H. GAFNER.

EXERCISING MACHINE.

APPLICATION FILED APR. 17, 1914.

1,183,368.

Patented May 16, 1916.

5 SHEETS—SHEET 1.

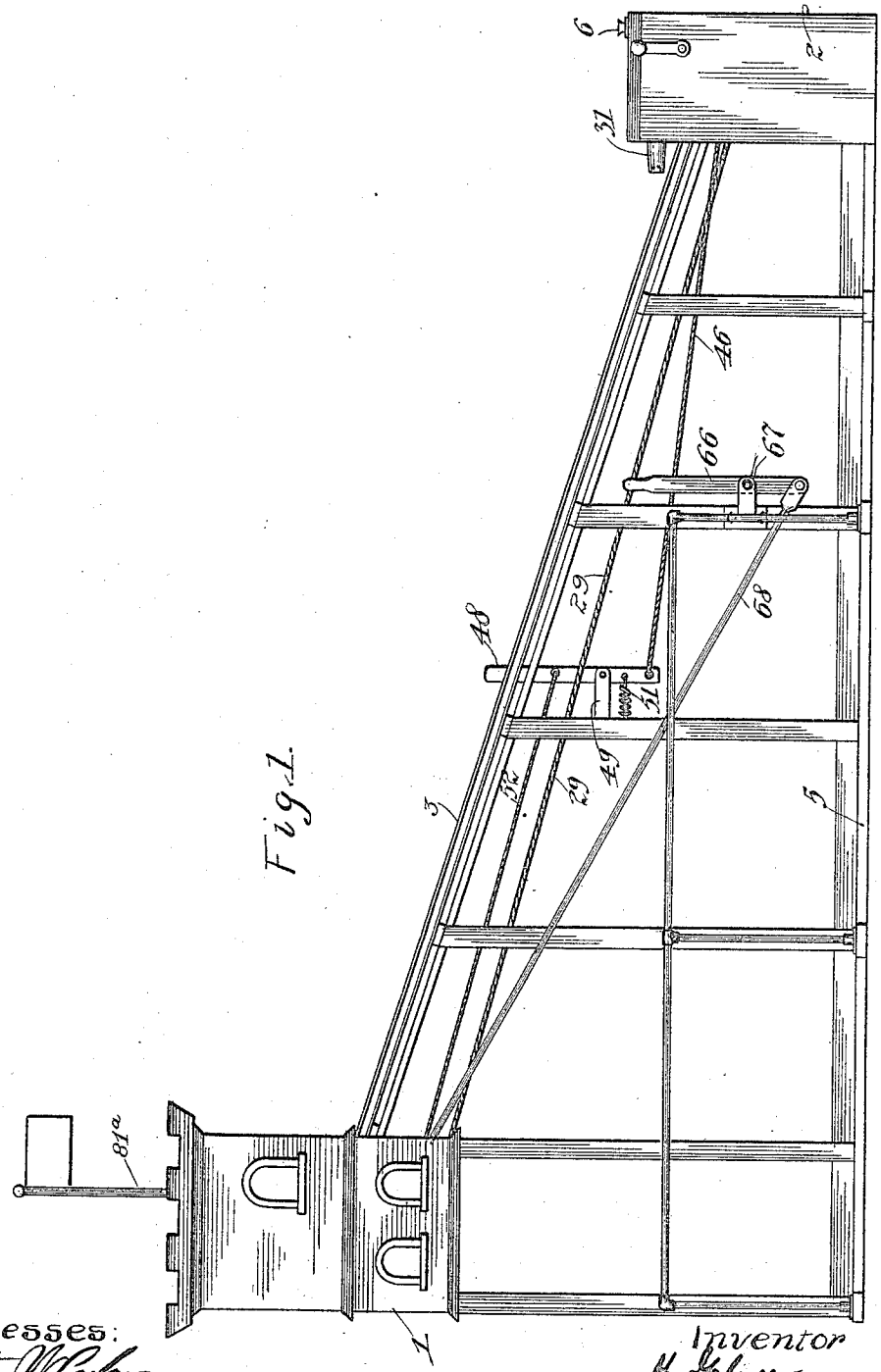


Fig. 1.

