

No. 674,206.

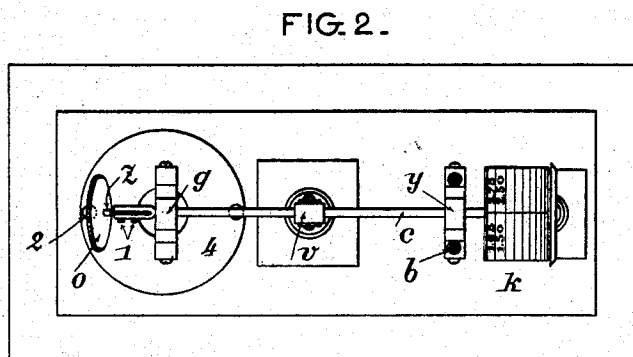
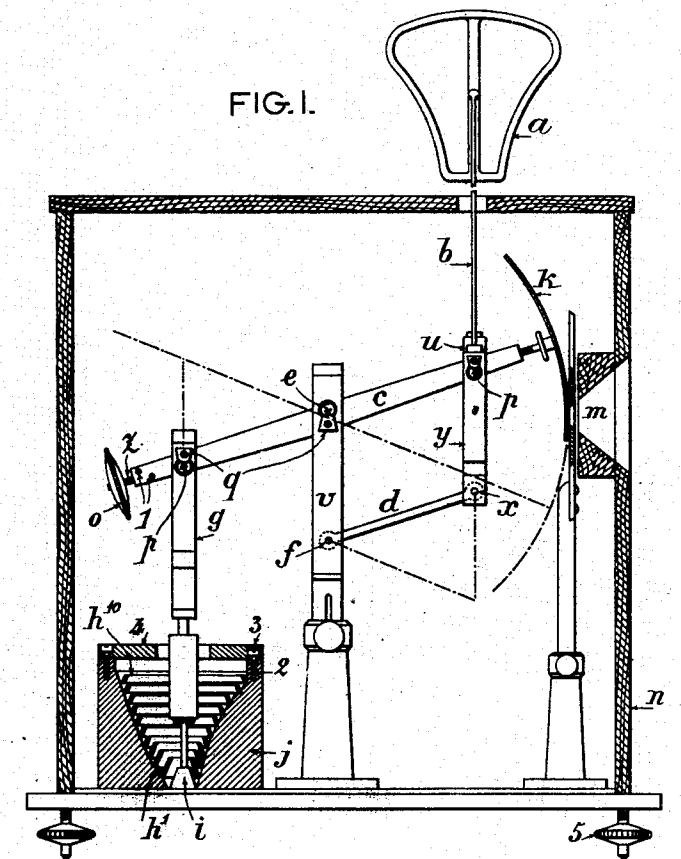
Patented May 14, 1901.

J. C. DE JANISCH.
AUTOMATIC LETTER BALANCE.

(Application filed Apr. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
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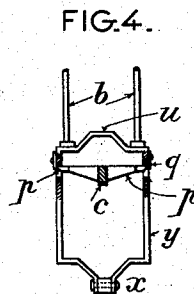
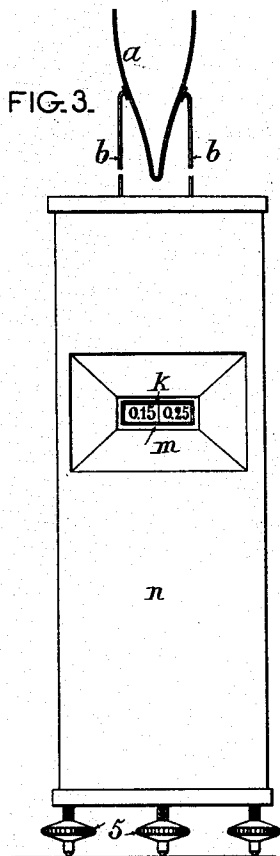
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UNITED STATES PATENT OFFICE.

JOSEPH CHARLES DE JANISCH, OF PARIS, FRANCE.

AUTOMATIC LETTER-BALANCE.

SPECIFICATION forming part of Letters Patent No. 674,206, dated May 14, 1901.

