

No. 688,087.

Patented Dec. 3, 1901.

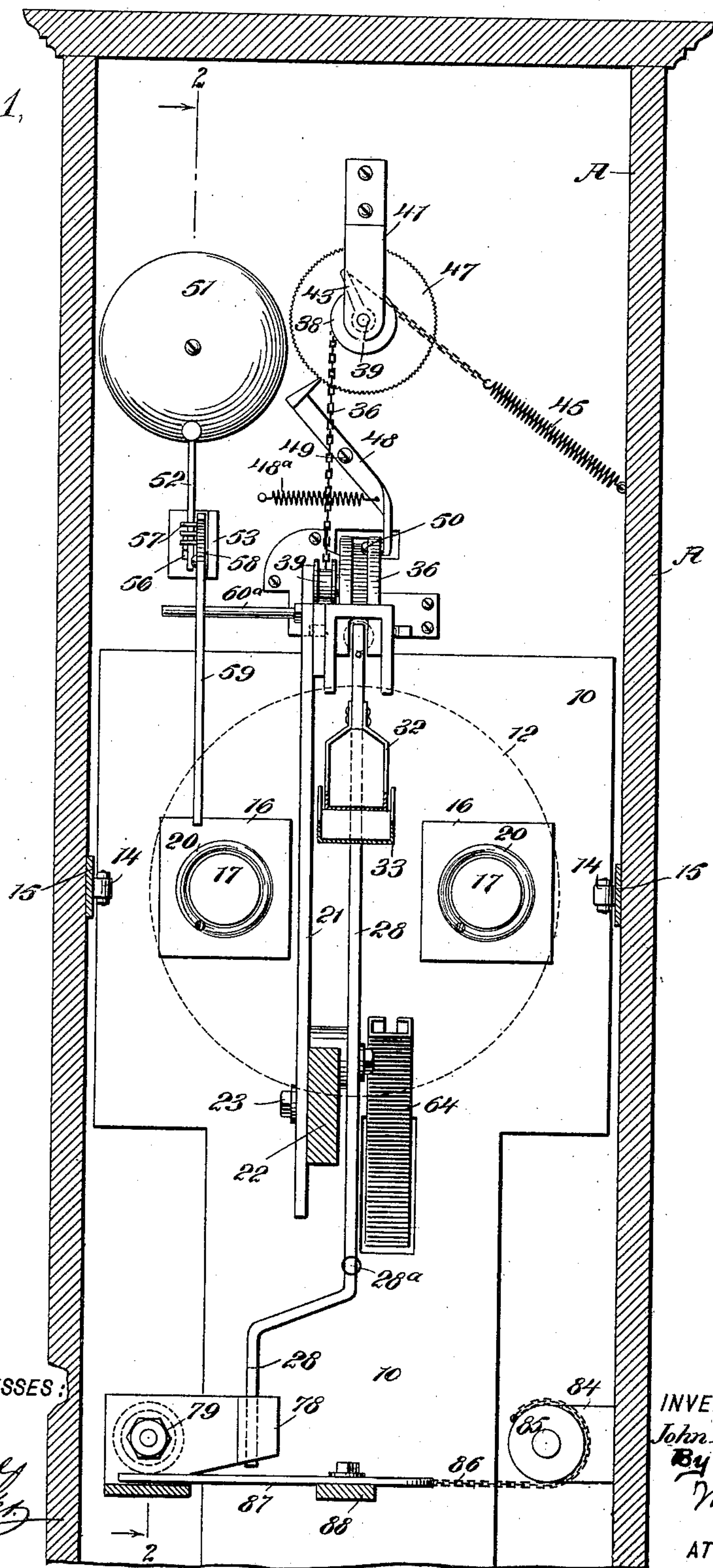
J. HEISSENBERGER.  
COMBINED PUNCH, GRIP, AND WRIST MACHINE.

