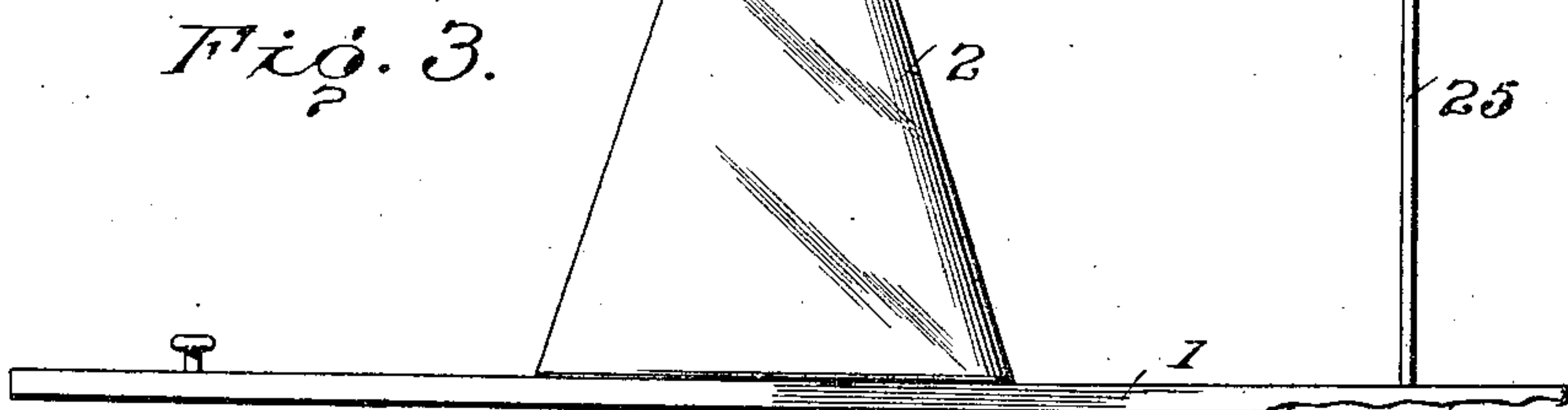
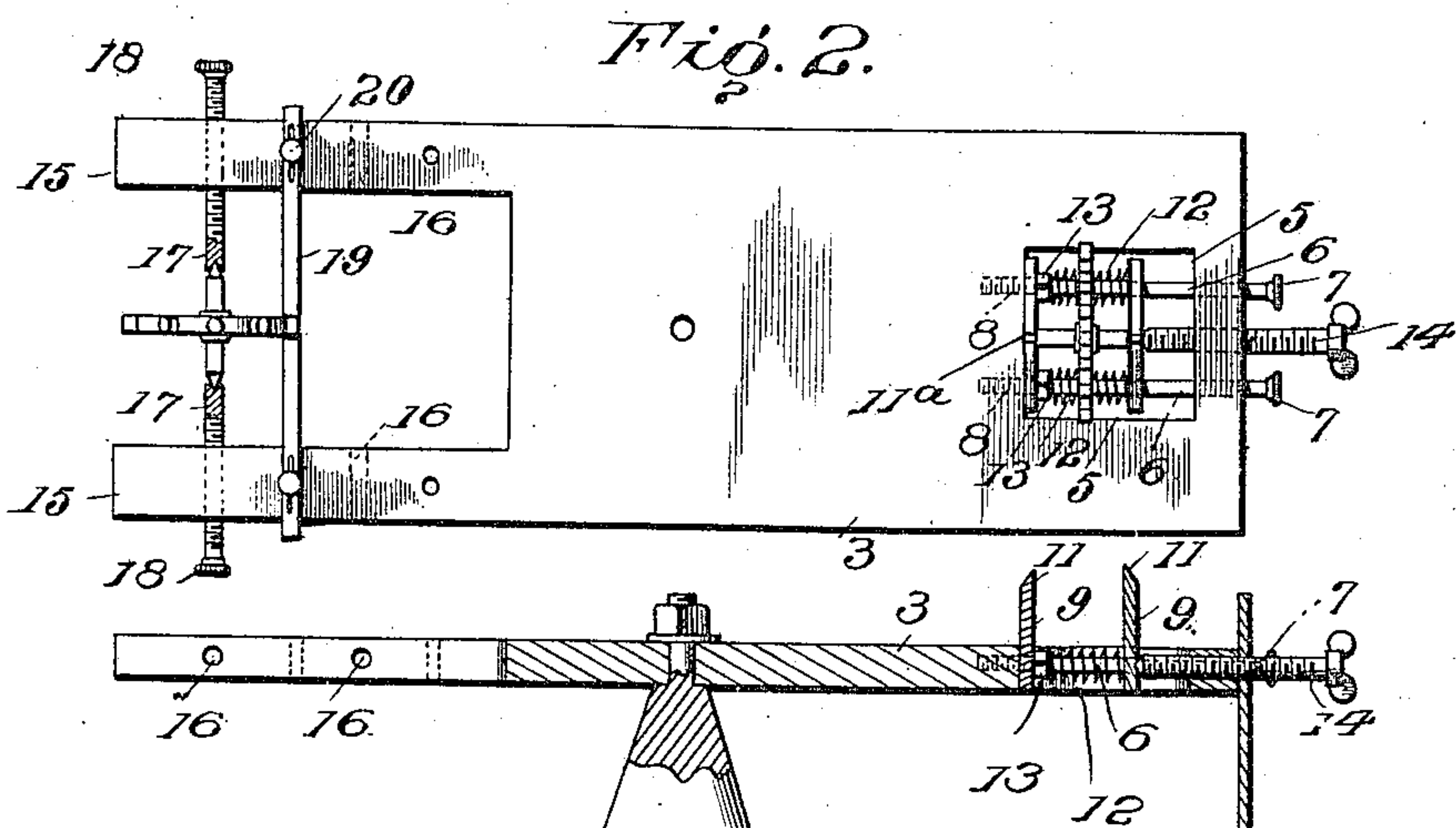
