

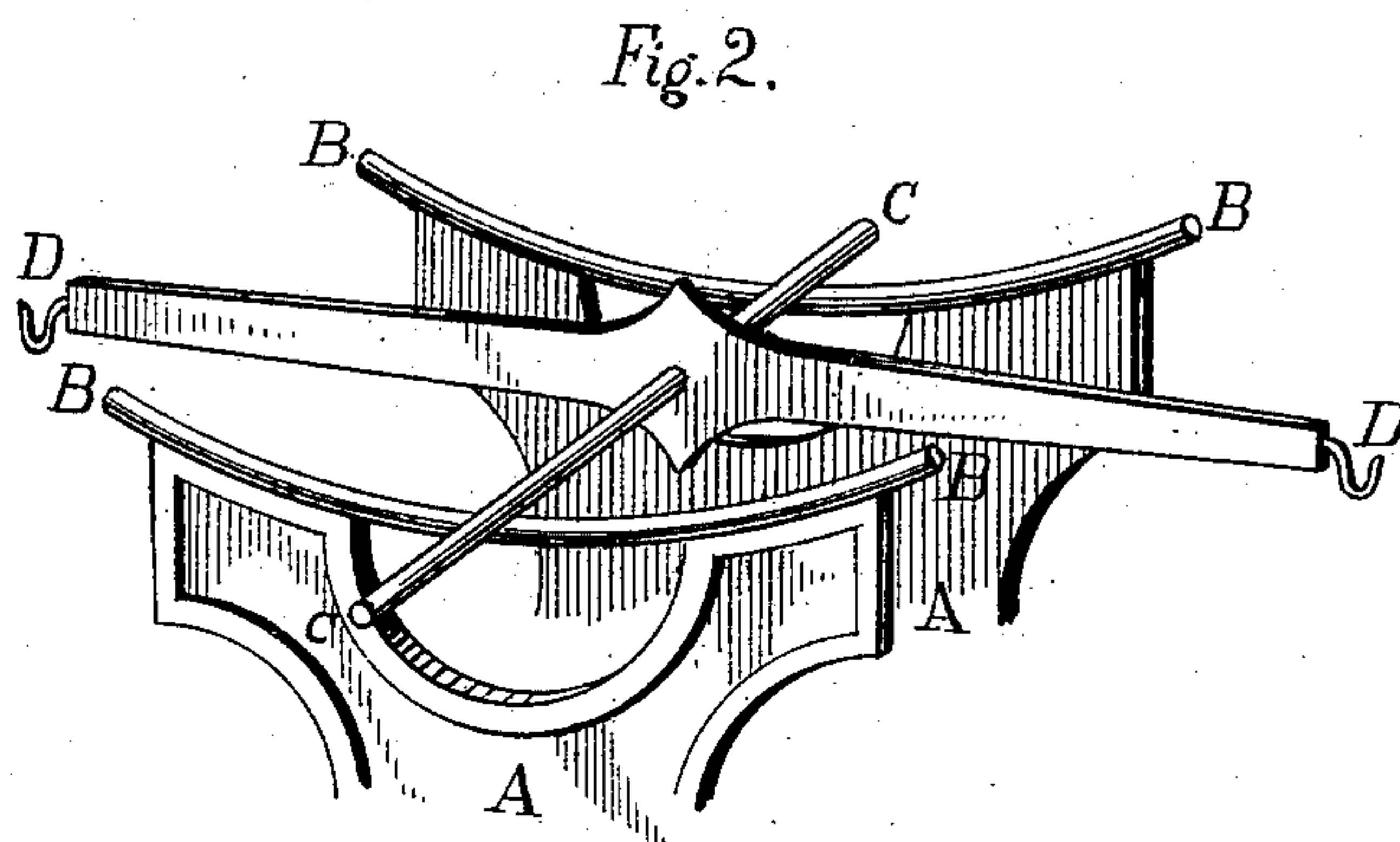