(Application filed Jan. 23, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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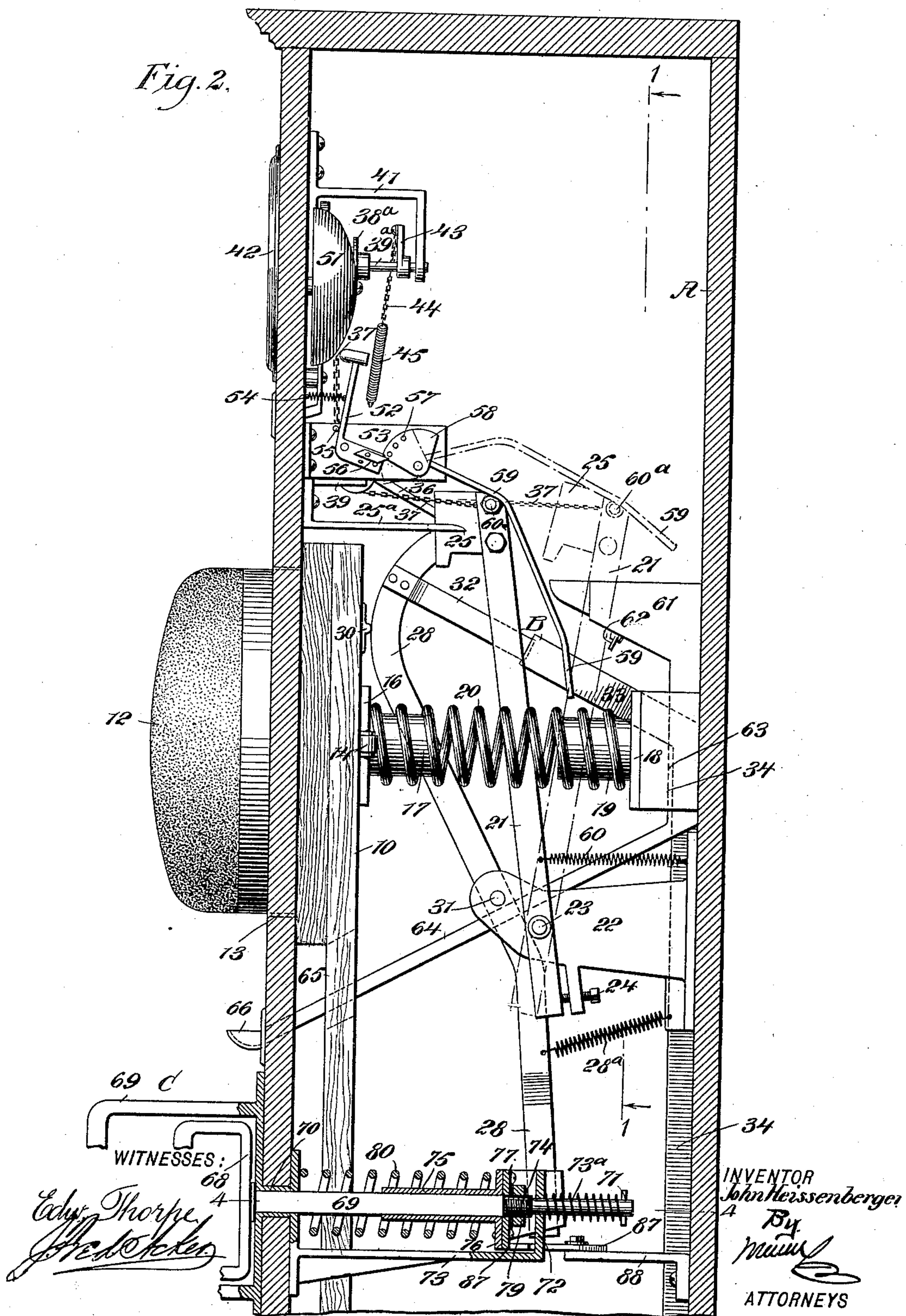
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**4 Sheets—Sheet 2.**





