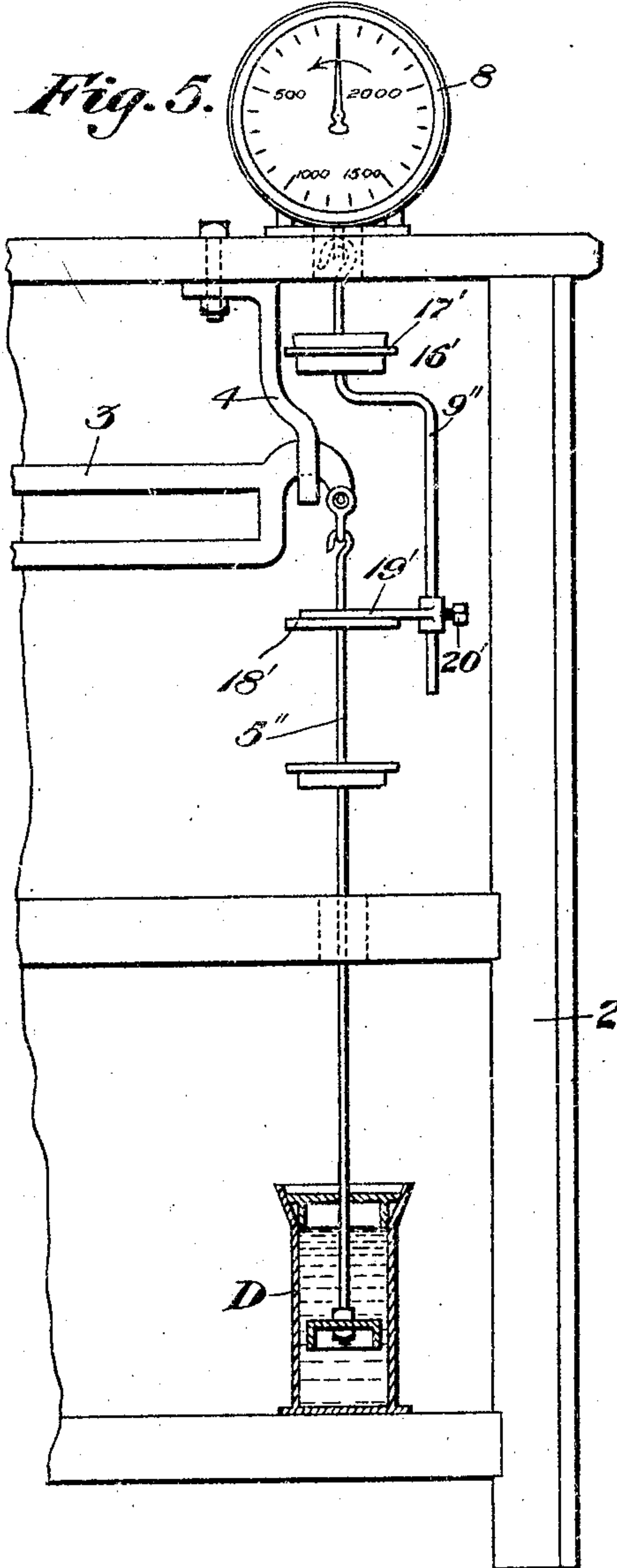
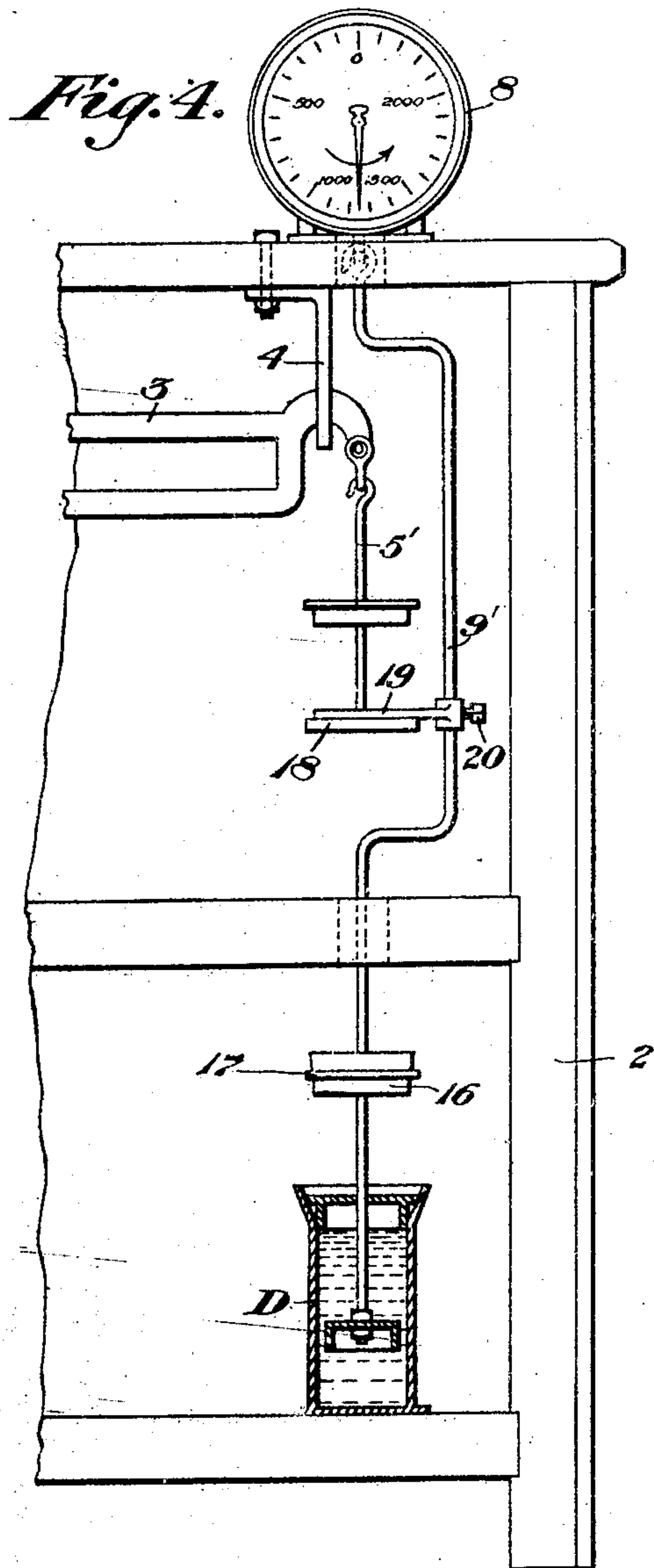