Application filed April 26, 1900. Serial No. 14,407. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH CHARLES DE JANISCH, gentleman, residing at 121 Avenue des Champs Elysées, Paris, in the Republic of France, have invented certain new and useful Improvements in Automatic Letter-Poises, of which the following is a specification.

My invention relates to a letter-poise or letter-weighing apparatus, showing at once the required stamp or amount of postage of a letter or other mail-matter in general.

The principle on which the apparatus is constructed consists in effecting automatically a series of weighing operations by means of a series of weights corresponding each to a unit charge or load placed in the weighing-pan of the apparatus, the said weights being so combined with an oscillating lever that the load put upon the said weighing-pan causes the successive rising of the weights until the beam of the apparatus shall be in equipoise, such equipoise taking place when the charge or load in the pan is comprised between the total weight of the uplifted weights and the said total weight increased by a unit charge or load. In this manner whole valuations can be automatically obtained—that is to say, without any fraction of the unit or standard adopted as required by the post-office.

When the weighing-pan of the apparatus receives a charge or load to be weighed and moves downward, its natural acceleration under the action of gravity is impeded by the increasing charge of the weights uplifted by the beam of the apparatus, and finally equipoise is reached without any oscillation through the resistance of a last weight which the beam is unable to lift up. The indications to be given by the letter-poise or letter-weigher are thus supplied at once.

In the accompanying drawings, Figure 1 is a side elevation of a letter-weigher, partly in section, on the axial line of the same. Fig. 2 is a plan view, Fig. 3 is a side view, and Fig. 4 is a detail view, of a knife-edge oscillatory device.

A pan *a*, intended to receive the letters, is supported by rods *b* on a beam *c*. The said pan may be in the form of a cradle having open sides, narrower and nearer together at

the bottom than at the top, where the said sides are rounded off. On account of this particular shape of the pan the letters can only be weighed edgewise and approximately in the axial line of the cradle-shaped fan, the indications to be given by the apparatus thus not being liable to be impaired by any wrong or abnormal position of the articles to be weighed. The two rods *b* are fixed to a cross-piece *u*, resting on one of the knife-edges *p* of the beam *c*, Fig. 4. The said beam *c* oscillates on a knife-edge *e*, carried by a fixed column *v*.

In order to hold the rods *b* in a vertical direction, I may fix below the cross-piece *u* an arm *y*, connected by a pitman *d* with a suitable wrist *f*, integral with the support *v*, so that the beam *c*, the arm *y*, the pitman *d*, and the fixed column *v* form a parallelogram, the sides of which are pivoted together.

The end of the beam *c* opposed to the scale *a* carries, by means of a knife-edge *p*, a rod *g*, hanging freely down into and through the center of the weighing-weights *h'* *h*² *h*³, &c., and carrying at its lower end a conic-shaped piece *i*, intended to lift up the said weights. The latter consist of a series of rings each of the same weight, hollow, having conic sides upwardly directed toward an imaginary apex and capable of telescoping into each other. When at rest, all the said rings *h'* *h*² *h*³, &c., are supported one above another by the ledges or steps of a suitably-shaped cup *j*. The rings or weights are arranged eccentrically with respect to each other and to the normal position of the lifter *i*, so that each weight will be engaged centrally and evenly as the lifter swings outwardly in its upward movement, since the suspension-point *p* of the lifter-rod *g* moves in the arc of a circle the center of which is at the knife-edge *e*. One end of the beam *c* carries a light panel *k*, curved in the arc of a circle and the inscriptions on which can be seen from the outside through an opening or window *m* in the casing *n* of the apparatus.

