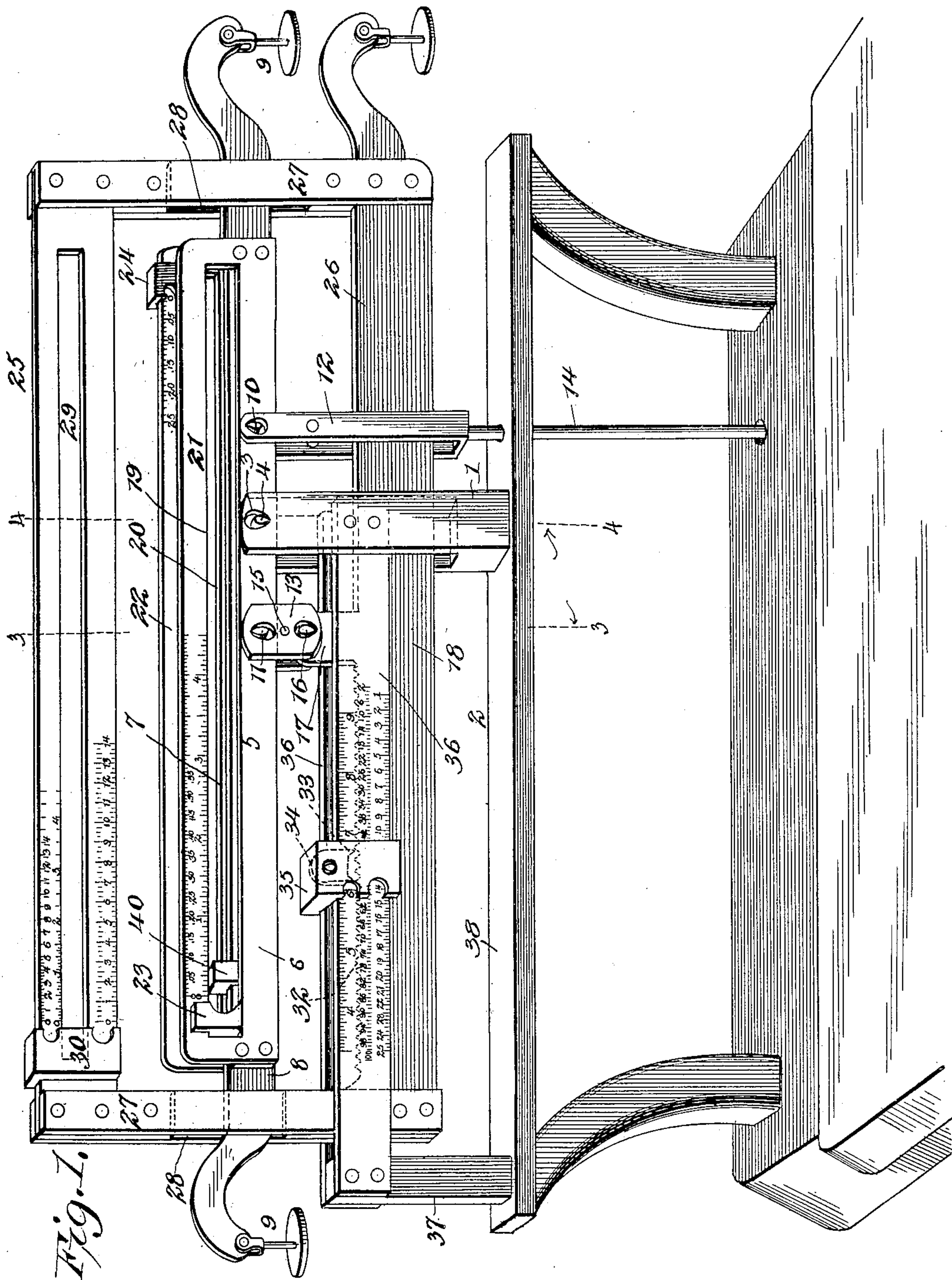


H. F. KINSER.
COMPUTING SCALE.

(Application filed Sept. 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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H. F. KINSER.
COMPUTING SCALE.

(Application filed Sept. 6, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 2.

