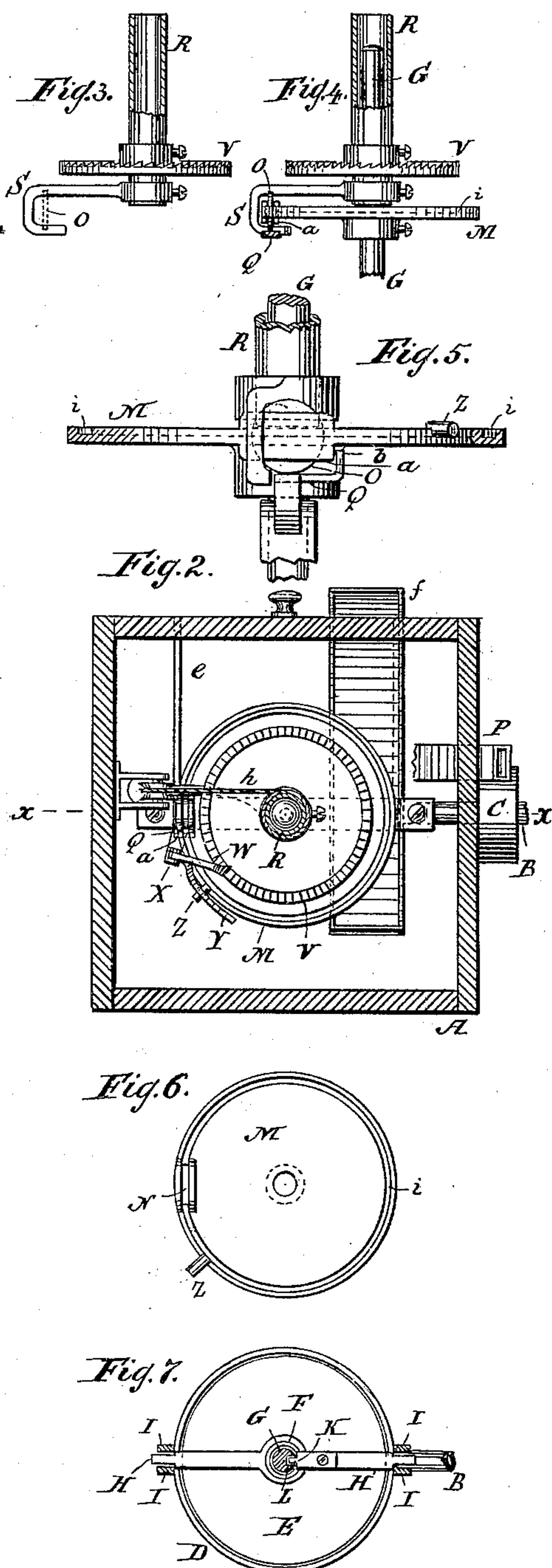


J. F. BLAKE.
COIN RELEASED SPIROMETER.

Patented June 18, 1889.



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COIN-RELEASED SPIROMETER.

SPECIFICATION forming part of Letters Patent No. 405,455, dated June 18, 1889.

Application filed February 28, 1889. Serial No. 301,444. (No model.)

To all whom it may concern:

Be it known that I, JOHN FEGGETTER BLAKE, a citizen of the United States, residing at New York, county of New York, State of New York, have invented new and useful Improvements in Coin-Operated Spirometers, of which the following is a specification.

This invention relates to a coin-operated spirometer; and it consists in certain details of construction, as set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a coin-operated device, the section being taken along line *x x*, Fig. 2. Fig. 2 is a section along line *y y*, Fig. 1. Fig. 3 is a detail side view of part of a coin-carrier. Fig. 4 is a detail side view of a coin-carrier. Fig. 5 is a rear view of part of a coin-carrier on a larger scale than Fig. 4. Fig. 6 is a plan view of part of a coin-carrier. Fig. 7 is a section along line *z z*, Fig. 1.

Similar letters indicate corresponding parts.

In the drawings, the letter A indicates a case or support. The device shown in the drawings is a lung-tester or device for testing the capacity of the lungs. The air ejected from the lungs is led through the tube B. A pressure-gage C may be applied to the tube to indicate the compression of the air. The air from the tube B enters the cylinder D and forces the piston E, with its rod F, in the direction of arrow 1. The rod F is hollow for the reception of the shaft G. The rod F has a cross-head H, adapted to travel along guides I, and the lug K engages the worm L on shaft G.

By means of the lug and worm connection the movements of the piston E rotate the shaft G. The piston E thus serves as an actuator for the shaft. The piston E, moving in the direction of arrow 1, rotates the shaft G in the direction of arrow 2. To the shaft G is secured an arm or disk M, having a coin-receiving recess or slot N. The coin, being placed in the chute or guide P, passes along said guide and into the slot N; but said coin is prevented from falling out of the slot N by resting on the ledge or face Q.

