June 29, 1948. B. N. MILLER 2,444,230

DAVENPORT HINGE CONSTRUCTION

Filed Sept. 27, 1944 2 Sheets-Sheet 1

Fig. 1.

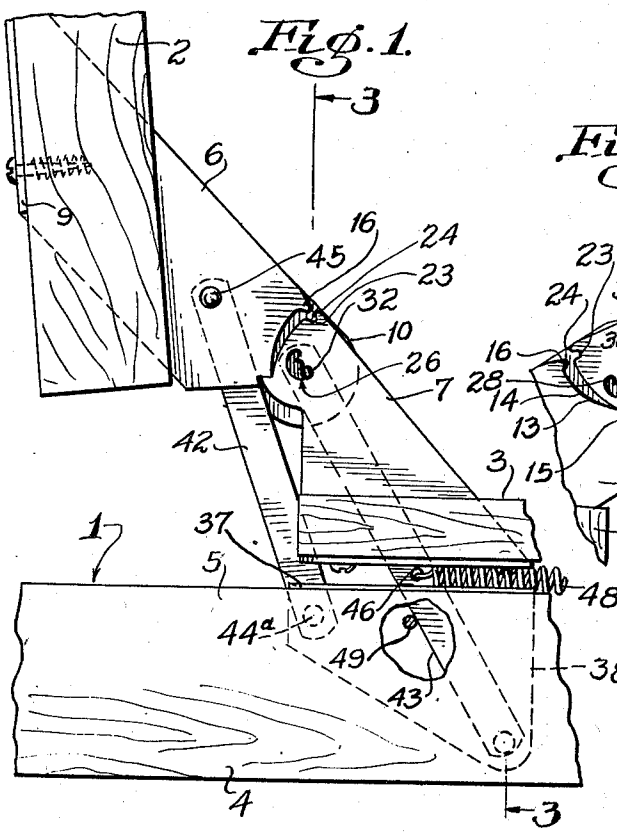


Fig. 2.

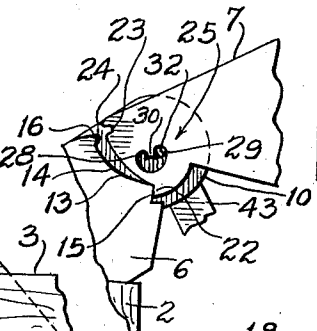


Fig. 3.

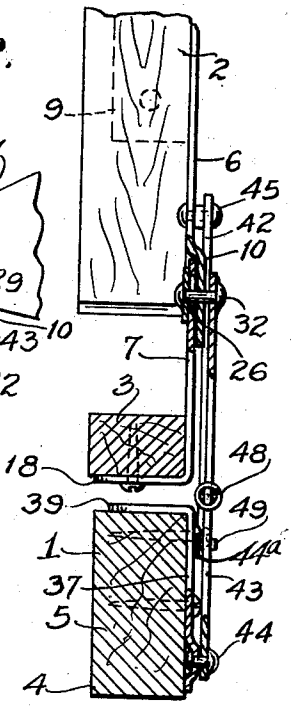


Fig. 4.

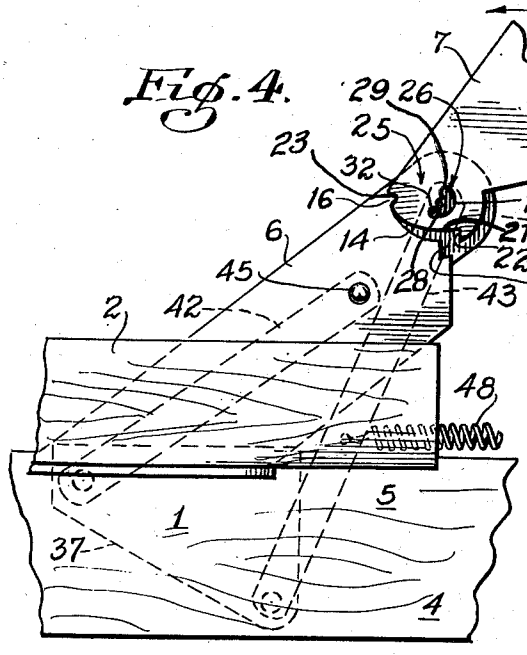
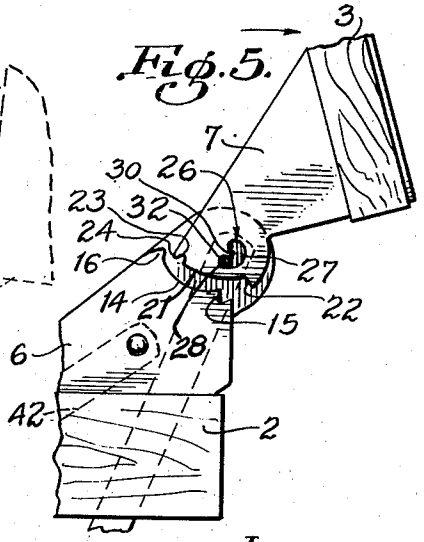


Fig. 5.



