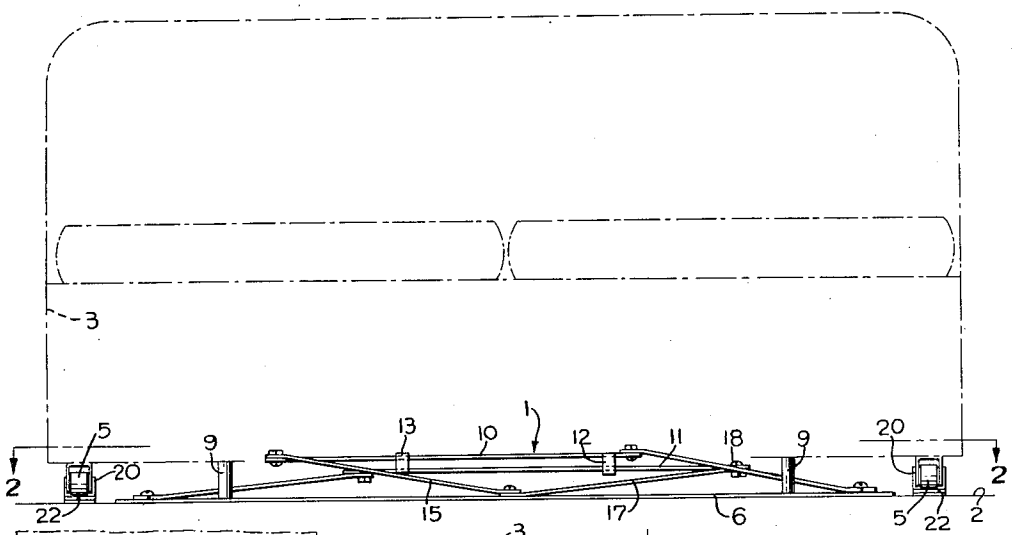
March 26, 1957 J. E. ENTWISTLE 2,786,212

