2 Sheets—Sheet 1.

H. J. BLAKESLEE.

Machine for Indicating the Force of Blows.

No. 196,110. **Patented Oct. 16, 1877.**

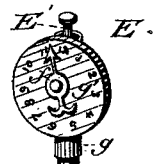
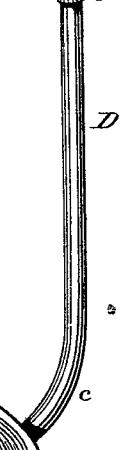


Fig. 1.



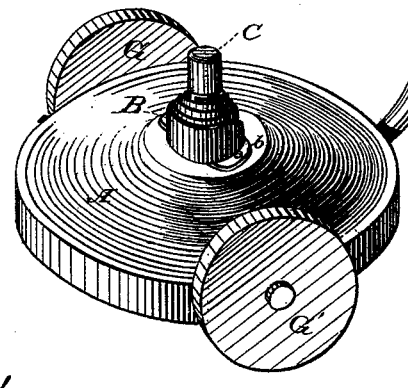


Fig. 8.

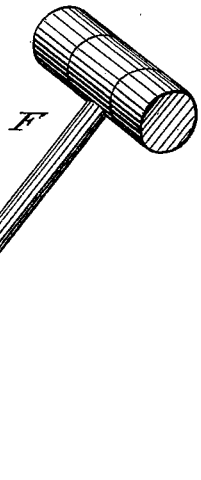


Fig. 4.

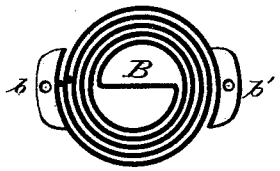
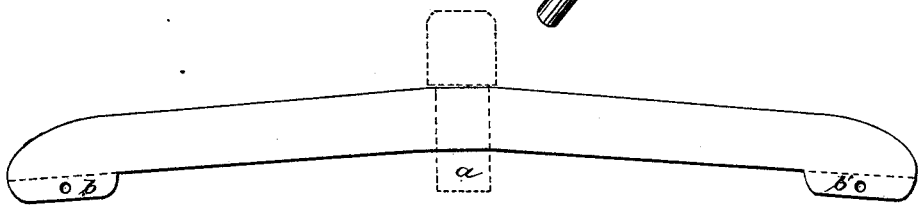


Fig. 5.



Attest:
W. Seely
R. T. Dyer.

Inventor:
Homer J. Blakeslee
by Geo. W. Dyer & Co.
Attys

2 Sheets—Sheet 2.

H. J. BLAKESLEE.

Machine for Indicating the Force of Blows.

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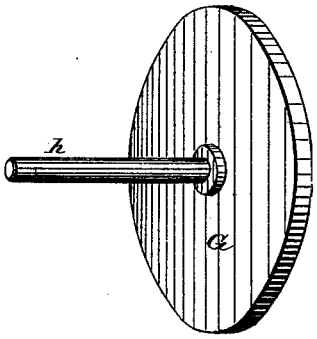
Fig. 6



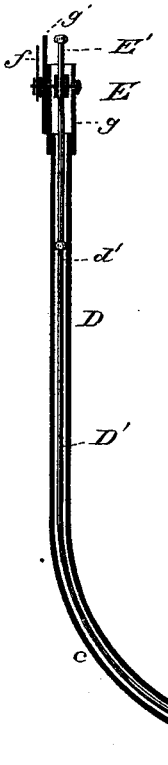
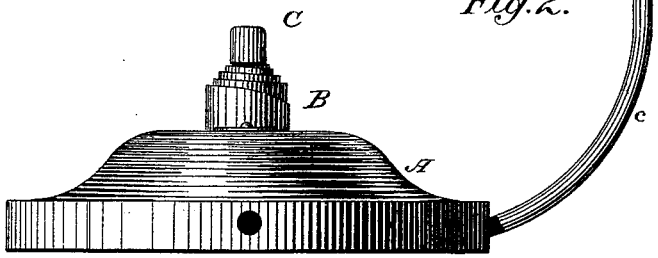


Fig. 2.



