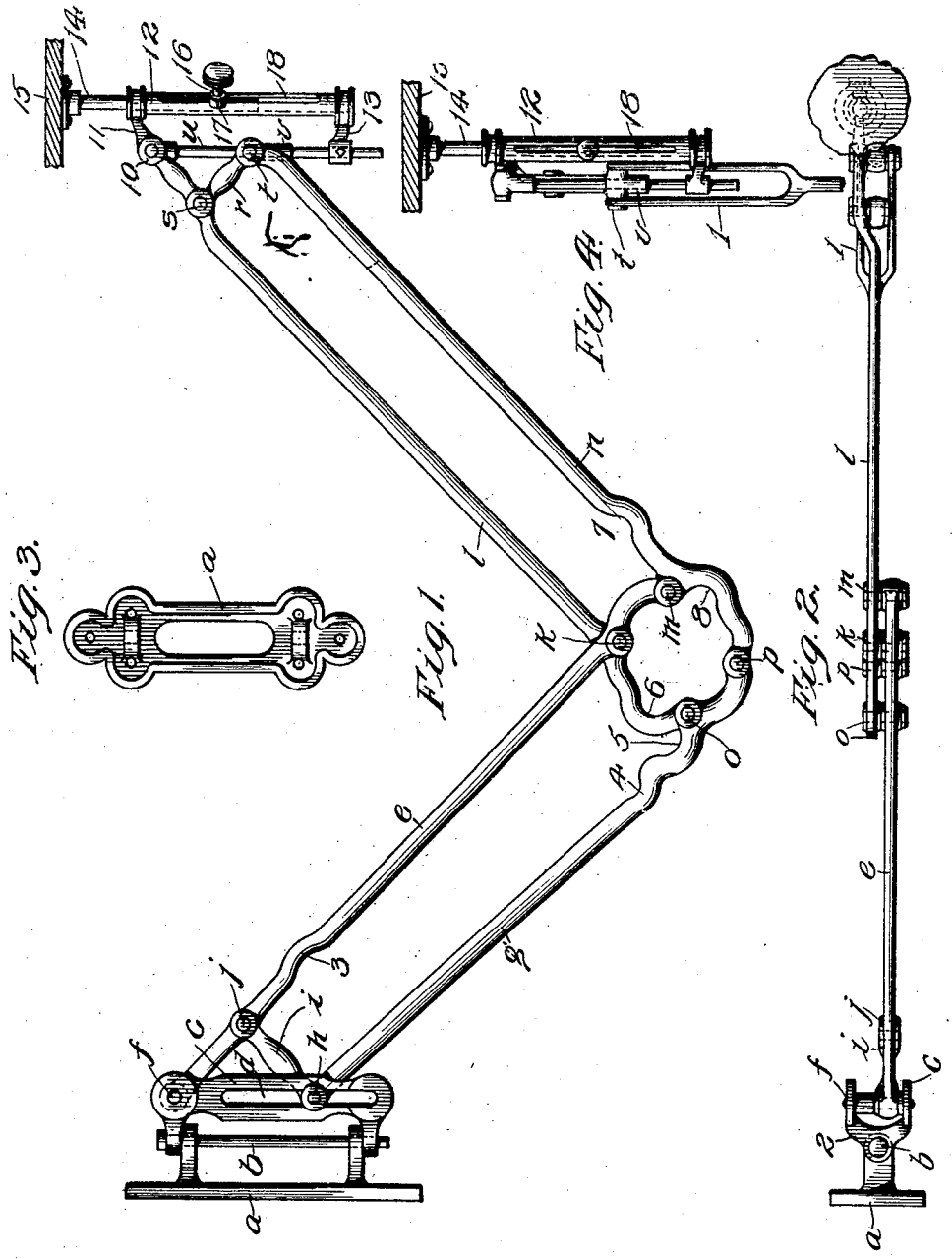
No. 771,575. PATENTED OCT. 4, 1904.

C. H. RICHARDSON.

EXTENSIBLE BRACKET.

