S. RUSNAK.

SOFA OR DAVENPORT AND BED.

APPLICATION FILED NOV. 14, 1913.

1,105,928.

Patented Aug. 4, 1914.

4 SHEETS—SHEET 1.

Fig. 8

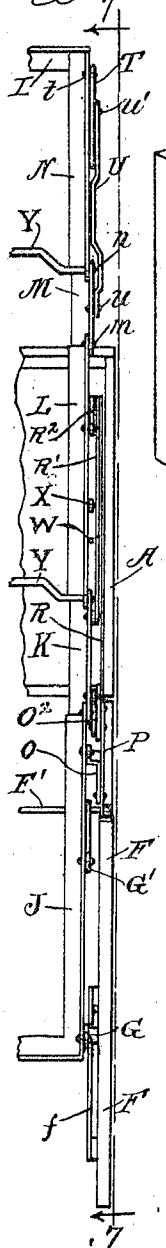


Fig. 1.

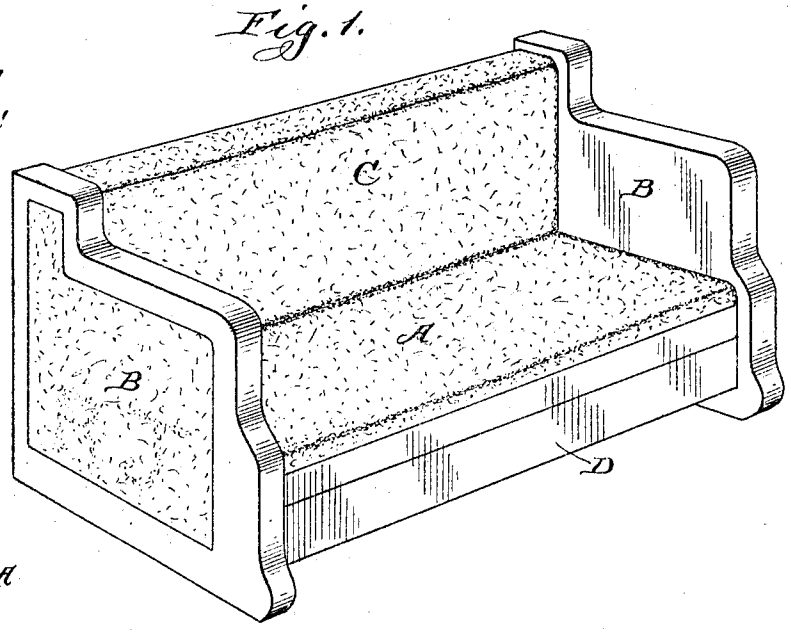


Fig. 9.

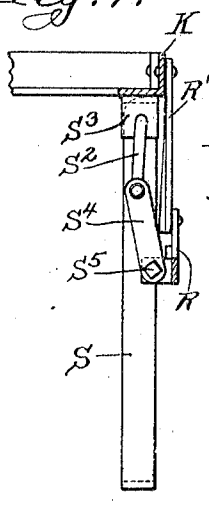


Fig. 11.

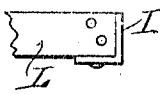
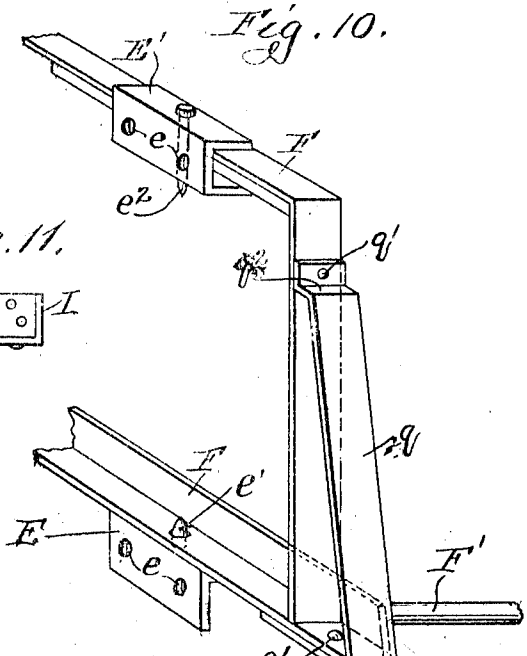


Fig. 10.



Witnesses:

R. J. Jacker

Chas. B. Hebner

Inventor:

Samuel Rusnak,

By Charles Turner Brown Atty.

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4 SHEETS—SHEET 2.

Fig. 3.