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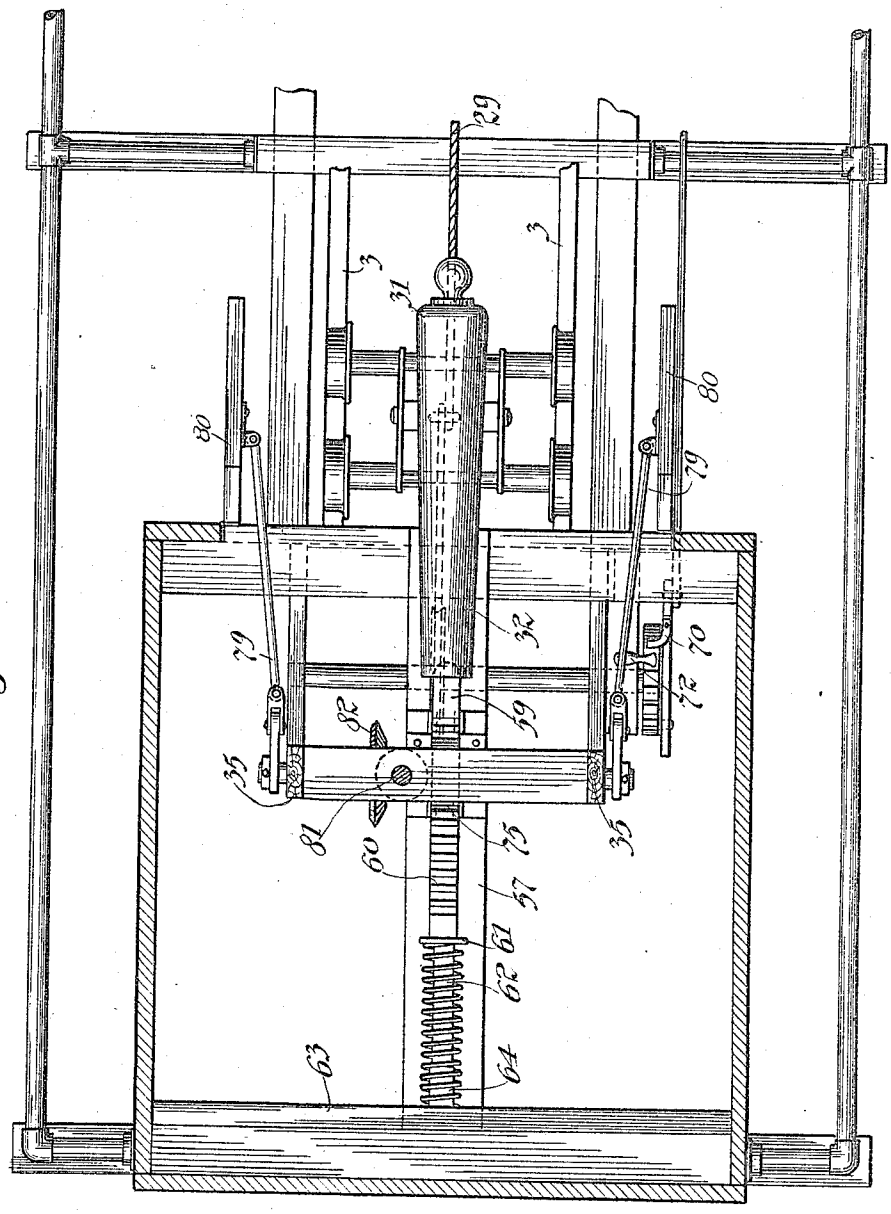
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5 SHEETS—SHEET 2.

Fig. 2.