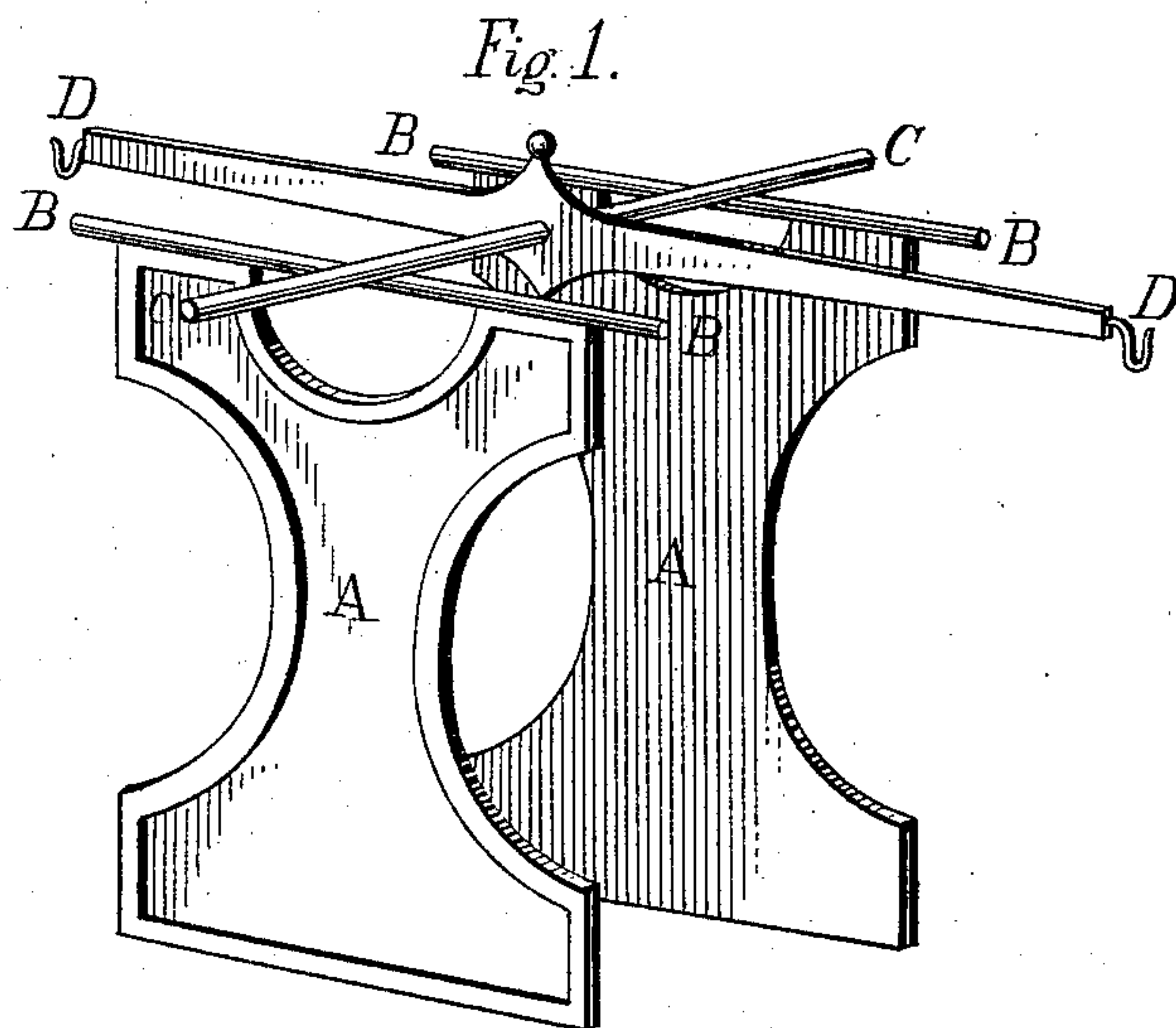
(No Model.)

