

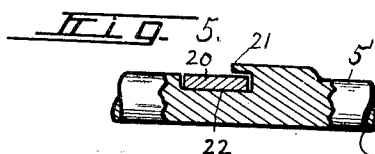
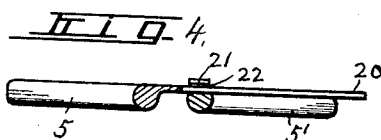
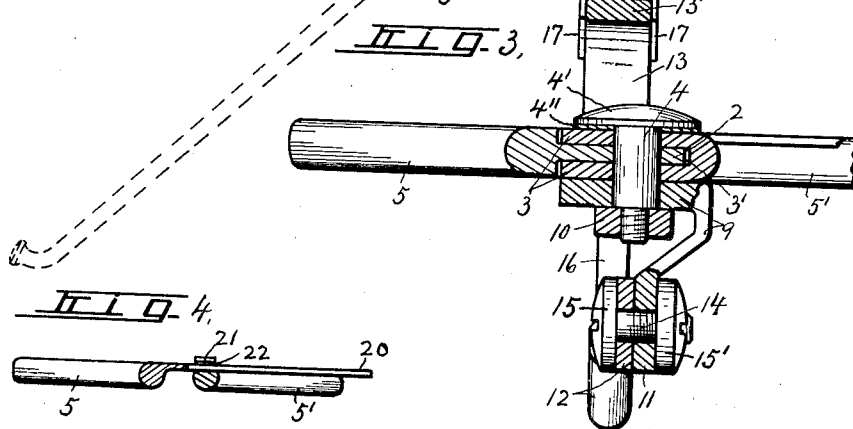
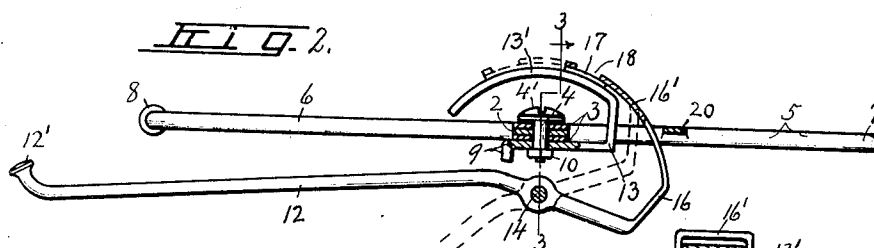
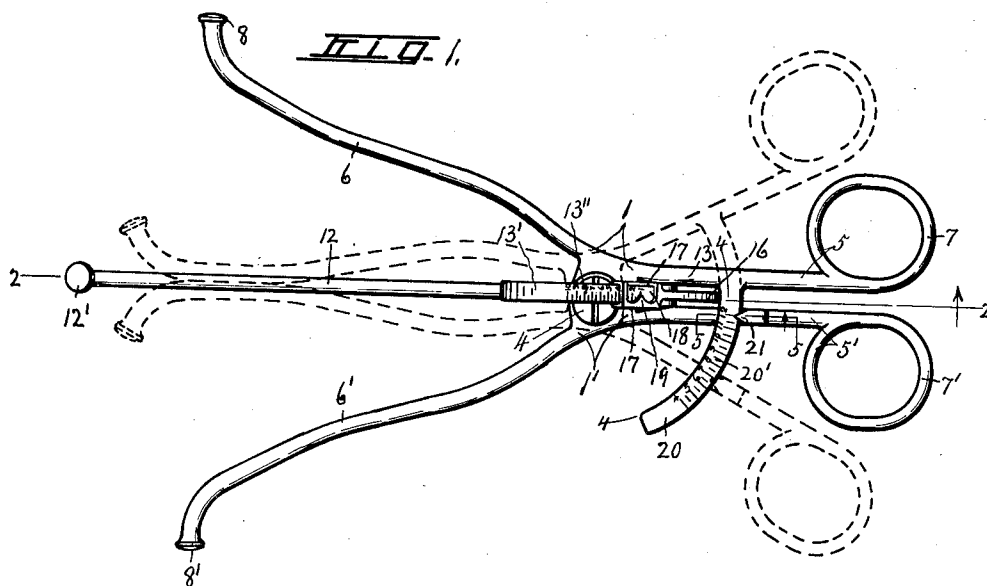
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PELVIMETER

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PELVIMETER

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This invention relates to a pelvimeter adapted to be used more particularly for obtaining the dimensions of the human pelvis but obviously may be used for other perineal measurements or for obstetrical purposes.

The main object is to provide a three-point contact instrument of this character in which all of the contact points are relatively adjustable toward and from a common axis while the entire instrument may be turned about said axis to bring the points into different angular relation.

Another object is to provide the proximal end of the instrument with suitable means for indicating to the operator the relative positions and amount of opening of the contact jaws.