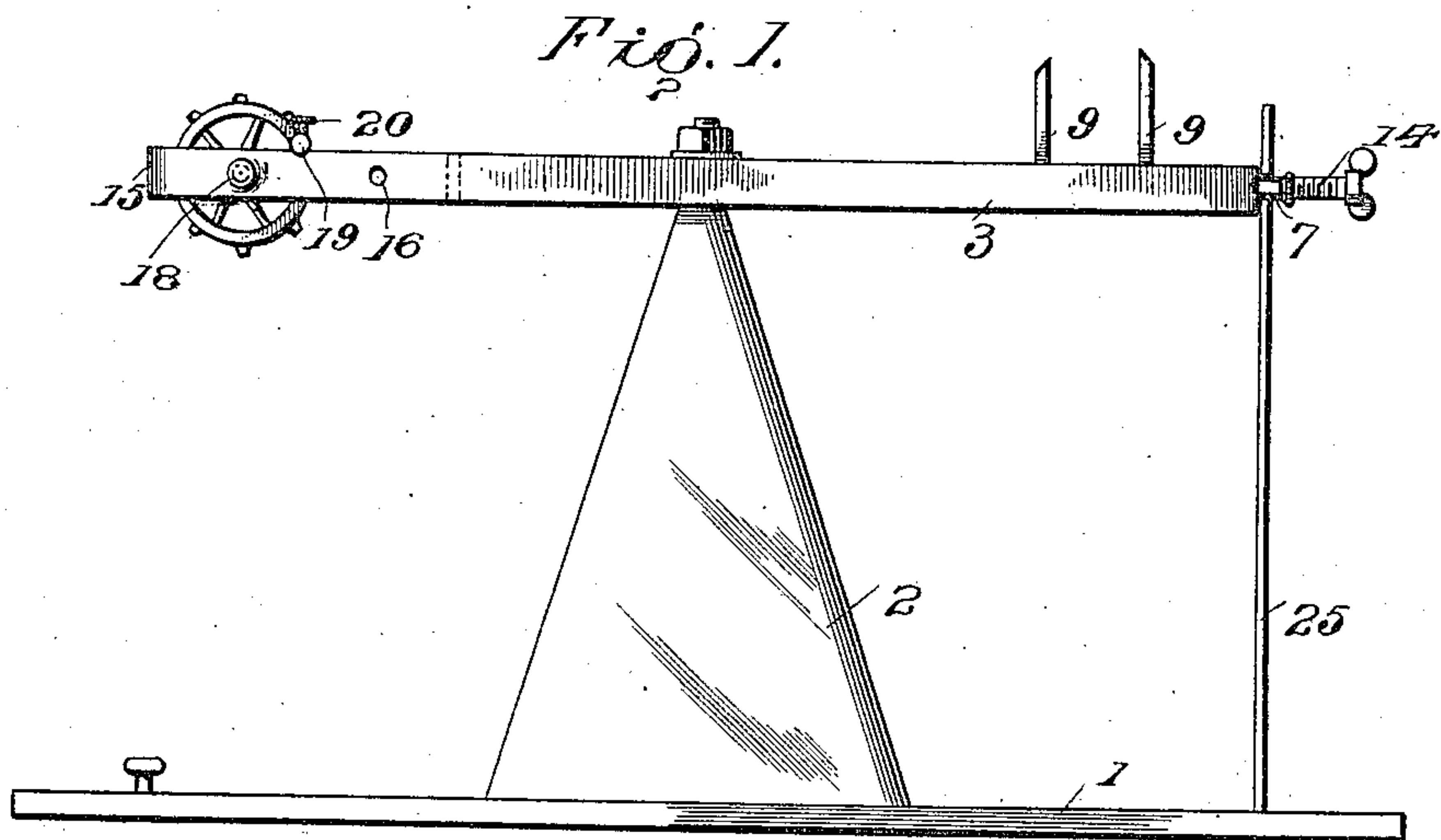