J. J. CLARKE.

LEVER FOOT AND FULCRUM OF SCALE BEAMS.

No. 376,513.

Patented Jan. 17, 1888.



WITNESSES:

Carroll L. Dost Jr.
W. E. Smith

INVENTOR

Joseph John Clarke

UNITED STATES PATENT OFFICE.

JOSEPH JOHN CLARKE, OF BROOKLYN, NEW YORK.

LEVER FOOT AND FULCRUM OF SCALE-BEAMS.

SPECIFICATION forming part of Letters Patent No. 376,513, dated January 17, 1883.

Application filed April 11, 1883. Serial No. 91,338. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH JOHN CLARKE, of 91 Hewesstreet, Brooklyn, county of Kings, State of New York, have invented a new and useful Improvement of the Lever Foot and Fulcrum of Scale-Beams, of which the following is a specification.

An illustrative drawing accompanies this specification, marked Figures 1 and 2, together with letters A B C, &c., for the purpose of reference.

The object of my invention is to supply the means of reducing the contact-space of the lever foot and fulcrum of the scale-beam to the least possible limit, but at the same time combining in such means the essential qualities of sensitiveness, durability, and simplicity. The means invented by me to effect this object consists in making the axis or lever-foot of the scale-beam of a circular rod and the bearers or lever-fulcrum of the scale-beam of two circular rods, the scale-beam rod being at strict right angles to the bearer rods. (See Figs. 1 and 2.)

Fig. 1 represents a scale-stand, A A, (which may be of any desired form or pattern,) to which the circular rods B B B B, forming the fulcrum or bearers, are attached. C C is the circular rod running through the center of and attached to the scale-beam D D, forming the axis and lever-foot of the scale-beam.

Fig. 2 shows a modification of the bearer-rods or fulcrum B B B B of Fig. 1, said bearer-rods being curved instead of horizontal, as in Fig. 1.

Referring to Fig. 1, the advantages obtained by this means are very great.

First. The contact-space of lever foot and fulcrum is as infinitesimal as though one knife-edge rested at right angles on two other knife-edges.

Second. No matter which way the scale-beam inclines from true equilibrium the faces of both lever foot and fulcrum are as perfect with regard to each other as they are when in a state of exact balance.

Third. The circular rods forming the axis and its bearers reduces to the least possible minimum the effect of wear and tear, each horizontal parallel line representing the combined strength of the whole body. In addition to

this each rod admits of being rotated in its position, and thus presenting new faces for use. In contradistinction to this means the so-called "knife-edges" of present use in contact with each other, or even in contact with circular rods, or whatever bearer may be used, have a tendency to mutual destruction, thereby destroying that perfect exemption from friction so desirable in a scale-balance.

Fourth. The simplicity of the arrangement enables a scale to be constructed of mathematical accuracy and great durability at a small expense.

Referring to Fig. 2, which represents a modification of the rods forming the lever-fulcrum of Fig. 1, the rods are curved just so much as will tend to make the scale-beam rod by its own gravity remain at strict right angles to them, that being the position in which the highest sensitiveness is attained. The infinitesimal loss of sensitiveness occasioned by the curvature of the bearers is of no account, except in operations of the greatest delicacy. The diameter of the rods forming the combination of lever foot and fulcrum, as shown in Figs. 1 and 2, must be in proportion to the work expected to be performed.

In this invention I have used circular rods as being the simplest, cheapest, and easiest means of carrying out my main idea—namely, that of bringing their circular faces together at right angles to each other; but other forms—such as bars, blocks, &c.—could be used, if sectional parts of them had the circular faces of sectional parts of circular rods for the purpose of right-angle contact. In such case, however, they would be simply the equivalents of circular rods, but losing some advantages of the circular rods themselves.

What I claim as my invention, and wish to secure by Letters Patent, is—

The combination of circular rods C C and B B B, crossing each other at right angles as the lever foot and fulcrum of a scale-beam, substantially as herein described, and for the purpose set forth.

JOSEPH JOHN CLARKE.

Witnesses:

JOHN PATTERSON,

FREDERICK Y. POND.