(No Model.) 2 Sheets—Sheet 1.

A. F. ROBINSON & A. B. DODGE.

FOLDING BED.

No. 520,244. Patented May 22, 1894.

Fig: 1.

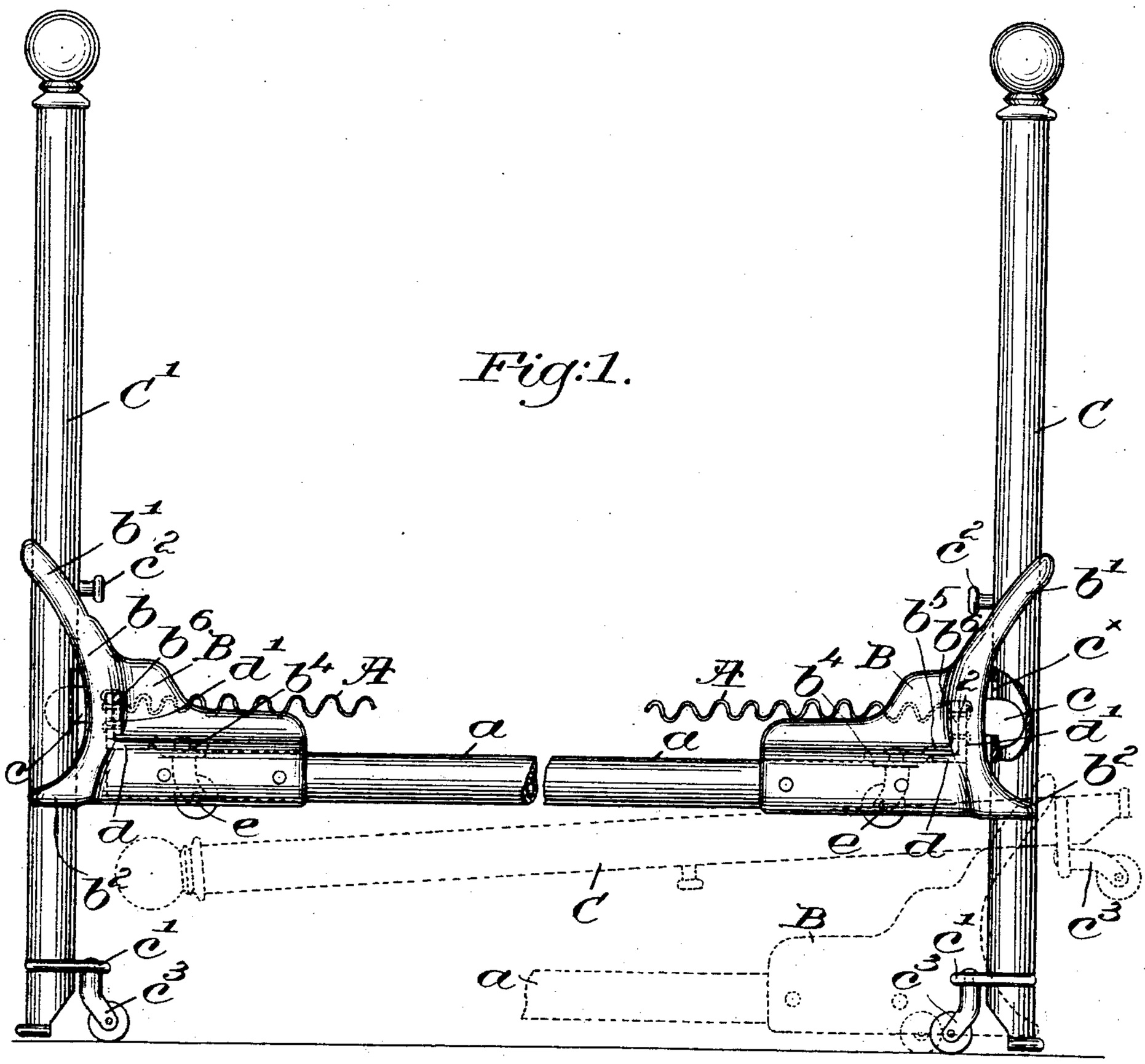


Fig: 5.

