

No. 677,093.

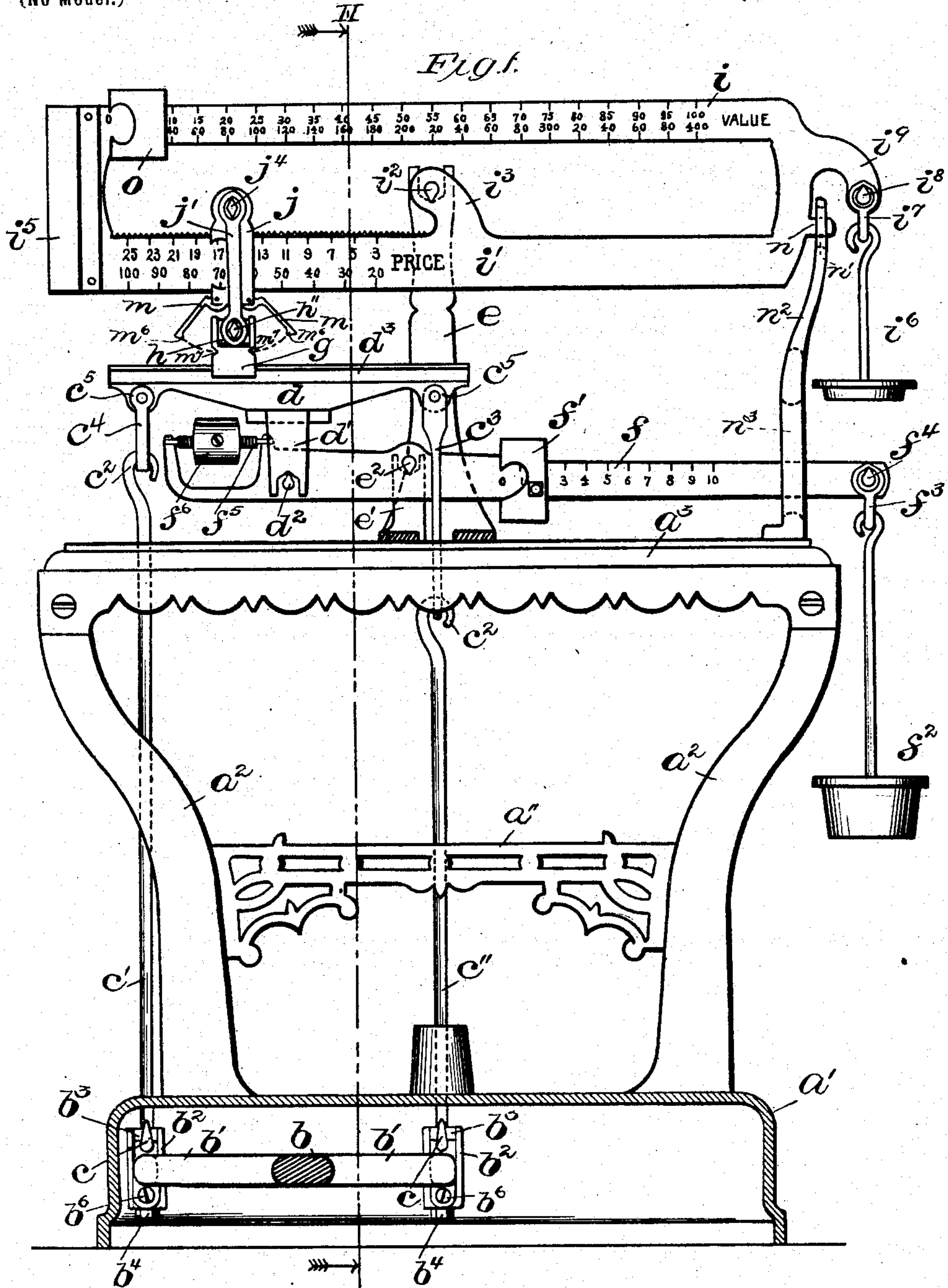
Patented June 25, 1901.

