

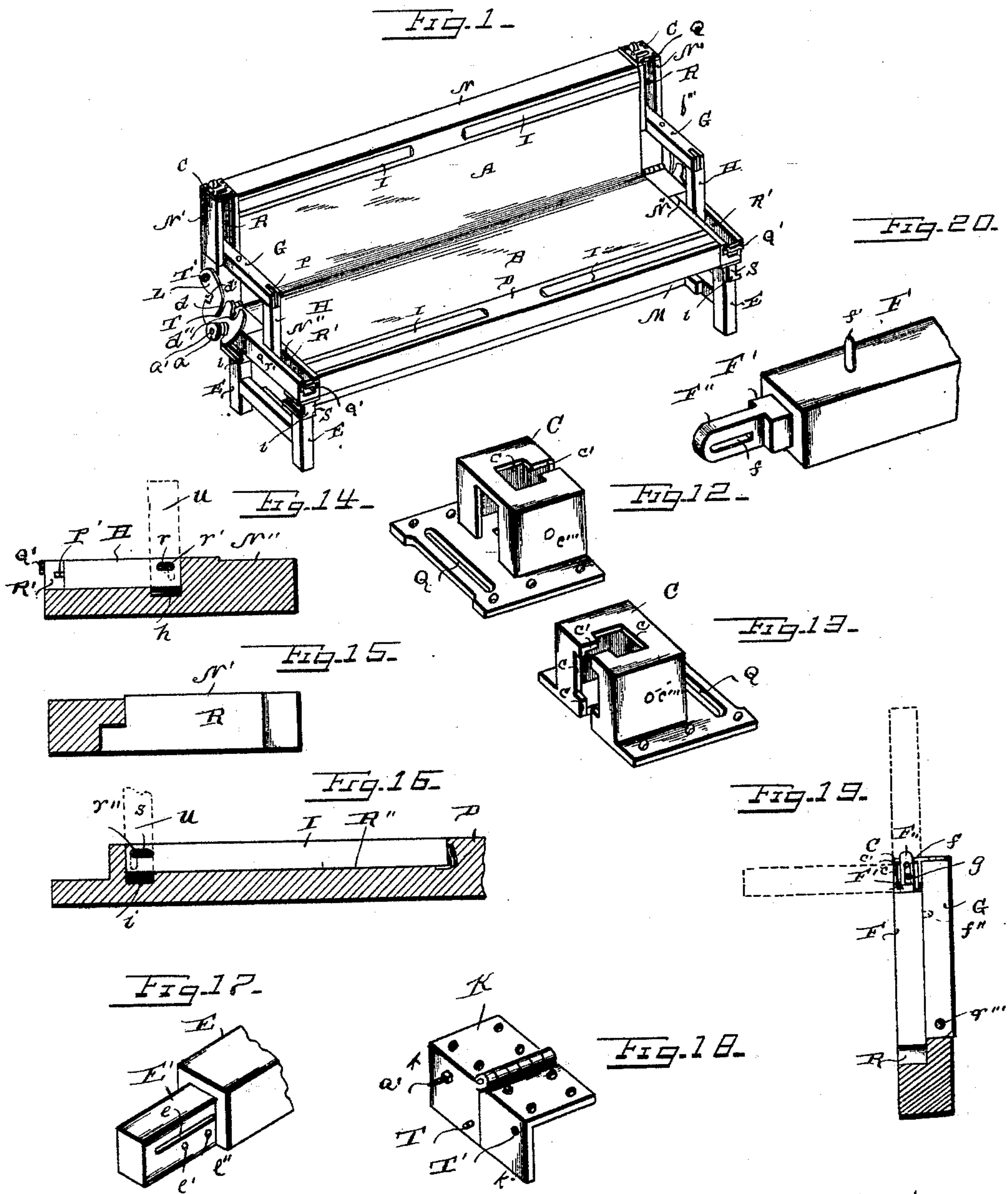
(No Model.)

3 Sheets—Sheet 1.

E. J. McC. CLEMENS.  
FOLDING BED.

No. 497,751.

Patented May 16, 1893.



Witnesses:

Jesse Heller.

J. M. Copenhagen.

Inventor.

