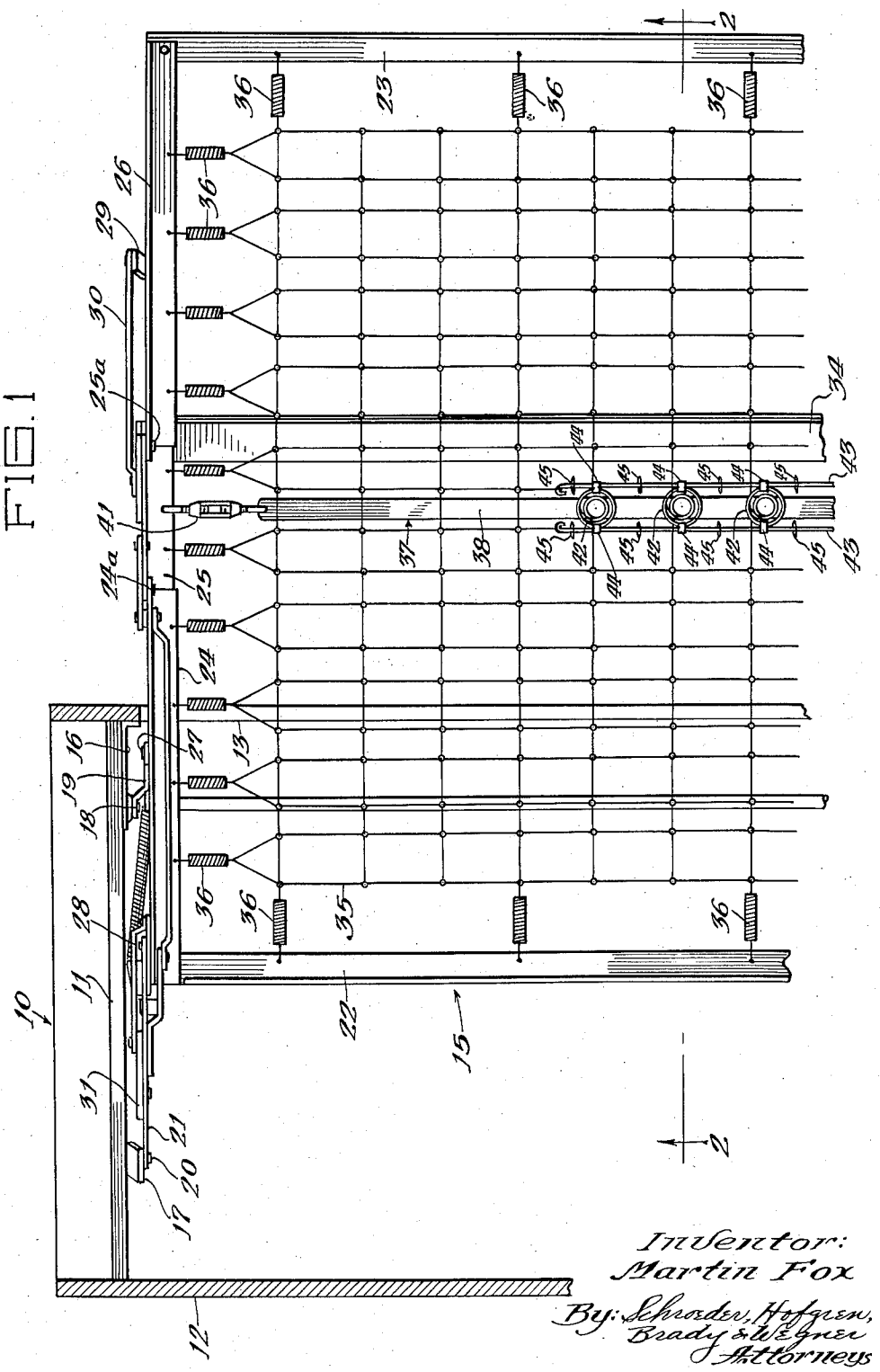
Dec. 20, 1960 M. FOX 2,964,760

FOLDING DOUBLE BED FRAME WITH ANTI-SAG DEVICE

Filed March 6, 1957 3 Sheets-Sheet 1

FIG. 1