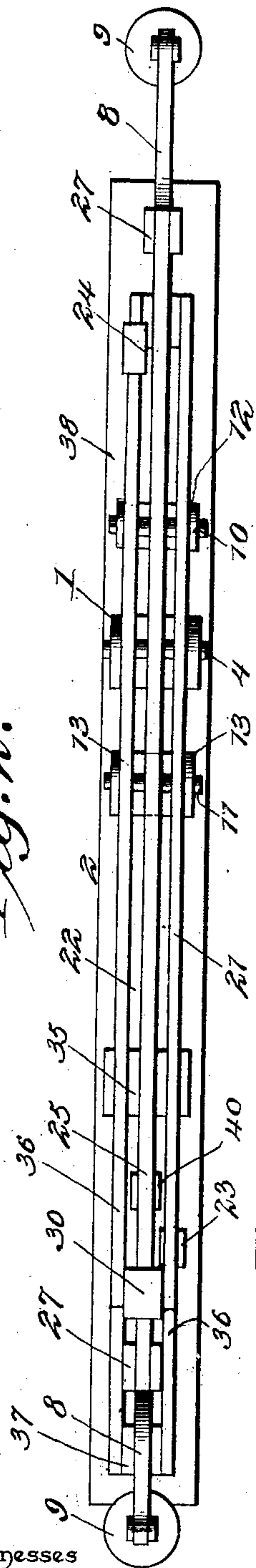


Fig. 5.

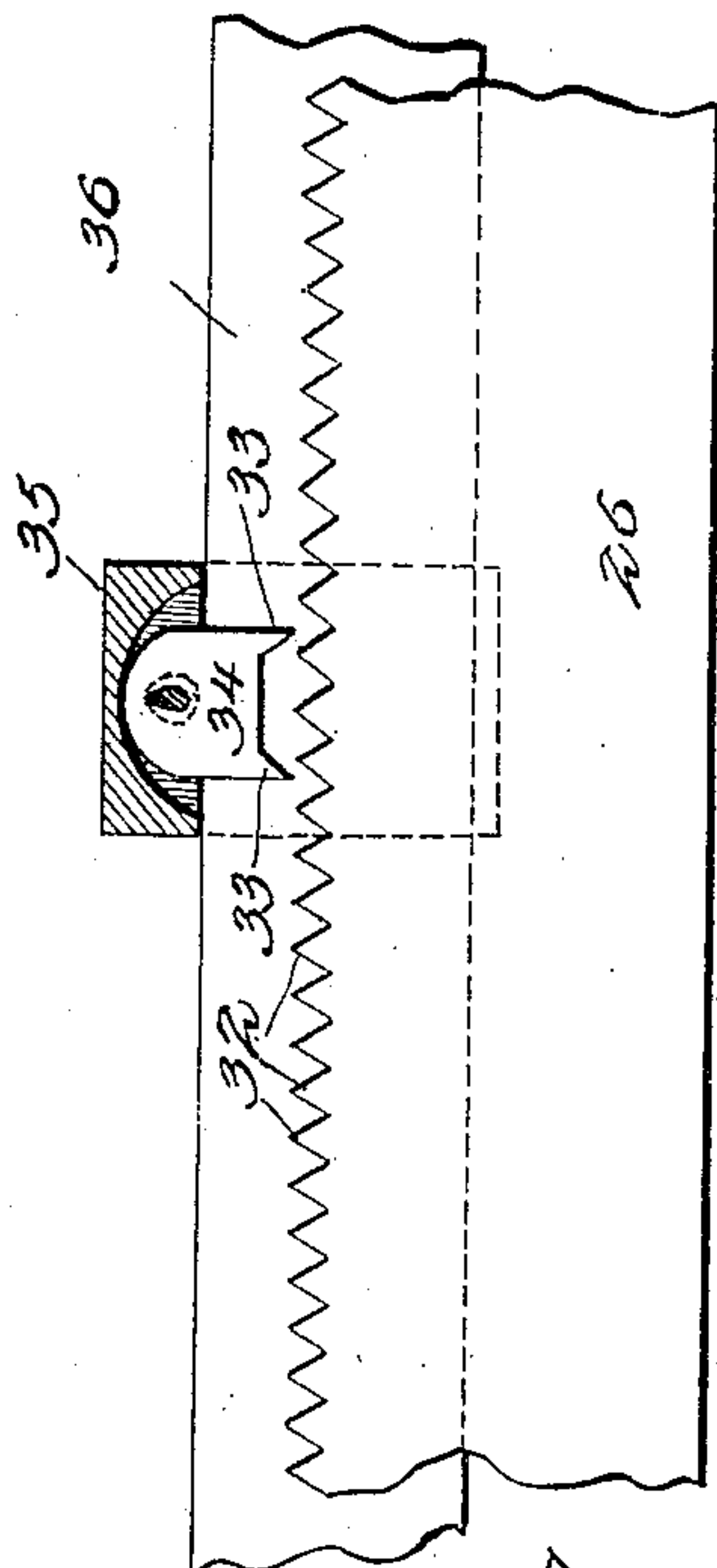


Fig. 4.