INVENTOR.
Benjamin N. Miller
By
ATTORNEY.

June 29, 1948. B. N. MILLER 2,444,230

DAVENPORT HINGE CONSTRUCTION

Filed Sept. 27, 1944 2 Sheets-Sheet 2

Fig. 6.

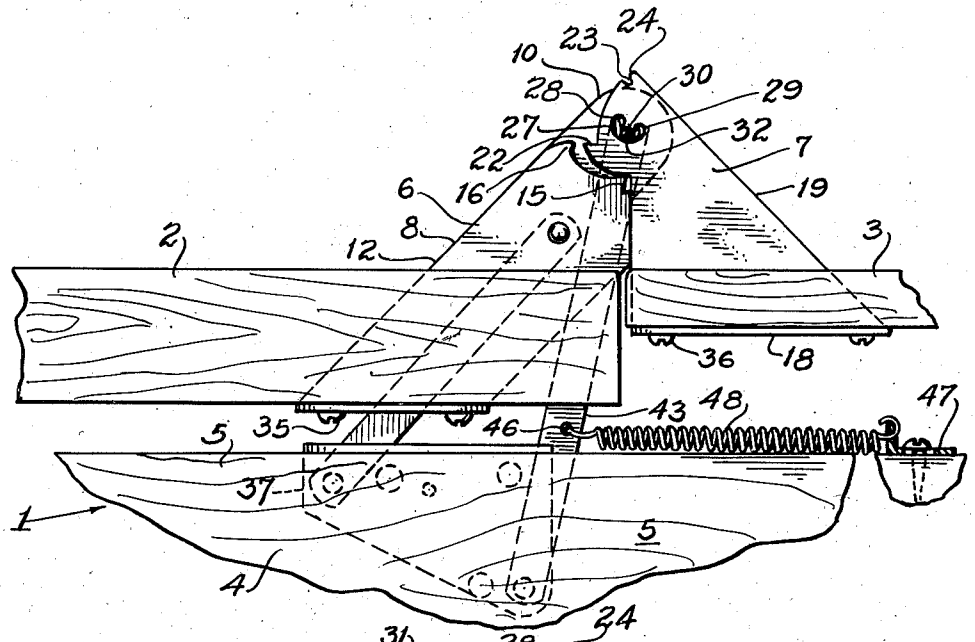


Fig. 7.

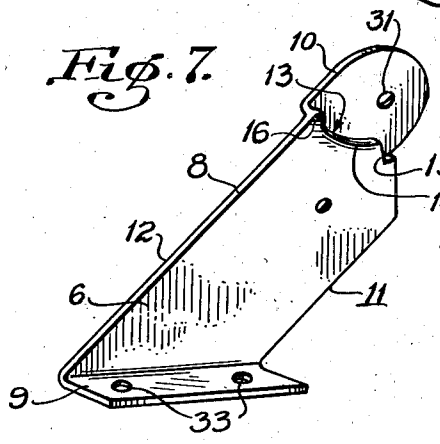


Fig. 8.

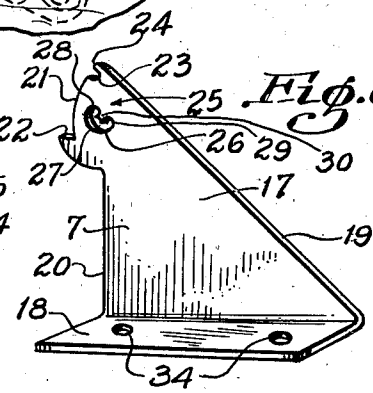
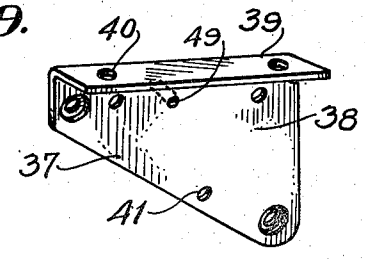


Fig. 9.



