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SPRING ASSEMBLY FOR SPRING CUSHION CONSTRUCTION

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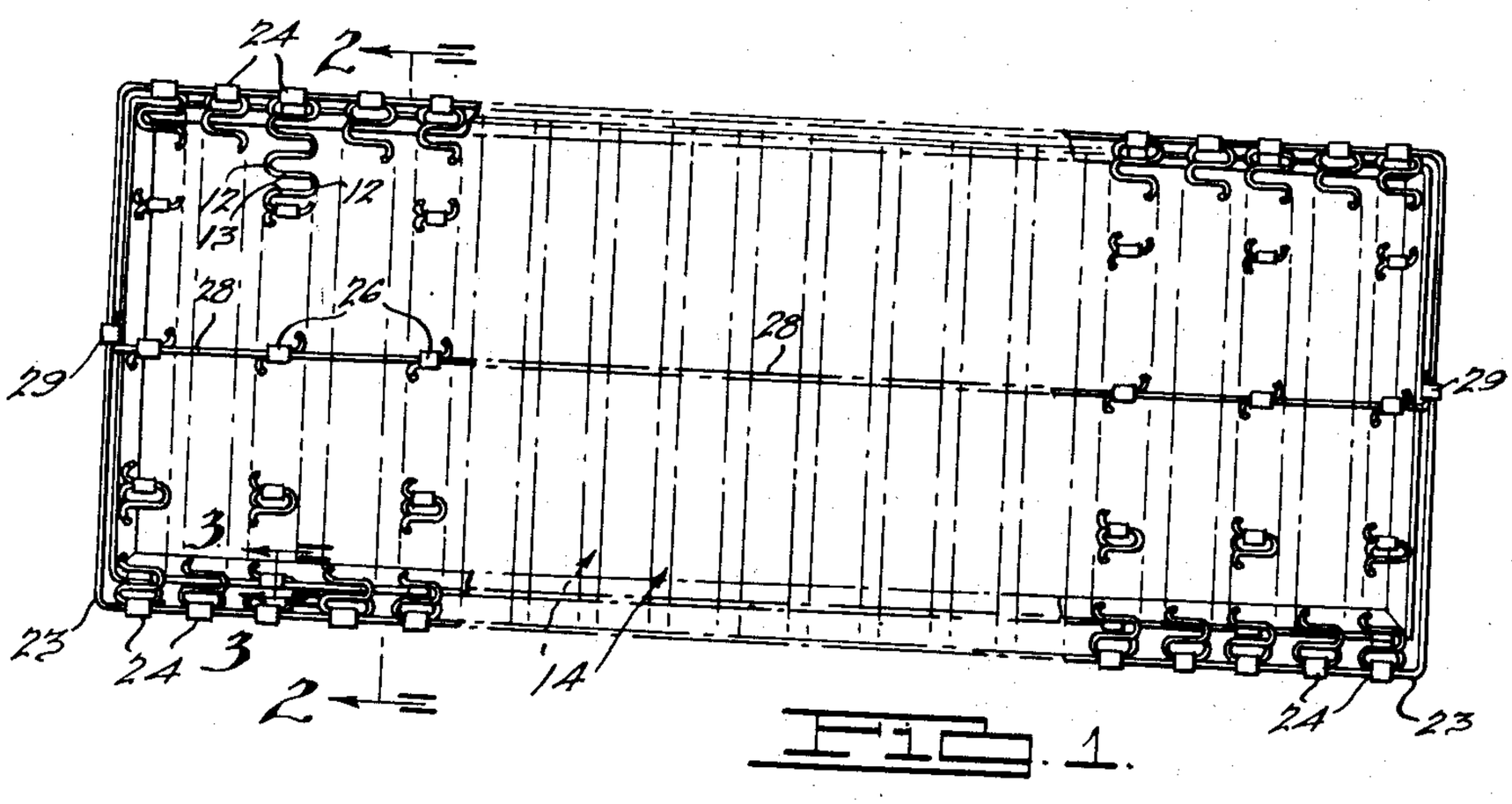

Fig. 1.

