(No Model.)

S. W. BABBITT.

LETTER SCALE.

No. 490,422. Patented Jan. 24, 1893.

Fig. 1

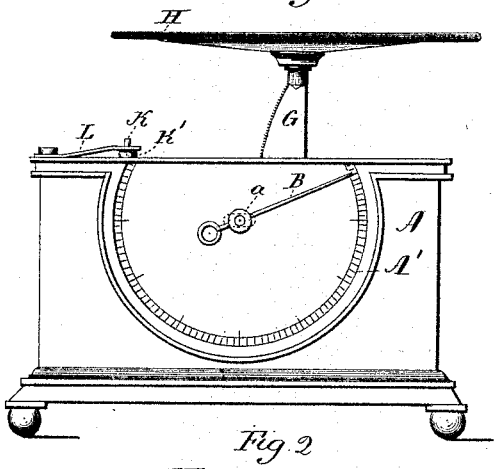


Fig. 2

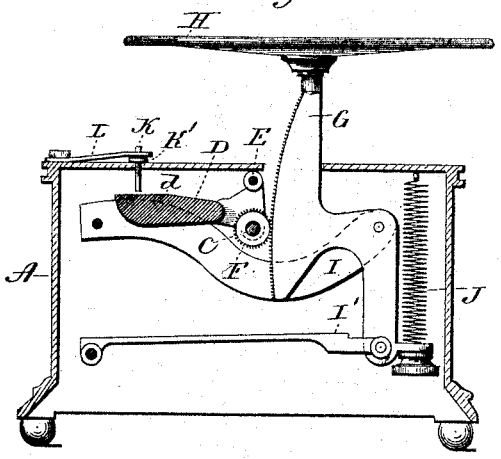


Fig. 4

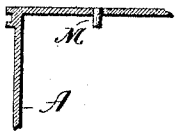
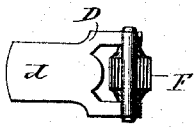


Fig. 3



Witnesses.
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UNITED STATES PATENT OFFICE.

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LETTER-SCALE.

SPECIFICATION forming part of Letters Patent No. 490,422, dated January 24, 1893.

Application filed May 9, 1892. Serial No. 432,299. (No model.)

To all whom it may concern:

Be it known that I, SETH WILLIAM BABBITT, of Meriden, in the county of New Haven and State of Connecticut, have invented a new Improvement in Letter-Scales; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in front elevation of a letter-scale constructed in accordance with my invention. Fig. 2, a view thereof partly in elevation and partly in vertical section. Fig. 3, a detached plan view of the yoke. Fig. 4, a broken view showing one corner of a case provided with a fixed instead of yielding stop as shown by the preceding figure.

My invention relates to an improvement in letter-scales, the object being to produce a simple, durable and accurate device constructed with particular reference to avoid having its indicator accidentally thrown out of its true relation to the graduations on its dial, and also adapted to have its indicator shifted to its zero position after an object has been placed upon its receiver.

With these ends in view, my invention consists in so constructing and arranging the weighted yoke which carries the indicator-shaft and the pinion meshing with the rack, that any quick movement of the latter cannot throw the yoke sufficiently out of place to disconnect the rack and pinion.

My invention further consists in certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

As herein shown, the device has a case A, of ordinary construction, and provided upon its outer face with a scale A′, over which the indicator B, sweeps, the said indicator being attached to the outer end of a shaft C, projecting through an elongated slot *a*, formed in the said face, and mounted in a gravity yoke D, suspended in the upper portion of the case from an arbor E. A pinion F, mounted on the said shaft between the two arms of the yoke, engages with the rack G, the upper end of which carries the pan or receiver H, on which the objects to be weighed are placed, while its lower end is connected with the two levers I and I′, which are of ordinary construction, and supported in place by means of a spring J. The pinion F, is kept in engagement with the rack by the weighted end *d*, of the yoke. When a sudden blow is given to the receiver H in any manner, it will be transmitted to the rack G, and hence to the pinion F, which it will tend to throw out of engagement with the rack by swinging the yoke on its arbor E. If this disengagement should occur, the rack and pinion would lose the integrity of their relations, and the indicator be deranged with respect to the graduations on the case. In order, therefore, to prevent this disengagement, I provide a stop to limit the outward swinging movement of the yoke farther than it is necessary it should swing to permit the pinion to follow the curved form of the rack. As shown in Figs. 1 and 2 of the drawings this stop consists of a yielding pin K, mounted in the top of the case, so that its lower end will stand directly over and close to the weighted outer end *d*, of the yoke. This pin is held in place by a small collar K′, attached to its upper end, and by a light spring L, secured to the top of the case, and engaging with the collar. The spring is made stiff enough to hold the pin against displacement under the action of any blow that its inner end might receive from the weighted end *d*, of the yoke under any outward impulse the same might receive from the rack. It is not so stiff, however, but what it will yield to permit the yoke to be swung and the pinion disengaged from the rack when the indicator and the shaft thereof are grasped by the fingers and pushed to the left, whereby the pinion is disengaged from the rack so that it may be turned to set the indicator wherever desired. This disengagement of the rack and pinion will be found convenient when it is desired to weigh an article, for instance, placed in the tray supported by the receiver. In that case the tray would be placed on the receiver, and the indicator adjusted to zero, after which the object to be weighed would be placed in the tray and weighed as though the same were a part of the receiver itself.

I prefer to employ a yielding stop, as de-

scribed, but that is not essential, although more convenient. In Fig. 4, I have shown a rigid pin M, arranged to limit the outward swinging movement of the yoke to the movement required by the curved face of the rack. I can also conceive of constructing the yoke so that its outer end would engage directly with the case with the same effect. I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations therein as fairly fall within the spirit and scope of my invention.

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

1. In a letter-scale, the combination with the case thereof, of levers and a rack suspended therein, a weighted yoke also suspended within the case, a shaft mounted in the said yoke and carrying an indicator at its outer end, and a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, the said yoke and case being constructed and arranged to limit the swinging movement of the yoke away from the rack, to the movement required by the bowed form thereof, substantially as set forth.

2. In a letter-scale, the combination with the case thereof, of levers and a rack suspended therein, a weighted yoke also suspended within the case, a shaft mounted in the said yoke, and carrying an indicator at its outer end, a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, and a stop located within the case to limit the swinging movement of the yoke away from the rack, substantially as specified.

3. In a letter-scale, the combination with the case thereof, of levers and a rack suspended therein, a weighted yoke also suspended within the case, a shaft mounted in the said yoke and carrying an indicator at its outer end, a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, and a yielding stop located within the case to limit the swinging movement of the yoke away from the rack, substantially as specified.

4. In a letter-scale the combination with a case having an enlarged opening formed in its face, of levers and a rack suspended within the said case, a weighted yoke also suspended in the case, a shaft mounted in said yoke, passing through the said enlarged opening in the front of the case, and carrying an indicator at its outer end, a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, and a yielding stop for engagement by the weighted outer end of the yoke, substantially as set forth, and whereby the pinion may be disengaged from the rack against the action of the yielding stop, by taking hold of the projecting end of the shaft and moving the same in the enlarged opening formed in the face of the case.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SETH WILLIAM BABBITT.

Witnesses:
JOHN M. REYNOLDS,
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