

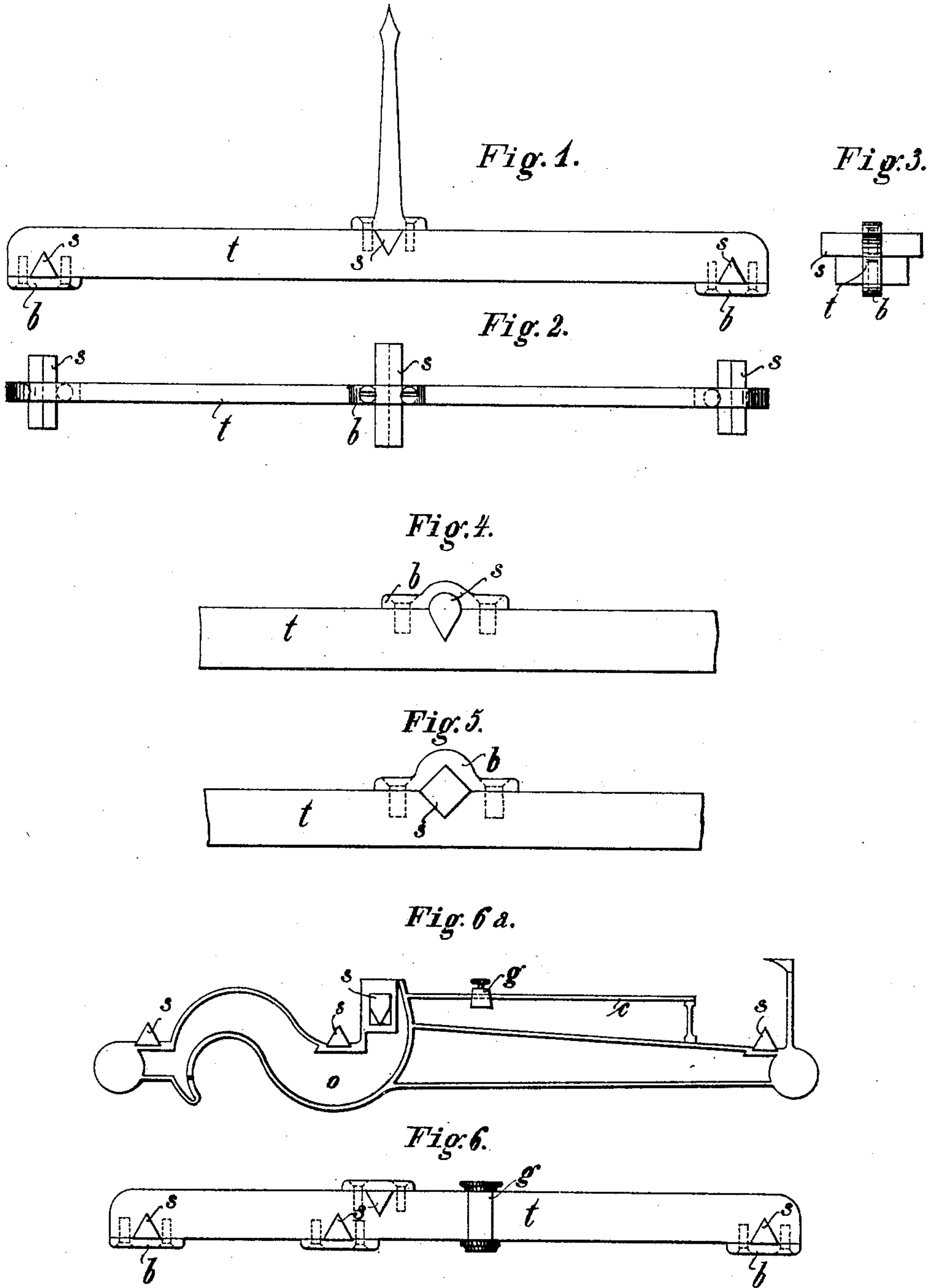
(No Model.)

2 Sheets—Sheet 1.

E. BÖHMER.
BALANCE.

No. 598,073.

