

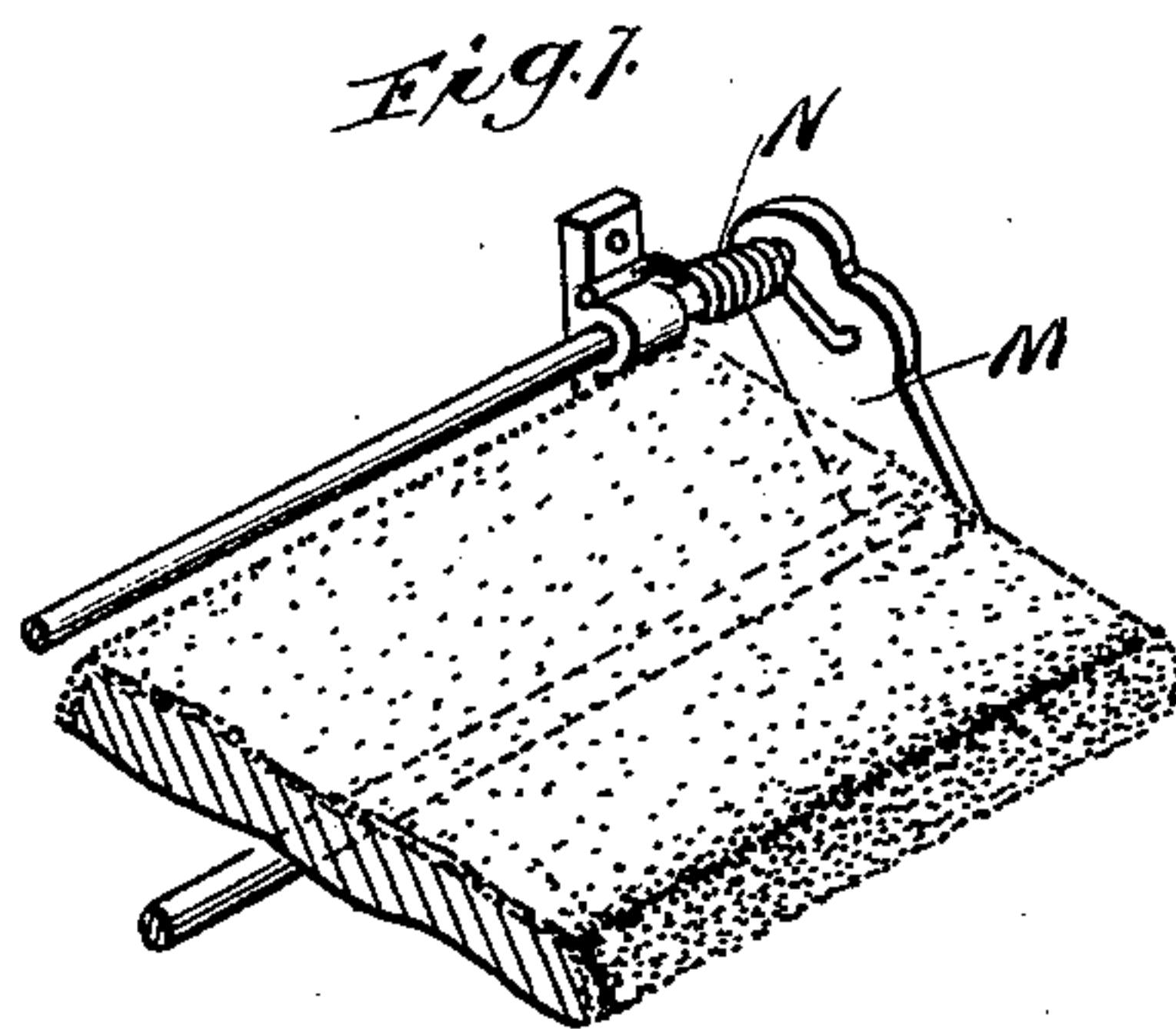
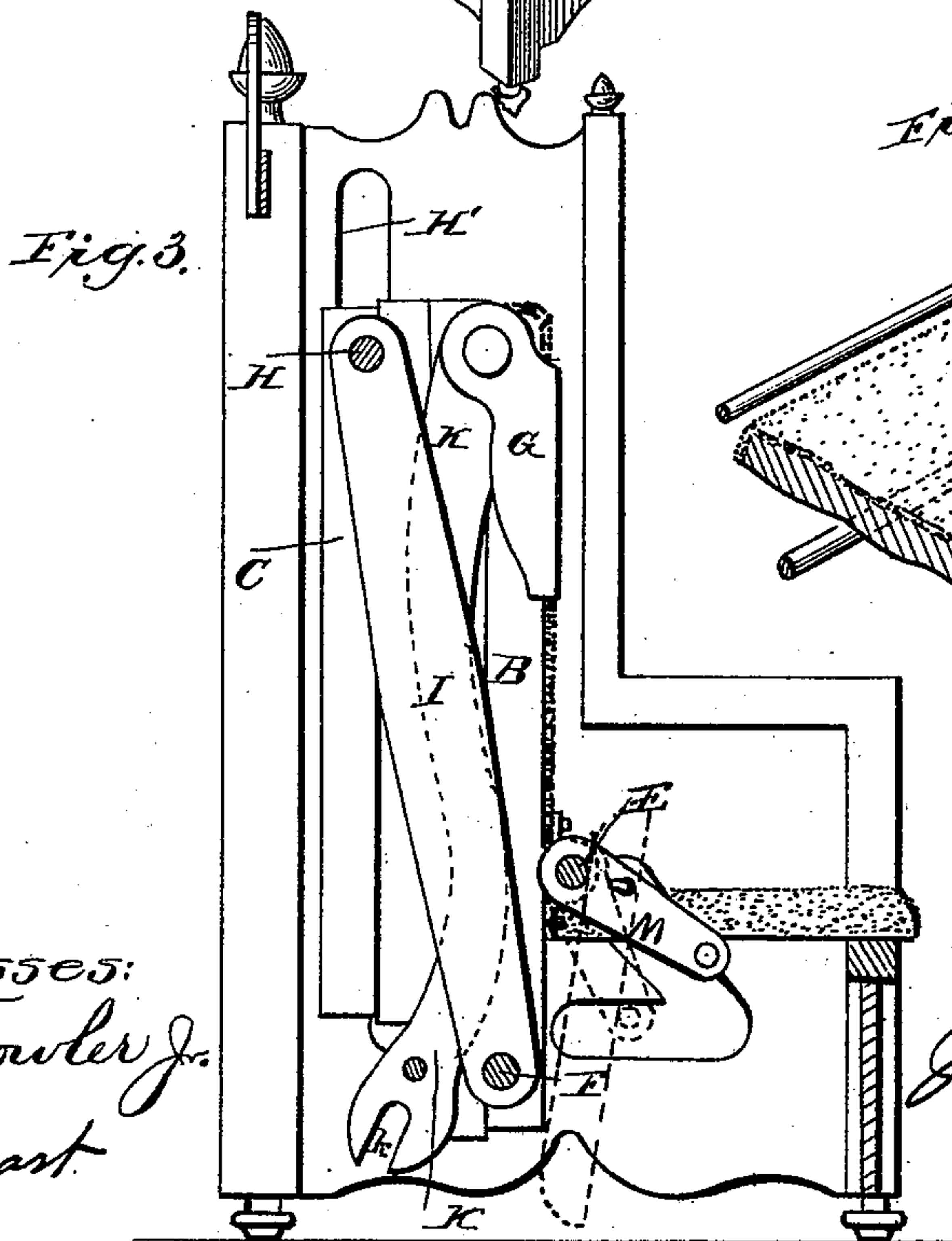
