(No Model.)

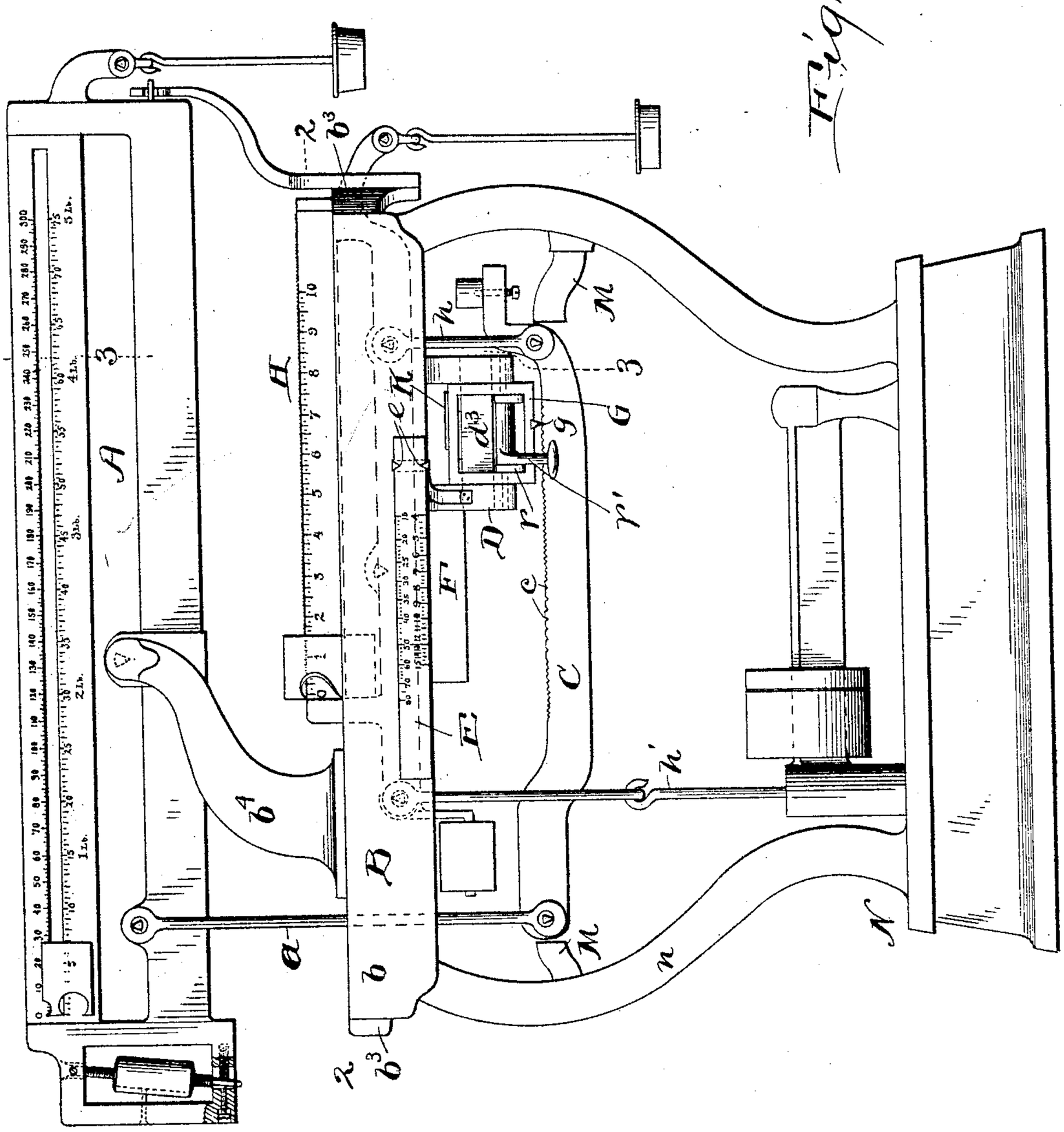
2 Sheets—Sheet 1.

# J. H. SWIHART.

## COMPUTING SCALE.

No. 578,784. Patented Mar. 16, 1897.

