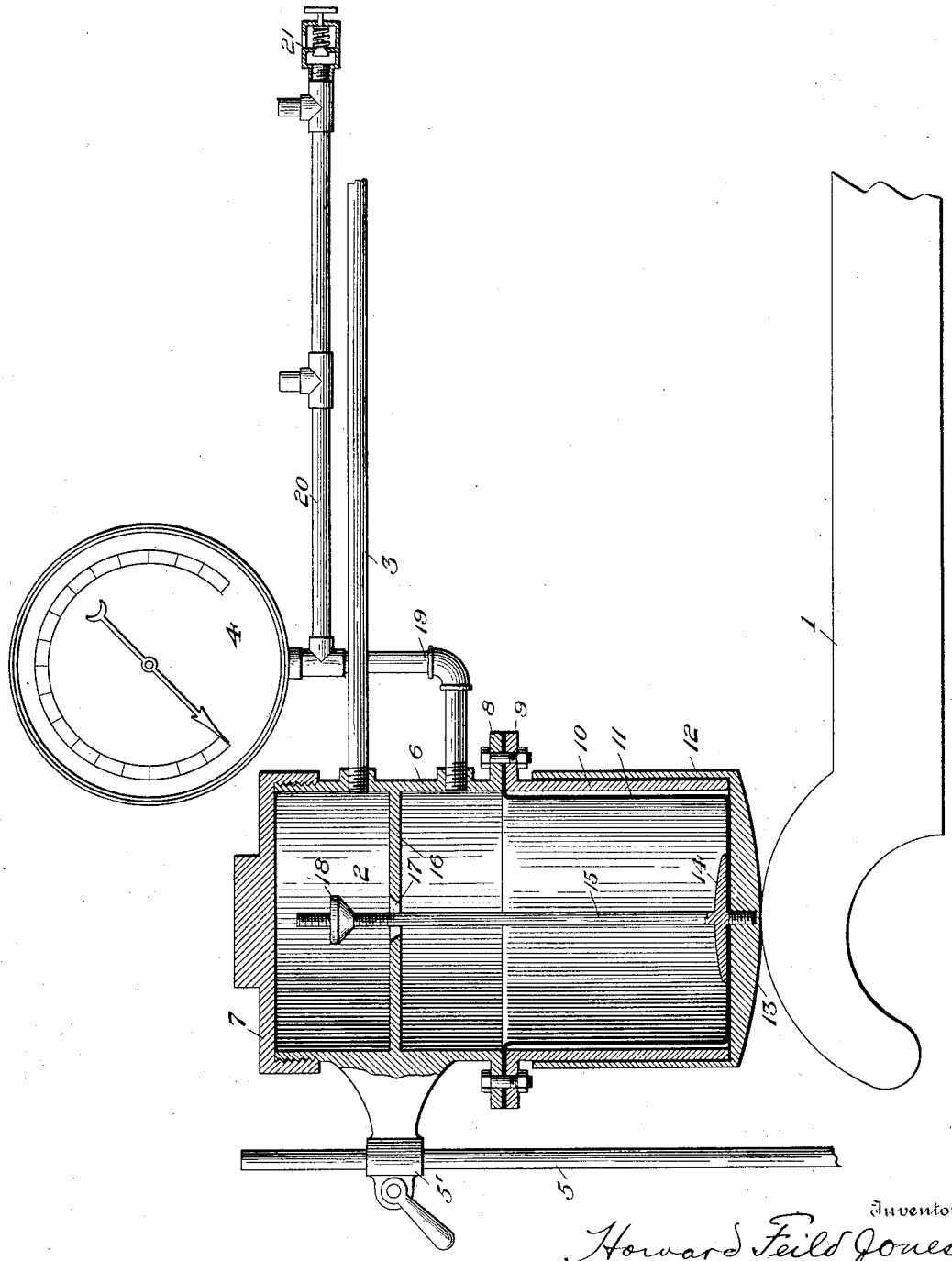
No. 751,296. PATENTED FEB. 2, 1904.

H. F. JONES.

FLUID PRESSURE WEIGHING SCALE.

APPLICATION FILED JULY 13, 1903.

NO MODEL.



Witnesses

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No. 751,296. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

HOWARD FEILD JONES, OF WILSON, NORTH CAROLINA.

FLUID-PRESSURE WEIGHING-SCALE.

SPECIFICATION forming part of Letters Patent No. 751,296, dated February 2, 1904.

Application filed July 13, 1903. Serial No. 165,338. (No model.)

To all whom it may concern:

Be it known that I, HOWARD FEILD JONES, a citizen of the United States of America, residing at the town of Wilson, in the county of Wilson and State of North Carolina, have invented certain new and useful Improvements in Fluid-Pressure Weighing-Scales, of which the following is a specification.

