

(No Model.)

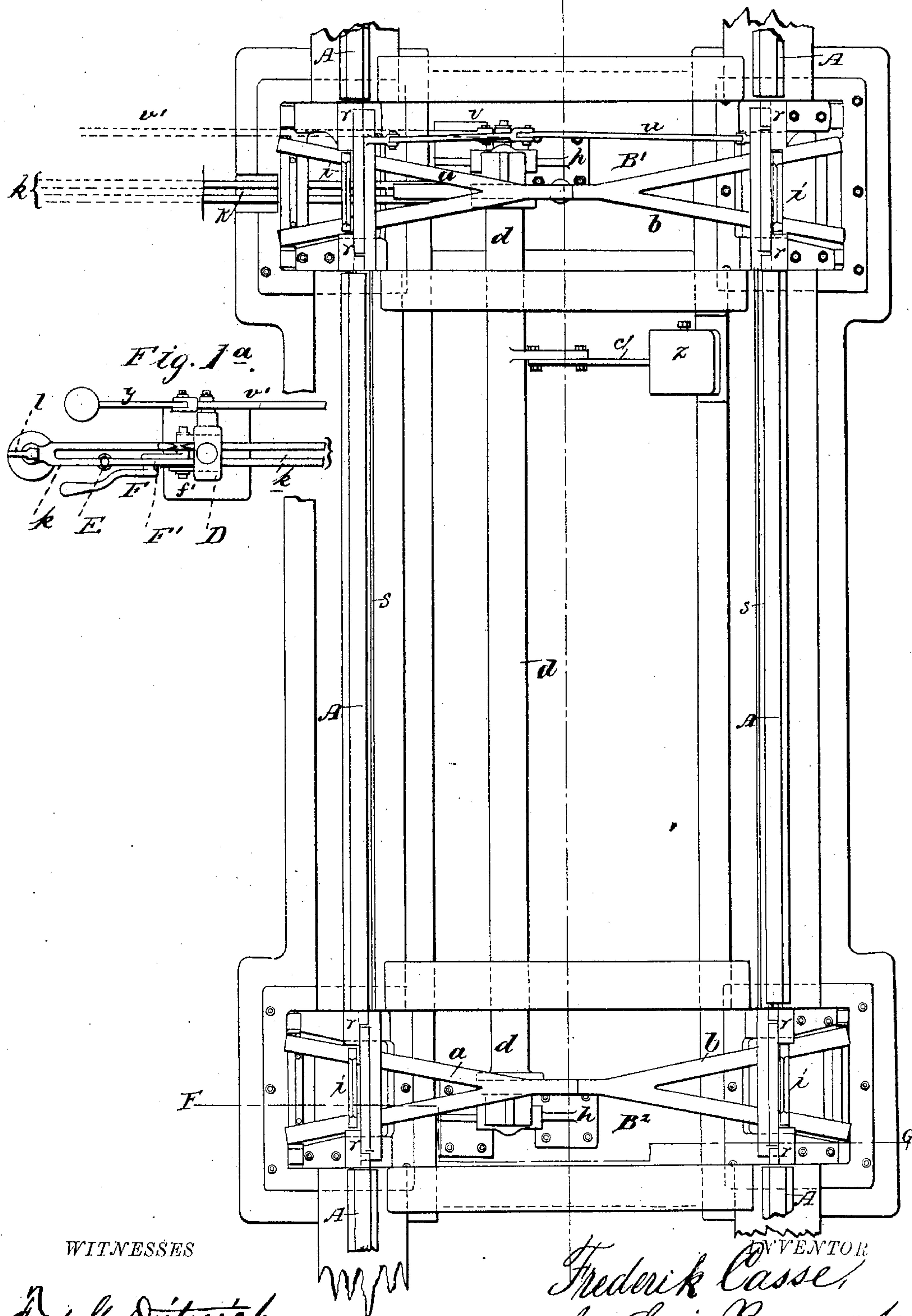
3 Sheets—Sheet 1.

F. CASSE.

RAILWAY WEIGHING SCALES.

No. 259,093.

Fig. Patented June 6, 1882.



WITNESSES

Wm. L. Dieterich
Charles H. Bates

INVENTOR
Frederick Casse
by Louis Bagger & Co.
Attorneys

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3 Sheets—Sheet 2.

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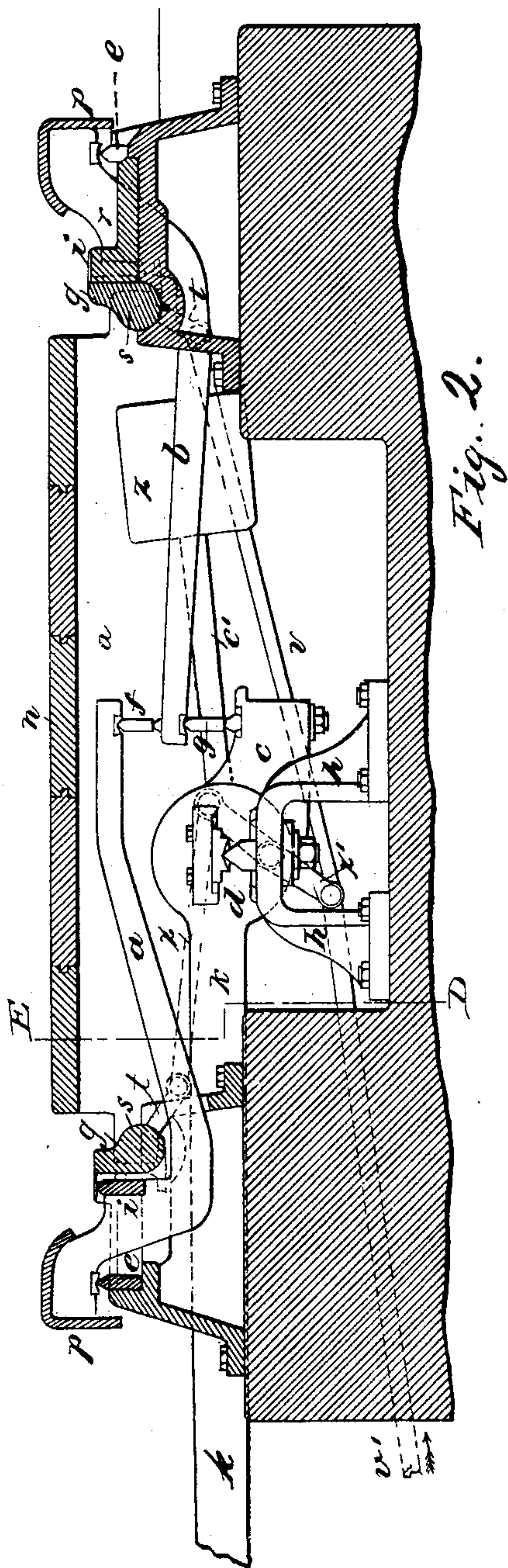