Fig. 1.




Witnesses:
E. B. Gilchrist
M. B. Thurston

Inventor:
John Henry Swihart
By E. L. Thurston
his atty.

(No Model.) 2 Sheets—Sheet 2.

# J. H. SWIHART.

## COMPUTING SCALE.

No. 578,784. Patented Mar. 16, 1897.

Fig. 2.

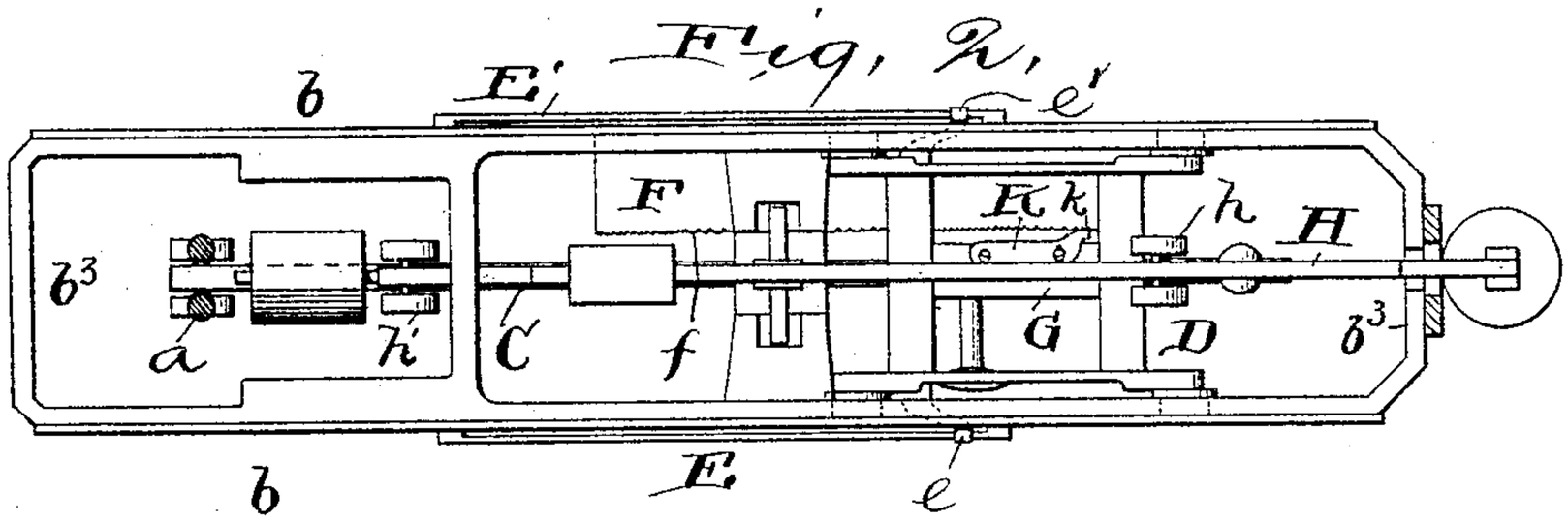



Fig. 3.

