No. 865,420. PATENTED SEPT. 10, 1907.

W. A. & J. C. MOORE.

JOLLY BALANCE.

APPLICATION FILED OCT. 26, 1905.

Fig. 1.

Fig. 6.

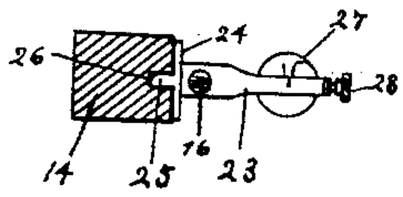


Fig. 2.

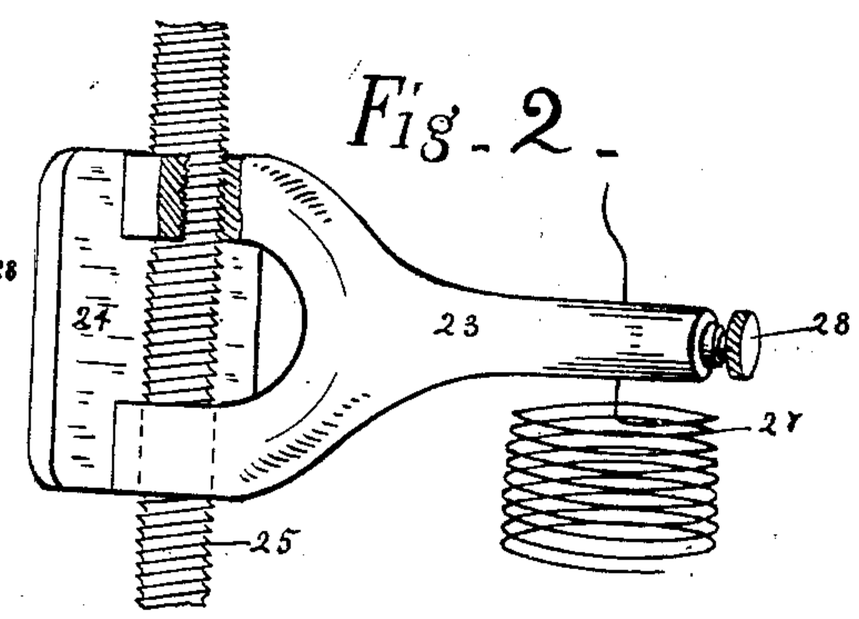


Fig. 3.

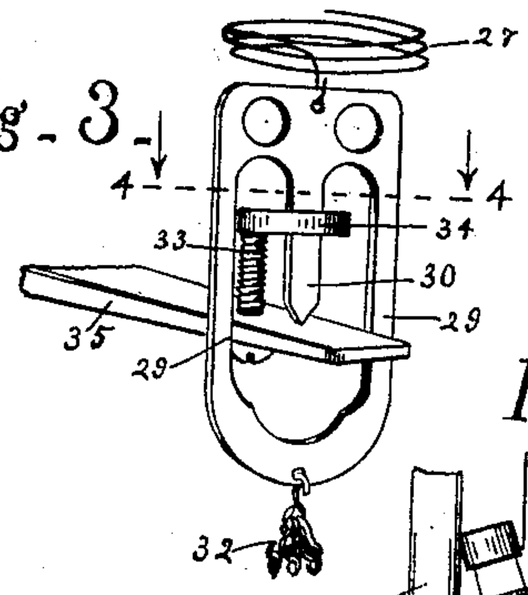


Fig. 4.

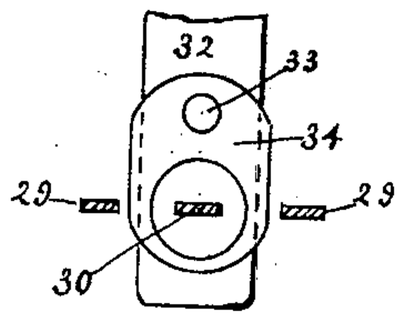


Fig. 7.

