

(No Model.)

L. DONNE.

COIN CONTROLLED LUNG TESTING MACHINE.

No. 469,936.

Patented Mar. 1, 1892.

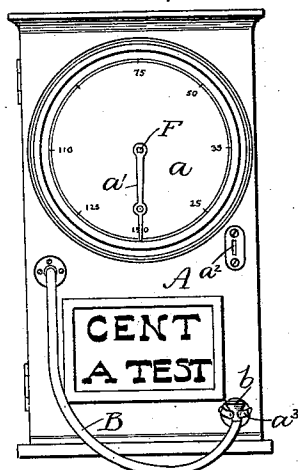


FIG. 1.

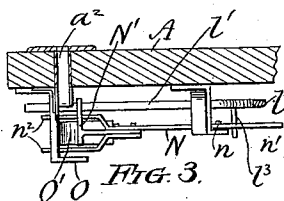


FIG. 3.



FIG. 4.

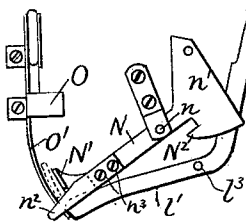


FIG. 5.

Witnesses:

J. Halpenny.

L. G. Ingraham.

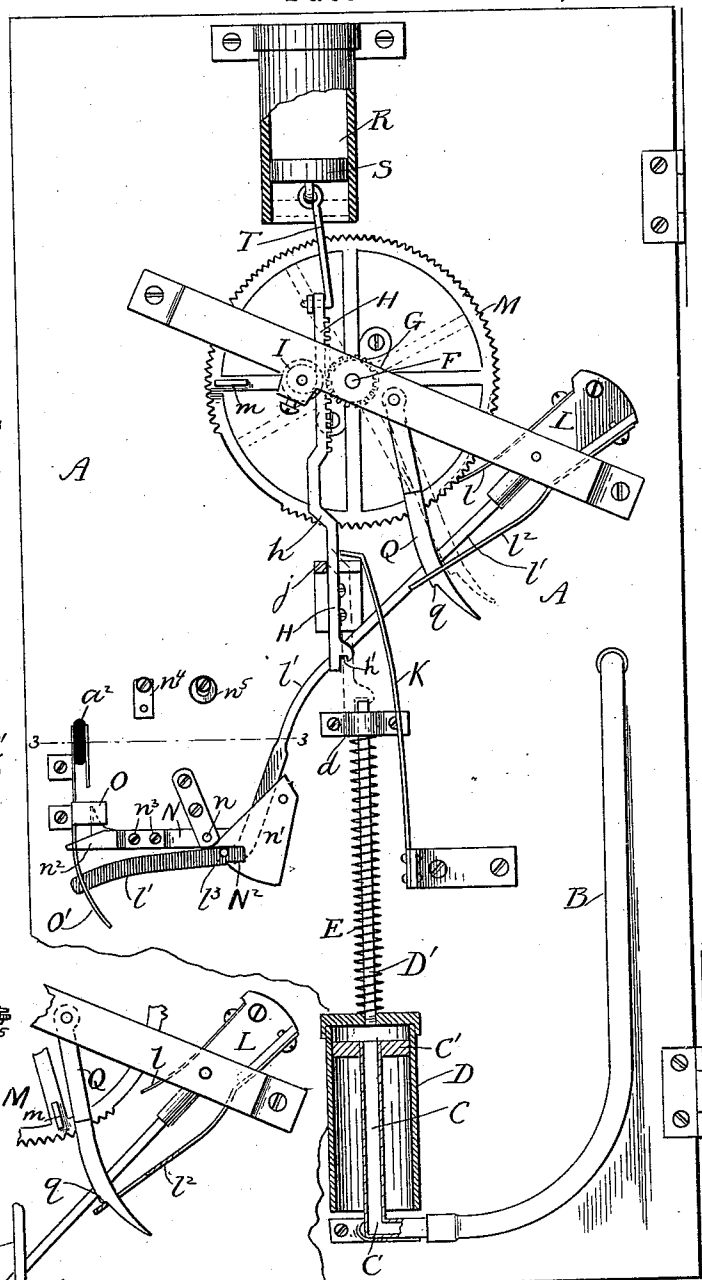


FIG. 2.