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FOLDING DOUBLE BED FRAME WITH ANTI-SAG DEVICE

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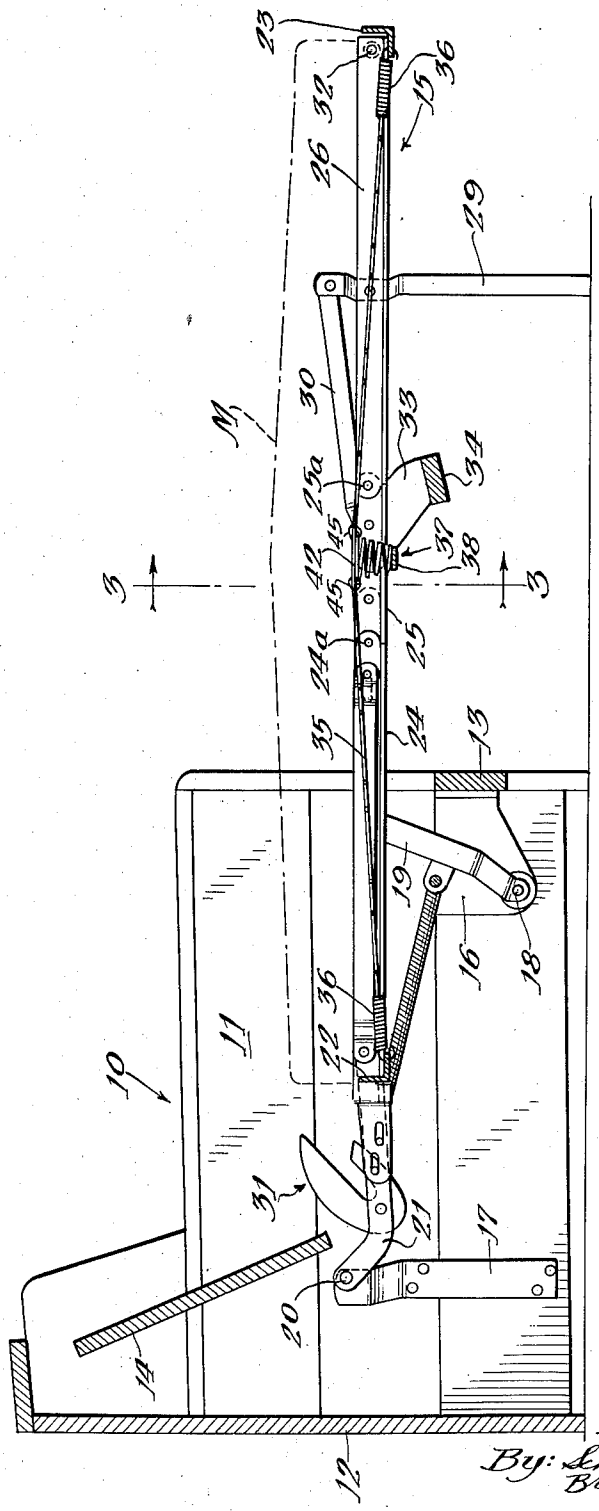