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Fig. 3,

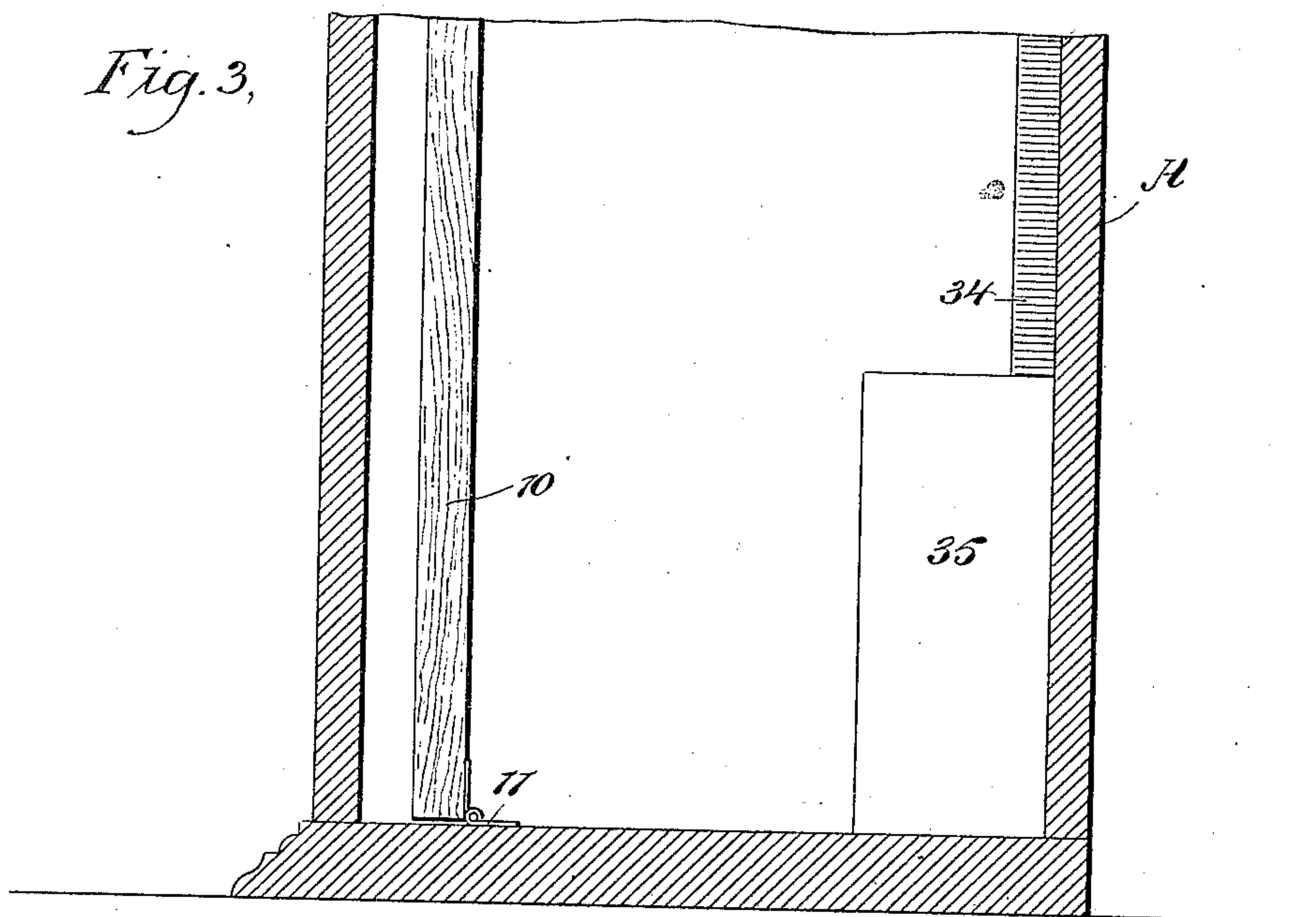
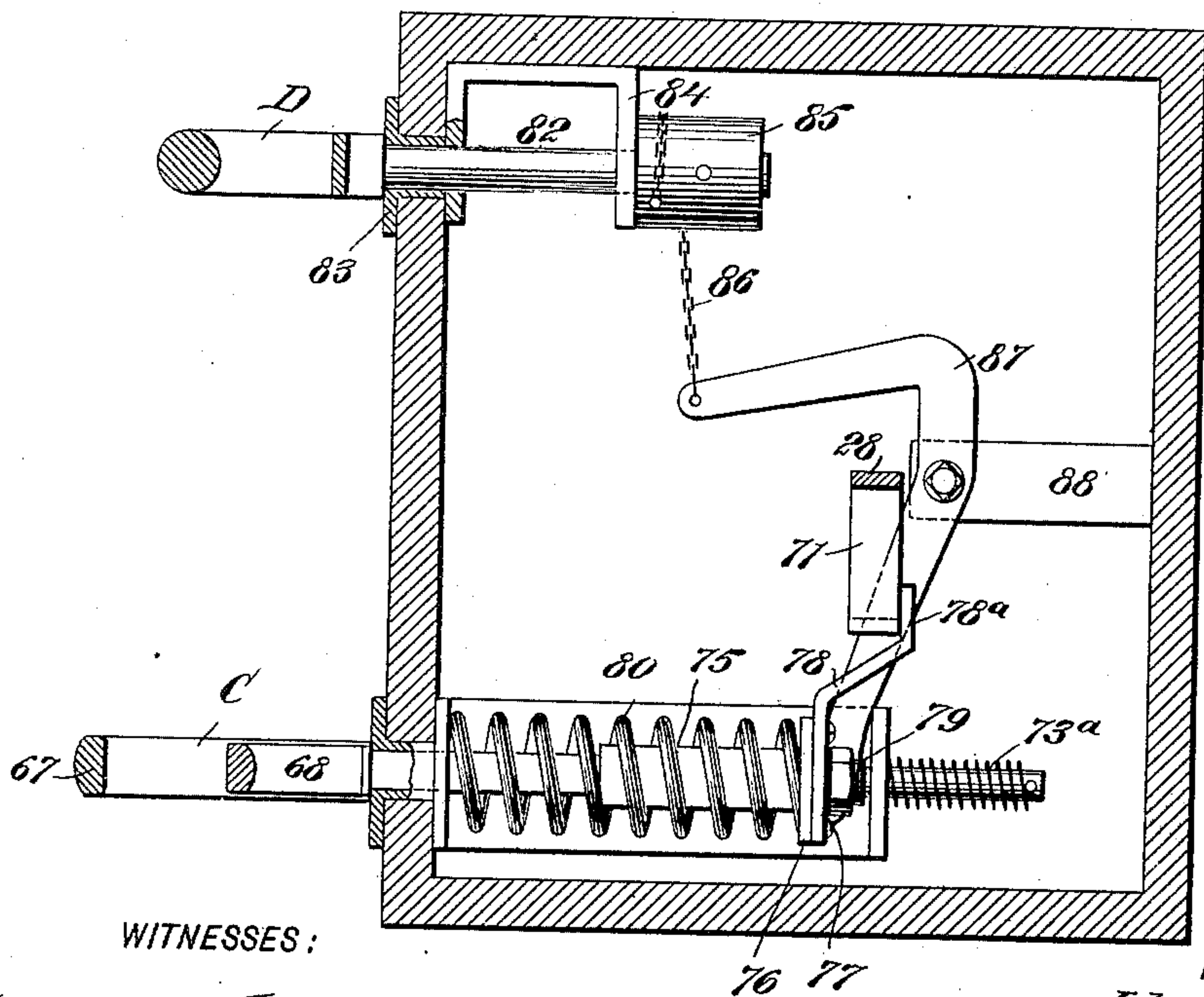


