

(No Model.)

2 Sheets—Sheet 1.

M. HALLHEIMER.
MECHANICAL MOVEMENT.

No. 279,941.

Patented June 26, 1883.

Fig. 1.

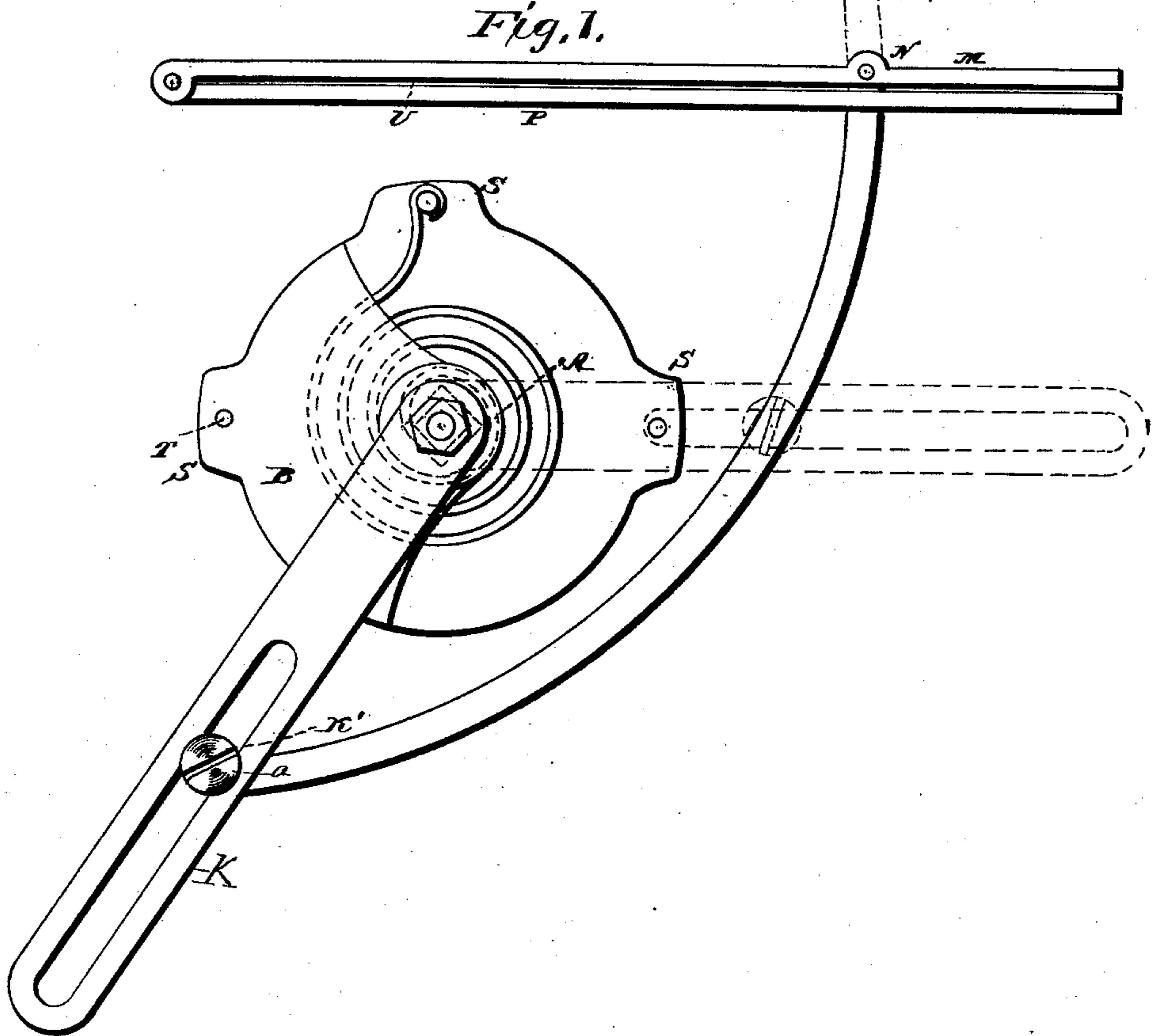


Fig. 3.

