

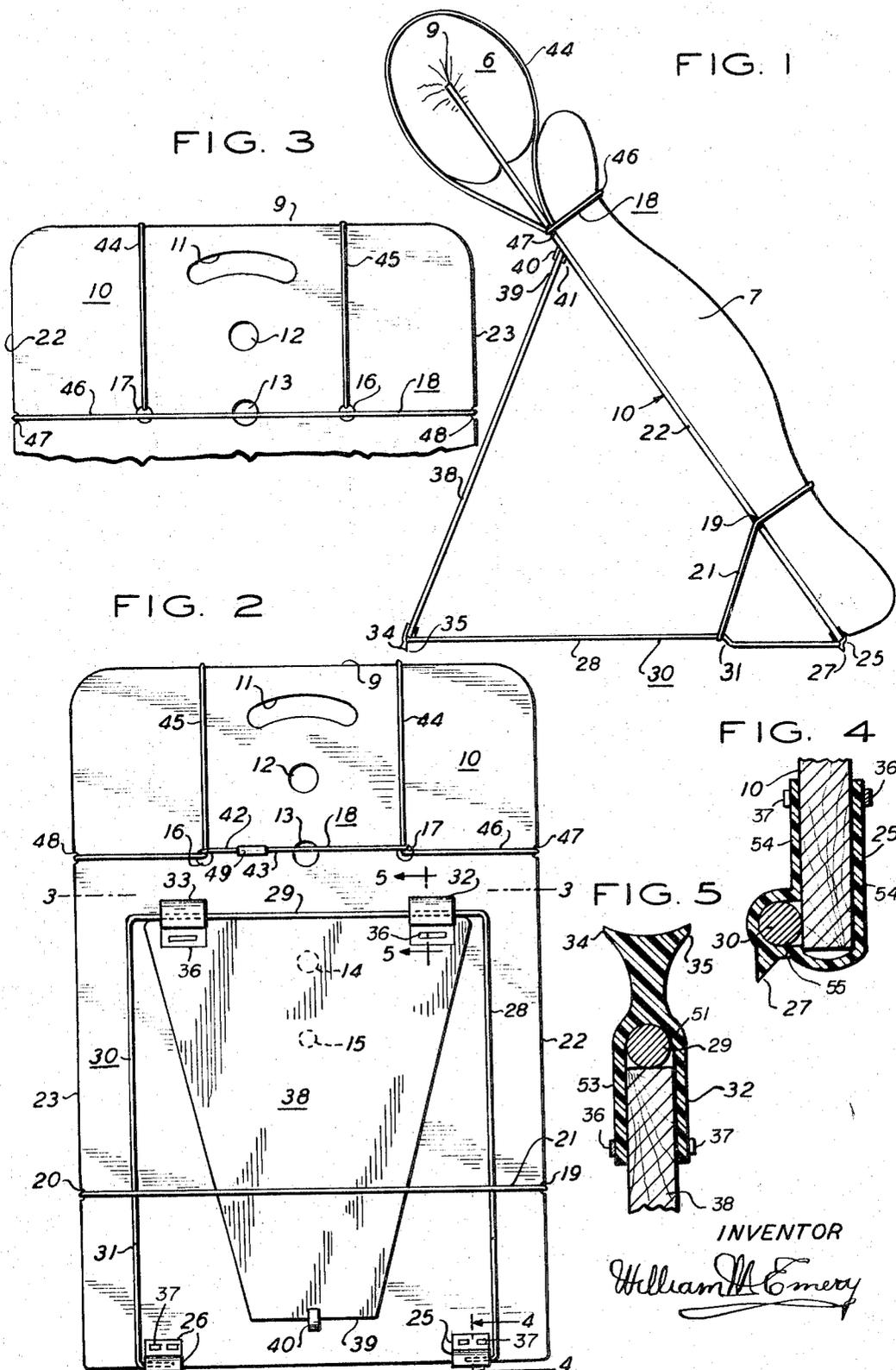
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BACK REST

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3,293,669
BACK REST
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My present invention refers to improvements in Back Rests used primarily for sitting up in bed. Back rests of the basic design have been patented and successfully manufactured for several years by the inventor as shown in Patent D.190,806 of July 4, 1961 and Patent 3,041,637 of July 3, 1962. The commercial success of these back rests has been due to their wafer-thin compactness when folded for storage or shipment which results in part from using a conventional head pillow in place of other padding, so the latter need not be part of the device. But important in this connection is a firm angular adjustable support for the pillow and new means for holding the pillow easily and securely to the support, and also new means to hold another pillow in such a way as to provide comfortable head support simultaneously, if desired, without extending the height of the back support per se. New simplicity of construction is also a major essential of continuous success, because it allows the maintenance of a low and reasonable retail price in the face of increasing manufacturing costs.