Elyas Jane McC. Bartney Clemens

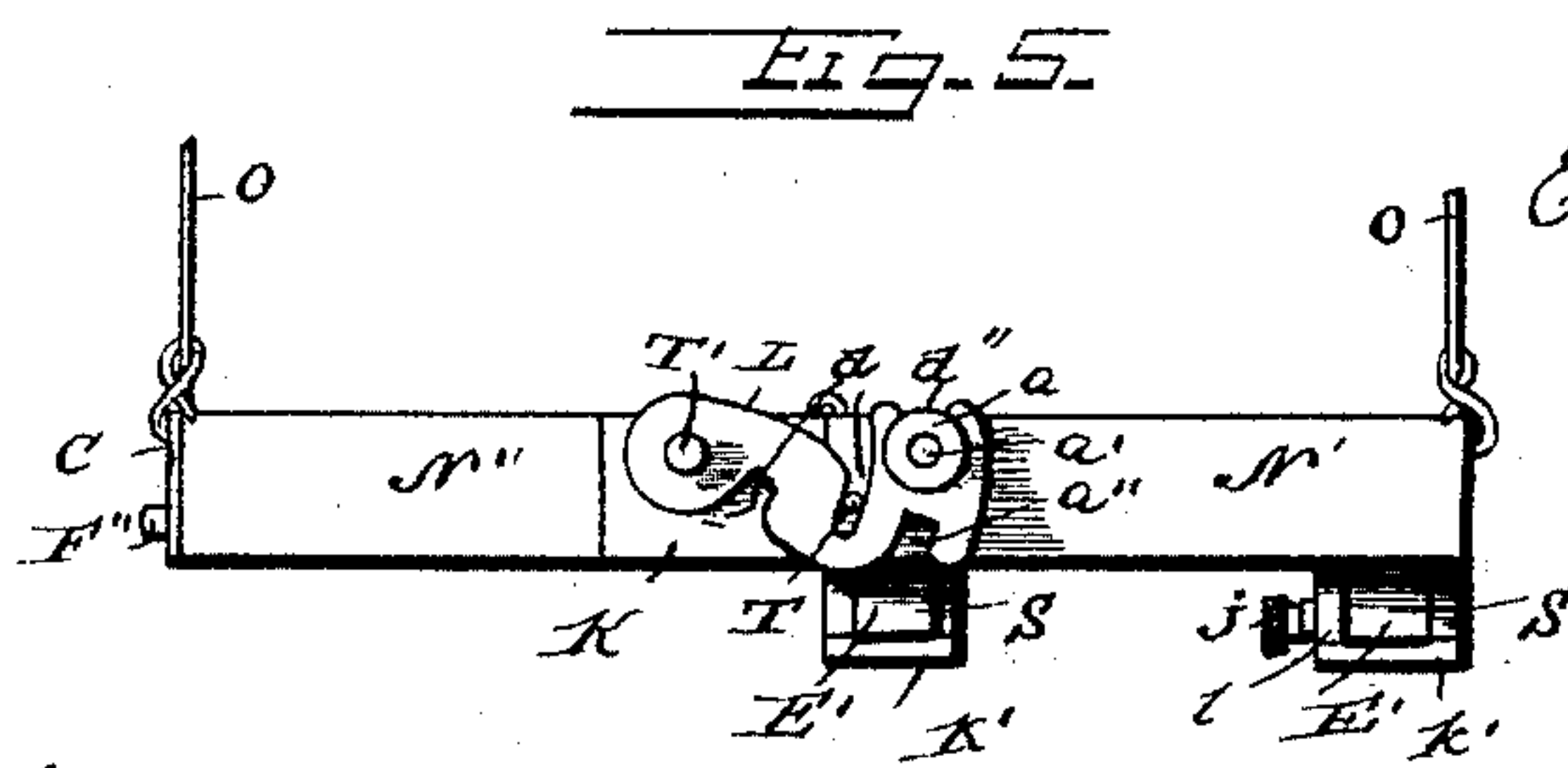
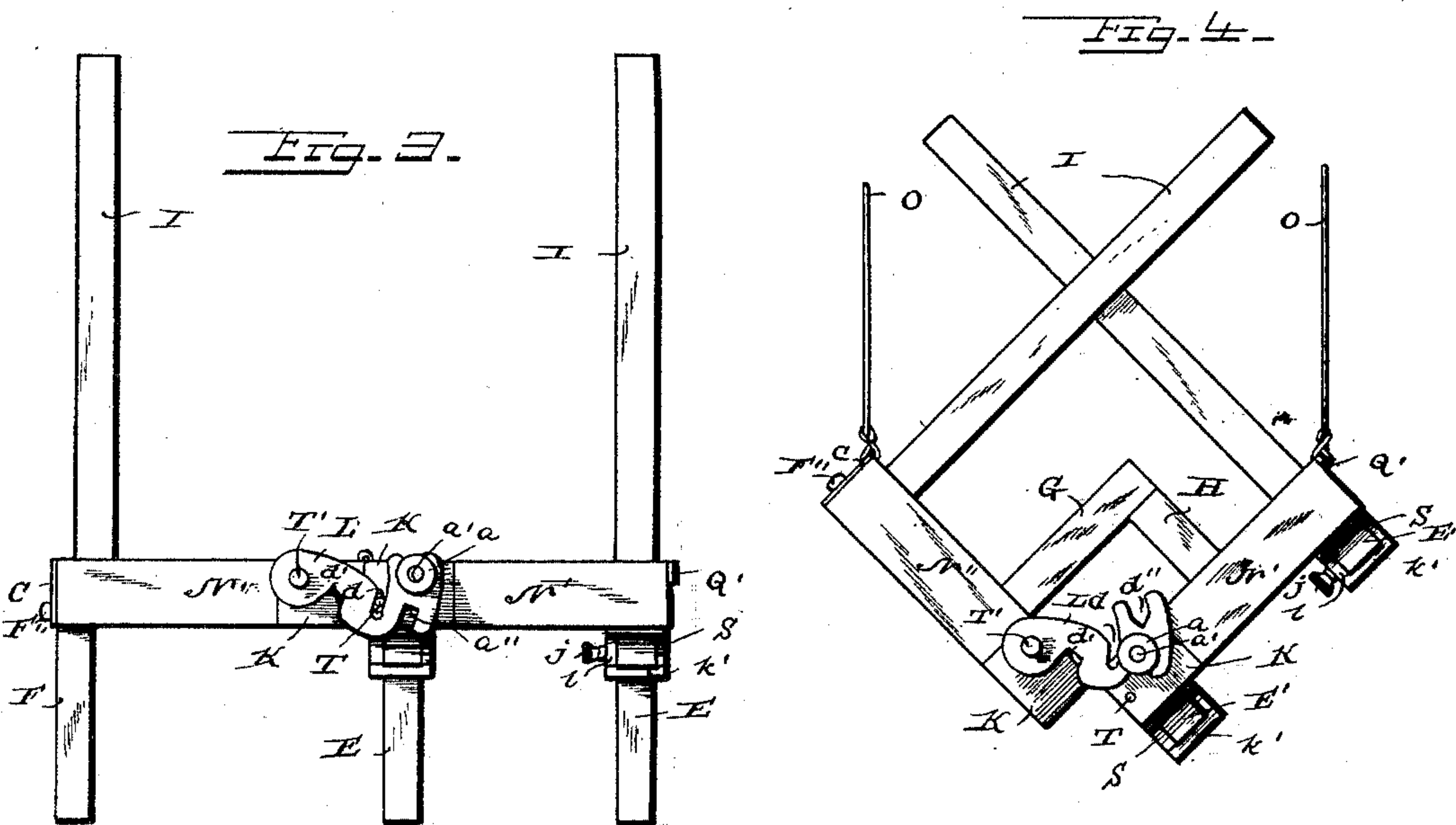
