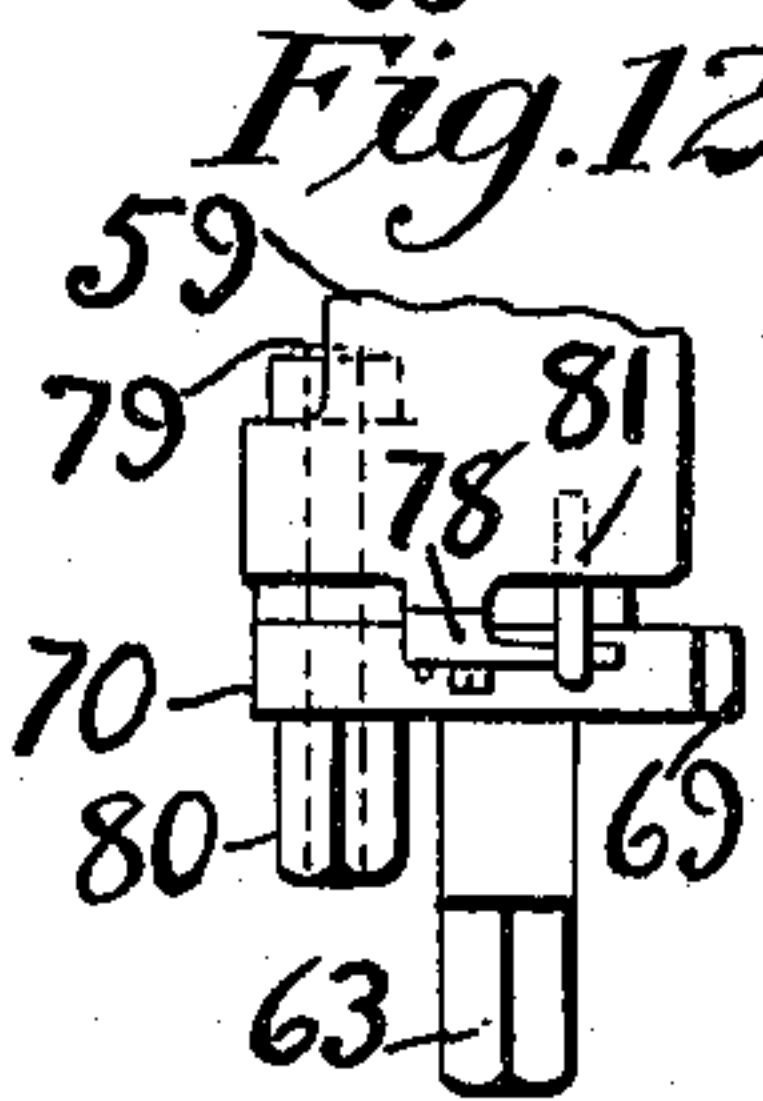
