

C. H. RICHARDSON & F. F. METZGER.

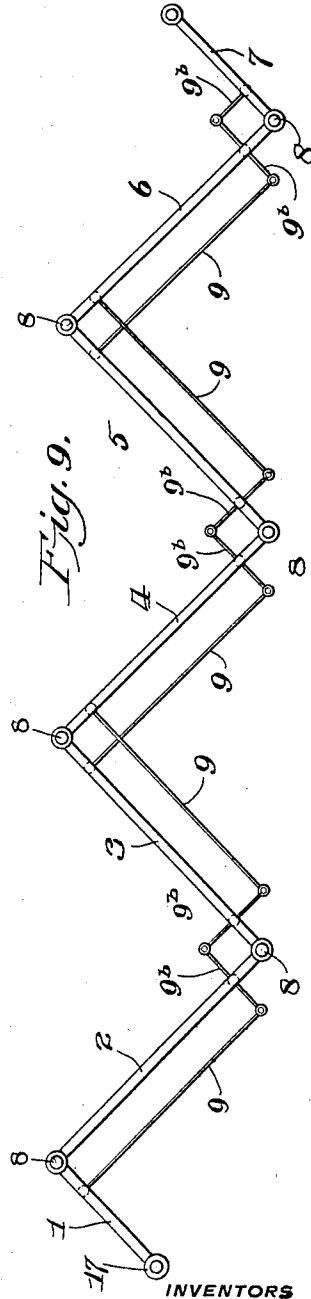
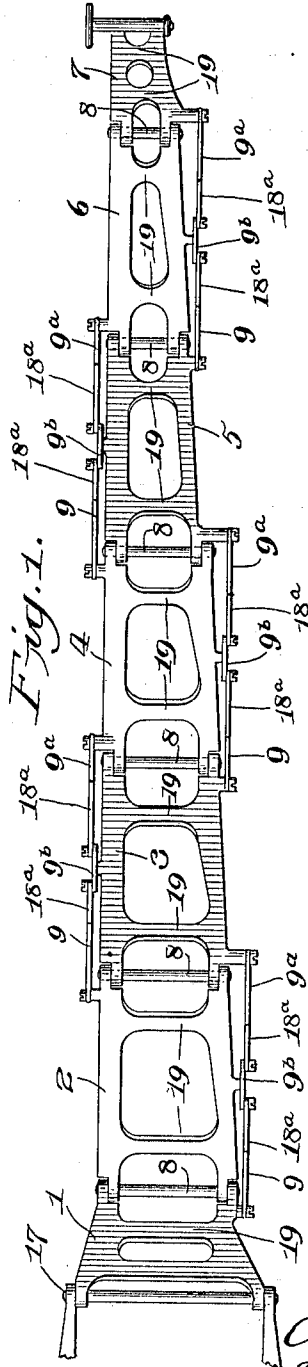
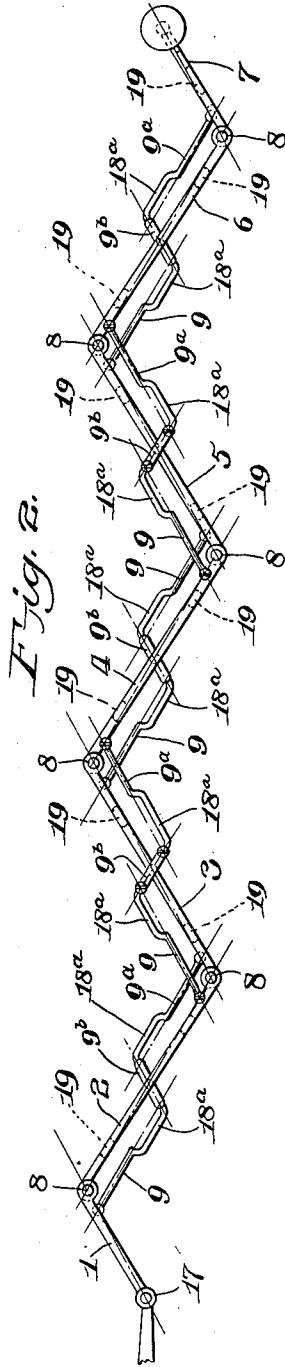
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APPLICATION FILED AUG. 10, 1910.

Patented Feb. 25, 1913.

3 SHEETS-SHEET 1.

1,054,241.



WITNESSES
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3 SHEETS--SHEET 2.

Fig. 4.