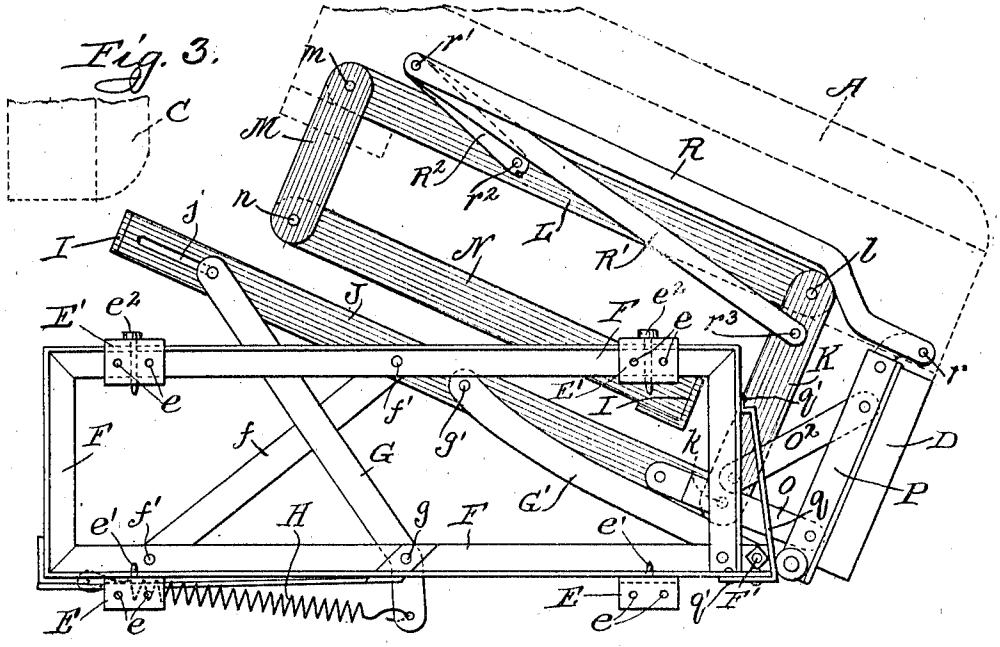
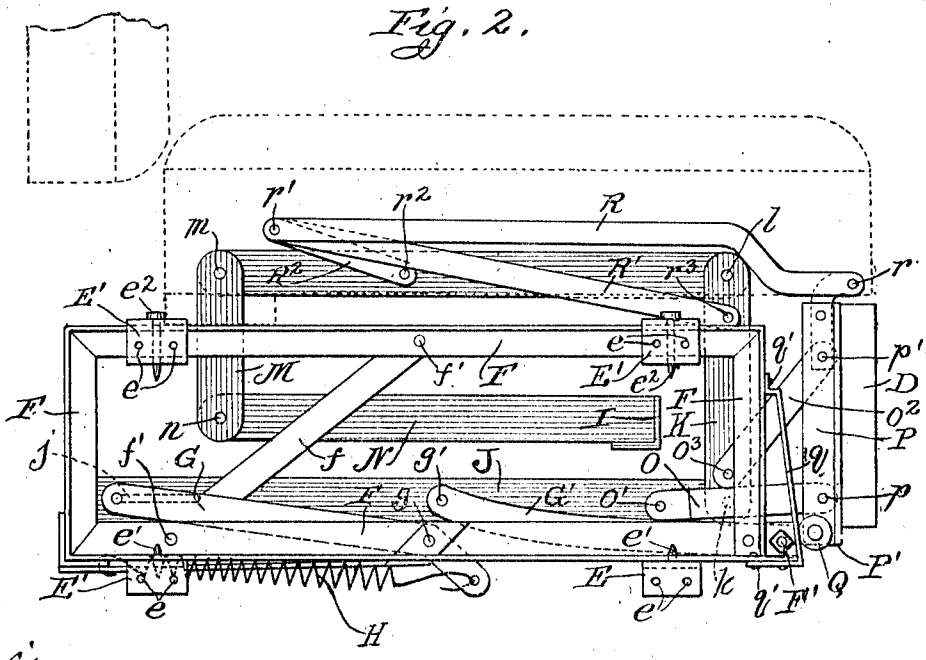


Fig. 2.



Witnesses:

R. J. Jacker

Charles B. Hebron

Inventor:

Samuel Rusnak

By Charles Turner Brown,

Atty.

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4 SHEETS—SHEET 3.

Fig. 5.