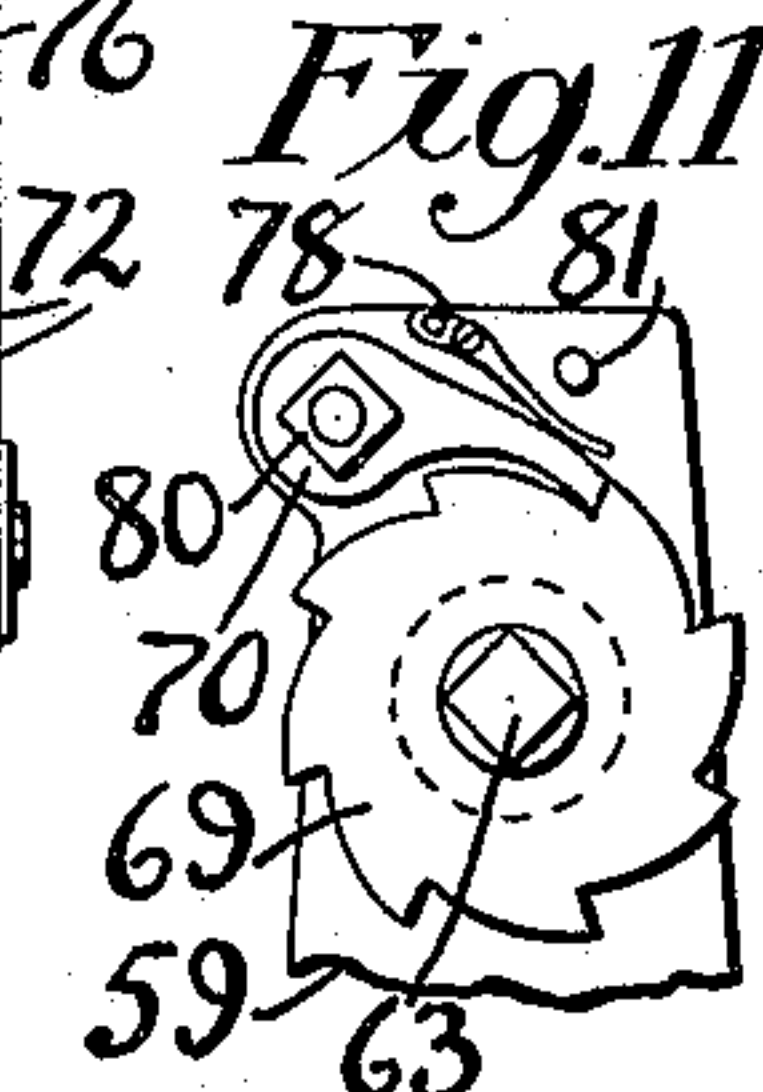
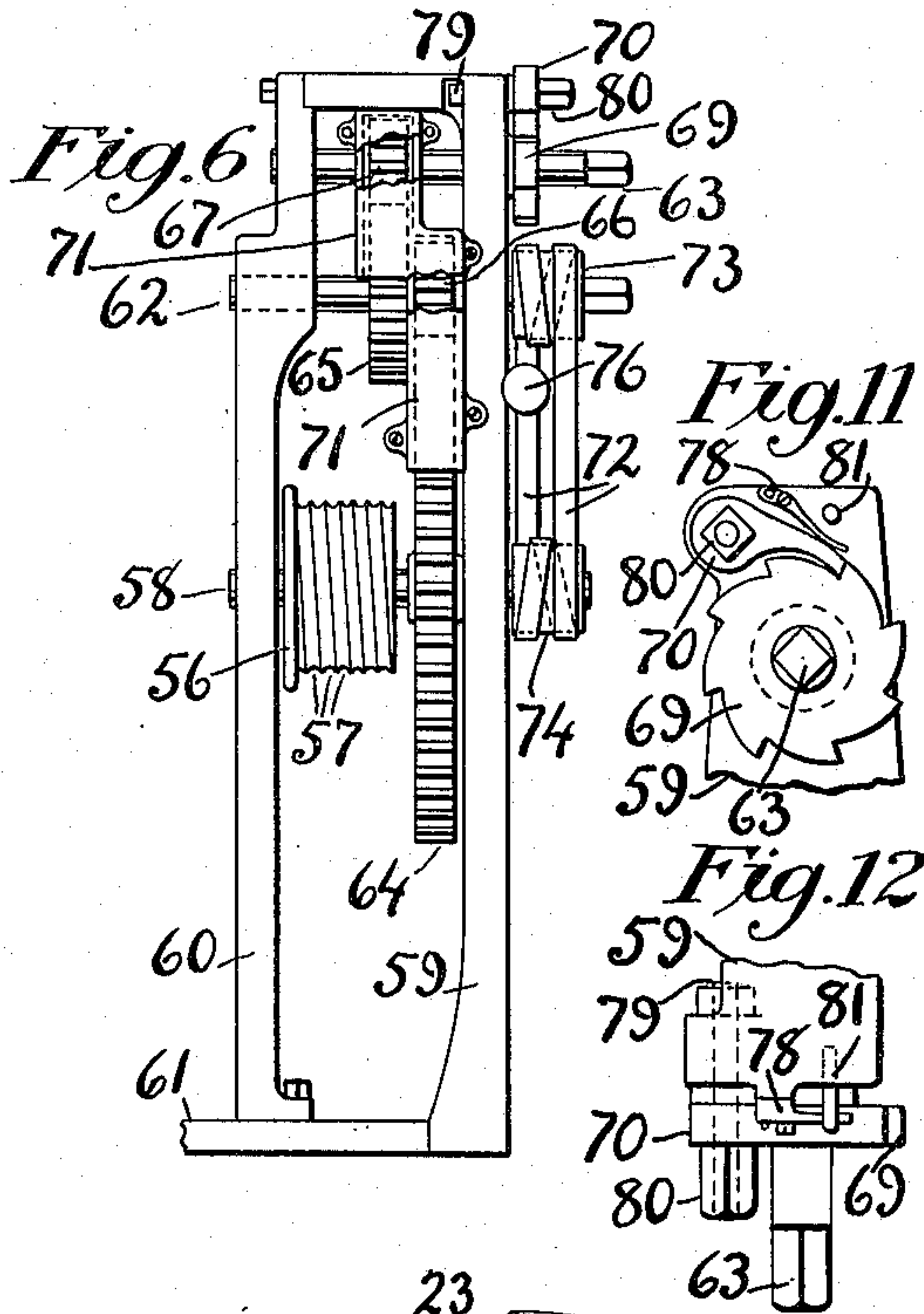
