L. A. BEARDSLEE.

Testing-Machine.

No. 161,737. Patented April 6, 1875.

Fig. 1.

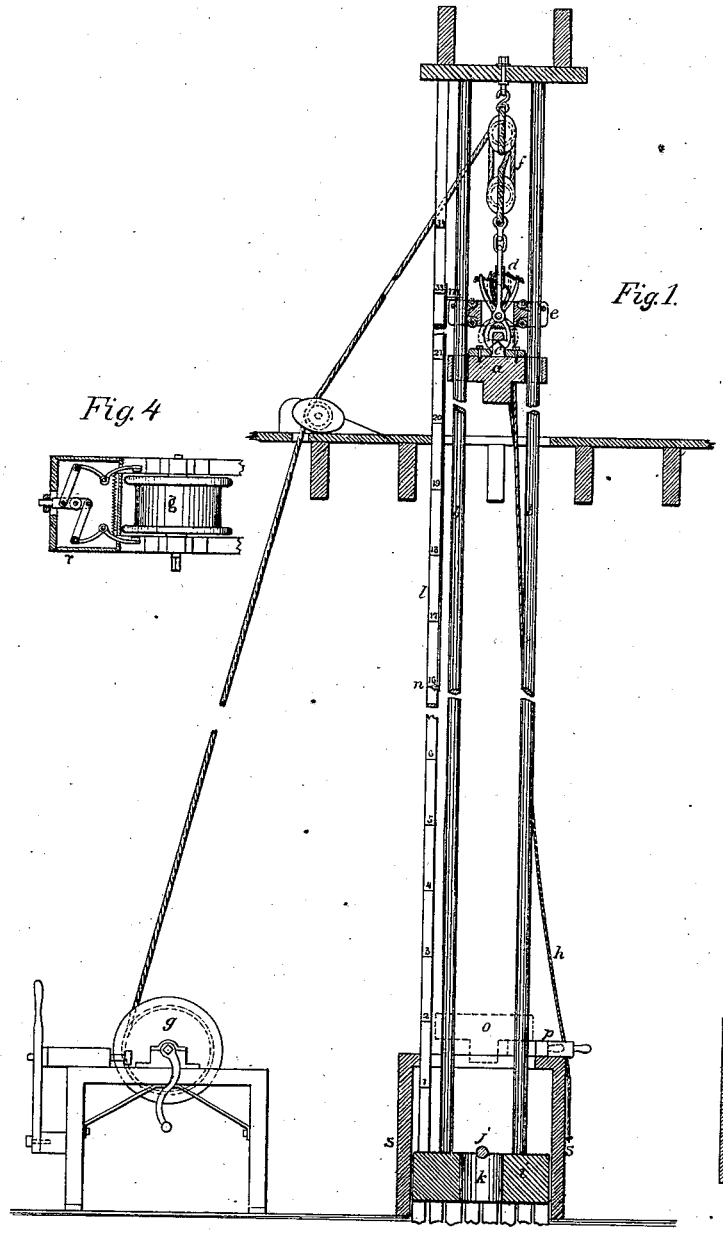


Fig. 4

Fig. 2

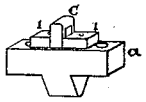
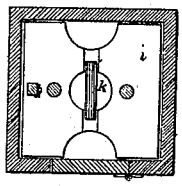


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

LESTER A. BEARDSLEE, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN TESTING-MACHINES.

Specification forming part of Letters Patent No. **161,737**, dated April 6, 1875; application filed February 25, 1875.

To all whom it may concern:

Be it known that I, LESTER A. BEARDSLEE, of Washington, District of Columbia, have invented a new and Improved Testing-Machine, for the purpose of quickly and with certainty, and at slight expense, determining the resilience or the power of iron or other metals in resisting a shock or sudden blow; and also to determine their strength across the grain of the metal, and, by a close approximate, the tensile strength, ductility, and other qualities of the metal; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a sectional side elevation; Fig. 2, a perspective view of the wedged-shaped hammer; Fig. 3, a top view of the anvil with test-piece in position; Fig. 4, the barrel for hoisting the hammer.

The invention relates to means by which persons manufacturing iron can very quickly, and at small expense, ascertain the qualities of the products of different mixtures; and persons engaged in the manufacture of chain cables, iron bridges, &c., can readily tell whether the iron furnished to them by manufacturers is strong and tough, or whether it be stiff or brittle, or soft and too weak.

In the said drawings, *a* represents an iron hammer, weighing, say, about one hundred pounds. The lower face of this hammer is made wedge-shaped, being about five inches wide, and one-half inch thick at edge. On the upper side is an eyebolt, *c*, to which the hoisting purchase is to be attached. Adjustable lead weights may be attached above the hammer to increase its weight when desired. The hammer is about sixteen inches wide, four inches thick, and six inches deep, exclusive of wedge, and by means of guide-holes is enabled to traverse perpendicularly the metal rods *b b*, which may be of any length desired. The vertical rods *b b* are made of two-inch metal, and should be about twelve inches apart. *e* is a traveler-block, fitted with rollers, which bear against the rods *b b*, with hooks *d*, which, by means of spiral springs between the lower jaws, clasp automatically into the eyebolt *c*, when required. The trip-hooks *d* are fitted with tripping-line *h*, by means of which the hooks can be opened, and the hammer detached at option. *f* is an ordinary purchase, the fall of which is led to the barrel *g*. *i* represents a heavy iron block or anvil, which has in its center a circular hole, *k*, about seven inches in diameter, from which to the edges of the anvil is cut a groove about half an inch deep, and two and one-eighth inches wide. *j* represents the specimen to be tested in position. *l* is a scaled rod, marked to feet and half feet; and *m*, an attachment provided in case the height of rods necessitates carrying the apparatus into a higher room, thus carrying the hammer out of sight, when, by means of the pointer *n*, the position of the hammer can be known. *s* represents a strong wooden box, which may be lined with sheet-iron, and fitted with a sectional cover, hinged, and provided with doors in front and rear, its purpose being to prevent accidents.

The application of the tester is as follows: The hammer *a* may be rested on the chock *p*, in the position of the dotted line *o*. The specimen to be tested, which may, at a rolling-mill, be the fag-ends of the bars ten inches long, or at factories any portion of the bar, is laid across the hole *k*, the trip-hooks are lowered and clasped, the hammer hoisted to any height desired, when the trip-line is pulled, and the hammer, disengaged, descends and strikes the iron with a calculable momentum. The traveler is then pulled down by the trip-line, and the motion of the crank-barrel regulated by an ordinary brake, R.

In case of the hammer being lifted through the floor and out of sight, the flat rod *m*, with pointer *n*, is so fitted with a projection at *m* that the traveler-block will lift it as it goes out of sight, and by means of the pointer at lower edge it indicates the height to which the hammer has been raised.

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

1. The hammer *a*, provided with a wedge-shaped face, in combination with the anvil *i*, provided with the central opening *k*, substantially as and for the purpose described.

2. The hammer *a*, provided with a wedge-shaped face, and anvil *i*, provided with the central opening *k*, in combination with the traveling block *e*, hooks *d*, and trip-line *h*, substantially as and for the purpose described.

3. The hooks *d*, provided with the spring between the lower jaws, in combination with the rod *l*, provided with the pointer *n* and hook *m*, and with the traveler *e*, substantially as and for the purpose described.

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Witnesses:

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