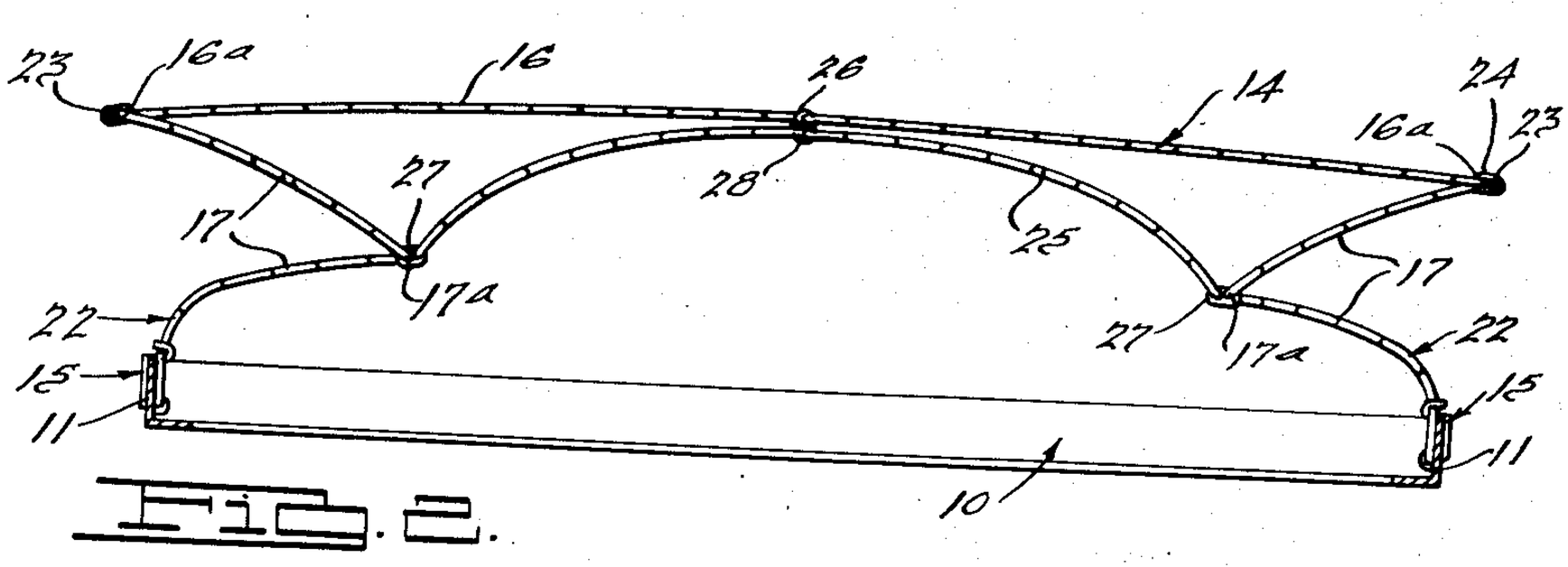

Fig. 2.

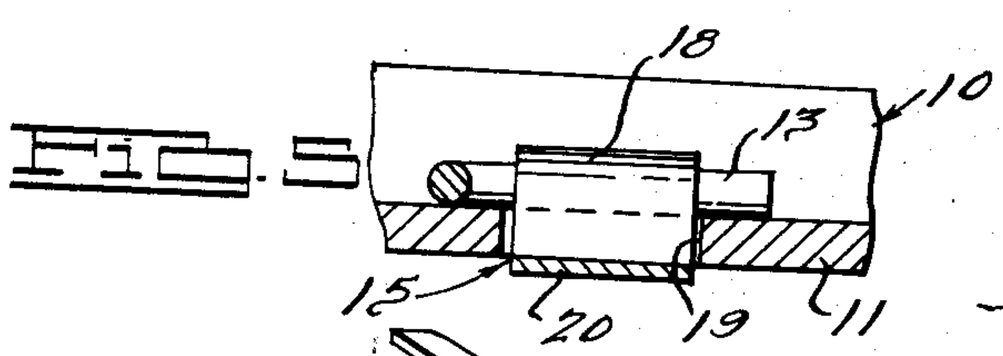

Fig. 5

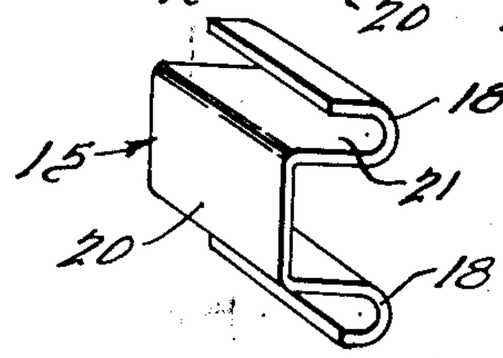

Fig. 4.

