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H. M. HOSKIN ET AL

1,904,234

MEASURING SCALE

Filed Aug. 20, 1929

Fig. 1.

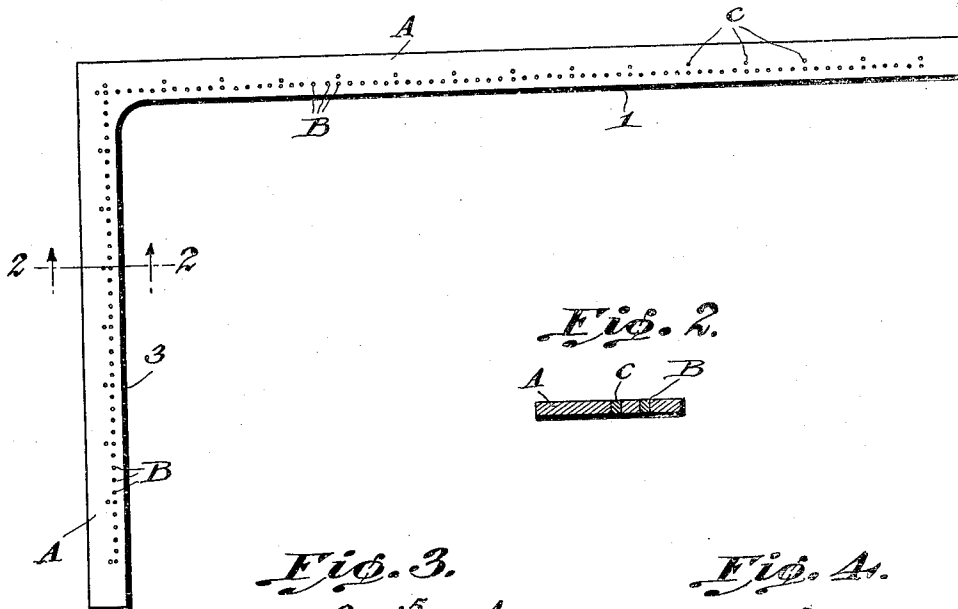


Fig. 2.



Fig. 3.

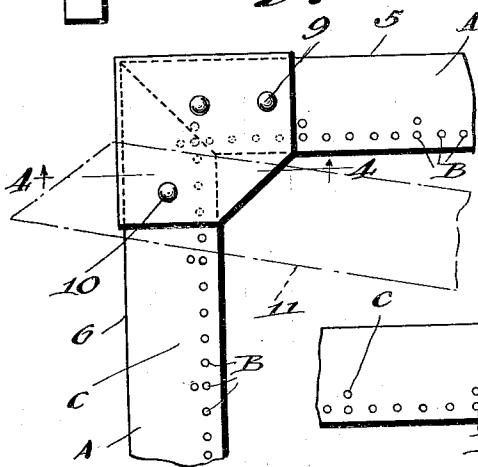


Fig. 4.

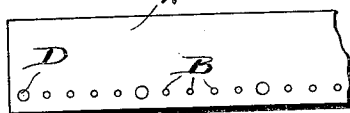
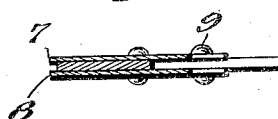


Fig. 6.

Fig. 5.

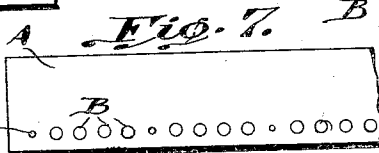
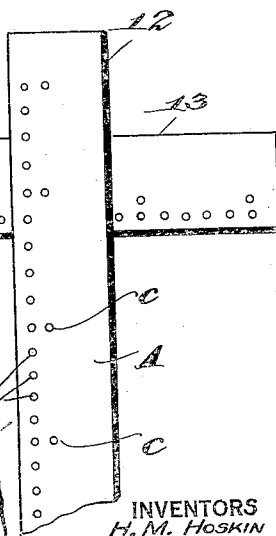


Fig. 7.



WITNESSES

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MEASURING SCALE

Application filed August 20, 1929. Serial No. 387,179.

Our invention relates to a measuring scale for X-ray photography, and it consists in the combinations, constructions and arrangements herein described and claimed.

5 The principal object of our invention is to provide a simple device which will leave upon X-ray pictures a series of small dots, from which accurate measurements may be ascer-
10 tained in regard to bones, organs and other things not measurable under ordinary conditions without in any way obscuring the image or photographs taken.