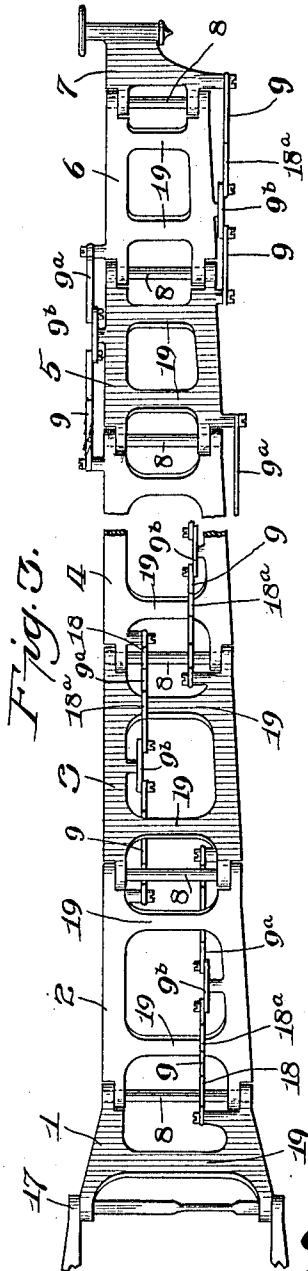


Fig. 3.

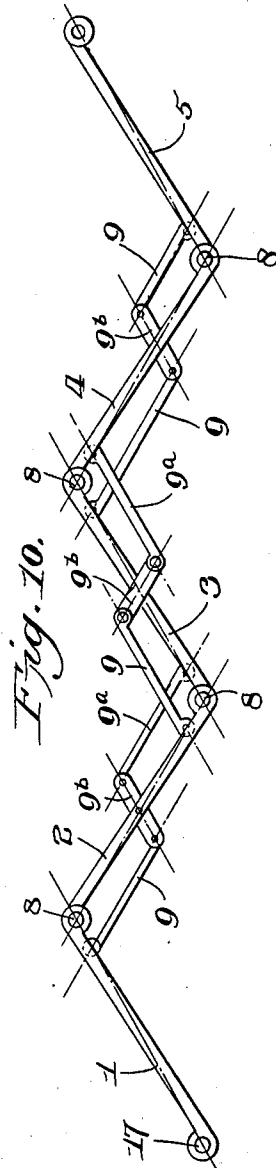


Fig. 10.

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3 SHEETS—SHEET 3.

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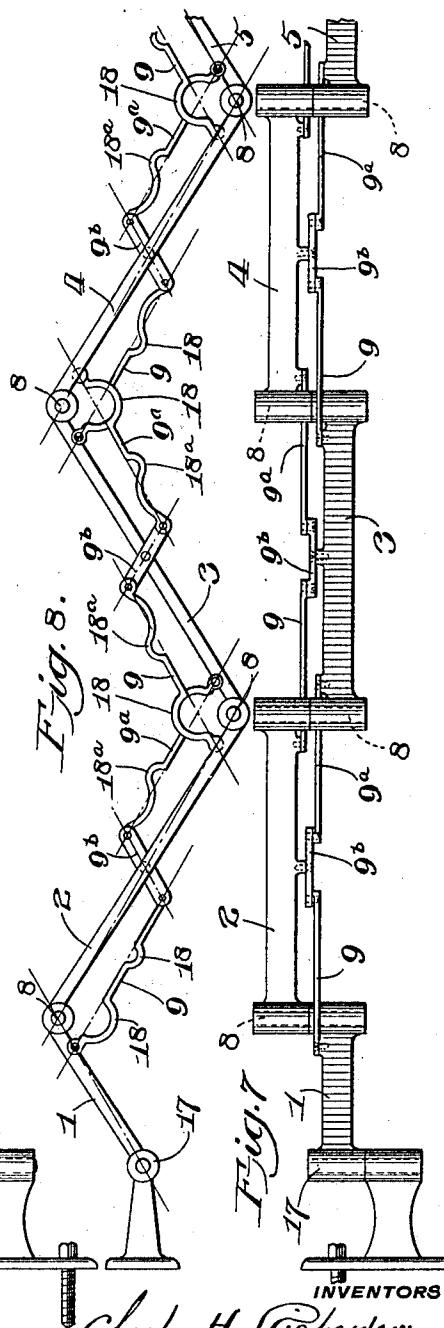
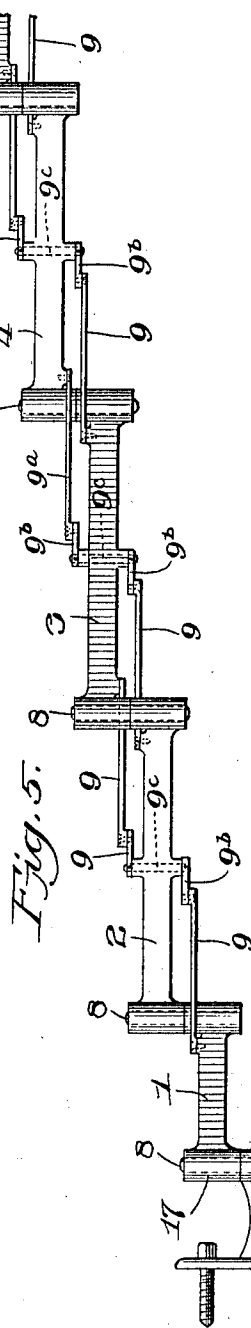
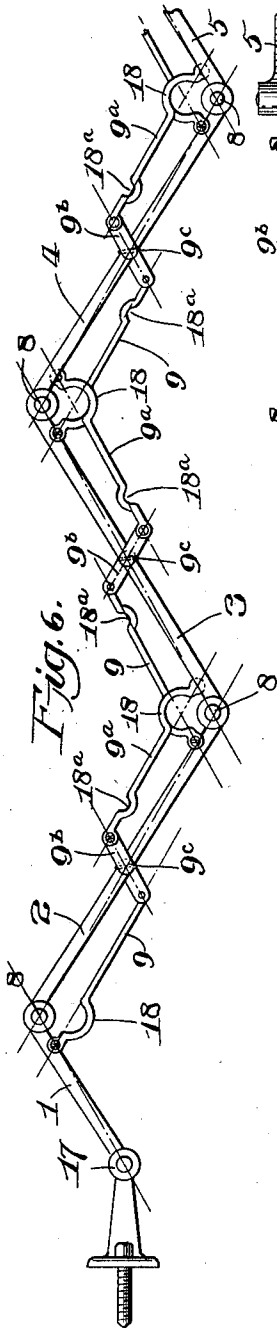