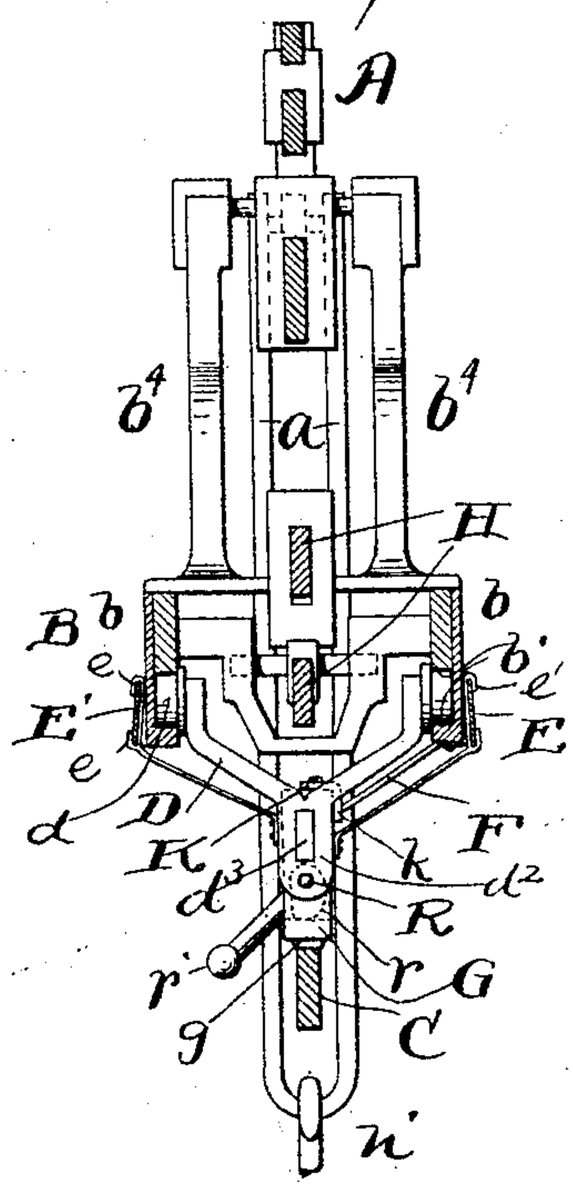



Fig. 4.

