

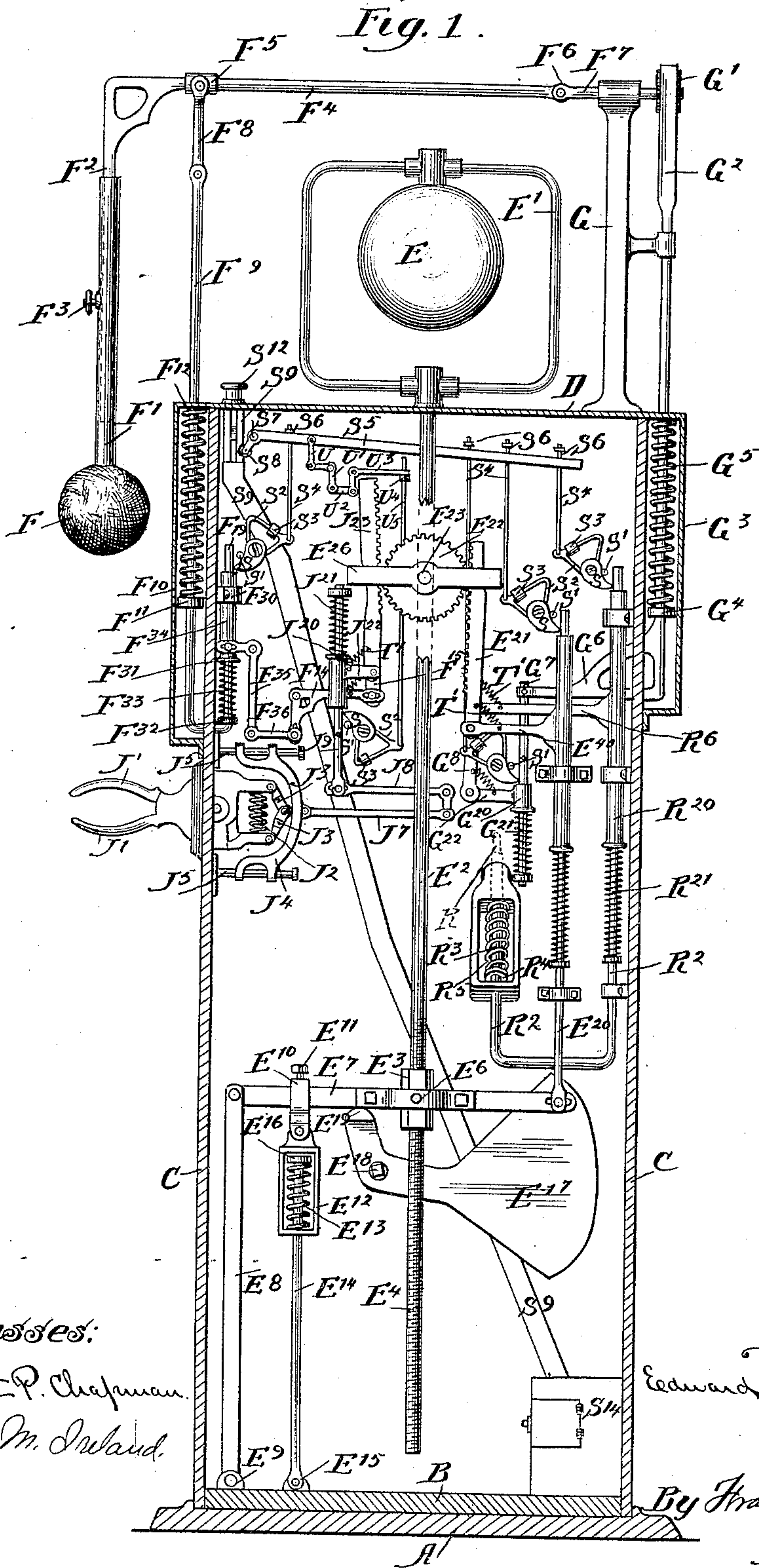
(No Model.)

2 Sheets—Sheet 1.

E. J. COLBY.
COIN CONTROLLED TESTING MACHINE.

No. 411,424.

Patented Sept. 24, 1889.



Witnesses:

Celeste P. Chapman
Francis M. Ireland

Inventor.

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Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