FIG. 2

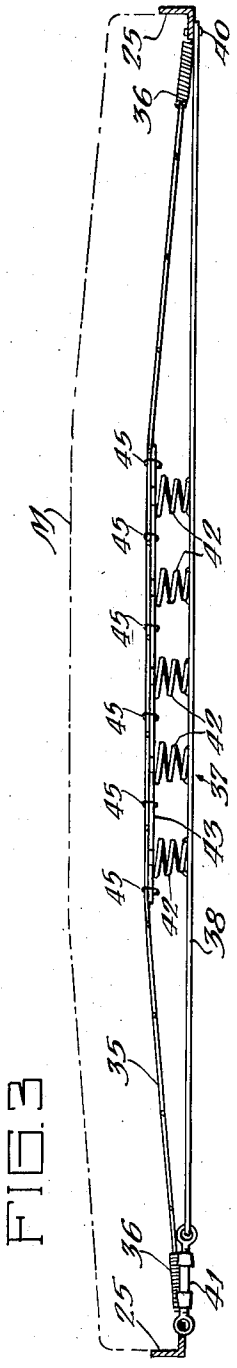


FIG. 3

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FOLDING DOUBLE BED FRAME WITH ANTI-SAG DEVICE

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FIG. 4

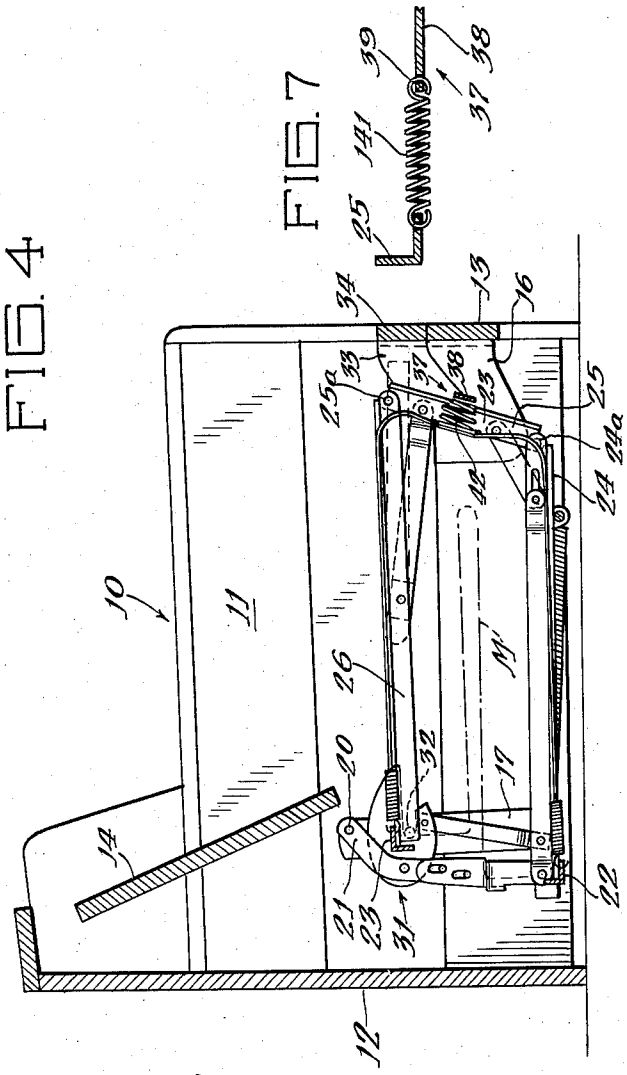


FIG. 7

FIG. 5

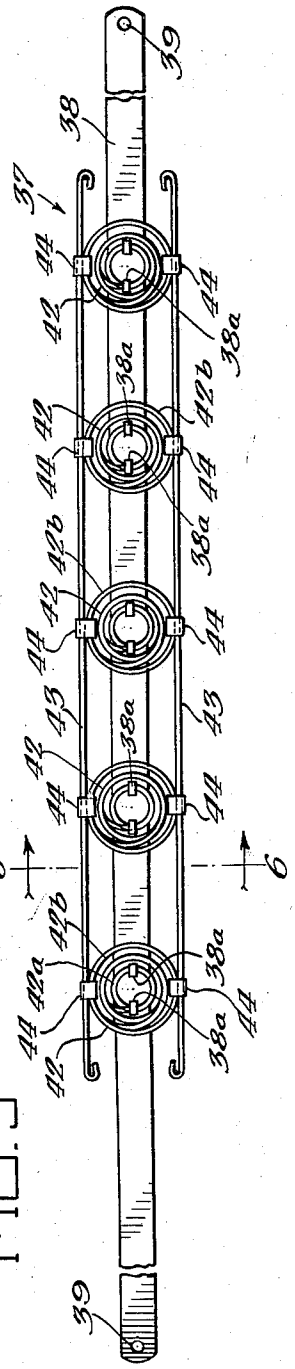
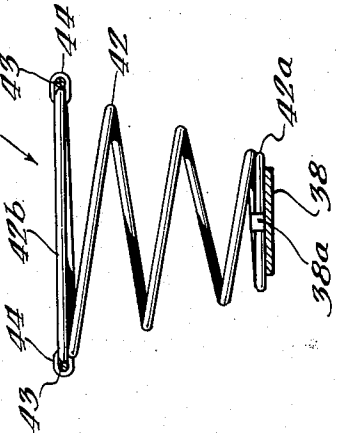


FIG. 6



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United States Patent Office 2,964,760 Patented Dec. 20, 1960

2,964,760

FOLDING DOUBLE BED FRAME WITH ANTI-SAG DEVICE

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Filed Mar. 6, 1957, Ser. No. 644,248

1 Claim. (Cl. 5—13)

This invention relates to a double bed structure which is provided with an anti-sag device, and the unit is particularly adaptable to a folding davenport bed.

A principal object of the present invention is to provide a device which will prevent the sagging of a double bed mattress which, if two people are occupying the bed, tends to cause the occupants to roll together in the middle.