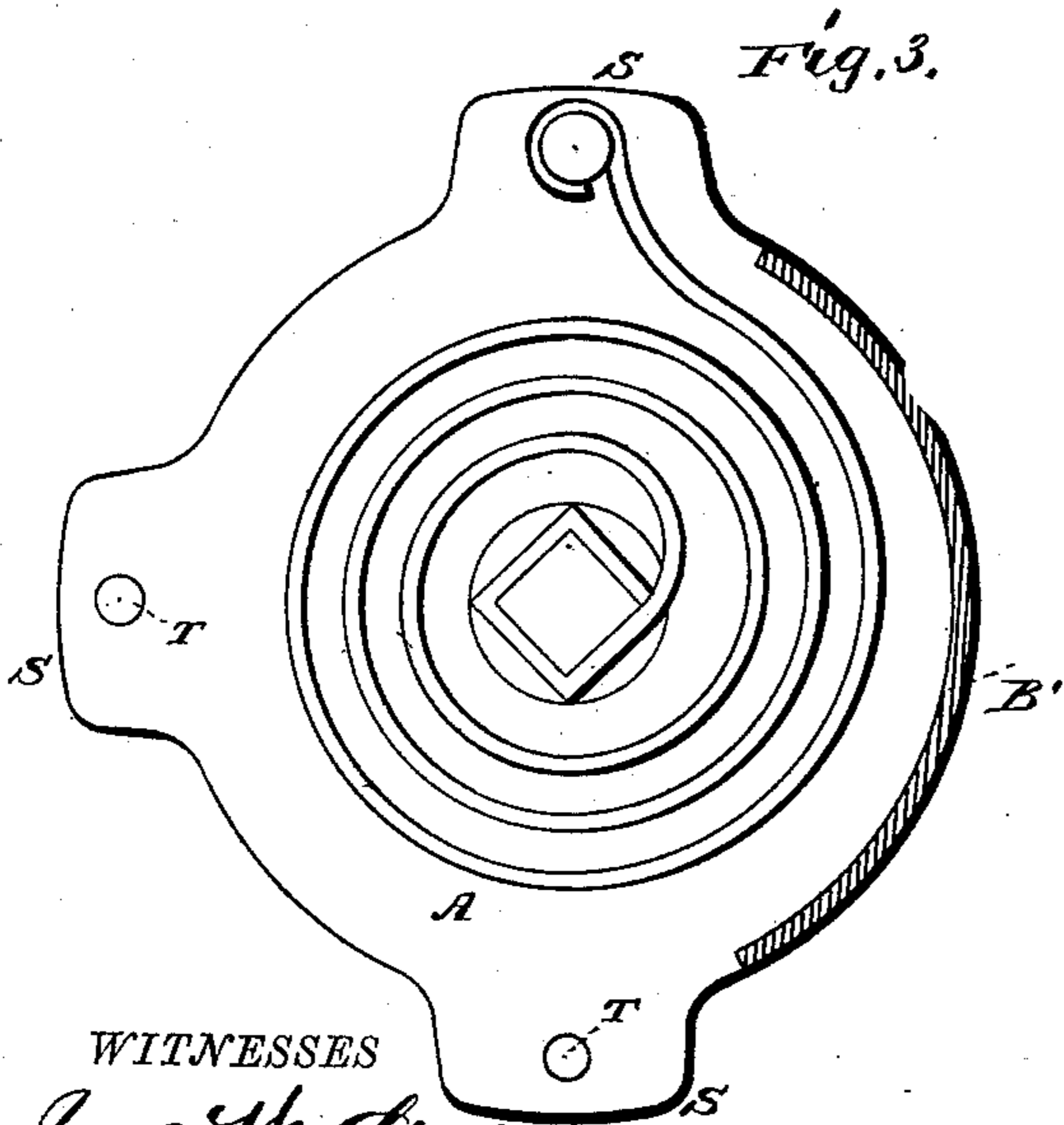
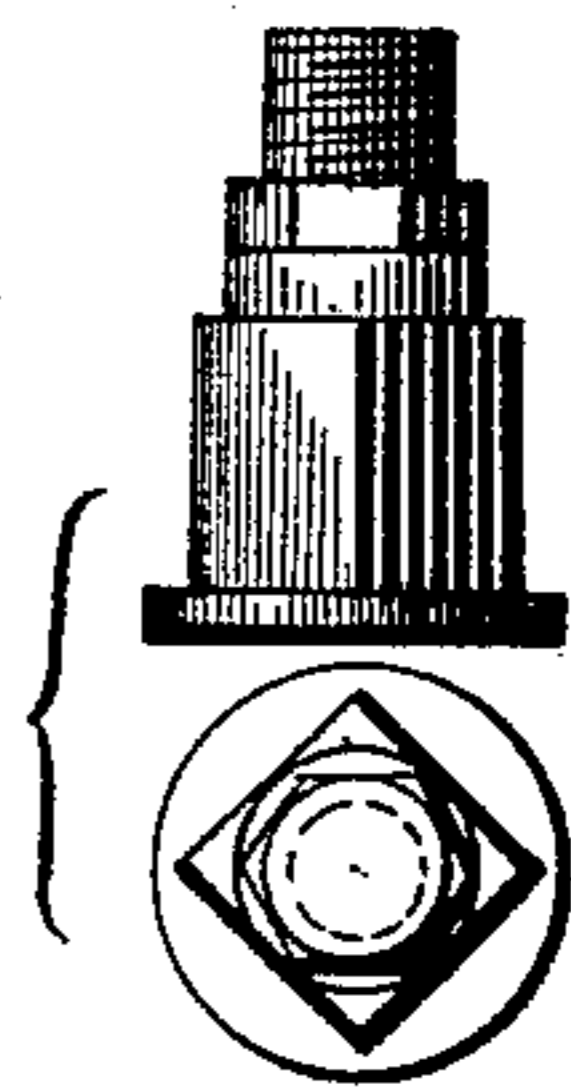


