H. & N. M. FREEDMAN.

BED STRUCTURE FOR DAVENPORTS.

APPLICATION FILED DEC. 17, 1914.

1,265,073.

Patented May 7, 1918.

6 SHEETS—SHEET 1.

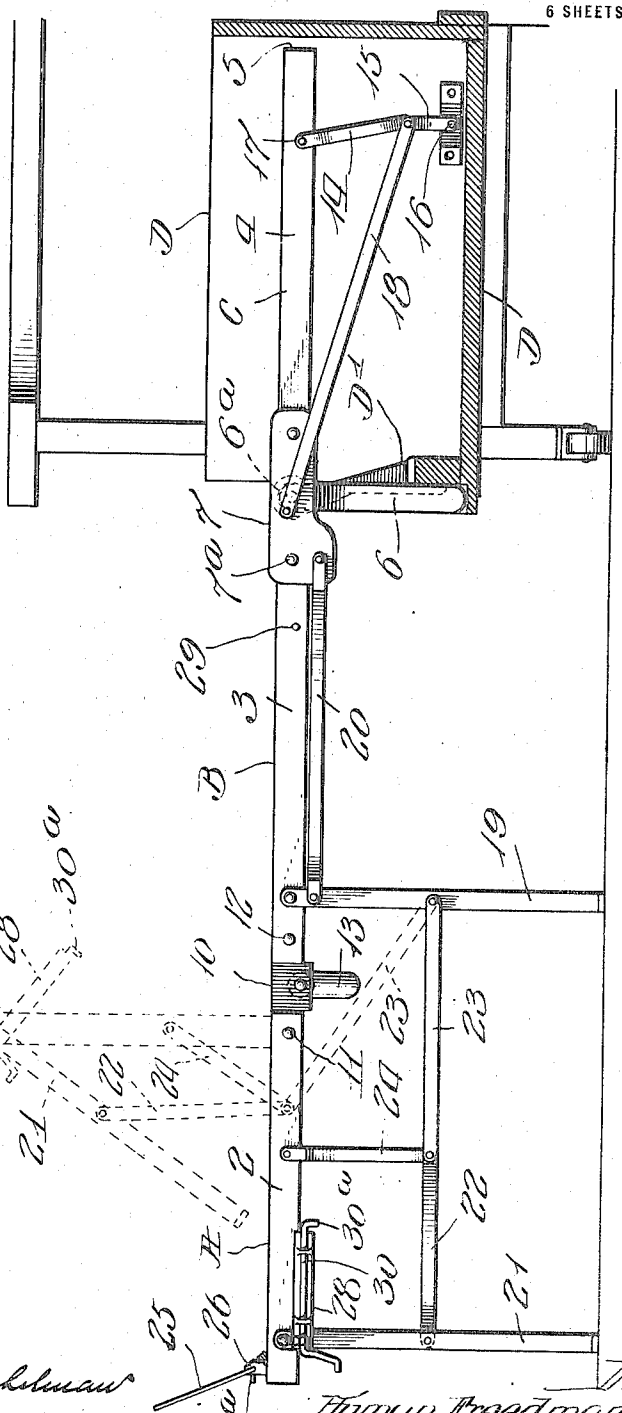


Fig. 1.