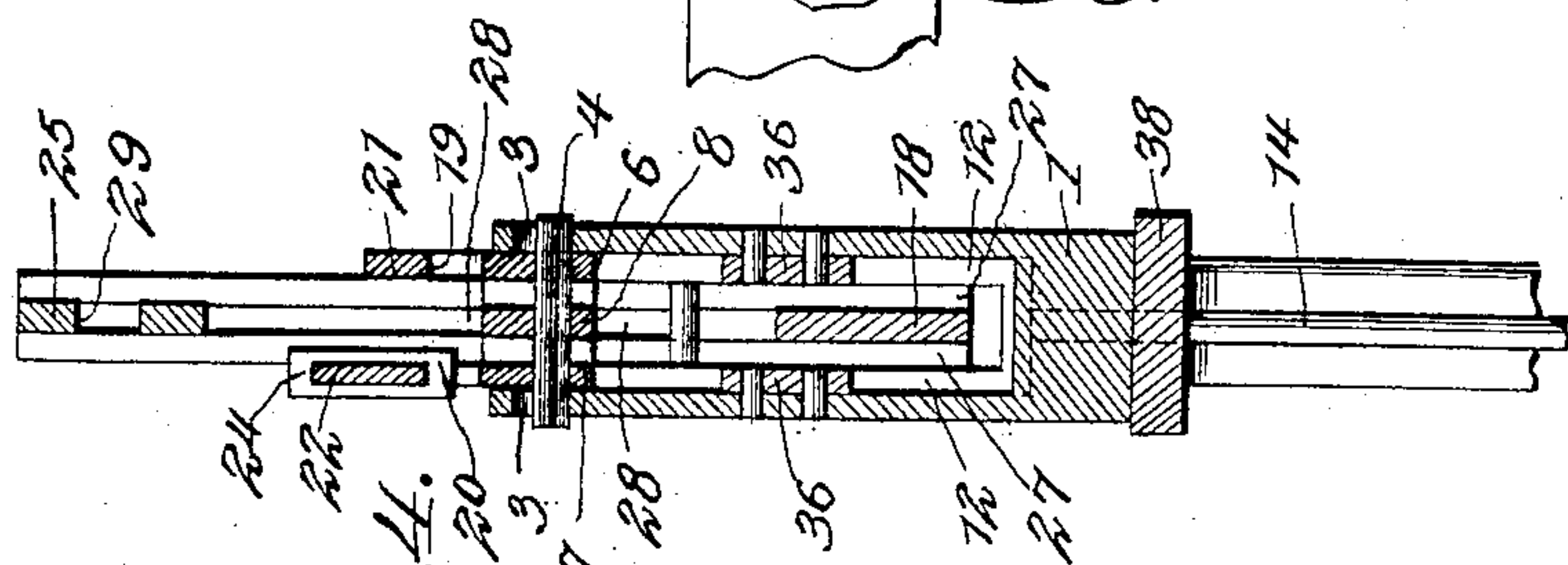
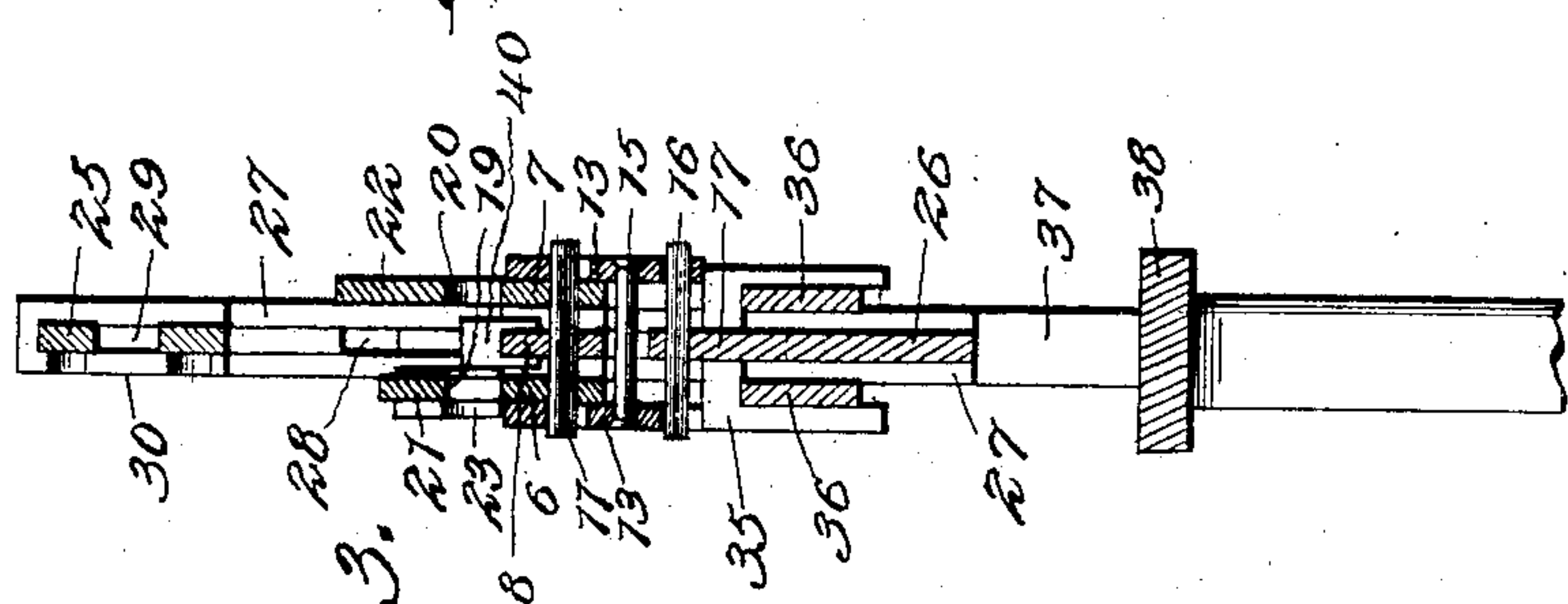