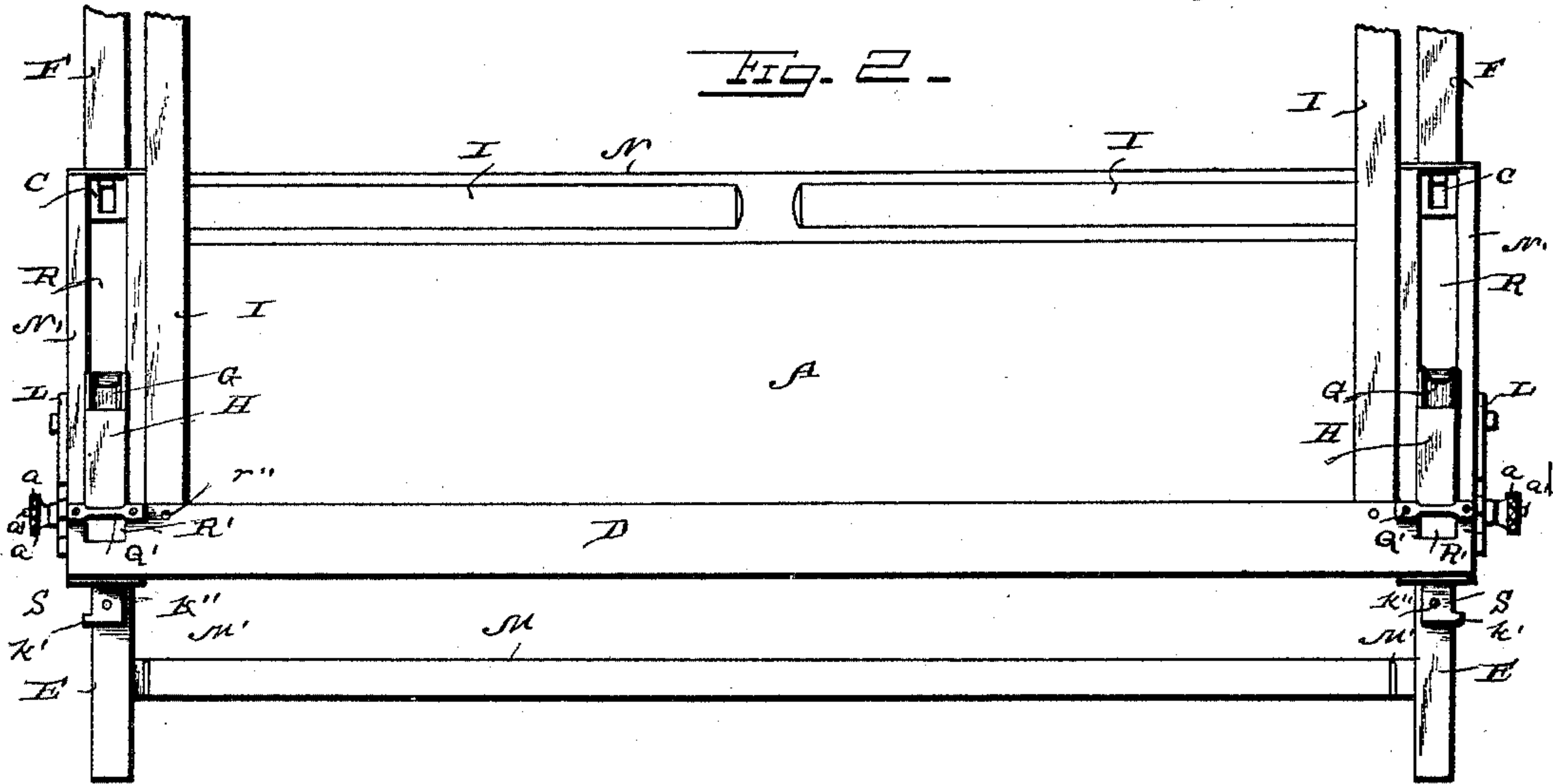
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3 Sheets—Sheet 2.

