

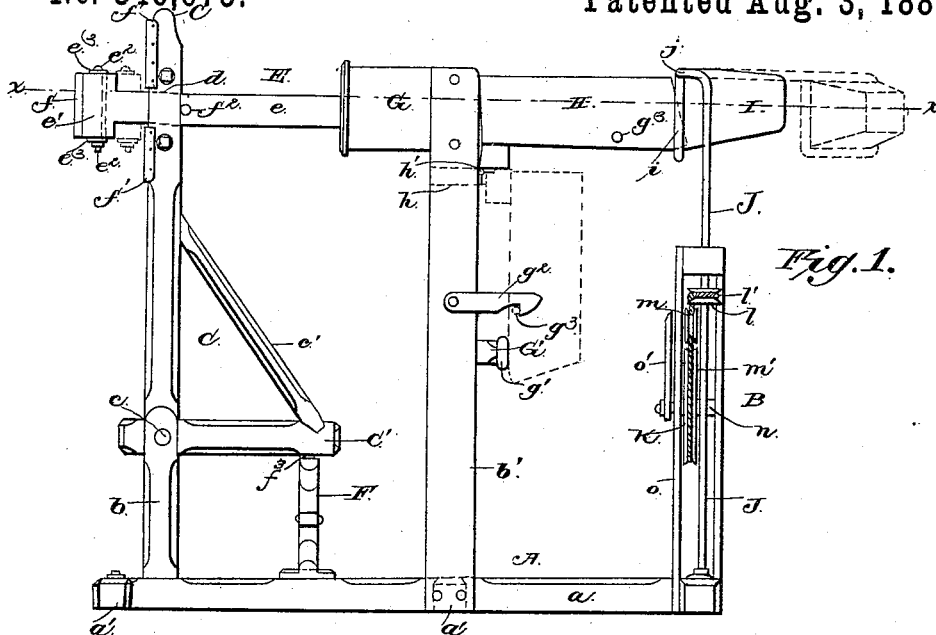
(No Model.)

J. P. NICHOLS.

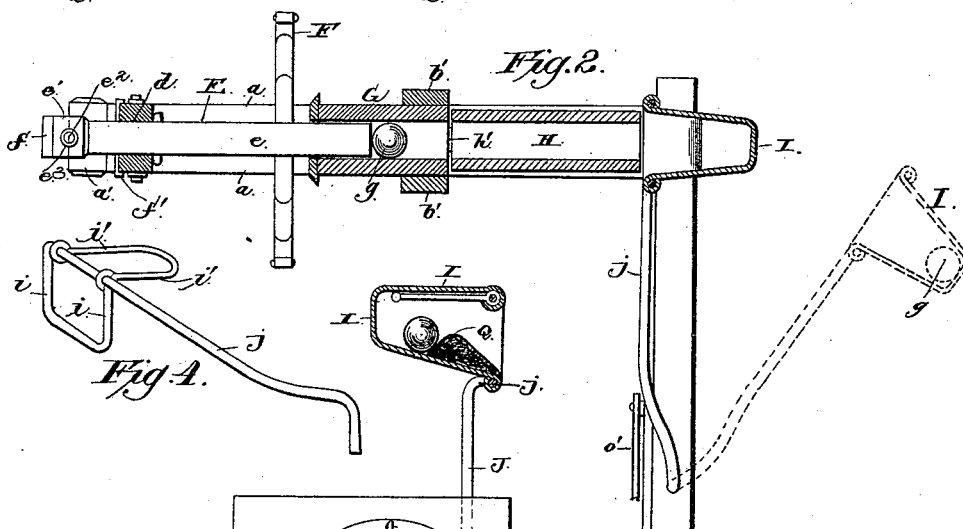
EXERCISING MACHINE AND REGISTER THEREFOR.

No. 346,675.

Patented Aug. 3, 1886.



