Jan. 24, 1956 G. Y. M. GÖPERT 2,731,650

FOLDING BED

Filed Aug. 19, 1952

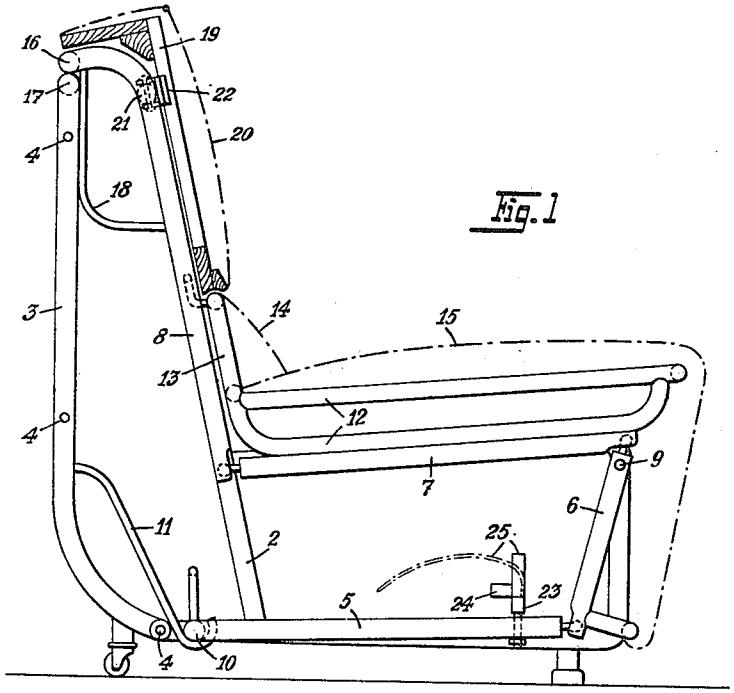


Fig. 1

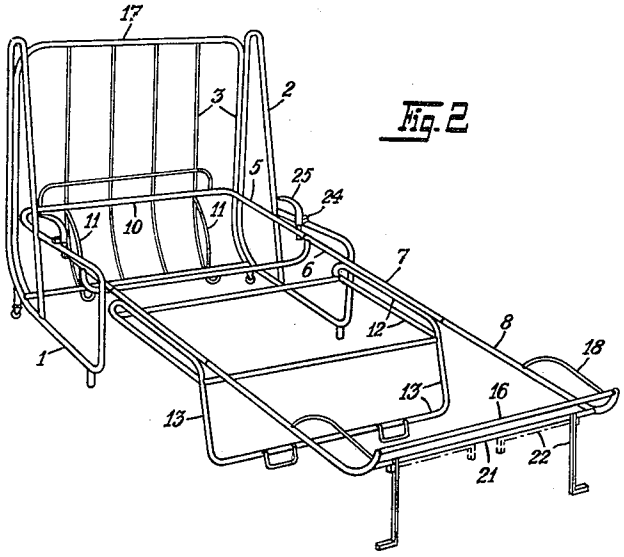


Fig. 2

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United States Patent Office

2,731,650

Patented Jan. 24, 1956

2,731,650

FOLDING BED

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Application August 19, 1952, Serial No. 305,128

2 Claims. (Cl. 5—44)

This invention relates to a folding bed convertible into a sofa or a couch.

One object of the invention is to provide such a folding bed, which is composed of only a few movable parts and which combines a simple construction and operation with high requirements as to comfort in use. Another object is to design single parts in such a way that they serve different purposes in the folded and in the unfolded bed.

These and other objects and advantages of the invention will be fully understood from the detailed description hereinafter, reference being made to the accompanying drawing in which:

Figure 1 is a side elevation, partly in section, of a combined couch and bed according to one form of the invention with the fore end member removed. Figure 2 is a perspective view of the couch converted into a bed.

The couch is mainly composed of steel tubes and comprises two end members **1**, **2** provided with legs resting on the floor and a back member **3** connected with each end member at **4** by means of two upper projecting pins with heads inserted in perforations formed like key-holes in the rear, vertical frame portion of the end member and a lower bolt passing through said frame portion into a lower, horizontal frame portion of the back member. This member is formed as a closed tube frame with vertical intermediate bars or tubes, and the lower portion of the back member as well as the corresponding portion of the end members are bent inwardly, whereby the three points **4** form the corners of a triangle. The bed frame comprises four sections **5**, **6**, **7** and **8** hingedly connected one to another, of which sections the intermediate section **6** is pivoted in the end members **1** and **2** by means of pins **9**. When the bed frame is unfolded the end frame portion **10** of the end section **5** slides on two guide members **11** welded to the back member **3**, and the section **5** is thereby raised to the position shown in Fig. 2, in which position the frame section rests on the upper ends of the guide members **11**. On the seat section **7** a closed frame **12** formed of metal tubes is detachably fastened, and a rear portion or extension **13** thereof is directed upwards along the back section **8**. The extension **13** has a fixed, lower back cushion or upholstery **14** and serves also as legs for the seat section in unfolded position of the bed frame. For this purpose the upper cross bar of the frame portion **13** in Fig. 1 is provided with two bows extending rearwards and upwards and serving as supporting feet for the seat frame in unfolded position of the fed frame. The frame **12** is further provided with a fixed seat cushion or upholstery **15**.