E. J. McC. CLEMENS.  
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Jesse Heller.

J. M. Copenhagen.

Eliza Jane  
McCartney Clemens

Inventor.



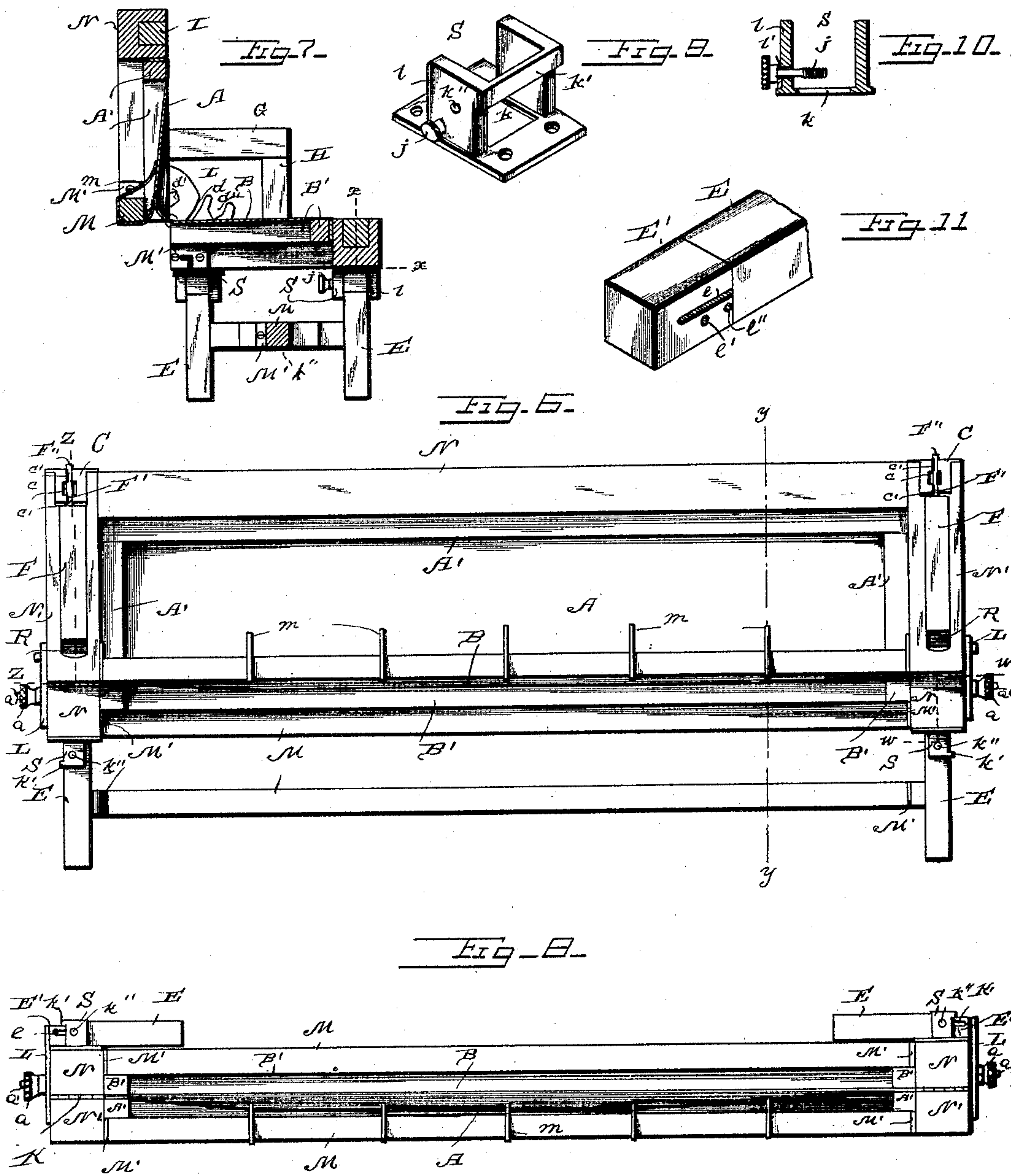
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3 Sheets—Sheet 3.