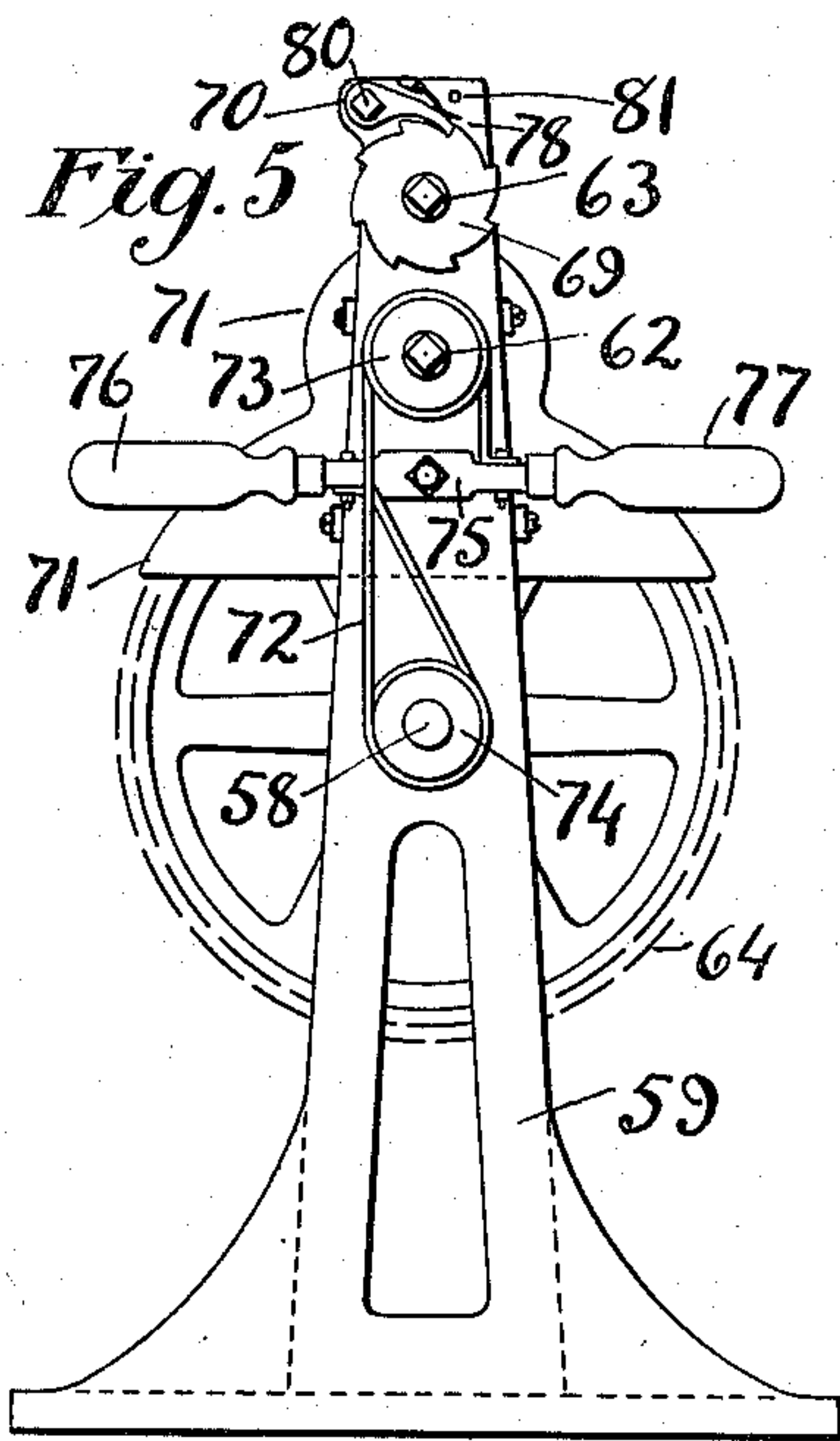
No. 854,961.