A further object is to pivotally connect the three jaws in such manner that all three jaws may be moved about one and the same axis and to permit one of the jaws to be moved about another axis at right angles to the first-named axis.

Other objects and uses will be brought out in the following description.

In the drawing:—

Figure 1 is a top plan of a pelvimeter embodying the various features of our invention shown in its extreme open position by full lines and in its closed position by dotted lines.

Figure 2 is a longitudinal sectional view taken in the plane of line 2—2, Figure 1, showing the third jaw by full lines in its closed position and by dotted lines in its open position.

Figure 3 is an enlarged transverse vertical sectional view taken on line 3—3, Figure 2.

Figure 4 is an enlarged transverse sectional view taken on line 4—4, Figure 1.

Figure 5 is an enlarged longitudinal vertical sectional view taken on line 5—5, Figure 1.

As illustrated, this instrument comprises a pair of similar opposed levers 1 and 1' arranged side by side and having their intermediate portions provided respectively with overlapping lugs 2 and 3 which are pivotally connected to each other by means of a pivotal bolt 4, as shown more clearly in Figure 3, said levers being extended longitudinally in opposite directions from the pivotal bolt to form handles 5 and 5' and jaws 6 and 6'.

The handle ends 5 and 5' of the levers are provided with finger loops 7 and 7' adapted to be engaged by the operator for opening and closing the jaws about the axis of the pivotal bolt 4.

The jaws 6 and 6' are somewhat longer than their respective handles 5 and 5' and have their distal ends curved or deflected outwardly and terminating in slightly enlarged rounded contact ends or points 8 and 8' to contact with the walls of the pelvis or other cavity under measurement.

The lugs 3 of the lever 5' are spaced axially of the bolt 4 to form an intervening slot 3' in which the lug 2 is seated so that both of the levers

may swing in the same plane about the axis of said bolt.

The bolt 4 is provided with an enlarged head 4' abutting through the medium of a washer 4'' against the upper face of the lug 3 and has its other end extended beyond the lower face of said lug for receiving and supporting a yoke 9 which is journaled on said extension to swing about the axis of the bolt and is held in operative position by a nut 10 engaging the lower reduced threaded end of the bolt, as shown more clearly in Figure 3.

This yoke is provided with a downwardly extending arm 11 having its lower end disposed in a vertical plane at substantially right angles to the plane of movement of the levers 5 and 5' for receiving and supporting an additional or third lever 12 in a manner presently described.

The intermediate portion of the yoke 9 is preferably disposed in a plane parallel with the plane of movement of the levers 5 and 5' or at right angles to the axis of the bolt 4 and abuts against the underside of the lug 3 so as to turn freely about said axis.

The yoke 9 is also provided with a rearwardly and upwardly extending arm 13 having its upper end 13' arched forwardly over the head of the bolt 4 about the axis of movement of the additional or third lever 13, as shown more clearly in Figure 2, said curved portion 13' constituting a scale plate having linear graduations 13'' upon its upper surface for a purpose presently described.

The additional or third lever 12 is pivotally connected to the extension 11 of the yoke 9 by means of a pivotal bolt 14 having opposite enlarged heads 15 and 15' engaging the outer faces of the adjacent portions of the extension 11 and lever 12, one of said heads as 15' being adjustable to take up wear and to permit the parts 11 and 12 to be removed one from the other.

The pivotal bolt 14 is preferably arranged directly under the lower end of the bolt 4 at right angles thereto so that the lever 12 is free to swing vertically about said axis in a plane between the jaws 6 and 6' of the levers 1 and 1', as shown more clearly in Figures 1, 2 and 3.

The lever 12 extends forwardly and rearwardly beyond the pivot 14, the rear end of said lever being provided with an upwardly and forwardly projecting extension 16 having a curved portion 16' concentric with the axis of the pivotal bolt 14 and of about the same radius as the upper surface of the scale plate 13' to move along the graduations 13'' as the lever 12 is rocked about its axis.

The front end of the arcuate portion 16' of the extension 16 is enlarged laterally to form opposite flanges 17 adapted to engage the opposite longitudinal edges of the scale plate 13' for guiding

the arm 16' along said scale plate against relative lateral movement.

This enlarged end of the arm 16' is provided with a sight opening 18 through which the graduations 13'' are visible and is also provided with a pointer 19 adapted to register with said graduations to indicate the amount of movement of the lever 12 from its normal closed position, as shown by full lines in Figure 2.

The rearwardly extending arm 16 of the lever 12 forms a finger loop near the proximal ends of the levers 1 and 1' to permit the operator to manipulate the lever 12 simultaneously with the operation of the levers 1 and 1'.