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Patented May 16, 1893.



Witnesses:

Jesse Keller.

G. M. Copenhagen.

Inventor.

Elizabeth McC. Clemens.



# UNITED STATES PATENT OFFICE.

ELIZA JANE MCCARTNEY CLEMENS, OF METROPOLIS, ILLINOIS.

## FOLDING BED.

SPECIFICATION forming part of Letters Patent No. 497,751, dated May 16, 1893.

Application filed June 13, 1892. Serial No. 436,452. (No model.)

*To all whom it may concern:*

Be it known that I, ELIZA JANE MCCARTNEY CLEMENS, a citizen of the United States of America, residing at Metropolis, in the county of Massac and State of Illinois, have invented a new and useful Folding Bed, of which the following is a specification.

My invention relates to improvements in folding beds by which a bed is produced that is interchangeably a bed, a settee or sofa, a hammock and a swinging-cradle; that, in each of these uses indicated, is provided with a convenient attachment to support a fly or mosquito-net; that is adapted for use within doors or without; and that unites simplicity of construction and of manipulation with ease of transportation. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front perspective view of the bed in its position as a settee or sofa, with the attachment for mosquito netting closed. Fig. 2 represents a front view of the device adapted for use as a sofa with the netting-supports in position. Fig. 3 is an end view of the device adapted for use as a bed with mosquito bars raised. Fig. 4 is an end view of the device in hammock form with the head brace and the mosquito bars in position. Fig. 5 represents an end view of the hammock with the mosquito-bars closed. Fig. 6 is a rear elevation of the device in the form of a sofa. Fig. 7 represents a transverse sectional view through the line  $y, y$ , of Fig. 6. Fig. 8 represents the bed folded together for transportation. Fig. 9 is a perspective view in detail of the socket-plate of the leg-joint. Fig. 10 is a transverse sectional view of the socket-plate of the joint. Fig. 11 represents a modification of the head of the standard leg. Fig. 12 represents a back perspective view of the socket-section of the leg-joint with the hammock bar-attachment 2 in continuation. Fig. 13 is a front perspective view of the socket-section. Fig. 14 is a sectional view of the transverse frame-rail showing recess for the arm-support and mode of raising the support. Fig. 15 is a sectional view of the transverse frame-rail showing the position of the arm within the recess. Fig. 16 is a sectional view of the longitudinal frame-rail

showing the position of the mosquito-netting attachment, within the recess and the mode of raising it to position,—also the open end of the recess. Fig. 17 represents the head of the standard leg (of which a modification is shown in Fig. 11). Fig. 18 is a perspective view of the hinge X, without the hinge-brace. Fig. 20 represents the head of the reversible leg. Fig. 19 represents a sectional view of the transverse rail showing the recess with the leg at rest under the arm, and the mode of its attachments, and its three positions.

I will first proceed to describe the construction of the framing and its adjuncts whereby my novel device is adapted for conversion at will into and use as either a bed, sofa or settee, hammock or swinging cradle and will then describe the same in their individual arrangement and also such of the separable parts as may need specific description.

The main framing briefly-described is composed of two sections (herein termed half-bed sections) each composed of a longitudinal rail and transverse rails hinged together and provided with securing devices whereby said sections may be maintained in any desired plane relatively to each other according to the use to which the apparatus is to be put, said longitudinal and transverse rails having longitudinal slots or grooves within which are received, and pivotally contained respectively, canopy-supporting bars and arm forming bars each having an elongated curved-bottom slot to admit of the vertical play and oscillation of said bars on their pivots, countersinks being formed in the slots or grooves in said horizontal and transverse bars within which the lower ends of the canopy-supporting and arm-supporting bars, respectively, pass, when raised, to maintain them rigidly in vertical position, supporting-legs being pivotally secured within sockets at the corners of the under face of the section B and having slotted heads which slide in and engage with and are lockingly held in folded position in said sockets, supporting-legs having slotted heads being pivotally contained within similar sockets at the top, rear or under corners of the section A and being folded within a slot therein when out of use the last-named legs being held from oscillation in extended position by



the engagement of the heads with said sockets, the legs of the section B being additionally held by set screws.

A, B, representing the two half-bed sections, 5 constituting the frame of the bed, are composed, respectively, of longitudinal rails, N and D, and transverse end rails N', N'', legs or standards E, F, arms G, arm-supports, H, netting-supporting bars, I, and removable longitudinal stay-bars, M, M'. The half-bed section A is provided with a longitudinal recess R, through the upper part of the transverse rail N', into which the reversible leg F and the arms G are secured, and which receives 15 them when not in use.

R' represents a recess in the transverse end rails N'' (see Figs. 1 and 4) within the inner end of which the arm-support H is secured and in which it lies when not in use, (see 20 Figs. 7 and 4.)

R'' represents the grooves or recesses formed in the longitudinal rails N and D within which the mosquito-netting supporting bars I, I, are pivotally secured and within which they lie 25 when not in use, a spring in one end of said recesses R'' frictionally engaging with and insuring the netting supporting bars I against slipping out of place while any change in the position of the bed-frame is being made.