CONTROL MEANS FOR MOVABLE DIVANS

Filed Oct. 7, 1953

FIG. 1



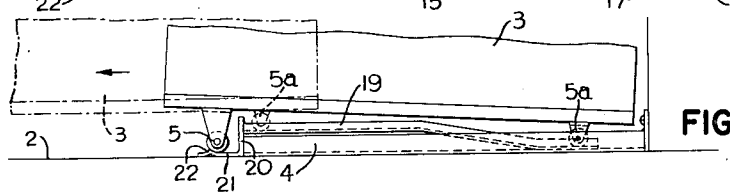


FIG. 4

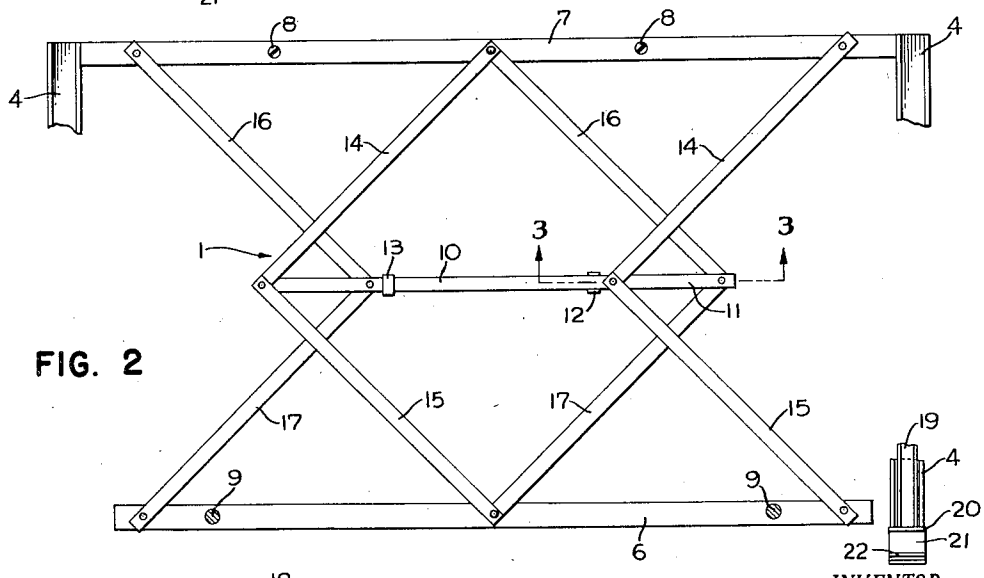


FIG. 2

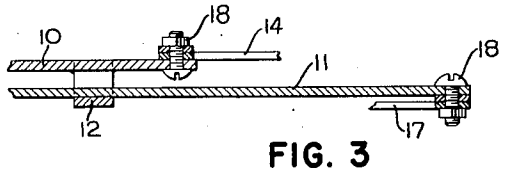


FIG. 3

INVENTOR.
JOHN E. ENTWISTLE
BY Oldham & Oldham
ATTORNEYS

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CONTROL MEANS FOR MOVABLE DIVANS

John E. Entwistle, Cleveland, Ohio, assignor to Harvard Manufacturing Company, Cleveland, Ohio, a corporation of Ohio

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5 Claims. (Cl. 5—12)

This invention relates to stabilizer means and other novel supports for movable articles such as divans, and particularly relates to means for facilitating easy movement of the divan and for maintaining a divan or other movable member parallel to a wall or similar base point while the divan is moved with relation to the wall.

Heretofore there have been various types of movable support structures provided for maintaining different components of a bed or other article of furniture parallel with relation to each other as the components of such articles or members are moved. One type of a movable article in use at this time includes a divan which would be movably positioned so that the entire divan could be pulled out into the room. When the divan is to be made up as a bed, part of the divan usually folds down or pulls out so that the divan is wider than normal. Thus divans have been previously provided with track guide means in which roller or caster supports of the divan are received to facilitate pulling or moving a divan out into the room where it is positioned. Frequently it is desirable to move the divan by forces applied to only one end or edge portion thereof and such moving forces applied to the divan tend to twist the divan with relation to its support means and make movement of the divan difficult. That is, the divan can become wedged in its support means due to unequal movement of different ends of the divan.

The general object of the present invention is to provide stabilizer means for use with a divan or similar movable article whereby the article can be maintained in the desired alignment with its positioning means when moved.

Another object of the invention is to provide a relatively simple, uncomplicated type of stabilizer apparatus for permitting movement of an elongate article by forces applied to the one end thereof, which stabilizer maintains the movable article in parallel relation to a fixed member when the article is moved.

Another object of the invention is to provide a scissors type stabilizer member made from a plurality of sets of parallel links connected between a movable bar and a fixed bar by a pair of superimposed slidably engaged center bars.

A further object of the invention is to provide a divan which is downwardly inclined towards the rear thereof when used for seating purposes and which is horizontal when used as a bed.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

For a better understanding of the invention, reference should be made to the accompanying drawings wherein one currently preferred embodiment of the invention is shown, and wherein:

Fig. 1 is a front elevation of the stabilizer means of the invention showing it engaged with a divan, and which stabilizer embodies the principles of the invention;

Fig. 2 is a plan view taken on line 2—2 of Fig. 1;

Fig. 3 is an enlarged vertical section taken on line 3—3 of Fig. 2; and

Fig. 4 is a fragmentary side elevation of the divan and stabilizer of Fig. 1.

Generally speaking, the present invention relates to stabilizer apparatus including a front bar and a rear bar which are adapted to be individually secured to either a fixed or a movable member, a pair of superimposed equal length center bars slidably engaged for relatively longitudinal movement, and pairs of parallel links pivotally connected at one end to one of the front or rear bars and pivotally connected at their other ends to the ends of one of the center bars. Sufficient parallel links are provided that each end of each of the center bars is connected to each of the front and rear bars and with the two pairs of links connected to each of the front and rear bars extending in opposite directions therefrom. The center bars and front and rear bars are positioned and maintained parallel as moved towards and from each other by the movement of the stabilizer apparatus.