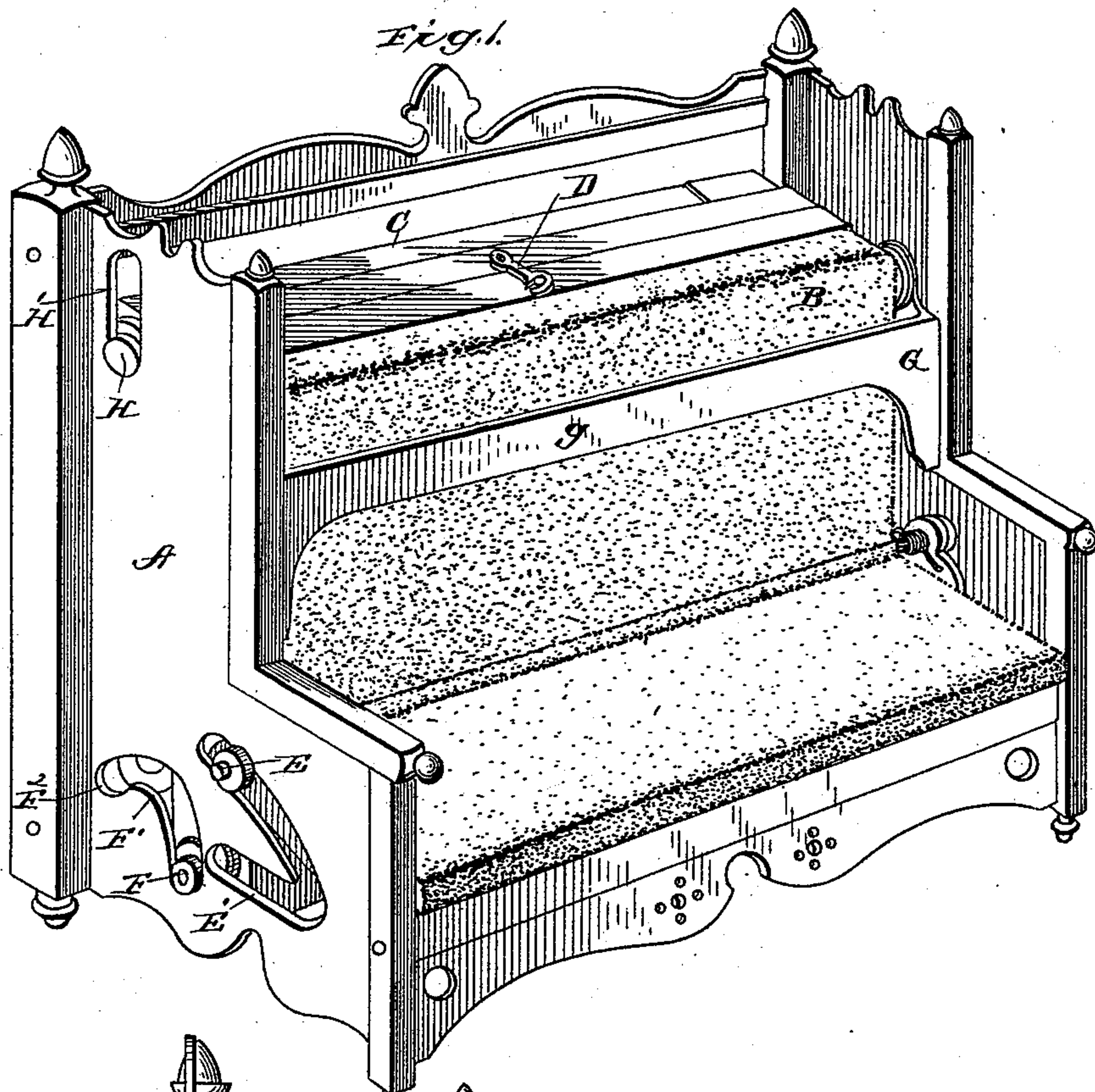
(No Model.)

