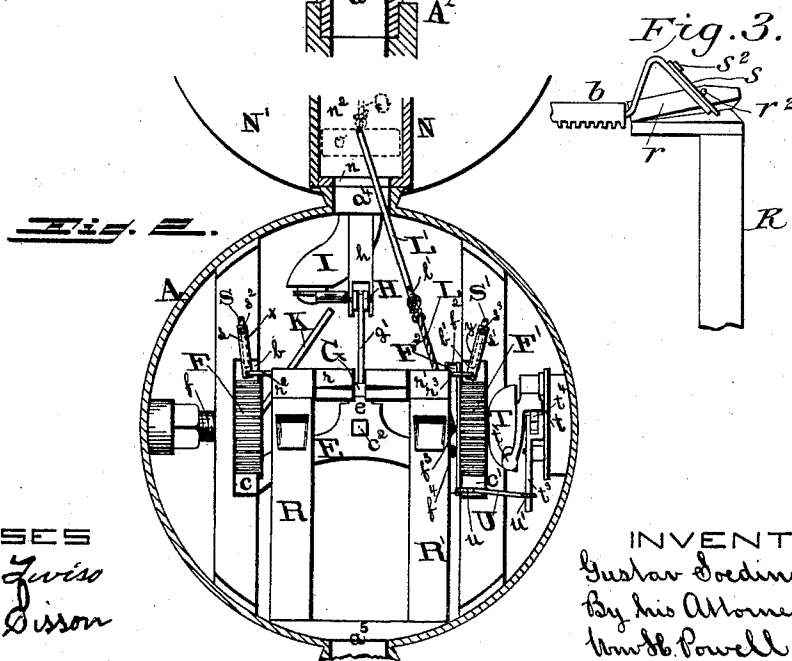
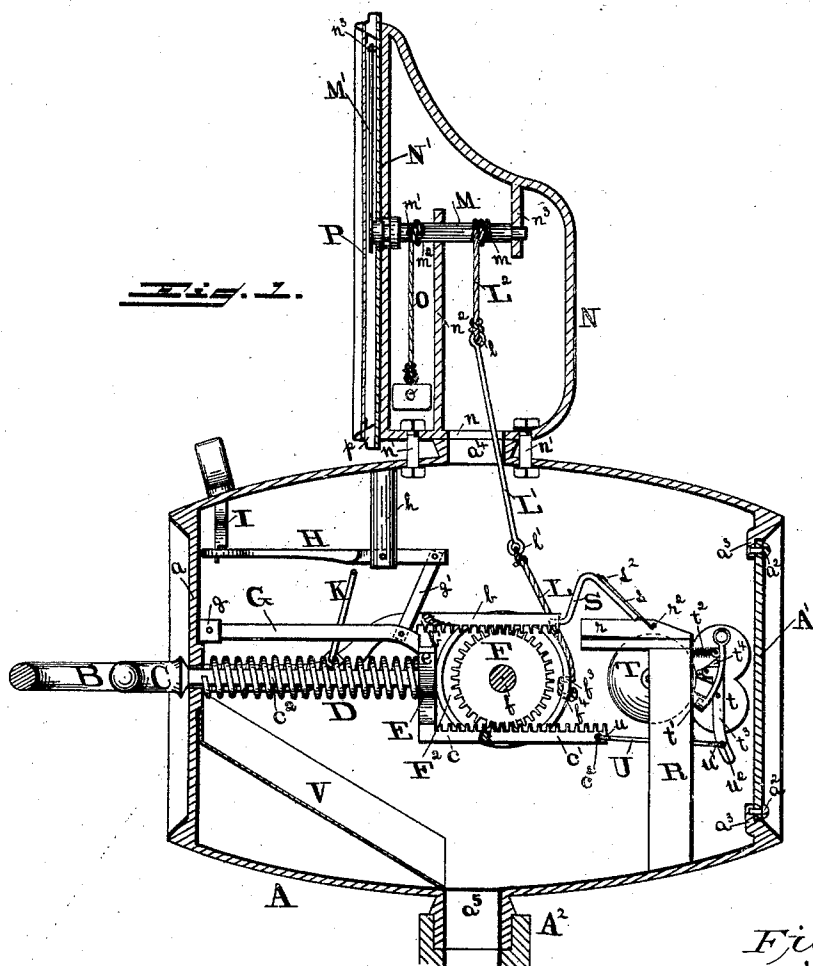


(No Model.)