INVENTOR.
Benjamin N. Miller
BY
ATTORNEY.

Patented June 29, 1948 2,444,230

UNITED STATES PATENT OFFICE

2,444,230

DAVENPORT HINGE CONSTRUCTION

Benjamin Nicholas Miller, Los Angeles, Calif.

Application September 27, 1944, Serial No. 555,965

4 Claims. (Cl. 5—47)

1

This invention relates to davenport construction.

An object of the invention is the provision of a hinge construction for davenports which allows a davenport to become a bed-davenport with a minimum of effort as to actuating the hinge on the part of the operator.

Another object is the provision of a hinge construction for bed-type davenports, which is simple of structure, inexpensive in cost of manufacture, of few parts, and fool-proof in its construction and operation.

With the above-mentioned and other objects in view, the invention consists in the novel and useful provision, formation, construction, association, and relative arrangement of parts, members and features, all as shown in certain embodiments in the accompanying drawings, described generally, and more particularly pointed out in the claims.

In the drawings:

Figure 1 is a fragmentary elevation of the improved hinge for a davenport,

Figure 2 is a fragmentary detail of certain elements of the invention,

Figure 3 is a fragmentary sectional view on the line 3—3 of Figure 1,

Figure 4 is a fragmentary view of certain portions of the invention in cooperation with the back and seat of a davenport, the seat being in a changed position from that shown in Figure 1,

Figure 5 is a fragmentary view showing certain elements of the invention in changed relationship resultant upon a tipping of the seat,

Figure 6 is a fragmentary end elevation showing the back and seat in a horizontal position and the relationship that exists between the hinge elements,

Figure 7 is a perspective view of one hinge member,

Figure 8 is a perspective view of a second hinge member adapted to cooperate with the hinge member of Figure 7, and

Figure 9 is a perspective view of a bracket which may be used in the practice of the invention.

Referring now to the drawings, I have shown a portion of a davenport, indicated generally as 1, which has a back 2, seat 3, and framing 4 adapted to be supported by the usual legs. The back and seat, by way of example, may both include a rectangular framing carrying the usual coil springs over which is placed padding, followed by upholstering material. Thus, when the back and seat are moved from the position of Figure 1 to that of Figure 6, a bed structure results, in

2

which the back and seat are in substantial alignment horizontally. The frame 4 includes what is ordinarily known as a hinge board 5. This hinge board is adapted to carry the elements of the invention, to be described, and said board is connected to and becomes a part of the framing 4. The hinge for the davenport back and seat includes two members 6 and 7. A hinge is used at each end of the davenport. Member 6 is best illustrated in Figure 7, and includes a part 8 which is flanged at 9, the part 9 being substantially at right angles to the plane of the part 8, with part 8 formed with an offset and parallel portion 10. It will be observed that flange 9 is at an angle other than 90 degrees to the edge portions 11 and 12 of the part 8. This construction is adhered to due to the method by which said hinge part is attached to the back 2, as shown in Figure 1. In other words, flange 9 is secured to the back, the part 8 extends downwardly and connects with the other hinge part 7, thus allowing the back to have a slight tilt rearwardly relative to the seat. The offset edge 13 interconnecting parts 8 and 10 provides a cam surface at 14, a notch at 15 at the terminus of one end of the cam surface, and a cam nose 16 at the opposite terminus of the cam surface where it joins with the edge 12. The other member 7 of the hinge is shown in Figure 8 and it, like member 6, provides a body portion 17 having a flanged end 18 substantially at right angles to the plane of portion 17 and at an acute angle to edges 19 and 20. The opposite end of part 17 is formed to provide a cam edge at 21, the cam edge being joined with a lip 22 at one terminus thereof, while the opposite end portion merges with a cam recess 23. A nose portion 24 is formed by an extension of edge 19 where it joins with the recessed portion 23. That portion of part 17 which includes the cam edge, lip, recess and nose will be designated as an entirety as 25, and the portion 25 is provided with a cam slot 26. Cam slot 26 has a curved edge 27 merging with curved ends 28 and 29, the curved ends being joined by a concave edge 30. It is intended that a bolt or pin should be passed through bore 31 of part 10, and through cam slot 26 for holding the parts in assemblage. This same bolt, which is illustrated in Figure 3 at 32, likewise holds certain other elements, to be hereinafter described.

The flanges 9 and 18 are transversely bored at 33 and 34, respectively, so that screws or other means may be passed through said bores for holding the flanges to the back and seat as, for in-

stance, illustrated in Figure 6 at 35 and 36, respectively.

