F. DOLL, M. RIEDER & J. G. DIEHLMANN.

Invalid-Bedstead.

No. 202,936. Patented April 30, 1878.

FIG. 1.

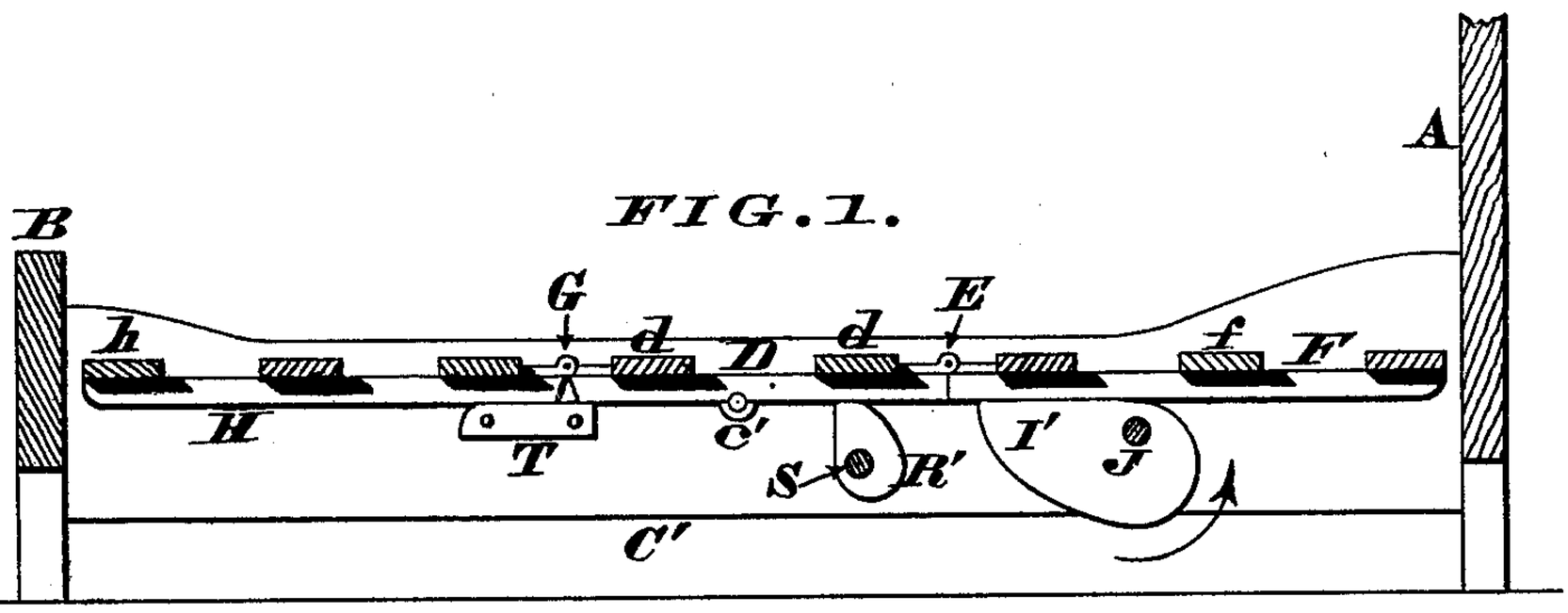


FIG. 2.