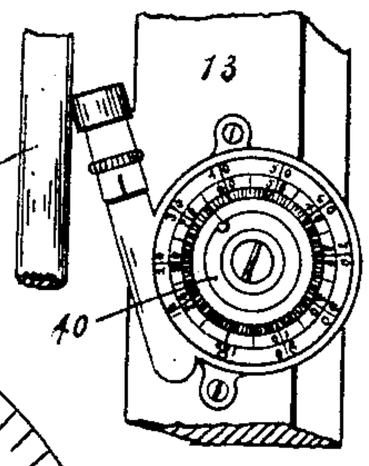
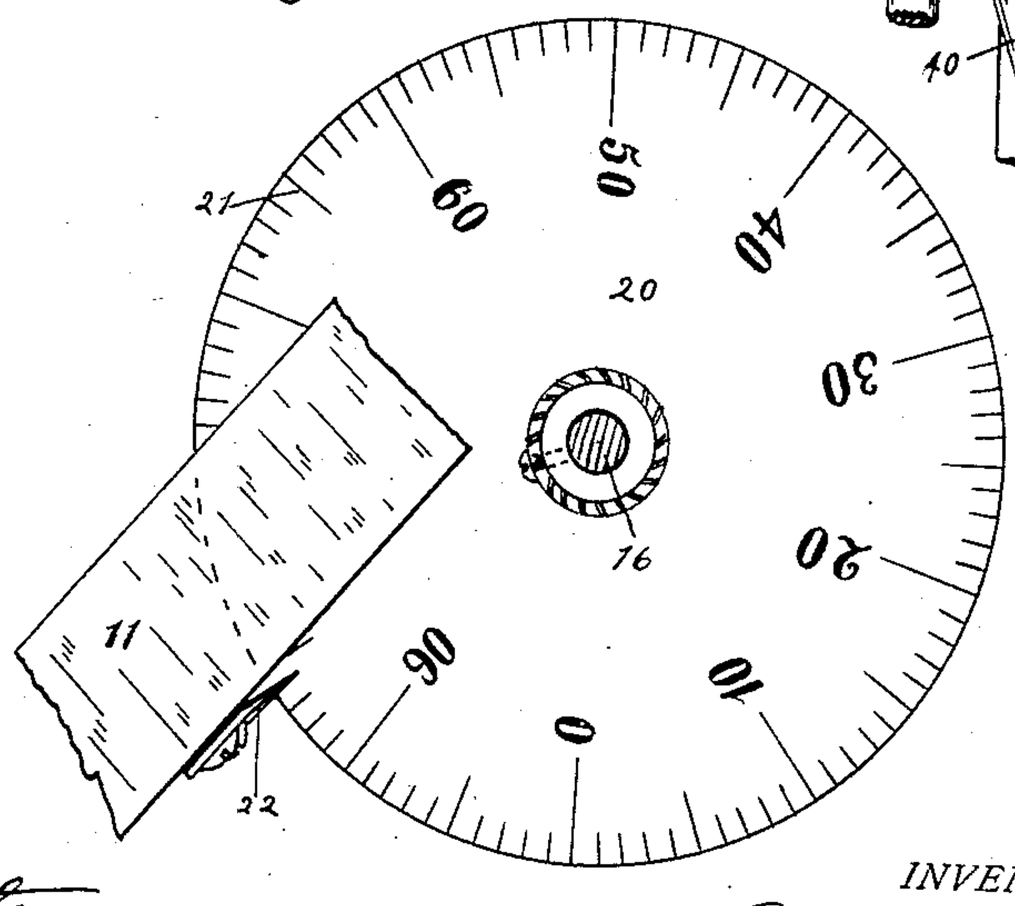


Fig. 5.



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JOLLY BALANCE.

No. 865,420. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed October 26, 1905. Serial No. 284,565.

To all whom it may concern:

Be it known that we, WILLIAM A. MOORE and JESSE C. MOORE, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Jolly Balance; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to improve the construction of a Jolly balance so as to render it more accurate and capable of indicating the minute valuations in weight, that will be more convenient in use and economical to construct than Jolly balances heretofore as far as I am aware.

The nature of this invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a perspective view of the entire device; Fig. 2 is a detail view of the means for supporting the spring and vertically moving the upper end thereof; Fig. 3 is a perspective view of the parts at the lower end of the spring; Fig. 4 is a horizontal section on line 4—4 of Fig. 3; Fig. 5 is a plan view of the disk at the lower end of the micrometer screw, parts being in section and parts broken away. Fig. 6 is a section on a line 6—6 of Fig. 1. Fig. 7 is a detail of the speed indicator and the associated parts on a large scale, parts being broken away.

The base 10 has three outwardly extending legs 11, each having at its outer end a set screw that is adapted to rest on a table or the like. The set screws enable the device to be maintained vertically.