Attention now is directed to the details of the structure shown in the drawings, and a stabilizer is indicated as a whole by the numeral 1 with such stabilizer being adapted to be secured between a floor or other support 2 and a divan 3. This divan 3 is of any desired construction but usually is of the type which is adapted to be made up into a bed and normally is pulled out into the room when used as a bed. The movement of the divan 3 is at least partially controlled by a pair of guides or channels 4 that are secured in parallel relation to the floor 2. The divan 3 has any suitable front casters or roller means 5 and rear casters or roller means 5*a* secured thereto and the rear rollers 5*a* are received in and guided by the channels 4 so that movement of the divan 3 along the channels 4 is facilitated.

The particular construction of the stabilizer 1 is an important feature of the present invention and such stabilizer includes a front bar 6 and a rear bar 7. Usually the rear bar 7 is secured by cap screws 8 to the floor 2, or to each of the channels 4 whereas the front bar 6 is secured, as by pins or bolts 9, to a portion of the divan 3. Fig. 2 of the drawings best shows that the front bar and rear bar are positioned in parallel relation to each other and it is a function of the remainder of the stabilizer apparatus to permit relative movement between the front and rear bars and the members to which they are secured without changing the parallel relation of such bars 6 and 7. A pair of equal length center bars 10 and 11 are positioned in superimposed relation with opposite ends of the center bars 10 and 11 protruding from the superimposed portions of such bars, as indicated best in Fig. 2 of the drawings. The center bars 10 and 11 are engaged with each other for relative longitudinally directed sliding movement and a substantially U-shaped bracket 12 is shown engaged, as by welding, to the center bar 10 and extending downwardly therefrom and having the opposite center bar 11 in threaded engagement therewith. A similar bracket 13 is secured to the center bar 11 and extends upwardly therefrom for threaded engagement with the center bar 10, as indicated in Fig. 1.

In order to complete the stabilizer 1, a plurality of pairs of connecting links or bars, with the links of each pair being parallel to each other, are provided and with each of such links extending between one end of one of the center bars to one of the front or rear bars 6 or 7. Thus a pair of parallel links 14, 14 are pivotally secured at one end to the rear bar 7 by suitable pin, rivet or bolt means and at their other ends to the ends of the center bar 10. Such ends of the center bar 10 also are pivotally connected to the front bar 6 by a pair of parallel links 15, 15. Corresponding ends of the other center bar 11 are connected

by pairs of parallel links 16, 16 to the rear bar 7, and the ends of such center bar 11 are also connected to the front bar 6 by a pair of parallel links 17, 17. Thus each of the pairs of parallel links 14 through 17 forms a parallelogram with the center bar to which they are connected and the portion of the front or rear bar intermediate the ends of the pair of parallel links. On relative movement between the front and rear bars 6 and 7, the center bars 10 and 11 slide longitudinally with relation to each other and the connections between the various pairs of links and the front and rear bars retain the center bars parallel to the front and rear bars which are maintained likewise in parallel relation to each other by the control and stabilizer means connected therebetween.

In Fig. 1, the vertical relationship between the various components of the stabilizer 1 is somewhat exaggerated to facilitate showing the stabilizer and the components thereof.

It will be realized that the various components of the stabilizer 1 can be secured together in any desired manner and Fig. 3 shows that bolts 18 can be used to secure the center bars 10 and 11 to the ends of the stabilizer links connected thereto. It should be noted that the heads of these bolts 18 preferably must be able to be vertically aligned in the apparatus so that a maximum extension of the stabilizer 1 can be secured. Thus clearance is provided between such bolt heads by the length of the brackets used to engage the center bars slidably with each other.

Figs. 2 and 4 show an added feature of the invention which automatically adjusts the angle of support of the divan as it is changed from use for a seat over to use as a bed by moving the divan 3 along the channels 4. The divan 3 preferably has smaller rear rollers or casters 5*a* than the front rollers 5. Also, the channels 4 have upwardly inclined track means 19 suitably secured to the middle and front portions thereof, which track means have horizontally directed front sections. Thus as the divan 3 is pulled forwardly, the rear casters 5*a* move up the track means 19 and raise the divan to a horizontal position. When the casters 5*a* are on the channels 4, the divan has a seating surface that slopes to the rear. Stop plates 20 are secured to the front ends of the channels 4 at the ends of the track means to limit forward movement of the divan in conjunction with the stabilizer 1. The stop plates 20 are positioned to limit forward movement when the stabilizer 1 is at its maximum extension. As a further feature of the channels 4, they have front sections 21 thereon with transversely extending ribs 22 thereon. The front casters 5 are received on the sections 21 behind the ribs 22 to aid in retaining the divan in its usual retracted position.