3 Sheets—Sheet 1.

P. FRASER.
COMBINED SEAT AND FOLDING BERTH.

No. 528,271.

Patented Oct. 30, 1894.



Witnesses:
J. M. Fowler Jr.
Aly Stewart

Inventor:
P. Fraser

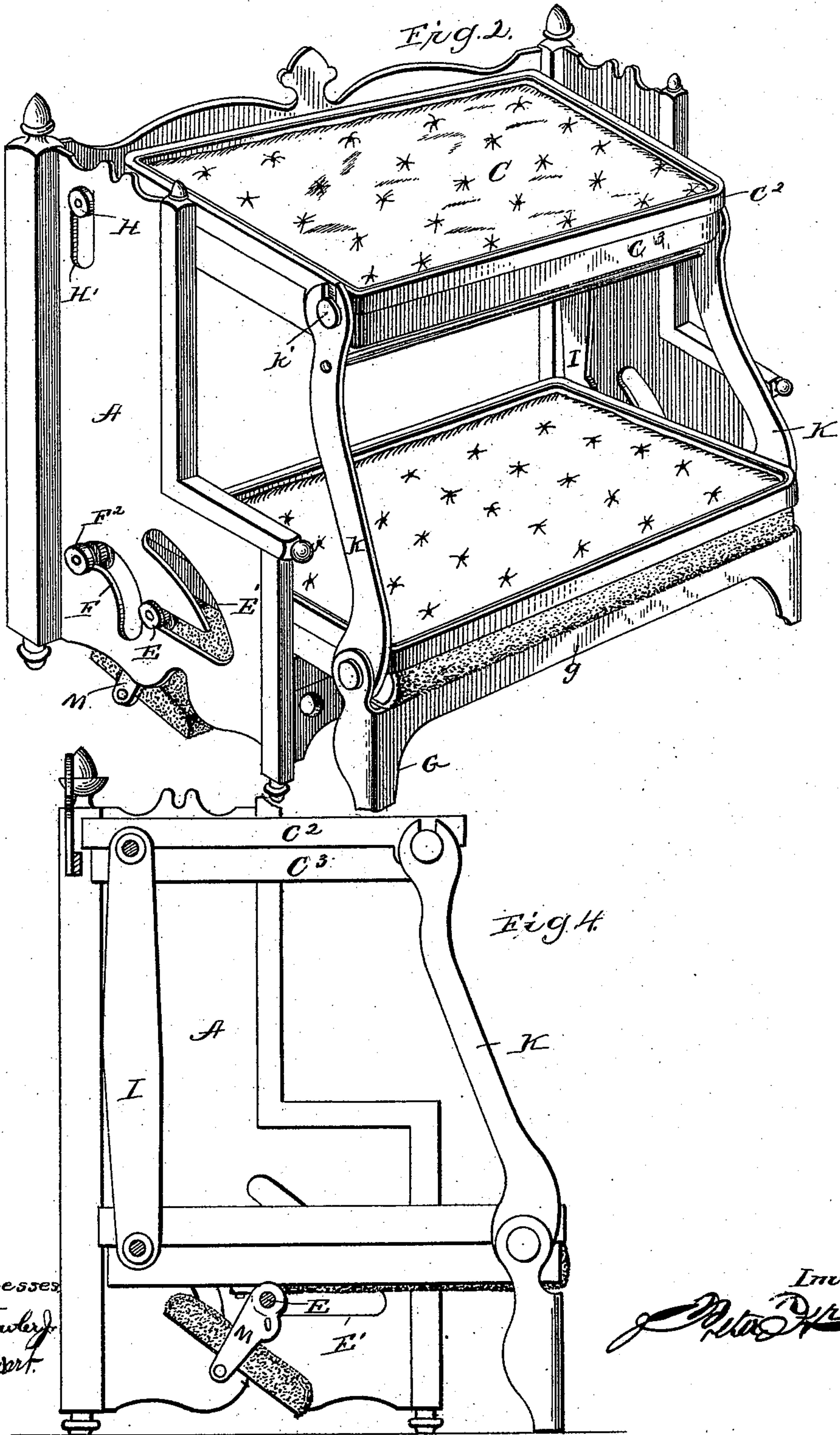
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Fig. 5