Patented Feb. 1, 1898.



Witnesses:

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A. C. Barnett

Inventor.

Eduard Böhm
by A. J. Madden
Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 7a.

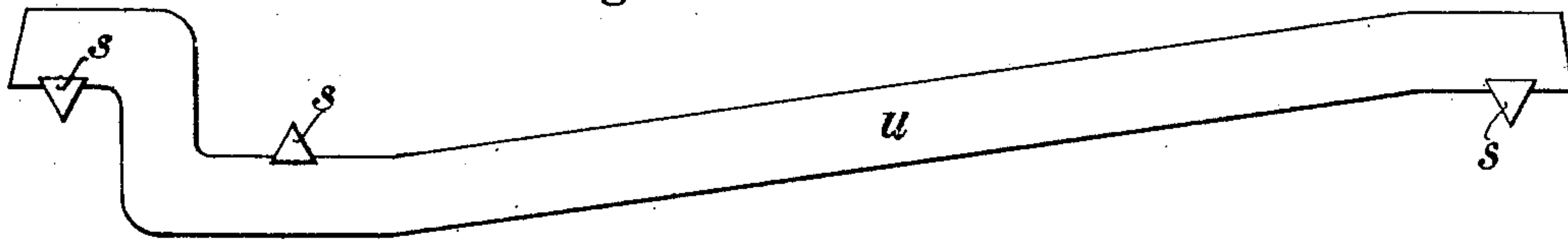


Fig. 7.

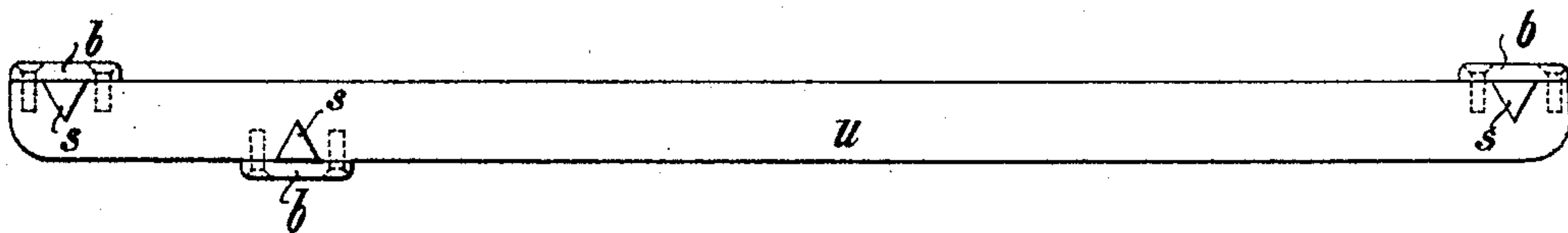


Fig. 8a.