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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED LUNG-TESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 469,936, dated March 1, 1892.

Application filed June 11, 1891. Serial No. 395,868. (No model.)

To all whom it may concern:

Be it known that I, LEON DONNE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented certain new and useful Improvements in Coin-Controlled Lung-Testing Machines, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof,
10 and in which—

Figure 1 is a front elevation of one of said machines on a very small scale. Fig. 2 is an elevation of the operating mechanism thereof on a very much larger scale. Fig. 3 is a horizontal section on the line 3 3, Fig. 2, showing
15 the trip-lever arranged to be operated by, say, one-cent pieces and other coins of the same or of greater diameter. Fig. 4 is a plan view of said trip-lever arranged to permit one-cent pieces to pass without operating
20 it and to be operated by, say, nickels and other coins of the same or greater diameter. Fig. 5 is an elevation of some of the parts shown in Fig. 2.

25 The present invention consists in certain features of novelty that are particularly pointed out in the claims hereinafter.

Referring to the drawings, A represents the door of the casing, by which all of the working parts of the machine are supported.
30 Upon the front side of it are a graduated dial a , an index a' , a coin-opening a^2 , a flexible tube B, having a mouth-piece b , and hooks a^3 for supporting said mouth-piece and the end
35 of the tube when not in use. The tube passes through the door and at its inner end is stretched over one end of a pipe C, which is rigidly fixed to the door, and has fixed to its upper end a piston C', through which it passes.
40 Fitting over this piston is a cylinder D, the bottom of which is open, while the top is closed and carries a rod D', guided at its upper end by a block d and surrounded by a spiral spring E, bearing at its upper end
45 against said block and at its lower end against the cylinder D, whereby said cylinder is resisted in its upward movement and is returned to its depressed or normal position after the removal of the force by which it has been
50 moved upward therefrom.

F is the shaft of the index, to which is secured a pinion G, and H is a rack-bar held in engagement with said pinion by a roller I. Below its teeth the rack-bar is provided with an offset h , constituting a cam which comes
55 in contact with the guide J as the bar descends to its lowermost position, whereby its lower end is moved into line with the upper end of the rod D', so that when said rod is elevated it will engage the notch h' in the
60 lower end of the rack-bar and said rack-bar and rod will be held in engagement until the latter begins to descend. As soon as the upper end of the rod D' has withdrawn from the notch h' , a spring K, bearing against the
65 side of the rack-bar, forces its lower end into the position shown by full lines in Fig. 2, in which position it is out of the path traveled by the upper end of the rod D'. Hence until
70 the parts are again restored to the positions indicated by dotted lines in Fig. 2 any upward movement of the rod D' cannot effect the rack-bar. An upward movement of the rack-bar moves the index through a greater
75 or less number of degrees of a revolution, according to the force of the air-pressure in the cylinder D, and all the parts, except the cylinder D and rod D' are arrested and held in the extreme positions to which they are
80 moved by means of a brake L, having a spring-tooth l , which tends normally to engage the toothed periphery of a brake-wheel M, secured to the shaft F' of the index.

N is a trip-lever pivoted to a bracket at n , and weighted at n' , so that its bifurcated end
85 n^2 will be held normally about in the position shown by Fig. 2. The distance between the prongs n^2 is such that a coin of the proper size when introduced through the slot a^2 will strike a deflector O and fall onto said prongs
90 edge up, it being maintained in this position by a plate N', carried by the lever N, and a second plate O', secured to the casing and extending between said prongs about concentrically with the pivot n . The weight of the
95 coin is sufficient to depress the bifurcated end of the lever, and in descending it engages the trip-arm l' of the brake L, and depresses it until the brake is moved out of contact with the brake-wheel. The coin falls into the cash- 100

receptacle after it has passed the lower end of the plate O', whereupon the lever N immediately resumes its normal position; but the brake cannot immediately resume its normal position because a shoulder *q* on a dog Q has engaged it or an arm of it *l*², as shown in Fig. 5. Hence the brake-wheel being free, the weight of the rack-bar and its accessories will restore the parts to their normal positions, as shown by dotted lines in Fig. 2. Fig. 5 shows the parts just an instant before they reach their normal positions, at which time a lug *m* on the brake-wheel M strikes against the dog Q and disengages its shoulder from the brake, whereupon the brake resumes its normal position.