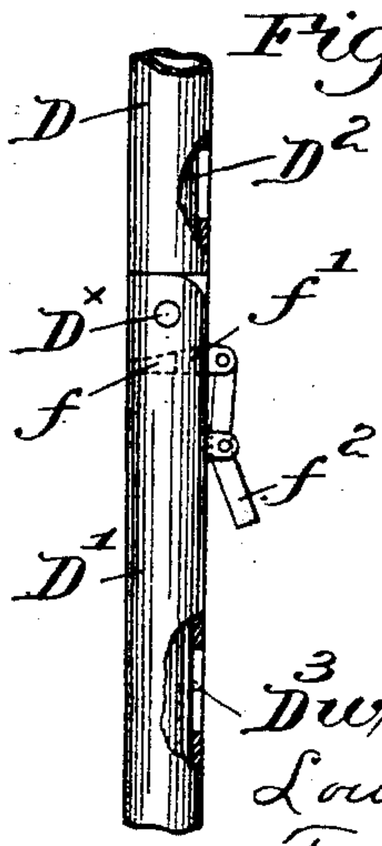


Fig: 4.

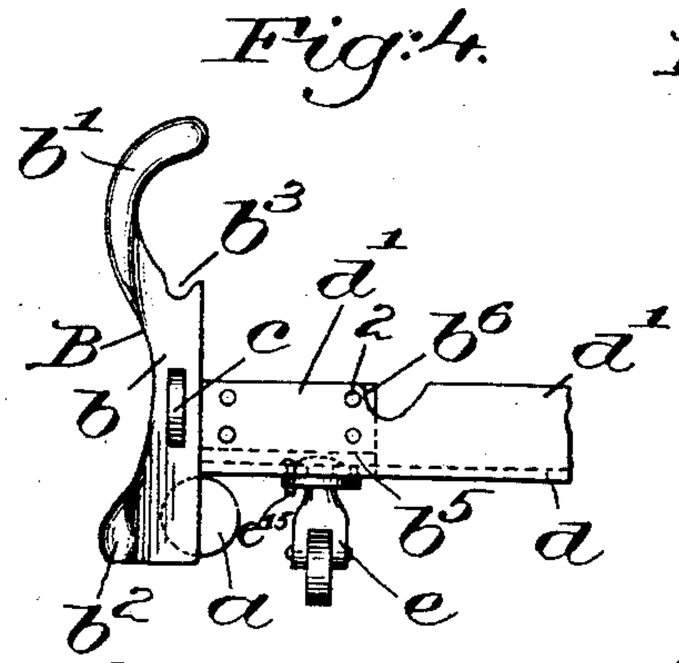
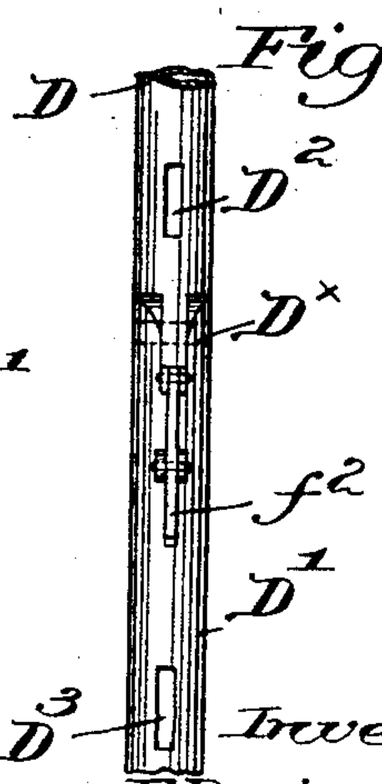


Fig: 6.



