

A. H. EMERY.
 FULCRUM FOR SCALES.
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1,041,609.

Patented Oct. 15, 1912.



Fig. 1.

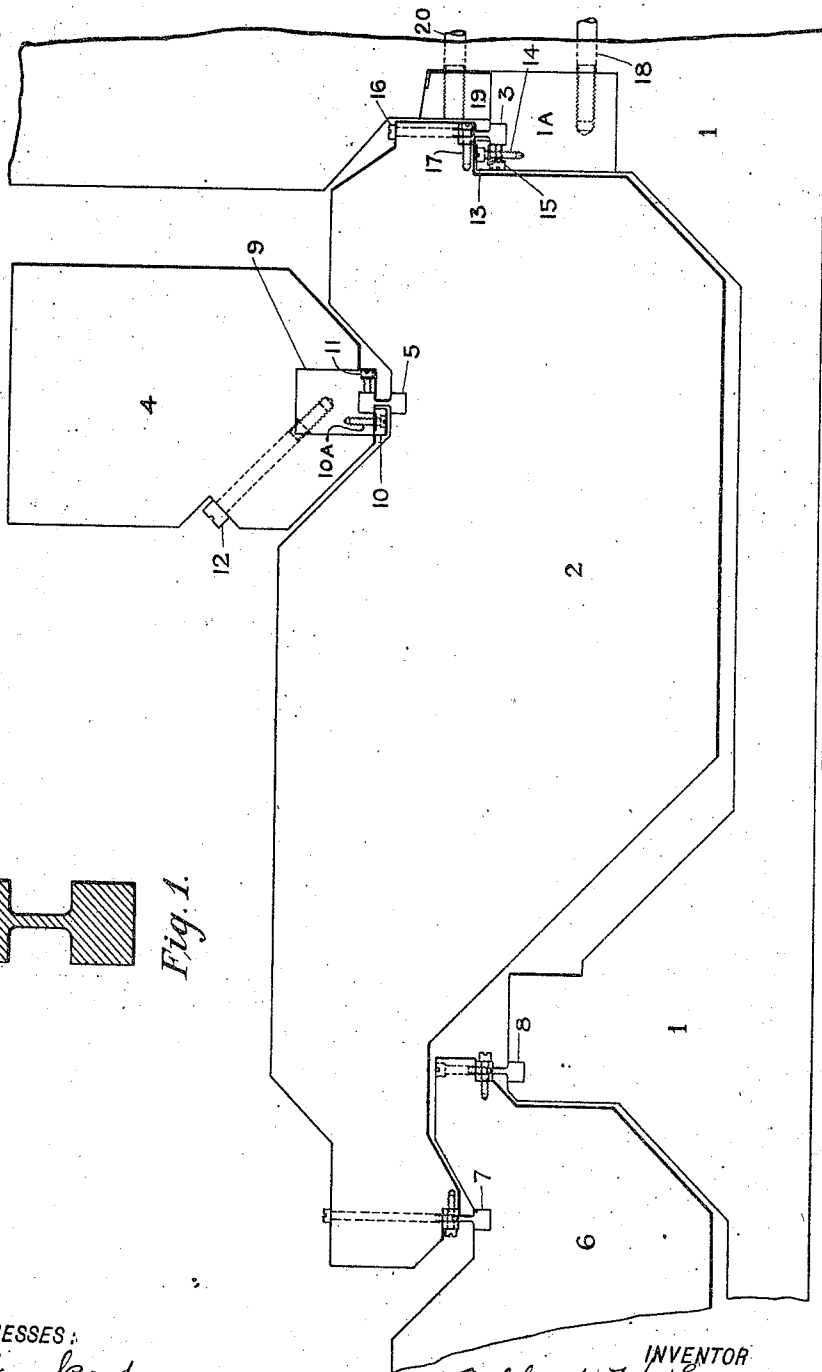


Fig. 2.

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ALBERT H. EMERY, OF STAMFORD, CONNECTICUT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT H. EMERY, a citizen of the United States, residing in Stamford, in the county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Fulcrums for Scales, of which the following is a specification.

My invention relates to a new form of plate fulcrum for use in scales and especially in the scales used in connection with the Emery testing machine shown in my Patent No. 918,488.

My invention is illustrated by two figures on one sheet of drawings of which—

Figure 1 is a cross section of a fulcrum, Fig. 2 is a view showing the use of four of these fulcrums as applied to two of the levers of a scale.

My invention is more fully described in the following specifications in which—

1 is a frame or base.

2 is the first lever of a scale which lever is fulcrumed to the frame 1 by fulcrum 3 set in block 1^A.