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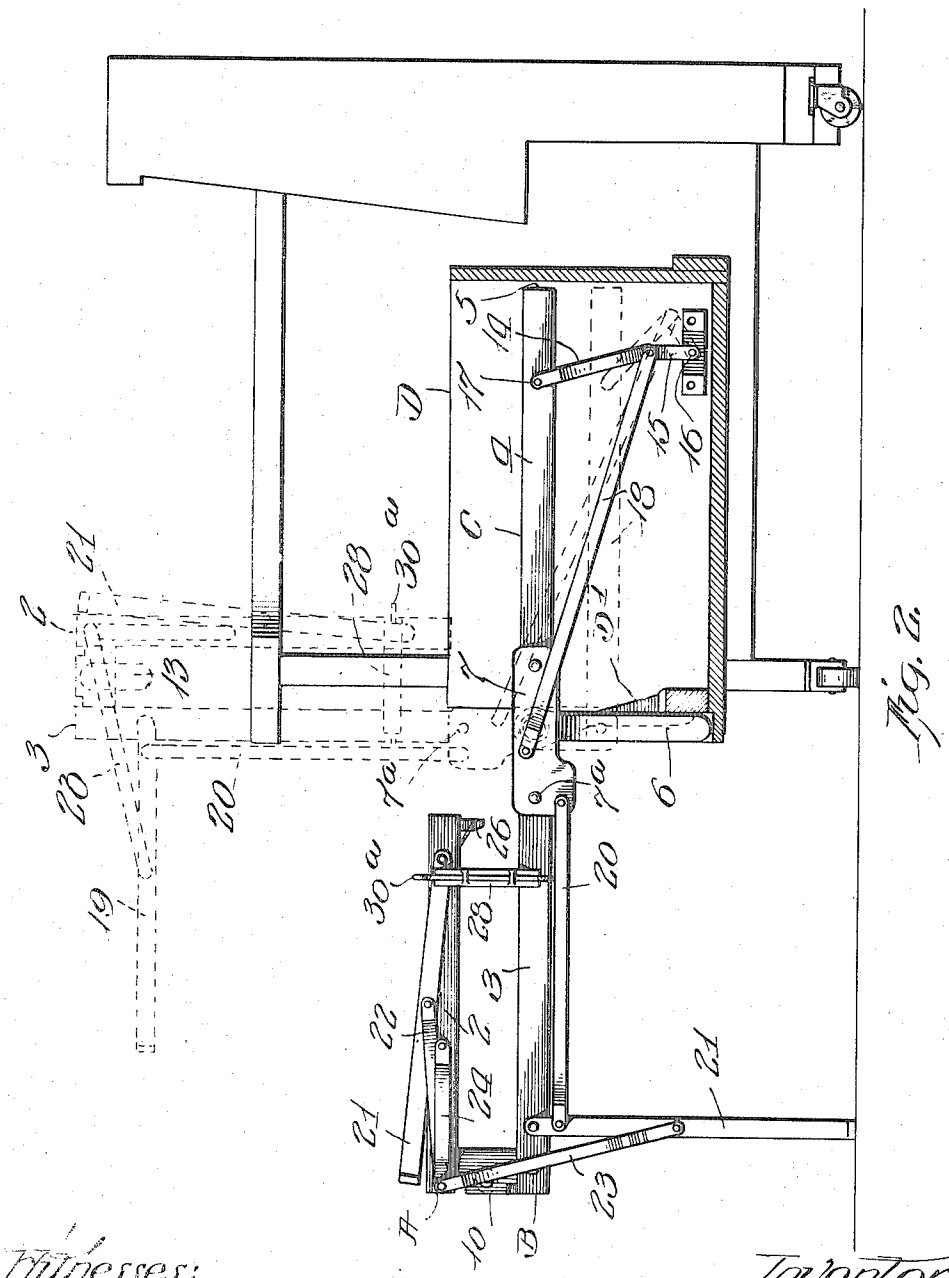


Fig. 2.

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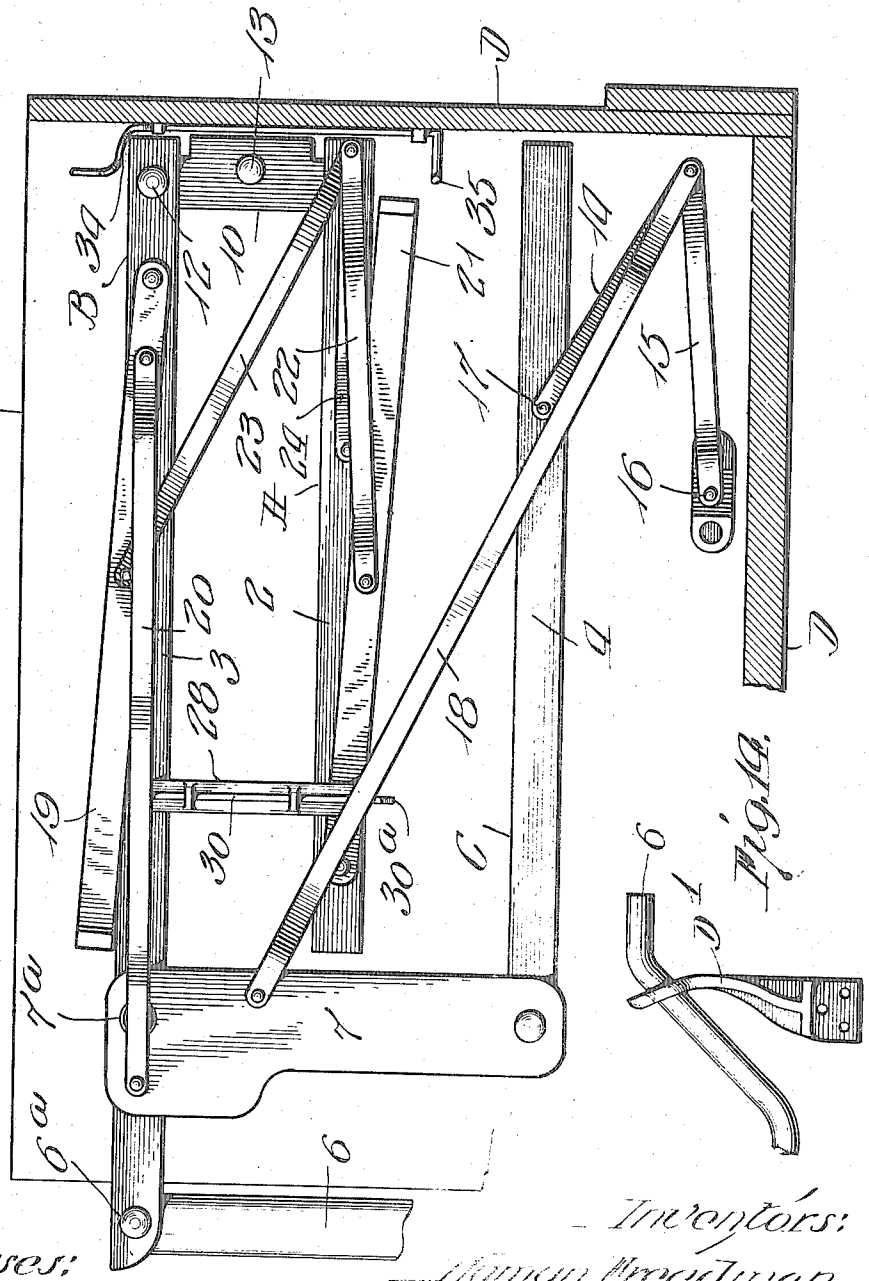


Fig. 3.