The several parts of the apparatus are so weighted that when at rest and no letter or other matter being on the pan *a* the conic piece *i* will rest on the bottom of the cup *j* and exert on the same a downward pressure equal to the units-weight of the weights *h'* *h*²

h^3 , &c., or fifteen grams, for example. The panel k then shows at the opening m the figures "0.15" (fifteen centimes) and "0.25," (twenty-five centimes,) the respective postage rates for home and foreign letters up to fifteen grams in the countries forming the postal union. The said panel k is also provided with two columns of figures, "0.15," (fifteen centimes,) "0.30," (thirty centimes,) "0.45," (forty-five centimes,) &c., on the left and "0.25," (twenty-five centimes,) "0.50," (fifty centimes,) "0.75," (seventy-five centimes,) &c., on the right, corresponding to the rates of postage for letters up to fifteen grams, from fifteen to thirty grams, from thirty to forty-five grams, and so on, the rows of figures corresponding, respectively, to the different positions of equipoise the beam of the apparatus is capable of taking. When a charge or load under fifteen grams is put into the pan a , there is no oscillation of the beam c and the panel k shows the figures "0.15" (fifteen) centimes and "0.25," (twenty-five centimes.) For a load up to between fifteen and thirty grams the beam oscillates and the conic piece i being lifted up enters into the first hollow weight h' . As the two together cannot be lifted up by a load of less than $15 \times 2 = 30$ grams put into the scale a the result is that the oscillation of the beam ceases when the piece i comes against the weight h' , which it cannot lift up, and the panel k then shows at the opening m the figures "0.30" (thirty centimes) and "0.50," (fifty centimes.) For a load of sixty-two grams, for example, the piece i and the three rings h' h^2 h^3 , equal in all to a weight of $15 \times 4 = 60$ grams, will be thus successively lifted up one by another. Then under the effect of the two supplementary grams of the load to be weighed the four weights will be lifted up until they come in contact with the next ring h^4 above, without, however, being able to uplift the latter. The panel k will then show the corresponding rates of postage of "0.75" (seventy-five centimes) and "1.25," (one franc twenty-five centimes.)

The operation of the apparatus can be regulated to a nicety by means of the set-screws 5, placed under the casing n , and the small adjusting-weight o , movable in respect to the beam c .

The weight o may be fixed on the end of a screw-threaded rod z , screwing into a correspondingly threaded and split end of the beam c . Screws 1, passing through the said split end, allow of clamping the rod z in position when adjusted.

In order to prevent the rings h' h^2 h^3 , &c., from being withdrawn from the cup j , there may be fixed onto the latter by means of screws 2, one of which may be covered by a seal 3, a ring 4, having a central opening smaller than the outer diameter of the greatest of the said rings or weights.

The sensibility of the apparatus may be

rendered very great by means of a particular arrangement of the knife-edge suspending device shown in Fig. 4. The ends of a knife-edge piece p terminate in a point in line with the oscillating edge, and the said points are held laterally without any pressure by pieces q , fixed to the support or table u of the knife-edge piece. This mode of lateral guide-points gives much less friction than the flat guide-surfaces usually used.

In the above-described form of my invention the pitman d , combined in the form of a pivoted parallelogram with the beam c , the rod y , and the column v , has for its purpose to hold the rods b in a vertical direction. The same result may be obtained in any other suitable manner, and various modifications may be made without departing from the nature of my invention.

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

1. A scale comprising a beam provided with means for carrying the article to be weighed, a series of supported annular weights arranged eccentrically to each other and adapted to engage each other successively when lifted, and a lifter adapted to engage the lowermost weight and extending eccentrically through the annular weights said lifter being connected with the beam to rise therewith as the beam swings under the influence of the load.

2. A scale comprising a fulcrumed beam having at one side of its fulcrum means for carrying a load, a lifter pivotally suspended from the beam at the other side of its fulcrum, a support located adjacent to the lifter and provided, above the normal position of the same, with a stepped series of annular ledges arranged eccentrically with respect to the normal position of the lifter, a cover located at the top of said support and provided with an aperture through which passes the connection of the lifter with the beam, and annular weights resting on said ledges and constructed to be raised successively upon the rising of the lifter.

3. A scale comprising a beam provided with means for carrying the article to be weighed, a lifter arranged to rise with the beam as the latter swings under the influence of the load, and a series of supported annular weights disposed eccentrically with respect to each other and to the normal position of the lifter and adapted to be raised off their support successively by the rising of the lifter, said weights being tapered downwardly so that they will become nested as they rise.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEPH CHARLES DE JANISCH.

Witnesses:

CAMILLE BLÉTRY,
 EUGENE WATTU.