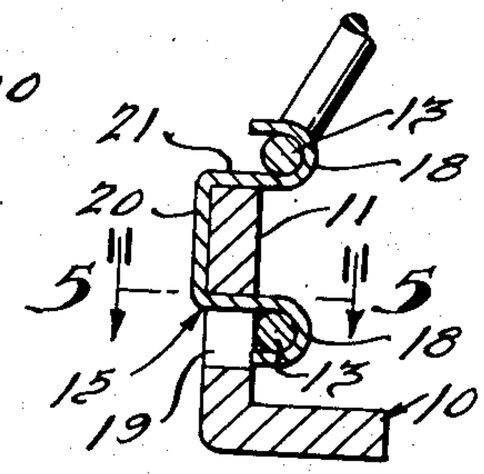

Fig. 3.

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SPRING ASSEMBLY FOR SPRING CUSHION CONSTRUCTION

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3 Claims. (Cl. 155—179)

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This invention relates to a spring assembly and more particularly, to a spring cushion construction adapted for use in sofa beds, davenports, and the like.

In the commercial practice of the invention, the spring cushion is constructed of a sinuous type of spring strip comprising a wire bent back and forth providing open oppositely extending loops connected by straight portions. These strips are usually set on an arc longitudinal of their length and when the strips are extended and the ends thereof attached at spaced points to a supporting frame the resulting arcuate formation which the spring strip assumes, acts to resiliently resist deformation under load.

One of the objects of this invention is to provide a spring cushion utilizing spring strips of this type so arranged and assembled that a relatively flat load supporting surface is provided thereby rendering the cushion ideally suited for use in sofa beds, davenports and the like.

Another object of this invention is to provide a spring cushion of this type in which the strips forming the load supporting surface are provided with substantially V-shaped supporting ends by means of which these strips are attached to the frame of the cushion. The free terminals of these V-shaped supporting ends are non-pivotally secured to the cushion frame by especially designed supporting clips to provide relatively high arcs immediately adjacent thereto. These V-shaped supporting ends provide efficient means for absorbing and distributing the loads imposed on the load supporting surface and for maintaining the shape or contour of the periphery of the cushion.

Another object of this invention is to provide a spring cushion of this character having arch elements, the ends of which are connected to and supported by the apices of the V-shaped elements and provide intermediate transverse support for the load supporting surface of the cushion. These arch-shaped supporting elements, which are tied to the spring strips of the load supporting surface, also act to distribute the load to the V-shaped supporting portions at both longitudinal edges of the cushion. The strips of the load supporting surface and the arch-shaped supporting elements are further connected to one another transversely by a pig-tail or t he like extending longitudinally of the cushion to effect an additional distribution of the load.

Numerous other objects, advantages and novel details of the invention will be made more apparent as this description proceeds especially when considered in connection with the accompanying drawing in which:

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Fig. 1 is a plan view of cushions with certain parts broken away, constructed in accordance with this invention;

Fig. 2 is an enlarged transverse sectional view in elevation, taken substantially on the plane indicated by line 2—2 in Fig. 1;

Fig. 3 is an enlarged detail sectional view taken substantially on the plane indicated by line 3—3 in Fig. 1, showing the spring supporting clip;

Fig. 4 is a perspective view of the supporting clip; and

Fig. 5 is a detailed section taken substantially on the plane indicated by line 5—5 in Fig. 3.

In the drawing the reference character 10 indicates a frame which may obviously be of any desired shape and material, although it is here shown as being rectangular in shape and formed of angle iron presenting an upstanding flange 11 at its longitudinal sides.

The spring cushion forming the particular subject matter of this invention comprises an assembly of two sets of spring strips arranged in a novel and unique manner yet to be described. Each spring strip has a sinuous configuration produced by bending a wire back and forth to provide open oppositely extending loops connected by substantially straight portions. These strips are produced in rolls and when the strip is unrolled and the ends separated the strip tends to arc or bow and the resulting arcuate formation assumed by the spring strip acts to resiliently resist deformation under load. As shown in Fig. 1 each spring strip is formed of a plurality of oppositely extending loops 12 connected by substantially straight portions 13.