No. 843,754.

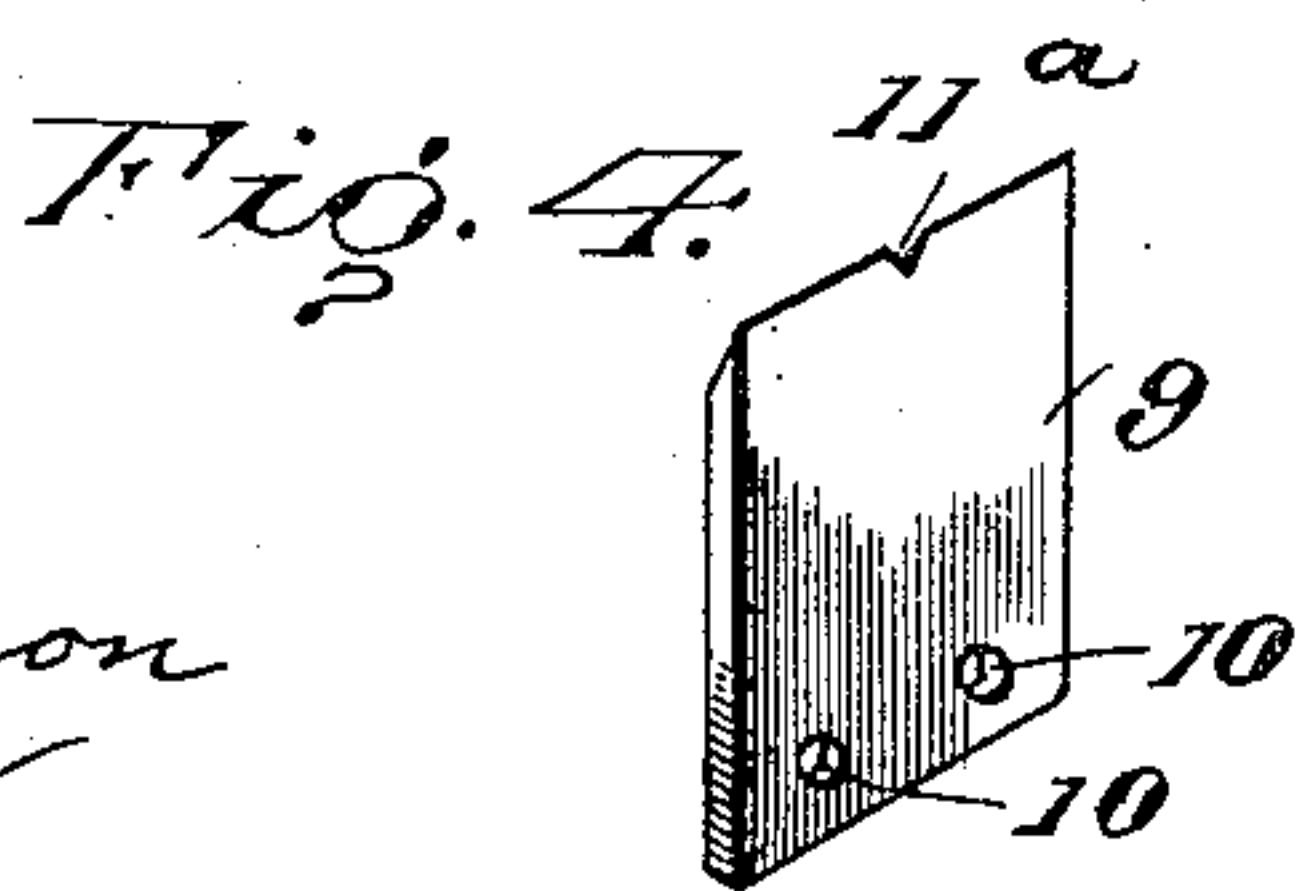
PATENTED FEB. 12, 1907.