My present invention allows the elimination of the elastic 40 shown in Patent 3,041,637. Elastics of the type used to hold the pillow, normally have about 100% stretch. By avoiding actual attachment or stapling of the elastic to the panel, I am able to make more efficient use of the 100% stretch which allows me to use the same elastic for several functions. Present improvements also include new non-skid devices, particularly with reference to the lower edge of the panel, which is particularly helpful since the back rest is often used close to the head of the bed in which case the rear support of the back rest may be off the mattress or at a point where the edge of the mattress curls down, rendering any non-skid device at the rear ineffective.

Accordingly, objects of my present invention include combining the diverse pillow-holding function and function of counter balancing of the weight of mechanical parts to hold the parts in selective engagement so both diverse functions can be accomplished by one elastic, thereby eliminating use of a second elastic. Another object is to use the elasticity of the elastic more efficiently by using loops, that is elastics with their ends joined together rather than attached at the ends or intermediate of the ends to the panel. Another object is to provide notches, holes or passageways in the panel which, while positioning the elastic, do not overly hinder the longitudinal movement of the elastic and its stretching through said passageways, so that the whole length of the elastic may be stretched from either side of the panel and not just the elastic located on the side in immediate use. Another object is to avoid the stapling or otherwise fastening the elastic to the panel. Another object is to limit the lateral sliding of the elastic due to angular variations of the supporting structure without affecting the longitudinal freedom of the elastic. Another object is to provide in combination hinging of the spacing member with additional non-skid holding features, two on the front, and two on the brace, and to fasten these each with a large single staple driven through from one side and cleated on the other. Another object is to mount a captive loop of elastic at the top of the panel which will hold a pillow either around the top edge of the panel to support the head and neck of the user and also hold a pillow coinciding substantially with the panel. Another object is to use

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a free pre-made elastic loop applied at a lower corner of my device and effective to hold the apex or top of my device in engagement.

These and other objects and their successful accomplishment will be obvious from the following specification, claims and drawings in which:

FIG. 1 is a side elevation of my improved back rest with conventional pillows in place,

FIG. 2 is a rear elevation when folded flat,

FIG. 3 is fragmentary front elevation taken above line 3—3 of FIG. 2,

FIG. 4 is a section taken along line 4—4 of FIG. 2, and FIG. 5 is a section taken along line 5—5 of FIG. 2.

Pillows 6 and 7 shown in FIG. 1 are conventional and not of my invention per se.

As shown in the drawings, back-supporting panel 10 made of a rectangular piece of 1/4 inch plywood includes a hand hole 11 and four other selectively positioning holes 12 to 15. Also included are two holes or passageways 16 and 17 for upper elastic loop 18 and two notches 19 and 20 for the lower elastic loop 21.

Extending rearward is a U shaped, fixed length bail or spacer 30 of 3/16 inch wire rod, the ends of which turn inward and are journaled in the offset pivotal crotches 55 (FIG. 4) in plastic pieces 25 and 26. These plastic pieces include legs 54 which straddle the wood of the bottom edge of back supporting panel 10. A single staple having a bar or back 36 and cleatable ends 37 is driven through the leg 54 of one of the plastic pieces 25 or 26, then the wood of said bottom edge of 10, then the other leg, and then automatically cleated. The plastic pieces 25 and 26 each have a sharp edge foot 27 which engages any resilient or rough supporting surface such as a mattress or carpet (not shown) to avoid sliding thereon.

Offsets 31 in legs 28 of bail 30 are spaced away from said ends of bail 30 which are journaled primarily in said offset crotch 55 of the plastic legs 54.