Fig. 1a.

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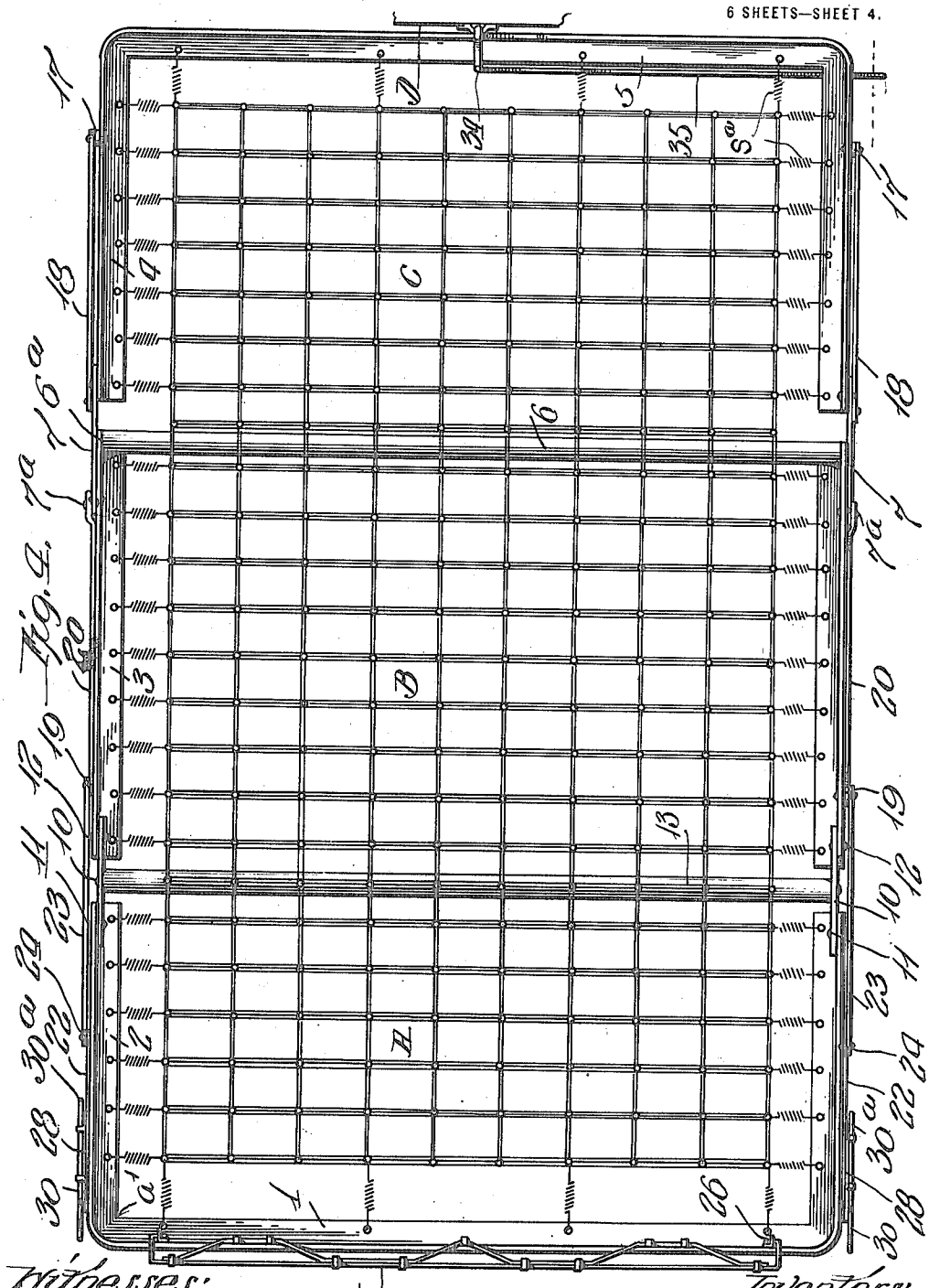
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6 SHEETS—SHEET 4.



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6 SHEETS—SHEET 5.