Each of the recesses R' and R'' is provided with a counter-sink *h, i*, (Figs. 13 and 16) under the point of attachment, corresponding, respectively, with the end of the arm-support H, and of the mosquito netting-bar I, into 30 which said arm-support H and bar I sink and are stayed in perpendicular position when in use, as shown in dotted lines (Figs. 14 and 16).

*r''* represents pivot-pins by which the arms G, arm-support H and bars I are secured with 35 in their respective recesses.

*r'''* is a pivot-pin on which the arm G has a reverse movement backward and forward to admit of its resting within the recess R, when not in use and, when in use, of resting 45 by means of the perforation P, P, in said arm G, on the reduced head *p'* (Fig. 14) of the arm-support *h*. The arm-support H and the bars I, each have a curved ended slot *u* in their ends to receive the pivot-pins *r', r'*, upon 50 which said arm-support and bars move from a horizontal to a perpendicular position and drop down into the counter-sink *h, i*, provided therefor.

The two half-bed sections A and B are 55 joined together at each end by a hinge K, provided with a hinge-brace consisting of a multiple hooked catch L capable of reverse motion upon the pivot T, on the wing or leaf of the hinge K, (or in the transverse rail N', 60 if the wing be omitted.)

The hinge-brace or hook-catch L is provided on its reverse edges with the socket-notches *d, d', a, and a''*, which rest upon and engage with two fixed pins *a', and T* in the 65 wing or leaf *k* of the hinge K, (or in the transverse rail N'', when the wing or leaf *k, k*, is omitted,) and fasten the two half-bed sections

in the position shown severally in Figs. 1, 3, 4, 5, 8,—that is to say, in the positions of a bed, a settee or sofa, a hammock and a swing- 70 ing cradle and as locked for transportation.

*a'* represents a fixed pin terminating in a screw provided with thumb-nut *d''* for the purpose of securing the hooked hinge-brace L in the several positions of adjustment and 75 during transportation. The thumb-nut itself is prevented from becoming displaced by the enlarged head of the fixed pin *a'*. When the bed-frame is in use as a bed or as a hammock the fixed-pins *a'* and T are engaged 80 with the notches *d d'* respectively. When the bed-frame is in use as a sofa, or as a swinging cradle the pin T rests in the notch *a''*. When the bed-frame is closed for transportation, the fixed-pin T rests in the notch *d* and 85 locks the frame, said hook-catch or hinge-brace L being clamped in its several positions of adjustment by tightening the thumb-screw *d''* thereon.

The standard-legs E are attached to the 90 half bed-section B, on the under side of the transverse rail N', by means of the joint S, the details of which are shown in Figs. 7, 9, 10, 17 and a modification in Fig. 11. The leg E is secured in said joint by a pivot-pin 95 *k''* passed, respectively, through the slot *e* and into the joint-plate S. When in use the leg-head E' passes through a corresponding opening *k'*, in the plate S, until the shoulder touches the ends of the plates, a thumb- 100 screw *j* (Fig. 10) passed through a plate *t'* and engaging with the leg-head E' at *e'* serving to safely and firmly secure said leg-head in position. When not in use, the leg is drawn 105 down until its head is free from the plate and is then moved toward the bed frame until it lies horizontally thereon. It is then passed up under the check-bar, K', (Fig. 9) and secured by the thumb-screw *j*, which is then engaged with the leg-head, E' at *e''*. 110

The reversible leg F is secured to the frame by a pivot-pin *g* which passes through the slot *f* and through the socket section *c* of the joint C in the outer end of the lower half of the recess R. The socket-section of the joint 115 C has a socket *c* corresponding with the leg-head J' on its three contiguous sides (Fig. 13) reaching respectively to the center of the socket-section, where they are intersected by the pivot-pin *g''* and are connected the one 120 with the other by the slots *c'* through which the flange F'' passes when the leg F is made to change its position. The socket-section may be made of a separate piece as shown in Figs. 12 and 14 or made in the material of the 125 frame itself, as seen at *c* Fig. 2. When the leg F is used as a support to the half-bed section B the head F' rests in the socket *c*. When used as a support for mosquito-netting (Fig. 2) the leg-head rests in the socket *c'*. 130 When the reversible leg F is out of use it is drawn out until the head F'' is free from the socket and moved around on the pivot-pin *g''* the flange F'' passing through the slots up



into the socket  $c'''$  thus lying within the recess R. When the bed is prepared for transportation, the arm G is turned backward into the recess R where it lies upon the leg F. In this position the lock-pin  $f''$  rests in a perforation  $f''$  in the arm G. Thus the leg and the arm mutually lock each other (Fig. 19).

When the arm G is in use and at rest upon the head of the arm-support H as above described it forms the arm of the sofa or settee, and the head and foot guards of the swinging cradle (Figs. 1, 4 and 7).