J. S. KIRSTEIN.
POISING AND TRUING TOOL FOR BALANCE WHEELS.
APPLICATION FILED SEPT. 4, 1906.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN S. KIRSTEIN, OF CANTON, SOUTH DAKOTA.

POISING AND TRUING TOOL FOR BALANCE-WHEELS.

No. 843,754.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed September 4, 1906. Serial No. 333,204.

To all whom it may concern:

Be it known that I, JOHN S. KIRSTEIN, citizen of the United States, residing at Canton, in the county of Lincoln and State of South Dakota, have invented certain new and useful Improvements in Poising and Truing Tools for Balance-Wheels, of which the following is a specification.

The object of this invention is to provide a simple and effective tool particularly designed for use of watchmakers for accurately and quickly poising balance-wheels of watches.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying the essential features of the present invention. Fig. 2 is a top plan view of the supporting-beam and its supported parts detached from the base. Fig. 3 is a longitudinal sectional view through the supporting-beam. Fig. 4 is a detail perspective view of one of the balance-wheel-supporting plates.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the invention, the numeral 1 designates a base from the central portion of which projects upwardly the support 2. The support 2 is of somewhat conical form in elevation and has its upper extremity reduced and threaded, so as to pass through a supporting-beam 3, the latter being held in position by means of a nut or similar member 4, which is screwed upon the upper reduced extremity of the member 2. Adjacent to one end of the beam 3 the latter is formed with a somewhat oblong opening 5, and extending across said opening longitudinally of the beam or support 3 are spaced threaded supporting-rods 6. The outer extremities of the rods 6 project outwardly from the adjacent end of the support or beam 3 and are provided with finger-pieces 7 for manipulation thereof. The inner end portions of the rods 6 are threaded for some distance and are adapted to screw into threaded sockets 8, which extend from the inner side of the opening 5.