APPLICATION FILED MAR. 19, 1903.

NO MODEL. 2 SHEETS—SHEET 1.



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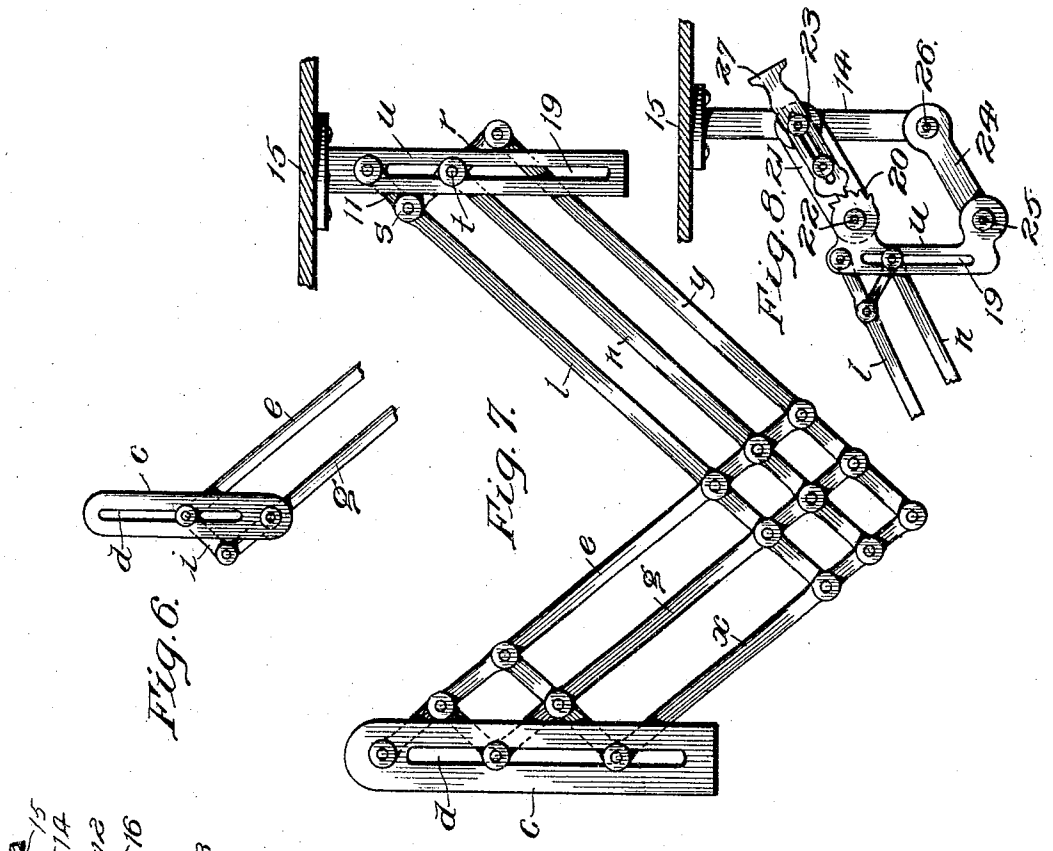


Fig. 7.

Fig. 6.

Fig. 8.

