Oct. 29, 1929. E. A. ILEMAN 1,733,804

INSTRUMENT MOUNTING

Filed June 25, 1926

Fig. 4.

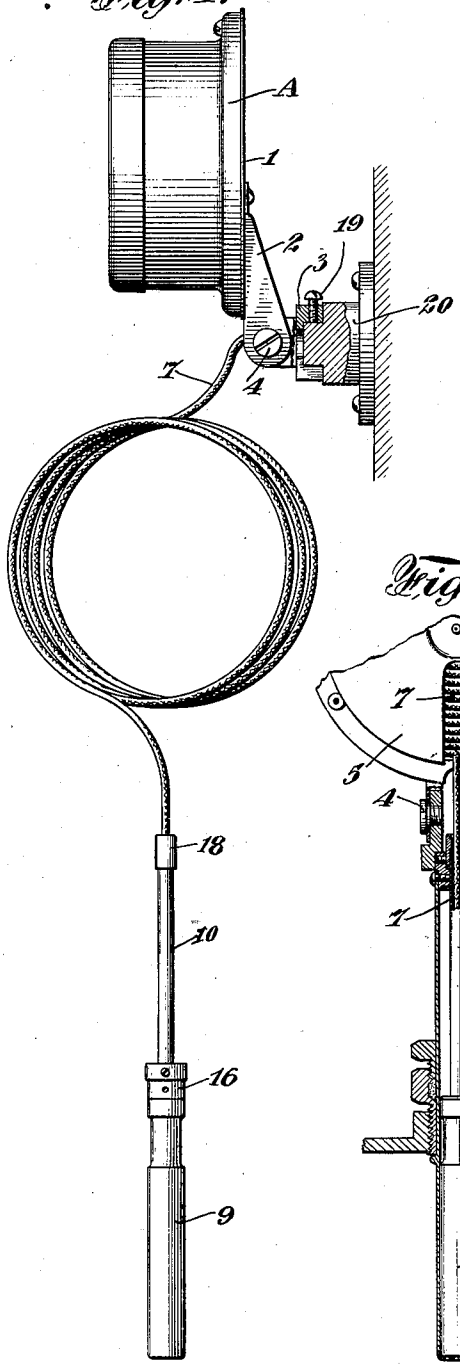


Fig. 1.

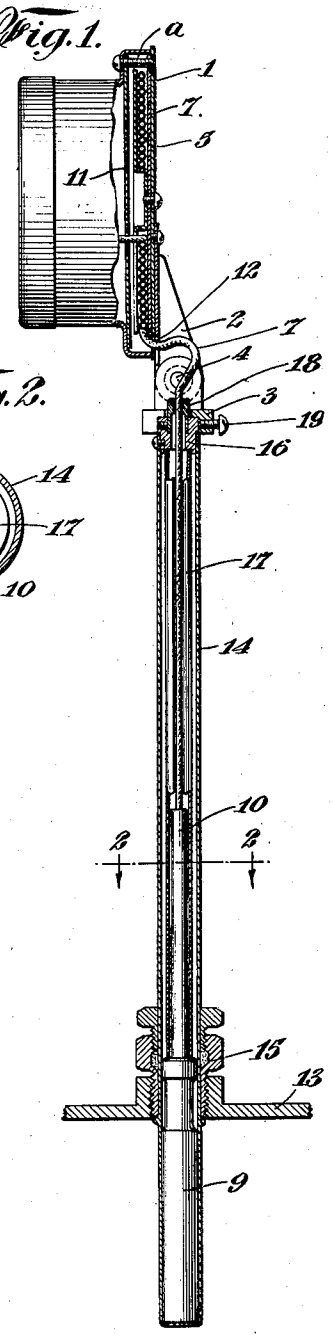


Fig. 2.