PATENTED MAY 28, 1907.

T. J. McCARTHY.  
REVOLVING PORTABLE ELEVATOR.

APPLICATION FILED MAY 9, 1906.

2 SHEETS—SHEET 2.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

THOMAS JAMES McCARTHY, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO  
McCARTHY PORTABLE ELEVATOR COMPANY, OF JERSEY CITY, NEW  
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## REVOLVING PORTABLE ELEVATOR.

No. 854,961.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed May 9, 1906. Serial No. 315,881.

*To all whom it may concern:*

Be it known that I, THOMAS JAMES McCARTHY, a citizen of the United States, and a resident of the city of Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Revolving Portable Elevator, of which the following is a specification.

This invention is an improvement upon the revolving portable platform elevator originated by me and first disclosed in patent application Serial Number 191203, filed on the 29th day of January 1904. Like its prototype, the present machine has been designed for the handling of merchandise in warehouses and similar places and is distinguished in that, first, no part of the elevator frame obstructs the way to the platform at any height on the loading side, and secondly, the frame itself is able to revolve on a vertical pivot, in such manner that cases and other packages the length of which is greater than the width of an alley in the warehouse or piling place can be deposited upon and lifted with the platform and after a turn of ninety degrees can be unloaded sidewise, or vice versa loaded from either side of the aisle at the required elevation, then revolved a quarter circle and brought down to be taken away. The important structural feature of the machine, as now made, is the simplification of its several parts and their peculiarly condensed arrangement, which render it comparatively small-sized and enable it to be stationed and rotated in a space no larger and even less than is required to receive and turn by hand the biggest package in a lot of goods that are to be stacked or unstacked on or from the sides of an alleyway, this answering an urgent demand and almost general clamor for the saving of floor space.

Another characteristic feature of the improvement under consideration is that it provides for the maneuvering of cylindric containers as well as differently-shaped packages with the one and same machine, thereby enlarging its usefulness to a proportionate extent.

Figure 1 of the drawings hereto annexed gives a perspective view of this improved machine, in position for loading. Fig. 2 is a similar view, with the platform raised and the elevator frame turned about half-way

around. Figs. 3 and 4 are diagrammatic plan views, illustrating the method of handling the loads with the machine in an alley between tiers of cases. Figs. 5 and 6 respectively give a rear elevation and a side view, both enlarged, of the actuating mechanism and means for controlling the ascent and descent of the platform. Fig. 7 is a similarly-enlarged perspective view of the platform with a short section of one of the guideways therefor. Figs. 8, 9, and 10 are details pertaining to the lower part of the elevator. Figs. 11 and 12 are details of a safety device connected with the said actuating mechanism and controlling means.

As in the machine covered by the former application, Serial No. 191203, the form of the invention herein disclosed comprises a truck 1, which is provided to carry the elevator and from which it derives its portable feature. The bed of this truck consists of a pulley-like casting, preferably of malleable iron, having, as shown, a rim (marked 1), a hub 2, and cross arms 3. Stub-axles 4 are formed at two places on the rim where met by the outer ends of adjoining arms, and small wheels 5 are journaled thereon, the axles being curved outward in opposite directions to enable the wheels to run in parallel vertical planes, as will be understood. This constitutes what may be termed the rear end of the truck. Forwardly, the truck-bed has a central projection 6, to which is rigidly fastened a bracket or equivalent gooseneck extension 7, adapted to bear upon a vertically-disposed yoke 8, within which is mounted a steering-wheel 9, the yoke having an upward stem 10, fitted to swivel in the upper outer end of the bracket. A clevis 11 is coupled to the sides of the yoke, and in the middle forward portion of the former is socketed or otherwise fixed a drawbar 12, having at its outer end a suitable loop or T-handle or knob, as at 13, wherewith the bar is conveniently taken hold of to pull and steer the machine wherever wanted.

Under normal conditions, the truck above described will remain stationary wherever it is positioned, particularly if care be taken to turn the steering-wheel sidewise, either way, at an angle with relation to the running planes of the hind wheels. However, a



brake is provided for the steering-wheel, in order to prevent the machine from moving or shifting unduly under any conditions, for instance, when left to stand on very smooth  
 5 floors or inclined surfaces. This brake (Fig. 10) consists of a shoe 14, centrally pivoted within the clevis 11 and arranged to bear upon the periphery of the steering-wheel, when the drawbar is down. A bend is made  
 10 in the drawbar, as at 15, wherein the operator may set his foot and keep the brake firmly applied, if necessary. The bend 15 further serves to bring up the handle 13 within easy reach, and also to throw back  
 15 the weight of the drawbar when raised to the fullest extent, so that the drawbar will then stand alone, as oftentimes it is desirable it should. To assist the drawbar in performing the latter-named function the yoke 8 is  
 20 furnished on opposite sides with flat bar springs 16, which impinge upon the pivoted ends of the clevis 11 and thereby help to maintain the drawbar in its vertical position.