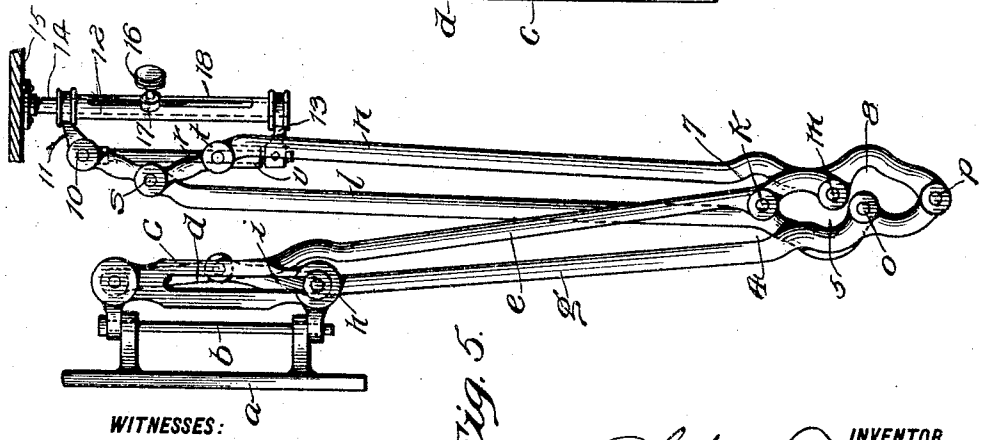


Fig. 5.

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UNITED STATES PATENT OFFICE.

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EXTENSIBLE BRACKET.

SPECIFICATION forming part of Letters Patent No. 771,575, dated October 4, 1904.

Application filed March 19, 1903. Serial No. 148,519. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. RICHARDSON, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Extensible Brackets, of which the following is a specification.

My invention relates to improvements in extensible folding wall-brackets—such, for instance, as are used by dentists to carry an engine, a table, or chest of drawers for instruments; and the object of my invention is to furnish an extensible folding wall-bracket which will be simple and inexpensive in construction and rigid and efficient in action.

In the accompanying drawings, forming part of this specification, and in which similar characters of reference indicate similar parts throughout the several views, Figure 1 is a side elevation of my bracket opened; Fig. 2, a top view of Fig. 1; Fig. 3, a front elevation of the wall-plate; Fig. 4, a front elevation of the outer end of the bracket Fig. 1; Fig. 5, a side elevation of the bracket Fig. 1 nearly closed; Fig. 6, a side elevation of upper inner end of bracket, showing a modified form of attachment to link *c;* Fig. 7, a side elevation of a modified form of bracket; Fig. 8, a side elevation of modified form of outer end of bracket.

a is a plate adapted to be secured to a wall and to carry a pin *b*, by means of which the inner link *c* of the bracket is pivotally connected thereto. The link *c* is furnished with a vertical slot or guide *d*.

e is an arm or rod the upper end of which is pivotally attached to the upper end of link *c* at *f;* *g*, an arm or rod the upper end of which is pivotally connected to a pin or sliding piece *h* adapted to travel in slot or guide *d*.

i is a link the lower end of which is pivoted to the pin *h* and the other end of which is pivoted to arm *e* at *j*. At the lower end the arm *e* has two pivotal connections, one at *k* to an arm *l* and the other or outer to an arm *n* at *m*. The lower end of the arm *g* is likewise furnished with two pivotal connections at its lower end, one at *o* to the lower end of arm *l*, the other at *p* to the lower end of the arm *n*.

The upper ends of arms *l n* are connected by a link *r*, pivotally connected at *s* to arm *l* and at *t* to arm *n*. The extreme upper end of the arm *l* is pivotally connected at 10 to the upper part of a vertical bar *u*, which passes freely through the pivot *t*, carried by the upper end of arm *n*, and through a downwardly-projecting tube or bearing *v*, carried by the pivot to insure rigidity.

For securely holding the pivot *t*, through which the rod *u* passes, and for preventing any springing at this point the upper end of of arm *n* is preferably bifurcated, as shown at 1, Figs. 2 and 4, so that each end of the pivot turns in bearings. The link *c*, which carries the upper ends of links *e g*, is likewise preferably bifurcated, as shown at 2, Fig. 2, to firmly carry the pivotal connections at this point.

The arms *e g l n* are pivoted together at their lower ends and connected and supported at their upper ends, so that as they are moved in or out the arms *e g* form a parallel motion and the arms *l n* another parallel motion. When the bracket is opened, the pivot *h* travels up in slot *d* in link *c*, the rod *u* moves downward in its guiding-bearing in pivot *t*, and the pivotal connections *k m* move upward from the pivotal connections *o p*. When the bracket is closed, the movements of these parts are reversed. During both the inner and outward movements of the bracket the pivot 10 and top of rod *u* move in the same plane.