G. SOEDING.
COIN CONTROLLED STRENGTH TESTER.

No. 431,013.

Patented June 24, 1890.



WITNESSES

George Zwisso
Oliver Zisson

INVENTOR

Gustav Soeding,
By his Attorney
Wm H. Powell.

UNITED STATES PATENT OFFICE.

GUSTAV SOEDING, OF PHILADELPHIA, PENNSYLVANIA.

COIN-CONTROLLED STRENGTH-TESTER.

SPECIFICATION forming part of Letters Patent No. 431,013, dated June 24, 1890.

Application filed December 26, 1889. Serial No. 335,019. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV SOEDING, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Coin-Controlled Strength-Testers; and I do hereby declare that the following is a full, clear, and exact description of the invention.

My invention has relation to coin-controlled strength-testers of the character shown and described in Letters Patent of the United States No. 415,949, granted to me on November 26, 1889, and has for its object to simplify the construction of and the addition of certain novel features to the same.

My invention consists in the provision of a construction which permits of the discarding of the spring-controlled shaft of the patent above mentioned, with the means for actuating the same; also, the spring-controlled register-operating wheel loosely journaled on said shaft, and the substitution therefor of a shaft carrying a rotary indicator or pointer registering on a dial and suitably arranged outside of and on top of the casing, said shaft receiving its motion from the operating-handles through the medium of a cord secured to the grooved wheel formed on one of the gears which mesh with the handle-racks and to the latter shaft, which latter and the pointer are returned to normal or zero point by means of a weighted cord secured to said shaft.

My invention further consists in the provision of a pair of different-toned organ-pipes, into which air is forced at certain predetermined periods by a pair of bellows operated by the handles, said pipes and bellows being similar to those of a "cuckoo-clock" and announcing the arrival of the pointer under the impulse of said handle at a certain point on the dial; also, in the provision of a bell or gong operated by the handles when the same have been forced to their full extents and announcing the arrival of the aforesaid pointer at the highest point on said dial.

My invention still further consists in the specific construction and in the combinations of parts, as hereinafter more fully described, and shown in the accompanying drawings, wherein—

Figure 1 is a vertical longitudinal central

section of the main casing and the pointer-mechanism casing, their contained parts being in full lines and partly broken away. 55

Fig. 2 is a vertical transverse central section of the above with their contained parts in full lines. Fig. 3 is a side elevation of a detail showing one of the pairs of bellows open.

A is the casing, and B and C the pushing and pulling handles, respectively, with their racks $b\ b' \ c\ c'$. 60

D is the helical spring encircling the rod c^2 of handle C and abutting against the head a and the shoulder e of the yoke E. 65

F F' are the gear-wheels journaled on the ends of the bolts f in the casing sides and receiving motion from the above-mentioned racks.

G is the locking-bar hinged in the lugs g , integral with head a and actuated by the coin-lever H, hinged in the hanger h through the medium of the link g' , said coin-lever receiving coins from the conveyer I, and is supported before the operation of the handles by the arm K, secured in one of the arms of the pushing-handle. 70 75

A' is the rear head or door, secured in place by the screws a^2 and the lugs a^3 , all of which parts are like unto and have the same functions as those shown and described in my aforementioned patent, so that they need not be particularly described herein. 80

F² is a wheel or rotary disk, provided with a rim with a shallow groove f^2 therein, although such groove may be dispensed with, and having openings therein for the passage of the end of a cord L, as shown at $f^3\ f^4$, said cord being knotted after passing through the last opening for preventing its withdrawal therefrom. The other end of this cord is tied or otherwise conveniently secured to the lower end of a link or rod L', provided with eyes $l\ l'$, one at each end. The other end of this rod has secured thereto another cord L², which passes or is wound several times around the shaft M, as shown in Fig. 1, and, finally, through a suitable opening m in the shaft, after which it is knotted for preventing its withdrawal. Thus, as will be seen, there is a taut connection between the wheel F² and the shaft M, which carries the hand or pointer M', so that immediately upon the operation of the handles B C said pointer will move cor- 85 90 95 100

respondingly and register the extent of pressure exerted on said handles. The purpose of providing the link L, instead of employing a single cord between the wheel or disk F and shaft M, is to prevent the wearing out of the cord by its contact with the sharp edge of the opening a^4 , and avoid the necessity for the use of a pulley.