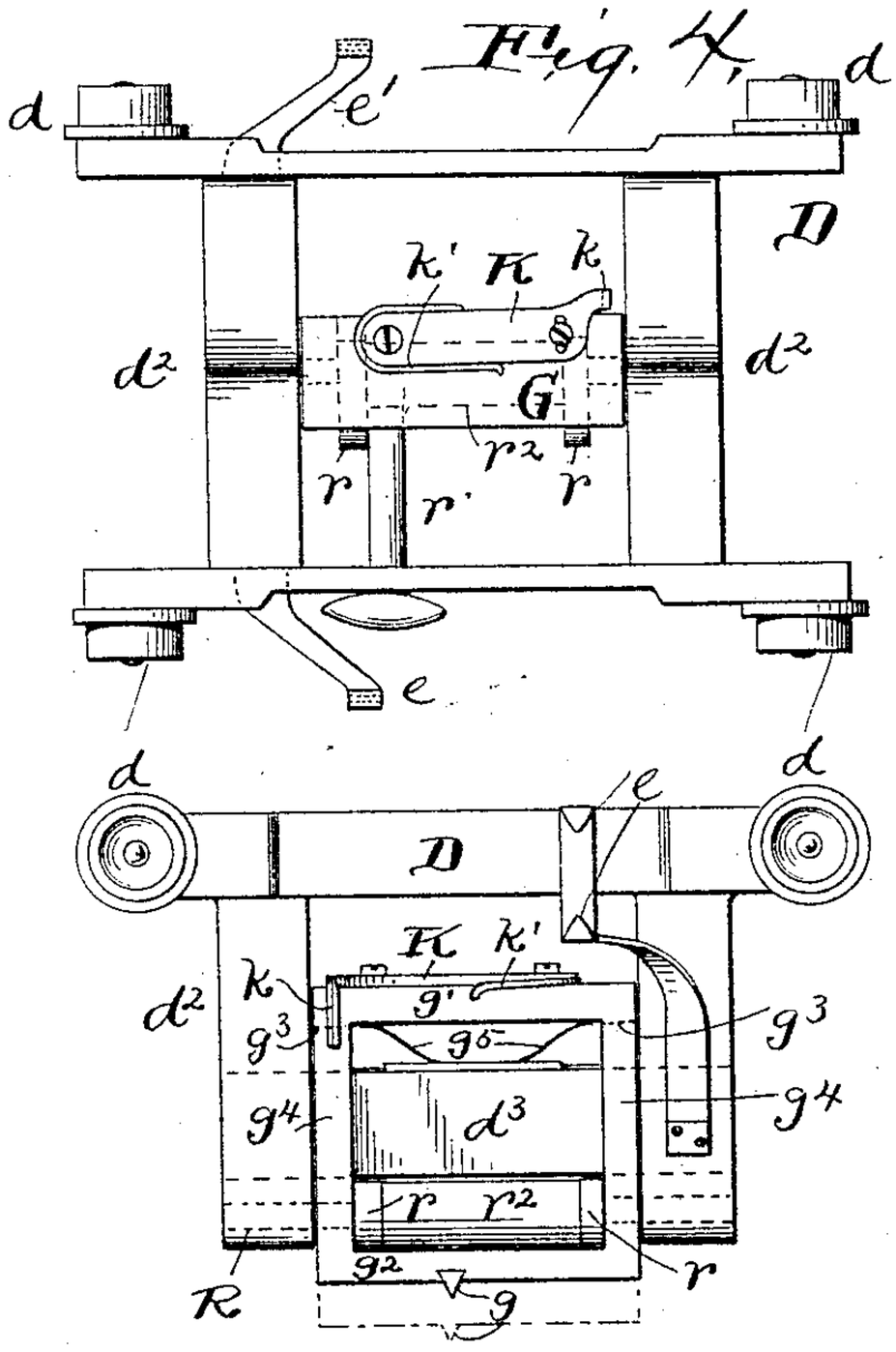



Fig. 5.

Witnesses.
E. B. Gilchrist
M. B. Thurston

Inventor,
John Henry Swihart
By E. L. Thurston
his atty.

# UNITED STATES PATENT OFFICE.

JOHN HENRY SWIHART, OF CLEVELAND, OHIO.

## COMPUTING-SCALE.

SPECIFICATION forming part of Letters Patent No. 578,784, dated March 16, 1897.

Application filed November 24, 1896. Serial No. 613,339. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN HENRY SWIHART, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, 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.

My invention relates to certain improvements in the class of computing-scales which includes the scale shown and described in my prior application, Serial No. 545,186, filed April 10, 1895.

The principal objects of the present invention are to facilitate the movement of the movable fulcrum in a path parallel with the rate-beam, to insure the accurate engagement of the fulcrum with any desired part of said rate-beam, and to prevent the accidental disengagement of the fulcrum and rate-beam, and to effect these results easily and quickly without in any wise impairing the efficiency of the scale.

The invention consists in the construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of a scale which contains my invention. Fig. 2 is a sectional plan view on line 2 2 of Fig. 1, the beam being in part removed. Fig. 3 is a vertical sectional view on line 3 3 of Fig. 1. Fig. 4 is a plan view of the fulcrum-carriage. Fig. 5 is a rear view of said carriage.

The scale, as shown, contains a value-beam A, (which may also be used as a weight-beam,) fulcrumed on the standards $b^4$, which are secured on the upper horizontal frame member B, a beam H, which is fulcrumed to said frame member and is connected by means of the connecting-rod $h'$ with the platform-levers, (not shown,) and a horizontal rate-beam C, which is suspended at its ends, respectively, from the freely-swinging links $a$ and $h$, of which the former is hung on the beam A and the latter on the beam H. The upper edge of the rate-beam C is provided with properly-spaced notches $c$, in any of which the lower sharpened edge $g$ of the fulcrum-block G may engage. The fulcrum-block is vertically movable into and out of engagement with the rate-beam, and it is supported by a carriage D, which is movable in a path parallel with the rate-beam. In these general features of construction the scale shown in the drawings is substantially like the scale shown in said prior application. The present invention does not reside in these general features of construction, wherefore in respect to these parts the scale may be changed and varied without avoiding the invention as herein claimed.

The frame member B, in the form shown, consists of parallel front and back bars $b\ b$ and the end pieces $b^3\ b^3$, which connect them. This frame member is rigidly secured to the standards $n\ n$, which rise with the base N.

