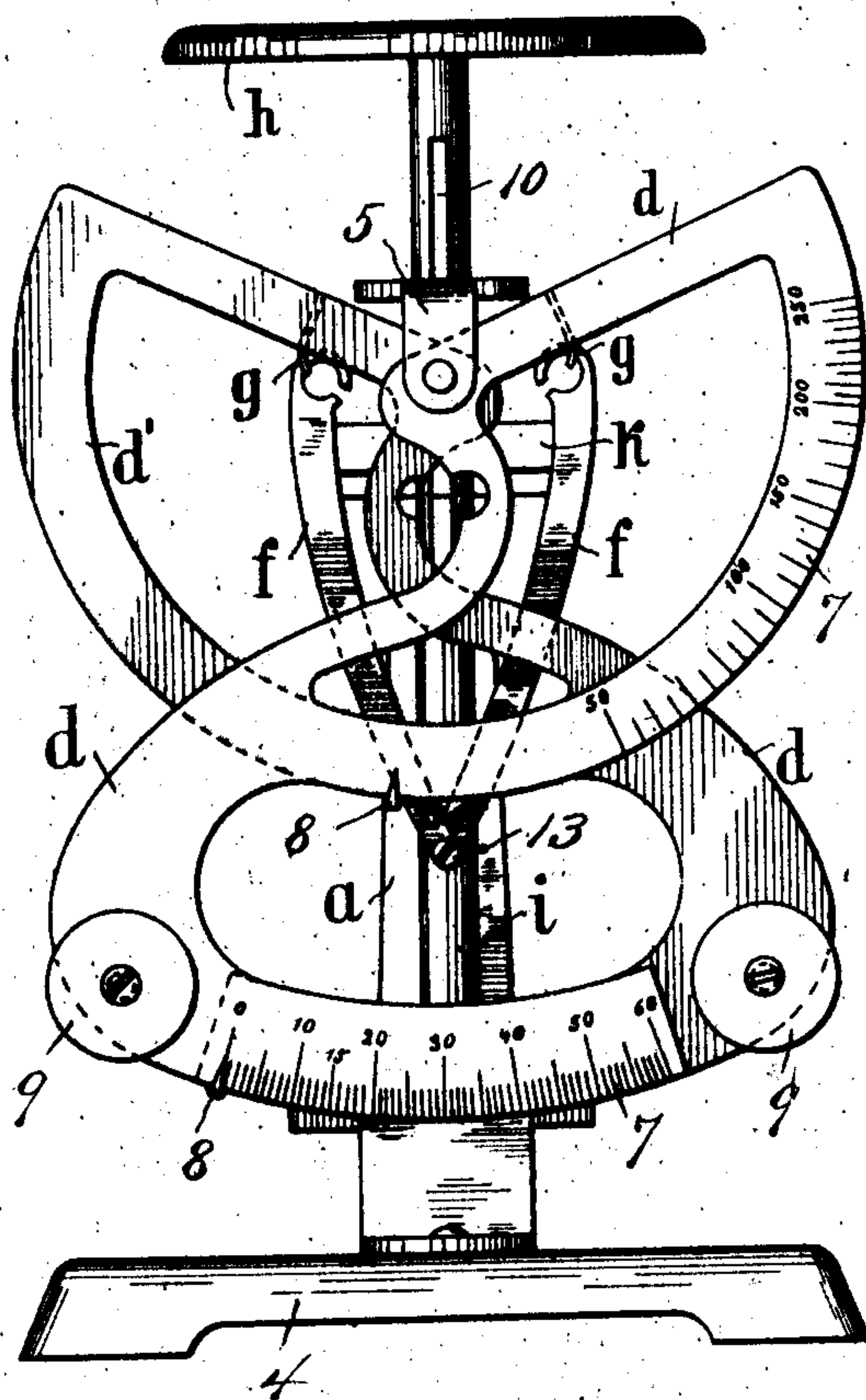


**No. 815,414.