Any convenient bed-bottom may be used in this combination. If an inflexible material be used, such as wooden slats, cane, or wicker-work, the bed-bottom must be made in two sections corresponding with the two half-bed sections A and B, and on a level with the inner surfaces. These two surfaces form, respectively, the seat and back of the sofa, and the two sides of the swinging cradle. When in position as a bed, the two sections form one continuous bed-bottom. When a flexible material is used, such as canvas, or any netted fabric, one continuous piece of the fabric forms the entire bed-bottom and doubles up in itself with the corresponding movements of the half-bed sections A and B and the hinge-joint K. The flexible bed-bottom is furnished upon its reverse side with the loops  $m$  (Fig. 6) or their equivalent, through which the removable bars  $M M'$  are passed and attached to the ends of the half bed sections as shown in Figs. 6 and 7 to give steadiness to the seat and back when the combination is used as a settee or sofa. When the combination is used as a bed, a hammock, or a cradle, the bars  $M M'$  are removed. When the bed is closed for transportation, the bars  $M M'$  protect the flexible bed-bottom as seen in Fig. 8. These bars  $M M'$  also serve as braces to the legs E to prevent too great a strain upon either leg-head joint by unequal weight and pressure upon either part of the frame when used as a bed or settee or sofa. The mode of adjustment between the legs is shown at  $k''$  (Figs. 6 and 7).

The attachment or device by which the bed is converted into a hammock or a swinging cradle consists of a bar 2—Figs. 14 and 1—across the open fronts of the recesses  $R' R'$  and of a similar bar 2,—Fig. 1,—across the upper open fronts of the recesses R which may either be in the continuation of the plate of the socket joint C (Figs. 12 and 13) or contiguous to it. When the material of which the bed frame is made is of sufficient strength to admit thereof, the hammock-bar and the socket-section may consist of and be made by simple openings cut into the material of the frame.

What I claim, and desire to secure by Letters Patent, is—

1. A folding article of furniture interchangeable at will into either a bed, settee or sofa, a hammock or a cradle, consisting of a sectional framing composed of a pair of longitudinal rails, transverse longitudinally-slotted

rails connected therewith and having hinge connection at their inner ends, arm rests and arm rest supporting-bars pivotally journaled within said slotted rails and adapted to respectively rest within and be held in extended positions at right angles therefrom, hook-catches pivoted to one of said transverse rails and having notches in the respective edges, threaded pins extending from the other of said transverse rails and with which said notched catches engage to hold the respective sections in their several adjusted positions, thumb nuts adapted to clamp said catches in position and thereby lock the hinges connecting the frame sections, leg-receiving sockets located at the outer corners of one of said sections, supporting legs having pivoted bearing within said sockets and adapted to fold into and rest within the adjacent slotted transverse rail, leg-sockets located at the respective corners of the other frame-section supporting-legs pivotally journaled within said sockets so as to be either vertically extended therefrom or be folded against the under side of the section, and clamping screws extending through one face of said sockets and engaging the said legs to grip the same in either vertical or horizontal position, substantially as and for the purposes set forth.

2. A folding article of furniture of the character described consisting of two half-sections comprising a pair of longitudinal rails, and transverse end rails, hinges connecting said sections, hooks or catches pivoted to one leaf of said hinges and having notches in their respective edges, threaded pins extending from the other leaf of said hinges, and clamp-nuts carried by said pins and adapted to clamp said hooks or catches in their adjusted positions, substantially as and for the purposes set forth.

3. A folding article of furniture of the character described consisting of two half-sections composed of a pair of longitudinal rails, and transverse end rails, hinges connecting said sections, multiple-hook catches pivoted to one leaf of said hinges, bearing pins and threaded pins extending from the other leaf of said hinges, and clamp nuts carried by said threaded pins and adapted to clamp said hooks or catches in their adjusted positions, substantially as and for the purpose set forth.

4. A folding article of furniture of the character described consisting of two half-sections composed of a pair of longitudinal rails having longitudinal grooves or recesses therein and at one end a counter-sink and at the other a spring, netting-supporting bars pivoted within said slotted rails and having curved-ended vertical slots in their lower ends, said netting-supporting bars being adapted to enter said counter-sinks and be thereby supported in vertical position and also to fold within the recessed rails and engage with the spring therein, transverse end rails connected, respectively, with said longitudinal rails, hinges connecting said transverse rails and



turnable thumb nuts, and pivoted multiple hook catches connected with the respective leaves of said hinges and adapted to hold the hinged sections in their several positions of adjustment, substantially as and for the purpose set forth.

5. A sectional sofa or settee consisting of a back portion composed of a longitudinal top rail and transverse longitudinally slotted end rails, a seat portion composed of a longitudinal front rail and transverse longitudinally slotted end rails having counter-sinks in the inner ends, hinges connecting the adjacent pairs of end rails, multiple-hooked catches pivoted to said hinges and clamp nuts having bearing on said hinges and adapted to grip said hook catches and thereby hold the sections in position, arm-rest supports rockingly pivoted within the recessed end rails of the seat and adapted to fold therein and also to rest in vertical position within the said counter-sinks, said arm rest supports having at their upper ends upwardly-extending locking-pins, arm-rests pivoted within the slotted end rails of the back portion and having in their under faces holes to receive the locking pins on the arm rest supports, leg-receiving sockets located at the respective corners of the seat frame, legs rockingly or foldably pivoted within said sockets and clamp-screws having bearing in said sockets and adapted to grip said legs and hold them in either folded or extended position, substantially as and for the purpose set forth.