Another object of the invention is to provide such a device which does not interfere with the comfort of either one or two persons occupying the bed.

Yet another object of the invention is to provide such a device which may be easily secured to the frame of a double bed, and which tends to thrust the mattress upwardly along its longitudinal median line.

The invention is particularly adaptable to folding davenport beds, in which the inner-spring or foam-rubber mattress is supported upon a wire mesh fabric which has somewhat more tendency to sag toward the middle than does a conventional box spring.

The invention is illustrated in the accompanying drawings as applied to a folding davenport bed frame of the type in which the bed extends longitudinally between the arms of the sofa frame in which it is mounted, so that the head of the bed is adjacent one arm and the foot is adjacent the other arm.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which:

Fig. 1 is a fragmentary plan view of a davenport bed equipped with an anti-sag device constructed in accordance with the invention;

Fig. 2 is a section taken as indicated along the line 2—2 of Fig. 1;

Fig. 3 is a section taken as indicated along the line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 2 with the bed frame folded into davenport position;

Fig. 5 is a plan view of an anti-sag device with portions of the supporting strap broken away;

Fig. 6 is a section an enlarged scale taken as indicated along the line 6—6 of Fig. 5; and

Fig. 7 is a fragmentary view on an enlarged scale which illustrates an alternative means of securing one end of the supporting strap for the anti-sag device to the bed frame.

Referring to the drawings in greater detail, and referring first to Figs. 1, 2 and 4, a davenport frame, indicated generally as **10**, includes a pair of end frame members, such as the end frame member **11** seen in the drawings, a back panel **12**, a front rail **13**, and a back rest **14**. In the finished unit, the frame is upholstered in the usual way. Mounted on the daveport frame **10** is a folding bed bottom mechanism, indicated generally at **15**. The folding bed bottom **15** includes two identical sets of mounting brackets and supporting links which are adapted to be secured to the two end rails **11** of the davenport frame. Since the mounting brackets and supporting links at the two ends of the frame are identical, only one set is described in detail.

Mounting elements for the bed bottom include a front angle bracket **16** which is adapted to be secured to the front rail **13** and end frame member **11**, and an upright rear bracket **17**. Pivotally connected to the angle bracket **16** at **18** is an outer supporting arm **19**, while pivotally connected to the upright rear bracket **17** at **20** is an inner suspension link **21**.

The folding bed bottom itself consists of a first angle member forming an inner longitudinal side rail **22**, a second angle member forming an outer longitudinal side rail **23**, and identical folding head and foot rails, each of which consists of an inner end rail section **24** which is an angle member rigidly secured to the inner side rail **22**, an intermediate end rail section **25** which is an angle member pivoted to the inner end rail section **24** at **24*a***, and an outer end rail section **26** which is an angle member rigidly secured to the outer side rail **23** and pivotally connected to the intermediate end rail section **25** at **25*a***.

The inner longitudinal side rail **22**, in combination with the inner end rail sections **24**, forms an inner bed section, correspondingly the longitudinal side rail **23** in combination with the end rail sections **26** forms an outer bed section, while the two intermediate end rail sections **25** form an intermediate bed section flanked by side sections.

As seen in Fig. 1, the inner bed section **24** is pivotally connected at **27** to the outer supporting arms **19** and is pivoted at **28** to the inner suspension links **21**, so that the bed bottom may be swung in and out of the davenport frame on the arms **19** and the links **21**. The outer end rail sections **26** are provided with suitable folding supporting legs **29** which have conventional actuating links **30** by means of which they may be folded and unfolded with respect to the bed frame as the bed frame is moved in and out of the davenport frame **10**. A suitable jaw-type lock mechanism, indicated generally at **31**, is mounted upon the inner suspension links **21** and provided with suitable actuating components, so that when the bed frame is moved from the bed position of Fig. 2 to the davenport position of Fig. 4 the jaw lock may engage studs **32** adjacent the outer side rail **23**. The jaw lock mechanism is described in detail and claimed in my copending application Serial No. 591,749, filed June 15, 1956 issued August 20, 1957, as Patent No. 2,803,019.

A pair of trim board brackets **33** is secured to the intermediate end rail sections **25**, and carries a trim board **34** which extends longitudinally of the bed frame and surmounts the front davenport frame member **13** in davenport position, as seen in Fig. 4.

