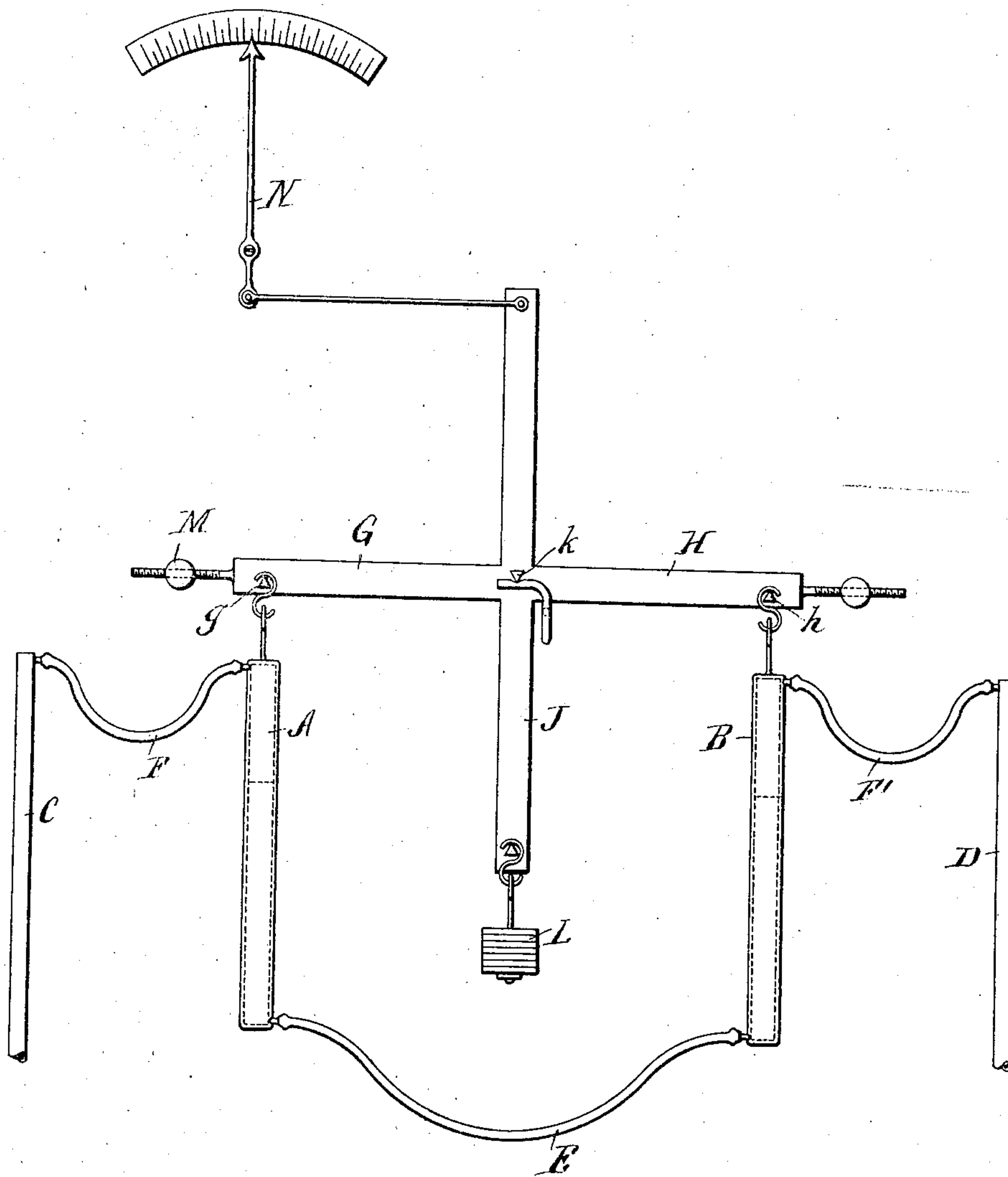


W. J. CROWELL, JR.
DIFFERENTIAL PRESSURE GAGE.
APPLICATION FILED AUG. 3, 1907.

904,511.

Patented Nov. 24, 1908



Witnesses
Caleb J. Pieber.
D. M. Stewart

Wm. J. Crowell Jr. Inventor
by *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM J. CROWELL, JR., OF LEBANON, PENNSYLVANIA.

DIFFERENTIAL-PRESSURE GAGE.

No. 904,511.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed August 3, 1907. Serial No. 386,940.

To all whom it may concern:

Be it known that I, WILLIAM J. CROWELL, Jr., a citizen of the United States, and a resident of the city of Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Differential-Pressure Gages, of which the following is a specification.

10 My invention relates to differential fluid-pressure gages and it consists particularly in the improved construction and mounting of the U-tube as hereafter fully described, the novel features of which are specifically pointed out in the claim.

15 The drawing is a diagrammatic view illustrating a preferred embodiment of the invention.

20 In my improved gage the communicating U-tube columns A and B, to which the differential pressure is transmitted as usual through tubes C and D communicating with the two sources of pressure, are formed separately and are loosely connected together and to said tubes C and D so as to be capable of relative movement; this being accomplished as shown by employing flexible tubing E to afford communication between their lower ends, and flexible tubing F F' to connect their upper ends to the tubes C D. These flexibly connected columns are mounted so as to have relative up and down movement imparted to them by the differential pressure transmitted through the tubes C D, while at the same time each is maintained in normal vertical position; this being accomplished as illustrated by pivotally suspending said columns upon knife-edges *g* and *h* on opposite lateral arms G and H of a cross-shaped balance frame, which frame is pivotally mounted upon a suitably fixed knife-edge *k* arranged in a straight line with the column supporting knife-edges *g* and *h*. This balance is also provided with a depending vertical arm J upon which is pivotally carried a suitable weight L which tends to maintain the swinging frame in normal ver-

tical position to which it is accurately adjusted by means of a movable regulating weight M on the lateral arm G. A pointer or recording pen N as usual is also carried by said swinging frame, for use in connection with any suitable scale as usual.

The varying differential pressure transmitted to the columns A and B from the connected sources of pressure, causes the locking liquid to be transferred from one column to the other as usual, thus correspondingly tilting the pivotally mounted frame and moving the indicator N, as the heavier column falls and the lighter one rises. As the columns A and B are independently carried upon the respective knife-edges *g* and *h*, each column is free at all times to maintain a perfectly vertical position while thus producing a swinging movement of the balance frame as determined by the varying differential pressure and the returning action of the pivoted weight L, and the indications of differential pressure thus secured are uniformly reliable.

What I claim is:—

An apparatus for indicating difference of pressure comprising separate U-tube columns having a flexible communicating connection at their lower ends and flexible communicating connection at their upper ends to different sources of pressure, supporting means for said tubes comprising a pivotally mounted cross-shaped frame having oppositely extending lateral arms provided with pivotal supports for said tubes and a movable regulating weight, a depending rigid arm provided at its lower end with a pivotally mounted balance weight, and a vertically rising rigid arm, and indicator means pivotally connected to said vertically rising arm substantially as set forth.

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

WILLIAM J. CROWELL, JR.

Witnesses:

D. M. STEWART,
W. G. STEWART.