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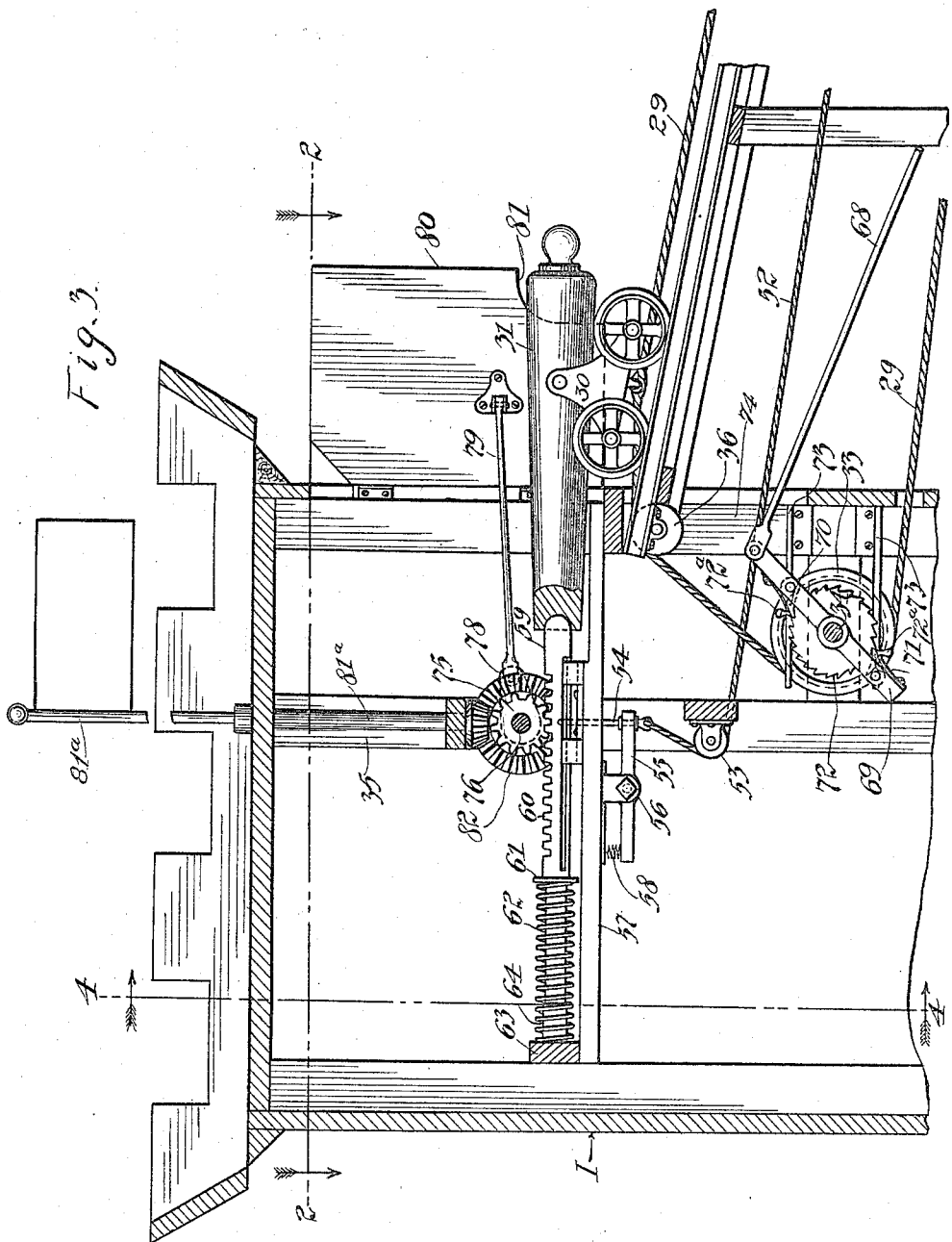
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5 SHEETS—SHEET 3.

Fig. 3.



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5 SHEETS—SHEET 4.