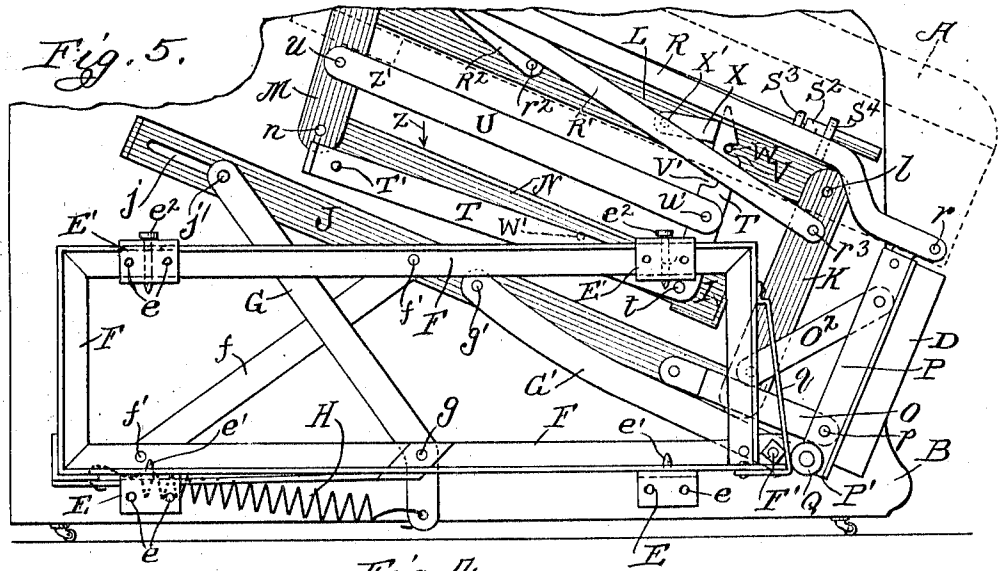
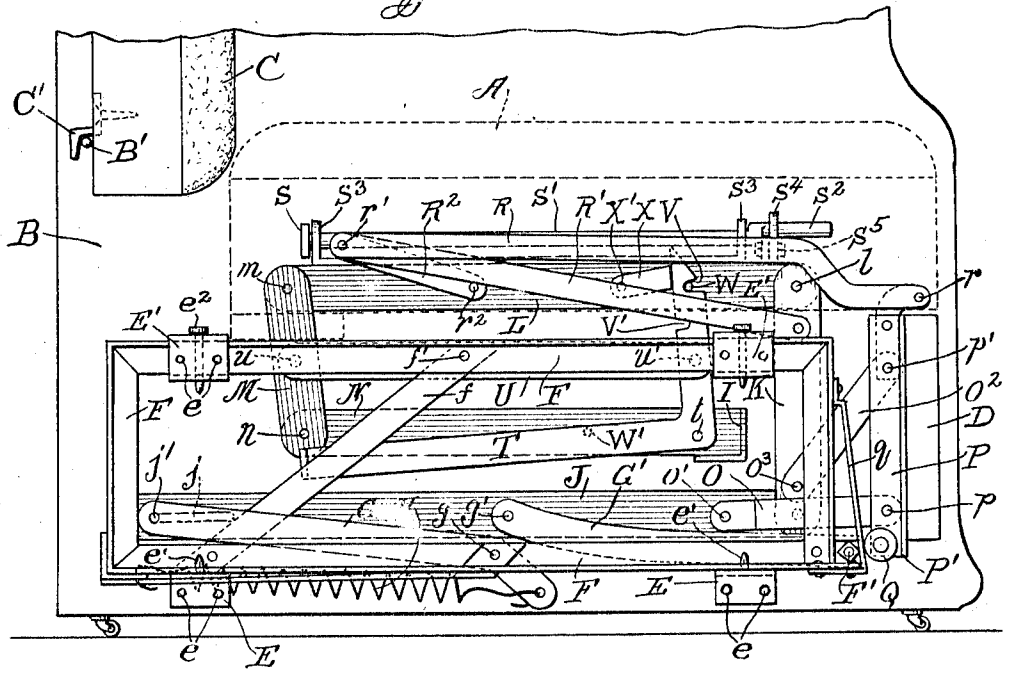


Fig. 4.



Witnesses:
R. J. Jacks
Charles B. Hebron

Inventor:
Samuel Rusnak,
By Charles Turner Brown,
Atty.

S. RUSNAK.

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4 SHEETS—SHEET 4.

Fig. 6.