Fig. 4,



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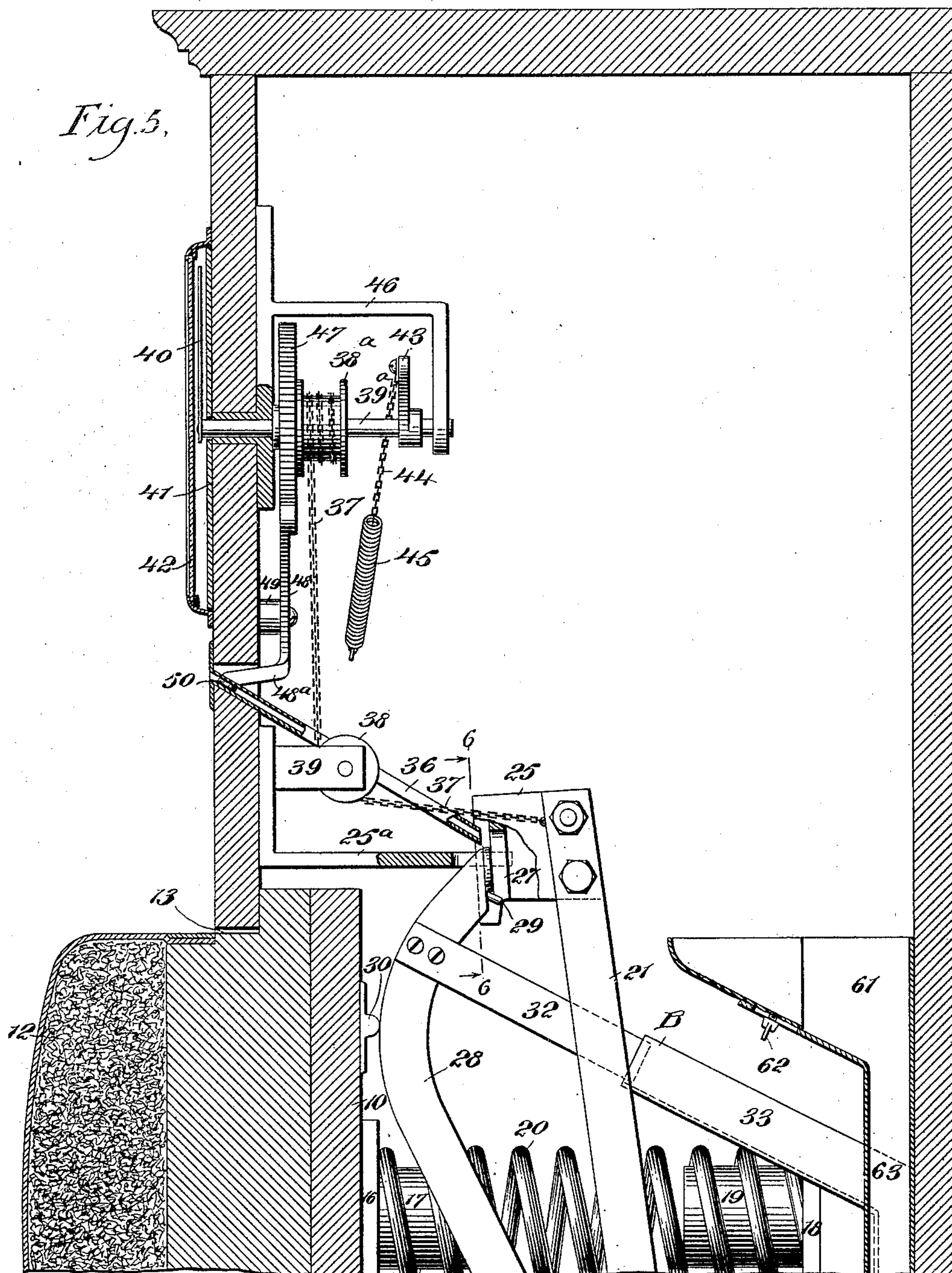
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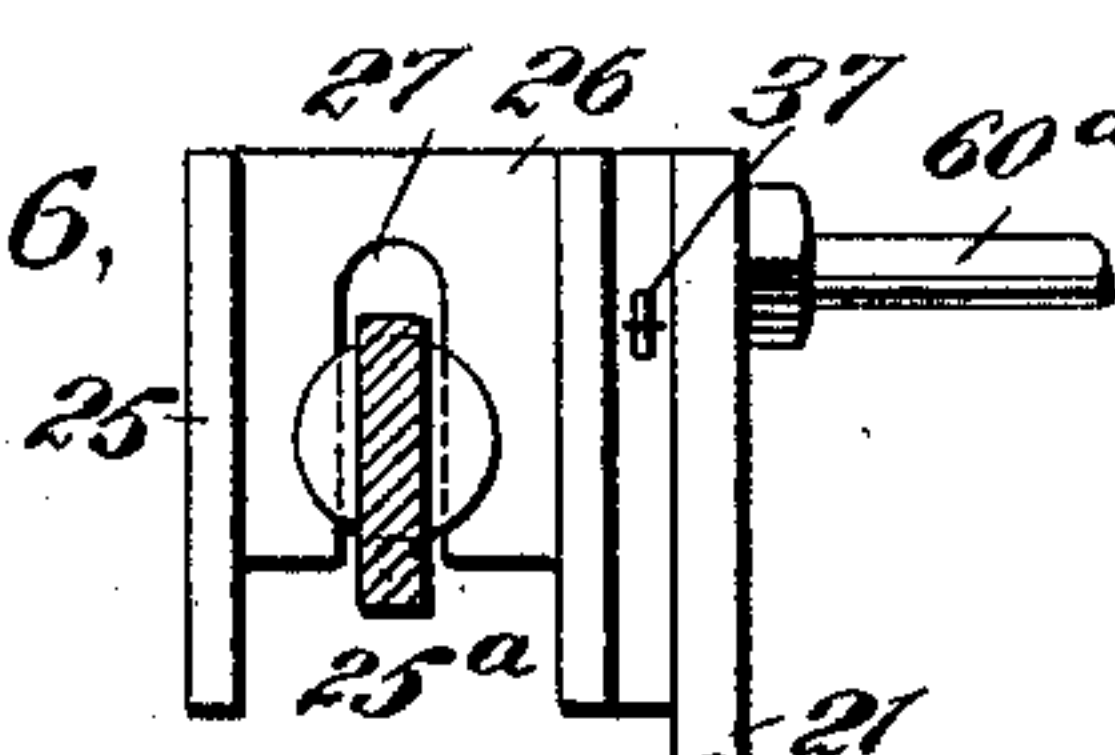
4 Sheets—Sheet 4.



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*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## COMBINED PUNCH, GRIP, AND WRIST MACHINE.

SPECIFICATION forming part of Letters Patent No. 688,087, dated December 3, 1901.

Application filed January 23, 1901. Serial No. 44,447. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN HEISSENBERGER, a citizen of the United States, and a resident of the city of New York, borough of Bronx, in the county and State of New York, have invented a new and Improved Combination Punch, Grip, and Wrist Machine, of which the following is a full, clear, and exact description.