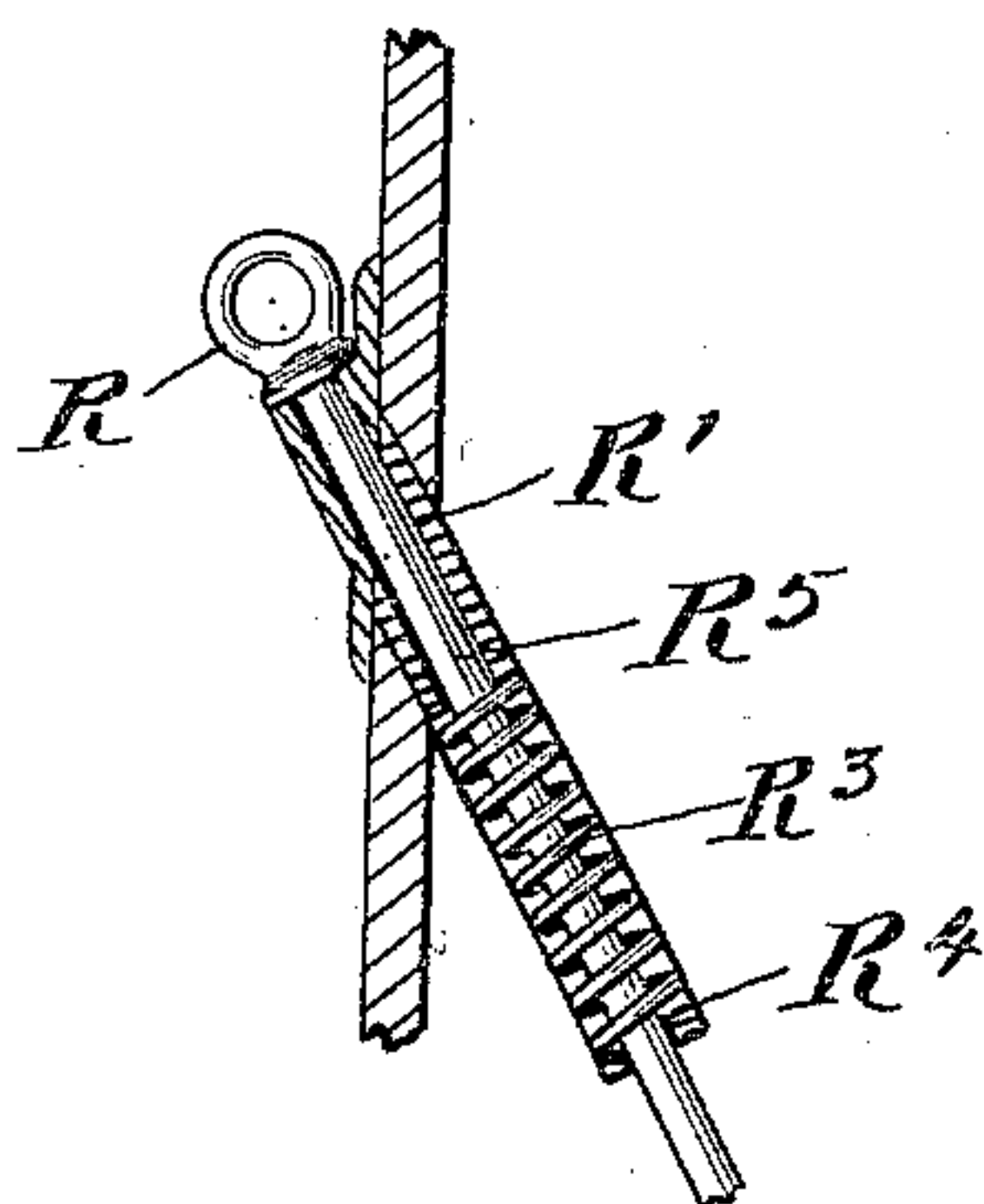


Fig. 5.

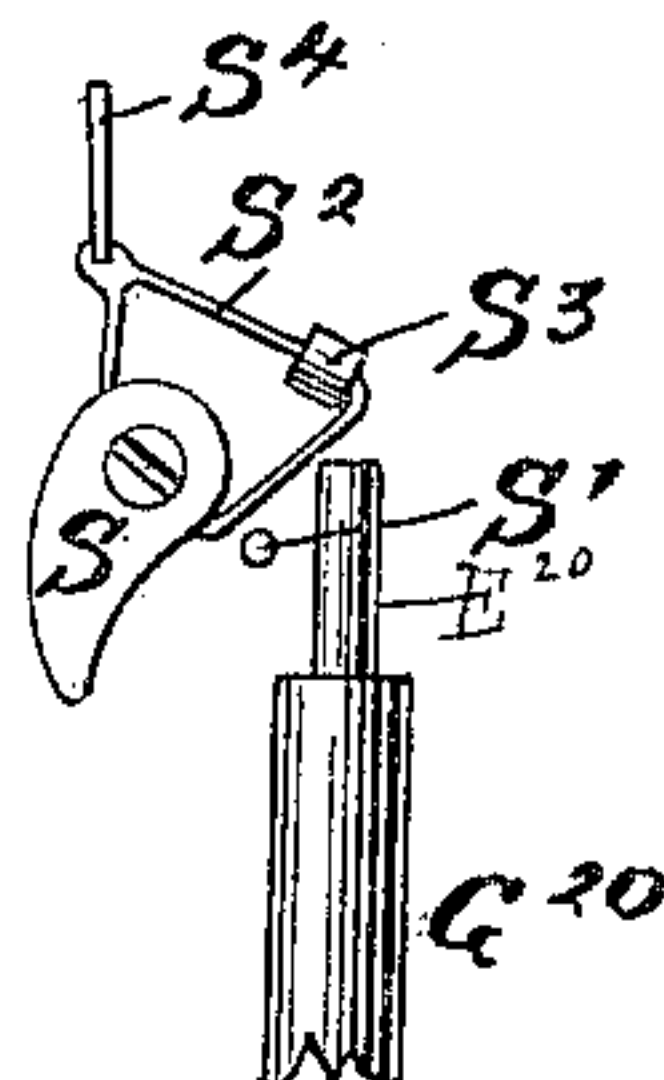


Fig. 6.