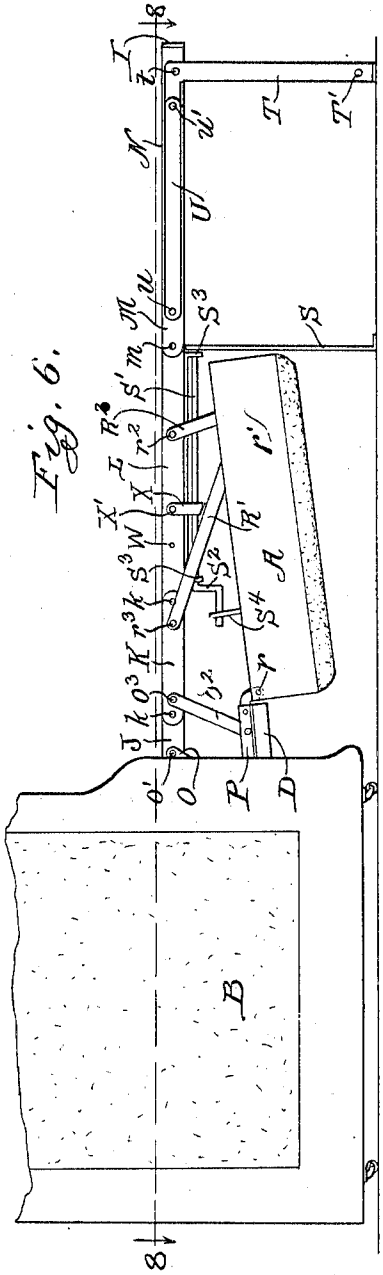
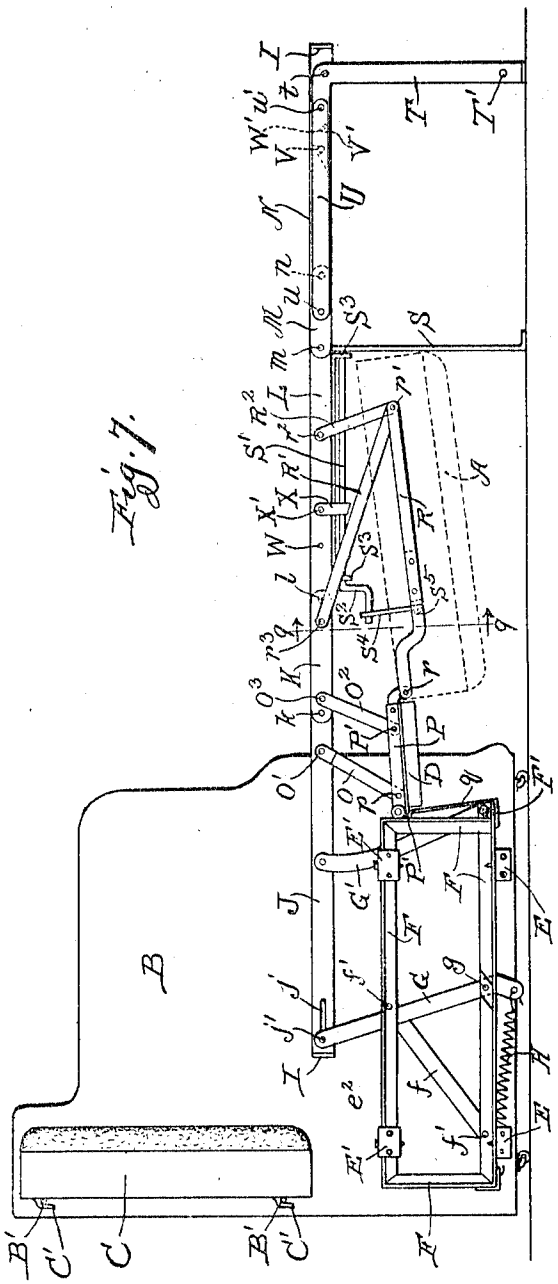


Fig. 7.



Witnesses:
R. J. Jacker
Charles B. Hebron

Inventor:
Samuel Rusnak,
By Charles Turner Brown,
Atty.

UNITED STATES PATENT OFFICE.

SAMUEL RUSNAK, OF CHICAGO, ILLINOIS.

SOFA OR DAVENPORT AND BED.

1,105,928. Specification of Letters Patent. Patented Aug. 4, 1914.

Application filed November 14, 1913. Serial No. 800,953.

To all whom it may concern:

Be it known that I, SAMUEL RUSNAK, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sofas or Davenports and Beds, of which the following is a specification.

This invention relates to household furniture, and specifically to a device which can be converted from a sofa, or davenport to a bed, and back again to a sofa or a davenport.

Among the objects of this invention should be included, to obtain a device which, when folded, presents the appearance of a sofa, or a davenport, with no observable indication that it can be made into a bed; and when opened presents a firm and rigid spring bed frame, properly supported, and provided with a spring mattress, and sufficiently large to be occupied by two persons, like an ordinary bed.

