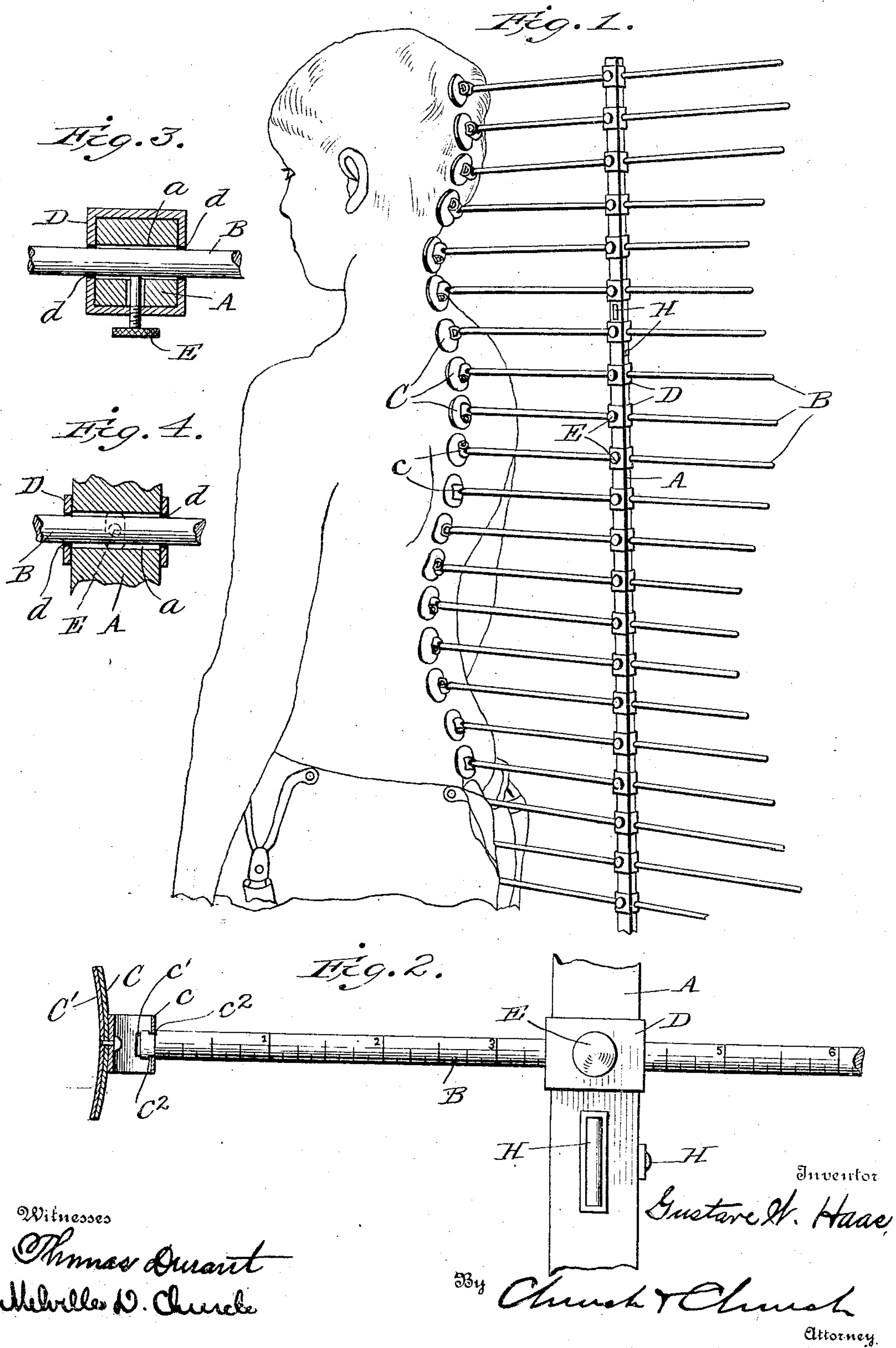


No. 889,224.

PATENTED JUNE 2, 1908.

G. W. HAAS.  
CURVATURE GAGE.

APPLICATION FILED NOV. 25, 1907.





