(Model.) 2 Sheets—Sheet 1.

J. G. SCHMIDT.

WEIGHING SCALES.

No. 423,183. Patented Mar. 11, 1890.

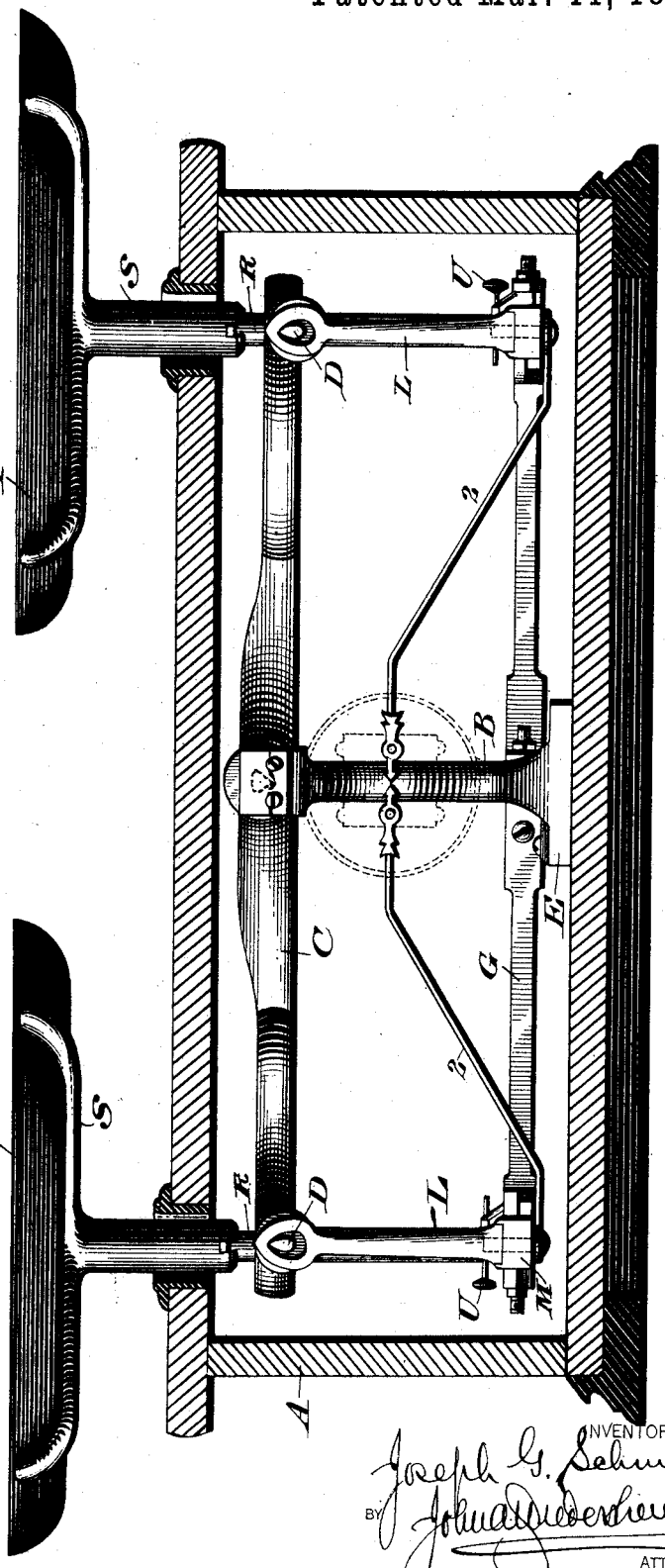

Fig. 1.

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(Model.) 2 Sheets—Sheet 2.