N is the casing for the indicator-operating mechanism; also, the support for the dial N', which is secured to the front thereof, said casing having an opening n in its bottom registering with the opening a^4 , and for the same purpose; also smaller openings at each side thereof for the passage of bolts n' , which pass through openings in the casing A and secure the casing N and its appurtenances on the latter. Inside of casing N and integral with the walls thereof are an upright n^2 and a hanger n^3 , which afford bearings for the shaft M, although they may be entirely dispensed with, particularly the latter, in which case the said shaft will be journaled in the rear wall of said casing. The upright n^2 , in conjunction with the front and side walls of the casing N, forms a chamber for a weight o , secured to one end of a cord O, which cord at its other end passes in a direction opposite to that of cord L, through an opening m' in the shaft M, then once around the latter and through a similar opening m^2 , where it is knotted for preventing its withdrawal, so that after the handles have been operated and hold thereon released said weight and cord having been wound on the shaft M by said operation will rotate said shaft backwardly until the pointer M' reaches the zero-point or limiting-stop z on the dial N'. Said dial is protected by the rim p and glass P, and faces the operator, so that he can keep the movement of the pointer in full view and be informed as to the exact amount of strength which he has exerted, thus avoiding the necessity of his leaning to either side of the machine for such purpose, and thereby partly releasing his grasp on the handles, which allows the pointer to move backwardly some distance and incorrectly register the amount of draft exerted on said handles when the dial faces sidewise, as in strength-testers heretofore constructed employing a circular dial.

R R' are ordinary wooden organ-pipes, such as are usually found in "cuckoo-clocks," secured upright in any suitable manner to the inside of the bottom of casing A, and having attached thereto at their tops the usual form of bellows $r r'$, said bellows having each in one side of their upper sections pins $r^2 r^3$ projecting laterally.

S S' represent crooked or knee-shaped arms conveniently secured in the ends of the racks $b b'$ of the handle B, their ends projecting downwardly almost in line with said pins, but not quite in such line and forming inclined planes.

$s s'$ represent spring-tongues secured to the upper surfaces of the arms S S' by rivets $s^2 s^3$

or otherwise, and their free ends projecting normally underneath the pins $r^2 r^3$.

It will be observed by referring to Fig. 2 of the drawings that the arms S S' are of different angles of inclination when viewed endwise, the latter at its apex leaning outwardly or to the side a slightly greater distance from the center of said figure than the former, so that as the handles are operated the arms with their tongues will be forced under the pins and cause the same to ride upwardly upon the inclines, thus raising the bellows sections to which they are attached, as shown in Fig. 3, and causing the air to fill the bellows. Now, owing to the aforementioned outward lean of arms S S' the period of time during which the pin r^3 is in engagement with the tongue s' is less than that during which the pin r^2 is engaged with the tongue s , and the arms are of the same inclination in side elevation, the pin r^2 leaving its tongue at x and pin r^3 leaving its tongue at y , and the tone of pipe R' being higher than R the result is a cuckoo-call.

It will be readily understood that the point which the indicator reaches on the dial and the sounding of the cuckoo correspondingly therewith is a mere matter of adjustment in the relation of the pins to the tongues; also, ordinary organ-reeds, whistles, or any other form of wind-instrument may be used as readily as those shown.

The object of providing the tongue-extensions of the arms S S' is so that after the pins $r^2 r^3$ have ridden upon said tongues and dropped to the rear thereof said pins may resume their positions in front of the ends of the tongues, when the handles resume their normal positions by raising the same and passing under them, the spring of said tongues causing them to resume their proper positions on the arms.

T represents the ordinary form of bell or gong mounted on a base-plate t , secured to the side of the casing and provided with the usual hammer t' , controlled by a spring t^2 , said hammer being operated by an arm t^3 , having a spring-latch t^4 thereon, so that when this arm is pulled inwardly on its pivot the contact of the latch with the said arm will force it some distance away from the bell until the arm slips over the end of the latch, when the spring attached to the hammer-arm will draw the latter into contact with said bell and the stroke is accomplished.