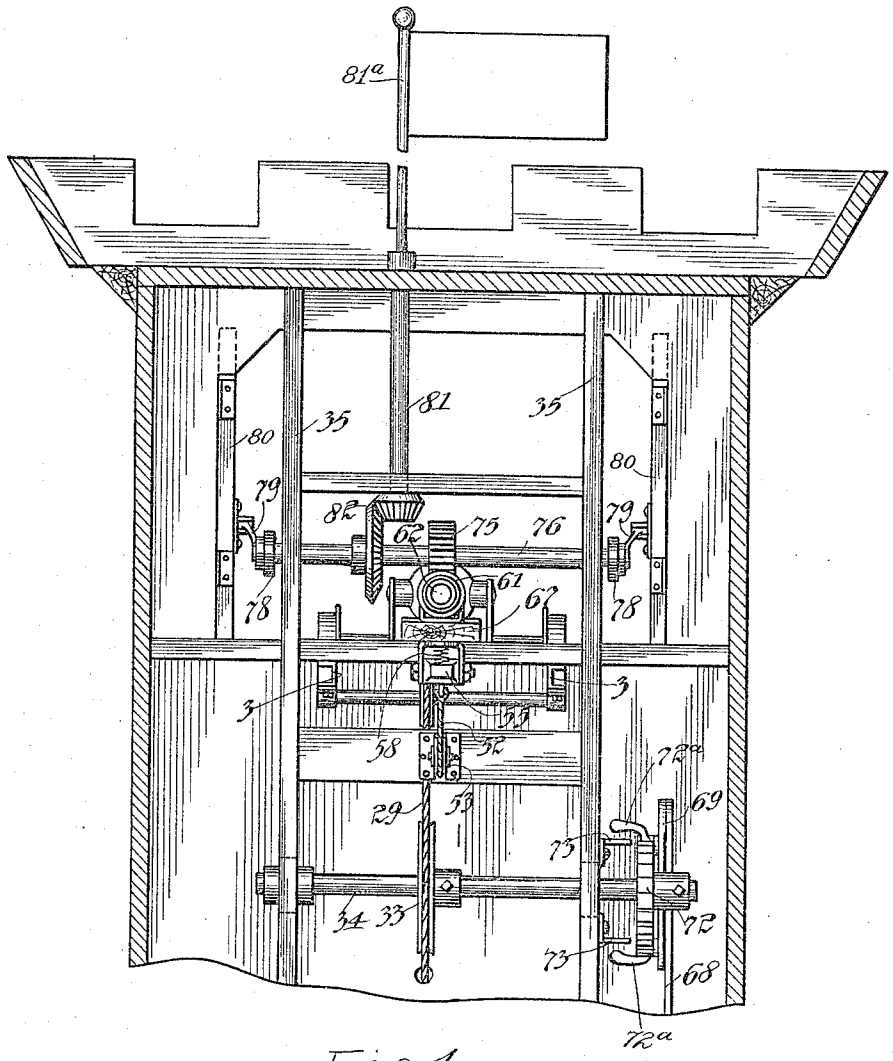


Fig. 4.

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5 SHEETS—SHEET 5.

Fig. 5.

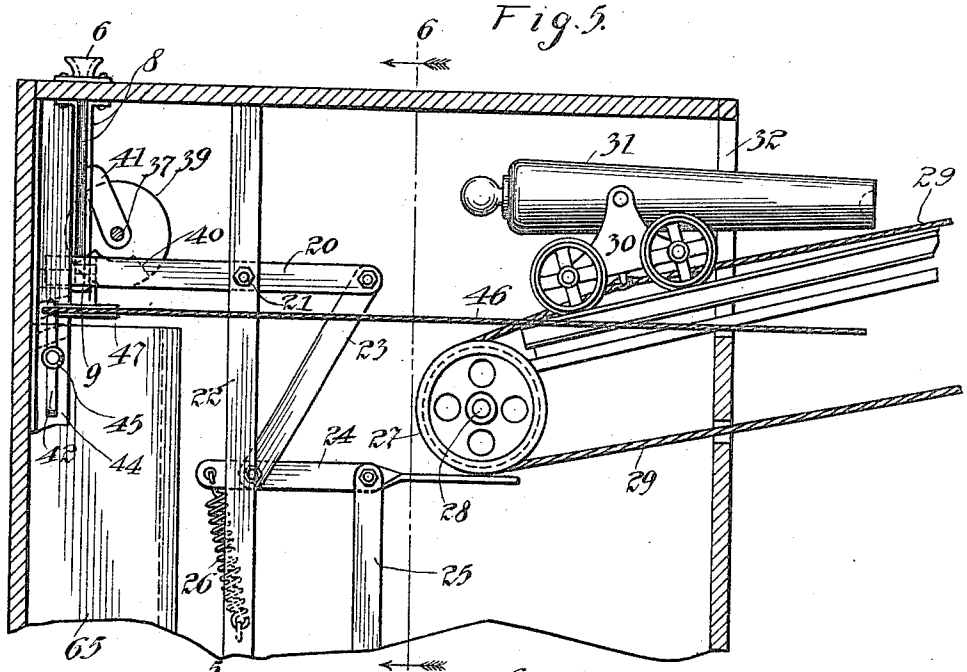
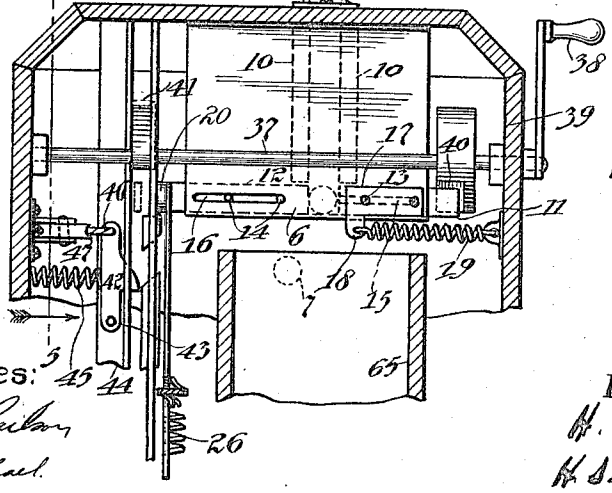