The main load supporting portion of the cushion is formed by a plurality of normally bowed or arched spring strips 14 arranged transversely of the frame 10 with the terminal portions thereof connected to the longitudinal side of the frame by means of metal clips 15. Each strip 14 has a top load engaging or platform portion 16 return-bent as at 16a into one leg of a V-shaped supporting portion 17 having an apex 17a, the free ends of each V-shaped supporting portion being connected to the frame, as hereto-for described by clips 15.

As shown best in Figs. 3, 4 and 5 each clip 15 is provided with spaced return-bent portions forming spring engaging loops 18 adapted to receive the last and the next to the last straight portions 13 of the spring strip to non-pivotally support and secure the spring strip to the frame 10. The clip 15 is mounted on the frame by passing the lower loop 18 through a slot 19 formed in the flange 11. When thus assembled the intermediate

vertical portion 20 of the clip engages one face of the frame flange 11 and the angularly disposed shoulder portion 21 of the clip rests on the top edge of the frame flange 11. When the end of the spring strip is attached as just described the end straight portion 13 extends beyond the ends of slot 19 and engages the adjacent face of frame flange 11 as shown in Fig. 5 to prevent disengagement of the clip 15 from the frame, as will be apparent.

By securing the spring strip end to the frame against pivotal movement relative thereto, the spring strip is arched or provided with an arc, at each end, as shown at 22, adjacent its point of attachment. The periphery of the cushion top is bounded or defined by a border wire 23 secured to the spring strips 14, at the return-bends 16a thereof, by means of hog-rings or clamping bands 24.

Associated with the underside of the spring strips 14 are a plurality of arch-shaped supporting and reinforcing elements 25 preferably formed of sinuous spring strips similar to strips 14. Any desired number of these arch-shaped elements 25 may be employed but it has been found that the association of these reinforcing elements 25 with alternate spring strips 14 produces an entirely satisfactory spring construction.

Each reinforcing arch-shaped element 25 is connected intermediate its ends with its associated spring strip 14 by means of a hog ring or clamping band 26, and is terminately connected by hog-rings or clamping bands 27 to the adjacent apices 17a of the V-shaped portions 17. Extending transversely of the strips 14 and 25 and longitudinally of the frame 10 is a resilient connecting member or pig-tail 28. This member 28 may be in the form of a coiled spring or rubber strip and is preferably located between the strips 14 and 25 and is secured thereto by the previously described clamping bands 26. The ends of this member 28 are secured to the border wire 23 by clamping bands or the like 29.

The spring construction of this invention which comprises an assembly of two sets of spring strips arranged in the novel and unique manner herein described provides a cushion ideally suited for use in sofa beds, davenports, and the like. The load engaging or supporting portion of the cushion is relatively flat and the V-shaped supporting ends of the main spring strips provide efficient means for absorbing and distributing the loads imposed on the load engaging surface. The

associated arch-shaped members cooperate to reinforce the main spring strips and to distribute the load to the V-shaped ends of the main spring strips.

What is claimed is:

1. In a spring construction, a frame, a plurality of main spring strips forming a platform portion for supporting a load, said platform portion terminating at each end in substantially V-shaped portions terminally connected to said frame, and arch-shaped spring strips connected intermediate their ends to the underside of said platform portion and terminally connected to the apices of the V-shaped ends thereof.

2. A spring construction comprising a frame, a plurality of normally upwardly arched main spring strips arranged transversely of said frame and forming a platform portion for supporting a load, said platform portion terminating in substantially V-shaped portions terminally non-pivotally connected to said frame, arch shaped spring strips arranged beneath and connected to said platform portion and terminally connected to the apices of the V-shaped portions thereof, and a resilient member extending longitudinally of said frame and transversely connecting said main spring strips.

3. A spring construction comprising a frame, a plurality of normally upwardly arched main spring strips arranged transversely of said frame and forming a platform portion for supporting a load, said platform portion terminating in substantially V-shaped portions, clips engaging the ends of said V-shaped portions, said clips being detachably connected to said frame thrcugh apertures therein and non-pivotally connecting said V-shaped portions to the frame, and arch-shaped spring strips arranged beneath and connected to said platform portion and terminally connected to the apices of the V-shaped portions thereof.

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