**

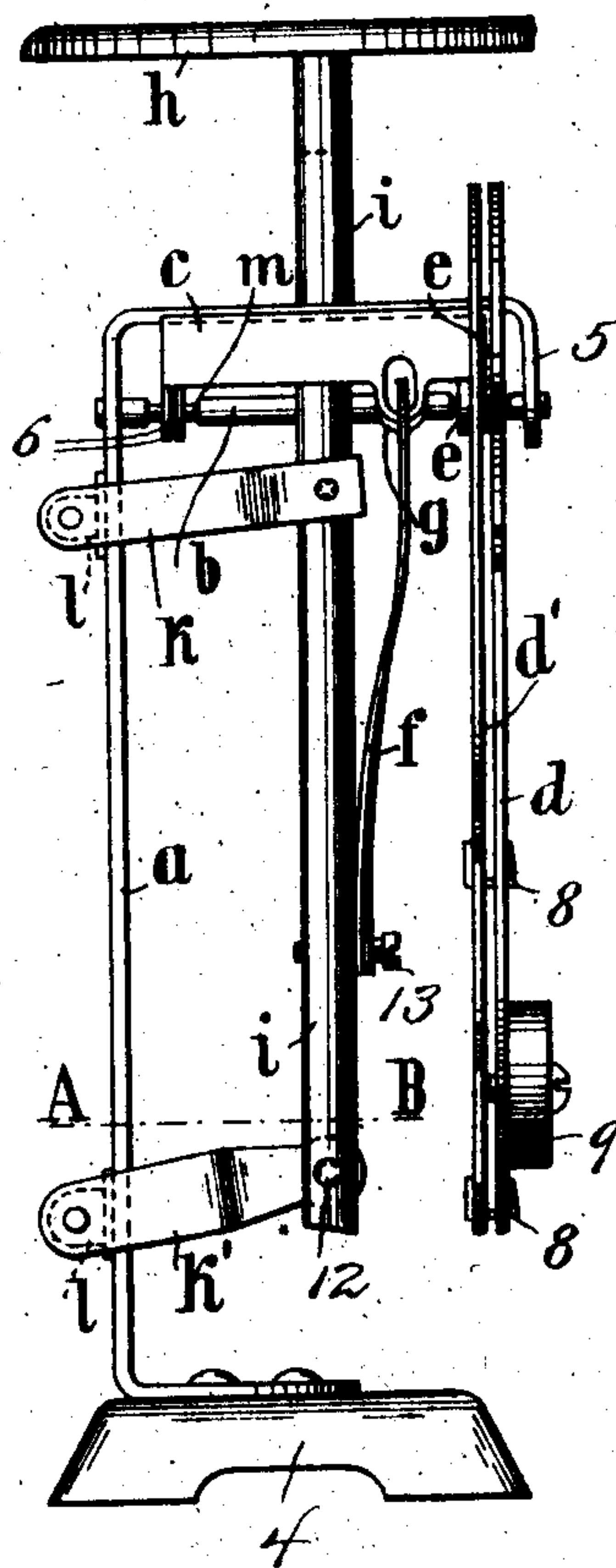
PATENTED MAR. 20, 1906.