Fig. 6.



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UNITED STATES PATENT OFFICE.

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EXERCISING-MACHINE.

1,183,368. Specification of Letters Patent. Patented May 16, 1916.

Application filed April 17, 1914. Serial No. 832,454.

To all whom it may concern:

Be it known that I, HANS GAFNER, a citizen of Switzerland, residing at Escanaba, in the county of Delta and State of Michigan, have invented certain new and useful Improvements in Exercising-Machines, of which the following is a specification.

This invention relates to improvements in coin controlled exercising machines and its object is to produce a machine that will stimulate parties of sedentary occupation, and others who may need muscular exercise, to indulge in a pleasure giving pastime that will afford a needed physical exercise.

With the foregoing and other objects in view the invention consists in the combination and arrangement of parts to be hereinafter fully described in the following specification, pointed out in the claims and illustrated in the accompanying drawings which form a part of said specification and in which—

Figure 1 is a side elevation of my exercising machine. Fig. 2 is a section taken on line 2—2 of Fig. 3. Fig. 3 is a vertical section taken through Fig. 4. Fig. 4 is a section taken on line 4—4 of Fig. 3. Fig. 5 is a section taken on line 5—5 of Fig. 6. Fig. 6 is a section taken on line 6—6 of Fig. 5. Like reference characters indicate corresponding parts throughout the several views.

My machine comprises a frame work consisting of a tower 1 and an operating box 2 connected to said tower by an inclined railway 3 supported upon standards 4 rising from base rails 5. To the top of the operating box 2 a coin receiving orifice 6 is secured and into the same the coin 7 is to be dropped to release the operating mechanism and permit a person to operate the machine. The top of the box 2 is slotted in alinement with the orifice 6 and within said box a pair of guide walls 8, 8 are secured which are connected at their lower extremities by a piece 9 and between said guide walls vertically extending coin guides 10, 10 depend. Between the walls 8 and upon the piece 9 alined plungers 11, 12 are disposed, each of which projects beyond one termination of the guide walls 8 and which are provided, respectively, with guide pins 13, 13 and 14, 14 which project through slotted portions 15 and 16 in the walls 8, 8, the pins 13, 13 engaging a plate 17 disposed upon the opposite side of one of the guide walls 8 to the plunger 11 and formed with a depending termination 18 engaged by a spring 19 connected to the wall of the box 2.