C. S. MORRIS.
COMPUTING SCALE.

(Application filed July 30, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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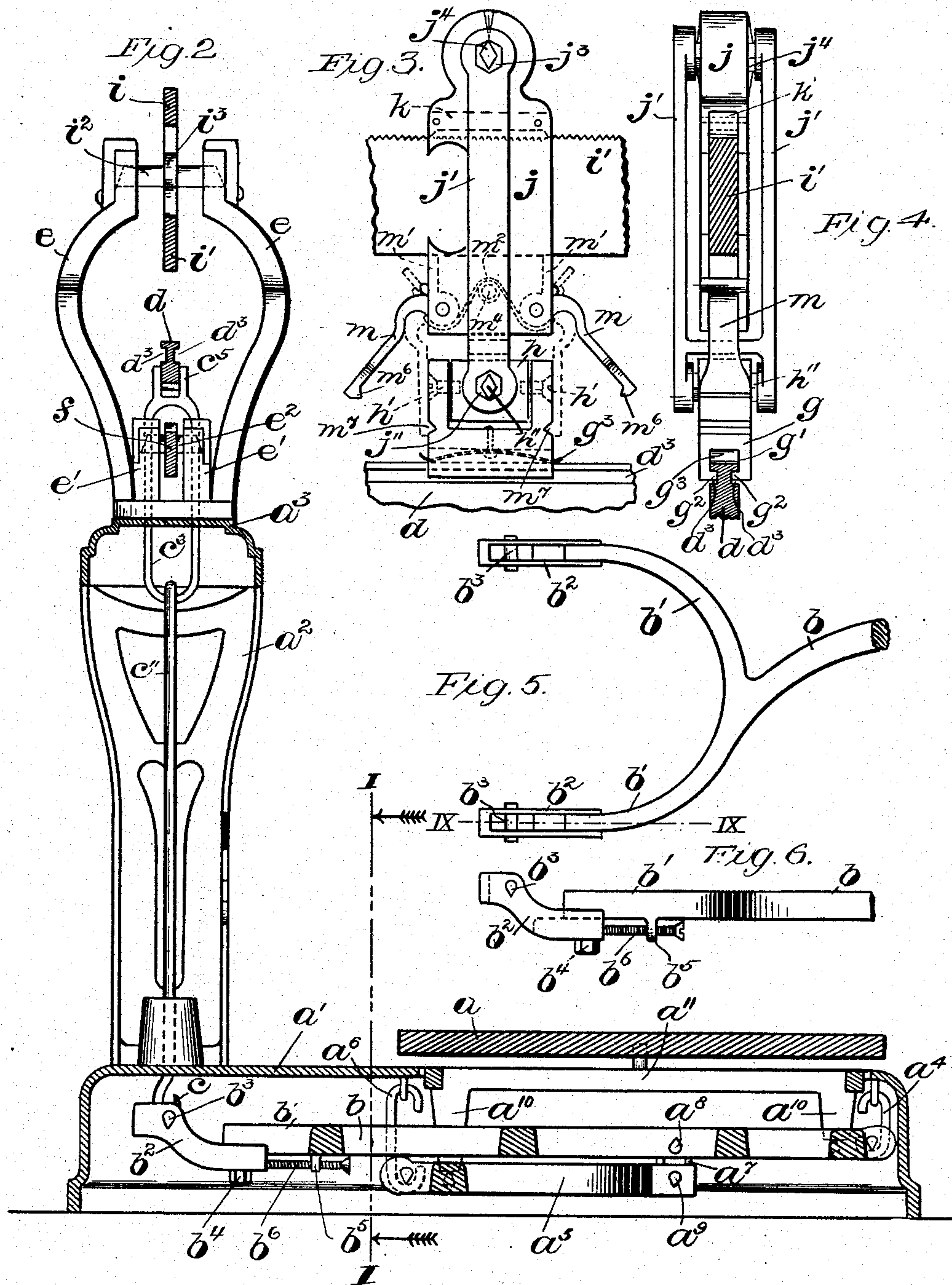
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4 Sheets—Sheet 2.



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Fig. 7.