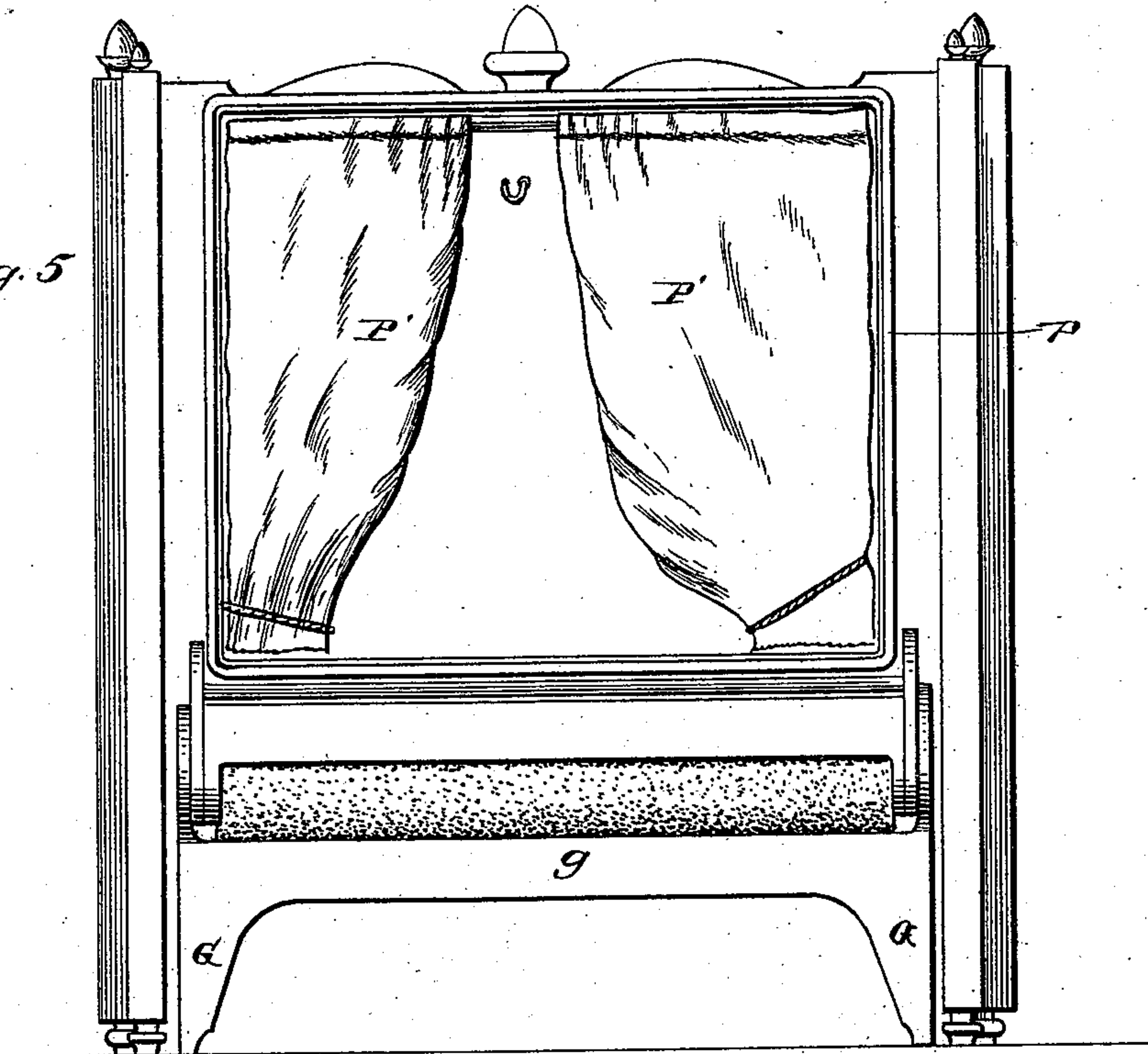