Fig 4



WITNESSES
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W. E. Bowen.

INVENTOR
M. Hallheimer
per *O. E. Duffy*
Attorney

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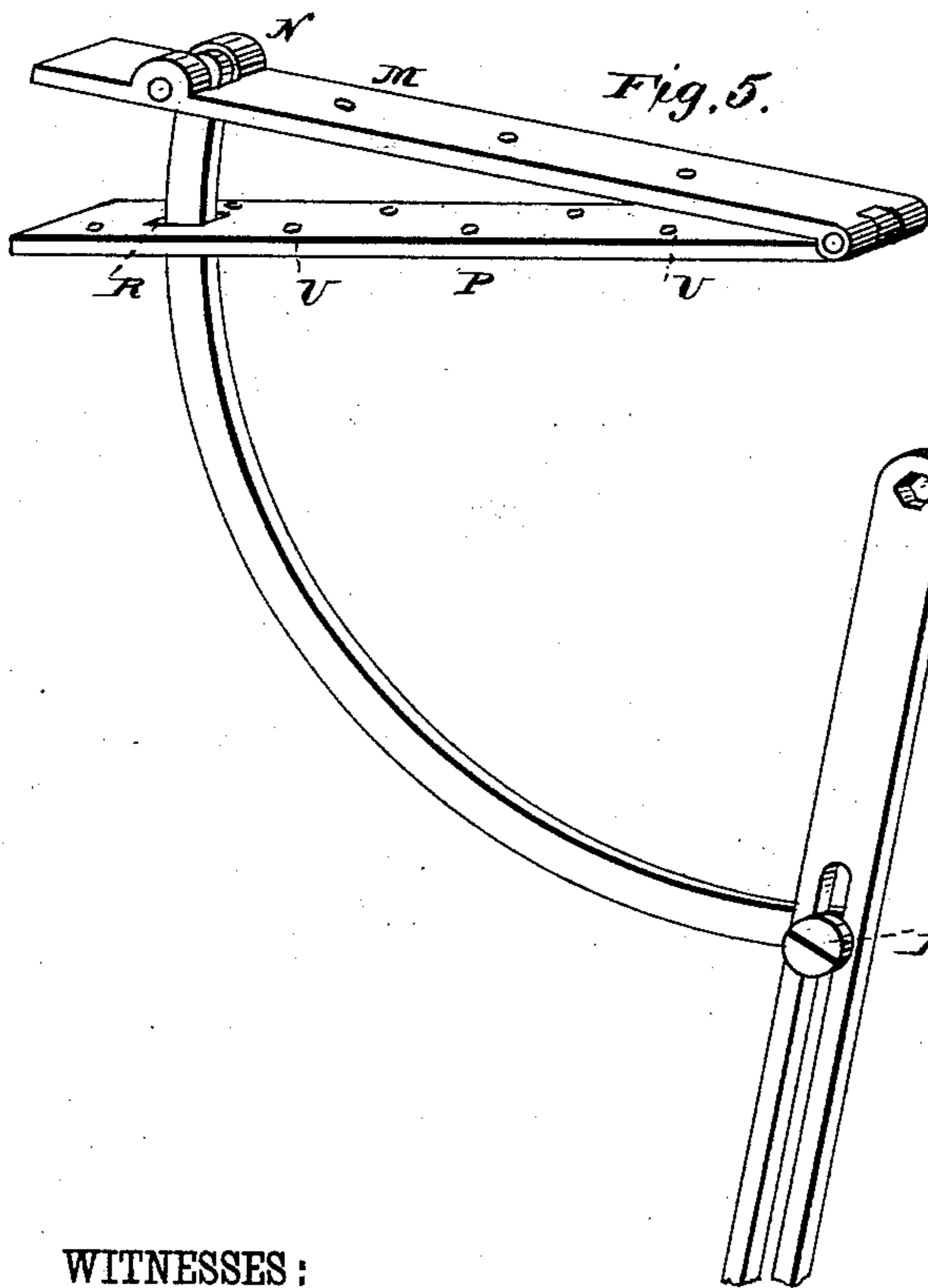
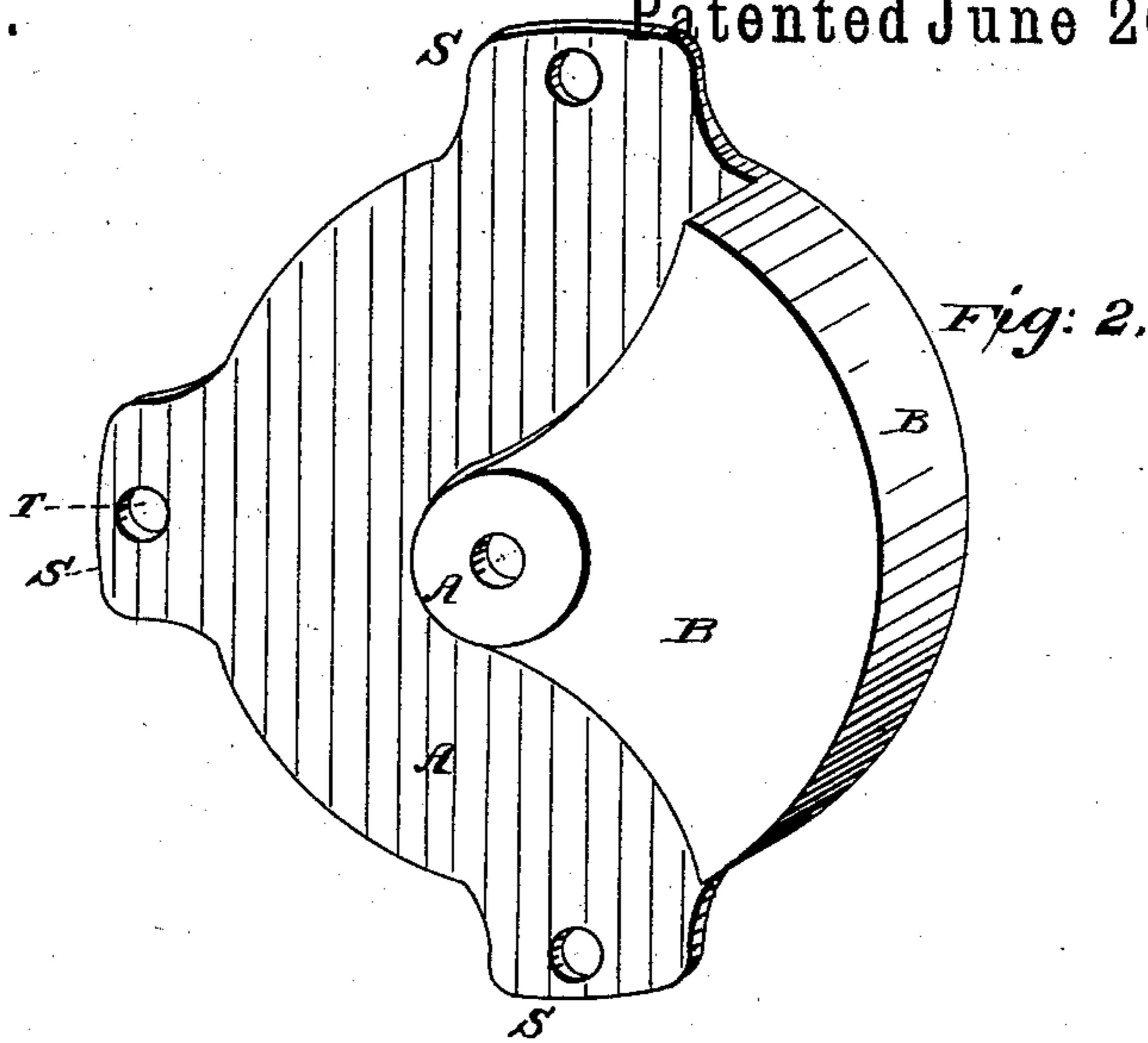


