

(No Model.)

2 Sheets—Sheet 1.

C. W. PRATT.  
INVALID BEDSTEAD.

No. 474,690.

Patented May 10, 1892.

Fig 1.

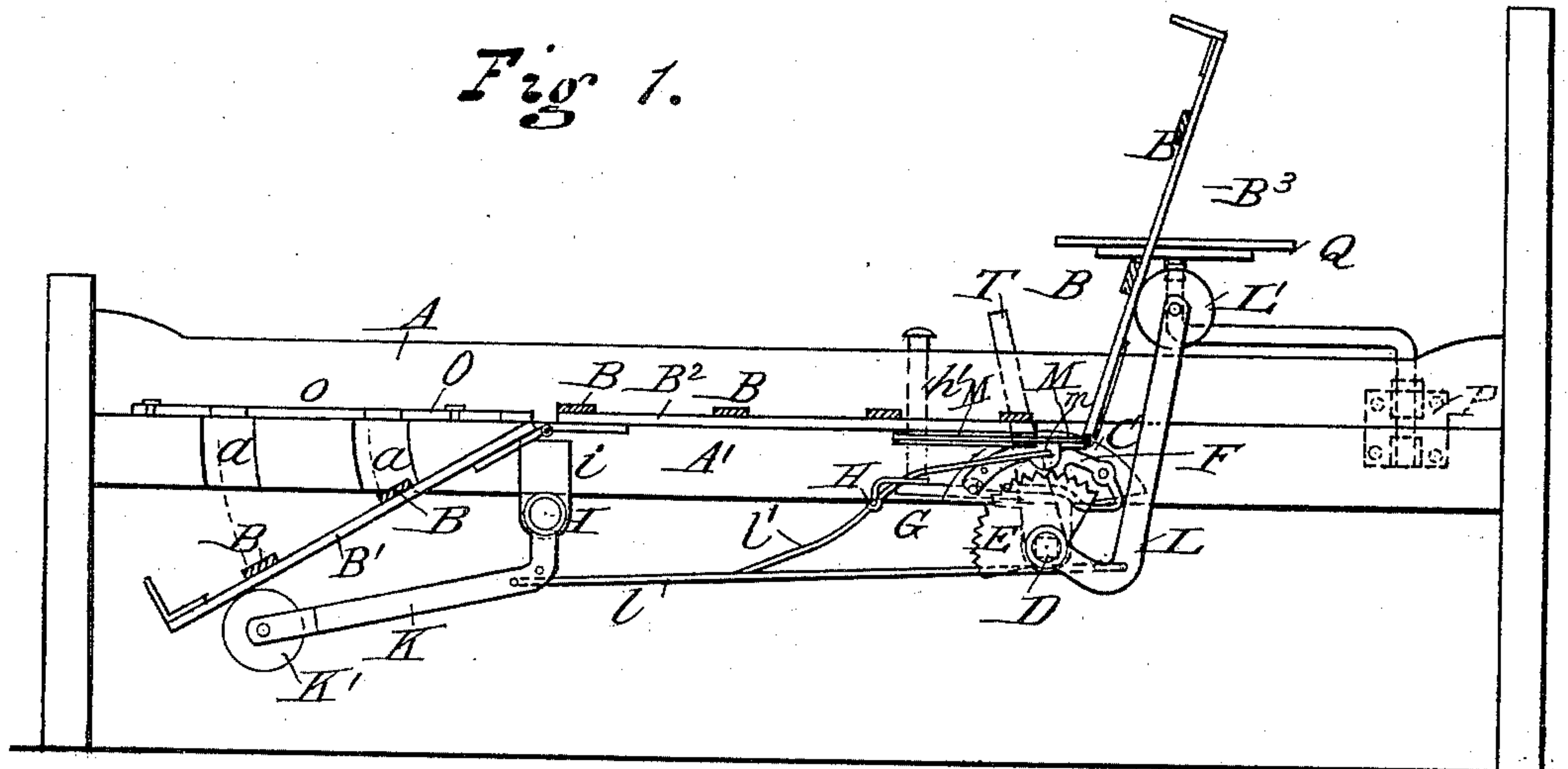


Fig 2.