M. H. REED.
SCALE.

APPLICATION FILED APR. 25, 1907.

917,148.

Patented Apr. 6, 1909.
3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 6.

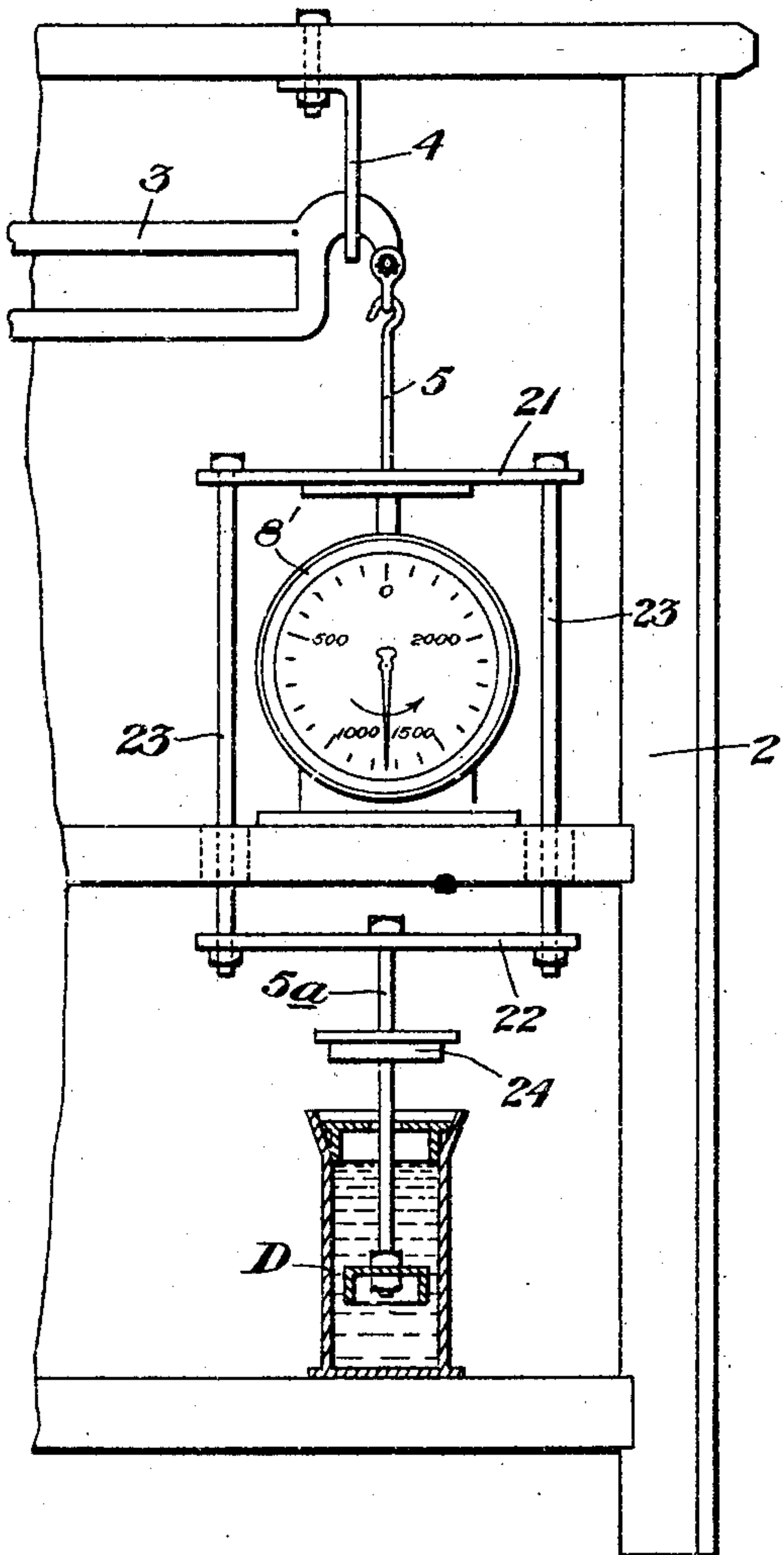
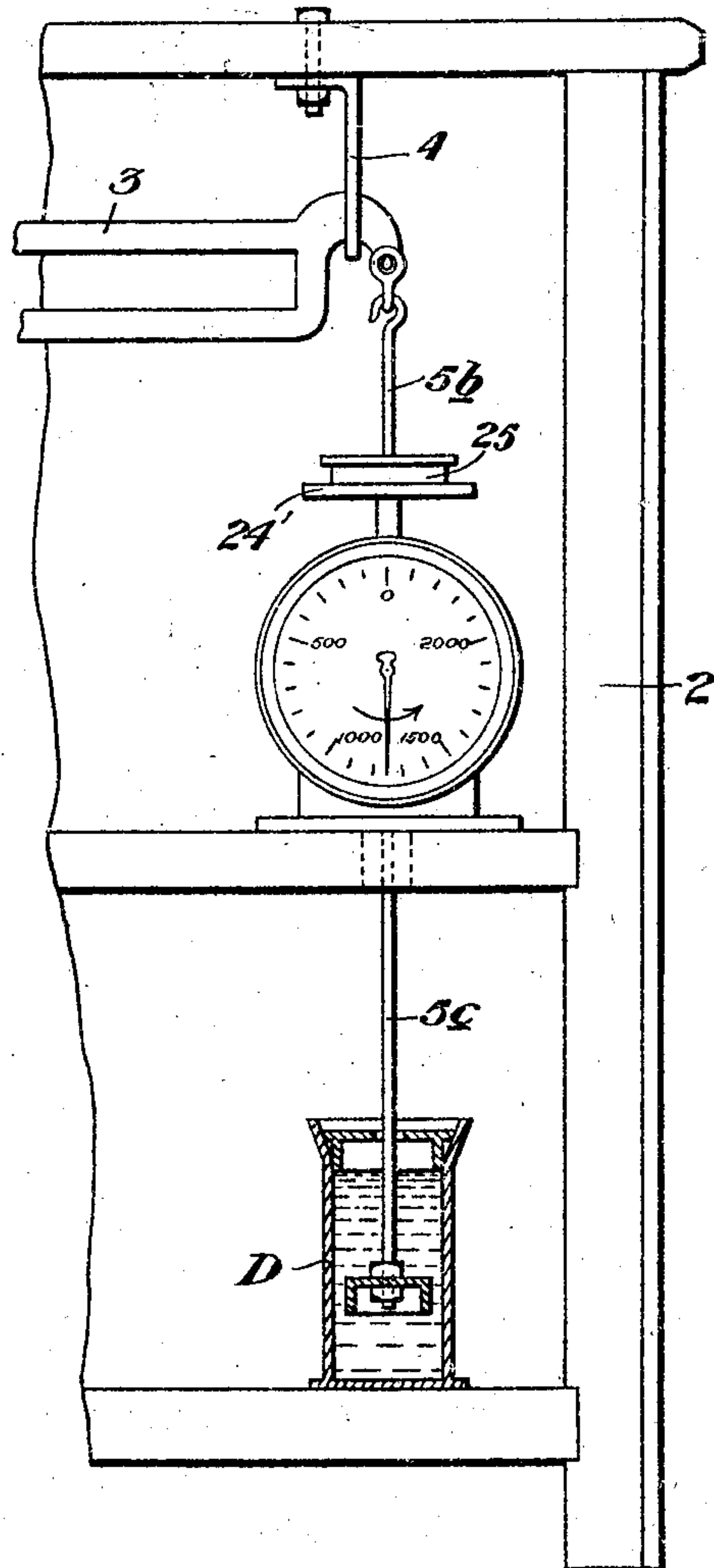


