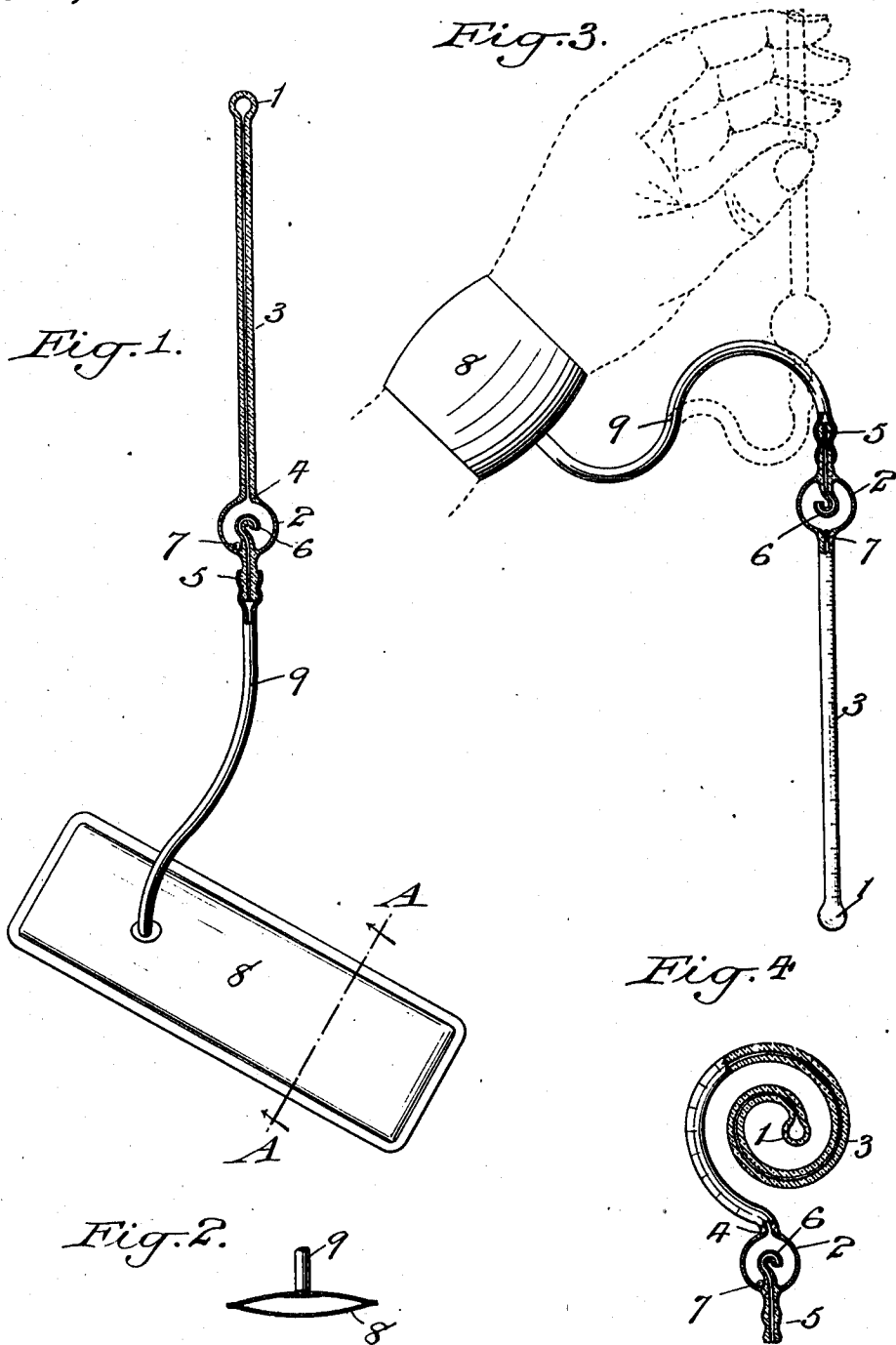


M. HERZ.
SPHYGMOMANOMETER.
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945,389.

Patented Jan. 4, 1910.



Witnesses:
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UNITED STATES PATENT OFFICE.

MAX HERZ, OF VIENNA, AUSTRIA-HUNGARY.

SPHYGMOMANOMETER.

945,389.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MAX HERZ, a subject of the Emperor of Austria-Hungary, and resident of Vienna, Austria-Hungary, have invented a new and useful Improvement in Sphygmomanometers, of which the following is a specification.

My invention relates to improvements in sphygmomanometers and has for its objects to provide an instrument of this kind in which no water is used.

Another object is to provide a sphygmomanometer in which the manometer is permanently closed at its outer end.

A further object is to provide certain improvements in the form, construction and arrangement of the various parts of the sphygmo-manometer which make it more convenient and accurate in use.

A practical embodiment of my invention is shown in the accompanying drawings in which,

Figure 1 is a view of my sphygmo-manometer, partly in section, showing the globule of mercury in a non-operative position, Fig. 2 is a section taken in the plane of the line A—A of Fig. 1, looking in the direction of the arrows, Fig. 3 is a view, partly in section, the full lines showing the device in position for permitting the mercury globule to take its operative position, and the dotted lines showing how the manometer is commonly held when in use, the air bag being secured about the wrist of the patient and the mercury globule being in its operative position, and Fig. 4 is a view, partly in section, of a modified form of manometer.