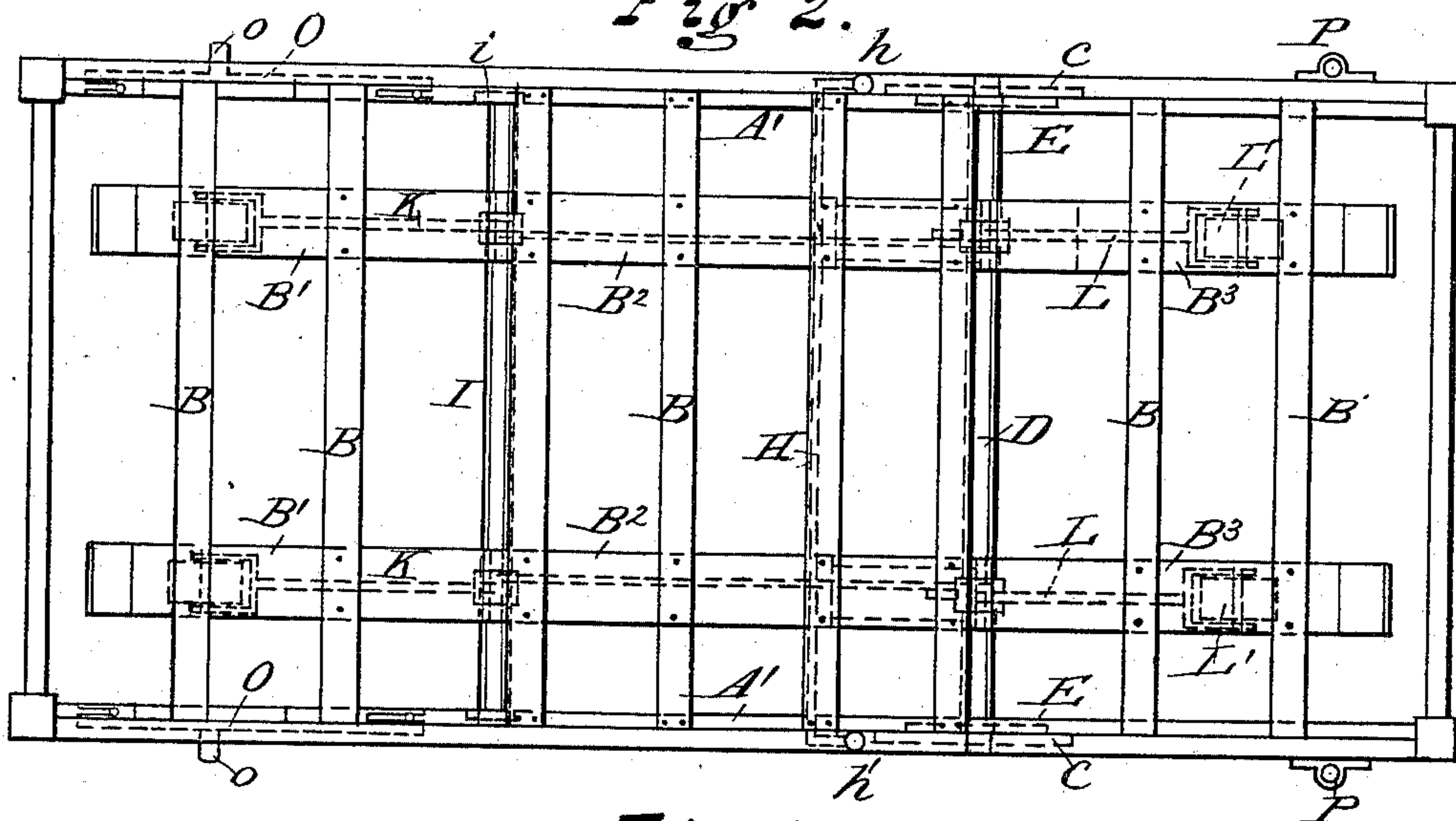


Fig 3.