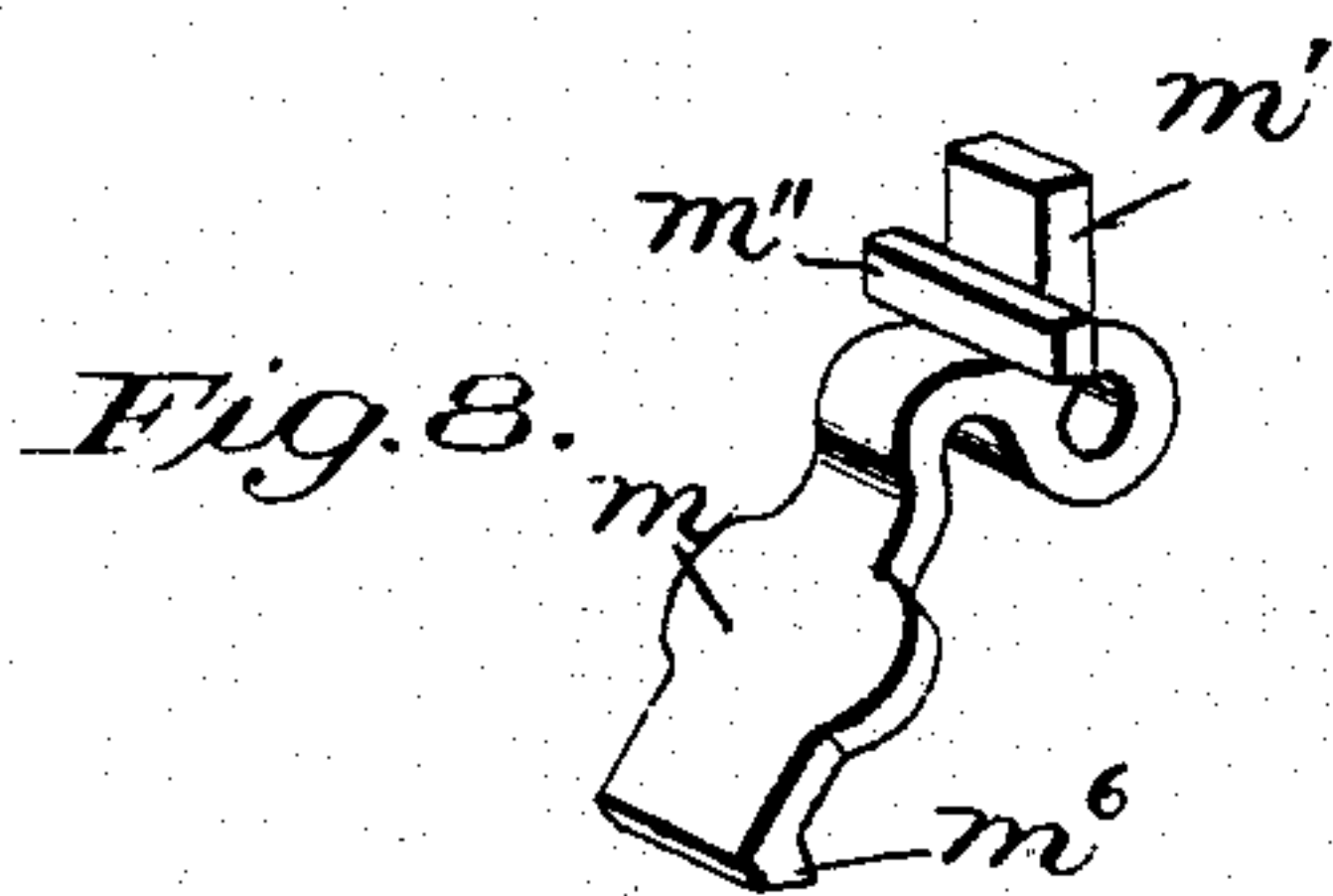
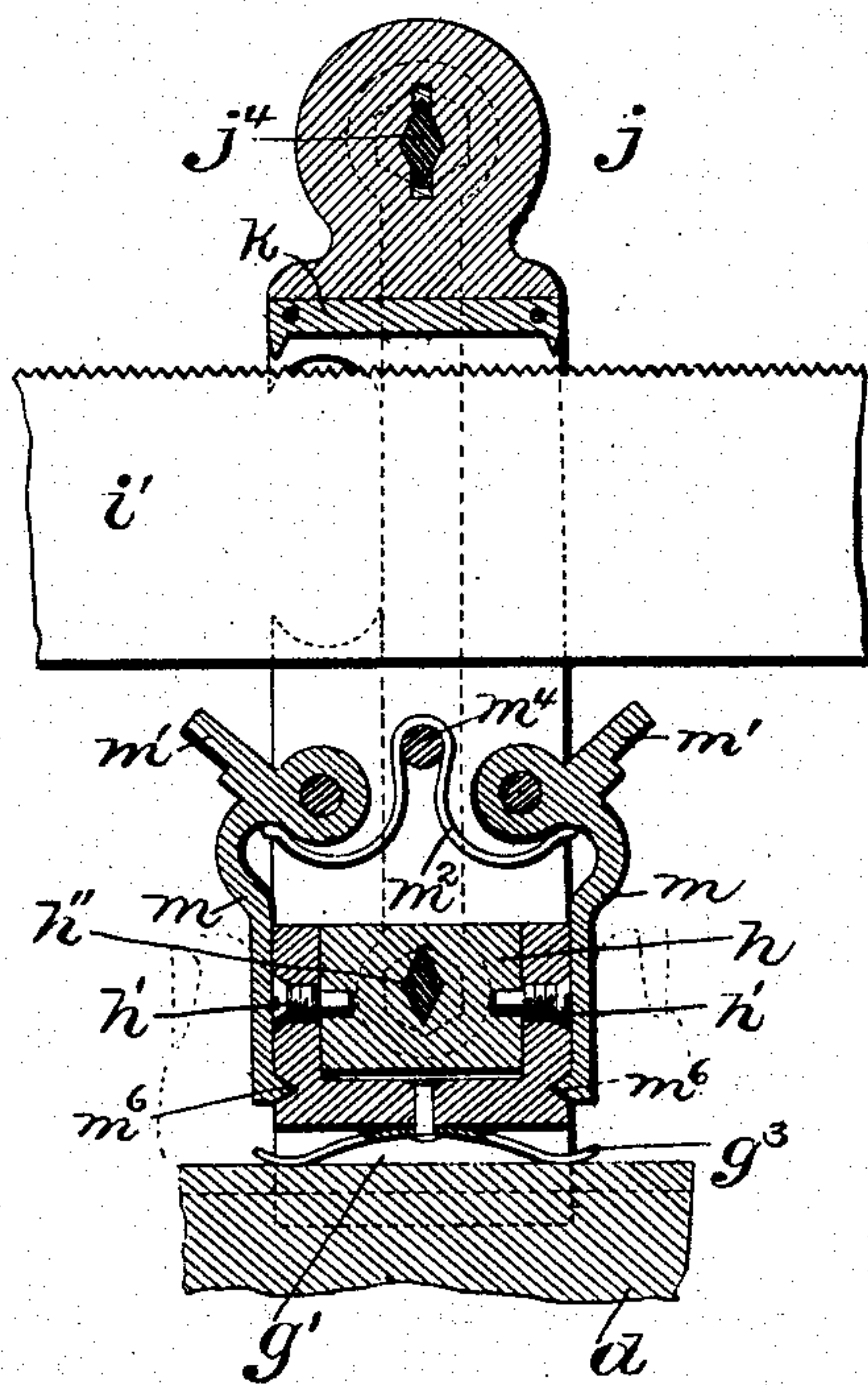