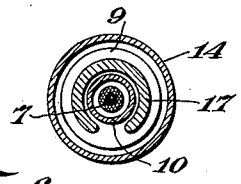
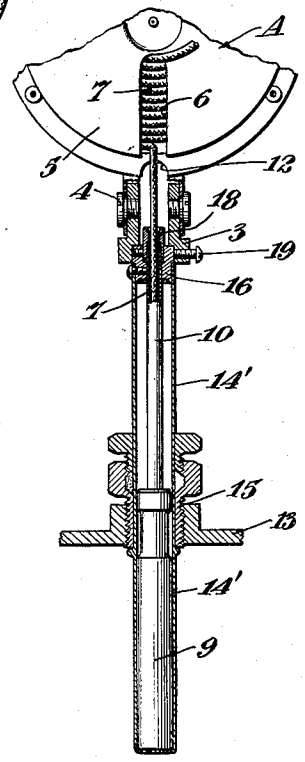


Fig. 3.



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UNITED STATES PATENT OFFICE

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INSTRUMENT MOUNTING

Application filed June 25, 1926. Serial No. 118,470.

This invention relates to instrument mountings for gages, thermometers and the like.

The object of the invention is to provide an instrument mounting which will support the instrument in desired position and at the same time be adaptable to different instruments and to various situations met with in practice.

Other objects and advantages of my invention will appear from the following description taken in connection with the accompanying drawing, in which

Fig. 1 is a vertical sectional view of a mounting embodying the invention.

Fig. 2 is a horizontal section on lines 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view of a modified form of mounting, and

Fig. 4 is a side elevational view of a further form of mounting with parts broken away to show the instrument beneath.

In the embodiment of the invention shown in the drawings an instrument A such as a thermometer is shown connected by a flexible tubing 7 to a bulb 9. The mounting for the instrument comprises a disk or back plate 1 carried by a support 2 adjustably pivotally mounted on a collar member 3 by a screw bolt connection 4, the instrument A being removably secured to the disk 1 as by screws *a*. The front face of the disk 1 is provided with a spool member 5 as shown adapted to have wound upon it any excess length of the flexible tubing 7, this spool being provided with a slot 6 receiving the portion of the tube 7 as it issues from the back plate 11 of the instrument A after which the excess length of tubing is wound in a series of spiral turns. The tubing is then carried out through the rear opening 12 in the mounting to pass on to the connection with the bulb.

In the embodiment of the invention shown in Fig. 1 the temperatures of the bulb 9 are indicated on the instrument A, the instrument being mounted adjacent the point of temperature to be measured, for instance, directly on a tank or other heated container 13 but spaced therefrom a desired distance. In such case a thin metal tube 14 of desired length is fitted to the bulb 9 to carry the latter and passes up through the packing means 15 to have its upper end support the collar element 3 by means of a bushing insert 16 as shown, a slotted spacing tube 17 being provided receiving and enclosing the flexible tubing 7 and rigidly holding the bulb 9 at the bottom of the tubing 14. At the top of the bushing 16 is provided a flanged sleeve 18 closely fitting the tubing 7 as it passes out of the tubular support. Between the opening 12 and the sleeve 18 the tubing 7 is in the form of a loose loop in protected position between the sides of the support 2, this loose loop permitting pivotal adjustment around the axis of the hinge formed by the screw bolt 4 so that the supporting disk 1 may be inclined as desired to position the instrument A in convenient position to be read. The supporting disk 1 is also adjustable around the axis of the tube 14 by loosening the set screw 19 and turning the collar member 3 on the bushing 16.

In Fig. 3 a shorter mounting is provided by substituting a shorter tube 14′ for the longer tube 14 and with this shorter mounting the long slotted tube 17 is dispensed with and the bushing 16 is fastened directly to the tube of the small spacer tube 10 protruding from the top of the bulb 9, the upper end of this tube 10 fitting closely within the end sleeve 18 as shown.

In Fig. 4 the mounting is shown adapted to a placement of the instrument at a point distant from the bulb 9. The tubing 7 in such case is largely or entirely unwound from the spool 5 and carried out through the rear opening 12 but not through the collar element 3, this collar being set in place upon a supporting bracket 20 as shown. To permit the flexible tubing 7 to be removed from the collar 3 as shown in Fig. 4, a slot 3′ is provided therein. This is one specific form of means permitting manipulation of the flexible tubing when the instrument is being converted from the long distance type to a rigid one or vice versa. In this mounting of Fig. 4, it is obvious that the instrument may be tilted to various angular positions around the axis of the bolt hinge 4 and may also be ad-

justed around the horizontal axis of the bracket 20.