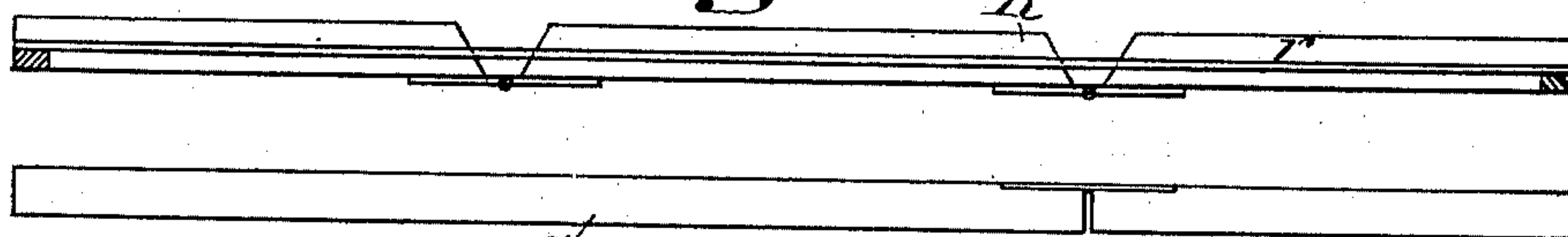


Fig 4.

Witnesses.

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per John L. Tasker  
his Atty.

