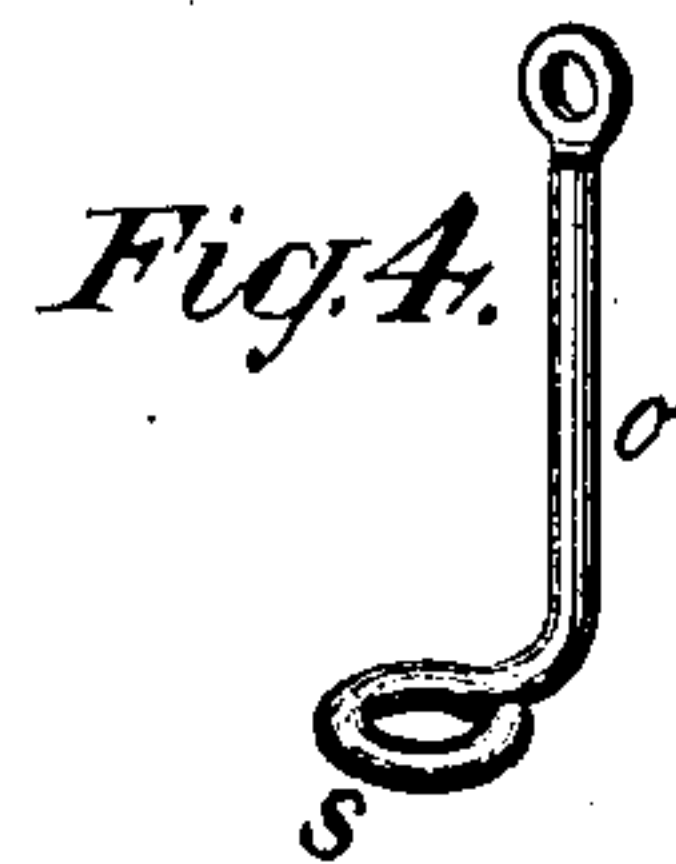
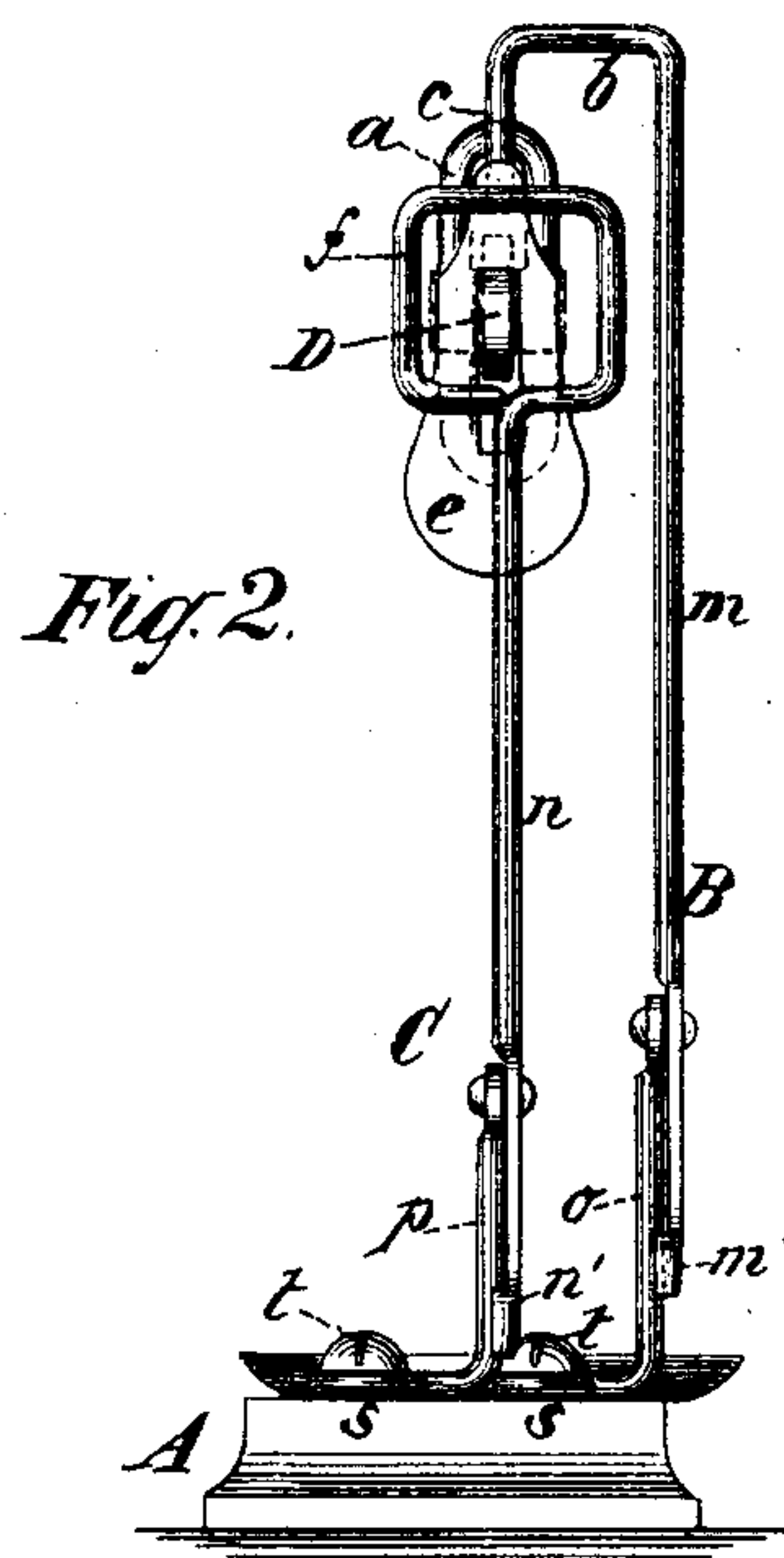