The mounting of this invention not only supports the instrument in any convenient position with substantially universal adjustment but also houses the flexible connecting member and supports the bulb, at the same time providing a convenient attachment for any excess of the flexible tubing in protected and out of the way position. The mounting is readily variable to fit different situations and is rugged and simple in construction and economical in cost of manufacture.

In Fig. 4 it will be seen that the instrument A may be mounted upon a fixed wall bracket 20, thereby permitting the bulb 9 to be carried by the operator to any location desired. During carrying of the bulb the same is kept in operative relation to the instrument A by the flexible tubing 7. Thus the temperature or other conditions to be registered may be obtained at several places while the instrument remains in a fixed position, it being noted, however, that if desired the instrument may be inclined about the pivot 4 thereby possibly in some positions permitting the operator to read more easily the recorded pressure or temperature. On the other hand, it may be desired to make the bulb immovable with respect to the instrument and to accomplish this the operator would insert as shown in Fig. 3 the bulb 9 within a supporting tube 14', the inner end of the support 14' projecting through a suitable packing gland 15 into a suitable vessel, such as a boiler, vat or the like. The outer end of the tube would be connected to the bulb stem 10 as by the collar 16, upon which collar the instrument would be secured as by the bracket 3. The coil or tubing as shown in Fig. 4 will be wound upon the spool 7 by removing the back 1. Thus the bulb and instrument are supported in a relatively fixed position, the form shown in Fig. 3 being what might be termed a short form. It happens sometimes that the customers do not know exactly what length of support 14 they may desire, and in order to permit the standard bulb to be used and held in spaced relation to supports of different lengths there is provided a sleeve 17 having a slot throughout its length. This sleeve and the supporting tubing 14 may be of indefinite length so that the purchaser after determining the distance it is desired to have the instrument disposed from the wall 13 may cut the sleeve 17 and tubing 14 to the desired length. When this is done the sleeve 17 will first have the flexible tube 7 passed through the slot, after which the sleeve may be moved along the tubing and passed over the stem 10. The sleeve and bulb 9 may then be inserted within the tubing 14 and held therein by the collar 16, which will be secured to the tubing 14 by a suitable screw, it being noted that the upper end of the spacing sleeve 17 rests within an annular recess of collar 16. By making the slot in the sleeve 17 it is unnecessary to pass said sleeve over the entire length of the flexible tubing for the slot permits the flexible tubing to be readily laterally inserted within the sleeve. Thus the purchaser is provided with an instrument and a mounting therefor which may be of any desired length.

The two forms of the device wherein supporting tubes are used might, for sake of convenience, be termed a rigid stem type. From the above disclosure it will be seen that one advantage of my invention is that I have provided a mounting or support whereby a recording or indicating thermometer may be converted from a so-called long distance type into a so-called rigid stem type, a further advantage being that the bulb and supporting members are adapted for a number of different installations.

I claim:

1. An instrument mounting comprising a disk member adapted to be attached to an instrument of the type having actuating means constituting as a part thereof usual registering mechanism, a flexible member for conducting to said instrument an actuating medium therefor, a tubular member adapted to house said flexible member, and means for supporting said disk member from said tubular member.

2. An instrument mounting comprising a disk member adapted to be attached to an instrument of the type having actuating means therefor constituting as a part thereof usual registering mechanism and actuating means therefor, a flexible member for conducting to said instrument an actuating medium therefor, a tubular member adapted to house said flexible member connected to said instrument, and means for supporting said disk member from said tubular member comprising an adjustable hinge joint.