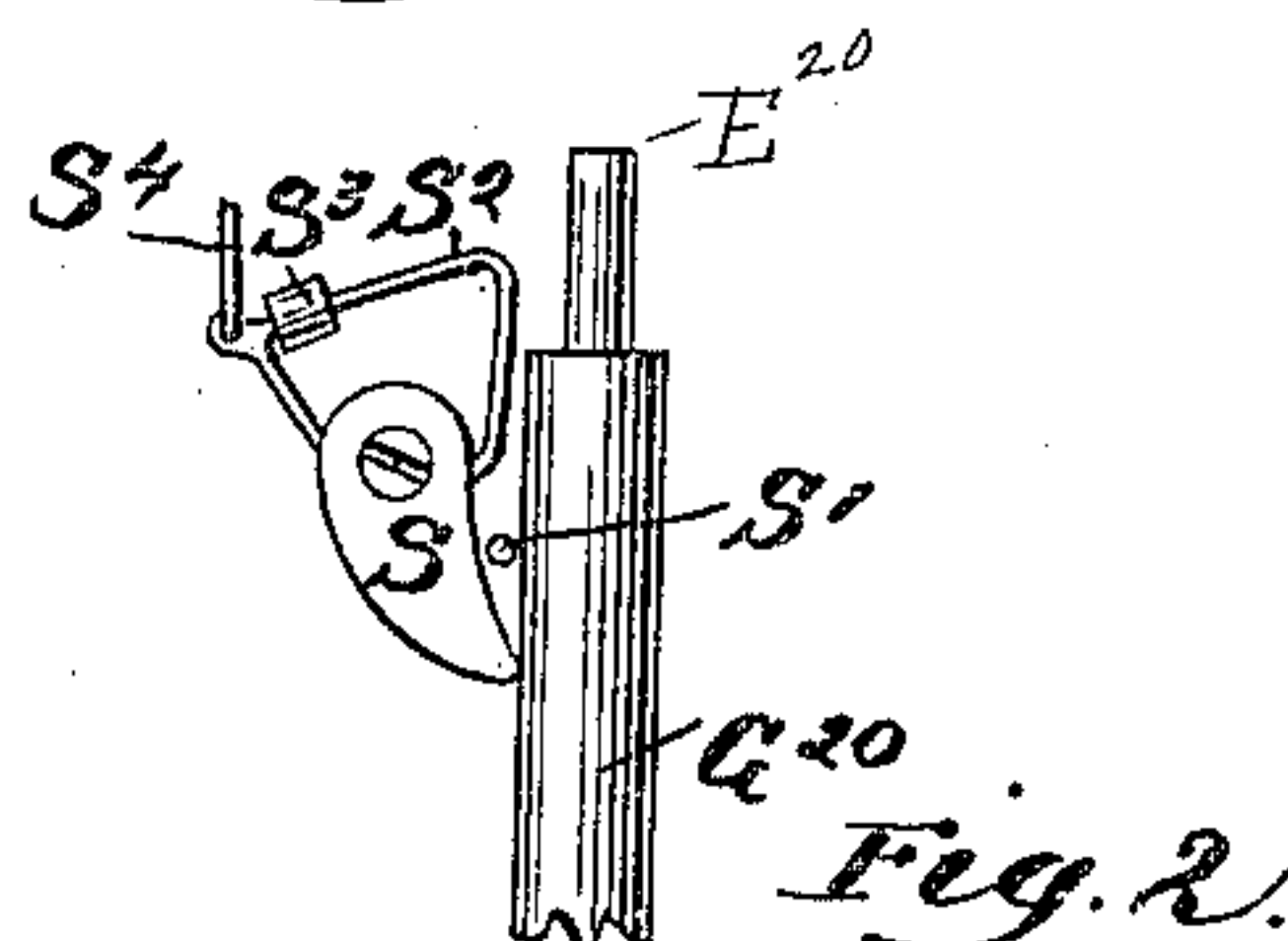


Fig. 3.