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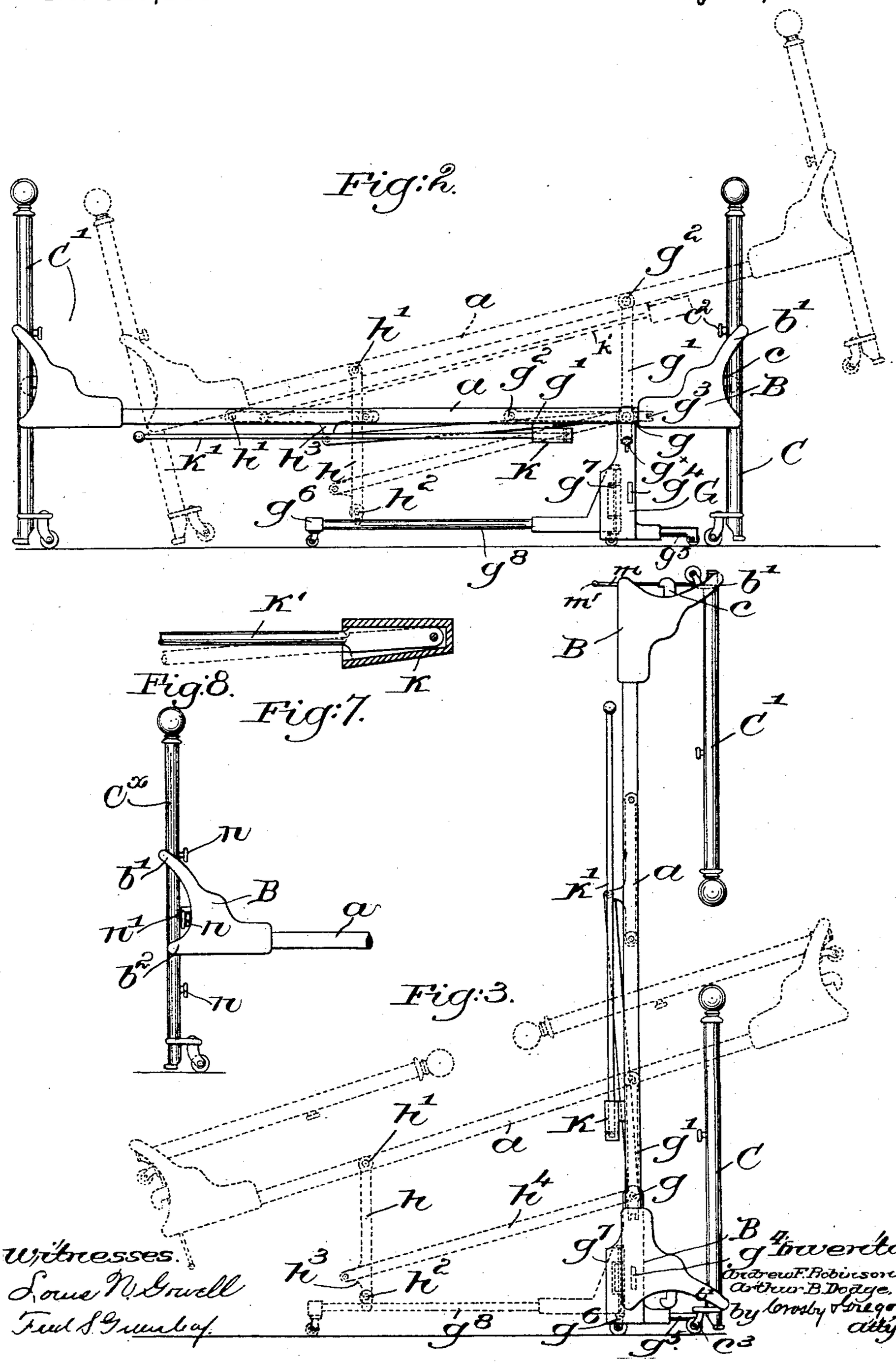
(No Model.) 2 Sheets—Sheet 2.

A. F. ROBINSON & A. B. DODGE.

FOLDING BED.

No. 520,244. Patented May 22, 1894.

Fig: 2.



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UNITED STATES PATENT OFFICE.

ANDREW F. ROBINSON, OF CAMBRIDGE, AND ARTHUR B. DODGE, OF ALLSTON, MASSACHUSETTS.

FOLDING BED.

SPECIFICATION forming part of Letters Patent No. 520,244, dated May 22, 1894.