Fig. 7
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UNITED STATES PATENT OFFICE.

CHARLES H. RICHARDSON AND FERDINAND F. METZGER, OF PHILADELPHIA,
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Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed August 10, 1910. Serial No. 576,524.

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 Brackets, of which the following is a specification.

Our invention relates to improvements in extensible brackets such, for instance, as are used to carry a dental engine, a chest of drawers, a table, a telephone, or other article, our object being to furnish an extensible or folding bracket which will be simple and practical in construction, rigid and efficient in action, which will have the maximum reach when open, which will occupy but little space when closed, and which will preserve the position of the object or objects supported in a thoroughly acceptable manner at all times.

Our present invention is a modification of the form of bracket shown and described in an application Serial Number 552,515 filed March 31st, 1910, and allowed June 8th, 1910, the essential difference between the two being that in the above application the controlling rods which direct the movements of the main arms extend continuously from one main arm to the next alternate main arm and parallel to the intermediate main arm, the said arms and controlling rods being pivotally connected in groups, each group consisting of a main arm and a controlling rod, while in the present invention the controlling rods are made in two pieces, one of which is placed close to one side of the intermediate arm, and the other close to the other side of this arm, the inner ends of these two pieces being secured, the one, to one end, and the other to the other end of a lever which is pivoted to and which crosses the intermediate main arm at a point between the ends of this arm; and the outer ends of which are pivoted to the alternate arms, the said main arms and controlling rods forming groups each of which consists of a main arm and three units or links, two of which are connected to alternate arms and to the third link, which latter crosses and is pivoted to the intermediate arm.

This construction may be modified by pivoting to adjacent ends of adjoining main arms two levers, pivoting together one of

the ends of said levers, and pivoting to the other ends of said levers one end of controlling rods, the other ends of which are pivoted to main arms as more fully set forth hereinafter. In this latter construction the levers not only perform their function to connect the controlling rods but also form themselves part of these rods.

In the accompanying drawings forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views: Figure 1, is a side elevation of a folding bracket embodying our invention, the lever connecting the controlling rods passing above or below and crossing the middle of the intermediate main arms; Fig. 2, a plan of Fig. 1; Fig. 3, a view similar to Fig. 1, some of the levers connecting the controlling rods passing across the intermediate main arms to one side of the center of these arms, and the rods and levers partly within the frame of the main arms and partly without; Fig. 4, a plan of Fig. 3; Fig. 5, a side elevation of our invention applied to a bracket in which the main arms are mounted progressively one above the other; Fig. 6, a plan of Fig. 5; Fig. 7, a side elevation of our bracket as applied to a bracket in which the main arms are placed alternately above and below one another; Fig. 8, a plan of Fig. 7; Fig. 9, a diagrammatic plan of a modified form of bracket shown in Fig. 2; Fig. 10, a plan of the form of bracket shown in Fig. 4, the arms 9-9^a being straight.

Our bracket is formed of three or more main arms pivoted one to the other at or near their ends so that they can be extended to form a nearly straight line or folded together side by side, and our invention consists in furnishing particular means for causing all of said main arms to open or close simultaneously and in such a manner that a similar angular relation will be maintained between the several arms at all times.