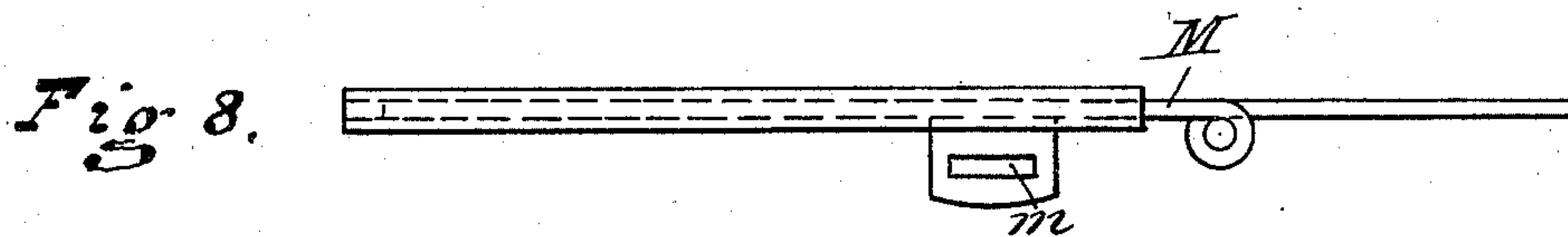
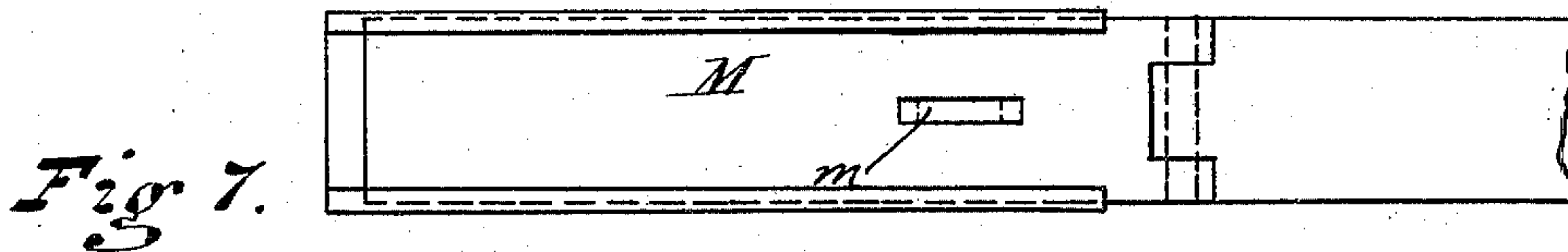
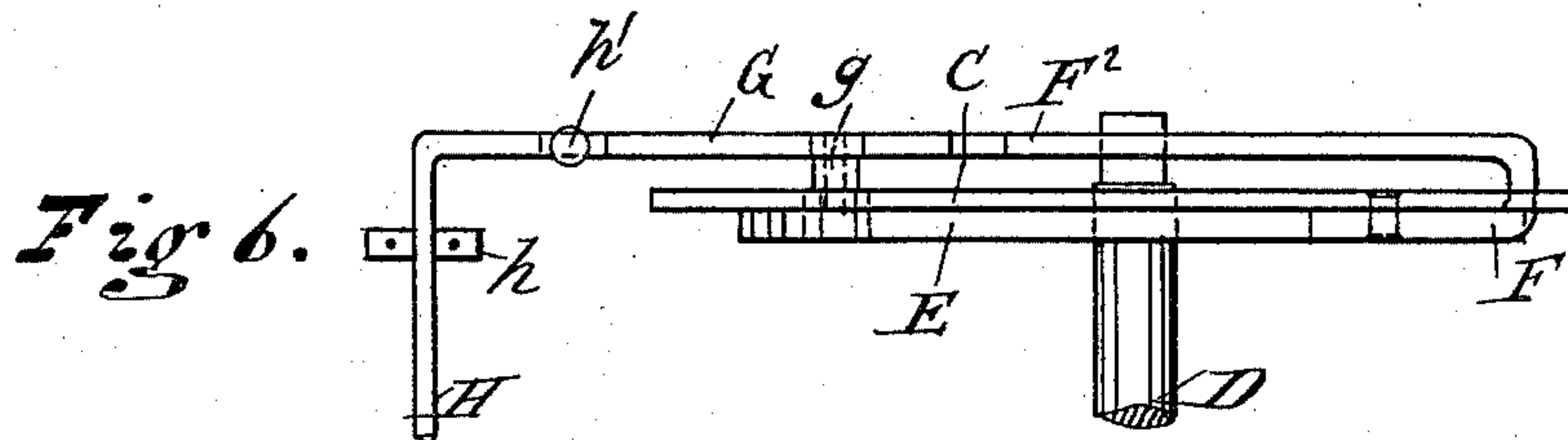
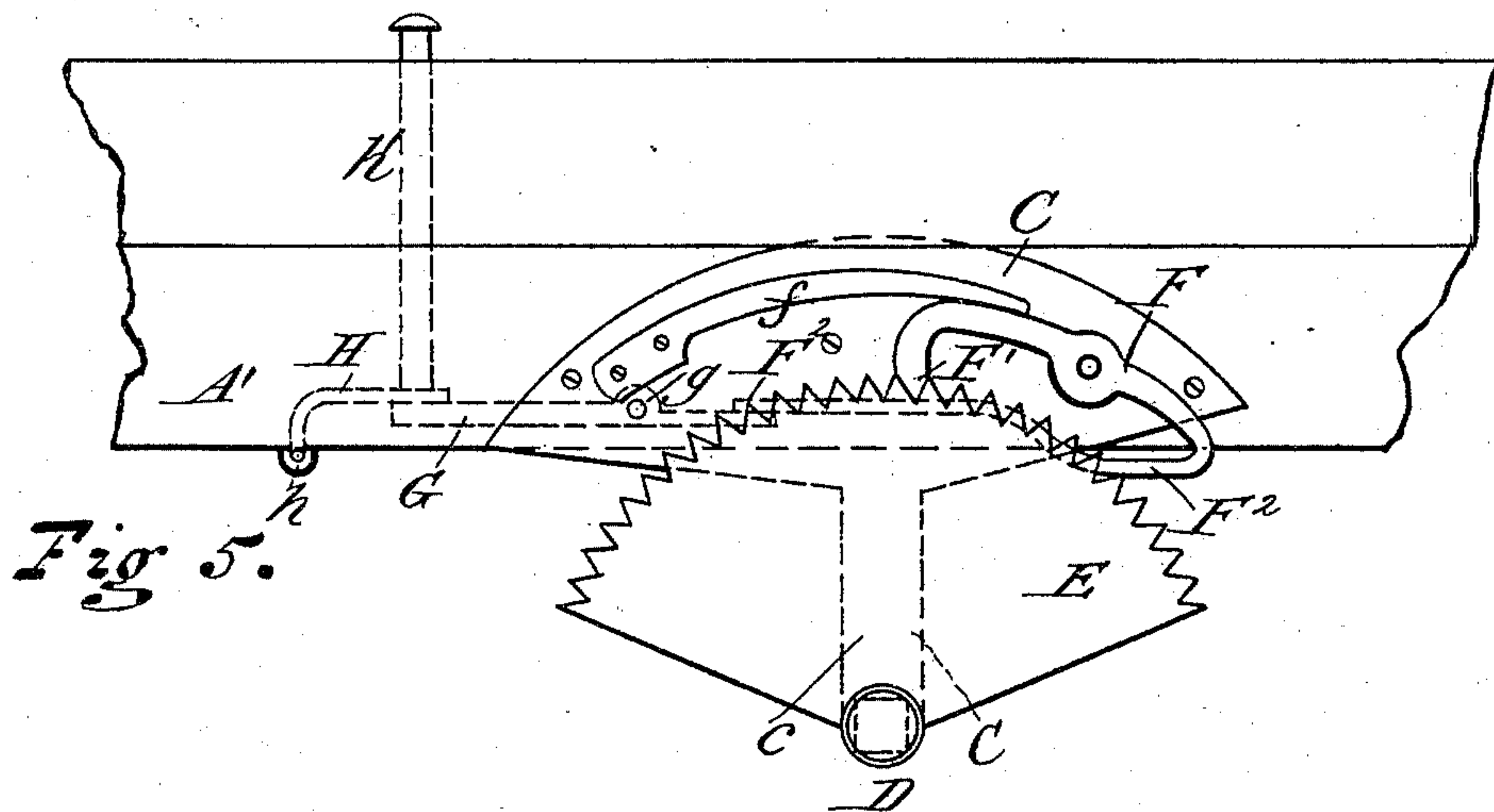
(No Model.)