*Fig. 1.*



*Fig. 2.*

*Fig. 4.*

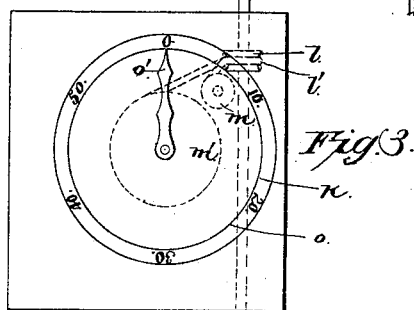


Fig. 3.

Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN P. NICHOLS, OF MARION, INDIANA.

## EXERCISING-MACHINE AND REGISTER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 346,675, dated August 3, 1886.

Application filed January 5, 1886. Serial No. 187,672. (No model.)

### *To all whom it may concern:*

Be it known that I, JOHN P. NICHOLS, of Marion, in the county of Grant and State of Indiana, have invented certain new and useful Improvements in Exercising Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in exercising apparatus or machines; and it consists of the peculiar and novel construction and combination of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

The primary object of my invention is to provide an improved machine for registering the force of blows which are struck by persons to indicate the strength of said persons, and also serve as an exercising apparatus and as a source of amusement. The apparatus is very simple and durable in its construction, effective in operation, and comparatively cheap.

In the accompanying drawings, Figure 1 is a side elevation of my improved exercising-machine, showing the device adjusted for use in full lines. Fig. 2 is a horizontal sectional view on the line *xx* of Fig. 1. Fig. 3 is a detail view of the registering mechanism. Fig. 4 is a detail perspective view of the swinging-missile receptacle.

Referring to the drawings, in which the same letters of reference denote the same or corresponding parts in all the figures, A designates the main frame of my improved registering-machine, which comprises the longitudinal parallel base-sills *a*, connected together by transverse sills *a'*, a short standard, *b*, secured at the front end of the sills *a*, and the uprights *b'*, which are secured at their lower ends to the sills *a*, and at a point thereon intermediate of the ends of the sills.

B designates a supplemental frame for the registering mechanism or device, which is arranged and secured at the rear ends of the main frame A and projects laterally therefrom or at right angles.

C designates a vertically-disposed lever that is arranged at the front end of the frame A, and is pivoted at its lower end to the upper end of the short standard *b*, as at *c*, and the lower end of said lever is provided with a right-angled arm, *C'*, which projects or extends rearwardly therefrom, the arm and lever being strengthened or braced by an inclined strut or beam, *c'*, suitably secured at its ends to the lever and arm, as will be clearly seen by reference to Fig. 1. Near its upper end the lever is provided with a transverse slot, *d*, and through the slot passes the rod *e* of a horizontally and longitudinally movable piston, E. This piston is provided at its front end with an enlarged head, *e'*, that is arranged in front of the lever C, and through the head of the piston passes a vertical bolt or pin, *e''*, that has washers *e'''*, to prevent the piston-head from splitting under the impact or force of the blows delivered thereon by a bat or club wielded in the hands of the operator. The front face of the piston-head has an elastic or resilient cushion or packing, *f*, to deaden the force of the blow thereon, and the pivoted lever C is also provided on its front edges with elastic cushions *f'*, that are arranged thereon on opposite sides of the piston, so that they will receive the blow of the bat or club should it accidentally miss the piston-head, whereby the blow on the lever will be deadened to prevent breaking the latter or the implement wielded by the operator. When the piston is driven or forced rearwardly, the head thereof comes in contact with the cushions *f'* of the pivoted lever, and is thus prevented from further retrograde movement to prevent the piston becoming accidentally displaced or removed from the lever, and the forward movement of the piston in adjusting it for use is limited by a transverse stop-pin, *f''*, which is affixed therein, so that it will abut against the rear face of the pivoted lever C, the necessary play or movement of the piston being permitted and limited by the piston-head and stop-pin thereon, as will be very readily understood.

F designates a spring for returning the lever C to its vertical position after the force of the blow of the piston on the upper end of the lever has spent itself. This spring is inter-

posed between the outer free end of the right-angled arm  $C'$ , and it has a projection,  $f^3$ , that enters a recess in the lower part of the lever-arm, and when the lever is oscillated or moved on its pivot by the force of the blow on the piston carried thereby the arm  $C'$  thereof is forced downwardly against the tension of the spring, which serves to return the lever to its vertical position after the force of the blow has spent itself. This spring not only serves to return the lever to its vertical position, but it also serves at a resilient cushion to retard or break the movement or force of the lever, and thus reduce the strain on the parts of the lever to a minimum.