When the stabilizer 1 is moved to its closed position, the front bar 6 can be at least substantially vertically superimposed on the rear bar 7 at which time the brackets 12 and 13 would be substantially in contact with each other and the center bars 10 and 11 would be at their greatest amount of relative longitudinal movement but with end portions thereof still in superimposed, adjacent relation.

The various components of the stabilizer 1 usually are made from metal bars of suitable size and strength to carry the loads normally applied thereto and it has been established that any force applied to one end of the divan for moving it in either direction in the means provided for positioning such divan will be transmitted uniformally all along the divan and move such article while maintaining it parallel to the rear bar 7. Thus the relatively inexpensive, uncomplicated construction of the stabilizer 1 provides a sturdy apparatus by which the objects of the invention are achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of this particular embodiment of the invention may be resorted to without departing from the scope of the invention as defined in the appended claims.

I claim:

1. Movement stabilizer apparatus for an article such as a movably positioned divan comprising a front bar, a rear bar, means for securing one of said bars to a divan, means for fixedly positioning the other of said bars parallel to the bar secured to the divan, a pair of superimposed equal length center bars engaged for relative longitudinal movement, said center bars being parallel to said front and rear bars and having opposite ends protruding from the superimposed portions of the center bars, and pairs of parallel links pivotally connected at one end to one of said front and rear bars and pivotally connected at their other ends to the ends of one of said center bars, each end of each of said center bars being connected to each of said front and rear bars by said links, the two pairs of links connected to each of said front and rear bars extending in opposite directions therefrom from three pivot points thereon whereby said parallel links will provide relative movement of said front and rear bars but will maintain such bars parallel as moved towards and from each other.

2. Movement stabilizer apparatus for a movably positioned divan comprising a front bar, a rear bar, means for securing one of said bars to a divan, means for fixedly positioning the other of said bars, a pair of superimposed equal length center bars engaged for relative longitudinal movement, and said center bars being parallel to said front and rear bars and having opposite ends protruding from the superimposed portions of the center bars, and pairs of parallel links pivotally connected at one end to one of said front and rear bars and pivotally connected at their other ends to the ends of one of said center bars, each end of each of said center bars being connected to each of front and rear bars, the two pairs of links connected to each of said front and rear bars extending in opposite directions therefrom from three pivot points thereon, said center bars and front and rear bars being maintained parallel as moved towards and from each other.

3. Movement stabilizer apparatus comprising a front bar, a rear bar, means for securing one of said bars to an article, means for fixedly positioning the other of said bars, a pair of superimposed equal length center bars engaged for relative longitudinal movement, said center bars being parallel to said front and rear bars, and pairs of parallel links pivotally connected at one end to one of said front and rear bars and pivotally connected at their other ends to the ends of one of said center bars, each end of each of said center bars being connected to each of said front and rear bars, the two pairs of links connected to each of said front and rear bars extending in opposite directions therefrom and with such two pairs of links crossing each other intermediate the ends thereof.

4. Movement stabilizer apparatus comprising a front bar, a rear bar, one of said bars being adapted to be fixedly positioned and one of said bars to be movable with a controlled member, a pair of superimposed equal length center bars engaged for relative longitudinal movement, said center bars being parallel to said front and rear bars, and pairs of parallel links pivotally connected at one end to one of said front and rear bars and pivotally connected at their other ends to the ends of one of said center bars, each end of each of said center bars being connected to each of said front and rear bars, the two pairs of links connected to each of said front and rear bars extending in opposite directions therefrom and with such two pairs of links crossing each other intermediate the ends thereof.

5. Stabilizer means for controlling the movement of a movable member, said stabilizer means including an anchor bar for engaging a support, a second bar, a pair of center bars, means securing said center bars together for relative sliding movement longitudinally thereof, and a pair of parallel links connected between the ends of

each of said center bars and each of said anchor and second bars, said parallel links connected to a common center bar and to one of the anchor and second bars crossing intermediate the ends of such links.

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