10 The purpose of the invention is to provide a coin-operated machine in which a punching device, a grip-testing device, and a wrist-testing device are combined and to so construct the mechanism of the machine that all  
15 three devices will register on one dial and so that no two of the devices can be operated together or any one of the devices operated until a coin of proper denomination has been placed in the machine.

20 A further purpose of the invention is to construct a machine of the character above mentioned in such manner that the coin deposited will be returned to the depositor when the pointer on the dial is carried to or beyond  
25 a certain figure.

Another purpose of the invention is to give simple structure to such a machine and so that but few parts will be employed and those not liable to get out of order.

30 The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying  
35 drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the machine, the section being taken at the rear  
40 of the machine and on the line 1 1 of Fig. 2. Fig. 2 is a vertical section taken at one side of the machine and practically on the line 2 2 of Fig. 1. Fig. 3 is a section through the lower portion of the machine, the section  
45 being taken on the same line as Fig. 2. Fig. 4 is a horizontal section taken substantially on the line 4 4 of Fig. 2. Fig. 5 is an enlarged vertical section through the upper portion of the machine, the section being taken  
50 from front to rear; and Fig. 6 is a detail sec-

tional view taken practically on the line 6 6 of Fig. 5.

A represents the casing of the machine, which may be of any desired shape or dimensions. Within this casing at the front a support 10 is located, which support is in the nature of a vertical plate or board, and the upper portion of the support extends from side to side of the casing, the lower end of the support being attached to the bottom of the casing by a hinge 11, as shown in Fig. 3. A punching-pad 12 is attached to the forward face of the support 10, and the said punching-pad has movement in an opening 13 made in the front portion of the casing. Rollers 14  
65 are secured to the side portions of the support 10, as shown in Fig. 1, and these rollers, which are antifriction-rollers, travel on wear plates or tracks 15, secured to the inner face of the side portions of the casing, as is also shown  
70 in Fig. 1.

At each side of the center of the upper portion of the support 10 plates 16 are secured to the inner face of the said support, and each plate is provided with an inwardly-extending  
75 stud 17, while corresponding plates 18 are oppositely secured to the inner face of the rear of the casing A in any approved manner, and these plates 18 are provided with inwardly-extending studs 19. Springs 20 of desired  
80 strength extend from the studs 17 to the opposing studs 19, having bearing against the plates 16 and 18, as is shown in Fig. 2, and when the striking-pad 12 is forced inward these springs 20 are correspondingly compressed.  
85

A coin-receiving lever 21 is located within the casing between the springs 20, being pivoted by a suitable pin 23, passed through its lower portion and into a bracket 22, extended forward from the rear of the casing, as is shown in Fig. 2. The rearward movement of the lower end of the coin-receiving lever 21, which projects below the bracket 22, is limited by an adjusting-screw 24, which is carried by an extension from the bracket.  
95

At the upper end of the coin-receiving lever 21 a head 25 is formed. This head is usually attached to one side of the coin-receiving lever, as shown in Fig. 6, and, as par-  
100



particularly represented in Fig. 6, the head 25 of the coin-receiving lever 21 is provided with a recess 26 in its forward face and at its forward edge with downwardly-extending lugs adapted to prevent the escape of a coin until the coin is purposely released. In the rear wall of the recess 26 of the said head 25 a vertical slot 27 is produced. The forward movement of the coin-receiving lever 21 is more or less limited by a guide-bracket 25<sup>a</sup>, attached to the front of the machine and having a bifurcated inner end, between the members of which bifurcated portion the head of the coin-receiving lever is located when in position to receive a coin.

An operating-lever for the coin receiving or carrying lever 21 is provided. This latter lever 28, which is best shown in Figs. 2 and 5, is of such thickness and is so placed that its upper end may enter the opening 27 in the head 25 of the coin carrying or receiving lever 21 when no coin has been placed in the machine. This operating-lever 28 is preferably curved forwardly to such an extent that it is normally in engagement with a projection 30 from the inner face of the upper portion of the striking-pad support 10, as is also shown in Figs. 2 and 5. The operating-lever 28 is held normally in such position by a spring 28<sup>a</sup>, attached to the said lever below its fulcrum 31 and to the rear portion of the casing. The fulcrum 31 of the operating-lever 28 is at the forward portion of the bracket 22, heretofore mentioned, as shown in Fig. 2.

One section 32 of a telescopic coin-receiving chute B is secured to the upper portion of the operating-lever 28, and this forward section of the coin-receiving chute B has a downward and rearward inclination and enters and slides in a second section 33 having the same inclination. This section 33 of the coin-receiving chute B connects with a vertical section 34, and this latter section extends to the lower portion of the casing A and communicates with a safe or coin-receptacle 35, located at the bottom of the casing, as is shown in Fig. 3. The coin which is to assist in the operation of the machine is entered in a coin-slot at the front of the machine above the punching-pad 12, and a chute 36 is connected with this coin-slot and extends downward and inward to a point over the upper end of the operating-lever 28, as is shown in Fig. 5. When a coin is introduced into the upper chute 36 and the coin-receiving lever and its operating-lever 28 are in their normal positions, (shown in Figs. 2 and 5,) the coin will enter the space between the upper end of the operating-lever and the rear wall of the recess 26 in the head 25 of the coin-receiving or carrying lever, and the coin will rest upon a projection 29, extending downward and inward from the upper end of the aforesaid operating-lever, as is shown in Fig. 5. Therefore when a blow is received upon the punching-pad 12 the operating-lever is moved rearward and carries with it the coin-receiving lever