Fig. 3.

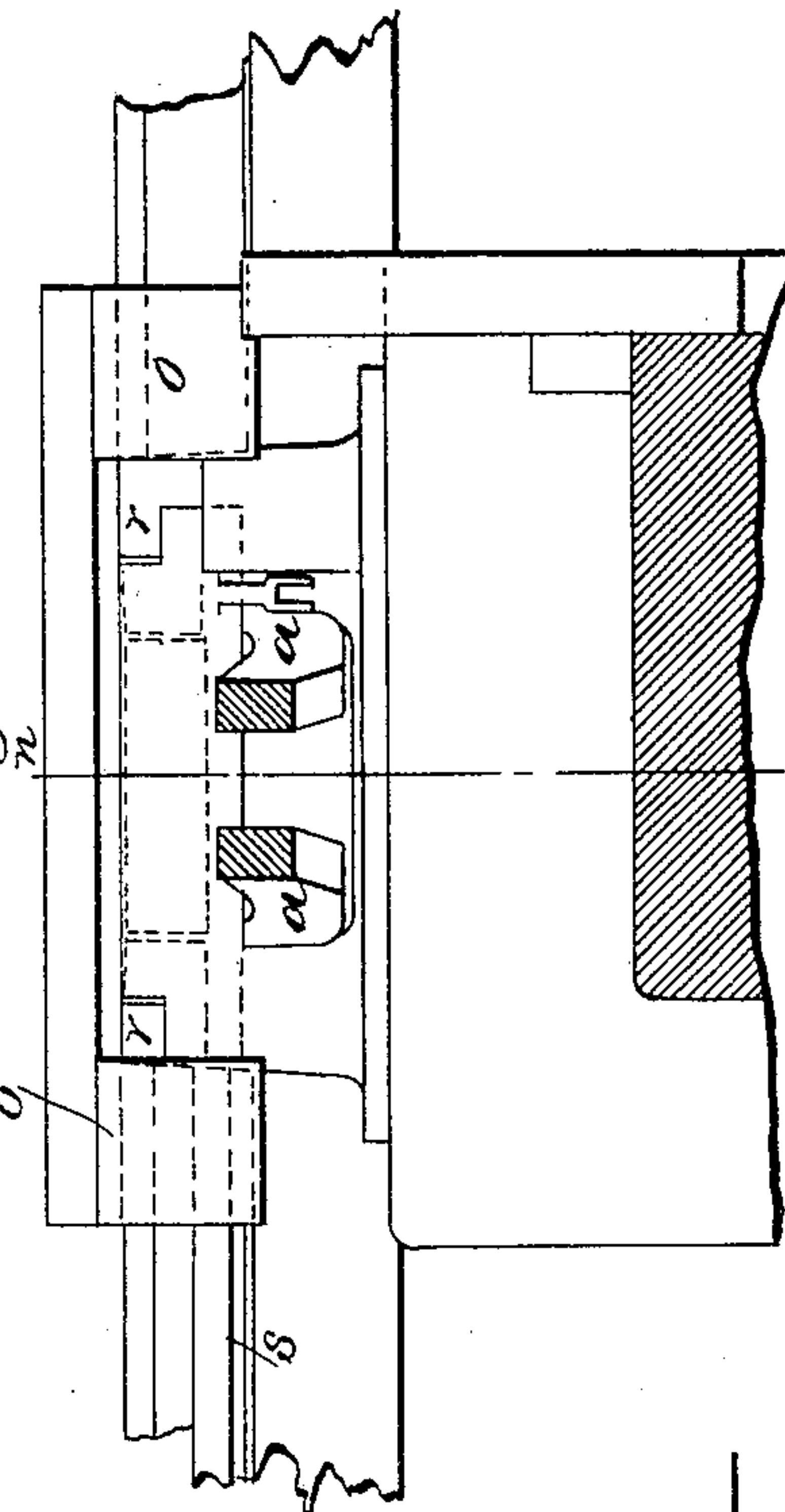
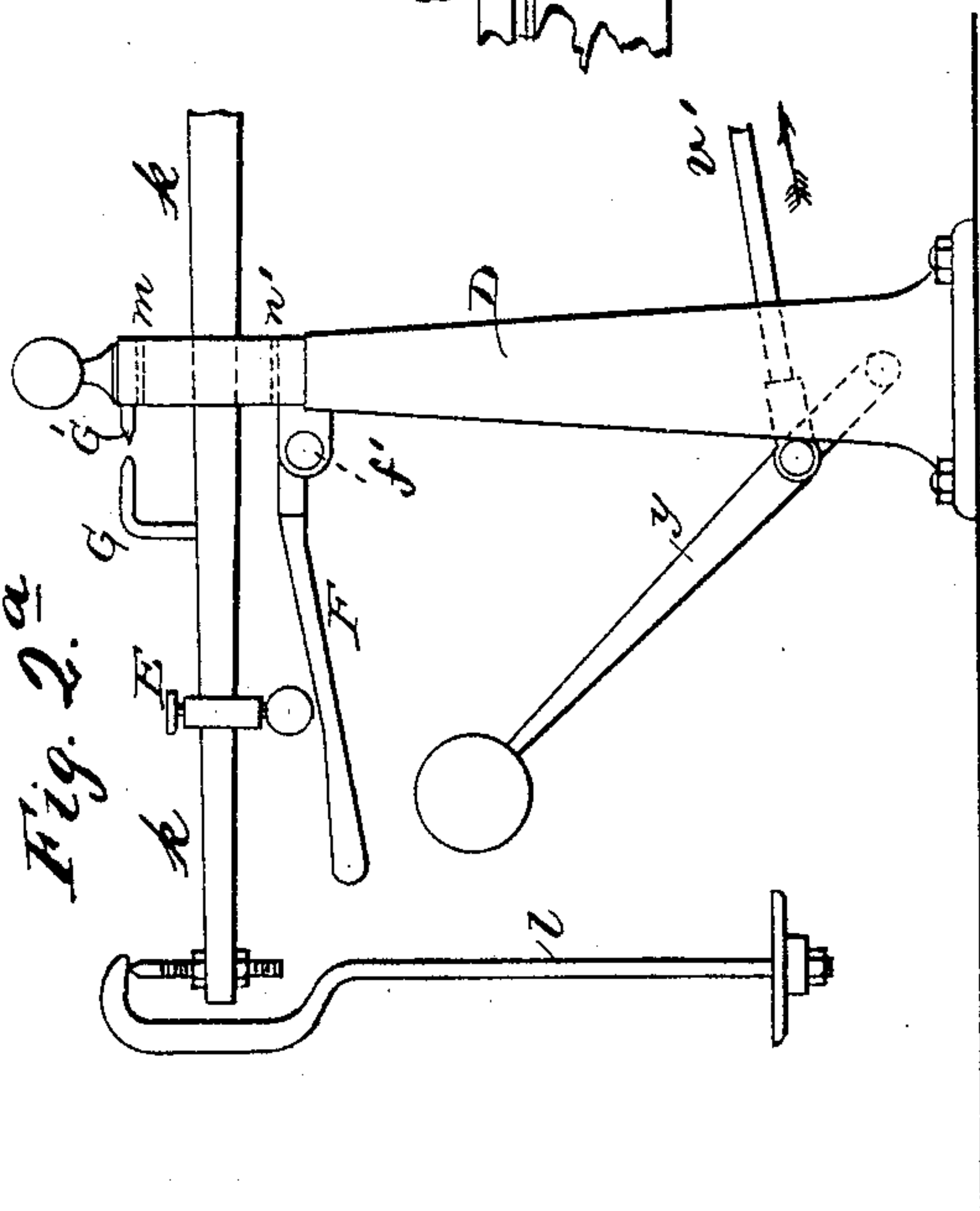