The back section **8** has two longitudinal frame portions having the upper ends bent backward and provided with a transverse frame portion **16**, which rests on the upper horizontal frame portion **17** of the back member **3**. Between the back member **3** and the back section **8** as well as between the sections **5**, **6** and **7** a sufficient space is obtained for the bedding, which thus may remain on the bed frame in its folded position. On the longitudinal frame portions of the back section **8** two bows **18** are

secured by welding so as to rest against the front side of the back member **3** and to serve also as side-supports, for the bedding at the foot end thereof. The upper and rear portion of the back section including the transverse frame portion **16** serves also as an end support for the bedding at the foot end as shown in Fig. 2. Between the longitudinal frame members of the four sections a resilient bed bottom may be arranged although not shown on the drawing for the sake of clearness. The upper portion of the back section is covered by a removable angle frame **19**, to which an upper back cushion or upholstery **20** is fastened. The frame **19** rests with its lower end against the frame portion **13**, and the whole back is thus covered by the upholstery **14**, **20**. Before the bed frame is unfolded the frame **19** is removed.

The back section **8** is provided with a further transverse frame member **21** carrying at its ends two pivoted legs **22** shown in Fig. 2 in its operative position and also by dot and dash lines in their inoperative position. In each one of the longitudinal frame members of the end section **5** a locking device **23** is pivoted. This device is provided with a projecting horizontal lock arm **24**, which rests on the end member **1** in order to support the adjacent ends of the sections **5** and **6** when the bed frame is unfolded. A plate spring **25** extends at a right angle to the lock arm **24** and has for its object to press the bedding against the bed bottom when the bed frame is to be folded. In the locking position of the device the plate spring extends in the direction of the longitudinal frame members of the section **5**, and if the spring is turned 90° towards and above the bedding the section is automatically disengaged from the end members.

The couch as shown is of a very simple construction with a few movable parts, it can be easily disassembled for transport, and has a low weight and can, therefore, be operated easily. This result has been possible owing to the fact that several constructive elements serve two or more purposes. Thus the upper portion of the back section **8** forms a suspending device for the sections **7** and **8** and the section **8** thereby carries the seat section **7** and the load thereon, whereby no special supports for the section **7** except the pivots **9** are required.

This is of advantage as it is difficult to provide such special supports. By the curvature of said upper portion a sufficient space is obtained between the back section and the back member **3** for the bedding which thus may remain on the bed bottom when the frame is folded. A third purpose of this portion is to form an end support for the bedding. The bows **18** bear against the front side of the back section and secure the position of the back member, and they also serve as side-supports for the bedding. The portion **13** of the frame **12** carries the back cushion **14** and forms a support for the angle frame **19**, and after unfolding the bed it serves as legs. Also the locking device **23** forms a combination of different parts which thereby are operated simultaneously and automatically in the desired way.

Although a couch bed has been shown and described it is obvious that the same principle can be used for a sofa with a single or with two individual bed frames, and also other modifications are possible without departing from the principle of the invention.

I claim:

1. In a structure of the character set forth, the combination with two end members formed of metal tubes and having a substantially vertical rear frame portion, of a back member, which comprises a closed frame of metal tubes including two substantially vertical frame portions parallel to and detachably connected with the rear frame portions of the end members, an unfoldable bed frame comprising a back section, a seat section, a fore section and a lower section hingedly connected one to another,

one of said sections being pivoted in the metal tubes of the end members, said back section having its upper portion bent backwards and resting with a horizontal end tube upon an upper tube portion of the back member so as to carry thereby the seat section, two metal rods extending each from the bent portion to the straight portion of a longitudinal frame portion of the back section so as to bear from the side against said upper tube portion of the back member, a seat frame connected to said seat section and having its rear portion directed upwards along the back section so as to limit the angle between the back section and the seat section and thereby maintain the back section in a proper position resting on the back member, said rear portion further serving as a leg structure for the unfolded seat section, a lower back upholstery covering said upwards directed portion, a removable frame resting on the seat frame and carrying an upper back upholstery, curved rods mounted on vertical bars extending between said upper tube portion and a lower tube portion of the back member for guiding a transverse end tube member of the lower section between

a lower and an upper position as the bed is being unfolded, and adjustable means provided on the lower section and engaging the end members for supporting this section when the bed is unfolded.

2. In a structure as claimed in claim 1, and comprising at least one bow extending rearwards and upwards from the upper portion of the seat frame and serving as a supporting foot for the seat frame in the unfolded position of the bed frame.

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