The elevator frame includes a laterally-  
 25 projected base 17, which consists of a casting of similar shape and design as the truck-bed, the same having a rim designated by 17, a hub 18, and cross arms 19, and being further strengthened by additional arms 20, where  
 30 the strain is most likely to occur in working the loads on and off the machine. It is intended that this base shall bear and turn upon the truck-bed, and therefore these parts are united centrally by means of a vertical pin or screw-bolt 21, passing through  
 35 their hubs 18, 2, and constituting the pivot or axis around which the former can revolve upon the latter. Ball-bearings 22 and 23 (Fig. 8) are furthermore provided between  
 40 the bed and base to obviate friction. The balls are disposed annularly in matching concentric grooves cut in the contiguous faces of the bed and base and respectively forming central and peripheral races 24 and  
 45 25 therein. To economize in the number of balls, they may be used in broken lines instead of endless series, by dividing them into substantially equidistant groups by means of spreaders, as 26, functioned to keep them  
 50 at suitable intervals apart. The spreaders may be made more or less resilient to counteract expansion and contraction of the ball-races or bearings due to climatic variations.

Two columns 27 and 28 are set upon one  
 55 side of the aforementioned base, to act as supports for the ascending and descending platform hereinafter described. They are made of metal, preference being given for the purpose to channeled steel, such as is employed in the manufacture of beams, and for  
 60 that reason the said columns may be called vertical channel-beams. The channels in these beams are turned so as to face each other and serve as guideways for the platform, and edgewise the two beams are

brought into alinement with the aforesaid arms 20 of the base 17. At their lower ends, the beams or columns are rigidly fastened, for instance, by bolts as shown, to and with-  
 70 in angle pieces 29, cast with the base, and their upper ends are similarly secured together by a girder 30 and angles 31. Between the top and bottom, the columns are further united by parallel braces 32, cross-  
 75 braced one to the other, as at 33. Thus is completed the elevator frame, which may be produced upward to any desirable height consistent with the area of the base with  
 80 which it is meant to revolve, the machine being made low or high or medium-sized, according to requisitions.

The platform is composed of two bent arms 34 and 35, interbraced as at 36 in their vertical portions, and horizontally united also  
 85 by tie-rods 37, the forearms carrying above the tie-rods a series of rolls 38, upon which the loads are received. Tongued-and-grooved boards or other flooring may be substituted for these rolls, if desired, and the other parts of the platform can analogously  
 90 be modified. But whatever its structural make-up may consist of, it is purposed that the plane of projection of the load-receiving portion of the platform shall be at all times  
 95 directly over and parallel with the base of the elevator frame, that they may interbalance and gyrate together in one and the same vertical plane above the bed of the truck. The platform is connected with the base side of the  
 100 elevator frame pursuant to this idea. It is open and accessible on the other three sides, beyond each and all of which the load may extend, so far as permitted at least by the  
 105 width of the alley where the machine is operated. The upper arms are utilized as guides, and accordingly shaped to slide upon the front of the vertical beams and opposite  
 110 the channels therein, they being bent inwardly at right angles, as at 39, and formed with wings or rearward extensions 40. By "front" is here meant that face of the columns or vertical channel-beams from which  
 115 the platform projects out, coinciding with what is ordinarily taken as the loading or unloading side, irrespective of the position of the elevator upon the truck thereunder. Truncated conical rollers 41, 42, are provided at both the upper and lower ends of  
 120 the wings 40, to bear upon the flaring or sloping inner walls of the channel-beams (as usually made), the top rollers bearing forward, and the bottom rollers rearward. Other rollers 43, 44, mounted in split studs  
 125 45, are also placed within the wings, as shown in Fig. 7, likewise to bear upon the webs or main portions of the beams. These various rollers, it is understood, not only lessen friction but besides distribute the strain over a wide surface.

For the handling of barrels and like cylin- 130



dric containers, the platform may be supplied with an apron or forward extension, which will be of assistance in rolling them on or off, as the case may be. One of the simplest forms of such an extension is illustrated in Fig. 7, wherein the same is shown as consisting of two folded arms 46, suitably jointed to the forearms of the platform as at 47, and arranged when in their idle position to recline back each on a pin 48, projecting outwardly from each forearm. By unfolding the extension arms 46 and throwing them forward and slightly downward as suggested by the dotted lines, they may be used as a pair of skids, as will be readily perceived without further explanation.

