

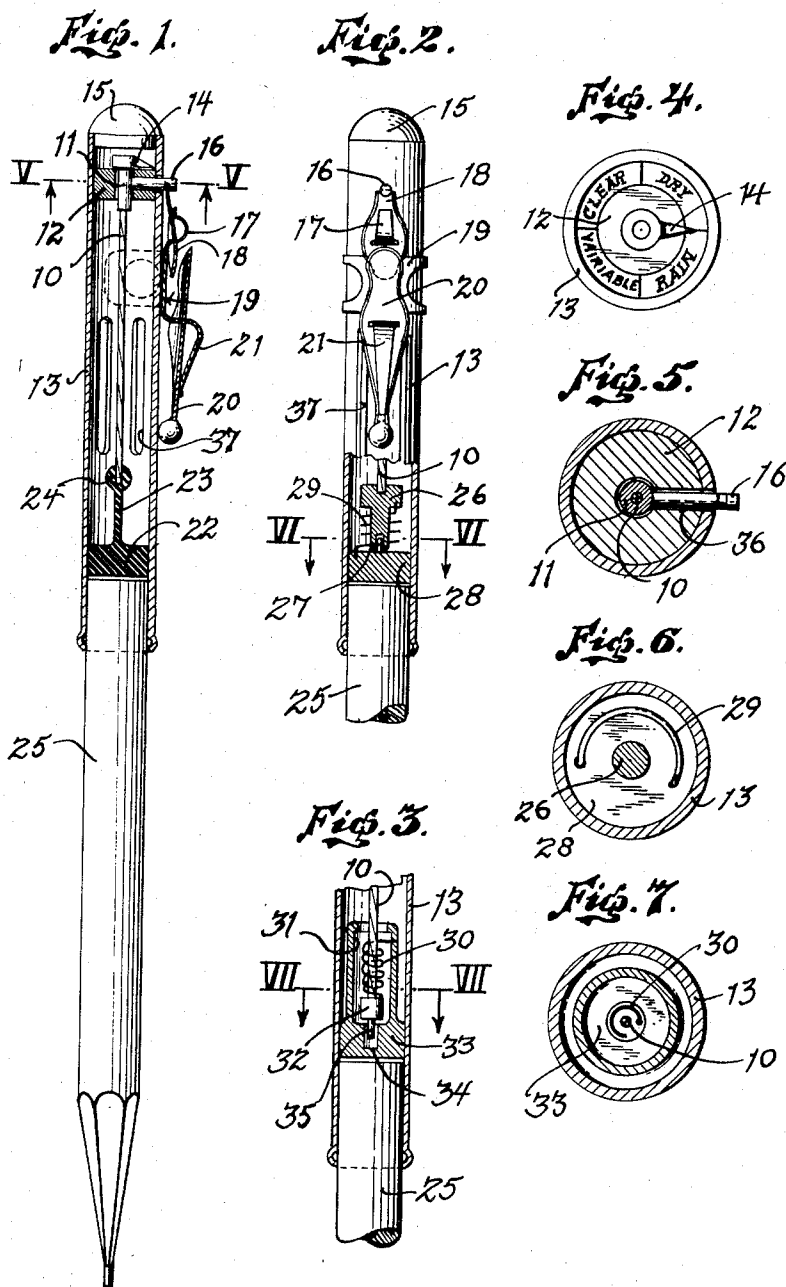
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HYGROMETER

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HYGROMETER

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My present invention relates to hygrometers and more particularly to a hygrometer of new and novel construction and it has for one of its objects the provision of a hygrometer element responsive to changes in atmospheric conditions by which indications of atmospheric conditions and the direction in which the last change in weather conditions occurred may also be determined by a single reading.

Another object of the invention is to provide an inexpensive hygrometer element that may be embodied in a pocket size unit for use with a pen or pencil or other comparable device.

A further object of the invention is to provide a hygrometer element having a weather sensitive element in association with an energy storing device and holding means which when released will permit the weather sensitive element to indicate any change in weather conditions and direction thereof upon an indicating dial.

Other objects and advantages will be in part evident to those skilled in the art and in part pointed out hereinafter in connection with the accompanying drawing, wherein there is shown by way of illustration and not of limitation preferred embodiments of the invention.

In the drawing wherein like numerals refer to like parts throughout the several views:

Figure 1 is a view in section taken along the vertical center line of a device constructed in accordance with a preferred form of the invention.

Figure 2 is a front view of the device as shown in Figure 1, with a portion broken away and in section to illustrate a modified form of my invention.