In Figure 9, I have provided a bracket 37. This bracket includes two parts 38 and 39 substantially in right angular relationship. Both parts 38 and 39 are provided with transverse bores, as shown at 40 and 41, whereby screws may be passed through said bores into the hinge board for securing the bracket in position of service. It is understood during this description that I am describing but a single end of the davenport, and the means used at said end for hinging the back and seat together, and that the opposite end would be identical as to construction and parts. A pair of links 42 and 43 are spacedly secured to the bracket 37 by means of pin connections, as illustrated in Figure 3 at 44 and 44^a. The opposite end of link 42 is pinned at 45 to member 6, while the opposite end of link 43 is secured by the pin or bolt 32 which joins members 6 and 7 together.

The link 43 is perforated at 46 and the hinge board carries a small bracket 47, between which bracket and perforation is a coil spring 48.

The operation, uses and advantages of the invention just described are as follows:

If we assume that two pairs of hinges, together with the associated links 42 and 43, and brackets 37, have been secured at ends of the davenport between the back, seat, and hinge board, then the seat may be moved relative to the back so that the back may assume an angle to permit access within a compartment located beneath the seat, or to permit the back and seat to assume the horizontal position shown in Figure 6. When the parts are in the position illustrated in Figure 1, the back being at an angle to the seat, link 43 engages a stop pin 49 carried by bracket 37. This limits movement of the link in one direction and aids in preventing the back from dropping from the position shown in Figure 1. Also, the lip 22 of member 7 engages the notch 15 of member 6 to prevent movement between members 6 and 7. In other words, members 6 and 7 do not bove on the pin or bolt 32.

When it is desired to lower the back to form a bed, the seat 3 is raised from the position of Figure 1 to that of Figure 2, the bracket 7 indicating a raised seat position. The pin 32 remains in the end 29 of the cam slot, with the result that the lip 22 engages the notch 15 and holds the seat in its raised position. At the same time the back is lowered to a horizontal position. This permits access by the operator to any bedding contained in the compartment (not shown), and usually provided beneath the seat. In the raising of the seat from the position of Figure 1 to that of Figure 2, the movement is outwardly and upwardly and the load is carried by the links 42 and 43. The link 43 is urged forwardly by spring 48, with the result that slight physical effort is exerted to raise the seat to the position of Figure 2. Having removed bedding from the compartment provided therefor, the seat is tilted further or from the position of, say, Figure 2, to that of Figure 4. This tipping movement brings the breaking cam into action, this breaking cam including the nose 16 and the recess 23. The nose 16 is received within the recess 23 and moves the pin 32 from the position of Figure 2 first into the concave edge 30, as shown in Figure 4, and then into portion 28 of the slotted cam, as shown in Figure 5. The two cam faces 14 and 21 are separated, as shown in this figure. The seat may then be lowered to a horizontal position as shown in Figure 6. When

this seat is so lowered, the pin 32 is shifted so that now it engages the portion 30 of the cam slot.

If it is desired to restore the davenport to the position of Figure 1, the seat is lifted, which will cause the pin 32 to be received within the end 28 of the cam slot, whereupon the notch 15 and lip 22 will co-engage, as indicated in Figure 2, and the lowering of the seat will raise the back to the position shown in Figure 1. During the movements just described, the cam edges 14 and 21 co-engage, to the end that the pin 32 travels to proper position against the end 29 within the cam slot.

It will be seen that the present invention provides a shifting pin between the two hinge members, the pin being controlled as to its position by a cam slot and which pin is caused to move within the cam slot by the co-engaging cam edges of the two hinge members, to the end that the two hinge members may assume a locked-against-movement position, which lock may be broken upon moving one of the hinge members, whereupon the cam edges may co-engage so that the hinge members may assume a relative angularity. I have provided, by this invention, a simple means for controlling the position of the back and seat members of a davenport without the necessity of providing spring-pressed pawls, or the like, operating in conjunction with a toothed rack, as is ordinarily employed. The construction shown is positive in its operation, will at all times operate in the same way, with nothing to get out of order other than that caused by wear of the parts.