2 Sheets—Sheet 2.

C. W. PRATT.  
INVALID BEDSTEAD.

No. 474,690.

Patented May 10, 1892.



Witnesses.  
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72267207.  
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# UNITED STATES PATENT OFFICE.

CHARLES W. PRATT, OF MUSKEGON, MICHIGAN.

## INVALID-BEDSTEAD.

SPECIFICATION forming part of Letters Patent No. 474,690, dated May 10, 1892.

Application filed May 16, 1891. Serial No. 393,054. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. PRATT, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Bedsteads for Invalids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in bedsteads for invalids, the object being to provide a bedstead having adjustable parts, so that the head and foot sections can be adjusted at different heights or angles to suit the convenience of the patient.

The invention therefore consists in the construction, arrangement, and combination of the several parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a longitudinal sectional side elevation of my improved bedstead. Fig. 2 is a top plan view of the same. Fig. 3 is a detail side elevation of the frame which supports the springs. Fig. 4 is a side view of a mattress adapted to be used in connection with my improved bedstead. Fig. 5 is a detail side elevation of a portion of the operating devices for effecting the adjustments of the bedstead. Fig. 6 is a plan view of the same parts shown in Fig. 5. Figs. 7 and 8 are side and plan views, respectively, of one of the slides located on the under side of the slat-frame.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

A designates the main frame of my improved bedstead, which may be of any suitable and convenient form and shape, it being built in any desirable or ordinary manner.

On the inner or opposing faces of the longitudinal side bars of the bedstead are secured the oppositely-located horizontal strips A' A', which serve as cleats or bearings upon which the inner slat-frame rests. These strips A' are fastened securely to the sides of the frame and are preferably made of wood, although iron supports may be used under each of the slats instead of wood, if desired. These

bearing-cleats A' are provided at points near the foot-board or foot end of the bed with transverse slots *a a*, through which the ends of the slats of the lower section of the slat-frame may pass when the said lower section of the slat-frame is dropped into the position shown in Fig. 1.