The carriage D is mounted on four wheels $d$. These wheels enter and operate in the horizontal grooves $b'\ b'$, which are formed in the inner faces of the bars $b\ b$. The end pieces $d^2$ of said carriage extend downward, and they support the rectangular bar $d^3$, which extends between them. The fulcrum-block G, which is made in the form of a rectangular frame, (with horizontal top and bottom members $g'$ $g^2$ and vertical end members $g^4$,) is provided with a rectangular slot $g^3$, passing through the said end members. The rectangular bar $d^3$, which is narrower (measured from top to bottom) than said slot, passes through the slot, whereby the vertical movement of the fulcrum-block is permitted and guided. The fulcrum-block is moved up by a spring $g^5$, compressed between its top member $g'$ and the rectangular bar $d^3$, and it is moved down by means of cams $r$, secured on a shaft R, so that they may engage with the bottom member $g^2$ of the fulcrum-block. The shaft R is journaled in the end pieces $d^2$ of the carriage, and it is rocked by means of a handle $r'$, which is secured to a sleeve $r^2$, operatively connected with the shaft. On the lower edge of the fulcrum-block is a depending sharp-edged fulcrum $g$, which is adapted to engage in any of the notches in the rate-beam.

F represents a rate-bar having in its edge notches $f$, which are spaced like the notches $c$ in the rate-beam. This bar is rigidly connected with some part of the scale-frame, as, for example, the rear bar $b$. The lower part of this bar is approximately horizontal, wherefore the notches $f$ in its edge are approxi-

mately vertical. Secured to the fulcrum-block is a finger K, which as said block is moved downward is caused to engage with the notched edge of said bar F. This finger is in the form shown the downwardly-turned end of a bar *k*, which is pivoted on the top of the fulcrum-block and is constantly pressed toward said notched edge of bar F by a spring *k'*. Although the notched edge of the bar F is, as stated, approximately horizontal, the inner face of the bar, close to the edge, is inclined, as shown in Fig. 3, wherefore as the finger K is moved down with the fulcrum-block it first engages with said inclined surface, whereby it is forced forward against its spring until it may enter one of the notches *f*. Then the spring *k'* holds it firmly in said notch.

A rate-plate E is fixed to the front side of the front bar *b*, where it is plainly visible. It is graduated and marked to indicate different rates per pound, the spacing of the graduations being the same as the spacing of the notches on the rate-beam C and the rate-bar F. A pointer *e* is rigidly fastened to the carriage, and its pointed end is extended in front of said rate-bar and moves along said rate-bar when the carriage is moved. A similar rate-plate E' may be fixed to the rear bar *b*, and a similar pointer *e'* may be secured to the carriage and extended into proximity to said rate-plate.

M M represent two fixed stops placed close to the ends of the rate-beam. These stops are so close that they do not permit the rate-beam to move longitudinally the distance between any two notches in said beam, but they are nevertheless far enough away from said rate-beam that they do not interfere with its operation when the fulcrum *g* is in engagement with it.

The manner in which the described mechanism operates is as follows: The fulcrum-block being raised, the carriage is moved to the right or left until the pointer *e* reaches the point on the rate-plate E which indicates the desired rate per pound. The movement of the carriage is easy, and in its movement the wheels of the carriage ride upon the lower walls of the grooves *b'*. The fulcrum-block is then moved down. Before the fulcrum *g* engages with the rate-beam the finger K engages in the proper notch *f* in the bar F. This prevents the movement of the carriage to the right or left and holds it in such position that when the fulcrum-block is moved still farther down the fulcrum *g* will surely enter the corresponding notch in the beam C. The said beam C is now prevented from moving longitudinally out of the proper position to permit the engagement of said fulcrum with the proper notch by the stops M M. When the scale is loaded, the beam C presses the carriage D upward, wherefore the wheels bear against the upper walls of the grooves *b'*. The proper engagement of the fulcrum *g* and beam C once effected cannot be disturbed by shaking the scale or by suddenly throwing material onto or taking it from the scale-platform, or in any other manner, because the carriage is held by the engagement of finger K with the notched bar F, and an endwise movement of the beam C sufficient to shift the point of engagement from one notch to another is prevented by the fixed stops M M.

Having described my invention, I claim—

1. In a computing-scale, the combination of a fixed frame member having parallel front and back plates, with a fulcrum-carriage movable upon said plates, a movable fulcrum-block mounted on said carriage, and a rate-beam below said fulcrum-block, substantially as and for the purpose specified.