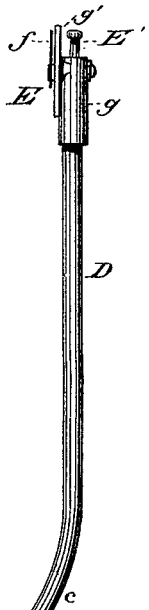


Fig. 3.

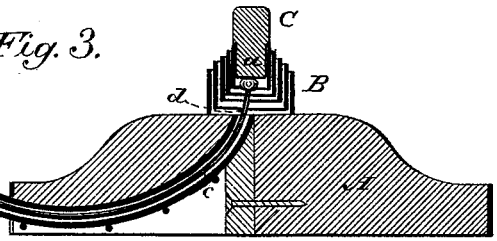
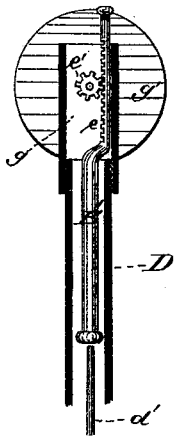


Fig. 7.



Attest:
S. M. Seely.
R. F. Dyer.

Inventor:
Homer J. Blakeslee
by Geo. W. Dyer & Co
Attys

UNITED STATES PATENT OFFICE.

HOMER J. BLAKESLEE, OF CONCORD TOWNSHIP, ERIE COUNTY, PA.

IMPROVEMENT IN MACHINES FOR INDICATING THE FORCE OF BLOWS.

Specification forming part of Letters Patent No. **196,110,** dated October 16, 1877; application filed February 20, 1877.

To all whom it may concern:

Be it known that I, HOMER J. BLAKESLEE, of Concord township, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement in Maul-Indicators; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is the production of a machine for receiving and indicating the weight of blows given by a maul, sledge, or other instrument, whereby the strength of different persons may be tested, and a simple and cheap exercising apparatus obtained.

My invention therein consists, mainly, in a spring-anvil adapted to receive the blows from the maul or sledge, and communicate them to a suitable indicating-gage; second, in the peculiar means for indicating the weight of the blows; third, in the peculiar spring upon which the anvil rests; fourth, in the peculiar removable wheels; and, further, in the various combinations of the principal parts, all as more fully hereinafter explained.

To enable others skilled in the art to manufacture my machine, I proceed to describe the same, having reference to the drawings, in which—

Figure 1 is a perspective view of the machine complete, mounted upon wheels for transportation; Fig. 2, a side elevation of the machine (without the wheels) in position for operation; Fig. 3, a central vertical section of the same through the indicating-gage; Fig. 4, a separate top view of the spring upon which the anvil rests; Fig. 5, a view showing the spring previous to its being bent; Fig. 6, a separate view of one of the wheels and its arm; Fig. 7, a view from the rear of the indicating-gage, with the case broken away to show the operating mechanism; and Fig. 8, a view of the maul used with the machine.

Like letters denote corresponding parts in each figure.

A represents the base of the machine, which may be of any desired form, either circular or square, and is constructed of a single block of wood, or several pieces secured together, to form a solid block, and bound with an iron band or bands; or it may be composed of a suitable strong and heavy frame-work. Upon this base, over a central opening, is placed a spiral spring, B, and upon this spring is mounted the anvil C, having a downwardly-projecting stem, *a*. This spring (shown more particularly in Figs. 4 and 5) is made of a straight steel band, which is first passed through a hole in the stem *a* of the anvil, and then bent spirally around the same, the two ends *b b'* terminating on opposite sides of the spring. These ends are bent outwardly and flattened to form broad bearings for the spring to rest upon, and have holes punched through them, by which the spring is secured to the base. By this construction a cheap spring, with great durability and accuracy in uniformly yielding to the momentum of the blows laid upon it, is obtained.