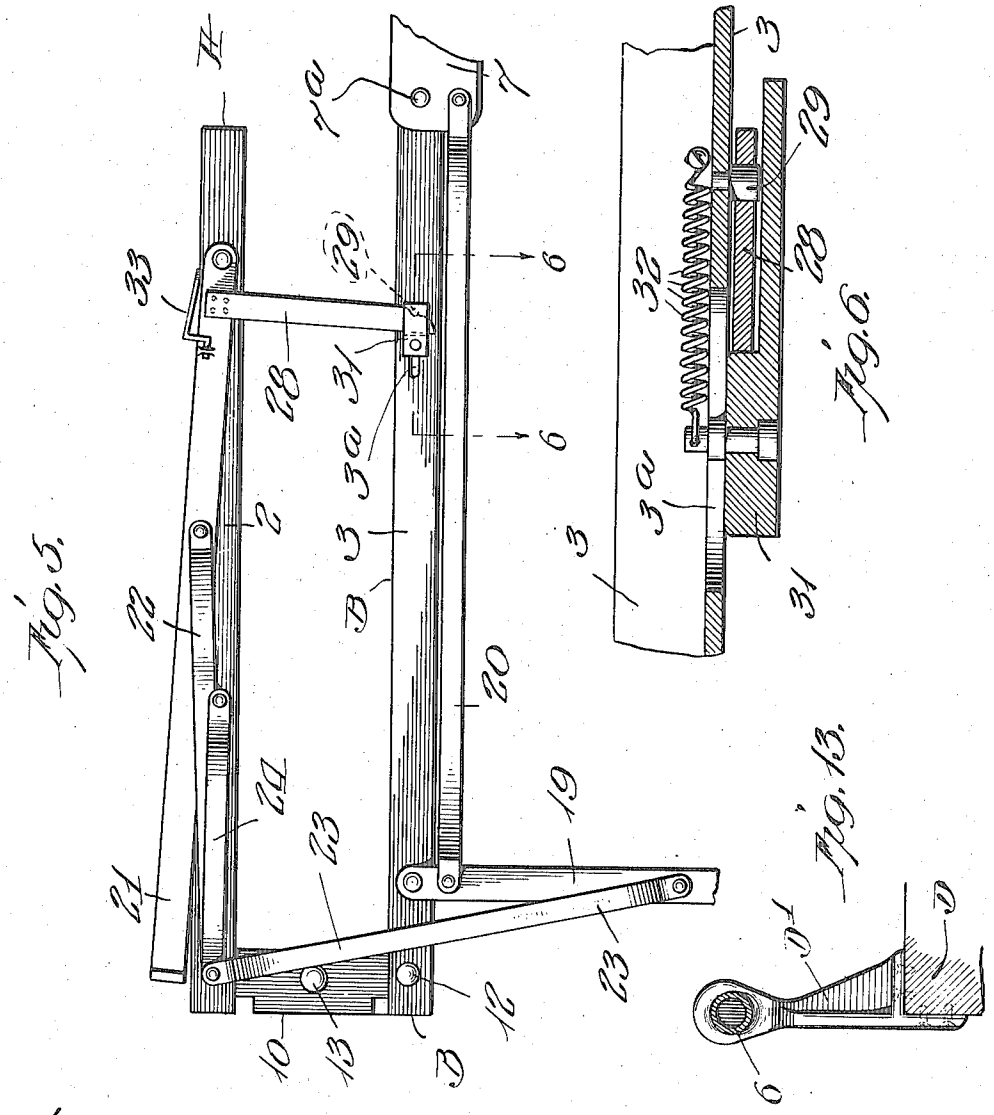


Fig. 5.

Fig. 6.

Fig. 13.