Fig. 2. a



WITNESSES

Wm. L. Dietrich
Charles H. Parks

INVENTOR
Frederik Casse,
by Louis Bagger & Co.
Attorneys

(No Model.)

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Fig. 9,

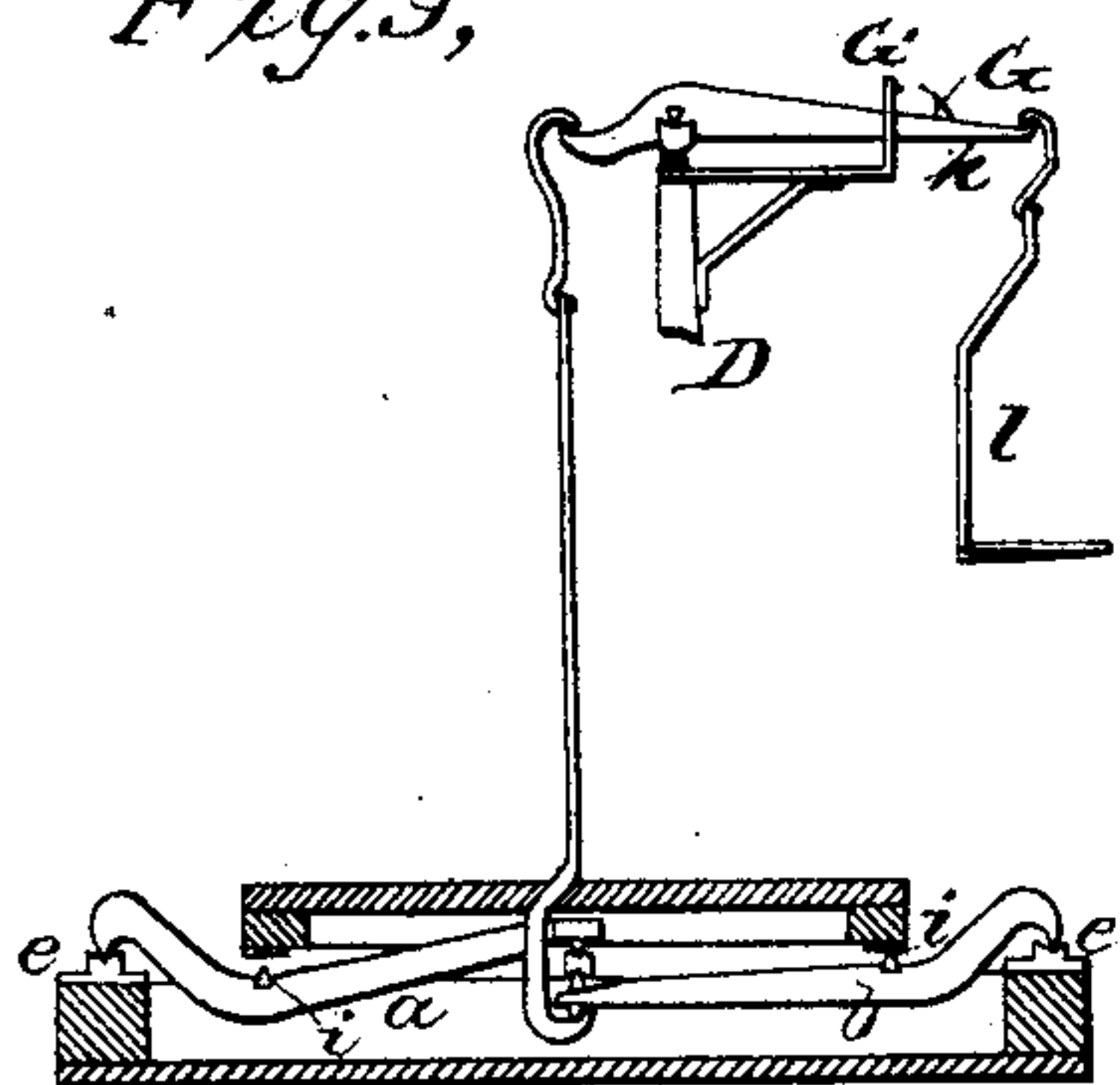


Fig. 7,

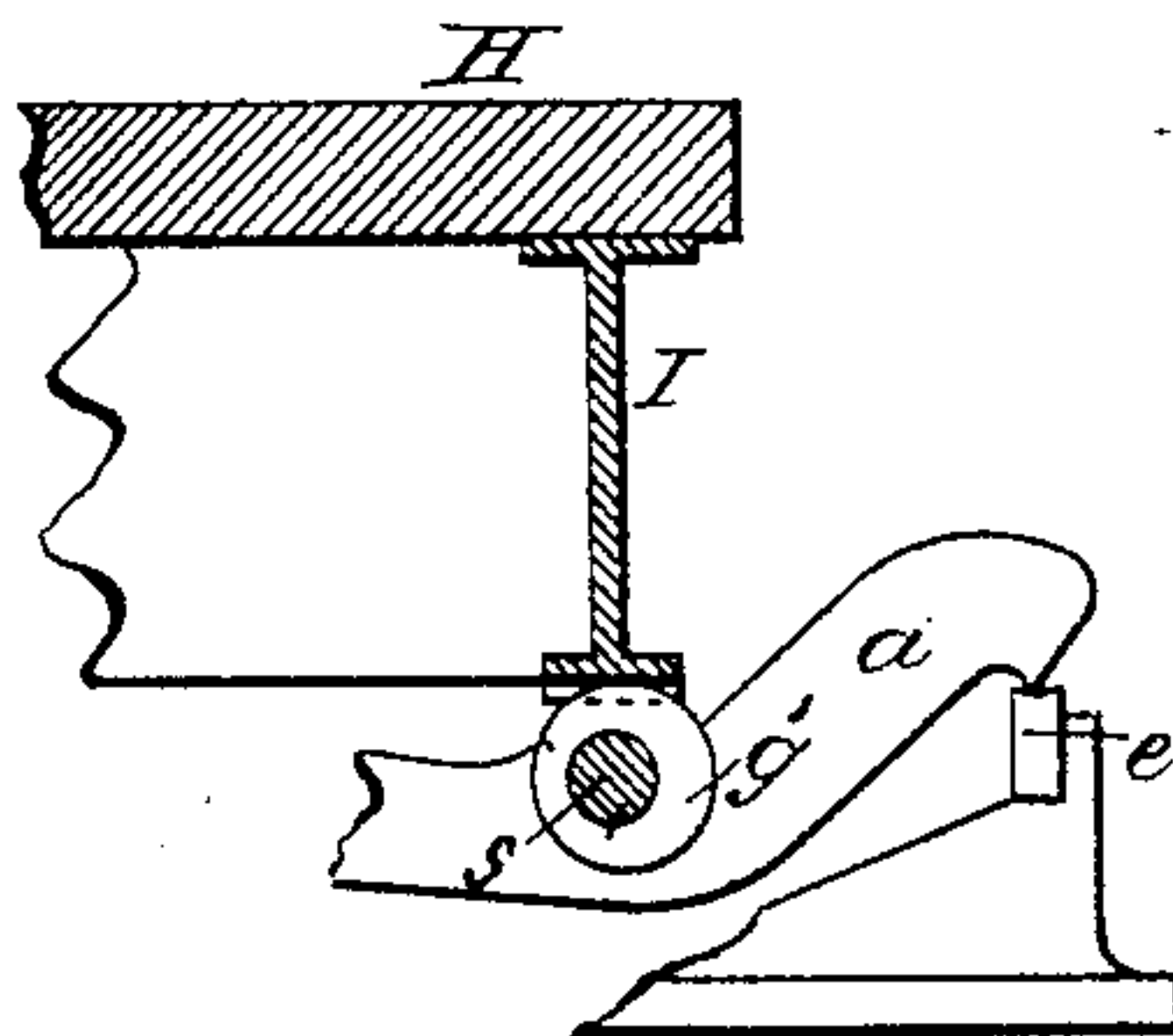


Fig. 10,

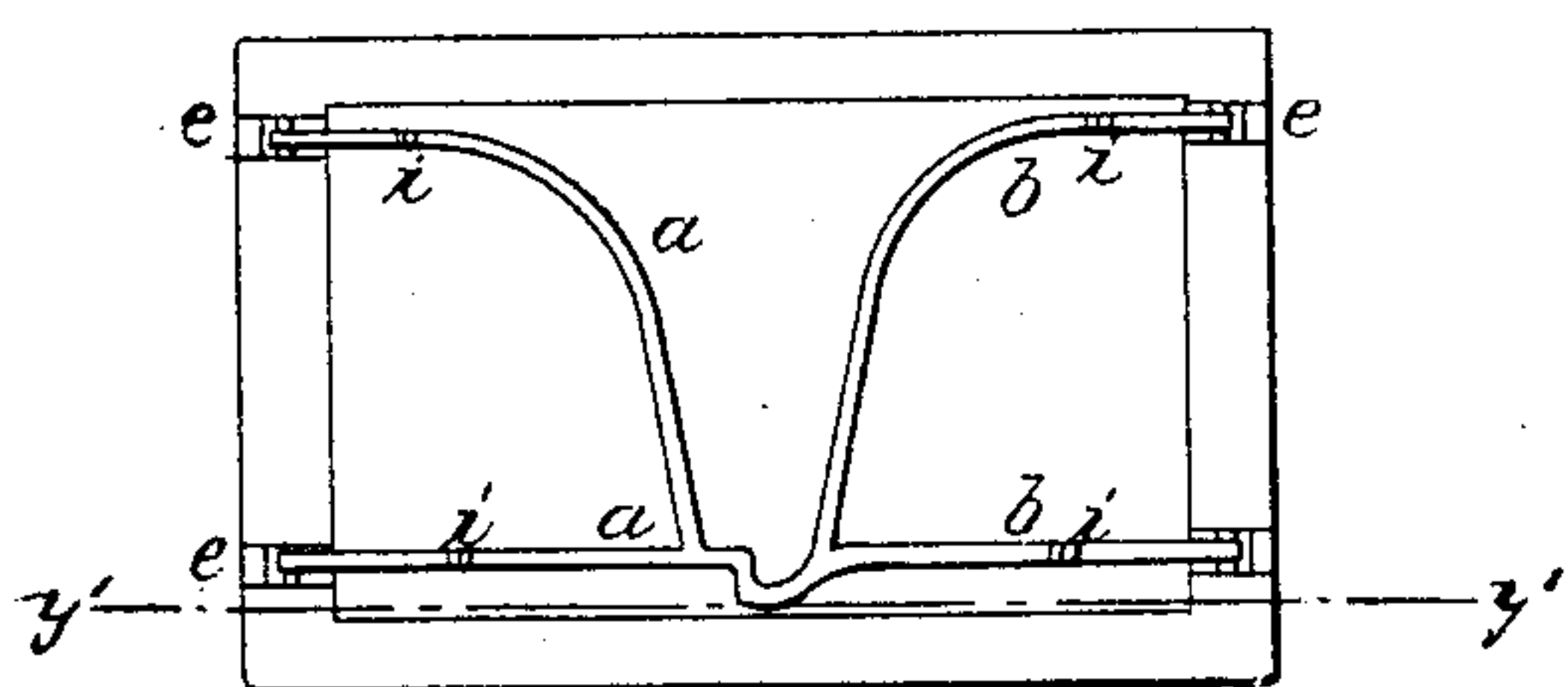


Fig. 8,

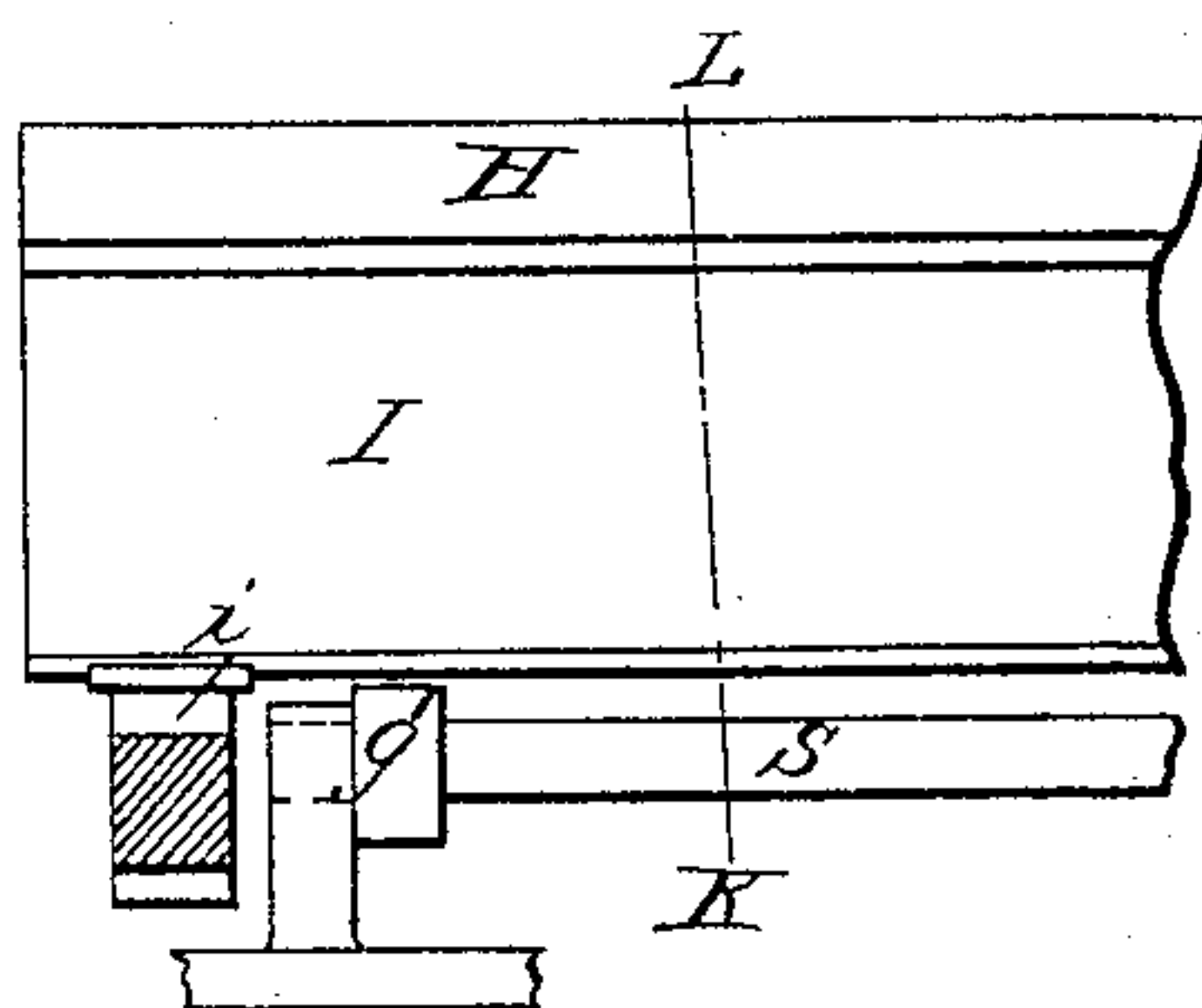


Fig. 11,

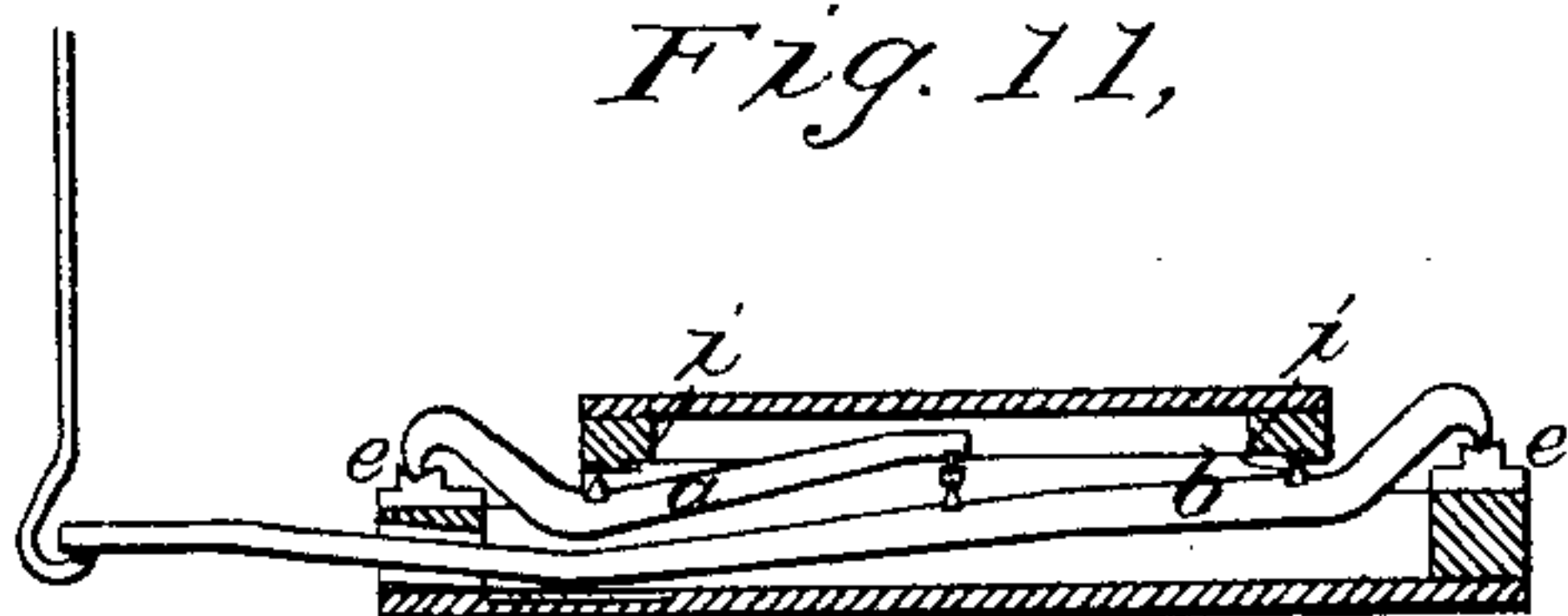


Fig. 6,

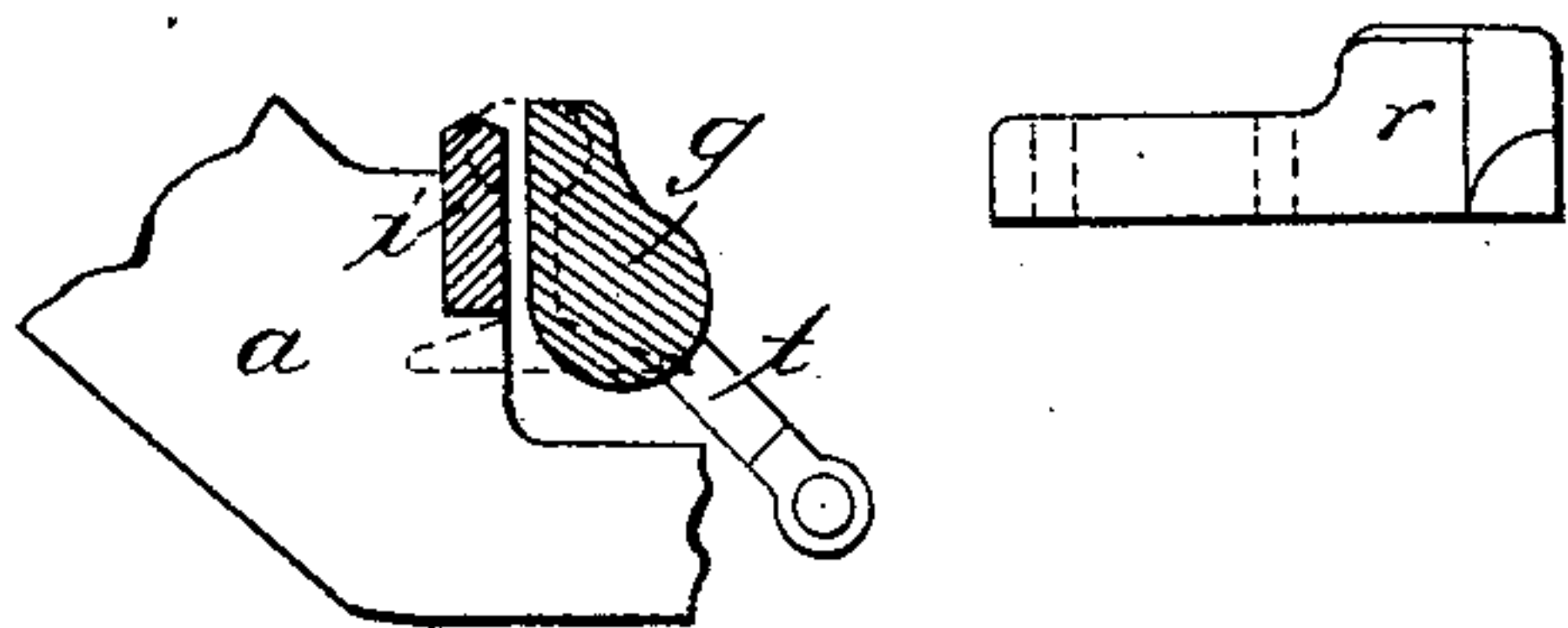


Fig. 4,

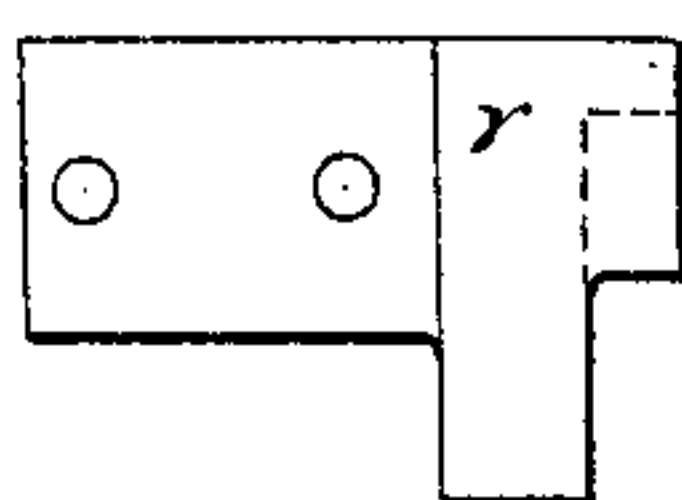
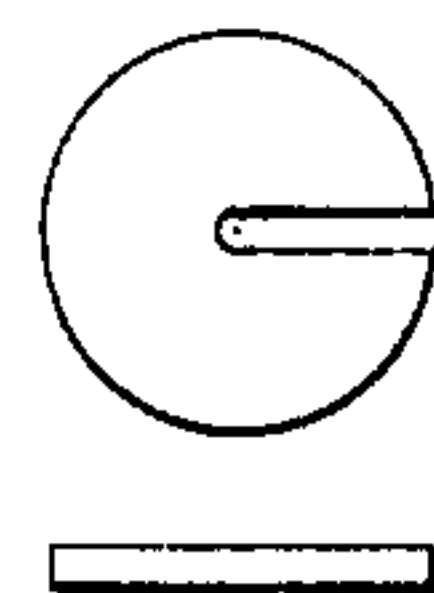


Fig. 5,



WITNESSES

Frederick Casse
Charles H. Baker

Frederick Casse
INVENTOR,
by Louis Bagger & Co
Attorneys

UNITED STATES PATENT OFFICE.

FREDERIK CASSE, OF HAARLEV, DENMARK.