21, the coin remaining between the opposing surfaces of these two levers. While the operating-lever 28 returns forward with the support for the striking pad or head, the said operating-lever will be also drawn forward by means of the spring 28<sup>a</sup>, while a light spring 60, attached to the coin receiving or carrying lever 21 above its fulcrum and to the rear of the casing, will temporarily hold the coin-receiving lever in the rear position—shown, for example, in dotted lines in Fig. 2—and the coin carried by the head of the coin-receiving lever 21 will drop from the head of said lever and will fall into the chute B, and the coin will be directed through the section 34 of the chute to the safe or receptacle 35. When the striking-pad is forced inward, a record of the force of the blow appears at the front portion of the machine, and such record is accomplished in the following manner: A chain 37 or its equivalent is attached at one end to the head portion of the coin receiving or carrying lever 21. This chain is carried to an engagement with a pulley 38, supported by suitable brackets 39, attached to the front portion of the machine. The chain 37 then extends upward and is attached to and is wound upon a reel 38<sup>a</sup>, which reel is secured on a shaft 39<sup>a</sup>, journaled at its outer end in suitable bearings in front of the casing A. The shaft 39<sup>a</sup> extends beyond the front face of the casing and at its outer end is provided with a pointer 40, and this pointer moves over a dial 41, provided with a scale of figures indicating pounds, the dial being attached to the front face of the machine, as shown in Fig. 5. This dial is provided with a suitable transparent or illuminated covering 42. A crank-arm 43 is secured upon the shaft 39<sup>a</sup>, and this crank-arm 43 is connected by a chain 44 with a spring 45, which is attached to one side portion of the casing. This spring 45 is of much greater strength than the spring 60, which is attached to the coin receiving or carrying lever 21 and which serves to hold said lever in its rearward position after a blow has been struck. Thus, it will be observed, when a blow has been delivered on the punching-pad 12 as the pad is forced inward and the coin-receiving lever is carried to its rear position, as heretofore stated, the chain 37 will be drawn rearward, thus turning the drum 38<sup>a</sup>, and consequently the shaft 39<sup>a</sup>, causing the pointer 40 to travel over the dial and indicate the number of pounds equaling the force of the blow which has been delivered on the said pad.

When the coin-receiving lever 21 is in its rearward position, it is desirable to retain it in such position until another coin has been introduced into the machine, and thus a record of the last blow will remain for a time at the dial. This result is accomplished by securing a toothed wheel 47 on the shaft 39<sup>a</sup>, and it may here be stated that the inner end of the shaft is supported by a suitable bracket 46. A pawl 48 engages with the toothed pe-



riphery of the wheel 47, the said pawl being pivoted on a pin 49, extended inward from the front of the casing, and this pawl is provided with a bottom member 48<sup>a</sup>, which is at an angle to the body member, and the lower member 48<sup>a</sup> of the said pawl terminates in a foot 50, which enters the upper coin-receiving chute 36 at a point close to the coin-receiving slot, as is shown in Fig. 5. When a blow has been delivered upon the striking-pad 12, the force of the blow will be sufficient to cause the pawl 48 to disengage from the ratchet-wheel 47 and permit the unwinding of the chain 37 and the rotation of the shaft 39<sup>a</sup>; but when the coin receiving or carrying lever 21 has been placed in its full rearward position the pawl will hold the ratchet-wheel 47 from turning, and consequently the shaft 39<sup>a</sup> is prevented from turning the pointer 40. When the parts are in the position above set forth and a coin is not placed in the machine, it will be observed that if the striking-pad receives a blow it will simply move inward against the action of its springs 20 and no record of the blow will appear, even should the coin-carrying lever and its operating-lever be in close relation to each other, as shown in positive lines in Figs. 2 and 5, since at that time the upper end of the operating-lever would pass through the slot 47 in the head of the coin receiving or carrying lever. When a second coin is introduced in the coin-slot, before the coin can travel down the upper chute 36 it must be pressed in with sufficient force to carry the foot 50 of the pawl out from the chute 36, and at such time the pawl will be disengaged from the ratchet-wheel 47. The spring 45 will now act to overcome the light spring 60, and the chain 37 will be rewound on the drum 38<sup>a</sup>, and the coin receiving or carrying lever will be restored to a practical engagement with its operating-lever, and this is accomplished before the coin can reach the end of the chute 36, so that these two levers 21 and 28 will be in position to receive the coin between them.

It is very desirable to sound an alarm, for example, each time a blow equal to the force of fifty, one hundred, or two hundred pounds has been delivered. I therefore provide the mechanism shown in Figs. 1 and 2, which consists of a gong 51, suitably secured to the inner face of the front portion of the casing, adapted to be struck by the hammer of an angle-arm 52, fulcrumed upon a plate or support 53, extending inward from the front portion of the casing, as is particularly shown in Fig. 2. The forward movement of the hammer-arm 52 is limited by a stop 55, carried by the plate, and a spring 54 tends to draw the hammer-arm toward the gong. It may be here remarked that a spring 48<sup>a</sup> is attached to a pawl 48 and to the casing, which spring serves to hold the pawl in engagement with the ratchet-wheel 47. Returning to the hammer-arm 52, the said arm is provided with an extension 56 at an angle to

its lower member, and this extension is carried beyond the inner end of the said lower member of the hammer-arm. The said extension 56 is in the path of one or more pins 57 or projections from a segment 58, pivotally attached to the support 53. The said segment is provided with a downwardly-extending arm 59, adapted to engage with a pin 60<sup>a</sup>, which extends from the upper end portion of the coin receiving or carrying lever 21, as shown in Fig. 2. Thus when the coin carrying or receiving lever 21 is forced rearward it lifts the arm 59 to the dotted position shown in Fig. 2 and causes one or more of the pins to engage with the extension 56 from the hammer-arm 52 and causes one or more blows to be struck on the gong by the hammer, as the pins 57 in the downward movement of the segment will free themselves rapidly from the extensions 56 of the hammer-arm.