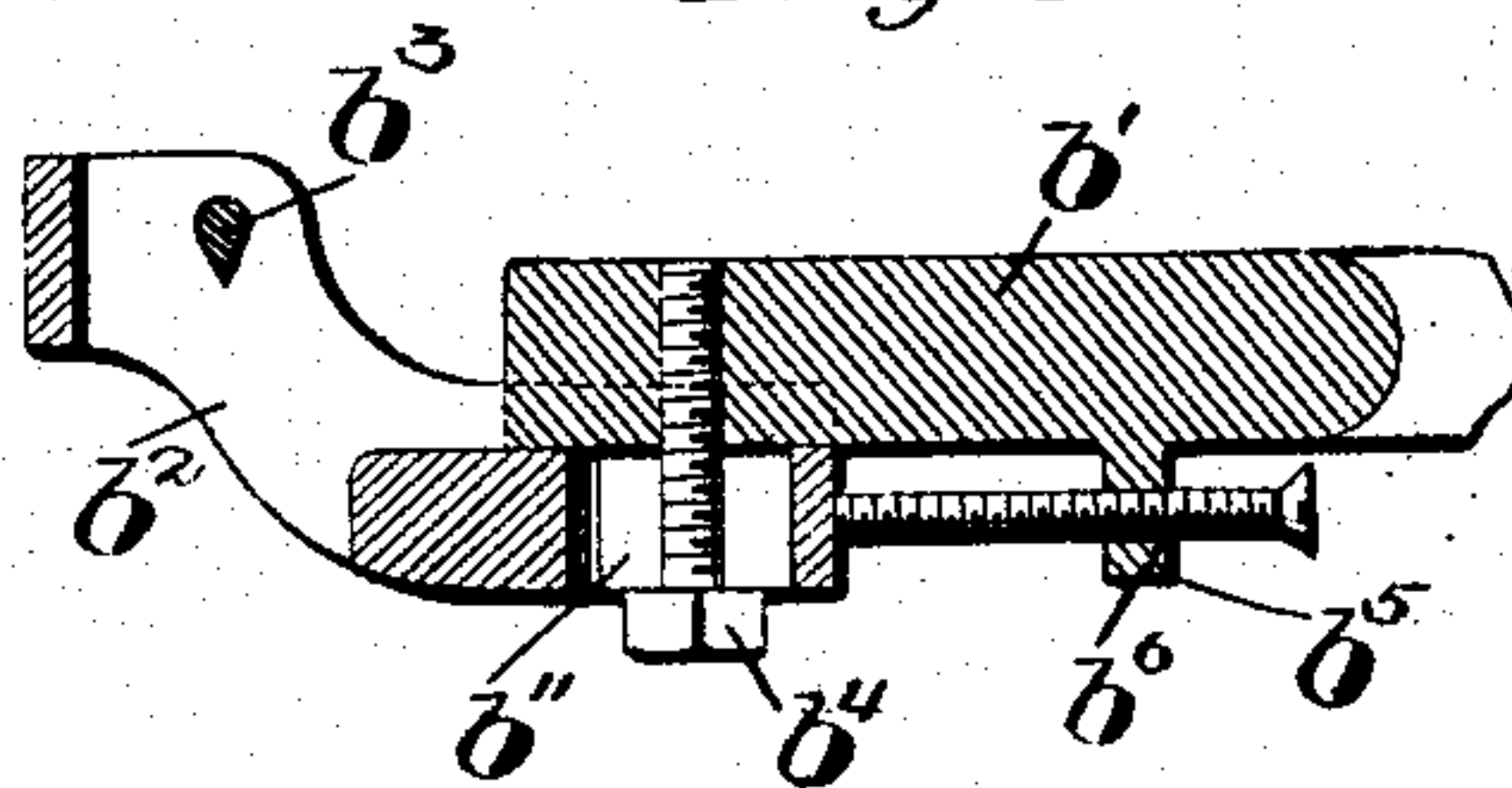