B designates a series of transverse horizontal slats, of which there may be any suitable number. These slats have their ends resting normally on the bearing-pieces A'. I divide the series of slats B into three divisions. Those slats belonging to the middle division or section rest firmly at all times upon the cleats A' and may be secured thereto, if desired. The slats belonging to one end division or section—that at the foot of the bed—are adapted to be lowered, while those belonging to the head end or section of the series of slats are adapted to be lifted or elevated. I therefore provide longitudinal bars or strips, which are parallel to the sides of the bedstead, on which bars the transverse slats may be secured. The slats belonging to the lower or foot end of the slat-frame are secured upon the parallel strips B'. The slats belonging to the middle section are secured upon the longitudinal strips B<sup>2</sup> B<sup>2</sup>. The slats belonging to the upper section or head end are secured upon the strips B<sup>3</sup> B<sup>3</sup>. The meeting ends of the strips B' and B<sup>2</sup> are hinged together, and also the meeting ends of B<sup>2</sup> and B<sup>3</sup> are hinged together. In this way it will be seen that I construct the slat-frame in three sections, the two end sections being hinged to the middle section, the upper section being adapted to be elevated and placed at different inclines, while the lower section is adapted to be lowered and also placed at different angles. Thus the slat-frame can be so arranged and adjusted as to suit the convenience of the patient and enable him to rest easily and comfortably in different positions.

On the inside faces of the side pieces of the bedstead, at points opposite each other, are secured plates C, having the downwardly-projecting parts *c*, in the lower ends of which are journaled the ends of the horizontal shaft D, the projecting ends of which are preferably square or otherwise shaped to permit the attachment thereto of a handle, as shown, by means of which the shaft D can be rocked or



oscillated to a greater or less extent. The shaft D carries rigidly secured thereon near each end close up against the plates C C the two ratchet-segments E E.

5 F F designate pivoted pawl-arms having ends F', which engage the teeth of the ratchet-segments E E. These pawl-arms are pivoted to the face of the plates C C. The pawl-arms F are curved or looped and have the  
10 horizontal end parts F<sup>2</sup>. (See Fig. 5.) On each of the pawl-arms F, at points contiguous to the ends F', bear flat springs f, secured to the plate C and acting to keep the ends of the pawls in engagement with the teeth of the  
15 ratchets, as represented in Fig. 5.

G G designate rods, which are pivoted to the plates C at g. One end of each rod G rests beneath the adjacent end F<sup>2</sup> of one of the pawl-arms F, while the other end of each  
20 lever G rests beneath the vertical stop h', located within the side bars of the bedstead and having its upper end projecting slightly above the upper edge of each of the side bars in convenient position to be pressed downward by the  
25 hand. The lower ends of the pins h' do not bear directly upon the end of the lever G, but between the ends of pins h' and the levers G are located the right-angled ends of a horizontal transverse lever H, which is supported in bear-  
30 ings h, fixed on the under edges of each of the side bars of the main frame. (See Figs. 5 and 6.) By pressing, therefore, upon either one of the pins h' the shaft H will be oscillated. Therefore the result of the pressure upon either of  
35 the pins will be to vibrate the lever G, and thus disengage the end of the pawl from the adjacent ratchet, and also through the oscillation of the transverse lever H motion will be communicated to the other side of the bed-  
40 stead, and the pawl on that side will be disengaged from the ratchet likewise. By pressing upon one or the other of the stops h' the pawls on each side of the bedstead can consequently be disengaged from their ratchet,  
45 and thus the shaft D left free to be oscillated by means of the handle T.

I denotes a horizontal transverse shaft supported in suitable bearings i, secured to the longitudinal sides of the bedstead. On this  
50 shaft are fastened rigidly the arms K K, which carry at their outer ends rollers K', which are adapted to come in contact with the parallel strips B' B' belonging to the lower end section of the slat-frame. These arms K K, with  
55 their terminal rollers, are therefore used for the purpose of supporting the lower end of the slat-frame when said end is in its lowered position, and also for adjusting said lower section to different inclines.