Should a blow be struck of sufficient force to register a certain number of pounds or above a certain number of pounds, it is intended that the coin placed in the machine shall be returned to the depositor as a reward. To that end a hopper 61 is secured to the casing, and the head of the coin receiving or carrying lever in its extreme rearward movement will pass over this hopper. This hopper is made in adjustable sections, as shown in Fig. 5, the sections being held in position by a set-screw 62. This adjustment of the hopper is made in order that the premium number of pounds may be increased or decreased or so that the hopper 61 will receive the coin instead of the chute B when the coin receiving or carrying lever 21 has been carried a certain distance rearward. The coin received in the hopper 61 passes into a chute 63, connected with the hopper, which chute is at the rear of the section 34 of the main chute B, as is shown in dotted lines in Fig. 2, and this section 63 of the hopper-chute is connected with a second chute 64, which extends downward and forward through an opening 65 in the support for the striking-pad and out through an opening in the front of the casing, the outer end of the lower auxiliary chute 64 terminating in a bowl 66, in which the coin is received.

At one side of the front of the casing, preferably below the punching-pad 12, a gripping device C is located, and this device consists of a handle 67, which is secured to the casing in any suitable or approved manner, and a second handle 68, held to slide within the handle 67. This latter handle 68 is attached to the outer end of a polygonal shaft 69, which has sliding movement in a bearing 70, made in the front of the casing. The inner end 71 of the rod or bar 69 is reduced and circular in cross-section and is held to slide in the upper arm 72 of a horizontal bracket 73, attached to the casing, as is shown in Fig. 2. Where the circular portion of the rod or bar 69 joins the polygonal portion a thread 74 is exteriorly



produced, and a spring 73<sup>a</sup> is coiled around the circular portion of the rod or bar 69, having bearing against a projection at the inner end of the said circular portion and against the arm 72 of the bracket 73, as is also shown in Fig. 2. A sleeve 75, corresponding in inner cross-section to the exterior cross-section of the rod or bar 69, receives a part of the polygonal portion of the said bar, and this sleeve at its inner end is provided with a flange 76. To this flange the inner end 77 of an angle-arm 78 is secured in any suitable or approved manner, the said arm 78 being carried inward in direction of the opposing side of the casing and terminates in a foot 78<sup>a</sup>, adapted for engagement with a horizontal extension 81, formed at the bottom of the operating-lever 28. The sleeve 75 and arm 78 are prevented from leaving the rod or bar 69 by placing a nut 79 upon the threaded portion 74 of the rod or bar, as shown in Fig. 2.

In the operation of the grip-testing device when the inner handle 68 is drawn outward the rod or bar 69 is carried in the same direction, and the foot 78<sup>a</sup> of the angle-arm 78, which foot bears against the rear edge of the extension 81 of the operating-lever 28, will carry said extension forward, thus causing the operating-lever 28 to move at its upper end in a rearward direction and operate the coin-carrying lever 21 in the same manner as has been described when a blow has been delivered to the punching-pad 12, and consequently the force of the grip in pounds will be indicated at the dial 41.

At the opposite side of the front of the machine a wrist-testing device D is located. This wrist-testing device consists of a handle attached to a rod or bar 82, circular in cross-section, which rod or bar is held to turn in suitable bearings 83, located at the front of the casing, and in bearings 84, located within the casing. At the inner end of this rod or bar 82 a drum 85 is secured, and one end of a chain 86 or its equivalent is attached to this drum and is adapted to be wound thereon, the other end of the chain 86 being secured to one member of an angle or elbow lever 87, fulcrumed upon a suitable bracket 88, extending from the rear of the casing, as shown in Fig. 4. The opposite end of the said elbow or angular lever 87 engages with the lower portion of the flange 76 on the sleeve 75, in which the rod or bar 69 of the wrist-testing device has sliding movement, and as the handle of the wrist-testing attachment is turned and the chain 86 is wound upon the drum 85 the spring 80 will be more or less compressed and the operating-lever 28 will be carried more or less forward at its lower end and rearward at its upper end, and the strength of the wrist in pounds will be indicated at the dial 41 through the mechanism which has been heretofore described. The spring 73<sup>a</sup>, located at the inner end of the rod or bar 69 of the grip device, is intended to offer sufficient resistance to prevent the

bar 69 from being forced outward when the sleeve 75 moves thereon by the action of the lever 87, connected with the wrist-testing device.

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

1. In a coin-controlled muscle-testing machine, a coin-receiving lever having an apertured chamber for the reception of a coin, a recording and an alarm mechanism connected with and operated from the coin-receiving lever, a pivoted operating-lever adapted to engage with the coin in the chamber of the coin-receiving lever or to move freely in said chamber in the absence of a coin, said operating-lever being mounted to swing toward and from the receiving-lever, muscle-testing devices acting upon the operating-lever to swing it upon its pivot, coin-receiving chutes which are in the path of the coin-chamber of the coin-receiving lever, one chute leading to the interior of the machine and the other chute being carried to the exterior of the machine for the purpose of returning a deposited coin, and means for temporarily separating the operating and coin-receiving levers and bringing the two levers in operative connection when a coin is introduced into the machine, as specified.

2. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever having an apertured chamber at one end, a pivoted operating-lever mounted to swing toward and from the receiving-lever, and provided with means for supporting a coin in the chamber of the receiving-lever, a muscle-testing device acting upon the operating-lever, a recording device, and means for operating the recording device from the coin-receiving lever, as set forth.

3. In a coin-controlled muscle-testing machine, a coin-receiving lever, an operating-lever adapted to engage a coin received by the receiving-lever, a muscle-testing device acting upon the operating-lever, a recording device, means for operating the recording device from the coin-receiving lever, and means for locking the recording device, said locking means being released by the coin delivered to the machine, as set forth.

4. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever, a muscle-testing device, means for swinging the coin-receiving lever from the muscle-testing device, a recording device, means for operating the recording device from the coin-receiving lever, and means for holding the recording device inactive while the coin-receiving lever is in its rearmost position, as set forth.

5. In a coin-controlled muscle-testing machine, a pivoted coin-carrying lever, a chute for feeding a coin to said lever, a muscle-testing device, means for swinging the coin-receiving lever from the muscle-testing device, a recording device, means for operat-



ing the recording device from the coin-receiving lever, and means for holding the recording device inactive while the coin-receiving lever is in its rearmost position, said means being controlled by the entrance of a coin in the said chute, as set forth.

6. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever, a chute for feeding a coin to the lever, a muscle-testing device, means for swinging the coin-receiving lever from the muscle-testing device, a recording device, means for operating the recording device from the coin-receiving lever, a toothed wheel carried by the recording device, and a pawl having one end engaging the tooth-wheel and its other end extending into the coin-chute, as set forth.

7. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever, a coin-chute for delivering a coin to the lever, an operating-lever adapted to engage the coin-receiving lever to swing the same, a muscle-testing device acting on the operating-lever, a recording device, means for operating the recording device from the coin-receiving lever, a toothed wheel on the pointer-shaft of the recording device, and a pawl having one end engaging the wheel and its other end formed with a foot which projects into the coin-chute, as set forth.

8. In a coin-controlled muscle-testing machine, a pivoted and spring-pressed coin-receiving lever, an operating-lever adapted to engage the coin received by the receiving-lever, a muscle-testing device acting on the operating-lever, a spring-pressed recording device, the spring of which is of greater strength than the spring of the coin-receiving lever, and means for operating the recording device from the coin-receiving lever, as and for the purpose set forth.

9. In a coin-controlled muscle-testing machine, a pivoted and spring-pressed coin-receiving lever, an operating-lever adapted to engage the coin received by the receiving-lever, a muscle-testing device acting on the operating-lever, a spring-pressed recording device having a drum on its pointer-shaft, and a chain or cord having one end secured to the drum of the recording device and its other end to the receiving-lever, as set forth.

10. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever, a pivoted operating-lever adapted to engage the coin received by the receiving-lever, a muscle-testing device acting on the operating-lever, a gong, a pivoted angular hammer, and a pivoted arm having means at one end for engaging the hammer, the other end of the arm extending into the path of the coin-receiving lever, as set forth.

11. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever, a pivoted operating-lever adapted to engage the coin received by the receiving-lever, a muscle-testing device acting upon the operating-lever, an indicator, means for operating the

indicator from the coin-receiving lever, and a coin-receiving chute formed of telescoping sections, one of which is secured to the operating-lever, as set forth.

12. In a coin-controlled muscle-testing machine, a pivoted coin-receiving lever, a pivoted operating-lever adapted to engage the coin received by the receiving-lever, a muscle-testing device acting on the operating-lever, an indicator, means for operating the indicator from the coin-receiving lever, an alarm, means for operating the alarm from the coin-receiving lever, and a coin-chute formed of telescoping sections, one of the sections being secured to the operating-lever, as set forth.

13. In a coin-controlled muscle-testing machine, a casing, a pivoted coin-receiving lever, a pivoted operating-lever adapted to engage the coin received by the receiving-lever, a muscle-testing device acting upon the operating-lever, a coin-receiving chute formed of telescoping sections, one of the sections being secured to the operating-lever, an indicator, means for operating the indicator from the coin-receiving lever, a hopper at the rear of the casing and formed of adjustable sections, and a chute leading from the hopper to the front of the casing, as and for the purpose set forth.

14. In a coin-controlled muscle-testing machine, a pivoted and spring-pressed coin-receiving lever, a pivoted and spring-pressed operating-lever adapted to engage the coin received by the receiving-lever, a movable and spring-pressed member adapted when pressure is applied thereto to swing the operating-lever to force the coin-receiving lever rearwardly, an indicator, means for operating the indicator from the coin-receiving lever when the said lever is moved rearwardly, a coin-chute formed of telescoping sections, one of which is secured to the operating-lever, and a hopper formed of adjustable sections, as set forth.

15. In a coin-controlled muscle-testing machine, a casing, a pivoted and spring-pressed coin-receiving lever, a pivoted and spring-pressed operating-lever adapted to engage the coin received by the receiving-lever, a pivoted and spring-pressed board in the casing and provided with a punching-pad adapted to move in and out of an opening in said casing, said board being adapted to engage the operating-lever, an indicator, and means for operating the indicator from the coin-receiving lever, as set forth.

16. In a coin-controlled muscle-testing machine, a casing, a pivoted and spring-pressed coin-receiving lever, a pivoted and spring-pressed operating-lever adapted to engage the coin received by the receiving-lever, an indicator, means for operating the indicator from the coin-receiving lever, a sliding and spring-pressed gripping device, and means for operating the operating-lever from the gripping device, as set forth.



17. In a coin-controlled muscle-testing machine, a pivoted and spring-pressed coin-receiving lever, a pivoted and spring-pressed operating-lever adapted to engage the coin  
5 received by the receiving-lever, an indicator, means for operating the indicator from the coin-receiving lever, a sliding and spring-pressed gripping device, means for operating the operating-lever from the gripping device,  
10 a revoluble wrist-testing device, and a con-

nection between the wrist-testing device and the gripping device, as herein shown and described.

In testimony whereof I have signed my name to this specification in the presence of 15 two subscribing witnesses.

JOHN HEISSENBERGER.

Witnesses:

J. FRED. ACKER,

R. HAMILTON MACNEE.