4 is a column on which the load to be weighed is applied. This load is transmitted to the lever 2 by fulcrum 5 and the long end of the lever 2 is connected to the lever 6 by fulcrum 7, which lever 6 rests on frame 1 through fulcrum 8. These fulcrums may be held in place in various ways, several of which are illustrated in the drawing. Fulcrum 5 is held in lever 2 by having a forced fit and is held at the other end in piece 9 by clamp 10 and screws 10^A in one direction and by screws 11 in the other, the piece 9 being held in load column 4 by screws 12. Fulcrum 3 is secured to block 1^A by a clamp piece 13 and screws 14 in one direction and by screws 15 in the other and to lever 2 in both directions where screws 16 hold it in one direction and screws 17 hold it in the other.

For ease of assembling and disassembling the fulcrum may be fastened to a block, which is in turn fastened to the frame or other part. This is illustrated by fulcrum 5 which is fastened to block 9, which is in turn fastened to load column 4 by screws 12 and by fulcrum 3 which is secured to block 1^A, which is secured to the frame. In assembling, the fulcrums 3 and 5 are assembled with the lever 2 and with blocks 9 and 1^A and then the whole assembled with the frame 1 and load column 4, the screws 12

being at an angle with the faces in the load column 4 against which block 9 rests and draw the block firmly against these faces and insure its being readily replaced in exact position. In order to replace the block 1^A in exact position I use screws 18, which draw its side face firmly against the corresponding face in the frame, and the wedge piece 19, which is drawn in by screws 20 forcing the block 1^A down on its seat in frame 1. This arrangement of wedge piece 19 and screws 18 and 20 allows the block to be disassembled and replaced in exact position.

The fulcrum itself is formed with a relatively thin central portion connecting two much thicker portions or heads, this thin portion giving the fulcrum its flexibility while the large heads spread out the load and decrease its intensity, and, is an improvement on the ordinary knife edge form which upon heavy loading or use loses its sharpness and thus becomes inaccurate because of friction and changed length of lever arms, and, it is also an improvement on my old plate fulcrum, generally known as the "Emery" plate fulcrum used in the "Emery" testing machines and elsewhere, for under heavy loads the plate compresses sensibly in the clamped portions as well as in the free portion and this causes a slight slipping between it and the sides of the seat, which is objectionable. This new form, by very greatly increasing the area in the portion forming the ends where they are seated, allows the load to be transmitted from the fulcrum to the lever or frame wholly by direct pressure instead of clamping friction and direct pressure combined, and this allows the fulcrum to be easily secured firmly in its seat in a manner to prevent backlash or slipping, and allows it to be easily removed and replaced exactly where it was before.

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

1. In a scale, the combination with two members each provided with a fulcrum seat, of a fulcrum entering said fulcrum seats and connecting said members and allowing relative angular motion between them: said fulcrum having a thin flexible central portion, and each end thereof terminating in a thick solid rectangular portion.

2. In a scale, the combination with two

members, each provided with a fulcrum seat with two faces about square with each other. of a fulcrum connecting said members and allowing relative angular motion between them, and means for securing the fulcrum to its seats; said fulcrum having a thin flexible central portion, and each end thereof terminating in a thick solid rectangular portion having two bearing faces fitting against the two corresponding faces of its seat, said construction thereby allowing the fulcrum to be removed and replaced exactly in its former position.

3. In a scale, the combination with two members each provided with a fulcrum seat, of a fulcrum fitted to said fulcrum seats and having a thin flexible portion, and each end thereof terminating in a thick rectangular portion, affording flat bearing faces at right angles to each other on each rectangular end portion; one bearing face at each end being normal to the plane of the thin flexible part of the fulcrum.

4. In a scale, the combination with two members each provided with a fulcrum seat, of a fulcrum having its ends fitted in said fulcrum seats; said fulcrum having a thin flexible portion, and each end thereof terminating in a thick rectangular portion, affording flat bearing faces at right angles to

each other on each rectangular portion; one bearing face at each end being normal to the plane of the thin flexible part of the fulcrum; said faces transmitting the load which acts parallel to the said plane; the faces at right angles to said load transmitting faces enabling the fulcrum when removed to be readily replaced exactly in the same position.

5. The combination with two members of a scale to be flexibly connected, each provided with a seat, of a plate fulcrum made thin at its central part and secured in its seat at one end by screws 16 and 17 and at the other by screws 15 and block 13 and screws 14.

6. A fulcrum 3 secured to lever 2 and block 1^a in combination with frame 1, clamping block 19 with screws 18 and screws 20 which fix said block firmly in position when in use, but permit it to be removed with said lever and block when desired.

The foregoing specification signed at Stamford, Conn., this sixteenth day of March, 1910.

ALBERT H. EMERY.

In presence of—

C. W. BELL,

IDA M. DAVENPORT.