60 On the shaft D, to which I have already referred, there are rigidly secured two other arms L L, similar to the arms K K and carrying terminal rollers L', which are adapted to come in contact with and bear against the  
65 under faces of the parallel strips B<sup>3</sup> B<sup>3</sup>. These arms L L are therefore used for the purpose of elevating the upper or head end section of

the bed and adjusting and sustaining the same at different inclines or angles. The function and position of the arms K K and  
70 also arms L L, operating in connection with the hinged sections of the bed, will be evident clearly from inspection of Fig. 1.

l l designate links, which connect arms K with arms L. There are two of these links, 75 one to connect the arm K on one side of the bed with the arm L on that side and the other to connect the arm K on the other side of the bed with the other arm L. These links may be adjustably connected to the arms K and  
80 L, and the points of connection with said arms are preferably the points where the arms are bent, said arms K and L being preferably angular. Each of the links l has a branch rod or arm l' connected therewith or made inte- 85 gral therewith, which branch rod l' extends upward and is bent at an angle, so as to enter a slot m in a projection on the under side of a slide M, which slide or slides—there being ob-  
90 viously two of them, one adjacent to each of the side pieces of the bedstead—work in sockets secured to the under side of the parallel strips B<sup>2</sup> B<sup>2</sup> belonging to the middle section of the bed, and the outer ends of these slides M M  
95 carry the hinges whereby the upper or head section of the bed is movably connected to the middle section.

The slots m are shown in the detail view in Figs. 7 and 8.

O O designate flat horizontal slide-plates 100 which rest on the upper edges of the side cleats A' and are adapted to be moved endwise thereon. Said slide-plates O are provided with horizontal projections o, which project through slots in the sides of the bedstead-  
105 frame, which projections o serve as handles adapted to be grasped for the purpose of adjusting the said slides. Further, said slides are provided with slots, which receive pins on the upper edges of the cleats A', said pins  
110 guiding the slides in their movements, and the slides are provided with suitable side recesses or slots, which are adapted to register with the vertical slots a in the side pieces A'. Accordingly it will be manifest that the slides  
115 O may be adjusted so as to cover the slots a, in which position the slides O sustain the ends of the slats B of the lower section of the slat-frame; but when the slides O have been moved so as to bring their lateral recesses or slots  
120 into coincidence with the slots a then the ends of the slat B will be permitted to pass down through the slots a and the lower section of the frame of the bed allowed to drop, as shown in Fig. 1. 125

P P designate sockets secured on the opposite sides of the bedstead-frame near the head-board, which sockets are adapted to carry the stem of a movable table Q, which is horizontally adjustable. This table is shown in  
130 Fig. 1. It is suited to carry thereupon any of the necessary articles required for the use of the patient.

Referring to Fig. 3, it will be seen that I



have there represented a frame-work R, which carries the springs *r*. This frame-work is adapted to fit between the end projections of the slat-frame, and it is provided with hinges for the purpose of enabling the sections thereof to be raised and lowered correspondingly with the raising and lowering of the slat-frame. The springs which are employed in connection with the spring-frame R may be of any suitable and desirable construction.

Referring to Fig. 4, S designates a mattress, also made in sections, although two sections may be sufficient, the head-section being jointed to the remainder of the mattress. Of course an air-mattress may be used, in which case no joint will be required, as it would adapt itself readily and easily to any position without the necessity of having joints.