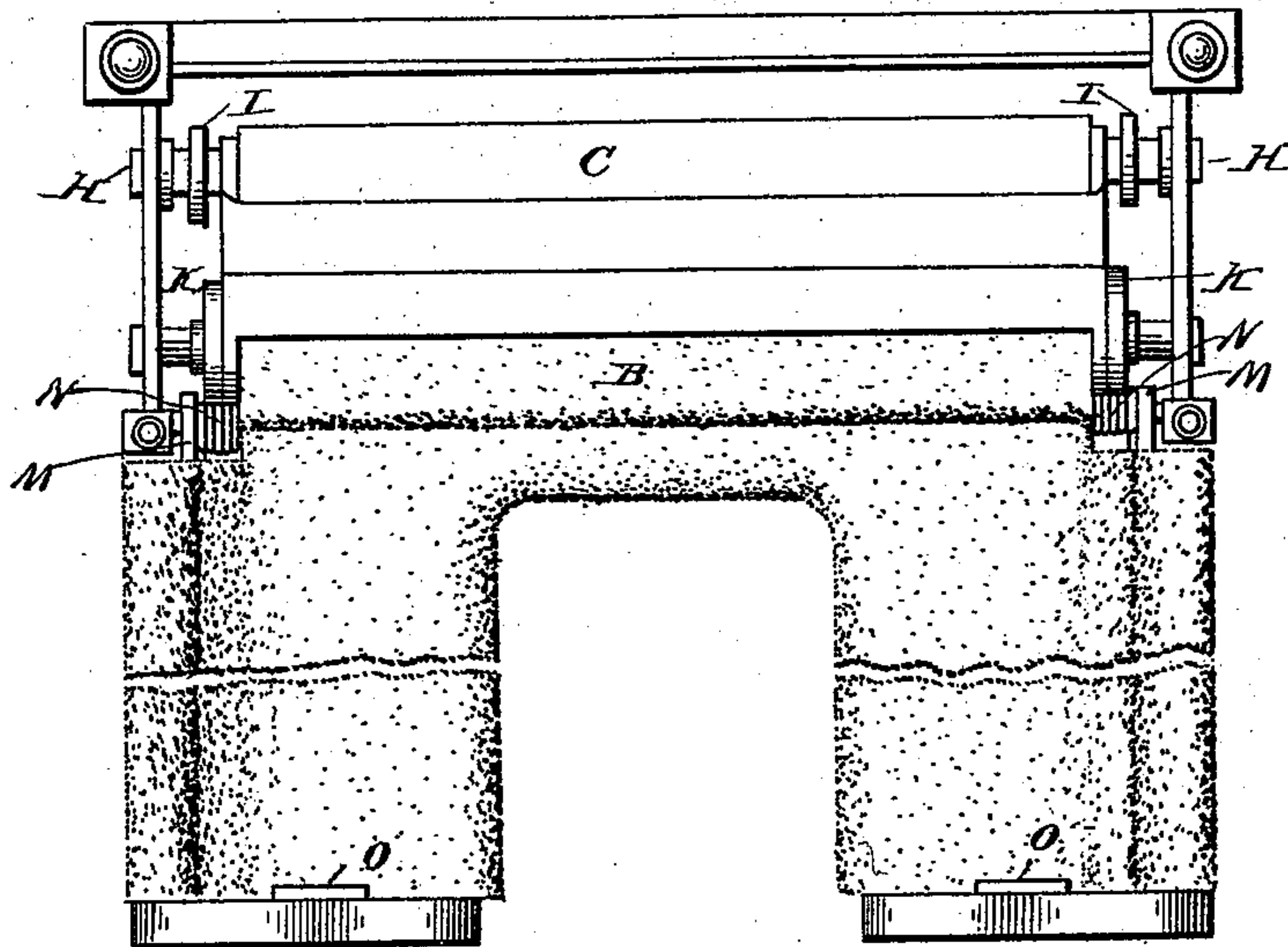