To avoid jar or violent impact of the platform with the underlying base, such as would be caused by careless handling, the platform is provided on the under side with two or more rubber bumpers, as 49, which are shown as being attached to its forearms and projecting downward so as to meet and bear, when lowered, upon the more massive portions of the base casting below. Or, conversely, the bumpers can be set in the casting and adapted to receive the impact of the platform, as may be preferred.

When in its lowermost position, the platform will normally be loaded from its forward end, which corresponds with what has been heretofore referred to as the rear end of the truck. To lock it in this position and thereby do away with all guesswork about centering the platform and the load thereon for rapid handling in a narrow aisle, the elevator frame is furnished with a spring latch 50, conveniently applied as indicated in Figs. 1 and 10. The spring part of the latch is preferably angular or V-shaped as detailed at Fig. 9, and it has a suitable head fitted to a cavity 51 (best seen in Fig. 2) formed in the top surface of the bracket 7, in which cavity the head is received and automatically pressed by the spring as the frame is swung round to bring the platform into the correct loading (or unloading) position on the base. This latch is quickly lifted out of its recess in the bracket, to free the frame, either by a slight upward thrust of the foot or manually with the aid of a lifting rod 52 (Fig. 10).

Provision is made to raise the platform by means of a wire rope or cable 53, clamped or otherwise fastened at one end to the cross brace 36 and thence running up over a sheave 54, which is suspended by a swiveling hanger 55 from the girder 30 of the elevator frame, the other end of the cable passing down from the sheave to a winding-drum 56, to which it is secured. This drum is spirally grooved throughout its circumference and of sufficient diameter and length to receive singly in its furrow-like depressions 57 the several bights of the cable as the latter is coiled to raise the platform. It is keyed on a shaft

58, journaled in and across a pair of uprights 59, 60, that stand one before the other in a median plane running fore and aft of the elevator frame between its columns 27, 28. By preference, the rear upright (59) is cast integral with a plate 61, bolted to the base 17, and the forward upright (60) is bolted both to the rear one and to its said plate. Within and across them are also mounted two additional shafts 62 and 63, located one above the other and both higher than the shaft 58, but in a same vertical plane therewith, the three shafts lying parallel with one another. These shafts are intergeared within the uprights by means of ordinary cog-wheels 64, 65, and pinions 66, 67, so that the drum 56 may be revolved to wind the hoisting-cable at either one of two speeds, by applying a crank, as 68, to either one of the outwardly-projecting ends of the shafts 62, 63. It is almost superfluous to remark that the crank will be applied to the uppermost shaft for raising the heavier loads, and to the middle shaft for lighter charges or for raising the empty platform preparatively to receiving and taking down a load. The outer end of the top shaft also carries a ratchet-wheel 69, normally engaged by a pawl 70, pivoted to the upper end of the rear upright, the said ratchet-wheel and pawl co-operating in a well-known manner in checking back rotation of the gearing when the platform is being elevated or if it is desired that the platform should remain at any particular point to which it may have been raised.

Guards 71 are placed over the gears (64, 65, 66, 67) aforesaid, as illustrated in Figs. 5 and 6. These guards consist of two light castings secured to opposite sides of the upright 59 and to each other, as shown. They cover the gears, particularly at the intermeshing points, and in so doing they not only shield and protect them from the injurious action of dust and grit, but also effectively bar them from possible harmful contact with the hand or clothing of a careless operator. If desired, the entire gearing could be housed instead of being partly covered from above as represented in the drawings, in which case the guards would have such additional fastenings as might be required, and would be further provided with suitable oil-holes for lubrication of the gears within.

A double-acting brake is provided to control the retrograde movement of the gearing during the descent of the platform, the lowering of which is most expeditiously and conveniently effected by gravity. This brake consists of a steel band 72, coiled twice around each of two friction-pulleys 73, 74, keyed to the outer ends of the middle and lowermost gear-shafts 62, 58, respectively. The ends of the band are brought toward each other between the friction-pulleys, but at the same time are spread apart so as to be



attached to opposite members of a centrally-fulcrumed lever 75, carried by the upright 59. The brake, it will be seen, is operable by working either end of the lever singly or both ends simultaneously, one up and the other down. The lever gives a powerful purchase for tightening the band, and owing to the multiple coils thereof an absolute command is gained over the friction-pulleys and gearing, such that the platform can be let down steadily, swiftly, and noiselessly. Suitable handles 76, 77, are placed or formed on the ends of the lever, and there may be inscribed thereon reminding phrases as "pull up," "push down", or expressions of like import, respectively intended to guide the operator in correctly manipulating the lever by moving its handles each in the right direction.