Fig. 6.



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INVENTOR:

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UNITED STATES PATENT OFFICE.

MAX HALLHEIMER, OF BROOKLYN, NEW YORK.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 279,941, dated June 26, 1883.

Application filed November 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, MAX HALLHEIMER, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Mechanical Movements; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable 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 of reference marked thereon, which form part of this specification.

This invention relates to a certain mechanical movement of the class shown, and is a method of automatically balancing or reducing the momentum of the fall of a structure moving from or upon a given center or pivot and assisting its return motion—in other words, automatically decreasing the effect of its momentum in its downward and of its weight in its upward motion from a point outside and different from said center. This object I attain by indirectly connecting said center upon which the structure turns, as shown—in other words, the line or bar drawn from or hinged from or upon said center in a suitable manner (for instance, by a bar of suitable contour or quadrant or segment of a circle)—with a lever fastened upon the center of a coiled spring, fastened at a point different from the center first mentioned, and which lever, containing a slotted bar, is so affixed to such coiled spring at its center that by means thereof such spring can be wound and unwound around its own center, said last-mentioned lever being provided with said slot, so as to avoid the mechanical impossibility of joint motion of two ordinary levers connected with each other, but turning upon different centers distant from each other the same or more or less than the length of connection between the two levers at their ends opposite to said centers and describing different circles.

In the drawings, Figure 1 is a plan view of my invention complete. Fig. 2 is an elevation of a box in which the spring, which contains a square center, is retained by means of a suitable bolt, shown in Fig. 3; and Fig. 3 represents the segmental plate and spring connected therewith. Fig. 4 shows a plan view of the shape and form of the coiled spring and

its fastening device. Fig. 5 is a perspective view, showing the manner of connecting the spring, the working-levers, blades, and bars; and Fig. 6 is a sectional view of the connection, retaining-cap, and screw.