I claim:

1. In a bed davenport including a frame, a seat and a back, a pair of hinge members, one of said hinge members being secured to said seat and the other said hinge member being secured to said back, a link pivoted at one end to said frame, a pin pivotally connecting the other end of said link to the hinge end of one of said hinge members, a link pivoted at one end to said frame and at its other end to the hinge end of said hinge member, the hinge end of the other hinge member being provided with an arcuate slot with a dwell recess intermediate its ends, through which slot said pin extends, the hinge ends of said hinge members being formed with inter-engaging cam edges, the hinge end of one of said hinge members being formed with a notch, the hinge end of the other hinge member being formed with a lip for engaging said notch when the seat is down and the back is up, in position for use as a davenport, while said pin engages one end of said arcuate slot, and said cams being arranged for engaging when the seat and back are horizontal to form a bed while said pin is positioned in said dwell recess of said arcuate slot, and means on said cam edges of the hinge ends of said hinge members arranged to engage each other to enable said lip to be shifted back into engagement with said notch and said pin to be shifted in said arcuate slot to bring said seat and said back into position to form a davenport or a bed.

2. In a bed davenport including a frame, a seat and a back, a pair of hinge members, one of said hinge members being secured to said seat and the other said hinge member being secured to said back, a link pivoted at one end to said frame, a pin pivotally connecting the other end of said link to the hinge end of one of said hinge members, a link pivoted at one end to said frame and

at its other end to the hinge end of said hinge member, the hinge end of the other hinge member being provided with an arcuate slot with a dwell recess intermediate its ends, through which slot said pin extends, the hinge ends of said hinge members being formed with interengaging cam edges, the hinge end of one of said hinge members being formed with a notch, the hinge end of the other hinge member being formed with a lip for engaging said notch when the seat is down and the back is up, in position for use as a davenport, while said pin engages one end of said arcuate slot, and said cams being arranged for engaging when the seat and back are horizontal to form a bed while said pin is positioned in said dwell recess of said arcuate slot, a nose on one of said cam edges, the other cam edge having a recess to receive said nose to enable said lip to be shifted back into engagement with said notch and said pin to be shifted in said slot to bring said seat and said back into position to form a davenport or a bed.

3. In a bed davenport including a frame, a seat and a back, a pair of hinge members, one of said hinge members being secured to said seat and the other said hinge member being secured to said back, means for mounting said hinge members in hinging relation upon said frame, a pivot pin for pivotally connecting the hinge ends of said hinge members together, the hinge end of one of said hinge members being provided with an arcuate slot and with a dwell recess intermediate the ends of said slot, through which slot said pin extends, the hinge ends of said hinge members being formed with interengaging cam edges, the hinge end of one of said hinge members being formed with a notch, the hinge end of the other hinge member being formed with a lip for engaging said notch when the seat is down and the back is up, in position for use as a davenport, while said pin engages one end of said arcuate slot, and said cams being arranged for engaging when the seat and the back are horizontal to form a bed while said pin is positioned in said dwell recess of said arcuate slot, and means on said cam edges of the hinge ends of said hinge members arranged to engage each other to enable said lip to be shifted back into engagement with said notch and said pin to be shifted in said arcuate slot to bring said seat and said back into position to form a davenport or a bed.

4. In a bed davenport including a frame, a seat and a back, a pair of hinge members, one of said hinge members being secured to said seat and the other said hinge member being secured to said back, means for mounting said hinge members in hinging relation upon said frame, a pivot pin for pivotally connecting the hinge ends of said hinge members together, the hinge end of one of said hinge members being provided with an arcuate slot and with a dwell recess intermediate the ends of said slot, through which slot said pin extends, the hinge ends of said hinge members being formed with interengaging cam edges, the hinge end of one of said hinge members being formed with a notch, the hinge end of the other hinge member being formed with a lip for engaging said notch when the seat is down and the back is up, in position for use as a davenport, while said pin engages one end of said arcuate slot, and said cams being arranged for engaging when the seat and the back are horizontal to form a bed while said pin is positioned in said dwell recess of said arcuate slot, a nose on one of said cam edges, the other cam edge having a recess to receive said nose to enable said lip to be shifted back into engagement with said notch and said pin to be shifted in said slot to bring said seat and said back into position to form a davenport or bed.

BENJAMIN NICHOLAS MILLER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
130,472	Brinser	Aug. 13, 1872
144,669	Gross	Nov. 18, 1873
442,689	Porter	Dec. 16, 1890
534,469	Demarest	Feb. 19, 1895
997,267	Buhler	July 11, 1911
1,654,726	Graham	Jan. 3, 1928
2,132,266	Lefevre	Oct. 4, 1938
2,330,059	Krakauer et al.	Sept. 21, 1943
2,392,309	Burton	Jan. 8, 1946