1, 2, 3, 4, 5, 6, 7 are the main arms which are secured together, at or near their ends, by pivots 8 around which they can rotate, turn, or swing. The relative length of the arms is immaterial so far as our invention is concerned, but it is preferable in order that a symmetrical appearance may be maintained, particularly when the bracket is folded or closed, that the extreme rear and

front arms, 1 and 7, be approximately one-half the length of the next adjoining arms as shown in the drawings.

The arms intermediate of the end arms 5 may be of equal length, as shown in Figs. 1, 2, 5, 6, 7, 8, or they may successively decrease in length toward the outer end of the bracket as shown in Figs. 3 and 4. The latter construction presenting the neatest appearance is, perhaps, to be preferred.

The main arms 1, 2, 3, 4, 5, etc., may be pivoted one inside the other as shown in Figs. 1, 3 or they may be pivoted above or below each other as shown in Figs. 5 and 7. 15 Connecting each alternate main arm are means for causing any movement of any one main arm around its pivotal connection to the next arm to impart to the other main arms a similar angular movement. In the 20 present invention these means consist of pairs of controlling rods, 9, 9^a, and a lever 9^b, the latter of which is pivoted to the main arms at their centers, as shown in Figs. 1, 2, 5, 6, 7 and 8, or to one side of their centers as 25 shown in Fig. 9, and partly at the center and partly to one side of the center as shown in Figs. 3, 4 and 10.

The lever 9^b may be one continuous piece as shown in Figs. 1, 2, 3, 4, 7 and 8, or it 30 may be of two crank-like pieces the inner ends of which are secured to a pivot 9^c as shown in Figs. 5 and 6.

The inner ends of the rods 9, 9^a, are secured to opposite ends of the lever 9^b while 35 the outer ends of these rods are secured one to the main arm pivoted to one end of the arm carrying the lever 9^b, the other to the main arm pivoted to the other end of this lever carrying arm. For convenience, we 40 will call the arms carrying the levers the intermediate arms and the arms pivoted to the ends of this arm the alternate arms.

In the drawings levers 9^b are pivoted to arms 2, 3, 4, 5, 6. The controlling rods 9, 45 9^a secured to lever 9^b on arm 2 are also secured to arms 1 and 3. Those secured to lever 9^b on arm 3 are also secured to arms 2 and 4 and so on, the connections between the rods and the levers and the rods and the 50 arms being pivotal.

The rods 9, 9^a are upon opposite sides of the arm which carries their lever 9^b and the centers of the several pivots upon each arm and lever are preferably all in line as indicated by the broken lines in Figs. 2, 4, 6 55 and 8, and in order that the rods 9, 9^a when situated between the frames may not engage the pivots of the main arms, or the bosses on these arms, when said arms are fully 60 opened or fully closed they are bent or recessed at 18. The rods 9 and 9^a are also bent or recessed at 18^a, so they will clear the pivot bosses on the levers 9^b when the arms

are completely closed. The bosses on the ends of the main arms are placed upon opposite sides of the arms so as not to interfere with the close folding of the arms and for the same reason where the rods are inside the frame the webs 19 connecting the top and bottom chords of the main arms are 70 beveled. These features were fully set forth in our application above referred to and will not need detailed description here.

The several controlling rods 9 9^a and lever 9^b will cause each alternate main arm, as 1, 75 3, 5, 7 and 2, 4, 6 to open and close parallel to one another, hence, in any position of the bracket the angles formed between the main arms will always be equal. Thus a synchronous movement of the main arms is 80 secured, and the outer end of the bracket, which is adapted to carry an engine, a table, or other object, is caused to move in or out from the supported or wall end 17 in a straight or practically straight line as in 85 our application before referred to.

In Fig. 9 a modified form of bracket is shown in which the levers 9^b cross the main arms near their ends. In this case the adjacent levers 9^b are pivoted together at one 90 of their ends, their middles are pivoted to the main arms, and their outer ends are pivotally connected to the rods 9 which latter are also pivoted to the main arms as shown. The operation of this form of the device is 95 similar to that already described in connection with the other figures of the drawings.

In the drawings we have shown the pivots of the several levers and arms all in line but this construction, while preferred, is not 100 necessary to the operation of the bracket as the pivots may be out of line as set forth in connection with Fig. 12 of our previous application before referred to.

Having thus described our invention we 105 claim as new and desire to secure by Letters Patent:—

In an extensible bracket, in combination, three or more main arms pivoted together end to end, a short lever pivoted to and 110 crossing a main arm intermediate of two other main arms, and controlling rods substantially parallel to and arranged in pairs upon opposite sides of said intermediate main arm and having their inner ends 115 pivotally connected to the outer ends of said lever and their outer ends pivotally connected one to the main arm pivoted to one end of the intermediate main arm and the other to the main arm pivoted to the other 120 end of the intermediate main arm.

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Witnesses:

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