In order that the bracket may occupy as small a space as possible when closed—that is, in order that it shall lie as close to the wall as possible—the arm or rod *e* is furnished with a recess 3 to pass over or partly over pivot *h*. The arm or rod *g* is furnished with recesses 4 5 to receive the pivots *k m*, the arm or rod *l* with a recess 6 to receive pivot *m*, and the arm or rod *n* with recesses 7 8 to receive pivots *k o*.

It will be observed that the several pivots on each arm are all in the same straight line and that the pivots upon one arm are all equally distant from the opposite pivots upon the adjacent arm.

To facilitate as complete a closing as pos-

sible, the pivot distances $o\ p$ and $k\ m$ are different in length from the pivot distances $o\ k$ and $p\ m$. This arrangement permits the pivot m to close above or below (in the present case above) the pivot center o, which could not be done were all the pivots equally spaced.

11, Figs. 1 and 4, is a projection extending out beyond the pivot 10 at the extreme upper end of arm l, which carries the upper end of a tube 12, the lower end of which is connected by an arm 13 with rod u. 14 is a rod carried by and free to move vertically in tube 12. 15 is a table, chest of drawers, an engine, or any other object carried by rod 14; 16, a screw furnished with a collar or stop 17, which is carried by rod 14 and which can travel vertically in a slot 18 in tube 12, by means of which the rod 14 and its connected parts may be raised or lowered and locked in any position permitted by the length of the slot 18.

The bracket when the plate a is secured to a wall is self-sustaining in any position from closed, as shown in Fig. 5, with the arms $e\ g\ l\ n$ practically vertical, to open—that is, with the said arms nearly horizontal—no weights or springs being necessary to hold it in any position, and the added weight of the article carried does not affect this feature of the bracket.

The movement of the pivot 10 during the opening and closing of the device is in a horizontal plane or nearly horizontal plane, and where vertical adjustment of the rod 14 and table 15 is needed I use the arrangement shown in Figs. 1 and 4, already described, or any other suitable means for this purpose.

The plane of movement of the upper end 10 of the outer arm of the bracket will depend upon the lengths of the arms forming the inner and outer sections of the bracket. If both sections be of the same length, the pivot 10 and any object carried by the outer end of the outer section will move during the opening and closing of the sections horizontally. If the arms of the outer section be longer than those of the inner section, the object will move in a slightly-descending line when the bracket is opened and in an ascending line when closing. If the arms of the outer section are shorter than the arms of the inner section, this movement will be reversed.

In Fig. 6 a modified form of attaching arms $e\ g$ to the slotted link c is shown. In this case it is the lower arm g that is pivoted to link c and the pivot of the upper arm that slides in slot d.

In Fig. 7 a modified form of my bracket is shown, in which the inner arm is furnished with three arms $e\ g\ x$ and the outer arm with three arms $l\ n\ y$. I do not consider this construction equal to that shown in Figs. 1, 2, 4, and 5, as it is more expensive to construct and has many more joints. It is illustrated to show schematically the construction with three arms in each section of the bracket. The number of arms in the sections of the bracket may be further increased, as will be obvious.

In Fig. 7 the rod u of Figs. 1, 4, and 5 is shown as a bar, to the upper end of which the projecting part 11 of the arm l is pivoted. This bar u is furnished with a vertical slot 19, in which the pivot t of arm n plays during the opening and closing of the bracket.

In Fig. 8 a modified form of device for vertically adjusting the rod or bar 14, which carries the table 15, is shown. In this figure the arms $l\ n$ are connected to a slotted bar u, as in Fig. 7, the upper part of which carries teeth 20, both the upper and lower parts of the bar u being connected by links to the bar 14, the upper link 21 being pivotally connected to u at 22 and to 14 at 23, and the lower link 24 being pivotally connected to u at 25 and to 14 at 26. 27 is a tooth or pawl carried by link 21, which is adapted to engage with teeth 20. By shifting the tooth or pawl 27 in the teeth 20 the rod 14 and table 15 (or other object carried by this rod) may be vertically adjusted within the limits fixed by the size of the toothed member 20.