Fig. 7.



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UNITED STATES PATENT OFFICE.

MATTHEW HOWARD REED, OF PITTSBURG, PENNSYLVANIA.

SCALE.

No. 917,148.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed April 25, 1907. Serial No. 370,224.

To all whom it may concern:

Be it known that I, MATTHEW HOWARD REED, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Scales, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in scales, more particularly to automatic or semi-automatic scales or scale attachments in connection or combination with the ordinary platform or lever scales, whereby the automatic scales may be used for ascertaining weights without necessary adjustment of the poise or poises on the poise beam.

The automatic attachment is designed for determining weights up to any predetermined limit without manipulation of the poises, or in combination with the weight ascertained by the poise beam in large amounts, by indicating supplemental smaller divisions or fractions of such amounts as a unit.

In the accompanying drawings wherein the invention is illustrated;—Figure 1 is a view in front elevation, partly in section, of the mechanism of a platform scale combined with my improved automatic attachment. Fig. 2 is a vertical sectional view thereof on the line II. II. of Fig. 1. Fig. 3 is a perspective detail view showing the operative connections between the counterpoise stem and the controlling mechanism for the automatic scale. Figs. 4 and 5 are partial elevations similar to Fig. 1 and showing modified arrangements of the connecting mechanism. Figs. 6 and 7 are similar views showing the apparatus combined with a different type of automatic scale.

In utilizing the automatic scale, it is designed that it shall normally be in extreme tension by means of any suitable weight adapted to withdraw the spring mechanism to reverse the indicating hand around one entire revolution to zero, whereby upon applying counter-acting or lifting force to partially or wholly overcome the gravitating effect of the weight, the spring of the automatic scale may operate to retract the indicator hand, showing on the dial the amount of such subtraction from the effective weight of the counter-weight. As shown, the dial subdivisions are enumerated in the

reverse direction from the usual arrangement. For such purpose the dial is provided with any desired sub-divisions as for instance 0, 500, 1000, 1500, etc., the said sub-divisions, not as usual indicating the actual weight of the counterweight, but large multiples thereof, so that a counterweight of 5 pounds for instance will operate the automatic scale indicating up to say 2500 pounds. It will thus be seen that when the depending counter-weight supporting frame of the automatic scale is connected with the poise beam of the platform scale, material on the platform scale weighing any amount less than the limit of indication of the automatic dial, will be automatically indicated thereon, merely by the counter-acting effect of the upward lift of the scale beam.

