

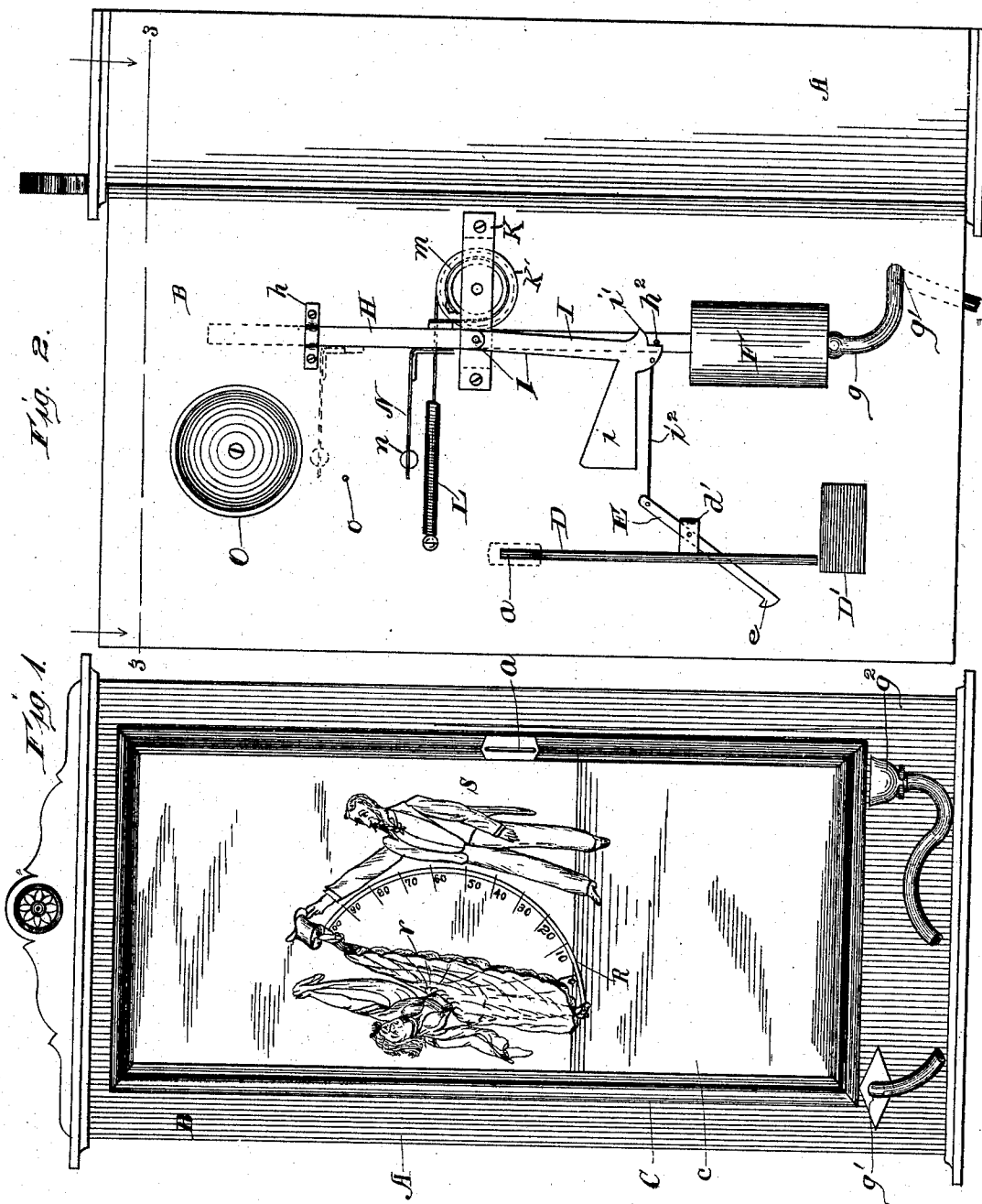
(No Model.)

2 Sheets—Sheet 1.

L. KERN.
COIN CONTROLLED LUNG TESTING MACHINE.

No. 502,439.

Patented Aug. 1, 1893.



Witnesses

Chas. E. Gordon.
E. Duggan.