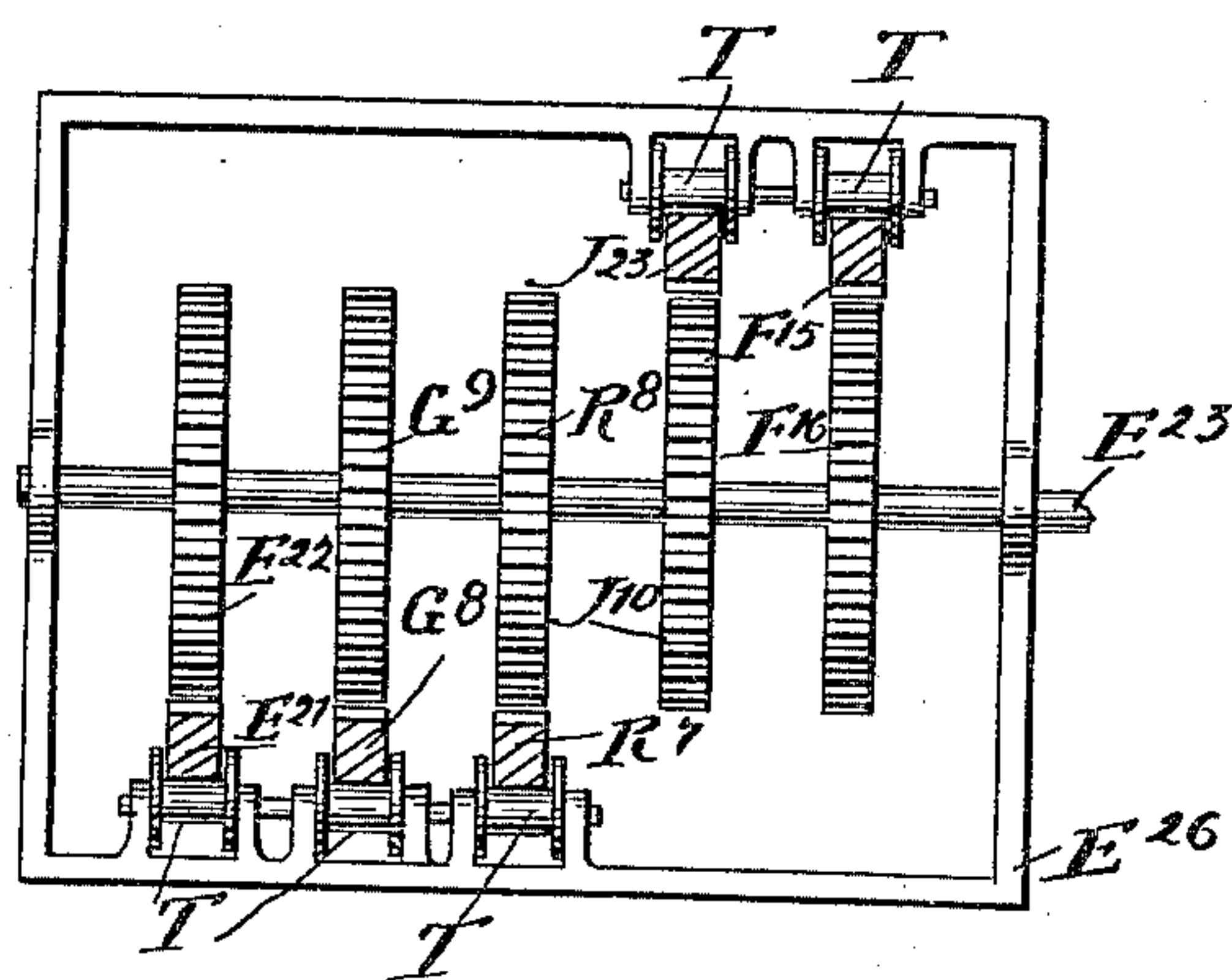


Fig. 7.