Application filed August 21, 1893. Serial No. 483,622. (No model.)

To all whom it may concern:

Be it known that we, ANDREW F. ROBINSON, of Cambridge, county of Middlesex, and ARTHUR B. DODGE, of Allston, county of Suffolk, State of Massachusetts, have invented an Improvement in Folding Beds, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object the production of a strong, durable and light bed, which may be readily turned into a trundle bed by folding the head and foot boards over upon the bed frame, supporting rolls or casters being provided to sustain the bed when in open or folded condition. Means are also provided for turning the folded bed up vertically when folded, upon a suitable support, whereby the bed can be used as a mantel bed if desired.

In accordance therewith our invention consists in a folding bed, of a rigid bed frame, concaved bearings thereon to receive the corners of and to normally retain the head and foot boards upright, and locking devices for and between said bearings and the corners of said boards, combined with detachable head and foot boards adapted when unlocked to be folded over upon the upper side of the frame, the bearings and boards being relatively movable at such time, substantially as will be described.

Other features of our invention will be hereinafter described, and particularly pointed out in the claims.

Figure 1, in side elevation, broken out centrally to save space on the drawings, represents a bed embodying our invention, one of the ends being shown by dotted lines in folded position. Fig. 2 is a side elevation, in full and dotted lines, showing the bed as extended, and also in position to have the ends folded over when used as a mantel bed; Fig. 3, a similar view, the dotted lines showing the parts in position to be swung into the upright position shown by full lines. Fig. 4 is a detached end view of one corner of the bed frame, with the bearing for the folding end. Figs. 5 and 6 are details of a modified form of end post. Fig. 7 is a detail to be referred to; and Fig. 8 is a modification to be described.

We have herein shown the bed frame as composed of side pieces or rails a, preferably metallic tubes, to obtain great strength combined with light weight, the said rails having rigidly secured thereto bearings B, see Figs. 1 to 4, extended beyond the ends of the rails and provided with vertical concave faces b, to bear against the corner posts C and C′ of the head and foot boards respectively, said posts also preferably being formed of metallic tubes, the bearings having ears b' and b^2 at top and bottom thereof, to partially surround the corner posts.

A hooked latch c projects from the concave face of each bearing, see Figs. 1 to 4, and is adapted to enter a slot $c^\times$ in the corner post, see Fig. 1, and lock the same firmly in its bearing, as shown, the ears b' and b^2 and the bottom of the bearing keeping the post upright, the weight of the bed frame retaining the latch c in the bottom of the slot $c^\times$. The top of the bearing is notched or recessed as at b^3, Fig. 4, to engage a lug or stop c^2 on the corner post above the slot $c^\times$, said stop determining the amount of upward movement to be given the bed frame when it is desired to unlock the corner posts to fold them over.

Secured to or forming a part of the bearing B is a corner web b^4, see Figs. 1 and 4, resting upon the top of the side rails a for a portion of its length, the corner b^5 of the web being raised to admit thereunder one side d of an angle iron between it and the rail a, as best shown in dotted lines, Figs. 1 and 4, the upturned and laterally extended portion b^6 of the web being secured to the vertical side d' of the angle iron by suitable rivets 2. These angle irons rigidly connect the like side rails at opposite sides of the bed, and with them form a rigid bed frame, and a wire or other suitable bed bottom A is suspended at its ends from the vertical sides d' of the angle irons, as shown in Fig. 1.

A roller or caster e is secured to the part b^4 of the web, and is free to rotate therein, though if preferred we may prevent rotation, in order that the casters will always point in one direction, by any suitable catch, shown as a pin

e^{15}, Fig. 4. The wheels of the casters extend slightly below the lowest portion of the bed frame, for a purpose to be described. At the bottom of each corner post we have formed a projection c', extending inward from the plane of the side rails, from which are suspended casters c^3 of usual construction, to support the corner posts, and thereby the bed when unfolded.

It will be understood that the corner posts will be rigidly connected by usual lateral braces to form the head and foot boards.