2. In a computing-scale, the combination of a fixed frame member having parallel front and back plates, which plates are grooved horizontally upon their inner faces, with a fulcrum-carriage which slides in said grooves, a vertically-movable fulcrum-block mounted on said carriage, and a rate-beam below said fulcrum-block having a notched upper edge, substantially as and for the purpose specified.

3. In a computing-scale, the combination of a fixed frame member having parallel front and back plates, which plates are grooved horizontally upon their inner faces, with a fulcrum-carriage having wheels which enter said grooves, a vertically-movable fulcrum-block mounted upon said carriage, and a notched rate-beam below said fulcrum-block and adapted to be engaged by it when it is moved down, substantially as and for the purpose specified.

4. In a computing-scale, the combination of a horizontally-movable carriage having two end pieces, and a rectangular bar connecting them, with a fulcrum-block lying between said end pieces and vertically movable upon said rectangular bar, horizontal guides for said carriage, and mechanism for moving said fulcrum-block up and down, with a notched rate-beam into and out of engagement with which the fulcrum-block is carried by its vertical movement, substantially as and for the purpose specified.

5. In a computing-scale, the combination of a graduated rate-beam, a movable fulcrum-carriage, a fulcrum mounted upon said carriage and movable into and out of engagement with said rate-beam, a stationary rate-plate graduated to correspond with the rate-beam, and a pointer secured to the fulcrum-carriage and movable in a path adjacent to said rate-plate, substantially as and for the purpose specified.

6. In a computing-scale, the combination of a notched rate-beam, a horizontally-movable fulcrum-carriage above said rate-beam, a vertically-movable fulcrum mounted on said carriage, and mechanism for moving said fulcrum up and down, with a stationary graduated rate-plate, and a pointer secured to the fulcrum-carriage and movable in a path adjacent to said graduated rate-plate, substantially as and for the purpose specified.

7. In a computing-scale, the combination of a notched rate-beam and a correspondingly-notched stationary rate-bar, with a carriage movable upon a fixed horizontal support, and a vertically-movable fulcrum-block mounted on said carriage, having a finger which will engage with the notched rate-bar, and a sharp-edged fulcrum which will engage with the rate-beam when the fulcrum-block is moved toward said rate-beam, substantially as and for the purpose specified.

8. In a computing-scale, the combination of a notched rate-beam and a correspondingly-notched stationary rate-bar, with a carriage movable upon a fixed horizontal support, a vertically-movable fulcrum-block mounted upon said carriage and adapted to be moved into and out of contact with the notched edge of the rate-beam, a spring-actuated bar mounted on said fulcrum-block having a finger which will engage with said stationary notched bar, substantially as and for the purpose specified.

9. In a computing-scale, the combination of a notched rate-beam suspended at its ends on two freely-swinging links, immovable stops placed close to the respective ends of said rate-beam whereby a slight but limited longitudinal movement of the rate-beam is permissible, and a fulcrum movable in a path parallel to the rate-beam and also movable into and out of engagement therewith, substantially as and for the purpose specified.

10. In a computing-scale, the combination of a notched rate-beam suspended at its ends on two freely-swinging links, immovable stops placed close to the respective ends of said rate-beam whereby a slight but limited longitudinal movement of said rate-beam is permissible, and a fulcrum movable horizontally and vertically into and out of engagement with said rate-beam, substantially as and for the purpose specified.

11. In a computing-scale, the combination of a horizontal notched rate-beam suspended at its ends on two freely-swinging links and two immovable stops placed close to the ends of said rate-beam, whereby a slight but limited movement of said rate-beam is permissible, with a horizontally-movable fulcrum-carriage, a vertically-movable fulcrum-block mounted on said carriage, a finger carried by said fulcrum-block, and a fixed notched bar with which said finger will engage, substantially as and for the purpose specified.

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

JOHN HENRY SWIHART.

Witnesses:
E. L. THURSTON,
E. B. GILCHRIST.