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY FRANCIS KINSER, OF ATHENS, TENNESSEE, ASSIGNOR OF ONE-HALF
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COMPUTING-SCALE.

SPECIFICATION forming part of Letters Patent No. 672,944, dated April 30, 1901.

Application filed September 6, 1900. Serial No. 29,223. (No model.)

To all whom it may concern:

Be it known that I, HENRY FRANCIS KINSER, a citizen of the United States, residing at Athens, in the county of McMinn and State of Tennessee, have invented a new and useful Computing-Scale, of which the following is a specification.

The invention relates to improvements in computing-scales.

10 The object of the present invention is to improve the construction of computing-scales and to provide a simple and comparatively inexpensive one adapted to indicate the price and weight of an article and capable of use
15 independently of weighing for calculating various results in subtraction, multiplication, and division, whereby a person may readily ascertain the interest on sums of money, the results of calculations in percentage, and various other mathematical calculations met
20 with in business transactions.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated
25 in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a computing-scale constructed in accordance with this invention. Fig. 2 is a plan
30 view. Fig. 3 is a vertical sectional view on line 3 3 of Fig. 1. Fig. 4 is a similar view on line 4 4 of Fig. 1. Fig. 5 is a detail sectional view illustrating the construction of the price-poise.

35 Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a vertical support rising from a frame 2 of a scale of the platform type and
40 having a slot or bifurcation and provided at the upper ends of its sides with bearing-openings 3, receiving journals or pivots 4, extending from a weighing-beam 5 and forming knife-edge bearings for the same. The pivots
45 may consist of a continuous piece extending through the beam 5, as clearly illustrated in Fig. 4 of the accompanying drawings; but they may be formed in any other suitable manner. The beam 5 is composed of two side
50 plates 6 and 7, spaced apart and receiving a bar 8, interposed between the lower portions