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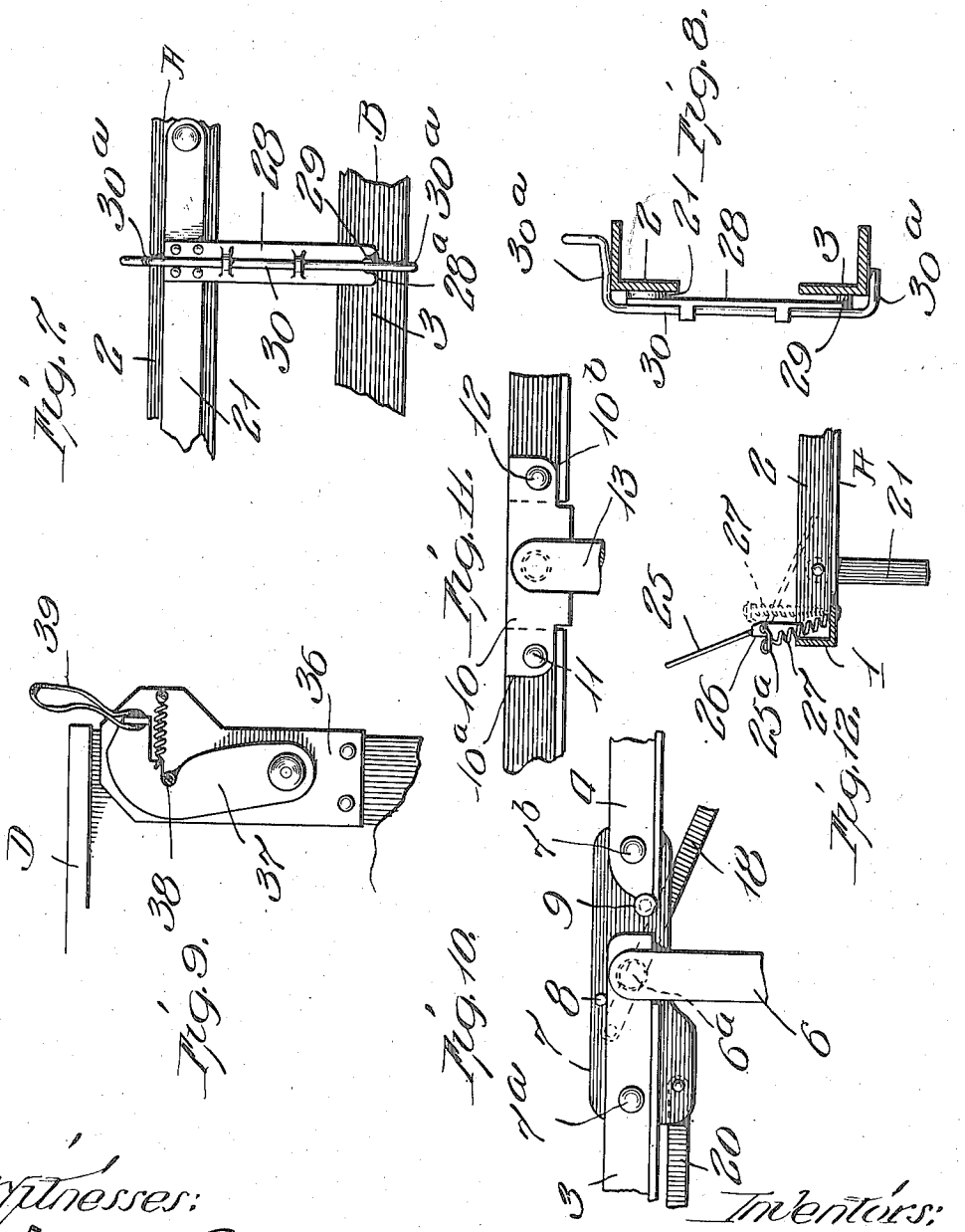
BED STRUCTURE FOR DAVENPORTS.

APPLICATION FILED DEC. 17, 1914.

1,265,073.

Patented May 7, 1918.

6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

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BED STRUCTURE FOR DAVENPORTS.

1,265,073. Specification of Letters Patent. Patented May 7, 1918.

Application filed December 17, 1914. Serial No. 877,681.

To all whom it may concern:

Be it known that we, HYMAN FREEDMAN and NATHAN M. FREEDMAN, citizens of the United States, and residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bed Structures for Davenports, of which the following is a specification.

Our present invention has special reference to the structure for davenport beds and the manner of the assembly of the bed structure with the davenport The bed structure must be capable of folding within the seat portion of the davenport when the same is closed, and when folded should provide sufficient room intermediate the respective sections for effectively accommodating the desired bedding, and

The special objects of our present invention are to perfect the instrumentalities by means of which the folding and unfolding of the sections may be effected so as to secure a stronger and more rigid structure in both open and closed positions, so as to perfect its ease of operation and so as to simplify its manufacture and economize its cost.

Another object of our invention is the provision of automatically operable legs, simple in structure and operation, which will support the outer ends of their respective spring sections when the same are in their extended or unfolded positions, said legs being adapted to fold back adjacent and substantially parallel to their respective sections when the same are in their closed or folded positions.

Still another object of our invention is the provision of such a folding bed structure with a foot-rest or bracket, which may be folded down upon the mattress and bedding for the purpose of holding the same in position when not in use.

A further object is the provision of simple means, whereby the outer extending section of spring when folded upon the intermediate section, will be positively spaced therefrom and locked in substantially parallel relation thereto, and that when the two sections so locked are folded upon the third or rear section of spring, the same will again lock and will be spaced from and in substantially parallel relation to the third or rear section, and the several sections so folded will be held positively within the body of the seat portion of the davenport, prior to and during the revolving thereof.

A still further object of our invention is the provision of means for the positive locking of the rotatable seat portion of the davenport to the rigid back and ends thereof during the process of folding or unfolding of the bed sections and after the revolving of the seat portion to form the seat for the davenport.

We attain the above objects by the structure illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the complete bed structure, the start of the first fold of the outer section being shown in dotted lines, the seat portion of the davenport being shown in section, and the side and stationary arms being partially shown.

Fig. 2 is a view similar to Fig. 1, showing the completion of the first fold, and the commencement of the second fold in dotted lines.

Fig. 3 is an enlarged detail showing the completion of the second fold and the sections of spring in their complete folded and positive locked position within the seat structure.

Fig. 4 is a top plan view of the three complete spring sections in their unfolded or extended positions.

Fig. 5 is a side elevation of the outer section of spring shown folded back upon the intermediate section, and being locked in place by a modified form of automatic lock.

Fig. 6 is an enlarged longitudinal central sectional view taken through the modified form of lock 6—6 of Fig. 5.

Fig. 7 is a detail in front elevation of our preferred form of lock for positively locking the outer section of spring upon the intermediate section, and spacing same in substantially parallel relation thereto.