From the foregoing it will be apparent that the rods 6 are adjustable upon the beam 3,

and these spaced rods are designed to support spaced supports or plates 9, each of the plates 9 being provided at its lower end portion with two openings 10 and having at its upper edge portion a bevel knife-edge, as indicated at 11. The supporting rods or members 6 pass through the openings 10 in the plates 9, and said plates 9 are so arranged as to be normally spaced from one another, being held in such positions by means now to be described. The outermost plate 9 or the plate nearest the adjacent end of the beam 3 has spiral springs 12 bearing thereagainst at the inner side thereof, said springs 12 being mounted upon the rods 6 and in contact with the plate 9, above mentioned, at corresponding extremities. The opposite extremities of the springs 12 bear against adjusting-nuts 13, which are mounted on the threaded end portions of the rods 6. The nuts 13 are adapted to bear against and rigidly position the innermost of the plates 9, holding said plate firmly against the inner side of the opening 5. Both of the plates 9 are held in vertical positions by the means cooperating therewith, the outermost of the plates being adjusted, however, longitudinally of the rods 6 by means of an adjusting-screw 14, the latter being mounted on the end portion of the beam 3 adjacent to the plates 9, the inner extremity of the screw 14 bearing against the outer side of the outermost plate 9, whereby when the screw 14 is turned in one direction the plate 9 with which it cooperates will be forced against the tension of the springs 12 toward the inner plate 9. When the screw 14 is turned in the opposite direction, the outer plate will be forced outwardly by means of the springs 12 in an obvious manner. The outer side of the outer plate 9 may have a small seat therein to receive the inner end of the screw 14, and it is of course to be understood that the screw 14 is threaded throughout its length and is mounted in a threaded opening on the beam 3.

The upper edges 11 of the plates 9 are provided with notches 11^a to receive arbors of the balance-staff therein and prevent said arbors from rolling off of the supports or plates 9 in the operation of ascertaining the poise of the balance-wheel.

In actual use the outer plate or support 9 is adjusted by the screw 14 so that the plates 9 will be properly arranged to support the balance-wheel which is to be disposed thereon, as hereinbefore described. After the ar-

bors of the balance-wheel are received in the notches in the upper edges of the plates 9 the operator will blow lightly against the balance-wheel, and if the latter is of equal weight at all points or is in proper equipoise it will stop at any point in its revolution. If, however, the wheel is out of equipoise or heavier at one point than at others, it will always stop with the heavier point down, due to the natural laws of gravitation. Under these conditions the poise of the wheel may be quickly and accurately determined. Furthermore, the arrangement of the supports 9 is such that balance-wheels of different sizes may be readily mounted thereon in order to ascertain the poise of the same.

At the end of the beam opposite the poising device is located a truing device or mechanism for use in truing balance-wheels, the same forming the subject-matter of a divisional application from this case filed on or about the 20th day of November, 1906, Serial No. 344,337. Said opposite end of the beam 3 is of bifurcate form, thus providing spaced longitudinal arms or supporting members 15. The supporting members 15 are provided with transversely-threaded openings 16 at intervals in their length, and laterally-adjustable supports 17 are mounted on the members 15. The laterally-adjustable supports 17 consist of threaded stems which are adapted to be mounted in two of the opposite threaded openings 16, each stem 17 being provided at its outer end portion with a suitable finger-piece 18 for manipulation thereof, while its inner end is formed with a conical bearing to receive the outer end of the arbor of the balance-wheel which is to be trued by the mechanism. The adjustable mounting of the supports or stems 17 is advantageous by reason of the necessity of providing a device or mechanism admitting of truing balance-wheels of different sizes.