The base 29 of the U bail 30 is journaled in crotch 51 (FIG. 5) in plastic pieces 32 and 33. These pieces include legs 53 which straddle the wood of the longer end edge (FIG. 2) or bottom edge (FIG. 1) of rear support panel 38 and a single long staple having a bar or back 36 and cleatable ends 37 is driven through legs 53 of plastic pieces 32 and 33 and the wood of said longer end edges of 38 positioned between legs 54 and automatically cleated. The plastic pieces 32 and 33 each have two sharp edges 34 and 35 which engage any resilient or rough supporting surface to avoid sliding thereon. The four identical staples are similarly numbered in the drawings.

Thus simple integral extruded plastic pieces 25—26 and 32—33 perform a plurality of essential functions including (1) anchoring bail 30 to the back supporting panel 10 and to rear support panel 38 respectively, assuring their constant spacing with the aid of bail 30, (2) providing a bearing to journal bail 30 allowing at least 90 degrees of motion, (3) providing non-skid feet and (4) providing legs 54 and 53 respectively to straddle wood parts 10 and 38 so that the legs are cleatably stapled thereto, thus producing a closed circuit of attachment to resist any forces tending to pull the journals or pieces 25—26, 32—33 in any direction.

The top edge 39 of a keystone shaped rear brace 38, mounts a nose 40 which selectively loosely engages holes 11 to 15 from the rear holes 11 to 15 in the upper area of panel 10. This provides a selection of optional five comfort angles for panel 10, but in doing so a substantial change of angle occurs between panel 10 and wire spacer bail 30, and also between spacer bail 30 and rear brace 38, and also between rear brace 38 and panel 30 at apex 41. Of course, these changes of angle also occur in their extreme when my back rest is collapsed flat as pictured in FIG. 2.

Obviously, from the foregoing description and FIG. 1, my basic back rest design involves a structure which from the side forms a triangle with bail 30 considered as the base of the triangle, with panel 10 considered as a leg of the triangle pivotally journaled to one end of the bail or triangle base 30, and the rear brace 38 considered as the other leg of the triangle journaled to the other end of this hypothetical base. The top or apex 41 of this triangle is formed by the loosely contacting of rear brace 38 by the engaging of the upper rear area of panel 10 and by nose 40 very loosely and optionally engaging one of holes 11 to 15 which are oversize and do not conform in shape to nose 40 which has a square cross section. If one would pick up such a structure by hand hole 11, it is obvious that it would fall apart at apex 41. As shown in Patent 3,041,637, I used in times past to hold the equivalent of apex 41 together with an elastic which was anchored at a point equivalent to the center of top 9 of panel 10 and extended all the way down the centerline of a brace equivalent to 38. This arrangement, by a direct pull, counterbalanced the weight of parts functionally equivalent to 30 and 38 and maintained loosely the equivalent of apex 41 in secure but optional engagement, even if the back rest were lifted from the top of the panel.

My present invention eliminates such an elastic tie, simplifying the operation of my back rest, beautifying it and reducing manufacturing costs.

Multipurpose lower elastic loop 21 may be pre-made by any suitable splicing means, including the crimping of the ends of the elastic by a metal tube. This elastic loop in my present invention successfully performs four essential functions: first, it holds a conventional pillow, such as 7, in place; second, it prevents the ends of U shaped spacer rod 30 from sliding laterally out of bearings 55 in plastic parts 25 and 26; thirdly, it keeps all parts folded compactly in substantially a common plane (see FIG. 2); and fourthly, it keeps apex 41 together and nose 40 loosely and optionally engaged in one of holes 11 to 15, as in FIG. 1, counterbalancing the weight of 30 and 38 by applying forces indirectly and at a considerable distance from apex 41.

With special reference to the fourth function, due to the wide change of angle between U spacer bail 30 and panel 10, it is essential that loop 21 not slide up and down on edges 22 and 23 of panel 10. Yet to get maximum use of the 100% elasticity of loop 21, it is necessary that the elastic be able to slide longitudinally of the elastic around edges 22 and 23 and to accomplish this function I have provided notched passageways 19 and 20.

The offsets 31 in U shaped spacer rods 30 accomplish a similar dual function. These offsets allow elastic loop 21 to slide longitudinally of the elastic around the rod of C spacer 30 but the offsets 21 also limit the sliding of the loop longitudinally of the rods, thus maintaining sufficient distance from pivot sockets 25 and 26 to provide sufficient leverage so the elasticity of loop 21 will provide necessary forces to counterbalance the weight of parts 30 and 38 and hold nose 41 in loose engagement with one of holes 11 to 15.