of the sides and secured to the same. The ends of the bar 8 extend beyond the side plates of the beam 5 and are provided with suitable weight supports or pendants 9. The
55 beam 5 is provided at opposite sides of its fulcrum with pivots 10 and 11, forming knife-edge bearings and arranged, respectively, in bearing-openings of a yoke 12 and a link or
60 hanger 13. The yoke, which depends from the beam 5, terminates short of the frame 2 and is connected with a rod 14, extending to the base of the scale and connected with the platform-levers, which may be of any desired
65 construction. The link or hanger 13 is composed of two sides or plates provided with upper and lower bearing-openings and connected by a transverse pin or rivet 15. The upper bearing-openings receive the pivots 11,
70 and the lower bearing-openings receive pivots 16, extending from opposite sides of an arm 17 of a calculator-beam 18, which is supported by the beam 5. The side plates 6 and 7 of the beam 5 extend above the bar 8 and
75 are provided with longitudinal openings 19 and 20, forming bars 21 and 22, which are designed to be graduated, as hereinafter explained. The beam 5 is also provided with
80 sliding poises 23 and 24 of the same weight and adapted to counterbalance each other when they are arranged at the outer ends of the series of graduations of the bars 21 and 22.

The beam 18, which is substantially rectangular, is composed of top and bottom bars 25 and 26 and connecting end bars 27, arranged in pairs and spaced apart to provide
85 openings 28 for the end portions of the bar 8 of the beam 5. The top bar 25 is provided with a longitudinal opening 29, which divides the top bar into upper and lower portions. The top bar is also provided with a sliding
90 poise 30, arranged at the left-hand end of the bar and adapted to be operated as hereinafter explained. The bottom bar, which is provided with the extension 17, has a series of
95 teeth 32, formed by notching the upper edge of the bar and located at the left-hand side of the beam 18 and adapted to be engaged by teeth or projections 33 of a depending support 34 of a sliding price-block 35. The sliding
100 price-block 35 is arranged on a pair of stationary horizontal bars 36, located at op-

posite sides of the lower portion of the beam 18 and extending from the bifurcated support 1 to an arm or support 37, arranged at one end of the frame of the scale and extending upward from a horizontal bar 38, upon which the bifurcated support 1 is mounted. The sliding price-block 35, which may be retained on the bars 36 by its own weight or any other suitable means, is composed of two sides and a connecting top portion, and the depending support is arranged between the sides of the price-block 35 and is provided with laterally-projecting pivots forming knife-edge bearings and arranged within openings of the sliding block. When the left-hand side of the beam is raised, it is carried into engagement with the projections or teeth 33 of the sliding price-poise, as will be readily apparent. The front side bar 36 is provided with price-per-pound graduations. The front side plate 6 is provided with weight-graduations, preferably consisting of pounds and fractions thereof, and the top bar 25 is provided with numbers consisting of the products of the numbers of the front bar 36 and the front side plate 6.

The front side bar 36, the beam 5, and the top bar 25 may be provided with various series of graduations of a fractional or decimal character. The weighing-beam balances about the knife-edges 4 when the weights 10, 13, and 24 are at zero, and the calculator-beam balances about the knife-edges 16 when the weight 30 is at zero. The effect of the calculator-beam on the weighing-beam is counteracted by the platform of the scale, which platform is designed to balance the calculator-beam.

The scale may be employed for simple weighing operations, and it may also be used simply for making mathematical calculations involving addition, subtraction, multiplication, and division. In simple weighing operations where it is not desired to ascertain the price of the goods weighed the sliding poise 24 alone is used and the beam 5 operates similar to an ordinary scale-beam.

The scale may be employed for ascertaining the price of goods without actually placing the same on the platform. Take, for instance, the following example: What will two pounds of sugar cost at five cents a pound? The price-block 35 is moved to "5" and the poise 23 is moved to "2." The top poise 30 is then adjusted toward the right-hand end of the bar 25 until the scale is brought to a balance, and the said poise 30 will then indicate the result. Should it be desired to weigh the quantity of sugar that can be bought for ten cents at five cents a pound, the poise 23 is returned to its initial position, the top poise 30 remaining at "10" and the price-poise remaining at "5," and the goods are supplied to the scale until the latter balances. The products are marked upon the top bar, and the elements or numbers multiplied together to form the products are marked upon

the beam 5 and the bottom bar 36, and in performing division the operation is reversed and the numbers of the top bar become the dividends instead of the products and are divided by the numbers of the bar 36, the quotients becoming the corresponding numbers of the beam 5. The quotient is found by placing the poise 30 at the point indicating the number to be divided and then arranging the price-poise at a point indicating the divisor. The poise 23 is then adjusted to bring the scale to a balance and it will indicate the quotient or result of the calculation. In this manner two successive calculations may be obtained. One number may be divided by another and the result may be multiplied by another or third number, or two numbers may be multiplied together and the product divided by a third number. By means of these successive calculations examples in interest and percentage may be performed when the scale is provided with the proper sets of numerals and graduations and the corresponding ones of the several bars will in practice be identified with one another, so that the result will be readily apparent.