Adjacent one end of the plunger 12 is a flexible bar 20 pivoted at 21 to a standard 22 disposed within the box 2 and to one end of said bar a link 23 is pivoted which connects said bar with a friction brake 24, fulcrumed upon a standard 25 disposed within box 2, connected at one end by a spring 26 to the said standard 22, the opposite end of said brake normally pressing against a wheel 27, formed with a grooved periphery, disposed upon a shaft 28 journaled in the sides of the box 2. Over the wheel 27 a cable 29 runs which at one end is connected to the truck 30 of a wheeled cannon 31 disposed upon the inclined track 3 and normally disposed within the box 2 but capable of being drawn therefrom through an opening 32 in the face of said box. The cable 29 extends from the wheel 27 into the tower 1 and over another grooved wheel 33 in said tower disposed upon a shaft 34 journaled in bearings disposed in standards 35, 35 within said tower and beyond said wheel the cable passes over a guide 36 and is secured again to the truck 30 of the cannon.

In the walls of the box 2 a rotary shaft 37 is journaled which is terminally provided with an operating handle 38 disposed outside the box and which is further provided with a wheel 39, within the box, provided with a cam block 40 and upon said shaft 37 a cam 41 is disposed which rotates with said shaft. As the handle 38 is rotated the cam 40 will intermittently engage the plunger 11 and force the same toward the plunger 12 against the tension of the spring 19 since plunger 11 is indirectly connected to that spring. The distance between the plungers 11 and 12 is such that normally the plunger 11 would not actuate the plunger 12 but when a coin is dropped into the orifice 6 it will lodge between the adjacent ends of the plungers as best shown in Fig. 6 of the drawings. Now should the handle 38 be rotated the plunger 11 will cause the coin 7 to drive the plunger 12 toward the flexible bar 20 and engage that bar and deflect its free termination into the position shown dotted in Fig. 6; as the shaft 37 is rotated the cam 41 will now engage the deflected end of bar 20 and depress the same, moving the bar upon its pivot 21 and raising the link 23 and the spring-connected end of the brake 24 thus depressing the opposite

end of this member and releasing the wheel 27. As the free end of the bar 20 descends it will engage a pawl 42 which is pivoted at 43 to an upright 44 and connected by a spring 45 to one wall of the box 2; the tendency of the spring 45 being to force the pawl away from the adjacent wall of the box. The bar 20 after passing over the angular projection formed upon the pawl 42 will become locked in engagement with the pawl, since the spring 26 will tend to return the bar 20 to normal position after the cam 41 has passed out of engagement with said bar. The upper or free end of the pawl is connected to a cord 46 which passes over a guide 47, secured in a casting carried by the wall of the box 2, and out of the box 2 and engages a lever 48 fulcrumed upon a bar 49 carried by one of the standards 4 and said lever is also connected by a spring 51 to said standard 4. From said lever 48 a cord 52 extends into the tower 1 and over a guide 53 and there is connected to a pin 54 passing through one end of a lever 55 fulcrumed upon an arm 56 connected to a cross beam 57, disposed within the tower adjacent the end of the inclined railway, the opposite end of said lever 55 being connected by a spring 58 to the plate formed integral with the arm 56. The spring 58 has a tendency to force the opposite end of the lever, and consequently the pin 54, toward the beam 57 which beam is apertured to permit passage therethrough of said pin which engages the grooved portion of a rack 59 formed with teeth 60 and with an annular shoulder 61 against which one end of a spring 62 abuts which encircles part of said rack and at its opposite termination abuts a beam 63 disposed upon the beam 57. The spring-encircled portion of the rack 59 extends into a sleeve 64 which permits longitudinal movement of said rack but prevents withdrawal of the same therefrom. The grooved portion (not shown) of the rack terminates near the free end of the rack in a relatively deep depression which depression normally is disposed remote from the pin 54.

After the brake 24 has been released in the manner previously described the coin 7 will drop into a coin receptacle 65 provided therefor, and the spring 19 will return the plunger 11 to normal position. The operator or person who dropped the coin will now pull with all of his strength upon the operating lever 66 fulcrumed upon a casting 67 secured to a standard 4 which lever is connected to an operating rod 68 which is connected to a rocker 69 loose upon shaft 34 which rocker carries a pair of oppositely arranged pawls 70, 71 that engage the ratchet 72 fast upon said shaft and so rotate the shaft 34 and the wheel 33 causing the cable 29 to draw the cannon partly or entirely up the inclined railway.