To fold the bed one end of the frame is raised until the notches b^3 of the bearings B engage their respective stops c^2 on the corner posts of the head or foot board, as the case may be, said movement unlocking the latch c from the bottom of the slot $c^\times$, the weight of the head or foot board still resting on the floor. With the parts in this position a slight outward movement of the corner posts will completely remove the latch from the notch, and the end of the bed frame so disengaged may be lowered to the floor, the ears b' of the bearings moving along the posts, resting upon the auxiliary supports or casters e, after which the end is turned over toward the bed frame, as shown in dotted lines Figs. 1 and 3, the yoke-like tops of the bearings forming pivotal points upon which the corners turn and retaining them in place. A like operation at the other end of the bed is then performed, and the bed frame rests on the supports e, with the head and foot boards folded in toward each other and upon the bed clothing, &c., sustained by the bed bottom A, the bearings B giving ample accommodation therefor.

The bed is then substantially a trundle bed, and may be rolled under another bed, if desired, on the supporting casters e. Owing to the fact that the casters c^3 are sustained by the inturned projections c' on the corner posts, they will drop below the adjacent ends of the posts, when the latter are folded over, in dotted lines Fig. 3, so that they will not catch upon passing objects. Sometimes it is desirable to fold the ends of the bed without converting it into a trundle bed, and in Figs. 5 and 6 we have shown a modified corner post, broken off at top and bottom to save space. Each post is formed in two parts D, and D', jointed together at $D^\times$ to permit the upper part to fold over inwardly, the end being beveled at f, see dotted lines Fig. 5, and a wedge-shaped plug f' is held therein when the two parts of the post are in line, as shown. The plug f' is carried by a bent lever f^2 pivoted to the part D' of the post, and latch-receiving slots D^2 and D^3 are formed in each part of the post respectively. When the bed is unfolded the latch, hereinbefore described, will enter the slot D^2, locking the bed frame to the post, but when the bed is to be folded, it is unlatched and lowered until the latch enters the slot D^3, and as the bearing passes over the outwardly extended lever f^2 it will depress it, thereby withdrawing the plug f' and permitting the upper portion D of the post to be folded over. This construction would be convenient where the bed is large, and nothing would be gained by reducing it to the folded condition before described.

Inasmuch as both sides of the bed are alike we have herein shown only one side, to thereby save space and avoid undue multiplication of drawings.

As it is sometimes very desirable to have a bed which may be folded and turned up vertically, against the wall, for instance, and forming a so-called "mantel" bed, we have provided means for readily transforming the herein described bed into a mantel bed, as most clearly shown in Figs. 2 and 3, wherein we have shown the bed as pivotally attached at g to a stand G by a link g', pivoted at g^2 to a pin on the inner side of the rail a, the other end of the link being shown as notched at g^3 to engage a suitable latch $g^\times$ when the bed is in the dotted line position, Figs. 2 and 3, and full line position Fig. 3, to thereby keep the link g' upright.

The stands G, one being conected to each side rail, are held together by a suitable cross brace g^4, each stand having a short rigid foot g^5, and a folding or swinging foot g^6, hinged at g^7, the extended arm g^8 of said foot forming a support or track for the lower end of a leg h pivoted to the inner side of the rail a at h', and preferably provided with a roller h^2 at its outer end to bear on the arm g^8. An outwardly projecting lug h^3 is formed on said leg h, to which is pivoted one end of a connecting rod h^4, the other end of the rod being pivoted to the stand G at the point g.

A recessed ear k, see Figs 2, 3 and 7, is secured to and under one of the side rails, in which is pivoted one end of an actuator k', the shape of the recess permitting the actuator normally to lie close to the side rail of the bed, and also to be pulled out to dotted line position, see Fig. 7, when the bed is to be turned up. To turn the bed up the actuator k' is turned out to be readily grasped by the hand, and the bed is turned into the dotted line position Fig. 2, the notched end of link g' engaging the latch $g^\times$ and maintaining said link in substantially vertical position. The movement of the bed throws down the leg h by the action of the connecting rod h^4, until the lower end of said leg rests on the extended arm g^8, just lifting the foot board clear of the floor, as shown in Fig. 2. Any tendency of the leg h to hang or center when the bed is upturned is obviated by the outwardly projecting lug h^3, which necessitates the downward movement of the leg by the connecting rod h^4. The head and foot boards are then folded over as hereinbefore described into the position shown by dotted lines Fig. 3, after which it only remains to turn the bed up into the vertical full line position, when the leg h and connecting rod h^4 will fold up in the positions they assume when

the bed rests on the floor, and then the extended arms g^8 are turned in out of the way. A slight curtain rail may be secured to the lower part of the posts of the foot board, as at *m*, and when the bed is turned up a curtain may be hung upon the cross rail *m'* to cover the bed.