Fig. 8 is a detail of the lock shown in Fig. 7 taken at right angles thereto.

Fig. 9 is a side elevation of the lock employed in locking the revolving seat portion of the davenport to the side and stationary arms thereof after the springs have been compressed and the seat revolved to the position required by it to form a davenport.

Fig. 10 is an enlarged detail of the hinging link connecting the rear end of the in-

termediate section to the forward end of the rear section.

Fig. 11 is an enlarged detail of the hinging link connecting the rear of the front section to the front of the intermediate section.

Fig. 12 is an enlarged detail of the foot rest shown up or in its open position and folded down in dotted lines.

Fig. 13 is an elevation of a bracket, two of which are employed in securing the standard to the seat structure; and

Fig. 14 is an elevation of the bracket shown in Fig. 13, at right angles thereto, shown in assembly with one end of the standard.

Similar reference characters refer respectively to similar parts throughout the several views.

Our improved bed structure comprises three mattress sections, namely, an outer section "A," an intermediate section "B," and a rear section "C," the latter being suitably supported within the seat portion "D" of a davenport bed, as will hereinafter be more fully set forth.

The outer section "A" comprises a single end rail 1, being bent back at right angles to itself at each of its ends, to form side rails 2—2. This rail is preferably made from L-section angle-iron, with one flange or web thereof disposed horizontally and extending inside of the frame, the other flange or web extending vertically as shown and to make the bends at the juncture of the end and side rails, the horizontal flange is notched, as at a^1. The intermediate section "B" is comprised of two side rails 3—3 of angle-iron of similar cross-section to the angle-iron of the outer section, and the rear section "C" of the spring is constructed similar to the forward section "A," having its two side rails 4—4 corresponding to the side rails 2—2, and its head rail 5, corresponding to the foot rail 1. These three sections are hinged together, as will be described, and stretched between the members constituting the frame, namely 1, 2—2, 3—3, 4—4, and 5, is a suitable wire fabric or mesh S held to the frame through the instrumentalities of the helices S^a.

The bed structure as a unit is secured to the seat of the davenport by means of a stardard comprising a longitudinally disposed brace 6, adapted to lie adjacent the seat structure D of the davenport and to extend transversely thereof, said brace 6 being bent upward at its ends (Fig. 14) and then back parallel to itself and being rigidly secured to the seat structure by means of brackets D^1 (Figs. 13 and 14) secured to said seat structure and supporting said brace 6 at its inclined ends. At the opposite ends of said brace and by means of pintles 6^a—6^a, are pivotally mounted the rear ends of the side rails 3—3 of the intermediate section, the horizontal flanges thereof being cut away at their ends to permit the standards to come upon the inner surface of the vertical flanges, as shown in detail in Fig. 10 of the drawings.

To the vertical flanges just referred to, and just in front of their pivotal connection 6^a, are pivoted hinge-plates 7—7, by means of suitable pintles 7^a—7^a, said plates being sufficiently long to extend rearward beyond the connection between the rails 3—3 and the brace 6, and to this end and in line with the pintles just described, is pivoted at 7^b—7^b the forward ends of the side rails 4—4 of the rear section C.

Stops 8—8 are provided on the inner face of and in the upper part of the plates 7—7 to contact with the rails 3—3 when the rails have been swung to their fully open position, and headed pins 9—9 are provided upon the inner ends of the plates under the heads of which the vertical flanges of the forward ends of the rails 4—4 extend, these pins 9—9, coöperate with the pivotal connection between the hinge plates and the rails, to resist the pull or tension of the wire fabric and also to form a double bearing for the rails 4—4.

The pivotal connections between the outer frame A, and the intermediate frame B, consist of links or plates 10, (Fig. 11) the ends 10^a of which are at right angles to the tops thereof, and have their lower corners 10^b, rounded, said rounded corners being adapted to permit the horizontal flanges of the said rails to swing about the pivotal connection. These plates extend between the rear ends of the rails 2—2 and the forward ends of the rails 3—3 and are pivotally bolted thereto at 11 and 12 as shown, and midway between the pivotal points, is loosely mounted or journaled a cross-bar or rod 13, adapted to act as a brace and spacer for retaining a uniform distance between the pivot plates 10—10, and adding to the rigidity of the structure as a unit.

To positively support and secure the necessary movement of the rear section "C," we provide a toggle comprising the links 14—15, pivoted together at one end, the other ends of which are respectively pivoted at 16 and 17 to the seat structure of the davenport and the rear of the end rails 4—4. Running from its pivoted connection between the links to a suitable point on the hinge-plate 7, is pivoted a link 18.

For the purpose of supporting the outer end of the intermediate section "B," when in open or extended position, we pivot to the forward ends of the end rails 3—3, legs 19. and just below this pivotal connection, and to said leg, is pivoted a link, 20, the other end of which is pivoted to the forward depending end of the plate 7. For the pur-

pose of supporting the outer end of the outer section "A," when in a like extended position, we provide similar legs 21—21, pivoted to the forward ends of the end rails 2—2; and at a point below this connection, and to said leg, is pivoted a link 22, forming one end of a toggle, the opposite end thereof, consisting of a link 24, is pivoted to approximately the center of the end rail 2 as shown; and running from the pivotal connection between the links 22—24 to a suitable point on the leg 19 to impart the necessary movement to the toggle, is a link 23.