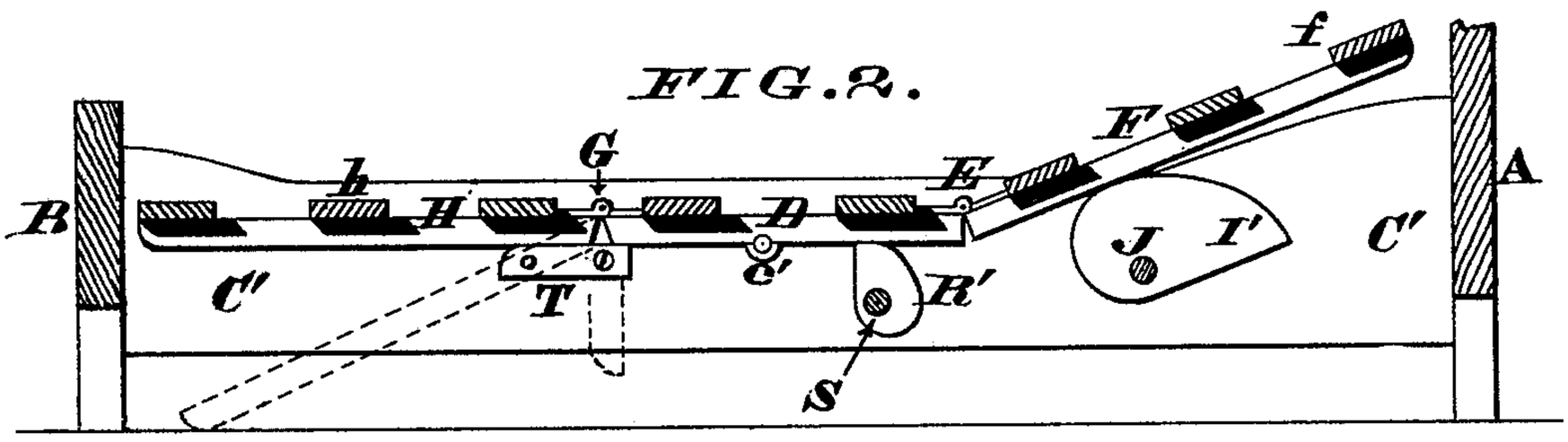


FIG. 3.

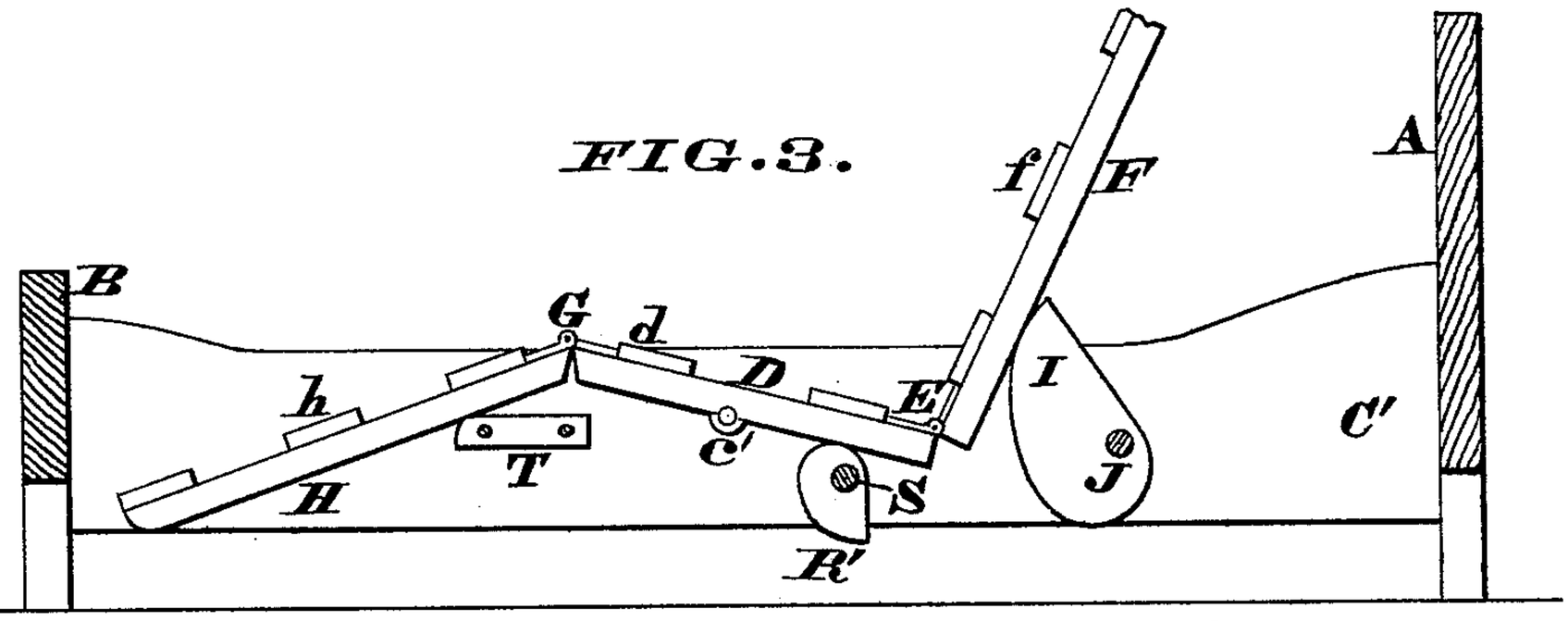


FIG. 4.