Fig. 9.



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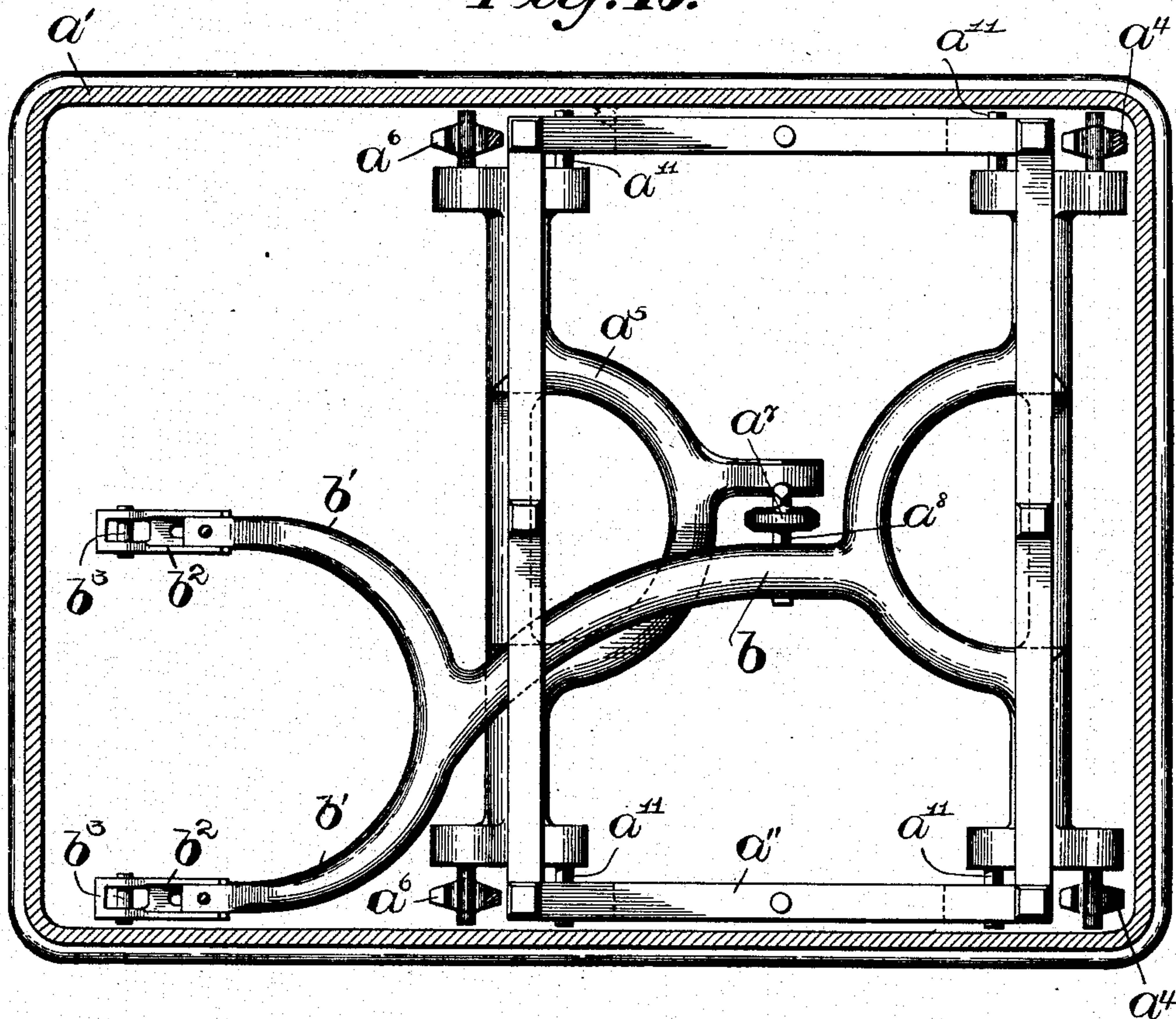
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(No Model.)

4 Sheets—Sheet 4.

Fig. 10.



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UNITED STATES PATENT OFFICE.

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COMPUTING-SCALE.

SPECIFICATION forming part of Letters Patent No. 677,093, dated June 25, 1901.

Application filed July 30, 1898. Serial No. 687,280. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS S. MORRIS, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Computing-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to computing-scales wherein provision is made for taking tare in the usual manner and at the same time ascertaining the value of a quantity of matter according to its selling price per pound, which does away with mental calculation and merely requires a preliminary adjustment according to the price per pound of the commodity. Computing-scales of this character are now on the market and have met with more or less favor, the principal drawback to their universal adoption being the high price demanded and due in a large measure to the complicated nature of the constructions employed, making the production of a complete machine rather expensive.

The principal object of my present invention is to simplify the construction of computing-scales to the greatest extent possible without detracting from efficient service, and my invention provides for constructing a complete machine of this character with a greatly-reduced number of parts as compared with prior machines, while at the same time the efficiency of the mechanism is not in the least impaired.