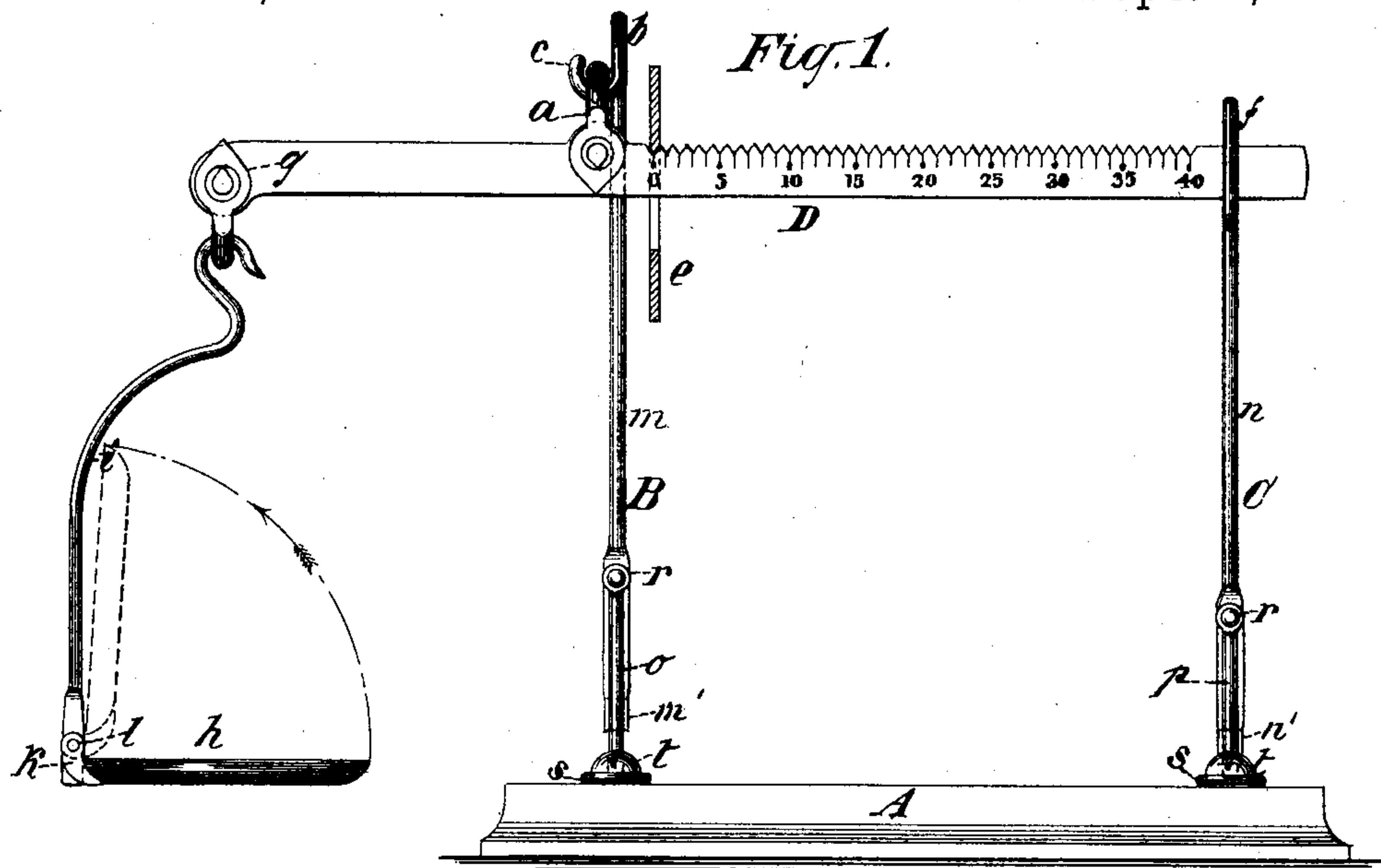