In order to prevent accidents, which might befall the absent-minded or ignorant would-be operators who would forget or would not know that the crank must be removed to keep it from flying back with the unwinding gears when the platform is lowered, it has been deemed best to so arrange the pawl 70 over the ratchet-wheel 69 that it cannot be raised therefrom without applying the crank to it. To this end, a spring 78 is fastened to the upright 59 and caused to bear upon the pawl heavily enough to prevent the latter from being raised by hand. The pawl is also made rigid with its pivot, 79, which may turn slightly in a suitable bearing provided in the upright, and is squared at its outer end, as at 80, to fit the socket part of the crank. A stop-pin 81, fixed in the upright and made to project above and across the top of the pawl, is further provided to limit the pawl's upward movement when forced out of engagement with the teeth of the ratchet-wheel. With this arrangement, the operator will be compelled to take the crank off its shaft (63 or 62) and apply it to the end 80 of the pivot 79 before he can free the ratchet-wheel and gearing from the arresting pawl and allow the platform to descend, and should he let go the crank then, the spring-pressed pawl will automatically re-engage the ratchet-wheel and stop further movement. The machine is thereby rendered especially safe to handle and, as far as practicable, proof against idiotic manipulation by incompetent workmen or meddling persons.

The most approved method of lowering the platform with the aid of the above-described brake, is first to pull up on the left handle 76 with the left hand to loosen the pawl on the ratchet-wheel, slightly turning the crank on its shaft if need be; secondly, remove the crank from its shaft with the right hand, and apply it to the squared end of the pawl's pivot; thirdly, keep pulling on the left handle and lift the pawl out of the ratchet-wheel by rocking the pivot with the crank; and fourthly, gage the hold on the

handle so as to leave the gears and drum free to unwind the hoisting-cable evenly and not too rapidly. By following these directions, the platform can be brought down with despatch and with safety both to itself and to its load.

The diagrams (Figs. 3 and 4) give a graphic demonstration of the peculiar capacity of the machine for handling loads in close quarters, a work for which it is eminently adapted. The machine is there shown as being stationed between (broken) rows of cases, respectively marked 82 and 83, and affording a passage between them barely wide enough to haul the machine through and allow it to revolve upon itself. The numeral 84 designates the load on the platform, consisting of one of the cases to be tiered, and represented by dotted lines. It is apparent, first by referring to Fig. 3, that the platform can be loaded with a case larger than itself and as long as and even longer than the passage is wide, by depositing the case thereon lengthwise. Now, assuming that the platform has been raised to the required height, a quarter revolution of the elevator frame will swing it around with the case 84 over either of the previously-stacked rows of cases 82 or 83, in position to be unloaded, as plainly seen from Fig. 4. Contrariwise, the case 84 can be taken off either row 82 or 83 by pushing it onto the raised platform, as in Fig. 4, then giving the elevator a quarter turn, and finally landing the case in the position outlined in Fig. 3. It is understood, of course, that the platform can be both loaded and unloaded without advancing or pushing back the machine, the two figures (3 and 4) being resorted to merely to avoid the confusion of lines that would result from an attempt at showing the loading and unloading positions both in a single view.

No claim is made herein to the embodiment or realization of the broad idea of a revolving portable platform elevator, the same being fully covered by the aforesaid patent application 191,203, but the particular features claimed as possessing especial novelty and usefulness in the improvement hereinabove disclosed are:

1. A revolving portable elevator comprising a truck, an elevator frame with a laterally-projected base rotatably supported thereon, a platform located upon and rotating with the frame, and means carried by the elevator for raising and lowering the platform.

2. In a revolving portable elevator, the combination with a truck, of a frame with a laterally-projected base extending over the truck and adapted to rotate thereon, a platform connected with the frame and having its load-receiving portion projected above and parallel with the base so as to revolve in a same vertical plane therewith, and means



carried by the elevator for raising and lowering the platform.

3. In a revolving portable elevator, the combination with a truck, of a frame having a lateral base extension revoluble thereupon, ball-bearings interposed between the truck and base extension, a platform located upon and rotating with the frame, and hoisting mechanism carried by the elevator.

4. In a revolving portable elevator, the combination with a truck, of a revoluble frame with a base extending over the truck-bed, ball-bearings arranged in central and peripheral races formed in said bed and base, a platform, and means for raising and lowering it on the revoluble frame.

5. In a revolving portable elevator, the combination of a truck-bed, a pair of wheels secured to the rear end thereof, a steering-wheel at the forward end of the bed, a yoke within which the steering-wheel is mounted, a bracket projecting forwardly from the bed and having a swivel connection with the yoke, a drawbar, an elevator frame with a lateral base extension rotatably mounted on the truck-bed, a platform connected with the frame and means for raising and lowering it.