A frame extends vertically from said base, the lower part consisting of two vertical parallel bars 13, separated somewhat and having at their upper ends a single upwardly extending bar 14 with its lower end between the bars 13. A shelf 15 is secured to said frame near its lower end. A micrometer screw 16 is mounted parallel with said frame in bearings 17, 18 and 19, so as to rotate. Only the upper part of the micrometer screw is threaded. A horizontally disposed disk 20 is secured at its lower end under the base and legs 11 with a scale 21 along the edge thereof, and a pointer 22 on one leg 11 pointing to said scale. The scale on said disk indicates the fraction of one turn of the micrometer screw. It is provided with one hundred graduations so the movement of the disk from one graduation to another indicates that the micrometer screw has been turned a hundredth of a turn. The entire revolution of said disk causes one turn of said screw.

An arm 23 has a threaded aperture so as to screw up and down on the micrometer screw with a back plate 24 that bears against the upper bar 14 of the frame and it has a rearwardly extending vertically disposed guide plate 25 that projects into a vertical groove 26 in said upper bar 14.

The upper end of the spiral spring 27 is secured in the arm 23 by a set screw 28. The lower end of the spring has suspended therefrom a stirrup plate 29 with a vertical opening through it and a finger 30 extending downward centrally in said opening to a point about midway of said opening. A pair of weighing pans 31, are suspended by chains 32 from the lower end of said stirrup plate 29. A stop plate 35 is secured to the frame and extends horizontally through the opening in the said stirrup and under the finger 30. Its upper surface is polished preferably like a mirror. It has a post 33 with an outwardly projecting horizontal ring guide 34 upon it. The center of the ring is in line with the center of the spring and the finger 30, and the opening through the ring is larger than the finger 30, so that said finger may extend and move freely through said ring. The external diameter of the ring 34 is less than the width of the opening in stirrup 29 so that said stirrup and ring 34 may move vertically without interference, but the plate 35 will serve to hold the stirrup substantially in place and the ring 34 will serve to guide the finger 30 in its movements.

The micrometer screw, as shown herein, has a double thread, each ten threads to the inch so that ten turns will move the arm 23 one inch and will move the lower part of the finger 30 an equal extent unless a weight is placed on a pan 31. One turn of the screw or one turn of the disk 20 will move said pointer one tenth of an inch. The movement of the disk 20 from one graduation point to another will move said pointer one thousandth of an inch. Thus, by this device extremely minute and accurate balancing of weights or movements of the spring may be attained.

The plate 35 is of value in practical use as it enables one to tell accurately when the finger moves. The disk for rotating the screw being located at its lower end enables the screw to be operated conveniently. In weighing or balancing a relatively heavy weight, I employ a speed indicator 40 mounted on the frame and of a common type and actuated by engagement with the micrometer screw. This indicator shows the number of the revolutions made by the screw, otherwise it would be difficult to follow said revolutions when the screw is rotated several times. Therefore, by examining the speed indicator, the operator can learn the number of rotations of the screw and by observing the disk 20, he can learn the fraction of an incomplete rotation, if any, so that he can readily read the instrument and keep track of its rotation and minute fractions thereof.

We do not wish to be limited to a screw with any particular number of threads to the inch; nor to inches or English lineal measure, as it is frequently made for metric measure, which differs from what is shown only in the number of threads on the screw to the inch, or rather in the pitch of the threads.

What we claim as our invention and desire to secure by Letters Patent is:

1. In a Jolly balance, a frame, a spiral spring means for adjustably suspending said spring by its upper end, a downwardly projecting finger at the lower end of said spiral spring, and a visible horizontal fixed stop plate that projects under said spring and finger.

2. In a Jolly balance, a frame, a spiral spring means for adjustably suspending said spring by its upper end, a downwardly projecting finger secured to the lower end of said spring, a visible horizontal fixed stop plate that projects under said spring and finger, and means for guiding the vertical movement of said finger.

3. In a Jolly balance, a frame, a spiral spring suspended by its upper end, a downwardly projecting finger at the lower end of said spring, a horizontal stop plate that projects under said spring and finger, and a horizontally disposed guide-ring through which said finger may move and be guided.

4. In a Jolly balance, a frame, a spiral spring suspended by its upper end, a stirrup suspended from the lower end of the spring with a finger extending downward centrally in said stirrup, a plate secured to the frame and projecting horizontally through said stirrup, and a ring stationary above said plate within said stirrup, said plate and ring permitting the free movement of said stirrup and finger within limits.

In witness whereof, we have hereunto affixed our signature in the presence of the witnesses herein named.

WILLIAM A. MOORE.
JESSE C. MOORE.

Witnesses:
NELLIE ALLEMONG,
C. FLINN.