A metal tube, D, bent at its lower end *c* into semicircular form, passes through the base of the machine, and terminates directly under the stem *a* of the anvil. The other end of the tube rises above the base A, and has the indicating-gage E attached thereto. Inside the metallic tube D is placed a steel rod, D', which is bent to the same curve as such tube. The lower end, *d*, of this rod projects up through the lower end of the tube, and rests in contact with the under side of the stem of the anvil. This rod extends nearly the entire length of the tube, and its other end, *d'*, strikes against a short rod, E'. This rod E' has a toothed rack, *e*, near its upper end, which operates the hand *f* of the gage through a pinion, *e'*. The top of the rod E' projects up through the short tube *g*, in which the pinion *e'* is journaled, for the purpose of allowing the rod to be pushed back into position after it has been forced upwardly. The tube *g* is adapted to be screwed on or removed from the end of the tube D, and has attached to it the dial *g'* of the gage, which is provided with a properly-graduated scale. The indicating hand or finger *f* is secured to the shaft of the pinion *e'*, and this shaft is so packed as to keep the hand in any position to which it may be turned in the operation of the machine till it is forced back by pushing the rod E' downwardly.

The machine as thus constructed is ready for operation, and is set upon the ground or upon any suitable platform. The anvil is struck with

any ordinary maul or sledge, the maul F (shown in Fig. 8) being preferred, and the spring is depressed in proportion to the weight of the blow. The spring-rod D′ is pushed in the tube by the stem of the anvil, and this rod moves the short rack-rod E′, which, in turn, operates the pinion *e′*, and through that pinion the indicating finger of the gage. The curved spring-rod D′ is bent toward a straight line when moved in the tube, and, by virtue of its tendency to resume its normal position, does not go farther than actually pushed by the stem of the anvil, and follows such stem back to its place after the blow is given. The rod E′, however, remains in the elevated position to which it is driven, on account of the friction created by the packing under the indicating-hand, so that the number on the gage may be ascertained, and is pushed back into place by the person attending the machine.

Thus, it will be seen that the actual weight of the blow is recorded, and I have found that the scale of the gage can be made sufficiently accurate by means of dead-weights placed on the anvil.

For the purpose of moving the machine from place to place, the base A is mounted upon wheels G G′, which are rigidly secured to arms *h h′*. These arms fit in holes on opposite sides of the base, which are bored on a slight inclination, so that the wheels will not run off.

The machine can be moved and guided by means of the tube D. The wheels are adapted to be removed from the base by simply pulling the arms *h h′* out of their sockets.

This machine is very simple in its construction, and the parts are so made as to be very durable in use.

Having thus fully described my machine and explained some of its advantages, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a machine substantially as described, a spring-anvil adapted to receive the blows and communicate them to an indicating-gage, substantially as and for the purposes set forth.

2. In a machine for the purpose set forth, the combination, with the anvil, of the bent tube D and spring-rod D′ for operating the gage mechanism, substantially as described and shown.

3. The spring B, made from a single piece of steel, and having its ends *b b′* terminating on opposite sides to form bearings for the spring to rest upon, substantially as described and shown.

4. In a machine for the purpose set forth, the removable wheels G G′, secured rigidly to arm *h h′*, and set at an inclination in sockets in the base, substantially as described and shown.

5. The combination, with the tube D and rod D′, of the rack-rod E′, pinion *e′*, and indicating-hand *f*, substantially as described and shown.

6. In a machine for the purpose set forth, the combination, with the base A, mounted upon removable wheels, of the anvil C, spring B, tube D, rod D′, and the indicating-gage E, all substantially as described and shown.

This specification signed and witnessed this 13th day of January, A. D. 1877.

HOMER J. BLAKESLEE.

Witnesses:
J. V. POPE,
SOMERS S. PEARSON.