The operation of my improved bedstead for invalids' use will be evident from the foregoing description of the construction and arrangement of the several mechanical parts without the need of my going into any extensive detail at this point. When an invalid who may be reclining upon the bed desires to have his head raised, the first thing to do will be to press upon the projecting head of one or the other of the pins *h*, the result of which will be to release the pawls from the ratchets E. Then by means of the handle T the shaft D can be oscillated and the head-section of the bed raised by the interaction of the intervening mechanical devices. If it is desired to depress the lower end of the bed, the slides O O will be moved sufficiently far to allow their lateral recesses to come into coincidence with the slots *a*, and then the lower section of the frame can be dropped until it rests on the rollers K' K'. As the arms L are raised the slides M are moved toward the head of the bed through the instrumentalities of the rods *l* and branch rods *l'*. In this way as the head-section of the slat-frame is raised its hinge is moved toward the head of the bed, thus enabling it to be elevated by a less movement of the arms L than would be required if the hinge of the head-section were fixed. In this way I provide a simple and easily-operated adjustable bedstead mechanism for the use and convenience of patients, so that they may be changed from one posture to another with little difficulty, the bedstead being, when desired, converted into the form of an easy-chair and then again reconverted into the bedstead when the patient becomes tired and desires to lie down again. It will be obvious that not only can the lower section of the bed-frame be lowered below its position of horizontality, but it can also be raised above a horizontal plane, while the head end of the bed remains level. This can be accomplished by reversing the movement of the lever T. The purpose of thus lifting the lower end of the bed will be in certain instances to relieve the pain of a patient who is suffering from a fractured foot or limb.

Having thus described my invention, what

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

1. In a bedstead, the combination of a sectional slat-frame whose sections are hinged together, the main bedstead-frame having the inside cleats on which the ends of the slats rest, said cleats being provided with slots *a a*, and the recessed slide-plates O O, arranged on the upper edge of the said cleats and adapted to regulate the position of the lower section of the bedstead, substantially as described.

2. The combination, with the bedstead-frame having the inside cleats A', provided with slots *a a*, of the sectional slat-frame and the horizontal recessed slides O O, having hand projections *o o*, said slides operating in connection with the slots *a a* to permit the lower section of the slat-frame to drop, substantially as described.

3. The combination, with the bedstead-frame A, having the inside horizontal cleats A', of the slat-frame consisting of the slats B, secured to parallel strips, which are hinged together, so as to provide a trisectional slat-frame, the horizontal shaft D, having rigid ratchet-segments E and carrying rigid arms L, provided with rollers L', operating beneath the upper section of the bed, the pawl-arms F, engaging the ratchets E and pivoted to the cleats A', the transverse shaft I, carrying the rigid arms K, provided with rollers K', operating beneath the lower section of the slat-frame, and links connecting the arms K and L, substantially as described.

4. The combination, with a sectional slat-frame and a bedstead having cleats which support the ends of the slats, of the plates C, secured to the inside faces of said cleats, the horizontal transverse shaft D, the ratchet-segments E, secured rigidly thereon, the pivoted pawl-arms F, having ends F', that engage the teeth of the ratchets, and having curved ends F<sup>2</sup>, the levers G, pivoted at *g* and operating beneath the ends F<sup>2</sup> of the pawl-arms, springs *f*, operating upon the pawl-arms, the shaft H, having the angular ends, and the stop-pins *h'*, substantially as described.

5. The combination of the bedstead having the supporting-cleats, sectional slat-frame, the shaft having rigid ratchets thereon, the pivoted pawl-arms F, having ends F', engaging the teeth of the ratchet, and having long curved ends F<sup>2</sup>, the springs *f*, operating upon the pawl-arms, the levers G, pivoted at *g* and having one end beneath the end F<sup>2</sup> of each pawl-arm, the transverse shaft H, having angular ends which lie between the ends of the levers G and the lower ends of pins *h'*, the roller-carrying arms L on shaft D, and the roller-carrying arms K on the shaft I, all arranged to operate substantially as described.

6. The combination of the sectional slat-frame, the sections being hinged together and the upper and middle sections being provided with the connecting-hinge provided with



slides M M, the shaft D, the stop-pins  $h'$ , the  
ratchet-and-pawl mechanism arranged in con-  
nection with shaft D and said stop-pins, the  
shaft I, the slotted projections  $m$ , the roller-  
5 provided arms L, connected to the shaft D,  
the roller-provided arms K, connected to the  
shaft I, the links  $l$ , connecting the arms K  
and L, and the branch links or rods  $l'$ , hav-  
ing angular ends that enter slotted projec-

tions  $m$  on the slides M, substantially as de- 10  
scribed.

In testimony whereof I affix my signature in  
presence of two witnesses.

CHARLES W. PRATT.

Witnesses:

JOSEPH A. HANNA,

JO. A. MCCARTHY.