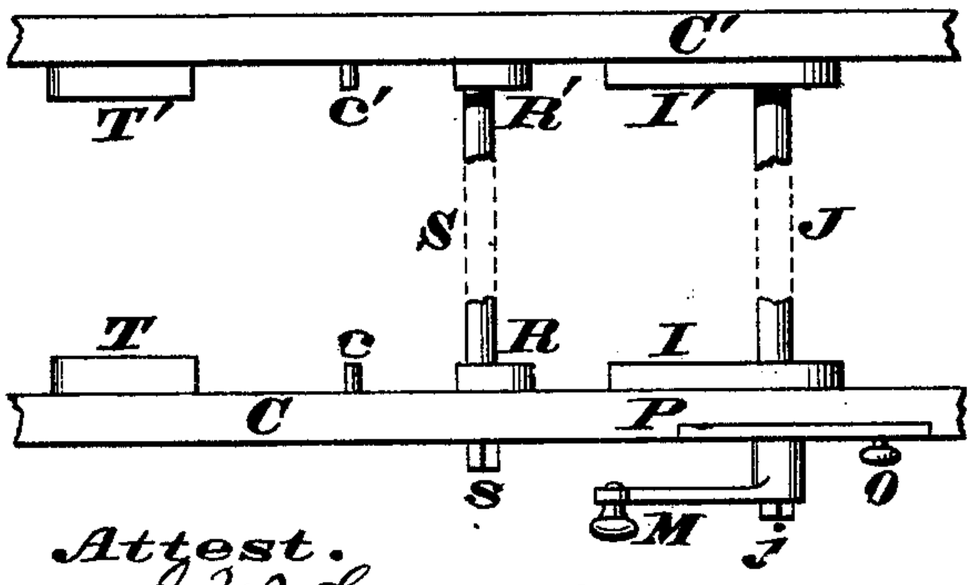
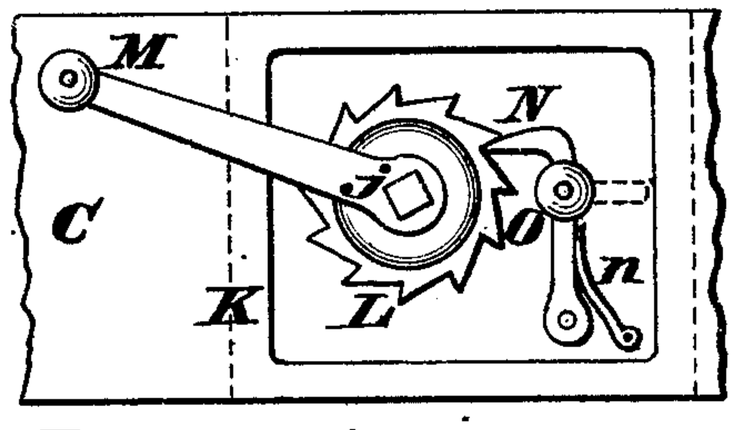


FIG. 5.



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UNITED STATES PATENT OFFICE.

FRANK DOLL, MARTIN RIEDER, AND JOHN G. DIEHLMANN, OF CONNERSVILLE, INDIANA.

IMPROVEMENT IN INVALID-BEDSTEADS.

Specification forming part of Letters Patent No. **202,936**, dated April 30, 1878; application filed February 25, 1878.

To all whom it may concern:

Be it known that we, FRANK DOLL, MARTIN RIEDER, and JOHN G. DIEHLMANN, of Connersville, Fayette county, Indiana, have invented certain new and useful Improvements in Invalid-Beds, of which the following is a specification:

This invention relates to that class of sick-beds which consists, essentially, of three sections, hinged together, so as to be set at the most comfortable angle or inclination for the invalid; and our improvement comprises a novel combination of pivots, eccentrics, rock-shafts, and fixed cleats, wherewith a greater range of adjustment of such hinged sections may be effected than has heretofore been attainable, said rock-shafts and their eccentrics being secured in any desired position by a locking device that is readily accessible to the occupant of the bed.

The principal advantage due to the arrangement of devices as invented by us is, that the foot-section is rendered capable of having its free or lower end depressed below the general level of the intermediate or body section, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a longitudinal section through a bedstead with our jointed frame applied thereto, said frame being shown in its normal or horizontal position. Fig. 2 is a similar illustration, but showing the head-section slightly elevated. Fig. 3 represents the three sections of the frame set at different angles with reference to each other, said frame being shown in elevation. Fig. 4 is a plan of the side rails and their accessories, and Fig. 5 is an elevation of the ratchet mechanism of the head-section of the frame.