Substantially parallel to the end rail 1, of the outer bed section "A" is a head or foot rest, comprising a suitably braced U-shaped wire member 25, secured and journaled to pieces of angle iron 26—26, riveted to the rail 1, in (Fig. 12) one end of the U-shaped member 25, being bent at substantially right angles to the plane thereof, and to this end 25^a is secured one end of a coiled spring 27, the other end of which is connected with the horizontal flange of the rail 1.

It will be seen that when the foot brace or member 25 (just described) is extended, the spring will hold the same in extended position, and that when closed, the right-angled arm 25^a of the member 25 will be carried across the dead center, and will therefore hold the foot member in closed position, so as to hold the bedding in position during the folding of the bed section.

It will now be apparent from the foregoing detailed description of the bed sections, together with their manner of connection, and with reference to Fig. 1 of the drawings, that as the folding operation is commenced, the section A, first pivots at 11, as shown in dotted lines in Fig. 1, the link 23 breaking the toggle 22—24, and causing the legs 21, to commence their fold. After reaching this position, the ends 10^a of the links 10, abut against the horizontal flanges of the rails 2—2, and cause the hinge or plate members 10, to pivot at 12 on the rails 3—3, thus forming a square bend as shown completed in Fig. 2, the legs 21, being folded back substantially parallel to the side rails 2—2, together with the links 22 and 24. By this construction, the initial folding movement of the forward section causes immediate sharp turning or folding movement of the leg 21, instead of a very slow initial folding movement such as would be produced if the leg were controlled by a link extending from the leg to one of the sections.

In order to hold the free end of section A in spaced relation to the section B, and the section itself in substantially parallel relation to the intermediate section, we provide spacing arms or brackets 28—28, riveted to the legs 21, at a point below their pivotal connection with the rails 2, the opposite ends of said brackets being grooved at 28^a and adapted to intercept and rest upon lugs 29, protruding from the outer face of the vertical flanges of the rail 3—3; and in order to lock the said sections A and B in this position, the same being found desirable to facilitate the complete folding of the structure and to assist in the retaining of the bedding in position, we provide a lock comprising a substantially U-shaped bolt 30, the shank of which is adapted to be journaled to the bracket 28, and the ends thereof 30^a adapted to rotate to positions adjacent under and over the respective flanges of the end rails 2 and 3 as clearly shown in detail in Fig. 8.

A modified form of locking device is illustrated in Figs. 5 and 6, the brackets 28, being similarly secured to the legs 21, the protruding ends of said arms, however, being somewhat spear shape in contour, and being notched on one side of the spear-head end to engage the protruding lug 29 on the rail 3. A spring actuated slide plate 31, is slidably mounted on the rail 3 adjacent the lug 29, and normally held in engagement therewith by means of a contraction spring 32, one end of which is secured to the rail, and the other end to the pintle or bearing of the plate 31, which is adapted to extend through and slide within a horizontal slot or guideway 3^a in the rail as shown.

It will be seen with reference to Figs. 5 and 6, that when the head of the arm 28 is closed down upon the sliding member 31, the spear striking the point of contact between the pin 29 and the sliding member 31, said member will be forced back, allowing the head to enter the passage-way thus formed, until the recess on the edge of the spear head engages the pin 29, then due to the action of the spring 32, the arm 28 is yieldingly held in engagement with the pin, and until a slight upward pull is exerted by the operator upon either the rails 2, or preferably upon a convenient form of handle such as shown at 33, the two sections will remain firmly locked.

After locking the sections A—B as described, the structure thus formed is raised at its outer end, pivoting on the bolt 6^a of the brace 6, to the position shown in dotted lines in Fig. 2, and after reaching this position, the sections just referred to pivot again, and this time upon the bolt 7^a, of the plate 7, dropping down within the seat structure D and adjacent the rear section C and substantially parallel thereto, as clearly shown in Fig. 3, the legs 19, folding up adjacent and substantially parallel to the rails 3—3. The rear section C is also dropped due to the action of the plate 7 and the toggle joint 14—15, this last action, however, is more

fully described and claimed in our prior application filed May 25, 1914, Serial Number 840,661.

When the three sections are thus folded, they are locked within the seat structure by a U-shaped bolt 34, (Fig. 3) somewhat similar to the bolt 30, which is journaled to the seat structure, and has its top adapted to extend over the horizontal flange of the section B, as shown, and its lower end being pivoted to a transverse slidable rod 35 (Fig. 4) the other end of which is adapted to enter a recess in the wall or stationary portion of the davenport, when the lock is open, for the purpose of locking it against the further rotation of the seat structure. The bolt 35 when the springs are folded and locked is withdrawn from engagement with the seat structure.