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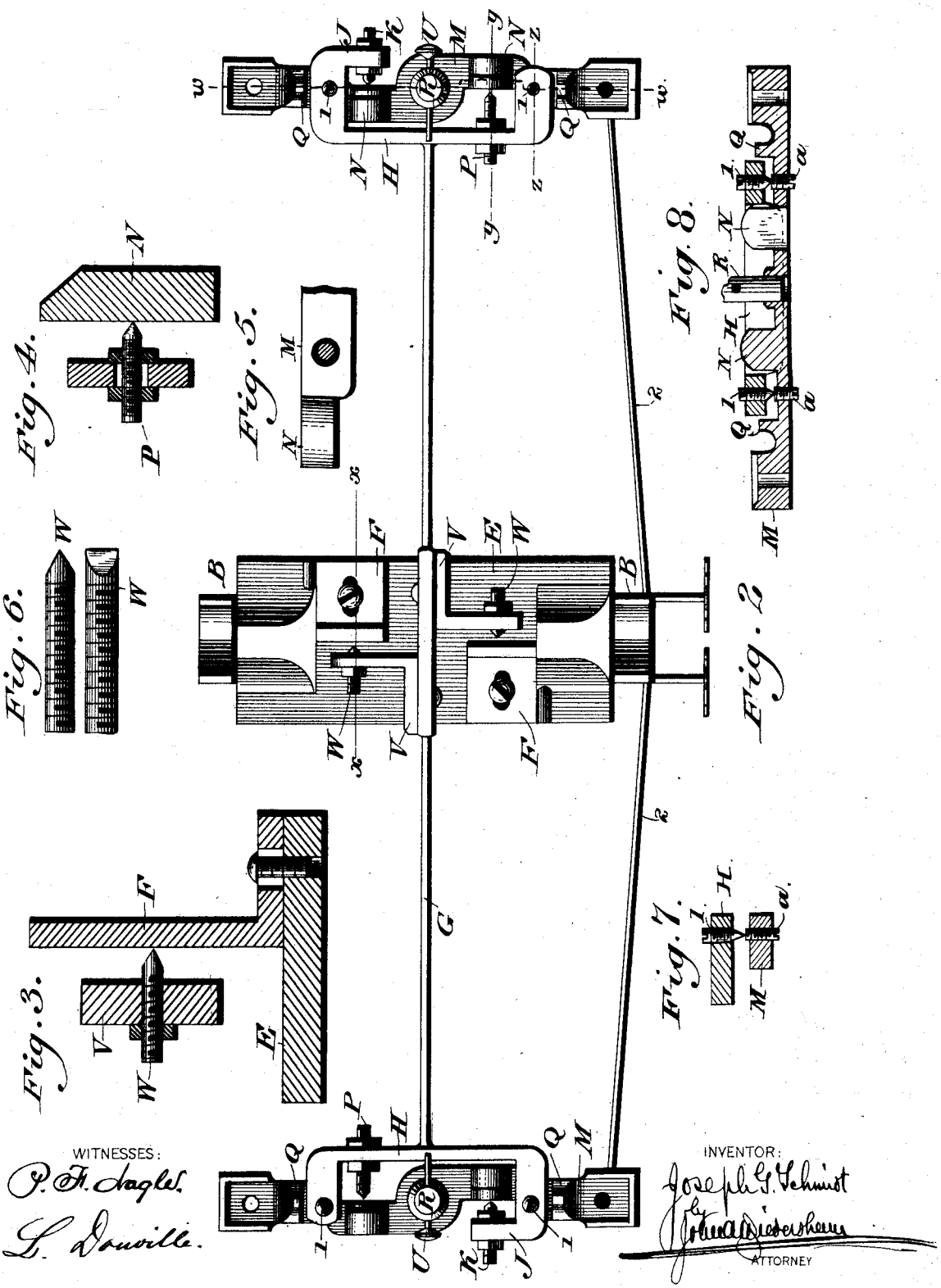

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JOSEPH G. SCHMIDT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HENRY TROEMNER, OF SAME PLACE.

WEIGHING-SCALES.

SPECIFICATION forming part of Letters Patent No. 423,183, dated March 11, 1890.

Application filed September 9, 1889. Serial No. 323,402. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH G. SCHMIDT, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Scales, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to weighing-scales; and it consists in the novel construction of the levers and fulcrums and adjustments for accurate service, as will be more fully hereinafter set forth.

Figure 1 represents a sectional elevation of a scale embodying my invention. Fig. 2 represents a top plan view of the parts removed from the casing, the beam being omitted. Fig. 3 represents a vertical section on the line *x x*, Fig. 2. Fig. 4 represents a vertical section on the line *y y* of Fig. 2. Figs. 5 and 6 represent detail views of parts of the scale. Fig. 7 represents a vertical section on line *z z* of Fig. 2. Fig. 8 represents a vertical longitudinal sectional view of the connecting-plates on line *w w*, Fig. 2.

Similar letters and numerals of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates the casing; B, an upright supporting a beam C, having knife-edges D. To the base E, supporting upright B, are secured adjustable angle-bearings F, which are oppositely arranged to bring their bearing-faces in reverse positions.

G designates the lever, having yokes H formed on the ends thereof, one end J of each yoke extending inwardly and at right angles with the length of the lever and constructed with screw-holes to provide bearings for adjustable fulcrum-stops K. On the knife-edges D of the beam C are mounted hangers L, on whose lower ends the connecting-plates M are secured. The said plates M are formed with bearing-ears N, arranged in reverse positions to have the faces thereof turned in opposite directions. The stops K bear against the ears N, which have their faces outwardly arranged, and other stops P are adjustably mounted in the inner cross-pieces of the yokes H and bear against the adjacent ears N, having their faces arranged inwardly.