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

1. In an extensible bracket, in combination, an inner section and an outer section each of which is composed of rods or arms pivoted together, the pivots upon each arm of each section being placed in the same plane, the rods or arms of one section being each pivotally connected at or near their lower ends to each of the rods or arms of the other section, a link or supporting-guide, at the inner end of the inner section, to which one of the rods or arms of the inner section is pivotally connected and to which the other rods of this section are slidingly connected, a link pivotally connecting the inner ends of the rods or arms of the inner section, a link pivotally connecting the outer ends of the rods or links forming the outer section, and means carried by the outer section for carrying an object.

2. In an extensible bracket, in combination, an inner and an outer section each composed of arms or rods pivoted to one another so as to form each a parallel movement, a vertical link, a pivotal connection between one of the arms of the inner section and said vertical link, a sliding connection between the other arms or rods of the inner section and said vertical link, and means carried by the upper ends of the arms or rods of the outer section for carrying an object.

3. In an extensible bracket, in combination, an inner section formed of two parallel arms or rods, an outer section formed of two parallel arms, the lower ends of the arms of the inner section being both pivoted to both of the arms of the outer section at their lower

ends, a vertical link, a pivotal connection between said link and the upper end of one of the arms of the inner section of said bracket, a sliding connection between the upper end of the other arm of the inner section of said bracket and said link, an arm or link pivotally secured to each of said arms near their upper ends, an arm or link pivotally secured to each of the arms of the outer section of said bracket near their outer ends, and means carried by the outer ends of said latter arms for carrying an object.

4. In an extensible bracket, in combination, a wall-plate, a bifurcated link pivotally carried by said plate, an inner and an outer section each consisting of two or more parallel arms pivoted at the lower ends to each other, each section having near its upper end a link pivoted to each arm, the upper arms of the inner section being connected, one pivotally and the rest slidingly to said bifurcated link, and the upper end of the outer section being adapted to carry an object.

5. In combination with an extensible wall-bracket, consisting of an inner and an outer section, each formed of parallel arms, the lower arm of the outer section being bifurcated, and the upper arm of which is extended, of a rod pivotally secured to the extended part of said arm, and a pivot carried by the ends of the bifurcated arm through which said rod freely passes.

6. The combination with an extensible wall-bracket consisting of an inner and an outer section, each formed of parallel arms, the lower arm of the outer section being bifurcated at its outer end and the upper arm of which is longer than the lower arm, a vertical rod pivoted to said upper arm, a guide pivoted to said lower arm through which said rod freely passes, a slotted tube carried by said vertical rod, a vertically-movable stem carried by said tube, and a clamp by means of which said stem may be locked to said tube.

7. In an extensible bracket, the combination of a rear section and a forward section, each composed of two or more arms or rods, the arms of the inner section at its front or outer end, and the arms of the outer section at its rear or inner end having pivoted connection with each other; a support and guide for the rear section, having pivotal connection with one of the arms or rods of said rear section and vertical sliding connection with the remaining link or arm or arms of said section, pivotally connecting links between the arms of the rear section at or near its rear end and between the arms of the front section, at or near its front end and all pivotal distances of such proper lengths as to cause the sections of the bracket to open and close in such a manner that their respective arms, or axes of said arms, remain parallel to each other and the front end of the forward section moves in a substantially horizontal plane, all as herein described.

8. In an extensible bracket, the combination of a rear section and a forward section each composed of two or more arms or rods, each arm of one section being pivotally connected, at the lower end, to each arm of the other section, the pivotal distances being unequal, said arms being constructed with recesses to receive said pivots when the arms are closed, a link pivotally secured to the upper ends of the arms of inner section, a link pivotally secured to the upper ends of the arms of the outer section, a link to which the upper ends of the arms of the inner section are secured, one pivotally and the rest slidingly, a bracket carrying said latter link, and means carried by the upper end of the outer section for carrying an object.

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