A further object is to obtain a device which has no parts or pieces separable from the remainder of the device, and no parts or pieces which it is necessary to dispose of or to move into a given position before said device can be converted from one of its forms to the other thereof.

A further object is to obtain a device wherein room is provided for a mattress and bed clothes, and no determined or required disposition of the same is required before the conversion of the device from one of its forms to the other of said forms can be effected.

Additional objects are disclosed in this specification and in the claims.

In the drawings accompanying and forming a part hereof Figure 1 is a perspective of a sofa or davenport bed embodying this invention, with the several parts thereof folded to obtain a sofa or davenport. Fig. 2 is a side elevation of the bed frame of the device removed from the sofa or davenport frame, with the several parts which are illustrated in a folded position, the legs of said bed frame and the levers which automatically operate said legs not being shown, and the back and seat of said sofa or davenport frame being indicated by broken lines. Fig. 3 is a side elevation of the several parts which are illustrated in Fig. 2, the bed frame which is formed by said parts being partially opened. Fig. 4 is a side elevation of the device with the legs and operating levers thereof shown, the device being closed or folded together. Fig. 5 is a side elevation of the device in a partially opened position. Fig. 6 is a side elevation of a portion of the sofa or davenport frame and a side elevation of the bed frame, opened. Fig. 7 is a vertical section of the bed frame, in an opened position, on line 7—7 of Fig. 8, viewed in the direction indicated by the arrows. Fig. 8 is a top plan view of one of the sides of the bed frame, in an opened position. Fig. 9 is a vertical section on line 9—9 of Fig. 7, viewed in the direction indicated by the arrows. And Fig. 10 is a perspective of a part of one end of one of the sides of the bed frame, and of the element which is attached to the sofa or davenport frame, to form the means of attachment of said bed frame to said sofa or davenport frame. Fig. 11 is a side elevation of a modified construction of one end of one of the collapsible rails of the bed frame of the device.

In the furniture trade the distance between the arms of the construction which is illustrated in Fig. 1, (including said arms) is called the length of the davenport or sofa; and when the distance between said arms is substantially equal to the length of the bed frame which is obtainable by opening up the movable parts of the device it is termed a davenport bed; and when said distance is substantially equal to the width of the bed frame which is obtainable it is termed a sofa bed.

In a construction embodying the smallest number of the elements hereinafter set forth which will obtain an operative device a davenport bed is obtained, and said davenport bed comprises a davenport frame and a bed spring frame, (hereinafter termed a bed frame). In a construction embodying all the elements hereinafter set forth a sofa bed is obtained; and said sofa bed comprises a sofa frame, constructed in the same way and containing all the elements of the davenport frame; and a bed frame, which contains all the elements of the davenport bed frame and additional elements which are hereinafter set forth and described.

A is the seat of the sofa or davenport frame; B are the ends, C is the back, and D the front rail of said frame. B^1 are abutments which are rigidly secured to ends B, (Figs. 4 and 7) and C^1 are abutments which are secured to back C. Abutments B^1 and

C^1 are engageable. Ends B are positioned and back C is firmly secured in place between said ends by the engagement of abutments B^1 and C^1. Seat A and rail D are secured to suitable elements of the bed frame, and are movable; while ends B and back C are immovable.

E is a piece of angle iron which is attached by screws *e* to end B, (see Fig. 10). Duplicate pieces E are attached to each of the ends B.

E^1 are U-shaped pieces of sheet metal which are attached to ends B, by like screws *e*.

e^1 are pins or abutments secured in the horizontal members of angle iron E, and e^2 are bolts or pins which fit in apertures provided therefor in the horizontal members of U-shaped piece E^1.

F is a rectangular frame made of angle iron.

f is a strip of metal which is attached to angle iron frame F by means of rivets f^1. Said strip *f* forms a brace which tends to hold frame F rectangular, and also serves to control and limit the movement of lever G. Lever G is pivoted at *g* to frame F. Frame F, braced as described by strip *f*, forms the base on which the movable parts of the bed frame are pivotally mounted. There are two of said frames, one on each of the ends B, and they are rights and lefts. The attachment of said frames F to said ends B is obtained by merely providing holes in the horizontal tables or webs of the horizontal members of said frame into which holes the pins or abutments *e* and pins or bolts e^2 respectively fit. The bottom horizontal member of the frame F extends beyond the forward vertical member of said frame, as is well illustrated in Fig. 1, (also so shown in Figs. 2, 3, 5, 7 and 8), and F^1 is a rod which is rigidly attached, at its ends, to frame F by means of said extended or prolonged bottom member. When the frames F are attached to ends B in the manner hereinbefore described, and said frames are attached together by rod F^1, the ends B are also held rigidly in position at the front ends thereof by said rod F^1.