The hollow shaft R sits over the shaft G, and said shaft R has secured to it an arm S, the free end of which is bent or forked. When the shaft G is rotated in the direction of ar-

row 2, the arm M forces the projecting rim of the coin O against the arm S, so that the rotation of the shaft G and arm M is communicated to the shaft R through the arm S. The coin, after having been carried off the ledge Q, is held from falling out of the slit N by the pressure between the coin O and arm S. The arms M and S thus form a coin-carrier to interlock the shaft G and index U.

The rotation of the shaft R is communicated through the bevel-gears T to the index U, which index can be made to travel over a suitable dial, so as to enable the extent of actuation of the machine to be noted.

To the shaft R is secured a toothed disk or wheel V. The pawl W swings about the pivot X, and in Fig. 1 said pawl is shown out of gear with the disk V by reason of the arm Y of said pawl being pressed by the lug or trip Z on the arm or disk M. When the arm rotates in the direction of arrow 2, the lug Z releases the arm Y and the pawl W drops into engagement with the toothed disk V. The teeth of disk V, being inclined, allow the pawl W to ride over said teeth while the disk V rotates in the direction of arrow 2; but when starting to rotate in the reverse direction the pawl W arrests the motion of the disk V and shaft R. The disk V and shaft R thus remain stationary, while the arm M and shaft G return to the starting position, until the part M has reached the position shown in Fig. 1, when the lug Z strikes the arm Y and lifts the pawl W out of gear with the disk V. Thereupon the disk V and shaft R are free to return to the starting-point.

When the arm M starts on its return movement, the coin O is relieved from pressure against the arm S and said coin drops out of the slot N. The arm M is prevented in its return movement from going beyond the starting-point by its shoulder or lug *a*, Fig. 5, engaging the stop *b*. The index U can be prevented from returning beyond the starting-point by a stop *c*. The piston can be prevented by a stop *d* from passing too far along the cylinder.

When the piston E is freed from pressure, its weight carries it back to the starting-point, thus giving the shaft G a return rotation to the starting-point.

The coin, dropping out of the slot N, falls

into the receptacle *e*, unless the coin-carrier M S should have traveled a considerable distance, in which case the coin drops into the receptacle *f*. The receptacle *e* is locked, while
 5 the receptacle *f* is open, so that a customer who has expended considerable energy will have the coin drop into the accessible receptacle *f*, and can thus regain possession of the coin.

10 When the shaft R rotates in the direction of arrow 2, the weight *g* has its cord *h* wound on said shaft, and upon the shaft R being freed said weight restores the shaft R to its starting-point.

15 The device has been shown applied for testing lung capacity; but of course it may be applied otherwise—as, for example, to test grip capacities, pull capacities, and other energies.

20 With reference to the part M it is to be noted that said part is shown in the drawings in form of a disk. An arm secured to the shaft G will secure operation of the device as well as a disk; but a disk is preferable, since it
 25 prevents a customer being defrauded of his coin, since if a customer should drop a coin into the device before the slot N is at the starting-point said coin is prevented by the disk M from falling into the receptacle *e*, since said
 30 disk M supports the coin until the slot N is at the starting-point, when the coin passes into the slot N, and thus is in position to interlock the parts M S. By having the disk M placed so close to the chute P that a coin
 35 resting on the disk cannot pass entirely out of the chute until the slot N reaches the starting-point, and by having the disk M provided with a flange or groove *i* to steady the edge of the coin, the coin resting on the disk
 40 is steadied so as to be in proper position to pass into the slot N when said slot reaches the starting-point.

What I claim as new, and desire to secure by Letters Patent, is—

45 1. The combination, with a piston E, a shaft rotated by said piston, and an index, of a rotary coin-carrier adapted to interlock the shaft and index, substantially as described.

2. The combination, with a piston E, a shaft rotated by said piston, and an index, of an
 50 arm or disk M, provided with a coin-receiving recess and secured to said shaft, and an arm S for engaging the rim of the coin and also secured to said shaft, substantially as described. 55

3. The combination, with a rotatable shaft and an index, of a coin-carrier adapted to interlock the shaft and index, and a detent adapted to hold the index stationary during the return movement of the shaft, substan-
 60 tially as described.

4. The combination, with a piston E, a shaft rotated by said piston, and an index, of a coin-carrier adapted to interlock the shaft and index, a detent adapted to hold the index sta-
 65 tionary, and a trip Z for releasing the detent when the piston has returned to its starting-point, substantially as described.

5. The combination of a piston, a shaft rotated by the piston, an index, a coin-carrier
 70 adapted to interlock said shaft and index, a closed receptacle *e*, and an accessible receiver *f*, said receptacle and receiver located to receive coins at different points in the movement of the carrier, substantially as described. 75

6. The combination, with a rotatable shaft and an index, of a coin-carrier adapted to interlock the shaft and index, said coin-carrier consisting of an arm S and disk M, said disk
 80 being constructed to support a coin until the disk is in its starting position, substantially as described.

7. The combination, with a rotatable shaft and an index, of a coin-carrier adapted to interlock the shaft and index, said coin-carrier
 85 consisting of an arm S and disk M, said disk being provided with a steadying flange or groove, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing
 90 witnesses.

JOHN FEGGETTER BLAKE.

Witnesses:

WILLIAM C. HAUFF,
 WILLIAM MILLER.