After the final folding and locking of the bed sections and the unlocking of the seat structure from the frame of the davenport, as just described, the seat structure is revolved upon a system of pivots and levers, preferably as described and claimed in our application filed June 19, 1912, Serial No. 704,493, and which we do not deem it necessary to either describe or again claim in connection with our present application. However, after the revolving of the seat structure to form a seat for a davenport, the same is locked in this position from further rotation by means of a spring lock as shown in Fig. 9, consisting of a back plate 36, adapted to be fastened to the upper rear corner of the rotating seat, said plate supporting a catch or spring actuated engaging pawl 37, adapted to engage a pin 38 secured to and protruding from the side arm of the stationary portion of the davenport, and said pawl being adapted to be drawn out of engagement with the pin and against the tension of the spring by means of a suitable preferably flexible handle 39, adapted to pass up from behind the seat structure and in front of the upholstery of the back of the davenport, and to be accessible but not conspicuous.

It will now be apparent from the foregoing specification that we have provided a bed structure comprising a three section mattress employed in the construction of a davenport bed, embodying two sections adapted to fold upon themselves and then as a unit to be folded upon the third section, at all times allowing sufficient room for the necessary bedding, and providing ample means for making it a complete rigid structure, simple in operation and positive in its movements.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A bed structure for davenports, comprising standards adapted to be mounted upon the seat structure of the davenport, a mattress frame comprising three sections, each section consisting of two side rails, and the forward and rear sections each having an end rail substantially integral or unitary with their side rails, pivotal connections between the rear ends of the side rails of the intermediate section and said standards, hinge-plates, one end of each being pivotally secured to the side rails of said last mentioned section mediate its ends, pivotal connections between the forward ends of the side rails of the rear section and the ends of aforesaid hinge-plates opposite to those above mentioned, spacing plates, one of the ends of each respectively being pivoted to the forward ends of the side rails of the intermediate section and their opposite ends being pivoted to the rear ends of the side rails of the forward section, means for supporting the outer end of the intermediate section when in extended position, the same being folded adjacent the side rails of said section when folded, said means being operable by relative movement of the hinge-plates and intermediate sections, and means for supporting the outer end of the forward section when in extended position, the same being folded adjacent the side rails of said section when folded, said means being operable through the combined instrumentalities of the first mentioned supporting means and the side rails of the forward section.

2. A bed structure for davenports and the like comprising a mattress frame of three sections, pivotal connecting means between the forward and intermediate sections, pivotal connecting means between the intermediate and rear sections, said last-mentioned connecting means comprising hinge-plates, the forward ends whereof are pivoted to said intermediate section mediate its front and rear ends, and the rear ends whereof are pivoted to the forward end of said rear section, means for pivoting the said intermediate section to the frame of the davenport at a point in the rear of its pivotal connection with said hinge-plate, means for supporting said intermediate section when in its extended position, means for supporting said forward section when in its extended position, said first-mentioned supporting means being operable by relative movement of said hinge-plates and intermediate section, and said last-mentioned supporting means being operable through the combined instrumentalities of said first-mentioned supporting means and the side rails of the forward mattress section.

3. A device of the class described, comprising a pair of bed sections turnably connected or hinged together in spaced relation for folding with the bedding in made up form, one being relatively stationary and the other being swingable thereon for folding

and unfolding, the first mentioned section having leg means adjacent to its hinge edge, and foldable against said section, and said other section having folding leg means adjacent to its outer edge, and foldable jointed control means therefor connecting medial parts of the first and last mentioned leg means and adapted to pull the latter inward to fold and to push the same outward to unfold, and being also adapted to permit the folding of the first mentioned leg means.

4. A foldable sectional mattress frame adapted to fold with the bedding thereon in made up form, comprising a pair of sections turnably connected or hinged together, hinge means therefor including a pair of spacing members or links the ends of which are connected pivotally to said sections, supporting means whereon the remote edge of one of said sections is swingingly mounted, a leg turnably connected to said section adjacent to said hinge means, automatic link means for folding and unfolding said leg in accordance with the movement of said section with respect to said supporting means, a leg turnably connected to the remote edge of the other section, and jointed link control means therefor turnably connected both to the first mentioned leg and to said other section, whereby all of said legs may be folded and unfolded automatically in folding and unfolding said mattress frame.

5. A bed bottom, comprising a pair of foldably connected sections, one being stationary when the other is turnably folded and unfolded with respect thereto, legs for said sections, a pair of links having their adjacent ends hinged together and having their opposite ends turnably connected to medial parts of said legs, and a link connected at one end to said links adjacent to their common pivot and turnably connected at its opposite end to the swinging section.

6. A device of the class described, comprising a pair of bed sections turnably connected or hinged together, one being relatively stationary and the other being swingable thereon for folding and unfolding, the first mentioned section having leg means adjacent to its hinge edge, and said other section having folding leg means adjacent to its outer edge and leg folding control means therefor connecting medial parts of the first and last mentioned leg means, said control means including a pair of permanently connected positively operating links disposed pivotally in parallelogram relation to the last mentioned section and its said supporting means for all positions of the sections.

In testimony whereof, we have hereunto set our hands and seals, this 30 day of November, 1914.

HYMAN FREEDMAN. [L. S.]
NATHAN M. FREEDMAN. [L. S.]

Witnesses:
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WM. HAROLD EICHELMAN.