(No Model.)

F. FAIRBANKS.  
PORTABLE OR FOLDING SCALE.

No. 326,025.

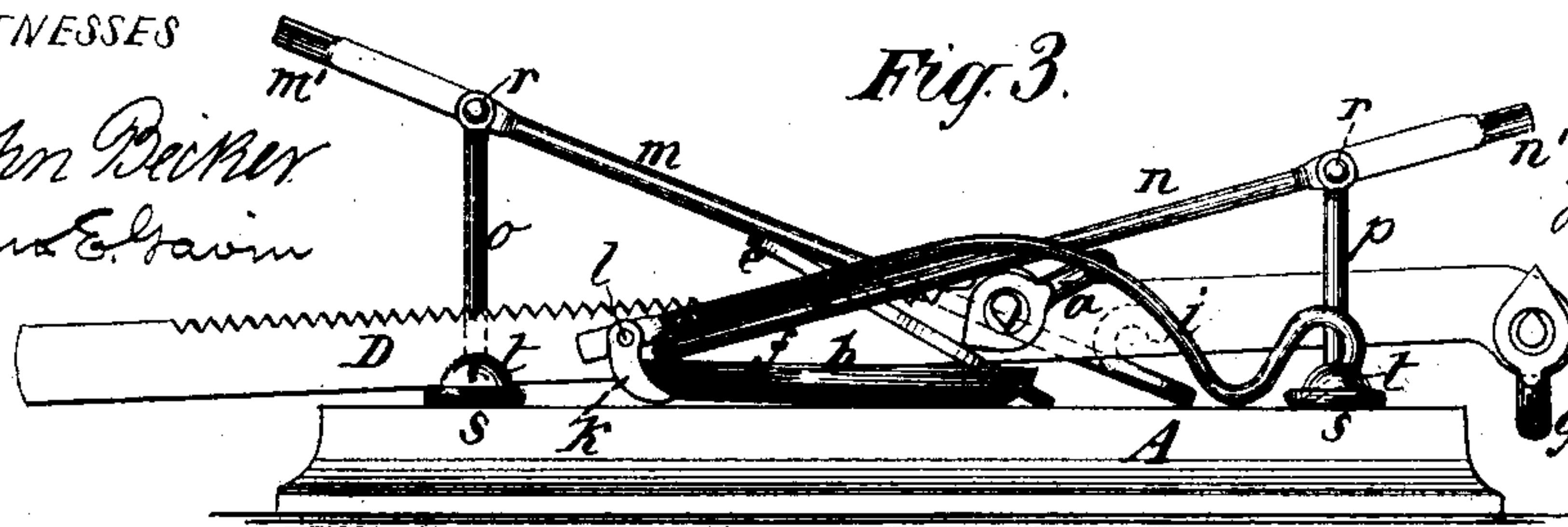
Patented Sept. 8, 1885.