6. In a revolving portable elevator, the combination of a truck mounted on suitable wheels, a clevis attached to the mounting of a forward wheel, a brake-shoe adapted to bear on the forward wheel and secured within the clevis, a drawbar having a rigid connection with the clevis and vertically movable therewith, a rotary elevator frame on the bed of the truck, a platform on the frame, and hoisting apparatus.

7. In a revolving portable elevator, the combination of a truck having a pair of wheels at one end and a leading wheel at the opposite end, a vertically-movable drawbar connected with the lead-wheel's mounting, one or more springs on the mounting adapted to hold the drawbar in a standing position, an elevator frame rotatably mounted on the truck-bed, a platform connected with the frame, and means for raising and lowering the platform.

8. In a revolving portable elevator, the combination of a truck, an elevator frame thereon with a lateral base extension arranged to bear and revolve on the truck-bed, a platform with vertical guides fitted to the frame and a horizontal load-receiving portion projecting outwardly therefrom over the base, an extension to the platform consisting of a pair of folding arms pivoted to its outer end, and pins projecting from opposite sides of the platform on which the folded arms may rest.

9. In a revolving portable elevator, the combination of a truck, an elevator frame thereon comprising oppositely-turned vertical channel-beams standing on one side of a base extending over and revoluble upon the

truck-bed, a vertically-movable platform having bent arms with their upper portions fitted to the beams and serving as guides thereon, studs on the upper arms, rollers carried by the studs and engaging the webs of the opposite beams, and means for moving the platform up and down the frame.

10. In a revolving portable elevator, the combination of a truck, a rotary elevator frame thereon including oppositely-turned vertical channel-beams with flaring inner walls, a platform having guides fitted to the forward edges of the beams and provided with wings extending across the channels therein, conical rollers on the wings bearing oppositely upon the flaring walls of the beams, intermediate rollers respectively bearing upon the bottom of each channel, and means for raising and lowering the platform.

11. In a revolving portable elevator, the combination with a truck, of a base extending over and revoluble upon the truck-bed, an elevator frame comprising columns standing on one side of said base a platform and means for raising and lowering it, including outwardly-disposed gears mounted in the rotatable frame, and guards over the gears.

12. In a revolving portable elevator, the combination with a truck, of an elevator frame rotatably mounted thereon, a platform and means for raising and lowering it, including parallel shafts and intermeshing gears thereon, a band-brake adapted to check two of the shafts, and a double-acting lever connected with the ends of the brake.

13. In a revolving portable elevator, the combination with a truck, of an elevator frame with a laterally-projected base extending over and revoluble upon the truck-bed, a platform connected with the frame, uprights secured to the base within the frame and revolving therewith, means for raising and lowering the platform, including superimposed shafts journaled in the uprights and provided with intermeshing gears, friction-pulleys on two of the shafts, a band-brake coiled around each friction-pulley, and a centrally-pivoted lever connected on opposite sides of its fulcrum to the ends of the band-brake.

14. In a revolving portable elevator, the combination with a truck, of an elevator frame rotatably mounted thereon, a platform and means for moving it up and down the frame, including intermeshed gears and suitable shafting therefor, a ratchet-wheel and pawl to normally check back-rotation of the gears, and means for preventing the lifting of the pawl by hand, the pawl having a rigid pivot adapted to be rocked by means of a crank.

15. In a revolving portable elevator, the combination with a truck, of an elevator frame rotatably mounted thereon, a platform connected with the frame, means for



raising and lowering the platform, including  
suitable gearing and shafts therefor, a  
ratchet-wheel on one of the shafts, a spring-  
pressed pawl engaging the ratchet-wheel and  
5 causing it normally to prevent retrograde  
movement of the gearing, the pawl being in-  
capable of manipular operation, and a rigid  
pivot for the pawl adapted to receive a  
crank, to be rocked thereby.

10 16. In a revolving portable elevator, the  
combination with a truck, of an elevator  
frame rotatably mounted thereon, a verti-  
cally-movable platform and means for mov-  
ing it, including intergeared shafts, a ratchet-

wheel and pawl operating normally to check 15  
back the gearing, a spring arranged to bear  
upon the pawl so as to prevent its being lift-  
ed by hand, a rigid pivot for the pawl adapt-  
ed to be rocked therewith by means of a  
crank, and a stop to limit the outward move- 20  
ment of the pawl.

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

THOMAS JAMES McCARTHY. [L. s.]

Witnesses:

A. H. STE. MARIE,  
W. C. COLLINS.