My present invention relates to weighing-scales, and contemplates the production of an appliance of this character constructed on simple and durable lines to obtain absolute accuracy of result and to be entirely automatic in operation.

The details of construction of my improved scale, the mode of operation, and the resultant advantages are fully set forth in the following specific description, in connection with which reference is to be had to the accompanying drawing, in which is illustrated, partly in elevation and partly in section, a weighing-scale embodying my invention.

The construction in its preferred form consists of a weighing-beam 1, a chamber 2, receiving compressed air from a supply-pipe 3, and a gage 4 for indicating, through the medium of the compressed fluid, the weight of the article. Adjustably secured on an upright 5 by means of bracket-clamp 5′ is a cylindrical casing 6, the upper end of which is closed by a removable screw-cap or cover 7. On the lower end of the casing is an annular flange 8, to which is bolted a similar flange 9, provided on a cylindrical casing 10, and clamped between the said flanges is the upper edge portion of an elastic cylinder 11, closed at its lower end. The lower cylinder-casing 10 is open-ended, and 12 is a cylinder having a closed lower end and telescoping with the casing 10. The weighing-beam 1 contacts at its free end with the lower end 13 of the cylinder-casing 12, which end may be relatively thick to allow for wear.

The lower end of the elastic cylinder is fastened to the cylinder-casing end 13 through the medium of a clamping-shoulder 14, fixed to a rod 15, the latter having a threaded lower end screwed into threaded aperture in the end 13.

In the upper casing 6 is a horizontal partition 16, dividing the chamber 2 into an upper and a lower section, and in the partition is an opening 17, through which the rod 15 extends and which is flared to form the seat for a conical valve 18, adjustable on the rod 15. The valve is accessible for adjustment by removing the cap 7.

The compressed-fluid-supply pipe leads into the upper chamber-section and the gage is connected with the lower chamber-section by a pipe 19. Extending from the pipe 19 is a branch pipe 20, having a hand vent-valve 21 in its end and intermediately one or more nipples for the attachment of an additional gage or gages, if desired.

In operation compressed fluid is admitted by the pipe 3 to the upper chamber, and from thence the fluid passes by the unseated valve into the lower chamber and creates therein sufficient pressure to expand the elastic cylinder-casing and depress the cylinder 12. Movement of said cylinders causes the valve to seat and cut off the fluid-supply. By this arrangement the supply of fluid to the expandible cylinder is automatically regulated.

The adjustment of the casings and cylinders on the upright 4 determines the proper initial position of the beam. Said beam is depressed with the expanding movement of the inner elastic and outer cylinders, and the article to be weighed being placed on the platform the free end of the beam is elevated, and the cylinders are raised therewith to compress fluid contained in the upper chamber, and thereby to actuate the gage to indicate the weight of the article. The lower chamber, gage, and connecting-pipe are vented by opening the valve 21, this being accomplished by hand, and the scale is ready for the next operation. It will be noted that the fluid enters under pressure the upper chamber and passing downward into the lower chamber enters simultaneously the pressure-gage and that as soon as sufficient pressure is exerted downward

with the gage-communicating chamber it elongates downwardly upon the beam and carries with it the valve-stem, closing the aperture, and thereby preventing further ingress of fluid-pressure to gage.

I claim as my invention—

1. In a weighing-scale, a fluid-pressure chamber connected with a fluid-pressure supply, a chamber communicating with the aforesaid chamber by an aperture, a valve at said aperture, a fluid-pressure gage connected with the second chamber, a weighing-beam, an expandible cylinder connected with the second chamber and an element connected to and movable with the expanding cylinder in the path of the weighing-beam, and a connection between the cylinder and valve.

2. In a weighing-scale, a weighing-beam, a casing adjustably mounted with reference to said beam said casing having an apertured partition providing upper and lower chambers, a fluid-pressure-supply pipe connected with the upper chamber, a pressure-gage, a pipe connecting the lower chamber and gage and having a vent-valve therein, and an expandible cylinder forming a continuation of the lower chamber and an element connected to and movable with the expanding cylinder in the path of the beam.

3. In a weighing-scale, a weighing-beam, an upper casing having a removable cover, a lower casing secured to the upper casing, a cylinder telescoping with the lower casing, an elastic cylinder secured at its upper edge portion between the casings and secured at its lower end to the telescoping cylinder, an apertured partition in the upper casing providing an upper and a lower chamber, a fluid-pressure-supply pipe connected with the upper chamber, a fluid-pressure gage connected with the lower chamber, and a valve at the aperture in the partition adjustable on a rod fixed to the cylinder.

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

HOWARD FEILD JONES.

Witnesses:
HUGH H. MURRAY,
GEORGE W. STANTON.