To the upper free ends of the upright  $b'$  of the main frame A is affixed a tube or guide, G, which is rigidly secured in place. The ends of the guide or tube are open to receive the rear end of the piston-rod and a missile or ball,  $g$ . This fixed guide is arranged in the same horizontal plane as the piston E, and it serves to receive and retain the missile in the path of movement of the piston, so that the missile cannot fail to be struck by the piston when the latter is driven rearwardly or outwardly.

H designates a swinging conducting-tube, which is hinged or pivoted at one end to a transverse bar or rod,  $h$ , of the uprights  $b'$ , as seen at  $h'$ . This tube is adapted to be adjusted or swung upwardly into a horizontal position, as shown in full lines in Fig. 1, so that it lies in the plane of the fixed guide G to receive the missile therefrom and conduct or guide it into a swinging receptacle, I, as will be presently described. The free end of the conducting-tube H is supported by the swinging receptacle when the apparatus is adjusted for use and said tube drops downwardly, when the swinging receptacle is forced backwardly by the impact of the missile thereon, the latter position of the tube being shown in dotted lines in Fig. 1. The free end of the conducting-tube, when it drops down, strikes or abuts against a fixed bumper,  $G'$ , that is suitably secured on the uprights  $b'$  of the main frame A, and is provided with a resilient cushion,  $g'$ , to reduce or deaden the impact or force of the tube thereon and obviate damage or breakage to the tube. A pivoted latch or hook,  $g^2$ , is adapted to engage a pin or staple,  $g^3$ , on the conducting-tube, to retain the latter in its vertical position and prevent any movement thereof when it is adjusted out of operative position.

J designates a rock-shaft, which is disposed in a vertical position, and this shaft is arranged to one side of the main frame and journaled in proper bearings in the upper and lower sills of the supplemental frame B, through which the shaft passes. The upper free end of the rock-shaft carries a longitudinal arm,  $j$ , that is arranged at right angles thereto, and the free end of the arm carries the swinging receptacle I for the missile  $g$ . This receptacle I comprises a frame that consists of the vertical connected arms  $i$  and the similar horizontal arms,  $i'$ , which

are arranged at right angles to each other, and suitably secured or affixed on the arm J of the rock-shaft. Over the right-angled arms  $i$   $i'$  is secured or woven a cover or case of textile fabric, wire-gauze, or other suitable material, that completes the receptacle I, which is thus closed at one end and open at the other end to receive and support the free end of the swinging tube and to retain the missile conducted thereby. The swinging receptacle is further provided near or at the open end with a detent for retaining the missile therein, which comprises an abutment, Q, having an inclined front wall for the easy admission of the missile, and an abrupt rear wall against which the missile lodges and is retained in place during the laterally-swinging movement of the receptacle.

The rock-shaft J actuates or sets in motion the registering mechanism or device K, which is constructed as follows: A grooved pulley or roller,  $l$ , is secured on the shaft J at a point thereon intermediate of its bearings, and over this pulley passes a belt,  $l'$ , that also passes over an idler-pulley,  $m$ , that is loosely journaled on a shaft or pin which is arranged at right angles to the pulley  $l$ , and from the idler or guide pulley  $m$  the belt  $l'$  passes over a larger grooved pulley,  $m'$ , which is supported on a shaft,  $n$ , that is arranged in a parallel plane with the shaft of the idler-pulley  $m$ . The shaft  $n$  is suitably journaled in proper bearings and passes through a dial,  $o$ , where it is provided with an index or hand,  $o'$ , that is adapted to move or rotate around the face of the dial to indicate on the subdivisions thereon the force of the blow delivered on the piston E.