WITNESSES

*John Reicher*  
*Geo. E. Gavin*

*Fig. 3.*



INVENTOR

*F. Fairbanks*  
*by*  
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*attorney*

# UNITED STATES PATENT OFFICE.

FRANKLIN FAIRBANKS, OF ST. JOHNSBURY, VERMONT, ASSIGNOR TO E. & T. FAIRBANKS & CO., OF SAME PLACE.

## PORTABLE OR FOLDING SCALE.

SPECIFICATION forming part of Letters Patent No. 326,025, dated September 8, 1885.

Application filed December 10, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FRANKLIN FAIRBANKS, of St. Johnsbury, Vermont, assignor to E. & T. FAIRBANKS & CO., of same place, have invented certain new and useful Improvements in Portable or Folding Scales, of which the following is a specification.

My invention aims more especially to provide a small beam-scale for physicians, chemists, or others, which may be readily taken apart and folded or packed into a compact shape for easy carriage in the pocket, satchel, or elsewhere, and may be again easily set up for use when required. To these ends I construct the scales with a suitable supporting-base and a weighing-beam, and with standards arising from the base to support the beam, said standards being capable of being folded down against the base, while the beam is detachable from the standards for compact package upon the base. The scale-pan is also hinged to its hanger, whereby the same may be folded into compact space when the scale is "knocked down." By this means all parts of the scale may be packed into a small case for easy portability, and can be readily set up into their weighing positions when desired; and my invention, therefore, consists chiefly in the construction above outlined, as hereinafter fully set forth.

In the drawings annexed, Figure 1 presents a front elevation of my folding scales set up in position for use, and Fig. 2 is an end elevation thereof. Fig. 3 shows a front elevation of the scales when its parts are knocked down or folded into compact form for portability. Fig. 4 is a perspective view of the lower part of one of the standards.

Referring to Figs. 1, 2, and 3, A indicates the base, which is preferably made of a slab of wood, and B C indicate two standards which arise from the base to support the scale-beam D. The beam D is fulcrumed near the middle in a loop, *a*, which is suspended from the standard A. This standard A arises, as shown in Fig. 2, from one side of the base, and its top is bent, as shown at *b*, to overhang the middle of the base, and is terminated with an upturned hook, *c*, in which the fulcrum-loop *d* is suspended.

The long arm of the beam is graduated into suitable divisions, grains being supposed to

be indicated in the drawings, and the graduated part is provided with the movable poise *e*, of usual character in scales of this type.

The second standard, C, rises from the center of the base at the end opposite to the standard B, and in line with the plane of the beam, and its upper end is turned into an eye, *f*, into which the free end of the beam projects, and which thus serves to limit the oscillations of the beam, as will be readily understood from Figs. 1 and 2.

The short arm of the beam is tipped with the usual pivots, as shown, on which the loop *g* hangs, and from said loop is suspended the scale-pan to receive the material to be weighed. The scale-pan consists of two parts, as usual—the pan or plate *h* and the hanger *i*—the latter being hooked at the top so as to be readily connected with or disconnected from the loop *g*, while the pan *h* is itself jointed or hinged to the lower end of the hanger, as shown at *k* in Figs. 1 and 2, so that the pan may be folded up against the hanger, as indicated by dotted lines in Fig. 1 and full lines in Fig. 3, or may be swung down into its receiving position at right angles to the hanger, as shown by full lines in Fig. 1.

To form the hinge-joint between hanger and pan, a slotted hinging-lug, *k*, is affixed to the edge of the pan, and the wire forming the hanger *i* is flattened at the end and held in the slot of the lug *k* by a pivotal pin, *l*, as shown in Figs. 1 and 2. Hence, when the pan is swung down into its horizontal position, the edge of the pan or the base of the lug abuts against the flattened end of the hanger, which thus forms a stop to hold the pan in the described position, as will be readily comprehended from Fig. 1.