Referring to the drawings, 2 represents the frame-work of the beam-supporting structure of an ordinary platform scale of well known type, employing the poise beam 3, extending through the loop 4, and having the depending stem 5 provided with the weight-supporting plate and cup 6, constituting the ordinary counter-poise for the frame, adapted to receive the counter-weight 7. The beam 3 is also provided with the usual poise, one or more, set normally at zero, or in balancing position to compensate for tare weight, and is connected up with the lever mechanism of the platform scale in the usual or any suitable manner.

8 indicates an automatic scale of the usual spring type, but provided with suitable dial properly provided with reversed graduations for indicating the desired sub-division of any selected unit, as 2500 pounds, for which the platform scale is adapted. The operative mechanism of the automatic scale 8 is normally retracted by means of a downwardly extending stem 9, combined with the poise beam as shown in Figs. 1, 2 and 3, by means of a yoke construction consisting of upper and lower cross bars 10 and 11, vertically connecting bars 12, 12, and a downwardly extending rod 13 provided with balancing cup 14 and a plunger 15 mounted in dash-pot D. By such construction it will be seen that the stem 5 of the poise beam 3 and its cup 6, constituting the counter-poise, and counter-weight 7 is adapted to rest upon the cross bar 11, normally depressing the frame, withdrawing

the spring of the automatic scale, and holding the indicator at zero.

The operation of the device will be readily understood from the above description.
 5 The beam of the scale is first balanced in the ordinary manner and the spring balance of the automatic scale is then withdrawn for one revolution by means of the counter-weight 7. When the load is placed on the
 10 platform of the scale, the up-pull on the poise beam 3 will lift the counter-weight and its weight, allowing the automatic spring balance to operate depending upon the amount of up-pull, indicating on the
 15 dial the weight of the load on the platform.

It will be understood that the spring of the automatic scale is regulated to proper tension so that the desired amount will be indicated.

20 When the load passes off the platform the beam and counter-poise will drop and allow the spring balance to again come to zero, due to weight 7. The dash-pot and plunger prevent sudden jars from having any effect
 25 on the spring balance of the automatic scale and also cause the indicating pointer to quickly come to rest.

If for any reason it is desired to use the beam of the platform scale for ascertaining
 30 the weight in the usual manner, the automatic attachment may be disconnected in any way or permanently held down by any suitable attachment applied to rod 9 or other part of the mechanism, or by removing
 35 the weight 7 and placing it on balancing cup 14 on stem 13.

In Fig. 4 I have shown a modified construction in which the spring of the automatic scale 8 is normally retracted by a continuous rod 9' bent or deflected as shown,
 40 although said rod may be straight if desired. In such construction the rod 9' is provided with a cup 16 adapted to receive any suitable counter-weighting material, as shot, or it may
 45 have a weight-supporting disk 17 for carrying any suitable counter-weight similar to weight 7. In such construction the rod 5' of the beam is provided with a plate 18 or any suitable abutment adapted to engage up-
 50 wardly against a fork or arm 19 secured by set screw 20 upon stem 9'. The operation otherwise is substantially the same as has been described.

It will be seen that by merely loosening the
 55 set screw 20 and raising or turning the arm 19 to one side, the main weighing apparatus may be disconnected for operation or weighing independent of the automatic scale.

In Fig. 5 the stem 9'' of the automatic
 60 scale 8 is provided with a cup 16' or disk 17' carrying a weight at the upper portion of the stem, while said rod is shortened and provided with the arm 19' and set screw 20', said arm bearing on plate 18' of the main
 65 stem 5''. Said stem is extended continuously

down and provided with a dash-pot and plunger as shown, whereas in Fig. 4 the dash-pot extension forms a portion of the automatic scale rod 9'. The operation in either case is substantially the same. 70

In Fig. 6 I have shown a further modification wherein the poise beam is confined by means of a yoke frame consisting of upper and lower cross bars 21, 22, and connecting rods 23, 23, with an automatic spring scale 8' 75 having an upwardly extending weighing platform of well known construction. In such arrangement the dash-pot extension 5^a of stem 5' is provided with a counter-weight supporting device 24 of any suitable kind. 80

The construction shown in Fig. 7 is substantially the same as that just described, except that the weight-supporting disk 25 is mounted upon stem 5^b of the poise beam and is adapted to rest upon the platform 24' of 85 the automatic scale while the dash-pot extension 5^c is attached to the stem of the automatic scale to prevent vibration.