3. An instrument mounting comprising a disk member adapted to be attached to an instrument of the type having actuating means therefor constituting as a part thereof usual registering mechanism and actuating means therefor, a flexible member for conducting to said instrument an actuating medium therefor, a tubular member adapted to house said flexible member connected to said instrument, and means for supporting said disk member from said tubular member comprising an adjustable hinge joint, a rotatable connection providing adjustment around an axis at right angles to said hinge.

4. In combination with an instrument of the type having as a part thereof usual registering mechanism and actuating means therefor, a bulb and a flexible member connecting the instrument and the bulb, of a mounting comprising a tubular member adapted to support said bulb in operative position and housing said flexible member ex-

tending from said bulb member, a member adapted to be attached to an instrument, and an adjustable connection for supporting said instrument member from said tubular member.

5. In combination with an instrument having a bulb, of a support comprising a member adapted to removably support said bulb therein and extending outwardly therefrom to support an instrument at its outer end.

6. In combination with an instrument having a bulb and a flexible connection between said bulb and instrument, of a support comprising a member adapted to support said bulb therein and extending outwardly therefrom to support said instrument at its outer end, said member having means to house said flexible member connecting said instrument and said bulb.

7. In combination with an instrument having a bulb and a flexible connection between said bulb and instrument, of a support comprising a member adapted to support said bulb therein and extending outwardly therefrom to support an instrument at its outer end, and an adjustable connection between said member and said instrument.

8. An instrument mounting comprising a disk member adapted to support an instrument and having a rear surface and a front surface facing said instrument, and a spool on said instrument surface of said disk adapted to have wound upon it excess coils of a flexible member having two portions leading away from said spool, one of said portions being adapted for connection to said instrument.

9. An instrument mounting comprising a disk member adapted to support an instrument and having a rear surface and a front surface facing said instrument and a spool on the instrument surface of said disk adapted to have wound upon it excess coils of a flexible member connected to said instrument, said spool having an inwardly extending slot adjacent said instrument.

10. An instrument mounting comprising a disk member adapted to support an instrument and having a rear surface and a front surface facing said instrument and a spool on the instrument surface of said disk adapted to have wound upon it excess coils of a flexible member connected to said instrument, said spool having an inwardly extending slot adjacent said instrument, and an opening adjacent its periphery for the passing of said flexible member.

11. The combination with an instrument having a bulb attached thereto, of means adapted to support said instrument and bulb including a common supporting element, and said means having an intermediate tube between the instrument and the bulb adapted to permit said bulb and instrument to be separately supported, while said bulb retains its operative relation to said instrument.

12. The combination with an instrument having a bulb insertable within any one of a plurality of tubes differing in length, of means for holding said bulb in spaced relationship to one of said tubes of a predetermined length, said bulb having provision for cooperating with supplemental means for holding the same in spaced relationship to another one of said tubes having a different length from the first mentioned tube.

13. The combination with an instrument having a bulb connected thereto by a flexible member, of a supporting tube for receiving said bulb and supporting said instrument, a tubular spacing member having a slot throughout its length, through which said flexible member may be laterally inserted into said spacing member, and means for holding said spacing member and bulb in fixed relation.

14. The combination with an instrument having a bulb and a flexible connection between the same and said instrument, of means for supporting said instrument and bulb in a substantially rigid relation, and means permitting manipulation of said flexible connection and bulb whereby said bulb may be freely removed and moved for long distance work while said instrument is rigidly supported.

15. The combination with an instrument having a bulb and a flexible connection between the same and said instrument, of a tubular member adapted to removably contain said bulb and flexible connection, means for supporting said instrument by said tubular member, and means permitting removal of said bulb and flexible connection from said tubular member, thereby permitting relatively free movement of the bulb for long distance work, and permitting said instrument to be supported.

16. The combination with an instrument having a bulb and flexible connection between the same and said instrument, of means for supporting said instrument and bulb in substantially rigid relation, including a supporting member and a cooperating member associated with said instrument, and one of said members having a passage therein permitting removal therethrough of said flexible connection, whereby said instrument may be held in supported relation, and said bulb may be freely moved for long distance work while connected to said instrument through said flexible connection.

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