With the above objects in view the invention consists in a number of novel constructions and combinations of parts, the essential elements of which are recited in the appended claims and a preferred form of embodiment of which is illustrated in the accompanying drawings, forming part of this specification, and of which—

Figure 1 represents the upright portion of the machine in front elevation and the horizontal base portion in cross-section on the line I I of Fig. 2. Fig. 2 represents the machine in cross-section taken on the line II II of Fig. 1. Fig. 3 is a front elevation, on an enlarged scale, of certain slide-blocks and ap-

purtenances. Fig. 4 is an edge view of the same with certain coöperating parts in cross-section. Fig. 5 is a plan view of a portion of the main lever of the platform system, and Fig. 6 is a side elevation of the same. Fig. 7 represents in longitudinal section the parts appearing in side elevation in Fig. 3. Fig. 8 shows one of the clamping-levers in perspective. Fig. 9 is a section on line IX IX of Fig. 5. Fig. 10 is a top plan view of the platform-lever system.

I have shown the invention embodied in the well-known platform type of scales, and the letter *a* designates the platform, which is supported above a suitable hollow base *a'* by a system of levers in the usual manner, one of said levers, which is designated by the reference-letter *b*, having a rearwardly-projecting forked end portion, the arms *b'* of which carry at their extremities loops or nose-irons *b²*, having knife-edge pivot-pins *b³* for a purpose hereinafter explained. Said loops or nose-irons are formed to straddle the lower edges of the arms *b'*, and they are adjustably connected therewith by bolts *b⁴*, passing through slots *b''* in the webs of the loops, (see Fig. 9,) the position of the latter being determined by means of set-screws *b⁶*, which bear against the rear ends of the loops *b²* and work through lugs *b⁵* on the under side of the arms. The rear end of the lever *b* is suspended from the top of the hollow base *a'* by clevises *a⁴*, and a shorter lever *a⁵* is similarly suspended from the top of said hollow base, at its forward end, by clevises *a⁶*, the two levers being connected together by means of a link *a⁷*, embracing a knife-edged pin *a⁸*, projecting from an intermediate portion of the lever *b*, and a similar pin *a⁹*, projecting from the forward end of the lever *a⁵*. The platform-slab *a* is mounted upon a frame *a''*, having feet *a¹⁰*, which rest upon knife-edged pins *a¹¹*, projecting from the two levers. Aside from the formation and equipment of the lever *b* at its rear end the above-described platform system is well-known in the art. The knife-edge pivot-pins *b³* are engaged by the hooked lower ends *c* of the rods *c'* and *c''*, which extend through openings in the base *a'* and have hooks *c²* at their upper ends engaging oblong hangers or clevises *c³* *c⁴* with bifurcated upper ends *c⁵*, pivoted to lugs formed

on the under side of a bar d at opposite ends of the same.

Standards a^2 , rising from the base a' , support at their upper ends a horizontal shelf a^3 , through an opening in which the longer rod c' passes and through another opening in which the longer hanger c^3 passes. A bifurcated standard e rises from the said shelf at the middle of the same, being securely fastened thereto, and between the members of said standards posts e' are located, said posts being secured to the base of the standard and notched at their upper ends to accommodate a knife-edge pin e^2 , fastened in a tare-beam f , which is thus pivoted intermediate its ends, said tare-beam being inscribed in the usual manner to indicate pounds and fractions thereof and carrying an indicating slide block or poise f' . At its outer end this beam has suspended from it the usual hanging poise f^2 , the stem of which is formed into a hook at its upper end for engagement with a clevis f^3 , hanging upon a knife-edge pin f^4 , fastened in the beam, and the inner end of the beam has a U-shaped form, the arms of the U supporting a screw-threaded rod f^5 , on which a weight f^6 may be adjusted in a well-known manner for the purpose of balancing the machine.

The bar d , heretofore mentioned, has at its middle, on the under side, depending lugs d' , which are notched and rest upon the knife-edge pin d^2 , secured in the tare-beam f , and it will thus be seen that the tare-beam is so connected with the platform as to subserve its customary function of taking tare.

Proceeding now to the computing devices, the bar d is formed with a longitudinal groove d^3 in each side, and a slide-block g embraces a portion of said bar above the groove, said slide-block being recessed, as shown at g' in Fig. 4, and provided with flanges g^2 , which engage the grooves. A flat spring g^3 occupies the said recess, being affixed at its middle to the top thereof and bears at its ends against the bar d , so as to hold the flanges of the block against the upper sides of the grooves of the bar, and thus keep the parts in proper engagement, while permitting easy sliding of the block along the bar. The upper portion of the said block is transversely bifurcated and receives a square block h , which is held in place in the bifurcation of the first-named block by means of screws h' , entered through the latter and countersunk therein and engaging sockets in the block h .