RAILWAY WEIGHING-SCALES.

SPECIFICATION forming part of Letters Patent No. 259,093, dated June 6, 1882.

Application filed February 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, FREDERIK CASSE, a subject of the King of Denmark, residing at Haarlev, in the Kingdom of Denmark, have
5 invented certain new and useful Improvements in Weighing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

My invention relates more particularly to
15 that class of weighing-machines known as "railway-track scales," which are adapted for the weighing of railway-cars upon the track, or for ascertaining the wheel-pressure of a locomotive; and the novelty consists in the detailed construction and combination of parts,
20 as hereinafter more fully described and claimed.

In the three sheets of drawings hereto annexed, Figure 1 is a plan of my improved railway-track scale, the covering-platform having
25 been removed. Fig. 1^a is a top view of the weighing apparatus, which is placed to one side of and a suitable distance from the track and weighing-platform, the parts marked *v' v'* and *k k* in Figs. 1 and 1^a being respectively
30 connected to form one continuous part. Fig. 2 is a vertical cross-section through line F G, Fig. 1. Fig. 2^a is a side elevation of the weighing apparatus, the broken parts represented by the letters *v' v'* and *k k* in Figs. 2 and 2^a
35 being respectively connected to form one continuous part. Fig. 3 is a vertical sectional view through line D E, Fig. 2. Figs. 4 and 6 are views of details, made on an enlarged scale. Fig. 5 represents the weights used with the