Another object is to provide a device of this kind which will reduce to a minimum any
15 obscuring of an image upon the negative of an X-ray picture.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly
20 pointed out in the appended claims.

Our invention is illustrated in the accompanying drawing, forming part of this application, in which:

Figure 1 is a plan view of the preferred
25 form of our device,

Figure 2 is an enlarged cross sectional view taken upon line 2—2 of Figure 1,

Figure 3 is a detail view depicting a hinge used in one of the forms our device may take,

30 Figure 4 is a cross sectional view taken upon line 4—4 of Figure 3,

Figure 5 is a plan view, partly broken away, illustrating another form our device may take, and

35 Figures 6 and 7 show modified arrangements of pellets, hereinafter referred to.

Referring to the drawing, in Fig. 1 we have shown our device in the form of a square, having integral sides 1 and 3.

40 In Fig. 3 we have shown our device in the form of a hinged square, having arms 5 and 6, hinged in any suitable manner. In the form shown, the hinge is composed of plates 7 and 8, fastened at opposite sides of the arm 5 by rivets 9. The arm 6 is also located between the plates 7 and 8, and pivotally mounted upon the hinge bolt 10. The dotted lines
45 11 show one of the positions that the arm 6 is adapted to take, the arms being at right
50 angles when open for use.

In Fig. 5 we have shown our device in a form having separate arms 12 and 13, adapted to be laid across each other, as hereinafter described.

In all the forms with the exception of the 55 forms shown in Figs. 1 and 3, the body A may be a tape, such as adhesive tape, while the others, however, may be composed of any rigid or semi-rigid substance through which
60 Roentgen or X-rays are also adapted to pass, such as wood, celluloid, aluminum, or the like, and B denotes members or pellets of a material through which said rays cannot permeate, such as lead or the like. The pellets
65 B are at equal measured distance from one another, and beside every fifth pellet B, an extra pellet C is placed, or in the place of every fifth pellet, a larger or smaller pellet is substituted as shown by D and E, respec-
70 tively.

The operation of our device is as follows: The device is placed upon, in front of, at the side of, or at the rear of an object to be X-rayed, so that the lines of pellets are approximately parallel with the bone line or
75 other object to be photographed. The film or plate is then exposed in the usual manner, and the resultant negative will have thereon the image and two rows of white dots, the rows being at right angles to each other. 80
Beside every fifth dot will be an extra white dot, or in the place of every fifth dot a larger or smaller dot. Thus accurate measurements of the object photographed may be ascer-
85 tained without in any way obscuring the image or photograph taken.

Since the distances between the dots are known and the two rows of dots are known to be at right angles, distances upon the image will be readily ascertained. The fifth dot is
90 added so that computations may be made more quickly.

The form shown in Fig. 2 has the additional advantage of being collapsible, and the form shown in Fig. 3 is adapted to take up
95 very little space when not in use.

While we have found the metric system very practical in the spacing of the dots, it is apparent that any system of linear measurement may be used. We do not wish to limit
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ourselves to the particular forms shown, the essential feature of our invention being a measuring device having a body of X-ray permeable material and pellets of X-ray non-permeable material mounted therein at measured distances.

We claim as new and desire to secure by Letters Patent:

1. In a device of the class described, a body of X-ray permeable material, pellets at measured equi-distant places therein, every fifth pellet being of a different size than the remainder to form a position indicating mark when used without obscuring the matter photographed.

2. A device of the type described comprising an elongated body portion of X-ray permeable substance and a series of pellets of X-ray impermeable material carried by the body portion and disposed in alinement, said pellets being spaced at equal distances apart to form a measuring scale.

3. A device of the class described comprising an elongated body portion of X-ray permeable substance having flat parallel faces and a series of pellets of X-ray impermeable material, each of said pellets extending through the body portion from one face to the other, said pellets being disposed in alinement and being spaced at equal distances apart to form a measuring scale.

4. A device of the class described comprising an elongated body portion of X-ray permeable substance having flat parallel faces and a series of pellets of X-ray impermeable material, each of said pellets extending through the body portion from one face to the other, said pellets being disposed in alinement and being spaced at equal distances apart to form a scale and additional pellets spaced equally apart from one another and disposed in a line paralleling the line of the first mentioned pellets, each of said additional pellets being located beside a pellet in said first named line of pellets.

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