On the upper face of the plate M and outside of the ears N are the lugs Q, projecting upwardly to form a recess for the reception of the ends of the yokes H. From the center of the connecting-plates M rise posts R, on which are fitted the spiders S for supporting the pans T. Headed pins U are removably located in the lower parts of said posts R and project over the yokes H, to prevent the latter from becoming displaced from their position in the cross-pieces M of the hangers L. The outer ends of said cross-pieces M are recessed to receive the heels of the uprights of said hangers L. Each end of the yokes H has adjustable pointed screws or stops 1 vertically mounted therein, adapted to bear on the upper ends of steel studs or pins *a*, located under said screws 1 and in the connecting-plates M of said hangers L. It will be noticed that the pivotal support of the lever G by means of the screws 1 on the studs *a* of the plates M permits an oscillating motion of the said lever, and the studs may readily be adjusted or removed in case of wear.

The center of the lever G is thickened to strengthen the same and has angle-plates V connected therewith, the outer ends of which support adjustable stops W, having knife-edge ends, which bear against the faces of the angle-bearings F. The stops or fulcrums K, P, and W are adjusted relatively to their bearing-surfaces to allow the latter to have a slight play to accommodate the movement of the parts, but prevent a displacement of said parts, and at all times sustain the equilibrium of said parts. Said stops or fulcrums K, P, and W are also provided with set-nuts to retain the same in their adjusted position, and the bearing-plates F may be also adjusted by loosening the screws thereof and moving them inward or outward.

It will be seen that the lever G has a free rocking movement and friction reduced at all points of the same by the loose contact of the stops or fulcrums thereof, which are arranged in horizontal and vertical positions. By this means a more correct balance is provided, which can be readily adjusted to accuracy when wear of the parts renders the same inaccurate.

To the lower part of the ends of the plates

M are secured the ends of indices 2, which are bent upward and work in a casing covered by glass, and are adapted to indicate the equilibrium or balance of the parts, as will be readily understood.

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

1. A scale having a fulcrumed beam with hangers having connecting cross-plates, studs in said cross-plates, and a lever fulcrumed below said beam and having stops at or near its ends, said stops resting on said studs.

2. A scale having a fulcrumed beam with pivotal hangers and connecting cross-plates, and a lever with yoke ends having screws with pointed ends supported on studs in said connecting-plates, said parts being combined substantially as described.

3. A scale having a fulcrumed beam with pivoted hangers and connecting-plates, a lever with yoke ends supported on said connecting-plates, and horizontal stops in said yoke ends bearing against said connecting-plates, said parts being combined substantially as described.

4. A scale having a fulcrumed beam with hangers and connecting-plates, a lever with yoke ends supported on said connecting-plates, horizontal stops in said yoke ends bearing against said connecting-plates, angular plates secured to said lever and having stops, and bearings secured to the base of the beam upright for said last-mentioned stops, said parts being combined substantially as described.

5. A scale having a fulcrumed beam, a standard, hangers pivotally secured to said beam, connecting-plates at the lower ends of the hangers, a lever with ends on said connecting-plates, bearings connected with the base of the standard, angular plates connected with the lever, and stops in said angular plates adapted to contact with said bearings, said parts being combined substantially as described.

6. A scale with a beam having pivotal hangers with connecting-plates, a lever having its ends provided with adjustable screws resting on studs in said connecting-plates, angular plates secured to said lever and having adjustable stops with knife-edges, bearings for said stops secured to the base, and horizontal adjustable stops in the ends of said levers bearing against said connecting-plates, said parts being combined substantially as described.

7. A scale having a fulcrumed beam with pivotal hangers, cross-plates connecting the lower ends of the hangers and having the bearings N and lugs Q, and a lever with yoke ends, said yoke ends of the lever being adapted to work between said bearings and lugs, said parts being combined substantially as described.

8. A scale having an oscillating beam with pivotal hangers, cross-plates connecting said hangers, a lever with ends supported on said cross-plate, and an upright rod on said cross-plate, and a spider connected with said rod, said parts being combined substantially as described.

9. A scale having a fulcrumed beam with pivotal hangers, connecting cross-plates secured to said hangers, a lever with yoke ends on said cross-plates, stops adjustably connected with said lever, bearings for said stops connected with said plates, upright rods with spiders secured to said plates, and indices secured to the ends of the plates, said parts being combined substantially as described.

JOSEPH G. SCHMIDT.

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