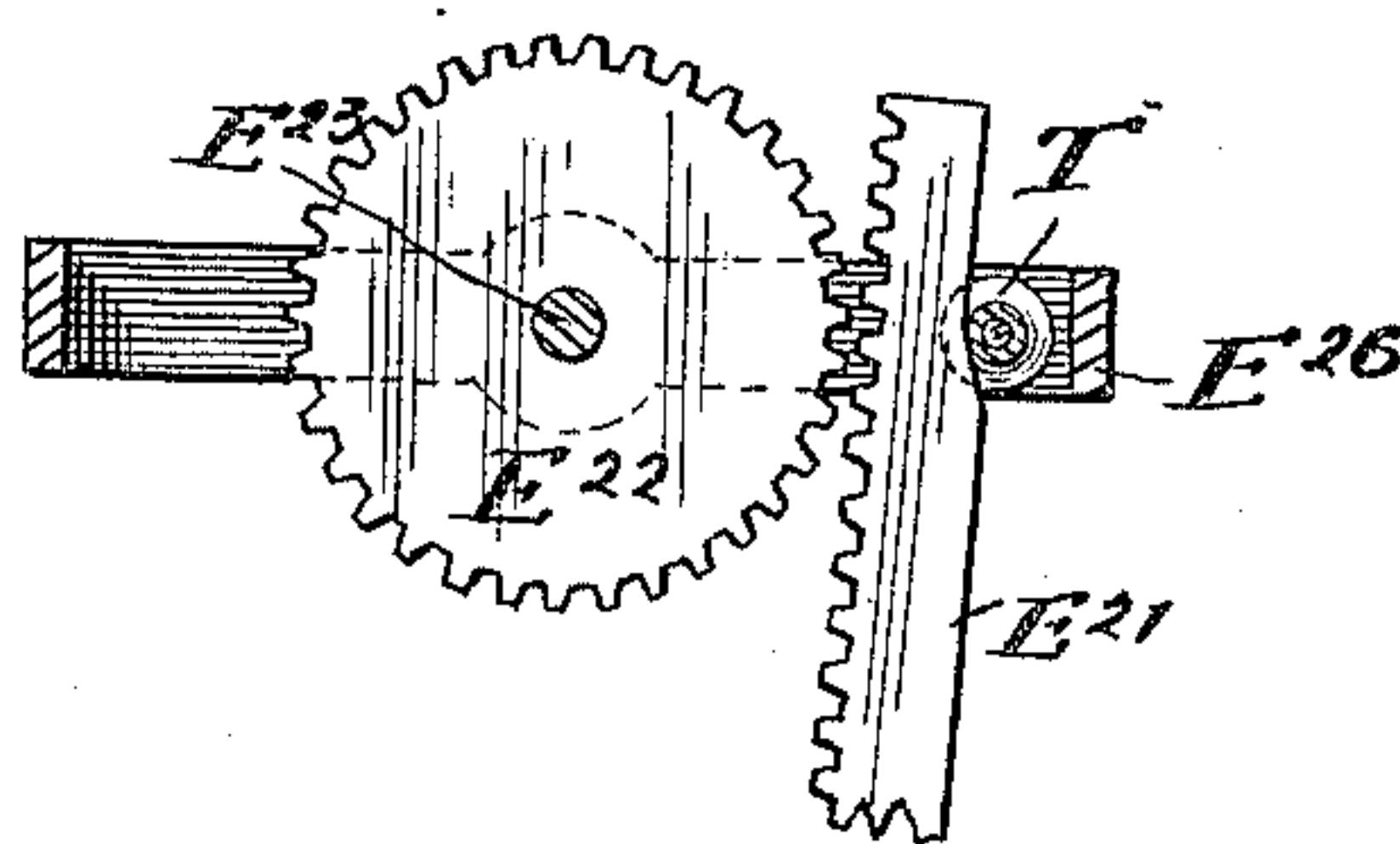


Fig. 8.