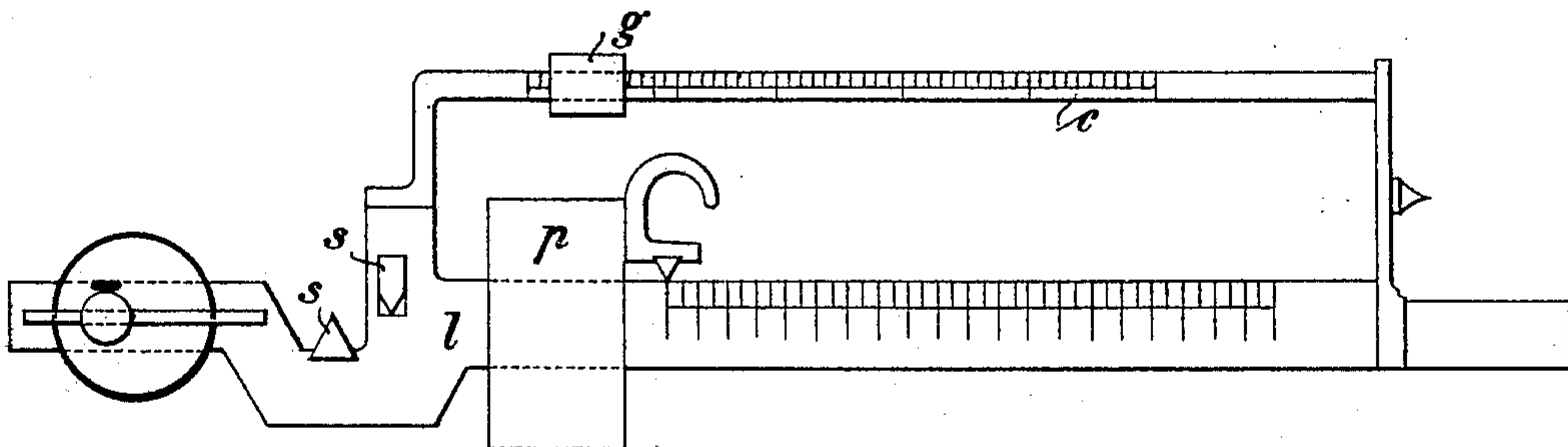
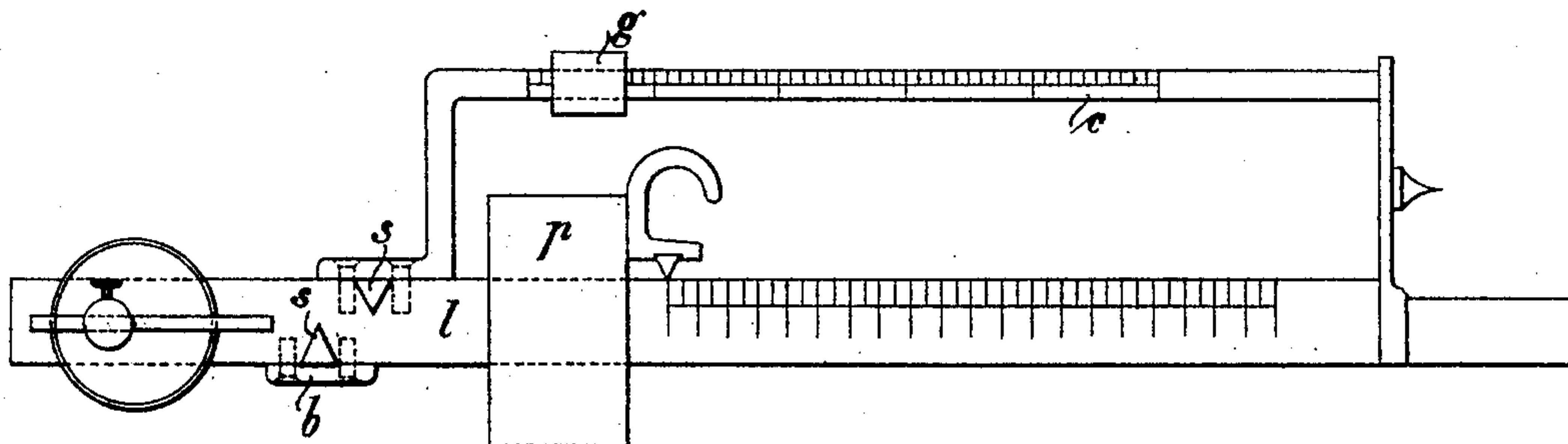


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDUARD BÖHMER, OF SCHRÖTTERS DORF, GERMANY.

BALANCE.

SPECIFICATION forming part of Letters Patent No. 598,073, dated February 1, 1898.

Application filed December 9, 1895. Serial No. 571,543. (No model.)

To all whom it may concern:

Be it known that I, EDUARD BÖHMER, a subject of the King of Prussia, German Emperor, and a resident of Schröttersdorf, near Bromberg, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Balances, of which the following is a specification.