A represents the head-board, B the foot-board, and C C′ the side rails, of a bedstead of any approved construction. Projecting inwardly from said rails, and near the midlength of the same, are pins or studs *c c′*, which serve as pivots for the intermediate or body section of the frame. This section of the mattress-frame is composed of two parallel rails, D D, united together with transverse slats *d*, said rails being adapted to vibrate freely within the bedstead C C′. Hinged to the upper end of frame D D *d*, as at E, is the head-section, composed of two parallel rails, F F, and a series of transverse slats, *f*. Hinged to the lower end of said central frame D D, as at G, is the foot-section, consisting of two parallel rails, H H, and a series of transverse slats, *h*.

In order that the occupant of the bed may readily adjust the jointed frame D F H, we support the rails F F of the head-section on two eccentrics or cams, I I′, which latter are secured to a rock-shaft, J, disposed transversely of the bedstead C C′. Of these rails the one, C, is mortised at K to admit a ratchet-wheel, L, that is secured to rock-shaft J, whose outer end has a square arbor, *j*, for the engagement of a key or crank, M, as seen in Figs. 4 and 5.

N is a pawl or detent, that prevents any accidental retrograde rotation of ratchet L, said pawl being maintained in gear with the teeth of wheel L by a spring, *n*, or otherwise. O is a knob or handle for operating this pawl, which handle traverses a horizontal slot in plate P, that serves to house the devices L N *n* within the mortise K. (See Fig. 4.)

The central section D D is adjusted by means of two cams, R R′, of rock-shaft S, that has a square arbor, *s*, to receive the crank M. This shaft, however, has no ratchet mechanism, as the peculiar manner in which our sections are jointed together enables the hinged frame to be adjusted with a single ratchet. Secured to the side rails C C′, at or near the junctions of sections D D and H H, are cleats T T, of any proper length.

Our bed is adjusted in the following manner: In the normal condition of the bed the cams I I′ are turned so as to present their straight edges upwardly, while the other cams, R R′, are disposed vertically, thus causing the sections D D, F F, and H H to assume the horizontal position shown in Fig. 1, in which position the jointed frame is perfectly rigid or unyielding, and will support as heavy a weight as any other form of bed in use.

If it should be desired to elevate the head-section F F at a moderate angle, such an adjustment can be effected in a few moments by simply applying crank M to arbor *j*, and then rotate shaft J in the direction indicated by arrow in Fig. 1, and as soon as the proper ele-

vation is obtained catch N prevents any retrograde rotation of said shaft. Consequently, section F F is now securely locked in position, and will remain so as long as said catch is engaged with the teeth of ratchet L. In this position of the head-section, the erect cams R R′ preserve the other members, D D H H, of the jointed frame perfectly horizontal; but by turning said cams down and rotating the ones I I′ still farther in the direction of the arrow, the jointed frame is securely maintained in the position seen in Fig. 3, the foot-section H H being supported upon the outer extremities of cleats T T.

As all of the above-described changes can be effected by rotating the shafts J and S with the crank M, and as said shafts are located near the head of the bed, it is evident the invalid can adjust the jointed frame without calling in assistance.

If preferred, metallic plates or straps can be secured to the under sides of rails D D and F F for the cams I I′ and R R′ to bear against, and thereby diminish friction and prevent any wear of said rails.

Finally, the inner ends of cleats T T may be pivoted to the rails C C′, so as to depend from said rails, as indicated with dotted lines in Fig. 2, which arrangement will afford more room for adjusting the foot-section H H. These pivoted cleats can be secured in a horizontal position or at any desired angle by the insertion of suitable pins near their outer ends, which pins may be adapted to enter a series of holes concentric with said pivots.

Ropes, wires, or canvas may be substituted for the slats *d f h*, upon which the mattress or bedding rests.

We are aware it is not new to employ three hinged sections in a sick-bed, and therefore our claim is expressly limited to such sections when hinged directly to each other in the manner shown, and rendered adjustable by the within-described combination of pivots, rock-shafts, eccentrics, fixed cleats, and locking devices.

We claim as our invention—

The intermediate section D D, pivoted at *c c′* at or near its midlength to the side rails C C′ of an invalid-bed, said intermediate member D D′ having hinged to it, at E and G, respectively, the head-section F F and foot-section H H, which three sections are adjusted by the eccentrics I I′ R R′, rock-shafts J S, and cleats T T, and securely retained at any suitable inclination by the locking devices L M N O, the lower end of said foot-section H H being unsupported and capable of depression below the general level of body-section D D, as herein described.

In testimony of which invention we hereunto set our hands.

FRANK DOLL.
MARTIN RIEDER.
JOHN G. DIEHLMANN.

Witnesses:
LOUIS DOLL,
JOSEPH I. LITTLE.