Fig. 6



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UNITED STATES PATENT OFFICE.

PETER FRASER, OF WHITMAN, MASSACHUSETTS.

COMBINED SEAT AND FOLDING BERTH.

SPECIFICATION forming part of Letters Patent No. 528,271, dated October 30, 1894.

Application filed January 27, 1894. Serial No. 498,201. (No model.)

To all whom it may concern:

Be it known that I, PETER FRASER, of Whitman, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in a Combined Seat and Folding Berth; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates particularly to improvements in that class of folding berths used more especially in sleeping cars, steam boat saloons, &c., wherein it is desirable to either convert the berths into seats for use during the day, or to permit of the space occupied by the berths when open being utilized for such purpose.

In sleeping cars, it is especially desirable that as little room as possible should be occupied by the folded berths, and at the same time, it is quite essential that the weight should be brought as low as possible in order to overcome the tendency of the cars to become top heavy when the berths are folded. In devising my present structure, I have had these objects in view, and further, I have aimed to produce a structure capable of use in any situation, irrespective of the particular shape of the compartment in which it is to be located. Thus for instance, berths may be arranged along each side of a central line in a saloon or car for instance, and when extended will leave aisles at each side and when folded, form seats for the passengers, or which will permit of the berths being arranged at each side of a car in such manner that when folded, they will occupy the space near the outer walls and below the level of the windows.

With these objects in view, the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figure 1 is a perspective view of a folded berth arranged to form a longitudinal settee when folded. Fig. 2 is a similar view with the berths extended. Fig. 3 is a section taken through immediately behind one of the end

frames with the parts in their folded position. Fig. 4 is a similar view with the berths extended. Fig. 5 is a front elevation with the lower berth extended and the upper berth omitted or formed into a stationary inclosure for the reception of clothing &c. Fig. 6 is a top plan view with the berths folded and with the seats arranged at right angles to the length of the berth. Fig. 7 is a detail of the rear seat support.

Like letters of reference in the several figures indicate the same parts.

In illustrating this invention, I have shown it entirely separated from any surroundings, such as the car walls or other compartment, and have illustrated it as though provided with a metallic framing in which the guide slots or slot bearings are formed as will presently appear, but it will be understood that this framing may constitute a part of the car walls, seat framing, &c., of a car such as is now ordinarily employed and the guide slots be formed by suitable plates attached thereto, or if desired directly therein in any ordinary manner.

The letter A indicates the side frames or more properly, end frames, of the structure, which may if desired, constitute the arms and ends of the settee, where the same is longitudinal of the berths, or the backs of the settees or seats where transverse to the lengths of the berths as in Fig. 6, as well as form the inclosure for the mechanical parts of the structure when folded. The particular configuration of this framing is quite immaterial and may be varied as before indicated or to suit the exigencies of the case or fancy of the manufacturer.

In the ordinary and preferred form of the invention provision is made for two berths, *i. e.*, an upper and a lower berth, which arrangement is quite essential to enable the full carrying capacity of a car to be utilized and in providing for two berths, the lower one is as usual made somewhat wider than the upper one and hence when folded should occupy the outside to conceal all the parts which constitute the operative mechanism, and present a regular and pleasing effect.

Referring, now, particularly to Figs. 1 and 3, it will be seen that the lower berth, lettered B, is arranged to be folded up in vertical po-

sition, and has its lower side upholstered to form the back of the settee, shown in Fig. 1 and the upper berth C is arranged to fold with the mattress side facing the mattress side of the lower berth and parallel therewith, but next to the rear or wall side of the structure, the berths being held in this position by a suitable catch, such as D or otherwise.

The lower berth and settee back is provided with two journals or supports, one formed by a rod or shaft E connected to its lower or front side and having antifriction rollers on its end working in an angle slot bearing E' in the walls of the frame, and the other formed by a similar shaft or trunnion bearings F, secured to the berth frame at or near the lower or rear side at each end and having antifriction rollers thereon working in backwardly curved or inclined slot bearings F' terminating at the rear ends in depressions F² in which the anti-friction rollers are seated when the berth is turned down to the position shown in Figs. 2 and 4 to prevent any possible depression of its rear side.