This being the construction of my invention the operation thereof is as follows: To adjust or set the apparatus for use the piston E is drawn forwardly, so that the stop-pin  $f^2$  thereon comes in contact with the rear face of the lever C, and the rear end of the piston-rod rests within the guide G. The missile  $g$  is placed in the guide in rear of the piston and in contact therewith, and the swinging tube H is elevated to a horizontal position and supported by the swinging receptacle I, which is adjusted in alignment with the tube and fixed guide, the index or hand  $O'$  having been previously turned to naught (0) on the dial. The apparatus is now ready for use, and when a blow has been delivered on the head of the piston by a base-ball bat, club, or other suitable implement in the hands of the operator, the piston is forced rearwardly and strikes the missile, which is impelled with great force through the guide and conducting-tube into the receptacle I, which is swung or forced laterally, as indicated by dotted lines in Fig. 2, thus rotating the rock-shaft J and actuating the registering mechanism to cause the index or hand to travel around the dial and indicate thereon the force of the blow, said dial being suitably subdivided or marked off to register blows of different degrees of force. When the

piston-head strikes the pivoted lever C, it is moved or oscillated on its pivot and against the tension of its elevating or retracting spring, and when the swinging receptacle is forced laterally by the impact of the missile thereon the free end of the swinging conducting-tube drops down and strikes the bumper, all as will be very readily understood.

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

1. The combination of a lever, a movable piston carried thereby, a guide for the piston, a swinging receptacle normally arranged in alignment with the piston, and registering mechanism actuated by the swinging receptacle to indicate the force of the blow delivered on the piston, substantially as described, for the purpose set forth.

2. The combination of a lever carrying a movable piston, a guide therefor, a swinging conducting-tube, a swinging receptacle normally arranged in alignment with the piston, the guide, and the conducting-tube, and registering mechanism actuated by the swinging receptacle, substantially as described, for the purpose set forth.

3. The combination of a lever, a spring for retaining the lever in its normal position, a conducting-tube, the swinging receptacle, and registering mechanism actuated by the swinging receptacle, substantially as described.

4. The combination of a lever, a movable piston carried thereby, a fixed guide for the free end of the piston, a swinging conducting-tube, a swinging receptacle having one end of the tube fitted and supported therein, and registering mechanism, actuated by the swinging receptacle, substantially as described, for the purpose set forth.

5. The combination of a pivoted lever, a spring for retaining the lever in its normal position, a movable piston carried by the lever, a fixed guide, a swinging conducting-tube arranged in alignment with the guide and piston, a rock-shaft having a laterally-swinging receptacle adapted to receive and support the free end of the conducting tube, and register-

ing mechanism actuated by the rock-shaft by the backward movement of the swinging receptacle, substantially as described.

6. The combination of the main frame carrying the uprights and the supplemental frame, the vertical lever pivoted to one of the uprights, a longitudinally-movable piston carried by the lever, a retracting-spring for the lever, a fixed guide supported on one of the uprights of the frame and in rear of the piston, a swinging conducting-tube hinged to the uprights to which the fixed guide is secured, a rock-shaft journaled in the supplemental frame, and having an arm carrying the swinging receptacle, and registering mechanism carried by the supplemental frame, and actuated by the rock-shaft, substantially as described.

7. The combination of a pivoted slotted lever, a piston movable in the slot, and having the stop arranged on opposite sides of the lever to limit the movement of the piston, a conducting-tube in line with the piston, a swinging receptacle, and registering mechanism actuated by the swinging receptacle, substantially as described.

8. The combination of the upright *b'*, a bumper having an elastic head, a vertical lever, a piston supported therein, a swinging tube hinged on the uprights and adapted to abut against the bumper when the free end thereof drops down, a swinging receptacle, and registering mechanism actuated by the receptacle, as set forth.

9. The combination of a vertical lever, a conducting-tube in line therewith, a piston supported in the lever, a rock-shaft, a swinging receptacle carried by the shaft and provided with a detent having an inclined front wall and an abrupt rear wall, and registering mechanism actuated by the rock-shaft, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN P. NICHOLS.

Witnesses:

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T. S. ROGERS.