The standards B C may be connected with the base A in any suitable way which will allow the standards to be folded down against or upon the base. I prefer, however, to hinge or pivot the standards so as to allow this folding movement, as well shown in Figs. 1 and 2; and I also prefer to make the standards of stout wire in two sections, *m n* and *o p*, which are hinged or jointed to each other near the base by being riveted together, as shown at *r*, and hence the upper sections, *m n*, of the standards may be swung down into a recumbent



position, as shown in Fig. 3, or raised into an upright position, as shown in Fig. 1. The lower sections, *o p*, are bent into eyes *s*, as best shown in Fig. 4, which eyes rest on the base and receive the screws *t*, whereby the standards are firmly secured to the base, as fully shown in Figs. 1, 2, and 3. The lower ends of the upper sections, *m n*, are flattened to form spring-tongues which overlap the lower sections, *o p*, and are terminated with a semi-circular clasp tip, *m' n'*, which spring into engagement with the rounded surface of the lower sections, *o p*, when raised into coincidence, as will be readily understood from Figs. 1 and 2, and thus hold the standards firmly in the upright position, as represented in Figs. 1 and 2. It will, therefore, be seen that when the standards are raised into the upright position, as shown in Fig. 1, the fulcrum-loop *a* of the beam may be easily hooked onto the hook *c* of standard B, while the tip of the beam is inserted in the eye *f* of standard C, after which the hanger *i* of the pan *h* may be easily hooked into the loop *g*, and the scale will be now prepared for weighing, which is of course effected, in the usual way, by shifting the poise *e* out to the desired graduation on the beam, and then loading the pan *h* until the beam is in balance. On the other hand, when it is desired to fold up the scale for package or transportation, it is only necessary to first unhook the hanger *i* from loop *g*, allow the hanger to swing down over the pan and place the same recumbent on the box A, as shown in Fig. 3, after which the loop *a* may be detached from hook *c*, and the beam with its poise and loops thus removed from the standards and placed on the base, as seen in Fig. 3, after which the standards B C may be bent and folded down upon the base, as also shown in Fig. 3, thus bringing all parts of the scale into a compact space, and capable of being inclosed in a small neat case for easy carriage in the hand, pocket, or satchel, as will be readily appreciated.

Hence by this construction a small and perfectly-accurate beam-scale is produced whose essential parts are all readily detachable without injury to the accuracy of the scale, and may be easily set up in firm position for use, or conveniently folded down at any time when required to be packed away or carried about from place to place, thereby accomplishing the object of my invention and presenting a scale which is quite desirable for many purposes, and particularly for the use of physicians, chemists, and travelers.

What I claim is—

1. A folding scales formed by the combination, with a sustaining-base, of supporting-

standards arising from said base and capable of being folded down against the same, and a removable scale-beam with its necessary adjuncts adapted to be suspended to and detached from said standards, substantially as 65 herein set forth.

2. In a folding scales, the combination, with the beam and suitable supports therefor, of the scale-pan *h*, with the hanger *i*, formed in one piece, bent into a suspensory hook at one end and hinged at the opposite end to the scale-pan, substantially as herein shown and described.

3. In a folding scales, the combination, with a removable beam and a sustaining-base, of separate supporting-standards pivoted or hinged at or near the base, and capable of being raised into an upright position to support the beam, or of being folded down recumbent upon the base, substantially as herein shown 80 and described.

4. In a folding or separable scales, the combination, with a removable beam, of a folding beam-supporting standard hinged or pivoted at or near the base, and capable of being placed 85 in upright or recumbent positions, with a spring-catch arranged to hold the standard in its erect position, substantially as set forth.

5. In a folding scales, the combination, with the base and the beam with its necessary adjuncts, of folding standards made in two overlapping sections, such as *m o*, pivoted together, and having an engaging spring-catch, *m*, substantially as herein shown and described.

6. In a separable or folding scales, the combination, with a base and an upright folding standard having a hook, *c*, of the separable or detachable beam D, with its fulcrum-loop *d*, arranged to hook onto the hook *c*, substantially as and for the purpose set forth. 100

7. In a separable scales, the combination, with a base, of two standards, B C, the standard B being provided with hook *c*, and the standard C with eye *f*, in combination with the detachable beam D, having the fulcrum-loop *a*, adapted to slip onto the hook *a* of one standard, while the tip of the beam is adapted to enter the eye *f* of the other standard, substantially as shown and described. 105

8. In a scales, the combination, with a supporting-base and a scale-beam and its necessary adjuncts, of standards arising from the base to support the beam, formed of wire bent into eyes *s*, which are screwed to the base, substantially as shown and described. 110

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Witnesses:

DENNIS E. MAY,

CHAS. M. HIGGINS.