The journals E, which I shall for convenience in distinguishing them and because they do in some measure form a lever of the berth frame, term, "lever journals," while the rear journals F, I shall term "hinge journals." The action when the berth is turned down, is for it first to hinge on the journals F until the journals E strike the horizontal portion or bearing proper of its slot bearing, when said journal E, acting as a center on which the berth frame pivots, causes the rear end of said berth frame to be elevated and the journals F traveling up in the inclined slot bearings will cause the whole berth to move rearwardly until a position is reached where a slight push will set journals F in the depressions F² and bring the rear edge of the berth in juxtaposition to the wall. By arranging these parts as thus described, two additional advantages are secured. First, and most important, as the berth is folded up, its rear or lower edge is dropped down to approximately the level of the floor in order to bring its upper edge below the level of a window of ordinary height; and secondly, it is brought forward to leave sufficient room behind it for the reception of an upper berth, and when opened out, it moves back against the side wall as before stated, thereby leaving a wider aisle and closing the space which would otherwise be left between the rear edge of the berth and side wall.

To support the front edge of the berth when unfolded, suitable pendulent legs G are hinged to its upper or forward edge, and if desired, connected by a cross bar g, as shown.

The upper berth C is somewhat narrower than the lower berth and is folded relatively in an opposite direction from the lower berth, that is to say, its rear edge is uppermost when folded and is supported by trunnion bearings H working in slots H' in the framing and connected by supporting links I with the

trunnion bearings on the rear or lower edge of the lower berth. Thus the rear edges of both berths are maintained at the same distance apart and the upper berth is accordingly lowered as the lower berth is folded up, until its upper and rear edge lies substantially flush with the outer or forward and upper edge of the lower berth when folded, and at the same time, as the lower berth is turned down, it will raise the rear edge of the upper berth giving a sufficient clearance or head space in the lower berth, and further enabling a most important advantage to be secured in that in an ordinary sleeping car, the upper berth by being raised from below will not close the upper portion of the window, and hence light and air may be admitted to the upper berth as well as the lower berth, a desideratum, which will be highly appreciated by those who have from necessity been obliged to occupy an upper berth in an ordinary sleeper during warm weather.

The lower and forward edge of the upper berth is supported in horizontal position when unfolded by means of folding arms or supports K, pivotally connected to the lower berth near the front, and having notches or recesses k in their upper end adapted to cooperate with projections or trunnions K' on the upper berth near the forward edge, as shown clearly in Fig. 2.

Inasmuch as it is desirable that the lower berth when unfolded shall occupy a position at least as low as the ordinary seats, it becomes necessary to make provision for lowering or getting the seats or seat, as the case may be, out of the way, and for this purpose I preferably connect the rear end or rear portion of the seats to the lever journals of the lower berth by link connections M pivotally connected to the seats a short distance from the rear edges. The forward or outer edges of the seats are supported by the framing or projections on the framing in the ordinary well known manner. With this arrangement, the edges of the seats nearest the lower berth will abut against the same, and hence as they cannot move farther toward the rear, and cannot move downward because of the link connections, will be rigidly supported in place against any downward pressure, but at the same time when the forward edge is raised, the whole seat structure will readily fold into the position shown in the dotted lines, Fig. 3, entirely removing it from interference with the berth as the latter is folded down.

It will be observed that as the lower berth is turned down from folded into open position, the bearings E will first come to rest at the bottom of the slots E' and acting as the pivot for the berth, by pressing down on the forward edge of the berth, the rear edge is raised and the bearings F are caused to travel the inclined slot bearings F' to the position said bearings are to occupy when the berth is in proper horizontal position. The leverage thus obtained through the employment of the lever

bearings E, materially reduces the labor of unfolding the berths and enables the rear and upper berth to be raised with the greatest facility and further through this arrangement, and connection with the upper berth, the weight of the upper berth acts as a counter-balance weight when the berths are being folded and enables the front edge of the lower berth to be raised with little or no effort to the folded position.

In the arrangement shown in Fig. 6, the seats are located at right angles to the length of the berth, which arrangement is more especially desirable in car structures, but the operating mechanism is identical save that the hinged forward supporting legs for the lower berth are dispensed with and lugs O provided on the frame for supporting the forward edge of said berth.

In order to support the seat structure in position against the under side of the berth a spring N, Fig. 7, is preferably employed.

In Fig. 5, instead of providing an upper berth, a simple framing P is provided which normally stands in vertical position and against which the lower berth is folded being adapted for the reception of clothing or other articles which the traveler may desire to deposit therein. This enables me to provide a closed closet for the reception of articles during the day and a closet which is open to the occupant of the berth during the night. Suitable curtains P' may be hung across the frame P, if desired, to inclose the same at night.

In manufacturing this structure, it is my purpose to use metallic parts as far as possible and to this end, the berths, as shown in Fig. 2, are formed by metal frames C² and sheet metal bottoms C³, in which the mattress and springs of ordinary construction may be placed, the berths, in effect, being metallic pan-like receptacles for the mattress. Thus not only is the structure rendered substantially fire proof, but it is conducive to cleanliness and may be made to occupy very much less space than has heretofore been deemed necessary.