The letter A indicates a flat plate, having a curved flange, B, at the edge on one side, from which extends toward the center of the said plate A a segmented plate, B', the whole forming a casing or support for the coiled spring C. The said spring, at its outer end, is secured to a pin or lug, D, secured to or formed on the plate A, and at its center is secured to a short rectangular shaft, E, which is provided with a flat head, F, adapted to set against and rotate on the plate A at its center. The said shaft is provided with a cylindrical journal, G, which has its bearings in the boss H at the free end of the segmental plate B'. The end of said shaft projects outward beyond the boss, and is provided with a polygonal shoulder, I, upon which the lever K is fastened, the said lever being provided with a corresponding polygonal opening, L, at one end for the purpose. The said shaft is screw-threaded at its outer end for the reception of a screw-nut to confine the lever. The said lever K is provided with an elongated slot, K', through which passes a sliding bolt, a, which is screwed into one end of a metallic quadrant, L', the other end of which passes through a slot near the end of a bar, M, and is journaled between lugs N to or formed on said bar. The bar M, at its opposite end, is hinged to a similar bar, P, which is slotted at R, the quadrant before mentioned passing and working freely through said slot.

The plate A is provided with ears S, having apertures T, through which screws or bolts may be passed, by means of which it may be attached to any support, and the bar P is provided with apertures U for the insertion of screws, in order to secure it to the article to be moved.

As constructed it will be perceived that the lever K is essentially a variable lever, since, when the spring is wound up and exerting its greatest force, the sliding bolt at one end of the quadrant is at the end of the slot farthest from the center of the spring and upward and to the right thereof, and as the spring unwinds in exerting its power the said sliding bolt gradually approaches the other end of the slot up to a cer-

tain point, when, passing such point on its way downward and to the left of the spring-center, it again approaches the farther end of the slot.

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

1. The combination, by means of a bar of suitable contour or quadrant, of a structure moving upon and around a fixed point or center, with the slotted bar which winds and unwinds a coiled spring fastened upon a different center, substantially as shown and described.

2. The combination, in a mechanical movement, of a structure moving upon and around a fixed point or center, with a coiled spring fastened upon a different point, and having a center different from the point or center first mentioned, by means of a bar of suitable contour or quadrant, one end of which is affixed to the structure at a point different from the center point of its motion, and the other end of which is movable in a slot in a bar or lever which is affixed to the center of the spring in such manner as to wind and unwind it around its center, substantially as shown and described.

3. The combination, with a fixed coiled spring, of a slotted bar journaled at its center, in the slot of which moves or works another bar, to the other end of which is affixed a base or structure moving upon another center, substantially as shown and described.

4. The combination, in a mechanical movement, of a structure mounted upon and working upon a fixed center, with a coiled spring working upon a different center and connected by intermediate mechanism, as described and shown.

5. In a mechanical movement, the combination of two fixed working-centers connected to-

gether by intermediate mechanism and operated by a suitable spring, one of said centers carrying a movable structure whose weight is counterbalanced by the tension of the spring, as shown and described.

6. In a mechanical movement, the combination of a moving structure having a fixed center upon which the structure rotates different from the center of motion of its regulating-power, the latter being an operating-spring, and connected by levers which change their relative position to the yielding action of the spring, as shown and described.

7. In a mechanical movement having a movable structure working on a fixed center different from the center of motion, and connected by differential levers adapted to be used with and in combination with a coiled spring, said parts being constructed and arranged as particularly shown by Fig. 1 of the drawings.

8. In a mechanical movement, the two fixed centers, upon one of which is surmounted a structure and upon the other a coil-spring, the power of which is nearly equal to the weight of the structure, in combination with intermediate mechanism consisting of a link quadrantal in form, and a lever provided with an elongated slot, by means of which the power of the spring is transmitted to the first-named center, as described and shown.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

MAX HALLHEIMER.

Witnesses:

O. E. DUFFY,
EDWARD E. ELLIS.