U represents a rigid bar with eyes $u u'$ at each end for engagement with openings c^2 in the rack c' , and with the opening u^2 in the arm t^3 , so that when the handle C has been pulled to its full extent and the indicator reached its highest point on the dial the arm t^3 will be also drawn sufficiently to cause a ringing of the bell, after the manner above described, and when such draft is released the bell-arm will resume its normal position, ready for another operation.

As will be understood, the position or point

at which the pointer arrives on the dial simultaneously with the striking of the bell can be changed at will by shifting said pointer on its shaft.

5 V represents a chute for leading the coins which drop off the coin-lever to the opening a^5 , through which they pass into a suitable receptacle in the standard or base A^2 .

What I claim as my invention is as follows:

10 1. In a coin-controlled strength-tester, the combination of the handles, a suitably-supported wheel or rotary disk, mechanism intermediate the latter and the handles, a rotary shaft carrying a hand or pointer, a dial on
15 which the latter registers, a cord passed around and secured to said shaft and to said wheel or disk for rotating the shaft in one direction, and means for alternately rotating the shaft in the other direction independently
20 of said cord, substantially as shown and described.

2. In a coin-controlled strength-tester, the combination of the handles, a suitably-supported rotary shaft carrying a hand or pointer,
25 a dial on which the latter registers, mechanism intermediate the handles and shaft for rotating the latter in one direction, and a cord passed around and secured to said shaft and sustaining a weight for alternately rotating
30 the shaft in the other direction independently of the handles, substantially as shown and described.

3. In a coin-controlled strength-tester, the combination of the handles, a suitably-supported wheel or rotary disk, mechanism intermediate the latter and the handles, a pointer,
35 a dial on which the latter registers, the shaft M, with the holes m m' m^2 , carrying the pointer, supports for the shaft, the cord L, secured to the wheel or disk, the cord L^2 , secured to said shaft, the rod L' , intermediate and secured to the cords, the cord O, secured
40 in the openings m' m^2 and sustaining the weight o , substantially as shown and described.

4. In a coin-controlled strength-tester, the combination of the handles, a register, mechanism intermediate the handles and register, the arms SS' , secured to the pushing-handle, the tongues s s' , secured on said arms, the
50 pins r^2 r^3 , the bellows r r' , and the pipes RR' , substantially as shown and described.

5. In a coin-controlled strength-tester, the combination of the handles, a register, mechanism intermediate the handles and register,
55 the rod U, secured to the pulling-handle, the arm t^3 , the latch t^4 , the hammer t' , the spring t^2 , the base-plate t , and the bell T, substantially as shown and described.

6. In a coin-controlled strength-tester, the combination of the handles B C, the rod c^2 , the spring D, the racks b b' c c' , the gears
60 F F', a register and mechanism for the operation thereof, the coin-controlled locking devices, the arms S S', the tongues s s' , the pins r^2 r^3 , the bellows r r' , the pipes R R', the rod U, the arm t^3 , the latch t^4 , the hammer t' , the spring t^2 , the base-plate t , and the bell T,
65 substantially as shown and described.

7. In a coin-controlled strength-tester, the combination of the handles B C, the rod c^2 , the spring D, the racks b b' c c' , the gears
70 F F', the wheel or rotary disk F^2 , the cord L, secured to the rim of the latter, the rod L' , the cord L^2 , the shaft M, suitably supported and having the holes m m' m^2 , the cord O, the weight o , the casing N, the pointer M', the dial N', the glass P, the arms SS' , the tongues
75 s s' , the pins r^2 r^3 , the bellows r r' , the pipes R R', the rod U, the arm t^3 , the latch t^4 , the hammer t' , the spring t^2 , the base-plate t , the bell T, and the coin-controlled locking devices, substantially as shown and described.

In testimony whereof I have hereunto set my hand this 19th day of December, A. D. 85
1889.

GUSTAV SOEDING.

Witnesses:

WM. H. POWELL,
R. DALE SPARHAWK.