Having thus described my invention, what I claim as new is—

1. In a folding berth, the combination with the framing having the upwardly and rearwardly inclined slot bearings, of the berth having pivot journals or supports resting in said slot bearings, the lever journals, forward of said first mentioned journals co-operating with the frame and forming a lever pivot for the berth, as it is turned down, whereby the first mentioned journals are caused to travel in their slot bearings and move the berth rearwardly; substantially as described.

2. In a folding berth, the combination with the framing having the upwardly and rearward inclined slot bearings, of the berth having the journals working in said bearings, whereby its rear edge may be guided from a lower position to a higher and more rearward position, and the lever journals on the berth

forward of said first mentioned journals with horizontal bearings on the frame for co-operation therewith, whereby as the berth is turned down to horizontal position, the lever journals co-operating with the horizontal bearings will cause the rear journals to traverse the slot bearings and move the berth toward the rear; substantially as described.

3. In a folding berth, the combination with the framing having the upwardly and rearwardly inclined slot bearings, terminating in seats at the upper end, of the folding berth, having the pivoted journal supports at the rear edge working in said inclined slot bearings and co-operating with the seats at the upper end of the same to support the rear edge of the berth with means for supporting the front edge of the berth; substantially as described.

4. In a folding berth, the combination with the framing having bearings for the lever journals, of the lower berth, having lever journals at an intermediate point co-operating with said bearings, a movable upper berth having means for supporting its forward edge, and link connections between its rear side and the rear side of the lower berth in rear of the lever journals, whereby the upper berth operates as a counterweight for the front of the lower berth and whereby the upper berth is elevated to the proper level as the lower berth is turned down into horizontal position; substantially as described.

5. In a folding berth, the combination with the framing having bearings for the lever journals, the lower berth and lever journals thereon at an intermediate point co-operating with said bearings, of the upwardly extending links connected to the berth in rear of the lever journals, the upper berth pivotally connected with the upper ends of said links to swing down into vertical position and means for supporting the front edges of the berths when in horizontal position; substantially as described.

6. In a folding berth, the combination with the framing having the bearings for the lever journals and vertical guide bearings for the rear edge of the upper berth, the lower berth and lever journals secured thereon at an intermediate point and co-operating with the bearing on the frame, of the links connected to the lower berth in rear of the lever journals, the upper berth guided in its vertical movements by the guide bearings in the frame and pivotally supported on the upper ends of the links and means for supporting the front edges of the berths in horizontal position; substantially as described.

7. In a folding berth, the combination with the framing and lower berth having the lever journals at an intermediate point co-operating with horizontal bearings in the framing, of the seat and the links pivotally connecting said seat and lever journals, whereby said seat may be folded against the forward and under side of the berth as the latter is turned

down to horizontal position, with means for supporting said berth in horizontal position; substantially as described.

8. In a folding berth, the combination with
5 the frame having the horizontal bearings for the lever journals and the upwardly and rearwardly inclined bearings, as described, the lower berth having the journals co-operating with both said sets of bearings, of the links
10 pivotally connected to the rear portion of the berth, the upper berth pivotally connected to the upper end of said links and guided by the framing and the pivoted supports for connecting the forward portions of the berth;
15 substantially as described.

9. In a folding berth, the combination with the framing having the horizontal bearings for the lever journals and the upwardly and rearwardly inclined bearings terminating in
20 a seat at the rear end for the pivot journals, of the lower berth having the intermediate and rear journals, as described, co-operating with said bearings and seats, respectively, the upwardly extending links pivoted to the
25 rear portion of the lower berth, the upper berth pivotally supported at the rear portion on the upper ends of said links and guided by the framing, whereby it may swing down
30 the arms pivotally connected to the front

portion of the lower berth and co-operating with projections on the front of the upper berth to support the latter; substantially as described.

10. In a folding berth, the combination with 35 the framing having the horizontal and upwardly and rearwardly inclined bearings at the bottom as described, and the vertical guide bearings at the top, of the lower berth having the intermediate and rear journals co- 40 operating with said bearings, the upwardly extending links, the upper berth having the journals connected with said links and extended into the vertical guide bearings, the support for the front edge of the lower berth 45 and the folding supports for connecting the front edges of the upper and lower berths; substantially as described.

11. In a folding berth, the combination with the framing and the lower berth pivotally 50 connected with and bodily movable with relation to said framing, of the upper berth, guided by the framing, link connections between the rear edges of said berths and folding supports for their forward edges; sub- 55 stantially as described.

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