N² is a shoulder on the trip-lever N, and *l*³ is a pin which engages said shoulder and prevents the trip-arm *l*¹ from being depressed without first elevating the counterbalance end *n*¹ of the lever N. As arranged in Fig. 3, the lever N will be tripped by, say, a one-cent piece, or any other coin of the same or greater diameter that will pass through the slot *a*². If it be desired that the machine shall be rendered operable only by a nickel or a coin of the same or greater diameter, the prongs *n*² are placed at such distance apart that smaller coins will drop between them. This is accomplished by removing the screws *n*³ and placing between the prongs *n*² a thin block *n*⁴, which is counterbalanced by a removable weight *n*⁵, said block and weight when not in use being attached to the inside of the door, as shown in Fig. 2.

R is a cylinder secured to the door above the rack-bar H, open end downward, S a piston fitting loosely therein, and T a rod connecting said piston with the upper end of the rack-bar, the whole constituting a dash-pot for easing the movements of the parts.

I have shown and described my invention as applied to a lung-testing machine; but it is obvious that it is applicable to machines of various other kinds in which it is desired to measure or indicate the extent of movement of a rod, similar to the rod D', by whatever primary means said movement is produced, and that the trip mechanism is applicable to machines of all kinds the operation of which is controlled or conditioned by a coin.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a coin-controlled lung-testing machine, the combination of the tube B, the pipe C, the piston C', the cylinder D, the vertically-reciprocable rod D', the index, means for trans-

mitting the movement of the rod D' to the index, a brake for holding the index at the extremity of its movement, and a coin-controlled mechanism for tripping said brake and permitting the index to return to zero, substantially as set forth.

2. In a coin-controlled lung-testing machine, the combination of the tube B, the fixed pipe C, the piston C', fixed thereto, the vertically-reciprocable cylinder D, closed at its upper end and fitting over said piston, the rod D', rising from said cylinder, the bar H, separate from but in line with the bar D', the index, means for transmitting the movement of the bar to the index, the brake-wheel M, the brake L, engaging said wheel for holding the index at the extremity of its movement, and a coin-controlled trip mechanism for tripping said brake and permitting the index to return to zero, substantially as set forth.

3. The combination, with the operating mechanism and the brake having the trip-arm *l*¹, of the trip-lever N, having removable prongs *n*², the removable block *n*⁴ for regulating the distance asunder of said prongs, and means for counterbalancing said block, substantially as set forth.

4. In a coin-controlled machine, the combination, with the operating mechanism, of the trip-lever N, having the counter-balance *n*¹, the removable counter-balance *n*⁵, the removable coin-receiving prongs *n*², and the removable block *n*⁴ for regulating the distance asunder of said prongs, substantially as set forth.

5. In a coin-controlled lung-testing machine, the combination of the tube B, the pipe C, the piston C', the cylinder D, in which said piston fits, the rod D', extending upward therefrom, the block *d*, the spring E, surrounding said rod and bearing downward upon the cylinder, the rack-bar H, having offset *h* and notch *h*¹, the rest J, against which said rack-bar rests, the spring K, bearing against said rack-bar, the pinion G, with which said rack-bar engages, the shaft F, to which said pinion is secured, the index *a*¹, secured to said shaft, the graduated dial *a*, the cylinder R above the rack-bar, the piston S in said cylinder, the rod T, connecting the rack-bar and piston, a brake for preventing the retrograde movement of the parts, a coin-controlled tripping mechanism for releasing said brake, and means for resetting it as the parts return to their normal positions, substantially as set forth.

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Witnesses:

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