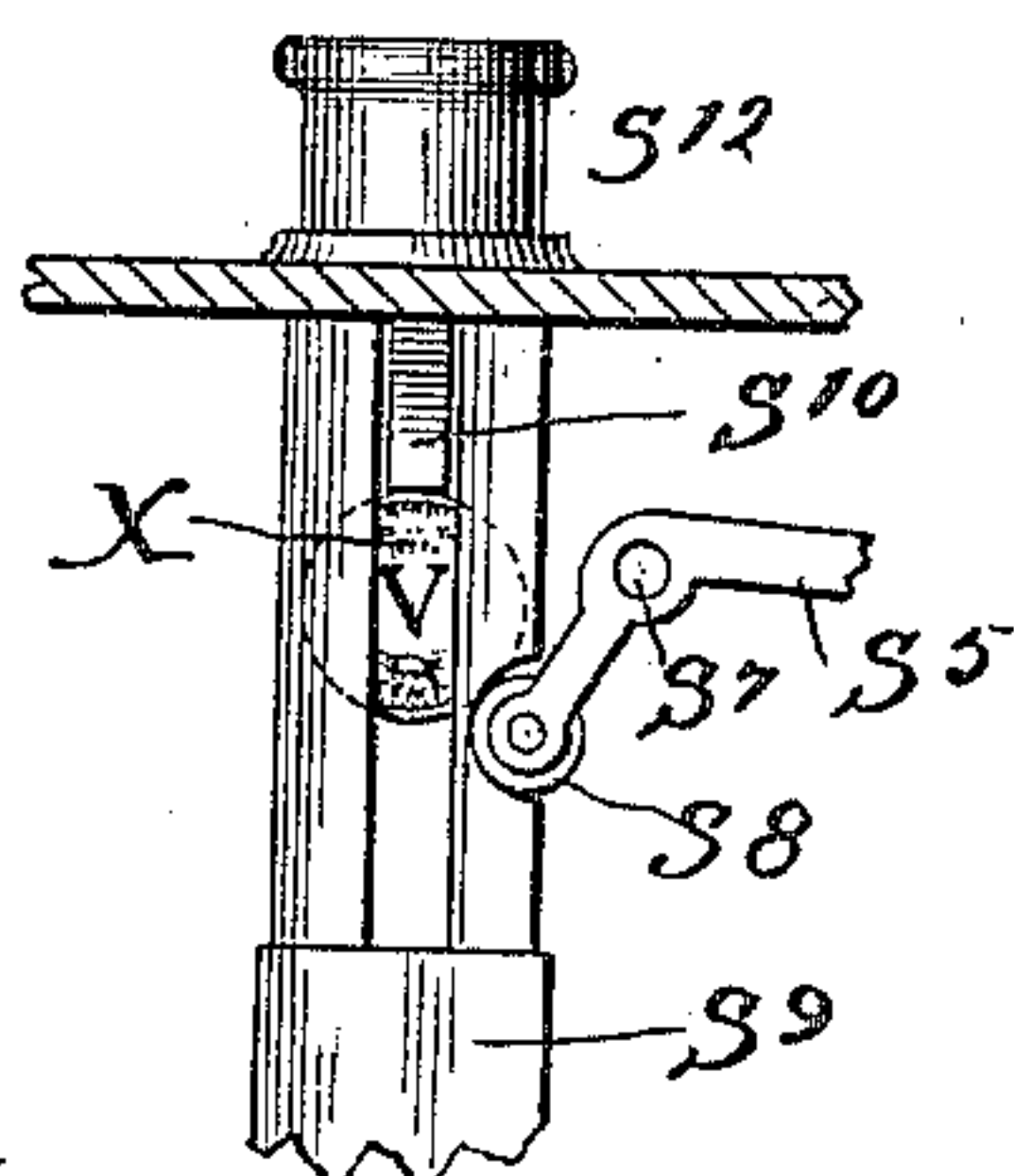
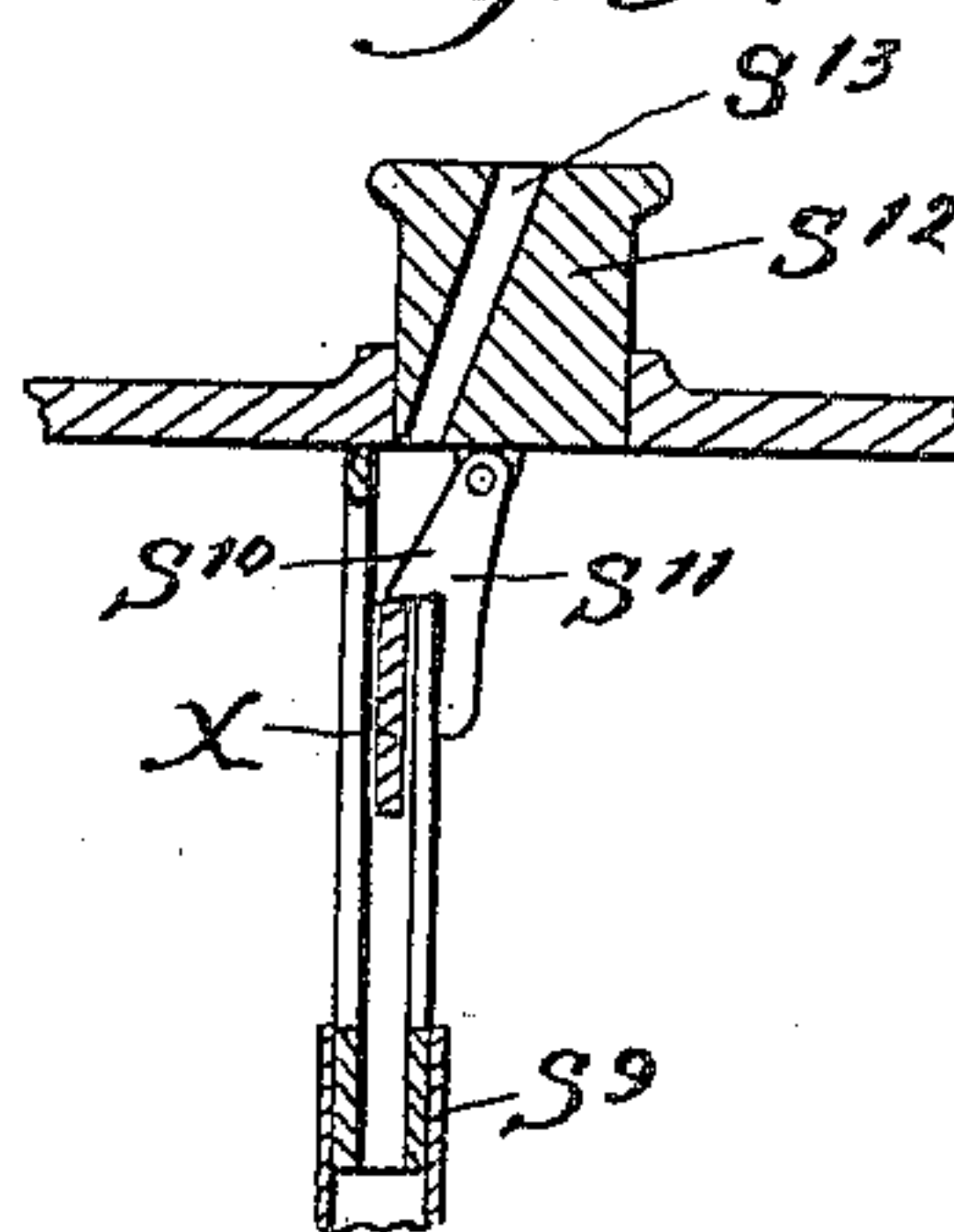


Fig. 9.



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UNITED STATES PATENT OFFICE.

EDWARD J. COLBY, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED TESTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,424, dated September 24, 1889.

Application filed August 8, 1888. Serial No. 282,292. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. COLBY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Coin-Controlled Testing-Machine, of which the following is a specification.

My invention relates to coin-controlled testing-machines, and has for its object to provide a mechanism whereby the different features may be confined in a single machine. In this present machine I have combined the following: arm's-length lift, striking-power, finger-pull, kicking-power, high-kicking test, gripping-power. These objects I accomplish by means of the mechanism illustrated in the accompanying drawings, wherein—

Figure 1 is an interior view of the entire machine, part sectional. Fig. 2 is an indicating-dial. Fig. 3 is a cross-section of the frame, which contains the indicating-hand, shaft, and the racks and rods which operate it. Fig. 4 is a detail of the finger-pull mechanism. Figs. 5 and 6 are details of the locking mechanism. Fig. 7 is a side view of one of the pinions and racks which operate the indicating-hand. Figs. 8 and 9 are details of the coin-forcing button and mechanism.

Like parts are indicated by the same letter in all the figures.