6. A sectional sofa or settee consisting of a back portion composed of a longitudinal top rail and transverse longitudinally slotted end rails, a seat portion composed of a longitudinal front rail and transverse longitudinally slotted end rails having counter-sinks in their inner ends, hinges connecting the adjacent pairs of end rails, multiple-hooked catches pivoted to said hinges and clamp-nuts having bearing on said hinges and adapted to grip said hooked catches thereby holding them in position, arm-rest supports rockingly pivoted within the recessed end rails of the seat and adapted to fold therein and also to rest, in vertical position, within the said counter-sinks, said arm rest supports having at their upper ends upwardly-extending locking-pins, arm-rests pivoted within the slotted end rails of the back portion and having in their under faces holes to receive the locking pins on the arm-rest supports, leg receiving sockets located at the respective corners of the seat frame, legs rockingly or foldably pivoted within said sockets and clamp screws having bearing in said sockets and adapted to grip said legs and hold them in either folded or extended position, and longitudinal stay-bars having removable bearing in sockets at the bottom of the back frame and rear of the seat frame respectively, substantially as and for the purpose set forth.

7. A sectional sofa or settee consisting of a

back portion composed of a longitudinal top rail and transverse longitudinally slotted end rails, a seat portion composed of a longitudinal longitudinally grooved front rail and transverse longitudinally slotted end rails having counter-sinks in their inner ends, hinges connecting the adjacent pairs of end rails, multiple-hooked catches pivoted to said hinges and clamp-nuts having bearing on said hinges and adapted to grip said hooked catches and thereby hold the sections in position, arm-rest supports rockingly pivoted within the recessed end rails of the seat and adapted to fold therein and also to rest in vertical position within the said counter-sinks, said arm rest supports having at their upper ends upwardly-extending locking-pins, arm-rests pivoted within the slotted end rails of the back portion and having in their under faces holes to receive the locking pins on the arm rest supports, leg-receiving sockets located at the respective corners of the seat frame, legs rockingly or foldably pivoted within said sockets and clamp-screws having bearing in said sockets and adapted to grip said legs and hold them in either folded or extended position, socket-plates attached to the top rail at its respective corners and having substantially T-shaped slots in three of its sides, bars having a longitudinally-slotted square-shouldered head pivoted within said socket plates and adapted to engage therewith and be held therein in either extended or closed position, and bars pivotally contained within the grooved front rail of the seat and adapted to be either folded therein or held transversely extended therefrom, substantially as and for the purposes set forth.

8. A folding article of furniture interchangeable at will into either a bed, a settee or sofa, a hammock or a cradle, consisting of a sectional framing composed of a pair of longitudinal rails, transverse-longitudinally-slotted rails connected therewith and having hinged connection at their inner ends, arm rests and arm rest-supporting-bars pivotally journaled within said slotted rails and adapted to respectively rest within and be held in extended positions at right-angles therefrom, hook-catches pivoted to one of said transverse rails and having notches in their respective edges, threaded pins extending from the other of said transverse rails and with which said notched catches engage to hold the respective sections in their several adjusted positions, thumb nuts adapted to clamp said catches in position and thereby lock the hinges connecting the frame sections, leg-receiving sockets located at the outer corners of one of said sections, supporting-legs having pivotal bearing within said sockets and adapted to fold into and rest within the adjacent slotted transverse rail, leg-sockets located at the respective corners of the outer frame-section, supporting legs contained within said sockets and clamping



screws adapted to grip said legs in either vertical or horizontal position, substantially as and for the purpose set forth.

9. A sectional swinging-cradle or hammock  
5 consisting of a pair of longitudinally grooved or recessed side rails and transverse longitudinally recessed end rails, bars pivoted within said recessed rails and adapted to fold therein and also be extended trans-  
10 versely therefrom, hinges connecting said sections, multiple-hooked catches pivoted to one leaf of each of said hinges, clamp nuts carried by the other leaves of said hinges and adapted to clamp said catches, and slots  
15 or slotted bars located at the respective corners of the end rails to receive suspension cords or chains, substantially as and for the purposes set forth.

10. As an improvement in foldable supporting devices for beds, settees and analogous articles of furniture, a socket-plate adapted to be secured to the article and having open-front, rear and bottom portions and at its bottom a front guard rail and a recessed top in combination with a supporting  
25 leg having a slotted head, a pivot extending transversely through said socket-plate and through the slotted head of the leg and a clamp screw having bearing in said socket and adapted to grip the leg in either folded  
30 or extended position, substantially as and for the purpose set forth.

ELIZA JANE MCCARTNEY CLEMENS.

Witnesses:

EMMA M. GILLETT,  
JOHN G. KROHR.