40 machine. Fig. 7 is a detail view, representing a modified construction of the machine. Fig. 8 is a longitudinal sectional view of the modified construction which is represented in cross-section in Fig. 7; and Figs. 9, 10, and 11 represent modifications in the combination and
45 arrangement of the scale-beams.

Similar letters of reference indicate corresponding parts in all the figures.

In Fig. 1 a portion of the track is shown at
50 A A, while B' and B² represent two lever-and-

scale-beam systems of substantially the same construction, which cross the track transversely a suitable distance apart, and are connected by a longitudinal shaft, *d*, which runs
between and parallel to the rails A A. 55

Each of the systems B' and B² comprises a pair of scale-beams, *a* and *b*, which are poised at their outer ends upon knife-edges *e e*, (see Fig. 2,) mounted upon suitably-constructed
60 chairs or bearings. Caps *p* are placed over the outer ends of beams *a* and *b* to protect their fulcrums from snow, dirt, &c.

Each of the beams *a* and *b* is provided with a fixed knife-edge, *i*, and their inner ends are connected by a movable knife-edge link, *f*, and
65 by a similar link, *g*, with an arm, *c*, which is rigidly secured upon and projects from the shaft *d*, which is rocked upon knife-edges in chairs or bearings *h h*, one at each end. It has a third arm, *c'*, which is provided with an
70 adjustable weight, *z*, for regulating or justifying the balance.

