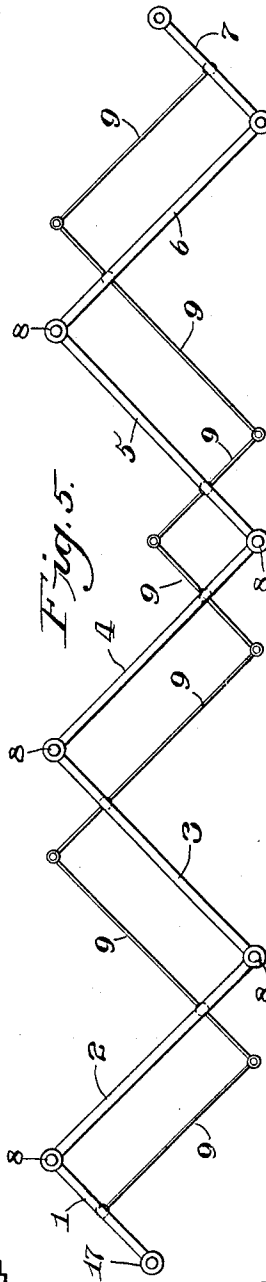


FOLDING BRACKET.

Patented Feb. 25, 1913.

1,054,242.



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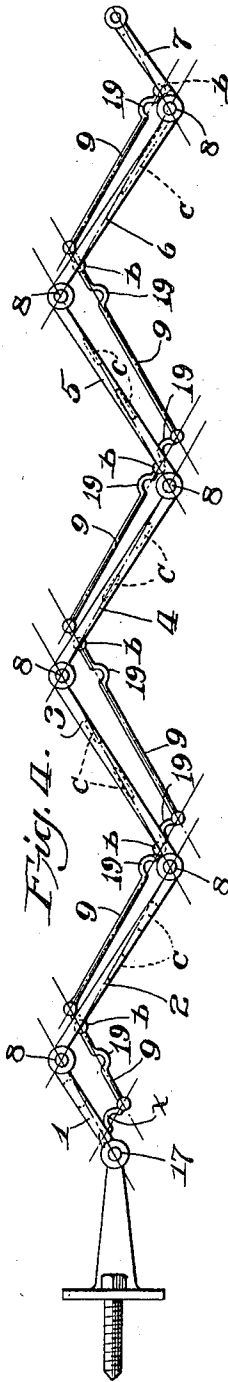
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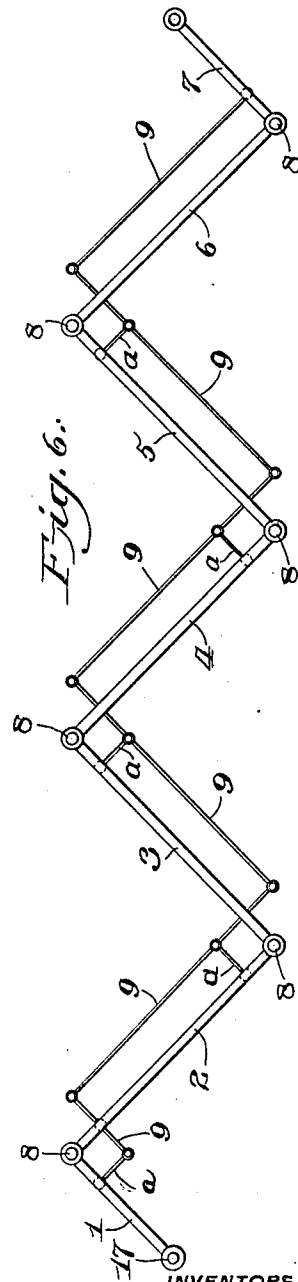
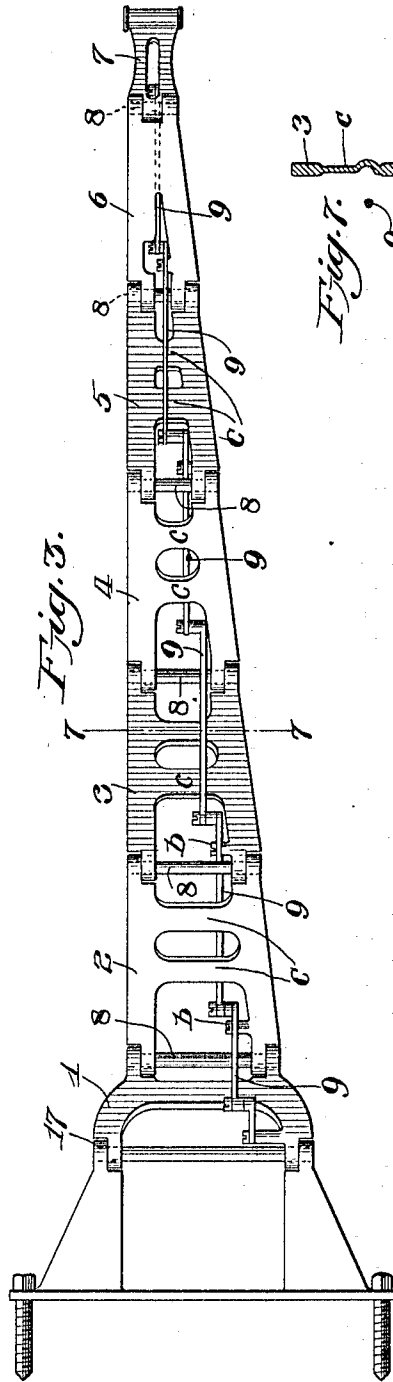
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2 SHEETS—SHEET 2.