# UNITED STATES PATENT OFFICE.

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## CURVATURE-GAGE.

No 889,224.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed November 25, 1907. Serial No. 403,732.

*To all whom it may concern:*

Be it known that I, GUSTAVE W. HAAS, of Los Angeles, in the county of Los Angeles, State of California, have invented a certain new and useful Improved Curvature-Gage; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to devices for assisting in determining the conformation of the human body and particularly the position of the vertebrae.

The objects of the invention are to provide a simple and convenient device with which the doctor or attendant will be enabled to make a record and so determine with certainty the changes in relative position of the parts or curvature which take place under the influence of the remedial measures adopted in any particular case of deformity.

The invention consists in certain novel details of construction and combinations and arrangements of parts all as will be now described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figure 1 is a perspective view showing the device and manner of using the same. Fig. 2 is an enlarged view of one of the indicating rods and a section of the standard. Fig. 3 is a horizontal section through the standard showing the means for clamping the measuring rods. Fig. 4 is a detail vertical section to show the capacity for independent vertical adjustment of the rods.

Like letters of reference in the several figures indicate the same parts.

The device embodies generally a vertical standard A and a series of vertically and horizontally adjustable horizontal rods B, one for each vertebra of the human body. Each rod has at its forward end a concave contact piece C, preferably connected with the rod by a loose or universal joint which will permit a limited free positioning movement in any direction.

The universal joint connection may conveniently be formed by a curved strap  $c$  secured to the contact piece and having a slot  $c'$  therein fitting a groove or two recesses  $c^2$  at the sides of the rod in proximity to its forward end.

The rods extend through vertical slots  $a$  in the standard and are held in adjusted position both horizontally and vertically by sleeves D on the standard. The sleeves preferably have apertures  $d$  for the passage of the rods and set screws E for clamping the rods and sleeves firmly in position.

In obtaining data and making records of changes in the position of the vertebrae it is obvious that difficulty will be experienced owing to the fact that there is no fixed point which will serve as a base for the measurements to be taken, but in the present device I have in a large measure overcome this difficulty by providing a means whereby any variation of the position of the standard with relation to the horizon will be indicated and consequently if the patient assumes a normal erect position and the contacts be adjusted to bear against each vertebra the graduated scales on the rods will give the desired data for the record with a far greater degree of accuracy.

In the preferred construction, the standard is provided with leveling devices, such as spirit levels H arranged at right angles to each other although it will be understood that any preferred form of leveling means which will indicate a variation from the vertical in any direction, may be employed.

The rods in the preferred form of apparatus are held in parallelism or in parallel planes at all times, but may be adjusted both longitudinally and transversely toward and from each other and may be separately clamped in adjusted position.

The faces of the contacts are covered with a non-conducting material as indicated at C' in order to prevent shock to the nerves of a sensitive patient such as might be caused by cold or heat conducting metal.

The device is simple, convenient and enables a record to be kept in a class of physical deformities in which the uncertain and unreliable ocular observation of the attendant or doctor has heretofore been relied on for determining changes and the propriety and nature of future treatment.

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

1. In a device such as described, the combination with the standard, of a series of parallel rods adjustably mounted on the standard, and each having a graduated scale for



indicating the adjustment, means for holding the rods in adjusted position and contact pieces jointed on the ends of the rods, whereby they will position themselves to the part being measured.

2. In a device such as described, the combination with the standard, of a series of parallel rods transversely and longitudinally adjustable on said standard and each having a graduated scale for indicating the adjustment, means for holding the rods in adjusted position and contact pieces jointed on the ends of the rods.

3. In a device such as described the combination with the standard having vertical slots, of a series of parallel rods working through said slots, sleeves adjustably mount-

ed on the standard and having apertures through which the rods pass, and means for clamping the rods and sleeves in position.

4. In a device such as described, the combination with the standard and series of rods having graduated scales thereon and freely movable contacts at their forward ends, of the series of sleeves carrying said rods and adjustably mounted on the standard, set screws for holding said sleeves and rods in adjustable position and means for indicating the proper angular position of the standard with relation to the horizon.

GUSTAVE W. HAAS.

Witnesses:

FLORENCE EVERIL YUNGE,  
J. W. HUDSON.