**P. FROST.**  
**WEIGHING SCALE.**  
**APPLICATION FILED AUG. 7, 1906.**

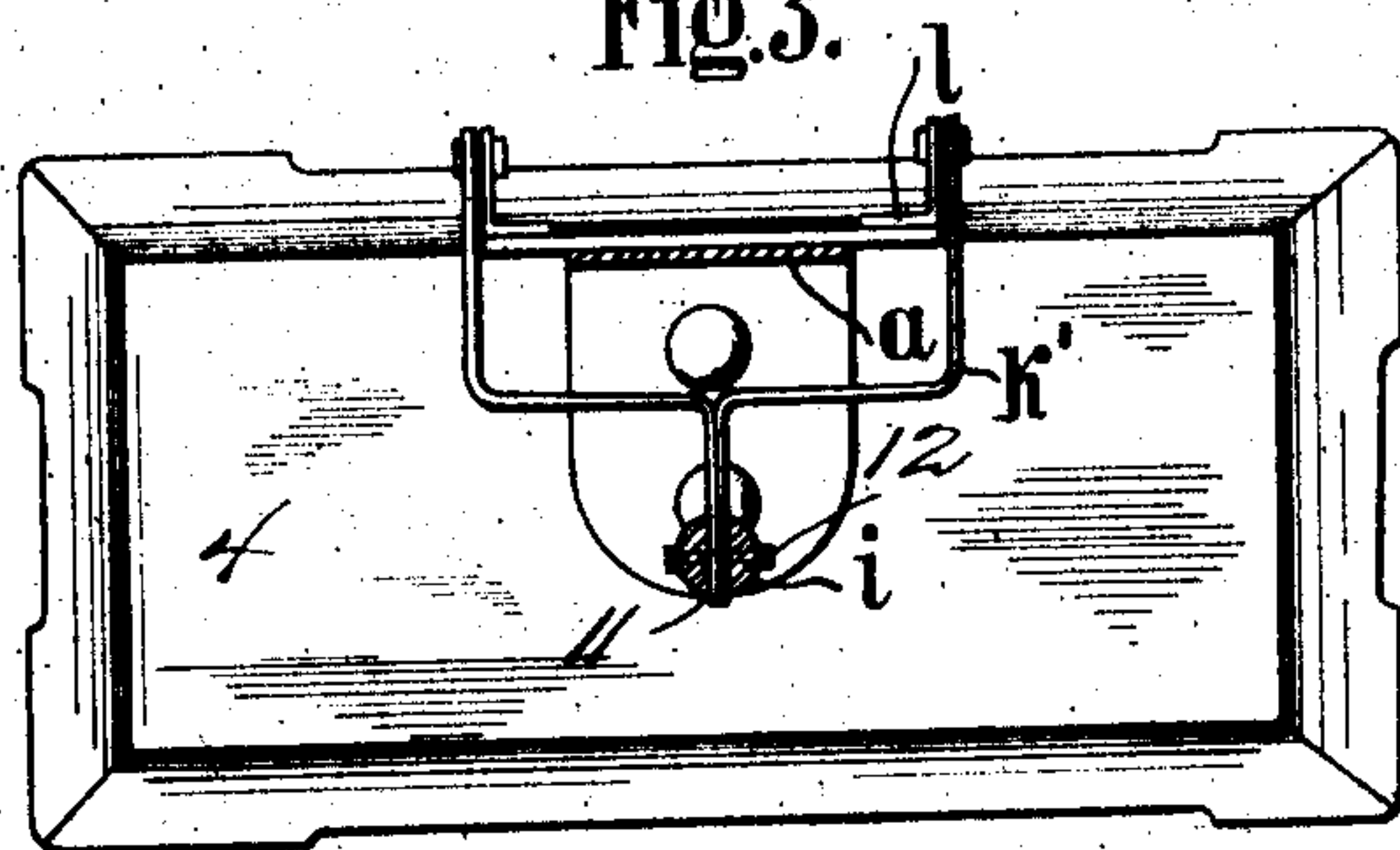
**Fig.1.**



**Fig.2.**



**Fig.3.**



Witnesses.

H. L. Amer.

B. Kommer

*Inventor:*

Paul Frost.

by Henry Orth *att.*



# UNITED STATES PATENT OFFICE.

PAUL FROST, OF BERLIN, GERMANY.

## WEIGHING-SCALE.

Nb. 815,414.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed August 7, 1905. Serial No. 273,120.

*To all whom it may concern:*

Be it known that I, PAUL FROST, a subject of the King of Prussia, German Emperor, residing at Berlin, Germany, have invented certain new and useful Improvements in Weighing-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, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to weighing-scales, and has for its object to simplify the structure and to increase their accuracy and stability, as will hereinafter be described and their structure particularly claimed.

Referring to the drawings, in which like parts are similarly designated, Figure 1 is an elevation, Fig. 2 a side view, and Fig. 3 a section on line A B of Fig. 2, of one form of weighing-scales embodying my invention.