Inventor:

Louis Kern

By: Chas. C. Tillman

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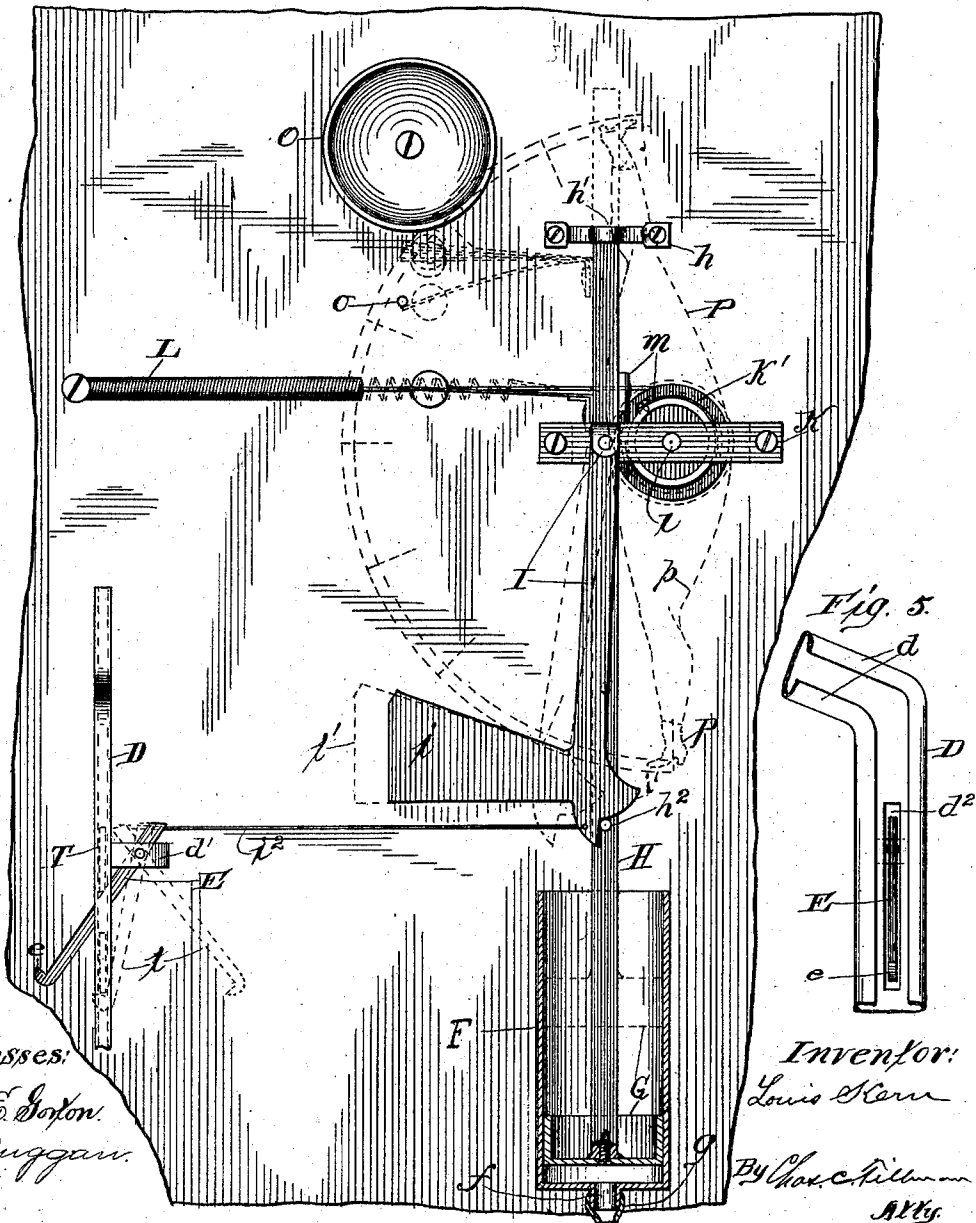
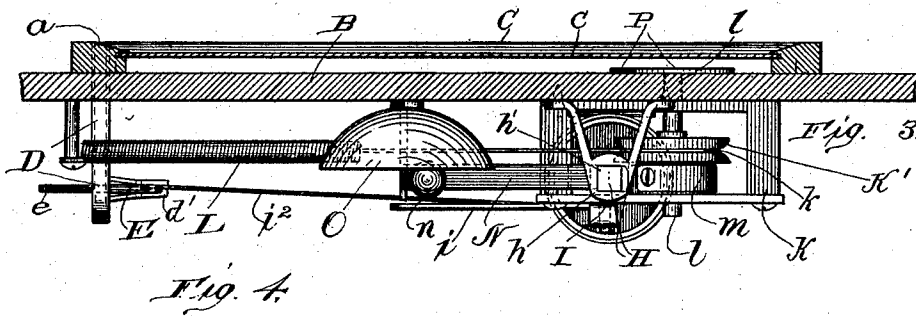
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Chas. E. Dorton.
Chas. Duggan.