1,054,242.



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FOLDING BRACKET.

1,054,242.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CHARLES H. RICHARDSON and FERDINAND F. METZGER, citizens of the United States, and residents of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Folding Brackets, of which the following is a specification.

Our invention relates to certain improvements in extensible brackets such as are used to hold dental or optical instruments, telephones, or any other article the use of which requires that it be supported and to be moved in or out in a definite manner.

Our object is to furnish an extensible and folding bracket which will be simple and practical in construction, rigid in use, and will have a long reach when open and occupy small space when closed.

In the accompanying drawings forming part of this specification and in which similar letters of reference indicate parts throughout the several views: Figure 1 is a side elevation of a bracket embodying our improvements, showing the controlling rods outside the main arms; Fig. 2 is a plan of Fig. 1. Fig. 3 is a side elevation of a bracket showing the controlling rods placed within the main arms; Fig. 4 is a plan of Fig. 3; Fig. 5 is a plan showing a modified arrangement of the controlling rods; Fig. 6 is a plan showing another modification of the arrangement of the controlling arms; Fig. 7 is a section of Fig. 3 on line 7—7 showing curved webs to the main arms.

The present invention is a modified form of the bracket shown in our application for patent Serial No. 552,515 filed by us in the United States Patent Office upon March 31, 1910 and allowed June 8, 1910. In the said application the movements of the arms of the bracket are controlled by rods which are joined at each end to a main arm, or extension of a main arm. These rods are not connected together nor do they cross the main arm.

In the present invention the controlling rods are pivoted together end to end and are directly or indirectly pivotally secured to the main arms at a point between the middle and ends of the main arms, the preferable arrangement being for the rods to cross the main arms, a pivot being employed to secure together these arms at the point of crossing.

1, 2, 3, 4, 5, 6, 7, etc., are the main arms of our bracket. While we have shown seven arms in Figs. 1 and 2, any number from three up, may be used as circumstances require. The ends of adjoining arms are secured together by pivots 8 and the extreme outer ends of the bracket are adapted, as in our former application, the one to be secured preferably pivotally to a support 17, the other to carry the table or other object to be supported, although we do not limit ourselves to those two points for these purposes. For constructional and functional requirements and also to obtain the best appearance, the end arms of the bracket are preferably made about one-half the length of the intermediate arms, if these arms are of equal lengths as shown in the drawings or one-half the lengths of the next adjoining arms if the arms vary in length. It will be understood that the lengths of the main arms are in no way vital to our invention, these lengths may be equal or unequal.