G^1 are levers which are pivotally mounted on said rod F^1, immediately adjacent to frames F.

H is a spring which is attached, at one of its ends, to frame F and at its other end to lever G, tending to hold said lever in the position in which it is illustrated in Fig. 7.

The bed frame of this device consists of a rectangular frame built up of angle iron bars. Two of the sides of said bed frame respectively consist of a single bar (I), which extends the entire length of said side; and two are made up by pivotally attaching together a plurality of pieces of angle iron, to obtain what is termed a collapsible member. There are two collapsible members in the bed frame which are duplicates, except as to being right and left, and a description of one thereof is a description of the other.

J is a piece of angle iron which is provided with slot *j* near one of its ends, and j^1 is a pin or abutment which is rigidly attached to or mounted on the lever G, and movable in said slot *j*.

g^1 is a pivot which connects lever G^1 on to bar J.

K, L, M and N are bars of angle iron which are pivotally attached together and attached to bar J by the pivots *k*, *l*, *m* and *n* and by welding or suitable rivets. The sectional frame formed by said ends I, I, end sections J and N, and central sections K, L, and M, is the bed frame of the device.

O is an arm or lever which is pivotally attached to bar J by pivot O^1 and to bar P by pivot *p*.

O^2 is an arm or lever which is pivotally attached to bar K by pivot O^3 and to bar P by pivot p^1. Bar P is attached to the back of the movable rail D and the position of said movable rail is determined by said arms O and O^2 and bar P.

Q is a roller which is rotatably mounted at one end of bar P, and *q* is a track on which said roller travels. Track *q* is riveted to the front bar of frame F, (see Fig. 10), by rivets q^1. When the device is opened so as to obtain a bed frame the end P^1 of bar P is raised, the roller Q traveling on track *q*, until said roller is above said track, and said end abuts against the front bar of frame F and rests on the step or table q^2 at the upper end of track *q*.

R is a bar which is pivotally attached to bar P by pivot *r*.

R^1, R^2, are arms or levers which are pivotally attached to bars K, and L, respectively, and to bar L. The several pivots of bars R, R^1, and R^2, (in addition to pivot *r*), are r^1, r^2 and r^3. Bar R is secured to the end of seat A, and the position of said bar determines the position of said seat.

S and T, are legs which are, respectively, pivotally mounted on bars L and N. In Figs. 2 and 3 these legs and the connecting bars and levers of leg S, are omitted, to more clearly illustrate the several bars and arms, or levers, which enter into the construction of the collapsible members of the bed frame. It is to be understood, however, that the legs S, rigidly secured to shafts S^1, which are provided with cranks S^2, bearings S^3 (on bar L), connecting S^4 and pivot S^5, are at all times included by me in the construction of a davenport bed or a sofa bed embodying a part or the whole of this invention. When a davenport bed is desired one of the side rails I is rigidly secured to the end of bar L, (adja-

cent to leg S), as is illustrated in Fig. 11, and the bars M and N, bar U and pivots u, u^1, and legs T are omitted, not being required. The bars I are made sufficiently long to form the side rails of the bed frame, when said davenport bed is desired. This omission of the bars M, N, and U, and legs T, and the lengthening of bars I and attaching them to the end of bar L is the only difference in the construction of the bed frame in the building of a davenport bed frame from that of a sofa bed frame.

T^1 is a rod which connects the leg T on one side of the sofa bed frame with the corresponding leg T on the opposite side of said bed frame.

The above described connections of the legs S to the bed frame automatically turn said legs, in a plane at right angles to the plane in which the several bars of the collapsible rails are placed and turn, so that when the bed frame is in a closed position said legs are in the position thereof illustrated in Figs. 4 and 5, and when said bed frame is opened said legs are in the position illustrated in Figs. 6 and 7. Legs T are pivoted to bars N, by pivots t. Bars U are pivotally attached to bars M and N, respectively, by pivots u and u^1.

