

(No Model.)

J. E. SMITH.

LETTER SCALE.

No. 308,440.

Patented Nov. 25, 1884.

Fig. 1.

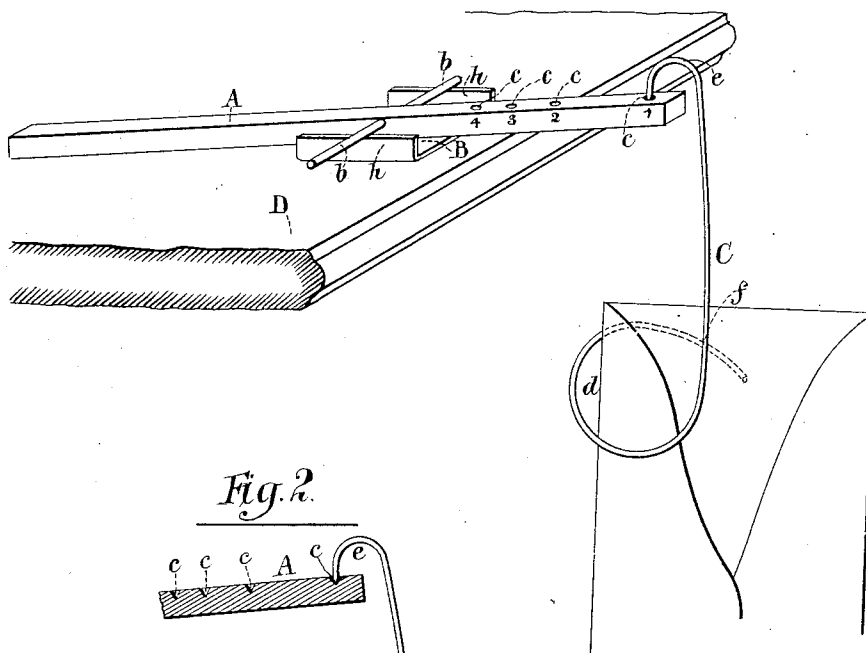
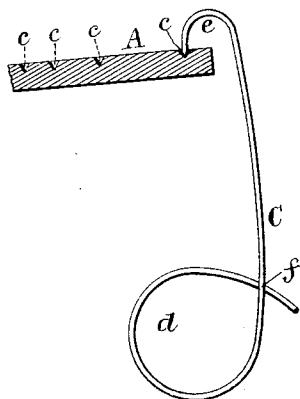


Fig. 2.



Witnesses:-

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LETTER-SCALE.

SPECIFICATION forming part of Letters Patent No. 308,440, dated November 25, 1884.

Application filed March 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SMITH, of the city and county of New York, and State of New York, have invented a new and useful Improvement in Letter-Scales, of which the following is a specification, reference being had to the accompanying drawings.

The object of my improvement is to provide a letter-scale which, while being simple and portable within a very small compass and very cheap, shall also be very accurate within a limited range.

The invention consists in a letter-scale having a scale-beam provided with conical pits in its upper surface, in combination with a suspended letter-holder having a downwardly-projecting pointed portion for engaging with said pits.

The invention also consists in a letter-scale having a letter-holder composed of an elastic wire, and having but one dependent leg, said leg being coiled so as to cross and press against itself and thus form a clamp for holding a letter at the place of crossing.

Figure 1 is a perspective view of a letter-scale constructed according to my invention, and Fig. 2 is a longitudinal section of a portion of the scale-beam and a side view of the letter-holder.

Similar letters of reference indicate corresponding parts in both figures.

Referring to the drawings, A is the scale-beam, consisting of a simple bar of metal, preferably of drawn brass, about a quarter of an inch square and seven or eight inches in length. In a hole made in this bar, near that side thereof which is to be uppermost in the scale, and at a half to three-quarters of an inch from the middle of its length, (according to the length of the beam), is inserted and firmly secured a piece of steel wire, *b*, about one-twentieth of an inch in diameter, and, say, an inch and a half in length, said wire extending equal or nearly equal distances on opposite sides. This steel wire forms the fulcrum of the scale-beam, whose longer arm acts as a weight. On the upper side of the shorter arm of this beam are made pits or depressions *c c c c* at distances from the fulcrum where a letter weighing precisely half an ounce or multiple thereof will, with the letter-holder hereinafter described,

just balance the longer arm of the beam. These pits or depressions are shown as conical, and may be made by drilling, (allowance being made for the weight of metal removed;) but a much more rapid and accurate method is to form them by means of a center punch. The numerals marked on the scale-beam to show the values of these pits may be of any desired character; but I prefer to have them indicate the number of half-ounces, as shown in Fig. 1. I omit the zero-pit in order to shorten the scale-beam.

The letter-holder C is made of a piece of hard-drawn wire (preferably brass) about nine inches in length and one-sixteenth of an inch diameter. One end of the wire is bent to form a hook, *e*, and sharp pointed, to be placed in either of the conical pits already described. A portion of the wire forms a dependent leg, and near the other end is bent into a circular coil, *d*, about an inch and a half in diameter, and so that the wire crosses itself at a point, *f* about half an inch from the end. The crossing parts of the wire *f* are in contact and form an elastic clamp for holding a letter while being weighed. A support for the fulcrum may be made, as represented in Fig. 1, by taking a piece of thin sheet metal, B, about an inch and a half square, and bending about a quarter of an inch of two opposite sides, *h h*, at right angles, thus making a stand with a flat bottom and with narrow bearings for the fulcrum.

In using this scale the piece B is put on the top of and near the edge of a mantel, table, bureau, or other similar article, D, as shown in Fig. 1, and the fulcrum is placed on the upturned sides *h h*, so that the shorter arm of the beam projects beyond the mantel, table, or other support. The letter is placed in the clamp *d* of the letter-holder C, the sharp point of the hook *e* of which is then placed in the different conical pits until the weight of the letter is determined.

When the scale is not required to be used, or for the purpose of transporting the beam, the stand B and the letter-holder may be placed side by side and contained in a box of small size. I do not limit myself to the exact form or materials hereinbefore described.

The usual knife-edge steel may be employed

for the fulcrum; but I choose round steel wire, because it simplifies and cheapens the manufacture, and actual trial proves it quite sensitive enough. The lower surface of a small
5 round fulcrum need not be placed above the center of gravity of the scale-beam, because of the slight change in the length of the two arms caused by the oscillation.

10 Instead of employing drawn brass or other metal for the scale-beam a casting may be used, in which case the beam may be made shorter by having the weight end of it globular or otherwise larger in diameter than the other arm.

15 What I claim, and desire to secure by Letters Patent, is—

1. In a letter-scale, a scale-beam having conical pits in its upper surface, in combination with a suspended letter-holder having a downwardly-projecting pointed portion for
20 engaging said pits, substantially as herein described.

2. In a letter-scale, a letter-holder composed of an elastic wire and having but one dependent leg, said leg being coiled so as to cross and
25 press against itself, and thus form a clamp for holding a letter at the place of crossing, substantially as herein described.

JOHN E. SMITH.

Witnesses:

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