The computing-beam comprises a value-bar i and a price-bar i' , with connecting cross-bars at the ends, and this beam is pivotally supported at its middle portion by the standard e , the upper ends of the members of which are notched to accommodate a knife-edge pivot-pin i^2 , fastened in an ear i^3 , rising from the price-bar i' . A slide block or poise j on the price-bar is connected by straps or links j' with the block h , heretofore mentioned,

the latter supporting a knife-edge pivot-pin h'' , whose end portions are diamond-shaped in cross-section and occupy hexagonal openings j'' in the said straps, which at their upper ends are provided with similar openings j^3 , receiving the diamond-shaped ends of a knife-edge pin j^4 , fastened in the upper portion of the slide-block j . The price-bar has the usual double row of numbers, indicating the prices per pound of various commodities, and the slide-block j has two indicating-points for registry with the marks on the price-bar with which said numbers are associated, the said slide-block being provided with a toothed piece k , fastened in a recess at its upper part and engaging the serrated edge of the price-bar. That portion of the slide-block j which depends below the price-bar is bifurcated, and the bosses of a pair of levers m occupy the bifurcation, said levers having upward-extending arms m' , which normally bear against the under edge of the price-bar, so as to hold the slide-block in place under stress of a double ogee spring m^2 , straddling a pin m^4 , which is fastened in the central portion of the depending part of the slide-block, the ends of the said spring being carried under the bosses of the levers and pressing against the latter on the outer sides of their pivots. The depending arms of the levers normally stand out from the slide-blocks, as shown in Fig. 1 and in full lines in Fig. 3, and these levers are formed with lugs m'' , which by abutting the edges of the block limit the outward movement of the levers, and are also formed at their lower ends on their inner sides with teeth m^6 , adapted to engage V-shaped notches m^7 in the opposite sides of the block g . The object of this arrangement is to provide for connecting the blocks j and g when the same are to be moved along the bars, and it will be seen that by pressing the levers m together by means of the thumb and forefinger not only are the blocks connected in an effective manner by reason of the engagement of the levers with the block g , but the arms m' of the levers are at the same time disengaged from the price-bar, and the two blocks can be easily slid along to any position desired, and when properly positioned the mere release of the levers m will cause the block j to be held in its proper position.

The computing-beam may be provided at one end with a casing i^5 for an adjusting-weight, and at the opposite end it may support the ordinary hanging poise or shot-box i^6 , the stem of which is hook-shaped at its upper end for engagement with a clevis i^7 , hanging on a knife-edge pin i^8 , secured in a gooseneck i^9 of the computing-beam. The latter is also formed with a projection n , occupying an opening n' in the upper end of a post n^2 , rising from the shelf a^3 and slotted at n^3 to accommodate the tare-beam. The usual slide block or poise o is mounted on the value-bar i and formed with two indicator-points, and

the bar is inscribed with the usual double row of numbers.

In operation the blocks g and j are moved along until one of the indicating-points on the block j registers with the mark at the number indicating the price per pound of the commodity being weighed. This adjustment of the blocks does not affect the poise of the machine; but the weight of the commodity on the platform of course has the effect of depressing the computing-beam on one side of its pivot. By moving the slide o along the value-bar the machine can be balanced, and a number associated with the mark registering with the indicating-point of the said slide o gives the value, it being understood, of course, that the value must be read from the row of figures corresponding with the row in which the number used on the price-bar is to be found.

Of course the operation can be differently pursued—as, for instance, by first setting the sliding poise o to register with the figure denoting the amount of money the purchaser desires to expend, and then the commodity can be supplied until a balance is had, the slide-block j having of course been previously set at the figure denoting the price per pound of the commodity.

It is to be noted that in manipulating the machine it is not necessary to move a weighty carriage, as in some of the machines heretofore devised; but the adjustment is effected by simply moving a pair of slide-blocks, the connection between the same being such as to facilitate their ready manipulation, as will be apparent. At the same time upon the release of the levers which connect the two blocks together while they are moved the pivotal bearings between these blocks afforded by the screws h' and knife-edge pins h'' and j^4 permit a ready self-adjustment in the connections, so as not to affect the poise of the machine, and the diamond form of the pivot-pins provides for a knife-edge bearing under either upward or downward stress imposed upon them in the balancing of the machine.

The mode of connecting the bar d and the platform system is extremely simple, while at the same time, by reason of the double set of connections and the corresponding form of the main lever of the platform system, adjustment of the connected slides is permitted without affecting the normal poise of the machine. It may be well to explain in this connection that when the machine is in normal condition the gravitating force of the hanging poise or shot-box f^2 on the tare-beam is sufficient to cause the upper edge of the pin h'' to bear upwardly against the walls of the openings j'' , and consequently to press the straps j' upwardly, so that the walls of their openings j^3 bear against the lower edge of the pin j^4 . Therefore adjustment of the blocks j and g has no effect to disturb the poise of the computing-beam, as normally these blocks

impose no weight upon the same. Neither does a change of position of the said blocks affect the poise of the tare-beam, for the bifurcated form of the main lever and the duplex connections between the same and bar d preserve the balance whatever the location of the slides. To make this perfectly clear, it may be explained that in setting up the machine and adjusting it the computing-beam is hung in the standard and its shot-box supplied until a balance is effected, and then the slide-block j is put on and coupled up to the other parts of the scale, after which the tare-beam shot-box is supplied until a balance of both beams is established and necessarily the computing-beam is relieved of the weight of the block j .