Inventor:
Louis Kern

By Chas. C. Hillman
Atty.

UNITED STATES PATENT OFFICE.

LOUIS KERN, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED LUNG-TESTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 502,439, dated August 1, 1893.

Application filed January 31, 1893. Serial No. 460,490. (No model.)

To all whom it may concern:

Be it known that I, LOUIS KERN, 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.

This invention relates to improvements in
10 devices or machines to indicate or test the power of the lungs, and more especially to that class of such machines in which the operation of the mechanism is controlled by the deposit of a coin; and it consists in certain
15 peculiarities of the construction, novel arrangement and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are first, to
20 afford a machine or device for the above named purpose, which shall be simple and inexpensive in construction, effective in operation, and strong and durable; and second, such a machine which will afford an accurate
25 test of lung power, and at the same time will afford amusement to the operator and others, by reason of the action and operation of the indicating figure.

In order to enable others skilled in the art,
30 to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1, is a view in front elevation of my
35 device as it appears in operation, and illustrating the index figure as having reached the highest point. Fig. 2, is a view in side elevation, showing the door of the box open and the operating mechanism attached thereto.
40 Fig. 3, is a plan sectional view of a portion of the door with the operating mechanism attached. Fig. 4, is an enlarged view of the inner surface of a portion of the door showing the positions in dotted lines of the various
45 parts of the mechanism, as they appear in the operation of the device; and Fig. 5, is a detail view of the coin-guide or chute and its tripping lever.

Similar letters refer to like parts throughout the different views of the drawings.

A, represents a box or casing made of any suitable size, form and material, but preferably of wood and rectangular in form, and has hinged to one of its sides a door B, to the inner surface of which is secured the various
55 parts of the operating mechanism.

As shown in Fig. 1, of the drawings, the door B, is formed with a panel C, in which may be placed a piece of glass c, to protect and shield the inscription and indicating figure, which may be placed on the outer surface of the door B, behind the glass. Near
60 one side of the door, and about the middle thereof, is provided a vertical slot a, for the reception of a coin, the deposit of which is
65 necessary to the operation of the parts of the mechanism.

To the inner surface of the door is secured in a vertical position and edge-wise, a coin-guide or chute D, which has its upper end
70 open, adjacent to the slot a, so that when the coin is inserted through the slot, it will pass into the guide or chute D, which is formed as shown in Fig. 5, with inwardly bent flanges
75 d, to hold the coin in position. At a suitable point on one of its sides, the guide D, is provided with an arm d', to which is fulcrumed a tripping lever E, which lever is formed at
80 its lower end with a hook or catch e, to engage with the coin, and is adapted to operate in a slot d², in the guide D, which slot is
formed for this purpose.

Just below the lower end of the guide D, which end is also open, is placed a box or receptacle D', to catch the coins as they fall
85 from the chute or guide.

To one side of the guide D, and to the inner surface of the door, is secured in a vertical position a cylinder F, the bottom of which is closed and is provided at its center with a
90 projecting nozzle f, to which may be secured one end of a flexible tube g, which tube passes through a suitable opening g', in the door B, and is provided at its free end with a mouth-piece g², as is shown in Fig. 1 of the drawings.
95

Within the cylinder F, is fitted and operates a piston G, which has secured thereto a rod H, which extends upward, and is held in a vertical position by means of a bracket h,
100

which is secured to the door at its upper part, and is provided with an opening or socket h^1 , through which the piston-rod H, passes in its upward and downward movements. Just below the top of the cylinder F, and when in its normal position, the rod H, is provided with an inwardly projecting pin h^2 , which acts as a stop to the swinging lever I, which lever is pivotally secured at its upper portion to a bracket K, in which the spring actuated pulley K', has its bearing.

As is clearly seen in Figs. 2 and 4 of the drawings, the lower portion of the swinging lever I, is provided with a weight i , and has on its side adjacent to the pin h^2 , a projection i' , which is upwardly beveled as shown, in order to allow the pin h^2 , to pass in its upward movement. To the lower end of the swinging lever I, is secured a rod i^2 , which is connected at its other end to the upper end of the tripping lever E.