The plates 6 and 7 are offset from the bar 8 of the beam 5, and the bars or upper portions 21 and 22 of the said plates 6 and 7 are provided with reversely-arranged graduations and numerals gradually increasing from the ends of the beam. The sliding poises 23 and 24 are arranged, respectively, on the side plates 6 and 7 and the sliding poise 40, of the same weight as the poises 23 and 24, is arranged on the beam 5, preferably on the bar 8, and is designed to operate in connection with the graduations of the front side plate. These sliding poises 23, 24, and 40 are designed for performing examples in subtraction and addition. For instance, should it be desired to add fifteen and twenty, the sliding poise 23 would move to "15" and the sliding poise 40 is carried to "20." Then the sliding poise 24 is moved again until the beam balances and it will indicate the result, which is "35." Should it be desired to subtract fifteen from forty, the poise 24 is arranged at "40" and the poise 23 is placed at "15." Then the other sliding poise 40 is adjusted until the beam balances and it will indicate the result, which is "25."

What I claim is—

1. In a device of the class described, the combination of a support, a weighing-beam fulcrumed on the support, a calculator-beam suspended from the weighing-beam, a sliding price-block provided with an interior supporting device arranged to engage a portion of the calculator-beam, means for supporting the sliding price-block, and poises mounted on the weighing-beam and on the calculator-beam, substantially as described.

2. In a device of the class described, the combination of a frame, a weighing-beam fulcrumed thereon, a calculator-beam supported

by the weighing-beam and provided with teeth, a price-block slidingly supported by the frame and provided with an inner supporting device having teeth for engaging the teeth of the calculator-beam, and poises 30 and 23 mounted on the said beams, substantially as described.

3. In a device of the class described, the combination of a frame provided with horizontal bars, a weighing-beam fulcrumed on the frame, a calculator-beam pivotally connected with and supported by the weighing-beam and having a notched portion located between the horizontal bars of the frame, the price-block slidingly supported by the horizontal bars and provided with a depending supporting device having teeth for engaging the notched portion of the calculator-beam, and the poises 30 and 23 mounted on the said beams, substantially as described.

4. In a device of the class described, the combination of a frame, a weighing-beam fulcrumed thereon and provided at its ends with movable poises, said beam being designed to be provided with reversely-arranged graduations and numbers, a price-block, means for supporting the same, a calculator-beam connected with the weighing-beam and designed to be provided with graduations and numbers, and a poise mounted on the calculator-beam, substantially as described.

5. In a device of the class described, the combination of a frame provided with the support 1 and having horizontal bars connected with the support and spaced apart, said horizontal bars being designed to be provided with graduations and numbers, the calculator-beam of rectangular form provided with a notched lower portion and having openings at its ends, said calculator-beam being provided at its top with graduations and num-

bers, the price-block arranged on the horizontal bars of the frame, and provided with means for engaging the notches of the calculator-beam, the weighing-beam fulcrumed on the support 1 and connected with the calculator-beam and extending through the openings thereof, said weighing-beam being provided with graduations and numbers, the poises 23 and 24 arranged on the weighing-beam, and the poise 30 mounted on the top portion of the calculator-beam, substantially as described.

6. In a device of the class described, the combination of a frame, the calculator-beam, the weighing-beam fulcrumed on the frame and supporting the calculator-beam and provided with bars spaced apart and having reversely-arranged graduations, the movable poises mounted on the weighing-beam, a price-block, means for supporting the same, and a poise mounted on the calculator-beam, substantially as described.

7. In a device of the class described, the combination of a frame, a price-block, means for supporting the same, the calculator-beam, the weighing-beam fulcrumed on the frame and supporting the calculator-beam and composed of a central body portion and opposite side portions and having reversely-arranged graduations, a poise mounted on the calculator-beam, and the movable poises mounted on the central and side portions of the weighing-beam, substantially as described.

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

HENRY FRANCIS KINSER.

Witnesses:

JAMES M. TRIMBLE,
HARRY F. LAURENCE.