Arm's-length lift.—A is the base, upon which the whole rests. B is the bottom, C the sides, and D the top of the case. E is a hand-ball supported within the frame E', which latter is secured to the rod E², which passes downwardly through the machine. This rod is screw-threaded at E⁴ and enters a sleeve E³, which is pivoted at E⁶ to the bar E⁷. The latter is pivoted to the standard E⁸, which in turn is pivoted to the base at E⁹. On the bar E⁷ is adjustably secured the slide E¹⁰ by means of the set-screw E¹¹. To the slide is pivoted the spring-pocket E¹², containing the spring E¹³ and rod E¹⁴, which is pivoted below at E¹⁵, and has above a head E¹⁶ to engage the spring. E¹⁷ is a heavy weight pivoted at E¹⁸, and provided with an edge E¹⁹ to bear upwardly against the bar E⁷. To the outer end of the bar E⁷ is pivoted the rod E²⁰, which passes through guides and has secured near its other extremity a sleeve carrying an arm E⁴⁰, pivoted to the rack-rod E²¹, which

passes through guides and engages the pinion E²² on the indicator-shaft E²³. This shaft, with its several pinions, is supported in the frame E²⁶.

Kicking test.—F is a leather or deadened ball on the end of the sleeve F', which is adjustably secured on the rod F² by means of the set-screw F³. The rod F² is firmly secured to the rod F⁴, which is journaled in the pivoted sleeve F⁵, and pivoted at the point F⁶ to the shaft F⁷. The sleeve F⁶ is pivoted on the link F⁸, which is itself pivoted to the rod F⁹. This rod enters the pocket F¹⁰ on the side of the case, and is provided with the collar F¹¹ and a spring F¹², which bears against such collar and the top of the pocket. The lower end of the rod enters the case and is upwardly turned. Inside the case it has a collar F³² and a sleeve F³⁴, which passes through the guide F³⁰, and is upwardly urged by a spring F³³, bearing against its flanged lower end F³¹. The sleeve has pivoted to it by a long slot one end of the elbow-lever F³⁵, the lower end of which is connected by a link F³⁶ to the pivoted elbow-lever F¹⁴, which connects with the rack-rod F¹⁵, which in turn may engage the pinion F¹⁶ on the shaft E²³.

Striking test.—The shaft F⁷ is supported on the standard G and carries the pinion G', which engages the rack-rod G². This rod enters the pocket G³, and carries the collar G⁴, and has the spring G⁵, which bears against said collar and the top of the pocket and surrounds the rod. At the lower end of this rod is secured the arm G⁶, which is pivoted to the rod G⁷, which carries the sleeve G²⁰, elastically supported by the spring G²¹. On the sleeve is the arm G²², connected with the rack-rod G⁸, which may engage the pinion G⁹ on the shaft E²³.

Grip test.—Pivoted in the side of the case are the gripping-tongs composed of the pieces J J', pivoted together and carrying between their inner extremities the spring J². To the inner extremity of each is pivoted the link J³, the two said links being pivoted together and secured to an arc-shaped sliding piece J⁴. This latter is secured on the slide-rods J⁵ J⁵. On the outer side of the arc-shaped piece J⁴ is pivoted the link J⁷, which is pivoted to the bell-crank lever J⁸, which is pivoted to the rod J⁹. On the latter is a sleeve J²⁰, downwardly

held by a spring J^{21} , and carrying an arm J^{22} , which connects with the rack-rod J^{23} , which may engage the pinion J^{10} , which is secured on the shaft E^{23} .

5 *Finger-pull test.*— R is a finger-pull, whose rod R^5 , passing into the machine through the aperture R' , is continuous with or secured to the rod R^2 . The rod R^2 is surrounded by the spring R^3 , and carries the collar R^4 , against
10 which said spring bears. The spring and rod are placed within a channel. To the rod R^2 is secured the sleeve R^{20} , having the arm R^6 , from which rises the rack-rod R^7 , which engages the pinion R^8 . The sleeve is supported
15 by the spring R^{21} , and passes through suitable guides.

Unlocking mechanism for all tests.— S S are a series of pivot-stops limited in their motions by the fixed stops S' S' , and carrying
20 each a frame S^2 S^2 , provided with a gravity-slide S^3 S^3 , and having the rod S^4 S^4 , which passes through the elbow-lever S^5 , and carries each a nut S^6 to engage the upperside of such lever. The lever S^5 is pivoted at S^7 , and has an
25 arm and roller S^8 projecting into the slot in the side of the coinway S^9 . Into this coinway, to which the coin passes, projects the lug S^{10} of the pivoted pendant S^{11} on the push S^{12} , which contains the coin-slot S^{13} . The coin-
30 way opens into the coin-receptacle S^{14} below.

It will be observed that each of the rack-rods passes upward through the frame E^{26} , and each of them is curved or cut away at a certain point opposite one of the rollers T T ,
35 which rollers act on the curved portions to force the rods into engagement with the pinions at certain points in the vertical movement of such rack-rods, so that such rack-rods are not in contact with their respective pinions when the curved portion is opposite the
40 roller. At such times the rack-rods are normally held away from their pinions by the spiral springs T' T' . The pinions F^{16} , J^{10} , R^8 , G^9 , and E^{22} are secured on and turn with
45 shaft E^{23} .