Our bed is of such construction that the same is peculiarly adapted for use as a mantel bed, for referring to Fig. 3 it will be seen that the head and foot boards when folded over not only allow ample room for mattress and bed clothing, but serve to keep the same smoothly in place.

Sometimes it is desirable to raise one end of the bed, as in hospitals, for invalids, and to do this readily we secure a series of pins *n* to the corner post $C^{\times}$, see Fig. 8, and instead of the latch *c* on the bearing B we use a claw-like latch, as *n'*, adapted to catch over and hold upon one of said pins *n*, the ears *b'* and b^2 engaging the post and retaining the same upright.

When a change in height is to be made the end of the bed is raised to disengage the latch *n'* from its pin, at such time the pin next above acting as the stop to limit the movement of the bearing.

Our invention is not restricted to the exact construction and arrangement herein shown, as it is obvious that changes or alterations may be made therein without departing from the spirit and scope of our invention.

We claim—

1. In a folding bed, a rigid bed frame, concaved bearings thereon to receive the corners of and to normally retain the head and foot boards upright, and locking devices for and between said bearings and the corners of said boards, combined with detachable head and foot boards adapted when unlocked to be folded over upon the upper side of the frame, the bearings and boards being relatively movable at such time, substantially as described.

2. In a folding bed, a rigid bed frame, and concaved corner bearings thereon for the head and foot boards, and ears at the top and bottom of said bearings to partially embrace the corners of said boards combined with detachable head and foot boards longitudinally movable in said bearings, and locking devices intermediate said bearings and the boards to normally maintain said boards upright in the bearings, substantially as described.

3. In a folding bed, a rigid bed frame, bearings located at the corners thereof, and having yoke like tops to receive and support the head and foot boards when folded, and ears at the tops of said bearings to partially embrace the corners combined with head and foot boards, and locking devices to connect them when upright with the bearings, substantially as described.

4. A bed frame, corner bearings secured thereto having concave faces, and ears at top and bottom thereof to embrace the corner posts, and a latch for each bearing, combined with corner posts adapted to rest in said ears and concave face when in upright position, an engaging device carried by each post to co-operate with the adjacent latch, and a limiting stop, substantially as described.

5. A bed frame having tubular side rails, corner bearings secured to the ends thereof and provided with horizontal interior webs having each an upturned laterally extended portion, combined with L-shaped connections between the side rails, the horizontal side of said connections extending between said webs and side rails, and the vertical side of said connections being secured to the upturned laterally extended portion of the web, substantially as described.

6. A bed frame having head and foot boards adapted to be folded inward thereupon, combined with a stand, links pivotally connecting said frame thereto, and means carried by the bed frame to turn said links into vertical position, whereby the bed frame may be turned up to form a mantel bed, substantially as described.

7. A bed frame having folding head and foot boards, combined with a stand having fixed and swinging feet, and links connecting said frame and stand pivotally, legs pivoted to the frame and adapted when extended to bear on the swinging feet and sustain one end of the frame, and connecting rods between the legs and stand to lower them when the links are turned upward to raise the bed, substantially as described.

8. In a folding bed, a bed frame, bearings having concave faces and yoke-like tops, to receive and support the head and foot boards when folded, combined with head and foot boards provided with corner posts, and casters at their lower ends secured to inturned supports, the casters being protected by the concave faces of the bearings and the ends of the corner posts when folded, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ANDREW F. ROBINSON.
ARTHUR B. DODGE.

Witnesses:
JOHN C. EDWARDS,
FREDERICK L. EMERY.