The above briefly describes the means for mounting the balance-wheel preparatory to truing the same. The truing means proper includes opposing members 19, adapted for direct contact with the wheel at opposite sides, and it consists of a pin mounted on one of the arms or members 15 of the beam 3 and movable transversely of the latter. Set-screws 20 are preferably utilized to hold the truing-pins 19 at a predetermined adjustment with respect to the members 15. The arrangement of the pins 19 is such that the adjacent extremities of the pins are adapted to be so nicely adjusted that when the balance-wheel is bent at any point, no matter how slightly, the rotation of said wheel between the pins 19 will cause the latter to contact with the portion of the wheel which is bent or which is untrue or defective, thereby enabling the operator to quickly ascertain and remedy the defect. The adjustability of the truing-pins 19 is advanta-

geous for the same reason as is that of the supports 17.

Both the mechanism for poising the balance-wheels and that for truing defective wheels are very simple in practical operation, as well as structurally, and are possessed of advantages which will be apparent to those versed in the art to which this invention appertains.

In view of the provision of the poising and truing mechanisms located at opposite ends of the beam 3 it is desirable that the said beam shall be reversed in order that the mechanism to be used may be located convenient to the operator of the device. The peculiar connecting means established between the upper end of the support and the beam 3 is therefore advantageous in that it permits movement of the beam 3 in a horizontal plane, whereby to cause the mechanism at either end of the beam 3 to be disposed convenient for operation by the user of the device.

In order to fix the beam 3 at a desired adjustment, it is contemplated that the rod 25, attached at its lower end to the base 1, may have suitable connection at its upper end with either end of the beam 3, according to the position of the latter, as shown most clearly in Figs. 1 and 3 of the drawings. The rod 25 may have any substantial means for attaching the same to the base 1 and for establishing a detachable connection between the same and the ends of the beam 3.

Having thus described the invention, what is claimed as new is—

1. In poising mechanism for balance-wheels, the combination of a support, plates disposed thereon and formed with knife-edges at the upper edge portion for contact with and adapted to support the arbors of a balance-wheel, means slidably connecting one of the supporting-plates with the support, means for adjusting the position of the slidably-connected supporting-plate, and comprising an adjusting-screw mounted on the support and engaging the last-mentioned supporting-plate, and springs normally co-operating with the slidably-connecting supporting-plate to hold the same in a position spaced from the other of the supporting-plates.

2. In poising mechanism for balance-wheels, the combination of a support, spaced supporting-rods adjustably mounted thereon, spaced supporting-plates mounted on the supporting-rods, members carried by the supporting-rods for holding one of the supporting-plates in an adjusted position, an adjusting-screw coöperating with the other of the supporting-plates to adjust the position of the latter upon the supporting-rods, and springs mounted on the supporting-rods and bearing against the last-mentioned supporting-plate for the purpose specified,

said springs being interposed between said last-mentioned supporting-plate and the adjusting members on the supporting-rods.

3. A poising mechanism for balance-wheels, comprising a stand or support, plates disposed thereon and formed at their upper edge portions with beveled knife-edges and notches 11^a, the notches being designed to receive the ends of the balance-wheel shaft, means slidably connecting one of the supporting-plates with the support, means for adjusting the position of the slidable supporting-plate, said means consisting of an adjusting-screw mounted on a support and engaging the last-mentioned supporting-plate, and springs normally cooperating with the slidable supporting-plate to hold the same in a position spaced from the other supporting-plate.

4. A poising mechanism for balance-wheels, comprising a support provided with an open-

ing therein, spaced-apart supporting-rods adjustably mounted in said opening and extending across the same with their ends projecting out of the end of the support in convenient position for manipulation, vertically-disposed spaced-apart plates mounted on said rods, one of said plates being slidable along the rod, springs interposed between the plates and pressing the slidable plate outwardly, and an adjusting-screw working through the end of the support and adapted to impinge against the outer side of the said plate whereby to move the same inwardly toward the other plate.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN S. KIRSTEIN. [L. s.]

Witnesses:

C. E. BENEDICT,
A. G. NOID.