Legs T are respectively shaped like a bell crank and the shorter members thereof are provided with the notches V and V^1. When the sofa bed frame is closed the notch V engages with the pin or abutment W, on bar L, and when said bed frame is opened the notch V^1 engages with the pin or abutment W^1 on bar N. The engagement of notch V with pin or abutment W holds bars K, L and M folded, that is, in the position in which they are illustrated in Figs. 2, 3, 4 and 5, until pulley Q has traveled up the track q to, or substantially to, the upper end of said track, (as illustrated in said Figs. 3, and 5), and until bar N in place of being underneath bar L is above it. To make it certain that notch V will remain in engagement with said pin or abutment W, as last above described, I attach latch X by pivot X^1 to bar L. In the operation of opening the bed frame it will be found that as said bars K, L, M and N, so joined or latched in a folded position, turn on pivot k the slotted end of bar J is raised by lever G, (by the resiliency of spring H) and said parts assume substantially the position which is illustrated in Figs. 3 and 5. This raising of the slotted end of bar J continues as bars K, L, M and N are still further turned on pivot k, until lever G is in the position thereof which is illustrated in Fig. 7, when further turning of said lever G is arrested by the pin f^1. During the above described operation the pin or abutment j^1 moves back and forth in slot j; and when in said operation the roller Q has traveled to the upper end of track q and off therefrom the bars K, L, M and N will have described an arc of more than ninety degrees, and latch X will have dropped out of engagement with leg T. At this time the rod T^1 can be grasped to turn said legs T on pivot t and bring notch V out of engagement with pin or abutment W. The turning of said legs on pivot t, as last above described, brings notch V^1 into engagement with pin or abutment W^1, and to complete the opening of the bed frame the bar M is turned on pivot m, in the direction indicated by the arrow in Fig. 5, (lettered Z), by arm or lever U, and the bar N is turned on pivot n. This turning of said bars is continued until bars N, M, L, K and J are all in line, or in the same horizontal plane, with seat A and rail D underneath said bars. The several parts are then in the position thereof which is illustrated in Fig. 7.

In closing the bed frame from the position which is illustrated in Fig. 7 the bar U causes the joint or pivotal connection n between bars M and N to break, and arms R and R^1 cause the joint at pivot l to break. Said breaking of said joints will not occur until bars N and L are in substantially parallel planes with bar M at about right angles thereto. Joint n will not break so long as notch V^1 is in engagement with pin or abutment W^1, hence the joint formed by pivot m will first be broken. After joint l is broken, in the closing of the bed frame, the joint k will be broken, by arm O^2. During the operation of opening the bed frame, as above described, the legs S will be automatically turned by the turning of shaft S^1 in bearings S^2, by means of connection S^4.

Y are spanner rods extending from one side of the bed frame to the other side thereof.

I claim;—

1. A bed frame having four sides, two of said sides parallel and consisting of a single piece, and the remaining two parallel and respectively forming a collapsible side consisting of a plurality of pieces pivotally attached together and attached to the single piece sides, spanner bars connecting said collapsible sides, one of the end bars of the collapsible sides provided with a slot, in combination with frames arranged to form the base of said bed frame, levers pivotally attached to said frames of said base, one of said levers provided with a pin which is movable in said slot in said end bar, and the other of said levers pivotally attached to said slotted end bar.

2. A bed frame having four sides, two of said sides parallel and consisting of a single piece and the remaining sides parallel and respectively consisting of a plurality of bars to form a collapsible side, the bar at

one end of each side of said frame provided with a slot, spanner bars connecting said collapsible sides, in combination with frames arranged to form the base of said bed frame, levers pivotally attached to said frames of said base, one of said levers provided with a pin which is movable in said slot in said end bar, and a spring attached to said last named lever and to said frame of said base, and the other of said levers pivotally attached to said slotted end bar.

3. In a sofa or davenport and bed, a frame consisting of a back and separable ends, abutments secured to said ends, and additional U-shaped abutments also secured to said ends, said U-shaped abutments provided with apertures therethrough, in combination with additional frames adapted to form the base of a movable bed frame, said additional frames respectively provided with horizontal members, and said members provided with apertures therethrough, the apertures on the lower horizontal members adapted to register and fit over the abutments on said ends, and the apertures in said upper horizontal member adapted to register with the apertures in said U-shaped abutments, and pins fitting in said registered apertures.

4. A collapsible bed frame having four sides, two of said sides parallel and consisting of a plurality of bars pivotally attached together, with the end bars at one end of said sides provided with slots, in combination with a base consisting of frames, levers pivotally attached to said last named frames, one of said levers pivotally attached to said slotted end bars, pins on the remaining levers movable in said slots, and springs attached to said base frames and to said levers having said pins thereon.

5. A collapsible bed frame having four sides, two of said sides parallel and consisting of a plurality of bars pivotally attached together, with the end bars at one end of said sides provided with slots, arms pivotally attached to said slotted end bars, and arms pivotally attached to the bars adjacent to said slotted end bars, in combination with bars pivotally attached to said arms, a rail attached to said last named bars, a base, levers pivoted on said base, springs attached to said base and to said levers, pins on said levers movable in said slots, and additional levers pivotally attached to said base and to said slotted end bars.