Figure 3 is a fragmentary sectional view showing a further modified form which my invention may take.

Figure 4 is a top view of the device as shown in Figure 1 with a transparent magnifying cap removed.

Figure 5 is a horizontal sectional view taken along lines V—V of Figure 1, looking in direction of arrows.

Figure 6 is a horizontal sectional view taken along lines VI—VI of Figure 2, looking in direction of arrows, and

Figure 7 is a horizontal sectional view taken along lines VII—VII of Figure 3, looking in direction of arrows.

For a better understanding of the invention reference is now made to Figure 1 of the accompanying drawing showing the invention in its simplest form. In this figure of the drawings, the numeral 10 designates a weather sensitive length of catgut having a bearing member 11 at its upper end that is movable within a collar 12 which is inserted at the upper end of a cylindrical housing 13. The bearing member 11 carries a pointer 14 that moves relative to weather indicating indicia carried at the outer side of the collar 12. The upper end of the housing 13 is also shown as closed by a transparent magnifying cap 15 through which the pointer 14 is visible. Extending into the side of the housing 13 and through the collar 12, there is a brake pin 16 which engages and operates to normally hold the bearing member 11 against rotation

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by the catgut 10. In this instance, the brake pin 16 is biased into an operative position by a bow spring 17 that operates through a lever 18 carried by a pocket engaging clip 19. This pocket clip 19, except for the bow spring 17 and the lever 18, is of conventional construction and it carries a pocket engaging lever 20 that is biased into engagement with the pocket of a garment by a bow spring 21. At the lower end of the housing 13, the catgut 10 engages an energy storing means having a plug-like base 22 of vulcanized rubber or like elastic material which is frictionally held in the housing 13. Extending upwardly from the plug-like base 22 there is a relatively small diameter elastic portion 23 that carries a head 24 into which the lower end of the catgut 10 is secured. In this instance, the housing 13 is also shown as extending beyond the plug-like support 22 so as to provide a socket into which the upper end of a pencil or like device 25 may be inserted and held.

In Figure 2 of the drawings, there is shown a modification of the invention in which the elastic plug-like base 22 with its energy storing elastic portion 23 is replaced by an energy storing means employing a helical spring. In this instance, the catgut 10 is secured to a guide member 26 that is centered at its lower end upon a pin 27 which extends upwardly from a plug-like closure 28 inserted into the lower end of the housing 13. The guide member 26 has a shouldered portion to which the upper end of a helical spring 29 is secured and at its lower end the helical spring 29 is secured to the plug-like closure 28. With this arrangement, it will be seen that as the catgut 10 twists in one direction or the other with its upper end held by the brake pin 16, as shown in Figure 1, the helical spring 29 will be wound or unwound in such a manner that the energy or degree of twist imparted by the catgut 10 will be stored up and available for an operation of the indicating pointer 14 upon a release thereof by an operation of the brake pin controlling lever 18.

In Figure 3 of the drawings, there is shown a further modification of the invention in which an energy storing helical spring 30 is shown as having its convolutions disposed about the catgut 10. In this instance, the energy storing spring 30 is secured at its upper end within a housing 31 into which the end of the catgut extends and at its extreme lower end, the catgut 10 carries a centering member 32 to which the lower end of the energy storing spring 30 is connected. In this arrangement, the housing 31 has a plug-like base 33 that is inserted into the housing 13 and it has a cavity 34 into which a pin 35 carried by the centering member 32 extends.

As shown in Figure 4, the indicia at the outer end of the collar 12 is provided with weather condition indicating indicia over which the pointer 14 moves and in Figure 5, the collar 12 is shown as having a radial base 36 through which the brake pin 16 extends into engagement with the bearing means 11 at the upper end of the catgut 10.

As shown in Figure 6 of the drawings, the spiral spring 29 has relatively large diameter convolutions whereas as shown in Figure 7, the energy storing spring means 30 is shown as having relatively small diameter convolutions.

With the above described arrangement, it will be seen that when in operation, with the catgut 10 held at its upper end against operation of the weather condition indicating means, the elastic energy storing portion 23 of the plug-like base 22 as shown in Figure 1, or the springs 29 and 30, as shown respectively in Figures 2 and 3 of the drawings, will absorb any such twisting motion as is produced in the catgut 10 by changes in weather conditions. Thus with these energy storing devices at the lower ends of the catgut and with the catgut 10 held against rotation at its upper end, it will be seen that upon a release of the upper end of the catgut through an oper-

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ation of the brake pin 16, these energy storing devices will become operative through the catgut 10 to transmit the energy stored thereby and thus not only provide an indication as to prevailing weather conditions, but also make it possible for the user to observe in which direction the change in weather conditions has occurred. This latter information being evidenced by the direction in which the pointer 14 moves from one point upon the indicating dial to another point thereupon and, of course, if no change in weather conditions has occurred, there will be no storing of energy and consequently no movement of the indicating pointer 14. In order to expose the catgut element 10 to external weather conditions and atmospheric changes the housing 13 is also shown as having elongated slots or air passageways 37 arranged about the housing 13 intermediate the ends of the catgut 10.