It will be seen that the knife-edges *i i* of beams *a* and *b* are in a line with the rails A A, which they break or intersect, but a little lower
75 than the tread of the rails. They are flanked on one side by stationary plates *r*, which form connecting-pieces between the knife-edges *e* and the broken-off rails, and are shaped, as shown in Figs. 2 and 6, to conform, in connection
80 with the part *q*, which flanks the knife-edge *i* on the other side, to the shape of the rail in cross-section. Hence when part *q* is turned up (by the means hereinafter described) against its contiguous side of its appropriate
85 knife-edge *i* trains may pass over the track without touching or affecting the knife-edges, the ridges of which, as we have seen, are sunk below the tread of the parts *r* and *q*, which form the bridge or connecting piece for connecting
90 the broken-off rail-sections between the systems B' and B².

Each pair of the movable parts or bridge-sections *q q* are connected by rods *s*, so as to move in unison, and may be turned or rocked
95 in their bearings by means of a system of coupling or connecting rods, *u x*, and arms *t*, one of which is pivoted to a rod, *v'*, which extends to the scale post or standard D. This arm *v'* is also pivoted, as shown in Fig. 2, in the lower
100

end of a cross-piece, x' , which is journaled in one of the fixed chairs h , and pivoted at its upper end in rod x , (shown in dotted lines in Fig. 2,) which connects it with arm t of part q on the left side of the track. It follows that by pushing rod v' in the direction of the arrow the rocking parts q q are tilted, through the medium of the cross-head x' , arm v , arm x , and the fixed arms t of the rocking parts q , toward the middle part of the track, out of the way and to one side of the knife-edges i i of scale-beams a and b , thus permitting the car-wheels to run upon said edges and depress their appropriate beams, thereby bringing the machine into operation.

A long arm, k , is rigidly affixed upon the rock-shaft d , and extends to the standard D, through a slot or opening in the upper part of which it is inserted, the slot being cushioned in its top and bottom parts by rubber pads m and n' .

E is an adjustable weight, which slides upon the outer end of arm k , for the purpose of properly justifying the balance in conjunction with the movable weight z , which is affixed upon arm c' of the rock-shaft d to the greatest possible degree of nicety and accuracy.

F is an arm, which is pivoted at its inner end, f' , in the standard D. By tilting this arm in an upward direction it will, with its shoulder F' , which is bent to one side, as shown in Fig. 1^a, so as to project sidewise in under the outer end of beam k , throw the latter up against the upper cushion, m , in the standard and lock or hold it fixedly in place when the scale is not in use.

Rod v' for operating the rocking bridge parts q q is actuated by a weighted lever, y , at its extreme outer end, which is pivoted in the lower part of standard D. In the position of this lever shown in the drawings rod v' operates to hold the parts q q up against the knife-edges i i ; but by tilting lever y over to the other side of the standard rod v' is pushed in the direction of the arrow and the step or bridge pieces q q are, as we have seen, tilted out from the knife-edges i i toward the middle line of the track. The construction and relative arrangement of the parts i , q , and r will readily be understood by reference to Figs. 4 and 6 of the drawings.

Each of the co-operating systems B' and B² is covered and protected by a plank platform, n , which rests upon timbers o o . Instead of supporting the car-wheels during the operation of weighing directly upon the knife-edges i i , a floor or platform, H, (which, if desired, may be provided with rails,) may be mounted upon beams or girders I, the lower ends of which rest upon the knife-edges i . Where this construction is employed it is desirable to provide the connecting-rods s with eccentric disks q' , so that by turning rods s in their bearings the eccentrics will operate to lift the platform H and its supports I off from contact with the

knife-edges when the machine is not in use. This modification is shown in Figs. 7 and 8 of the drawings, Fig. 7 being a cross-section through line L K in Fig. 8.

The standard D has a fixed pointer, G', and arm k a pointer, G, which, when registering with each other, indicate that equilibrium has been obtained. l is the hanger, upon which the slotted weights are placed.

Instead of employing a long beam, k , as shown in Figs. 1 and 2, the arrangement may be modified, as represented in Figs. 9, 10, and 11, the relative arrangement and combination of the scale-beams a and b being substantially the same, and Fig. 9 representing a vertical section through the plane indicated by the broken line $y' y'$ in Fig. 10.

The distance between the systems B' and B² should correspond, as near as may be, with the distance between the car-trucks, so that while one of the trucks rests upon B' the other will rest upon B². If the car is either too long or too short for this, its weight must be determined by two weighings. To ascertain the wheel-pressure of a locomotive, it is run upon the scale so that the wheel the pressure of which is to be determined will rest upon one of the knife-edges i , while the wheel on the opposite end of the axle is supported upon the bridge-piece q on that side of the scale. The coupling between the two bridge-pieces q q appropriate to the same system, but on opposite sides thereof, must of course be disconnected, as otherwise one could not be in position for supporting the wheel without affecting the other—that is, causing the other to be held in the same position—which would render its appropriate knife-edge i , upon which the wheel whose pressure is to be determined rests, ineffective and inoperative.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the arms a a and b b , having their fulcrums at e , and provided with knife-edges i i , rocking bridge-pieces q q , having arms t , and connected by the coupling-rods u and x , double-armed lever x' , rod v' , and weighted lever y , substantially as and for the purpose herein shown and set forth.

2. The combination of the arms a a and b b , having their fulcrums at e , and provided with knife-edges i i , knife-edge links f' and g' , and rock-shaft d , having arms c c' , and provided with the adjustable weight z , substantially as and for the purpose herein shown and described.

In testimony whereof I have hereto affixed my signature in presence of two witnesses.

FREDERIK CASSE.

Witnesses:

R. P. BERGGREEN,
VIZGO C. EBERTH.