The manometer comprises an enlarged outer portion 1, a bulb 2 and an elongated transparent intermediate portion 3. The outer portion is closed except as it communicates with the intermediate portion. The hole through the intermediate portion 3 flares slightly, as at 4, where that portion joins the bulb 2. The bulb 2 is provided with a nipple 5 extending within and without the same, the part within the bulb being bent back upon itself, as at 6, to prevent the escape of the globule of mercury 7 from the said bulb.

The intermediate portion 3 of the manometer may be graduated in any desired manner, for instance, as shown in Figs. 1, 3 and 4, the zero mark being located at the point in the flare 4, which the mercury globule occu-

pies when dropped thereinto, as hereinafter described.

The air bag 8 is composed of any suitable material, and is preferably oblong in shape, and is connected to the outer extension of the nipple 5 by means of a flexible tube 9.

In the preferred form, shown in Figs. 1 and 3, the intermediate portion of the manometer is straight. In the modified form, shown in Fig. 4, the intermediate portion of the manometer is spiral in shape.

In operation, the manometer is inverted, as shown in Fig. 3, thus causing the mercury globule to take its operative position in the flare 4, and close the intermediate portion, thus imprisoning the air in the intermediate and outer portions. The manometer may then be held in any desired position, as the mercury globule will remain in its operative position by adhesion. The air bag is then placed on the desired part of the patient. When used at the wrist of the patient, it is wrapped snugly about the same and pressed against the artery until the pulse disappears; the blood pressure in the artery will compress the air bag and thus force air through the tube 9 and nipple 5 into the bulb 2 of the manometer. This air pressure will drive the mercury globule into the intermediate portion of the manometer, compressing the air therein. The pressure of the patient's blood may be determined by the scale on the manometer, using the mercury globule as an indicator.

Thus it will be seen that I obtain a sphygmo-manometer which is small and easy to carry; in which no water is used, and in which the cap or petcock commonly used on the outer end of the manometer is done away with. This last point is a great improvement inasmuch as it has been very difficult in practice to keep the cap or petcock tight. Furthermore, the indicator in my device automatically takes its position at the zero mark when in use and does not require manual setting.

It is to be understood that I do not wish to limit myself strictly to the form and arrangement herein set forth, as various alterations may be made without departing from the spirit and scope of my invention.

What I claim is:

1. In a device of the character described, a manometer having a globule of mercury in its inner end, and an internal flared portion

near its inner end for seating the globule when the manometer is inverted into position preparatory for use.

2. In a device of the character described, 5
a manometer having a closed outer end and a bulb at its inner end, a globule of mercury located normally in said bulb, and an internal flared portion near its inner end for seating the globule when the manometer is 10
inverted into position preparatory for use.

3. In a device of the character described, a manometer comprising a tube having a closed outer end and a bulb at its inner end, and a globule of mercury located normally in 15
said bulb, a flare being formed at the junction of the tube and the bulb for seating the globule of mercury when the manometer is inverted into position preparatory for use.

4. In a device of the character described, 20
a manometer having a closed outer end and a bulb at its inner end, a globule of mercury located normally in said bulb, a hollow nipple having an inner extension within said bulb for preventing the escape of the globule 25
of mercury, and an air bag connected to said nipple.

5. In a device of the character described, a manometer having a closed outer end and a bulb at its inner end, a globule of mercury 30
located normally in said bulb, a hollow nipple having an inner extension bent back upon itself within said bulb for preventing the escape of the globule of mercury, and an air bag connected to said nipple.

6. In a device of the character described, 35
a manometer having a closed outer end and a bulb at its inner end, a globule of mercury located normally in said bulb, a hollow nipple having an inner extension within the 40
bulb for preventing the escape of the globule

of mercury and an outer extension exterior to said bulb, and an air bag having a flexible tube attached to said outer extension of the nipple.

7. In a device of the character described, 45
a manometer having a closed outer end and a bulb at its inner end, a globule of mercury located normally in said bulb, a hollow nipple having an inner extension within the bulb for preventing the escape of the globule 50
of mercury and an outer extension exterior to said bulb, and an air bag having a flexible tube removably attached to said outer extension of the nipple.

8. In a device of the character described, 55
a manometer comprising an enlarged outer closed end, a bulb and an interposed tube, an air bag in open communication with said bulb, and a globule of mercury located normally in said bulb and arranged to close 60
the inner end of said tube when the manometer is inverted into position preparatory for use.

9. In a device of the character described, a manometer having a closed outer end and a bulb at its inner end, an air bag in open 65
communication with said bulb, a globule of mercury located normally in said bulb, said manometer having a graduated scale thereon, and said globule of mercury being arranged to drop to the zero mark of said scale 70
when the manometer is inverted into position preparatory for use.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this tenth day of 75
November, 1908.

MAX HERZ.

Witnesses:

ROBERT W. HEINGARTNER,
AUGUST FUGGER.