Pivoted to the lever S^5 is the link U , pivoted in turn to the elbow crank-lever U' , which is connected by a link U^2 with the elbow crank-lever U^3 , which bears upon a lug U^4 , on the
50 rod U^5 , which connects with one of the frames S^2 , and this system of rods is to communicate motion from rod S^5 to such frame.

X is a coin.

55 Y is the indicating-hand, which moves on the dial Z and is secured on the outer extremity of the shaft E^{23} .

The use and operation of my invention are as follows: A coin having been inserted in the coin way or slide S^9 through the slot S^{13} , the
60 push S^{12} is then forced inwardly, whereby the lug S^{10} , bearing against the coin, forces it through such slide, and in passing through such slide it bears against the roller S^8 and rocks the elbow crank-lever S^5 on its pivot S^7 .
65 This lever in rising engages the nuts S^6 on the rods S^4 , and also lifts the link U , and thus by means of the levers U' and U^3 and the link

U^2 lowers the rod U^5 . Thus the pivoted dogs S are all turned on their pivots, so that the points of such dogs are away from the top of
70 the sleeves and the gravity-weights S^3 fall into the position shown in Fig. 5. The operation in the case of the pivoted dog connected with the rod U^5 is different, for this dog is inverted, but the effect is the same. Now if the arms-
75 lift test is to be made the hand-ball E and rod E^2 will be lifted up; thus the bar E^7 will be lifted against the retracting force of the spring E^{16} , and the rod E^{20} will be raised, and the spiral spring about it will cause the sleeve
80 on such rod to move upward with the rod. Now as the arm E^4 is attached to this sleeve it rises also, and by means of the anti-friction roller T , against which its curved back rests, it is soon brought into contact with the pin-
85 ion E^{22} , where its further motion causes the same to rotate and the hand Y to indicate on the dial the amount lifted. If this action should take place before the coin is introduced and the lever S^5 elevated to raise the rods S^4 ,
90 the power exerted would act against the spiral spring about the rod E^{20} and would not move its sleeve, and hence would not make any indication. As the rod E^{20} ascends, its upper end encounters the end of the frame S^2 , as in-
95 dicated in Fig. 5, and tips it into the position shown in Fig. 6, so that when the ball E is released it settles back by the action of the retracting-spring E^{18} and draws the rod E^{20} down until the point of the dog S engages the upper
100 edge of the sleeve to lock against any further motion.

Should the user desire to test the finger-pull R , he will draw the rod R^5 upwardly against the spring which encircles it, and in
105 like manner elevate the sleeve R^{20} , arm R^6 , and the rack-rod R^7 , connected therewith, so that the shaft E^{23} is again rotated to indicate upon the dial the amount pulled. The locking and unlocking mechanism operates as last
110 above described.

The ball F is capable of a swinging motion along the side of the case, as is evident from an inspection of Fig. 1 and the description thereof, wherein the shaft F^4 and its con-
115 nected bar F^5 are described as being journaled in their bearings. In like manner, when the ball F has been knocked along one side, so as to swing the arm F^2 and cause the arm F^4 to rotate in its bearings, the pinion
120 G' will rotate and lift the rack-rod G^3 , thus racking upward the sleeve G^{20} , the arm G^{22} , and the rack-rod G^8 , and causing the shaft E^{23} to rotate. The locking and unlocking mechanism operates as in the last preceding
125 case.

For a kicking-power test, the ball F is lowered, if a strong kick is desired, or raised and set by the screw-set F^3 if a high kick is to be made. In either case, the ball is kicked directly up-
130 ward, and inasmuch as the rod F^4 is pivoted to the shaft F^7 it will move on such pivot and rise, carrying with it the rod F^9 , and thus, as in the preceding cases, raising the sleeve F^{34} .

This action rocks the elbow-crank lever F^{35} , and by means of the link F^{36} also rocks the elbow crank-lever F^{14} , drawing down the rack-rod F^{15} and rotating the pinion F^{16} and the shaft E^{23} , and moving the indicating-hand on the dial. The striking-power is tested as the kicking-power on the ball F .

When the grip is to be registered, the pieces $J J'$ are clamped together by the hand, thus bringing the pivoted ends of the links J^3 together and forcing inwardly the arc J^4 along its guides. This moves the rod J^7 , racks the elbow crank-lever J^8 , and draws the rod J^9 , sleeve J^{20} , arm J^{22} , and rack-rod J^{23} upwardly to rotate the pinion J^{10} and the shaft E^{23} . The locking and unlocking mechanism operates similar to the others.

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

1. In a testing-machine, the combination of a series of testing apparatuses terminating

each within the case in a rod, a series of spring-supported sleeves, one on each of said rods, a series of pivoted dogs whose points normally lie in the paths of such sleeves, and a coin-controlled releasing-lever which moves all of such dogs and clears the paths for such sleeves.

2. In a coin-controlled testing-machine, the combination of two pivoted hand-pieces with a slide and links from the inner termini of such pieces to the slide, a reciprocating rack-rod and connections from such slide to such rod, so that the movement of the former imparts movement to the latter, and an indicating-hand, shaft, and pinion, which latter may mesh with the rack-rod, substantially as and for the purpose described.

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Witnesses:

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CELESTE P. CHAPMAN.