By reference to Figs. 2 and 3, it will be clearly seen and understood that the pulley K', is mounted on a shaft l , which has its bearings in the bracket K, and projects slightly through the door. A portion of the pulley K', is grooved as at k , for the reception of a cord or chain, which is secured at one of its ends to said pulley, and at its other end to a spring L, which spring is secured at its other end to the inner surface of the door. The other portion of the pulley K', has a flat periphery, and has secured thereto one end of a flat spring m , the other end of which spring is secured to the side of the piston-rod H. To the opposite side of the piston-rod is secured a horizontally extending spring N, which is provided near its free end with a clapper n , which is designed to strike the bell O, which is attached to the upper portion of the inner surface of the door. Just below the bell and at a proper point to engage with the free end of the spring N, is located a pin o , for this purpose. To the portion of the shaft l , which extends through the door is rigidly secured an indicating pointer P, which I have shown in the drawings formed in the shape of a leg of a person. The outer surface of the door is provided with a graduating scale R, which may be divided into any number of graduating marks, and may be arranged as shown in a circular form. To the one side of the scale R, may be delineated the figure of a man S, holding a hat at the apex of the graduating scale, and at a proper point on the front surface of the door may be shown a representation of another person, usually a woman r .

The figure or representation of the female is so located and delineated on the front of the door, that when the parts of the mechanism are in their normal positions, the index pointer P, represented as the leg of a person will be in its normal position, as is shown in dotted lines in Fig. 4.

The operation of my device is simple, and as follows: The various parts of the operat-

ing mechanism are disposed as above set forth, and the door of the box is closed and may be locked if desired. The coin T, is then inserted into the slot a , and will glide therefrom down the guide or chute D, until it strikes the tripping lever E, and by its weight will force it, the lever, into the position indicated at t , in Fig. 4. The movements of this lever will cause the swinging lever I, to assume the position indicated by dotted lines, as at t' , in Fig. 4. The mouth-piece g^2 , is then placed to the mouth of the operator, and by blowing into the same, the piston and its rod will be raised, and in said operation the pulley K', and its shaft l , will be revolved, in which operation the index pointer P, will indicate on the dial or scale the number of pounds of pressure, and as the spring N, is secured to the piston-rod H, it will be carried therewith, and its free end will engage the pin o , until said spring yields sufficiently to pass the pin, when its clapper will strike the bell O, and give forth an alarm. As soon as the pressure is removed from the piston, the parts will assume their normal positions indicated by continuous lines, by reason of the action of the spring L, which as before stated is united by means of a cord or otherwise to the pulley.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a box or casing having on its outer surface a graduating scale or gage and a slot for the deposit of a coin, with a slotted guide or chute, a tripping lever to operate in the slot of the chute, a cylinder having a tubular projection at its bottom, a piston to operate in said cylinder, a piston-rod having and carrying therewith a stop-pin and a power-spring, a pulley mounted on an axle, said axle extending through the casing and having on its outer end an index pointer, the power-spring secured at one end of the piston-rod and at its other to the pulley, a return spring connected at one end to the casing and at its other end to the pulley, a weighted swinging lever pivotally secured at its top and connected at its bottom to the trip-lever, and a blowing-pipe or tube connected to the tubular projection of the cylinder, all constructed, arranged and operating substantially as set forth.

2. The combination of a box or casing having on its outer surface a graduated scale and a slot for the deposit of a coin, with a slotted guide or chute, a tripping-lever to operate in the slot or the chute, a cylinder, a piston to operate in said cylinder, a piston-rod having and carrying therewith a stop-pin, a power-spring and a spring to strike the bell, a pulley mounted on an axle, said axle extending through the casing and having on its outer end an index pointer, the power-spring secured at one end to the piston-rod and at its other to the pulley, a return spring connected

at one end to the casing, and at its other end
to the pulley, a weighted swinging lever piv-
otally secured at its top and connected at its
bottom to the trip-lever, a trip-pin and bell
5 secured to the casing, the former adapted to
engage the striking spring and the latter to
be struck thereby, and a blowing-tube or pipe

connected to the cylinder, all constructed, ar-
ranged and operating substantially as and
for the purpose set forth.

LOUIS KERN. [L. S.]

Witnesses:

CHAS. C. TILLMAN,
F. W. ENSIGN.