As best seen in Fig. 1, a conventional spring mesh fabric **35** is secured to the side rails **22** and **23** and to the head and foot rails by means of conventional tension springs **36**, so that the fabric may support a foam rubber or innerspring mattress M, indicated in broken lines in Figs. 2, 3 and 4.

The anti-sag device of the present invention is generally indicated at **37**, and is best seen in Figs. 3, 5 and 6. The anti-sag device has an inextensible, flexible metal supporting strap **38** at the ends of which are holes **39** so that the strap may be secured to the intermediate end rail sections **25** of a bed. As best seen in Fig. 3, the strap **38** is preferably secured to the intermediate rail sections **25** by a rivet **40** which extends through the hole **39** at one end of the strap, and by a turnbuckle **41** which is hooked into the hole **39** at the opposite end of the strap. Turnbuckle **41** provides a convenient means for accommodating the anti-sag device **37** to bed frames of various lengths, whether the differences in length are due to minor variations in manufacturing tolerances, or whether they be due to the use of the anti-sag device with standard or over-size bed frames.

Alternatively, as seen in Fig. 7, a heavy tension spring

141 may be substituted for the turnbuckle 41 at one end of the metal strap 38.

As best seen in Figs. 5 and 6, a plurality of coil compression springs 42 surmount the supporting strap 38, and their lowermost convolutions 42*a* are engaged by attaching lugs 38*a* which are struck out of the strap 38. As seen in Figs. 3 and 5, there are conveniently five coil compression springs 42, and they only occupy the central portion of the strap 38 so that the total distance between the endmost compression springs 42 is no more than half the length of the strap 38.

The tops of all the coil compression springs 42 are secured together by flexible spring stabilizing means, which in the illustrated embodiment consists of a pair of parallel wires 43 which are secured by means of clips 44 to opposite sides of the top convolution 42*b* of each of the coil compression springs 42. As seen in Fig. 3, the wires 43 are secured to the spring mesh fabric 35 by means of hog ring staples 45.

As seen in Figs. 2 and 3, the anti-sag device 37 is mounted extending along the longitudinal median line of the bed frame, so that the coil compression springs 42 thrust upwardly against the wire mesh mattress supporting fabric 35, and thus elevate the mattress M along its longitudinal center line. The amount of sag in the supporting strap 38 may be adjusted by means of the turnbuckle 41, so as to vary slightly the amount which the mattress is thrust up in the middle.

The anti-sag device provides a very definite line of division between the two halves of the mattress M, but at the same time the coil compression springs 42 are soft enough that a person may roll across the center line of the mattress M without any discomfort. Thus, while the anti-sag device makes the bed more comfortable for two people, it does not interfere with the comfort of a person sleeping alone in the bed.

As seen in Fig. 4, when the bed frame 15 is in davenport position the anti-sag device 37 is positioned behind the davenport front rail 13 where it does not interfere with use of the device as a davenport, or with the folding and unfolding of the bed frame.

The foregoing detailed description is given for clearness of understanding only and no unnecessary limitations are to be understood therefrom, as modifications will be obvious to those skilled in the art.

I claim:

In a folding and retractable bed structure for a bed davenport having a box-like frame which includes a longitudinal front frame member; a folding bed bottom comprising a narrow intermediate bed frame section having end rails, two wide side frame sections each having a side rail and end rails rigidly connected to the side rails, the end rails being pivotally connected to and flanking the intermediate section end rails, said frame sections cooperating to form a folding double bed frame the head and foot rails of which are formed by the pivotally connected end rails of the central section and of the side sections, and the side rails of which are provided by the side rails of the side sections, said frame being swingably supported on said box-like frame for movement between a planar bed position projecting forwardly of the box-like frame and a folded davenport position within the box-like frame with the intermediate section upright at the front and the side sections extending rearwardly from the top and bottom of the center section; a pair of trim board brackets on the ends of said intermediate section; a trim board on said brackets which rest on top of said longitudinal front frame member in davenport position and hangs below said intermediate section in bed position; a wire mesh mattress supporting fabric secured to said bed frame; a single narrow, flexible and inextensible strap tensioned centrally between the two end rails of the intermediate section and underlying the longitudinal median line of said fabric parallel to said side rails, said strap being concealed behind the trim board and longitudinal front frame member in davenport position; a single line of spaced coil springs surmounting the central area only of said strap and thrusting against the wire fabric; and means securing the upper ends of the coil springs to the wire mesh fabric.

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