6. A frame comprising a back, separable ends and a movable seat, and a bed frame base attachable to said ends, in combination with a bed frame having four sides, two of said sides collapsible and consisting of a plurality of bars pivotally attached together, means to pivotally attach the bars at one end of said collapsible sides to said base. bars additional to the bars forming elements in said collapsible sides, means to attach said additional bars to the ends of said seat, arms pivoted on a fulcrum on the ends of said seat, said fulcrum being common to both said arms, and means to pivotally attach said arms to bars forming elements in said collapsible sides.

7. A frame comprising a back, ends separable from said back, a movable seat and a movable rail, and a bed frame base attachable to said ends, in combination with a bed frame having four sides, two of said sides collapsible and consisting of a plurality of bars pivotally attached together, means to attach the bars at one end of said collapsible sides to said base, bars additional to the bars forming elements in said collapsible sides, means to attach said seat and said rail to said additional bars, arms pivotally attached to the bars on the movable rail and to bars forming elements of said collapsible sides, two of said arms which are attached to said seat having a common fulcrum at the end of said seat, and said last named arms pivotally attached to bars forming elements in said collapsible sides.

8. A bed frame base attachable to a sofa and davenport frame, a track at the forward end of said base, and a horizontal table at the upper end of said track, in combination with a bed frame comprising two collapsible sides consisting of bars pivotally attached together, and movably attached to said base, additional bars, arms pivotally attached to said additional bars and to pivoted bars of said collapsible sides, a wheel on the end of said additional bar arranged to travel on said track in the opening and closing of said bed frame, and said additional bar arranged to rest on said table and abut against said forward end of said base, when said bed frame is open.

9. A bed frame base, a track at the forward end of said base and a table at the upper end of said track, in combination with a bed frame comprising two parallel collapsible sides, and a plurality of spanner bars joined to said collapsible sides, means to movably attach said bed frame to said base, additional bars, arms pivotally attached to said additional bars and to bars of said collapsible sides, wheels on one of the ends of said additional bars, said wheels arranged to travel on said tracks in the opening and closing of said bed frame, and said additional bars arranged to abut against the forward end of said base and to rest on said table when said bed frame is open, and legs movably attached to said collapsible sides.

10. A bed frame comprising collapsible sides respectively consisting of bars pivotally attached together, pivoted arms, and additional bars pivotally attached together and to said first named pivoted bars by said

pivoted arms, in combination with a base comprising frames having vertical ends, and means to movably attach said collapsible sides to said base frames, horizontal tables on the forward ends of said base frames, and one end of the end bars at one end of said additional bars arranged to abut against said forward ends of said base frames and to rest on said tables when said bed frame is open.

11. A bed frame comprising collapsible sides respectively consisting of bars pivotally attached together, pivoted arms, and additional bars pivotally attached together and to said first named pivoted bars by said pivoted arms, in combination with a base comprising frames the forward ends whereof are substantially vertical, and means to movably attach said collapsible sides to said base frames, horizontal tables on said forward ends of said base frames, and one of the ends of the end bars at one end of said additional bars arranged to abut against said forward ends of said base frames and to rest on said tables when said bed frame is open, journal bearings on one of the first named pivoted bars, shafts in said bearings, legs on said shafts, and connections between said shaft and one of said additional bars.

12. In a bed frame comprising parallel collapsible sides respectively consisting of a plurality of pieces pivotally attached together, the combination with said frame of L-shaped legs pivotally attached to said frame and joined together by a rod; the opposite sides of the shorter arms of said legs respectively provided with notches, and abutments on bars of said collapsible sides positioned so that one of said notches is engaged with one of said abutments when the bed frame is closed, and the other is engaged with the other abutment when the bed frame is open.

13. A bed frame comprising collapsible sides, said sides respectively consisting of five members pivotally attached together, and said frame adapted to be folded so that three of said members are in substantially parallel horizontal planes and two of said members are in parallel vertical planes, bearings on one of said members in each of said sides, and L-shaped legs pivotally attached to one of said members, additional members pivotally attached together, arms pivotally attached to members of said collapsible sides and to said additional members, crank shafts in said bearings, legs rigidly attached to said crank shafts and connections between said cranks and said additional members, said L-shaped legs respectively provided with notches on the shorter arm thereof, and abutments on said first named pivoted members adapted to alternately engage with said notches as said bed frame is opened and closed.

SAMUEL RUSNAK.

In the presence of—
CHARLES TURKER BROWN,
CHARLES B. HEBRON.