In weighing beyond the capacity of the computing or tare beams slotted weights will be employed in the usual manner on the hanging poises, and when not in use these slotted weights can be conveniently held on a bracket a'' , supported at a suitable elevation between the standards a^2 .

The general arrangement of parts is somewhat similar to that shown in a companion application filed by me April 23, 1898, Serial No. 678,648; but I have displaced the arrangement of equalizing-levers there shown as intervening between the bar and the platform system, and the greater simplicity of the present form is apparent. Other marked differences between the present construction and that shown in said application will be seen upon a comparison of the two.

While the form of embodiment of the invention here shown and described is admirably adapted to fulfil the objects primarily set forth, yet it is equally apparent that changes may be made without departing from the spirit and scope of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In platform computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar, a member of the platform-supporting system having a horizontally-bifurcated portion extending under the said horizontal bar, and couplings extending between the ends of the bifurcation and the ends of the horizontal bar respectively and pivotally connected with such parts, provisions existing tending to constrain the movement of the horizontal bar to a vertical plane.

2. In platform computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar,

a lever of the platform-supporting system having a horizontally-bifurcated portion extending under the said horizontal bar, and jointed couplings extending between the ends of the bifurcation and the ends of the horizontal bar respectively and pivotally connected with such parts, provisions existing tending to constrain the movement of the horizontal bar to a vertical plane.

3. In platform computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar, a lever of the platform-supporting system having a horizontally-bifurcated portion extending under the said horizontal bar, and jointed couplings extending between the ends of the bifurcation and the ends of the horizontal bar respectively and each set of jointed couplings being pivotally connected to both of the said parts with the axes of the pivotal connections at right angles to each other, together with a tare-beam pivoted to a stationary support and engaged with the central portion of the horizontal bar, provisions existing tending to constrain the movement of the horizontal bar to a vertical plane.

4. In platform computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar, clevises pivotally suspended from the horizontal bar, a lever of the platform-supporting system having a horizontally-bifurcated portion extending under said horizontal bar, and rods coupled to the clevises respectively and pivotally connected with the ends of the bifurcation, substantially as described, together with a tare-beam pivoted to a stationary support and engaged with the central portion of the horizontal bar, provisions existing tending to constrain the movement of the horizontal bar to a vertical plane.

5. In platform computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar, a member of the platform-supporting system having a horizontally-bifurcated portion extending under the said horizontal bar, and couplings extending between the ends of the bifurcation and the ends of the horizontal bar respectively and pivotally connected with such parts, together with a tare-beam engaged with the central portion of the horizontal bar and affording means for balancing the platform independently of the computing-beam.

6. In computing-scales, the combination of a computing-beam having value and price bars, a horizontal bar extending longitudinally below the price-bar, slide-blocks on the latter and the said horizontal bar and each having a pivot-pin projecting from opposite sides and formed with upper and lower knife-edges, links having openings at their upper and lower ends receiving said pins, and suitable connections between the horizontal bar and the platform or holder of the scales.

7. In computing-scales, the combination of a computing-beam having value and price bars with connecting slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar, a vertically-disposed angular lever pivoted to the price-bar slide-block, a spring acting against said lever to press one arm thereof against the price-bar and hold the other arm away from the slide-block on the horizontal bar, said angular lever being manipulative to disengage its upper arm from the price-bar and engage its lower arm with the slide-block on the horizontal bar and the latter slide-block and said lower arm of the lever having interlocking formations, suitable couplings between the horizontal bar and the platform or holder of the scales.

8. In computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar and having notches in opposite sides, spring-actuated levers on the slide-block of the price-bar having arms normally engaging the latter and teeth adapted to engage the notches in the slide-block on the horizontal bar, when said levers are moved in opposition to the spring, and couplings between the horizontal bar and the platform or holder of the scales.

9. In computing-scales, the combination of a computing-beam having value and price bars with indicating slide-blocks thereon, a horizontal bar extending longitudinally below the price-bar of the computing-beam, a slide-block on said horizontal bar coupled with the slide-block on the price-bar, spring-actuated levers on the slide-block of the price-bar having arms to engage the latter and lugs to abut the block and limit the movement of the levers, the latter and the slide-block of the horizontal bar adapted for engagement, and couplings between the horizontal bar and the platform or holder of the scales.

In testimony whereof I affix my signature in presence of two witnesses.

CORNELIUS S. MORRIS.

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