The forwardly projecting end of the lever 12 constitutes a jaw normally extending some distance beyond the front ends of the jaws 6 and 6' and is provided at its distal end with an enlarged rounding contact surface 12' adapted to contact with the walls of the cavity in which the jaws are inserted, the points 8, 8' and 12' being arranged at the angles of a triangle.

A scale plate 20 is secured to the handle end of one of the levers as 5 and extends laterally across the upper surface of and some distance beyond the handle end of the other lever as 5' concentric with the axis of the pivotal bolt 4 and is provided with linear graduations 20' on its upper surface.

The handle end of the other lever as 5' is provided with a relatively fixed pointer 21 adapted to register with any one of the graduations of the plate 20 as the levers are opened and closed to indicate the amount of opening of the jaws 6.

The handle end 5' of the lever 1' is provided with a guide groove 22 for receiving the adjacent portion of the scale plate 20 while the pointer 21 extends from one side of the groove across a portion of the upper surface of the plate 20 to hold the latter against vertical displacement from the groove and at the same time to bring the pointer into close proximity to the graduated surface of the said plate, as shown more clearly in Figures 4 and 5.

Operation

When it is desired to obtain the dimensions of the inner walls of a cavity, the jaws may be closed or brought into close proximity to each other by means of the handles 7 and 7' and the loop-shaped extension 16 at the proximal end of the instrument whereupon the jaws may be expanded by the same means against the wall of the cavity and dimensions indicated by the scale plates 13' and 20 and their respective pointers 19 and 21.

It will be evident, however, that the jaws 6 and 6' may be opened and closed by their respective handles 5 and 5' independently of the operation of the jaw 12 and that the latter jaw may also be operated through the medium of the looped extension 16 independently of the operation of the jaws 6 and 6'.

This intermediate jaw 12 may also be manipulated laterally relatively to the jaws 6 and 6' about the axis of the pivotal bolt 4 through the medium of the yoke 9 and connection of the extension 16' with the scale plate 13' to enable the operator to determine the contour of the cavity engaged by the contact member 12'.

It is evident from the foregoing description that when the entire instrument is being used it may be turned manually about its longitudinal axis to bring the several contact points 8, 8' and

12' into engagement with different portions of the cavity, or at the angles of a triangle.

This instrument is particularly simple, light, strong and durable and may be easily manipulated to different positions for making measurements of different portions of the cavity, but obviously various changes may be made in the detail construction without departing from the spirit of the invention.

What we claim is:

1. In a pelvimeter, a pair of levers and a yoke pivoted to each other for relative rocking movement, said levers having one end provided with handles and their other ends deflected outwardly, and an additional lever pivoted to the yoke.

2. In a pelvimeter, a pair of levers and a yoke pivoted to each other for relative rocking movement, said levers having one end provided with handles and their other ends deflected outwardly, an additional lever pivoted to the yoke, a scale plate on the yoke concentric with the pivotal axis of the additional lever, and an extension on the additional lever movable therewith along the scale plate.

3. In a pelvimeter, a pair of levers arranged side by side and having overlapping lugs intermediate their ends, a pivotal bolt connecting said lugs to permit lateral swinging movement of the levers, said levers having handles at one end and outturned jaws on their other ends, a yoke journaled on the pivotal bolt to swing about the axis thereof, and an additional lever pivoted to the yoke to swing about an axis at right angles to that of the pivotal bolt.

4. In a pelvimeter, a pair of levers arranged side by side and having overlapping lugs intermediate their ends, a pivotal bolt connecting said lugs to permit lateral swinging movement of the levers, said levers having handles at one end and outturned jaws on their other ends, a yoke journaled on the pivotal bolt to swing about the axis thereof, an additional lever pivoted to the yoke to swing about an axis at right angles to that of the pivotal bolt and also adapted to swing with the yoke about the axis of the bolt.

5. In a pelvimeter, a pair of levers arranged side by side and having overlapping lugs intermediate their ends, a pivotal bolt connecting said lugs to prevent lateral swinging movement of the levers, said levers having handles at one end and outturned jaws on their other ends, a yoke journaled on the pivotal bolt to swing about the axis thereof, and an additional lever pivoted to the yoke to swing about an axis at right angles to that of the pivotal bolt, said yoke having an extension concentric with the axis of movement of the additional lever, and a pointer on the additional lever movable along said extension as said additional lever is rocked about its pivotal axis.

6. A pelvimeter comprising a pair of levers, a pivotal bolt connecting said levers, a scale plate secured to one lever and extended across the other lever concentric with said bolt, a yoke journaled on said bolt to swing about the axis thereof, a third lever pivoted to said yoke to swing about an axis at right angles to that of the bolt, a second scale plate secured to said yoke and concentric with the axis of movement of the third lever, and a pointer arm secured to the third lever and movable therewith along the second scale plate.

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