The operation of these various modifications is substantially the same as that of the 90 principal form previously described, and the platform scales may be employed either with or without the automatic scales with equally good results.

Other similar combinations with auto- 95 matic weighing mechanism may be employed or various other changes may be made by the skilled mechanic without departing from the invention.

What I claim is: 100

1. The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale, and means connected with said spring balanced scale and coacting with said abutment 105 for normally holding the spring scale in tension, substantially as set forth.

2. The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale 110 means connected with said spring balanced scale and coacting with said abutment for normally holding the spring scale in tension, and means connected with said depending rod adapted to diminish the effect of said 115 tension exerting means, substantially as set forth.

3. The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale 120 having weight-supporting means adapted to coact with said abutment, and to balance the spring scale at zero independent of the beam, and means for balancing the beam, substantially as set forth. 125

4. The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale, and an element connected with the spring 130 balanced scale interposed in the path of said

abutment whereby a portion of the load will be indicated on the spring balanced scale, substantially as set forth.

5 The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale, and an element connected with the spring balanced scale interposed in the path of said abutment whereby a portion of the load will be indicated on the spring balanced scale, and means for adjustably connecting said co-
10 acting parts, substantially as set forth.

6 The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale provided with a depending rod having a weight-supporting device and an arm adapted to engage said abutment whereby a portion of the load will be indicated on the spring
15 balanced scale, and means connected with said depending rod of the spring balanced scale for preventing vibrations of said scale, substantially as set forth.

7 The combination with the beam of a lever scale having a depending rod provided with an abutment, of a spring balanced scale provided with a depending rod having a weight-supporting device and an arm adapted to engage said abutment whereby a portion of the load will be indicated on the spring balanced scale, a dash-pot, and a dash element therein connected with the spring
25 balanced scale for preventing vibrations thereof, substantially as set forth.

35 8 The combination with a lever scale having a depending rod provided with an abutment, of a spring-balanced scale having a depending element, and an adjustable device secured to said element and arranged to co-act with said abutment or to be adjusted to avoid engagement therewith, substantially as
40 set forth.

9 The combination with a lever scale, of a spring - balanced scale, means connected
45 therewith for supporting a supplemental detachable weight for normally holding the spring-balanced scale in tension, and means

connecting the spring-balanced scale with the lever scale whereby operation of the lever scale will oppose the action of said supplemental weight and release the tension on the spring-balanced scale in proportion to the load, substantially as set forth.

10 The combination with the beam of a lever scale, of a spring-balanced scale having a spring-actuated indicator, means for normally holding the spring-balanced scale in tension, means for operatively connecting the spring-balanced scale with the beam of the lever scale whereby the up-pull of the beam thereof will release the tension on the spring-balanced scale in proportion to the load to indicate said load on the spring-balanced scale, said means for operatively connecting the spring-balanced scale with the beam of the lever scale being adjustable for quickly disconnecting said scales, and means for preventing vibration of the spring-balanced scale, substantially as set forth.

11 The combination with the beam of a lever scale having at its free end a depending rod provided with an abutment, of a spring balance scale provided with a depending rod having a weight-supporting device and provided with an arm adapted to engage said abutment whereby operation of the beam will act counter to the downward pull on said weight-supporting device.

12 The combination with the beam of a lever scale having at its free end a depending rod provided with an abutment, of a spring balance scale provided with a depending rod having a weight-supporting device and provided with an adjustable arm adapted to engage said abutment whereby operation of the beam will act counter to the down pull on said weight-supporting device.

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

MATTHEW HOWARD REED.

Witnesses:

C. M. CLARKE,
CHAS. S. LEPLEY