In order to bring into one horizontal plane the knife-edges or fulcrum of the upper or the lower beams, used until now for lever-balances, the formation of a bend or knee in the beam is required, which not only weakens the material at the respective spot, but renders the manufacture of the beam expensive and lengthy. The adjustment of the knife-edges on such beams has been done until now by inserting the knife-edges or axes into the beams by the use of molds or forms, the knife-edge being then brought down to the right height by filing and grinding. It is obvious that this method of adjusting the knife-edges to the scale-beams is roundabout and inexact and can be done only by skilled workmen. Scale-beams so adjusted can be altered after having been adjusted with dishonest intentions without the illegal alteration being easily detected. Incorrect position of the knife-edge can be caused in such scale-beams also without illegal intention by an unskilled hand in sharpening or in changing the knife-edges. Moreover, the knife-edges in the scale-beams of the construction used until now cannot be much broader than double the thickness of the beams, since otherwise the support of the knife-edges is too small. This breadth of the knife-edges is, however, especially in large balances, not properly proportioned to the strain put upon them, and rapid wear of the knife-edges and incorrect working of the balance are the result. These inconveniences are removed in the scale-beam constructed according to the present invention. This beam is distinguished from those above described in being quite straight and not having its knife-edges adjusted by hand-work, but being provided with exact bearing-cuts for the knife-edges.

In the accompanying drawings various forms of such balance-beams are shown in juxtaposition with equivalent beams of the old construction.

Figures 1 to 3 show the balance-beam *t* of a table-balance which may be made of drawn steel. In this entirely straight beam *t* wedge-shaped cuts are made by means of a milling-machine, in which cuts the exchangeable knife-edges *s* are inserted and fastened by means of strap-plates *b*, secured by screws. By forming them in this way the depth of the bearing-cuts for the knife-edges, and in consequence the required position in height of the edge of the knife-edges, can be rendered exact. It will be suitable to have also the knife-edges made of drawn steel having a form of section corresponding with the recesses into which they are to fit. Of course they need not be triangular, as in Fig. 1; but may have, for instance, forms as shown in Figs. 4 and 5.

In Fig. 6^a is shown an upper beam of former construction, and in Fig. 6 one of the new construction, as employed in decimal balances. The beam *o* in Fig. 6^a has the bent form of a knee, as above mentioned, while the beam constructed in accordance with the present invention, Fig. 6, is entirely straight and provided, as above described, with wedge-shaped recesses for receiving the exchangeable knife-edges *s*. The tare weight hitherto arranged on a separate guide, Fig. 6^a, can with this invention be put directly on the beam, Fig. 6.

Fig. 7^a shows a lower beam of the old construction, and Fig. 7 shows one of the new construction, also intended for decimal balances. The straight lower beam *u* (shown in Fig. 7) has in comparison with the lower beam in the shape of a knee, as represented in Fig. 7^a, another important advantage in permitting a much lower position of the platform, which is of importance especially for putting heavy loads upon it.

In Fig. 8^a a balance-beam of the old construction for sliding-weight balances is represented, while Fig. 8 shows the construction of such a beam in accordance with the present invention. The balance-beam *l* (shown in Fig. 8) is also made of drawn steel, on which in a known way the sliding weight *p* is arranged. As in the old construction also here an especial (separate) bar *c* for the tare weight is provided.

From the above description it is obvious that in the balance-beams of the new construc-

tion alteration of the knife-edges by means of
filing or grinding cannot be done without de-
tection. Moreover, the knife-edges can be ex-
changed and replaced by others at any time
5 and by inexperienced hands without affect-
ing in any way the accuracy of the balance,
as the knife-edge recesses remain always the
same, the knife-edges receiving, moreover, by
the shape of the bearing-recesses a much bet-
10 ter support than in the method of fixing them
used until now. The breadth of the knife-
edges may be increased in a corresponding
measure and brought into suitable proportion
to the strain they have to bear.

15 I claim as my invention—

In lever-balances the combination with a
balance-beam having wedge-shaped bearing-
recesses in its upper and lower edges, of ex-
changeable knife-edges resting in said re-
cesses and strap-plates secured to the beam 20
for holding said knife-edges immovably in
the recesses, substantially as described and
for the purpose set forth.

In testimony whereof I have signed this
specification in the presence of two subscrib- 25
ing witnesses.

EDUARD BÖHMER.

Witnesses:

OTTO SIEDENTOPF,
W. HAUPT.