In Figs. 1 and 3, the main arms are shown joined one inside the other, but they can be pivoted one above the other or one below the other, without in any way affecting our invention. The controlling rods 9 are pivotally connected end to end, each controlling rod forming with one of the main arms a pair of arms which are parallel and close to one another. The controlling rods are pivotally connected with the main arms this connection being direct as shown in Figs. 1, 2, 3, 4 and 5, or by a link substantially as shown in Fig. 6.

In Figs. 1 and 2, the controlling rods 9 are shown connected below the main arms 1—2—3, etc. The rods 9 are pivoted together at their ends, and cross the main arms (excepting the first and last), near their ends. At the point of crossing *b*, they are pivoted to the main arms, or projections from said arms as clearly shown in Fig. 1. The inner end of the inner rod 9 is connected to the main arm 1 at 10 by a short link *a*. At *b* it is pivoted to the main arm 2 and at 11 is pivoted to the next controlling rod 9. This second controlling rod 9 beyond its pivotal connection with the first rod 9 at 11, crosses and is pivoted to the main arm 3 at *b*; beyond this joint the rod 9 joins the third controlling rod 9 by a pivot at 12. This construction is continued for

the remaining main arms and rods, except that the outer rod does not necessarily cross the outer main arm. It will be noticed from this construction that the ends of the controlling rods 9 are upon opposite sides of the main arms to which they are pivoted. It will be further noticed that the centers of all the pivots on the main arms are in line, as are also the centers of the pivots on the controlling rods. These lines form the axes of the main arms and rods, and the distances between the various pivots are so proportioned that the axes of the main arms and of the controlling rods are parallel to each other in pairs. The broken lines in Fig. 2 show this construction clearly. The main arms and controlling rods form together a series of parallelograms each of which have two long and two short sides but the centers of the pivots connecting the main arms and controlling rods are not, except when the bracket be fully extended, upon the same straight line as is the case in the ordinary forms of lazy-tongs brackets which are symmetrical in all positions. Our particular construction results in what may be termed an "unsymmetrical lazy-tongs" no three of the pivots connecting the main arms and controlling rods being in line except when the main arms are fully extended. This construction causes alternate main arms to move parallel to each other and any motion of opening or closing any main arm, will be equally and simultaneously transmitted to all the other main arms causing them all to move in unison.

To permit of a close folding of the arms the controlling rods 9 and link x are recessed at 19 to clear the extensions on the main arms to which the rods 9 are pivoted.

Figs. 3 and 4 are an elevation and plan of a similar form of bracket, the controlling rods 9 being placed within the main arms. Operatively this is identical with the form shown in Figs. 1 and 2; constructively the link x and rods 9 must have recesses 19 where needed to clear the main pivots and bosses 8 when the bracket is completely

opened or closed, also the webs c , uniting the top and bottom of the main arms, must be spaced and beveled as shown in Figs. 3 and 4 to clear the controlling rods. These webs can also be curved as shown in section, Fig. 7, for the same purpose. The bosses on the ends of the main arms are placed upon opposite sides of the main arms, as shown, so as not to engage one another when the arms are folded. Figs. 3 and 4 show that the rods 9 can cross the main arms at different distances from their ends or centers without interfering with the correct operation of the bracket, provided that the parallelism of the axes of the arms and rods is preserved as shown.

Fig. 5 is a diagrammatic plan of a slightly different arrangement of the bracket from that shown in Figs. 1, 2, 3, 4, and Fig. 6 is a similar plan of a form of this bracket in which the controlling rods are not directly connected to the main arms, excepting the first or last arm, but are connected to a short link a which is pivoted to the main arms.

We have shown the pivots on each individual main arm or controlling rod all in line and while we prefer this construction it is not necessary to the operation of the bracket for they may be placed out of line in a manner similar to that shown in Fig. 12 of our previous application.

Having thus described our invention we claim as new and desire to secure by Letters Patent:

In an extensible bracket, in combination, three or more main arms pivoted one to the other end to end and controlling rods pivoted end to end and to the main arms, the said pivotal connections being intermediate the centers and ends of both said arms and rods and being so disposed that no three of them are in line except when the bracket is fully opened.

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