The frame consists of a base 4, having secured thereto a standard *a* for the support of the moving parts. This standard is bent, as shown in Fig. 2, to have a free depending end 5 parallel with the body of the standard. In the depending portion 5 and the body of the standard *a* is fixed the pivot-pin *b*, having reduced portions or knife-edges *m*, as the case may be. Yokes *c*, through whose ears 6 pass the pivot-pin *b*, bear on the reduced portions or knife-edges *m* and are rigidly secured to the scale-arms *d d'*, said scale-arms being levers of substantially Z shape, the one *d* carrying the graduated scales 7 and the other *d'* the pointers or index-bands 8. Both of these lever-arms may or may not be provided with detachable weights 9.

The scale-pan *h* is mounted on the vertically-movable post *i*, that has a central longitudinal slot 10, through which the pivot-pin *b* passes, so that the axis of the post *i*—*i. e.*, the line of weight—passes through the axis of the pivotal support *b*.

In order that the post *i* will move vertically, there are provided on the standard *a* ears *l* near the top and bottom, which may or may not be integral with the standard *a*. To the upper ears *l* are pivoted arms *k*, whose outer ends are pivoted to the post *i*, and to the lower ears *l* are pivoted similar arms *k'*, whose free ends enter a slot 11 in the lower part of post and are held in place by pivot-pin 12. The effective length—that is, the

distance between the centers of the pivots at their opposite ends—is substantially the same, thereby forming a parallel motion.

On the yokes *c* are formed perforated ears *g*, in which engage the hook ends of links *f*, whose lower ends are pivoted on a pin 13, common to both of them and fixed in the post *i*.

Articles to be weighed are placed on the pan *h*, which descends with the post *i*, and links *f*, whose hook ends pull down and rotate the yokes *c* on their knife-edges *m* and at the same time move the Z-shaped arms *d d'* apart, rotating them on *m* as a center, thereby lifting the weights 9 and increasing their leverage.

It may be stated that the simplicity of the structure will permit the parts to be made of sheet metal suitably formed, all the parts of the present structure, excepting the post *i* and weights 9, being shown as so made.

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

1. In a weighing-scale, the combination with a vertically-movable post and scale-pan on the upper end of said post, of a pair of weighted levers, a pivot common to both of them, means to operatively connect the post and levers, the axis of said post intersecting the pivot-pin below the scale-pan.

2. In a weighing-scale, the combination with a scale-pan and a vertically-movable post supporting the same, said post having a longitudinal slot therein, of a pivot-pin passing through the slot, weighted lever-arms mounted on the pin, and links connecting the post and lever-arms, substantially as described.

3. In a weighing-scale, the combination with a base, a standard having an upper overhanging portion with a depending end, a scale-pan and a post supporting it having a longitudinal slot therein, of a pair of weighted Z-shaped lever-arms, a pivot-pin common to both of them mounted in the standard and depending end and passing through the slot, links connecting the post and lever-arms, a scale on one of the arms and an index or pointer on the other, substantially as described.

4. In a weighing-scale, the combination with a base and standard, of a scale-pan and movable post therefor having a longitudinal slot, arms pivoted to the standard and post to maintain the post vertical during its move-

ment, a pivot-pin, mounted in the standard, weighted lever-arms pivoted on the pin, and links connecting the post and lever-arms, substantially as and for the purposes set forth.

5 5. In a weighing-scale, the combination with a standard, of a vertically-movable post, a scale-pan supported thereby, a pivot-pin mounted in the standard, yokes *c* mounted on the pin, scale-levers connected to the yokes and also mounted on the pin, and links connecting the levers and post, substantially as described.

10 6. In a weighing-scale, the combination with a sheet-metal base and sheet-metal standard overhanging the base, of a pivot-pin mounted in the standard and overhanging portion, a scale-pan, a vertically-movable

slotted post to support the pan, said pin passing through the slot, sheet-metal arms pivoted to the standard and post, sheet-metal yokes *c* having perforations therein and mounted on the pin, Z-shaped, weighted lever-arms pivoted on the pin, each connected to a yoke, and sheet-metal links having hook ends that engage the perforations in the yokes and whose opposite ends are pivoted to the post, substantially as described.

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

PAUL FROST.

Witnesses:

EMIL C. DANNENBERG,  
HENRY HASPER.