Each pawl is provided with an ear 72^a, 72^a and as the pawls ride upon the ratchet said ears engage a pair of parallel guides 73, 73, carried by a standard 74, and raise the pawls out of engagement with the ratchet; when an operator pulls the lever 66 forward to advance the cannon up the incline he immediately reverses the lever 66 in order that the pawls may be carried into further operative engagement with the ratchet before the pull of the cannon can influence the ratchet in a backward movement. As the cannon is drawn up the inclined railway the forward axle of its truck engages the lever 48 and moves the same slightly forward upon its pivot without affecting any of the mechanism. Should the cannon be drawn to the top of the incline it will strike the free end of the rack 59 and drive said rack into the sleeve 64 causing the grooved portion of said rack to travel over the pin 54 until said pin engages the depression in said rack at the end of said groove thus locking the rack in the position shown in Fig. 3. This movement of the rack, the teeth 60 of which engage a toothed wheel 75 mounted upon a shaft 76 journaled in bearings carried by standards 35, 35, will rotate said shaft 76 and with it the eccentrics 78 disposed thereupon and connected by rods 79 with doors 80 of the tower (which doors are cut out as at 81 to permit the cannon to enter) and open said doors. A flag staff 81^a carried by the tower 1 is connected by bevel gears 82 to shaft 76 and by said shaft said flag staff is rotated giving a visible signal that the cannon has been driven to the top of the inclined railway. The force of the impact by which the cannon was moved now being spent the cannon will run down the incline through gravitation and as it passes the lever 48 on the return it will move that lever against the tension of its spring 51 and so cause the cord 46 to move the pawl 42, against the tension of its spring 45, out of the path of the rod 20 permitting that rod to again assume its normal position; the lever 48 will, at the same time it performs the operation just described, withdraw the pin 54 from the depression in the rack 59 and permit the spring 62 to drive said rack back to normal position thus again rotating the flag staff and causing the eccentrics 78 to close the doors 80. The movable parts of the device are now all again in normal position and ready for the next operation.

What is claimed is:—

1. In an exercising machine, a tower, an operating box, an inclined railway connecting said members, a wheeled cannon disposed upon said inclined railway normally within said operating box, an operating lever, connection between the same and said wheeled cannon whereby the latter may be made to ascend said inclined railway, and automatic

mechanism whereby the movable parts of the machine may be restored to normal position after that position has been disturbed.

2. In an exercising machine, a tower, an operating box, an inclined railway connecting said members, a wheeled cannon disposed upon said inclined railway normally within said operating box, an operating lever, connection between the same and said wheeled cannon whereby the latter may be made to ascend said inclined railway and then permitted to gravitate to normal position and a release lever associated with said inclined railway and disposed in the path of said cannon and operable thereby to reset the movable parts of the mechanism after the normal position of the same has been disturbed.

3. In an exercising machine, a tower provided with a flag staff and movable doors, an operating box, an inclined railway connecting said members, a wheeled cannon disposed upon said inclined railway normally within said operating box, an operating lever, connection between the same and said wheeled cannon whereby the latter may be made to ascend said inclined railway and then released to gravitate to normal position, a spring-pressed rack disposed within said tower and normally projected into the path of said wheeled cannon, mechanism connecting said rack and the aforesaid flag staff and doors for actuating the latter members, locking mechanism associated with said rack and operative when the same is forced into compressed position and a release lever for said locking mechanism operable by the return of said wheeled cannon to normal position.

4. In an exercising machine, a tower, an operating box, an inclined railway connecting said members, a wheeled cannon disposed upon said inclined railway normally within said operating box, an operating lever, connection between the same and said wheeled cannon whereby the latter may be made to ascend said inclined railway and then permitted to gravitate to normal position, a spring-pressed rack formed with a groove terminating in a depression disposed within said tower and normally projected into the path of said wheeled cannon, a spring-pressed locking pin operatively associated with the grooved portion of said rack for locking engagement with the same when said rack is in compressed position and a release lever for said spring-pressed pin associated with said inclined railway operable by said wheeled cannon.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two subscribing witnesses.

HANS GAFNER.

Witnesses:
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W. P. BELANGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."