While I have for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described and illustrated a specific form and arrangement, I desire to have it understood that this invention is not limited to a pocket size device or the specific form disclosed, but may be embodied in other forms of hygrometers that will suggest themselves to persons skilled in the art. It is believed that this invention is new and all such changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a hygrometer, the combination of an elongated weather sensitive element connected at one end to operate indicating means having a dial carrying atmospheric designation, means for holding said indicating means against operation by said weather sensitive element, and means at the other end of said weather sensitive element for storing energy imparted thereto by said element in responding to atmospheric changes, said last means being operable to transmit said stored energy through said weather sensitive element and operate said indicating means upon a release of said holding means.

2. In a hygrometer, the combination of an elongated weather sensitive element connected at one end to operate atmospheric condition indicating means, means for holding said indicating means against operation by said weather sensitive element, and means connected to the other end of said weather sensitive element for storing energy imparted thereto by said element when responding to changes in atmospheric conditions, said last means being operable to transmit said stored energy and operate said indicating means upon a release of said holding means.

3. In a hygrometer, the combination of a length of weather sensitive catgut connected at one end to operate an indicating means having a dial carrying atmospheric condition indicia, means for holding said indicating means against operation by said catgut, and means connected to the other end of said catgut for storing energy imparted thereto by said catgut when responding to changes in atmospheric conditions, said last means being operable to transmit said stored energy through said catgut and operate said indicating means upon a release of said holding means.

4. In a pocket hygrometer of the character described, the combination of an elongated cylindrical housing, an elongated weather sensitive element mounted within said housing and connected at one end to a weather condition

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indicating means visible at the end of the said housing, means for normally holding said weather condition indicating means against operation by said weather sensitive element, a pocket clip having a spring biased pocket engaging lever extending along the outside of said cylindrical housing, and a second spring biased lever carried by said pocket clip engaging said holding means and operable to release said weather condition indicating means by movement of said pocket engaging lever.

5. In a pocket hygrometer of the character described, the combination of an elongated cylindrical housing, a length of weather sensitive catgut within said housing and connected at one end to a weather condition indicating means visible at the end of said housing, means for normally holding said weather condition indicating means against operation by said catgut, a pocket clip having a spring biased pocket engaging lever extending along the outside of said cylindrical housing, and a second spring biased lever carried by said pocket clip engaging said holding means operable to release said weather condition indicating means upon extreme movement of the pocket engaging lever of said pocket clip.

6. In a pocket hygrometer of the character described, the combination of an elongated weather sensitive element, a weather condition indicating means to which one end of said element is connected, means for normally holding said weather condition indicating means against operation by said element, and an energy storing means at the other end of said weather sensitive element operable upon a release of said holding means to give up said stored energy and operate said indicating means, said energy storing means consisting of a length of elastic material connected in coextending relation between the end of said weather sensitive element and a fixed support.

7. In a pocket hygrometer of the character described, the combination of an elongated weather sensitive element, a weather condition indicating means to which one end of said element is connected, means for normally holding said weather condition indicating means against operation by said element, and an energy storing means at the other end of said weather sensitive element operable upon a release of said holding means to give up said stored energy and operate said indicating means, said energy storing means consisting of a torsion spring connected in coextending relation between the end of said weather sensitive element and a fixed support.

8. In a pocket hygrometer of the character described, the combination of an elongated weather sensitive element, a weather condition indicating means to which one end of said element is connected, means for normally holding said weather condition indicating means against operation by said element, and an energy storing means at the other end of said weather sensitive element operable upon a release of said holding means to give up said stored energy and operate said indicating means, said energy storing means consisting of a helical torsion spring connected between the end of said weather sensitive element and a point intermediate the ends thereof and with its convolutions disposed about said element.

References Cited in the file of this patent

UNITED STATES PATENTS

780,791	Gerrer	Jan. 24, 1905
1,336,380	Sampietro	Apr. 6, 1920
2,300,000	Mayers	Oct. 27, 1942