In this way, notches 19 and 20, together with offsets 31, cooperatively combine with loop 21 to produce the quadruple functions previously detailed and thereby avoiding the previous necessity of an additional top elastic to directly hold apex 41 together. A single elastic with a 100% stretch could not accomplish this, and also hold a pillow such as 7, if it were held fixed by adhesive or staples along edges 22 and 23. Loop 21 is a free and independent loop which may be made in advance and then slipped into place over the assembled back rest.

Upper elastic loop 18 might be called a captive loop. Ends 42 and 43 are inserted through holes 16 and 17 respectively and spliced or otherwise joined, such as by crimping a metal tube over them such as 49. The excess of elastic hanging loosely in front is then pulled and stretched around and over top edge 9 of panel 10 to form

vertical strands 44 and 45 and then passed under the spliced ends 42 and 43. The remaining portion of elastic 18 is then looped around the top and front of panel 10 to form the horizontal band 46 in the plane of holes 16 and 17. Since the elastic loop 18 is not longitudinally fixed at any point to panel 10, stretching forces applied to the vertical portion 44 and 45 are communicated to horizontal section 46 and vice versa, thereby utilizing the whole of the 100% stretch inherent in the whole loop when desired. This allows the elastic to be under some tension when not in use, so it looks well and yet has sufficient elasticity to go around sizable pillows, such as 6, when used around top 9 of panel 10 for extra head support. This pillow-holding arrangement supports the head and neck of the user forward and beyond the top of panel 10 without extending the height of the wood of panel 10. As shown in FIG. 1, pillow 6 can be held by vertical strands 43 and 44 so that pillow 6 is wrapped around the front, top and back of the upper part of panel 10. Notches 47 and 48 may be provided, but are not functionally necessary. In earlier designs of my back rest, the elastic was always stapled or cemented to the panel edges and the present unique free or captive loops were not used or known.

Accordingly, I claim:

1. A back rest, comprising an inclined back-supporting member, a brace member, said members having normally upper and lower ends when erect, a wire bail journaled to both of said members at fixed points near said lower ends and providing constant spacing therebetween, positioning means providing loose optional contact points between said upper end of the brace member and the upper area of the rear side of the back-supporting member intermediate of the ends thereof and a substantially horizontal elastic loop around said lower end of the back-supporting member and the adjacent end of said bail acting to hold together said loose optional contact points between said upper end of the brace member and the upper rear area of the back-supporting member.

2. A back rest, comprising an inclined back-supporting member, a brace member, said members having upper and lower ends when erect, passageways in said lower end, a wire bail, journals joining said bail to said members at fixed points near said lower ends, said bail frame providing constant spacing therebetween, offsets in said bail frame, positioning means providing loose optional contact points between said upper end of the brace member and the upper area of the rear side of the back-supporting member and an elastic loop guided by said passageways around the lower end of said back-supporting member and around the adjacent end of said bail and spaced therefrom by said offsets in said wire bail, said elastic loop acting on said bail at a predetermined distance fixed by said offset in said bail to provide forces tending to hold said upper end of the brace member and upper rear area of the back-supporting member loosely together.

3. A back rest, comprising an inclined back-supporting member, a brace member, said members having normally upper and lower ends when erect, positioning means providing loose optional contact points between said upper end of the brace member and the upper area of the rear side of the back-supporting member intermediate of its ends, a wire bail providing constant spacing between the lower ends of said members, and a plurality of extruded plastic parts each integrally providing bearing means to journal said bail, two legs spaced to embrace said lower ends sufficiently long for cleatable stapling to first penetrate one of said legs, then one of said ends, and then through the other of said legs, and also relatively sharp bottom edges to resist sliding of said back rest when in use on a resilient supporting surface.

4. A back rest, comprising an inclined back-supporting member, two passageways in the upper portion thereof, a brace member, said members having normally upper and lower ends when erect, a bail frame journaled to said

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members at fixed points near said lower ends and providing constant spacing therebetween, positioning means providing loose optional contact between said upper end of the brace member and the upper area of the rear side of the back-supporting member intermediate of the ends thereof and one elastic loop threaded through said two passageways to provide a horizontal elastic band and two vertical elastic bands to position pillows against and beyond the extremities of said back-supporting member.

5. A back rest comprising a back supporting panel, passageways in said panel and a loop of elastic longitudinally movable in said passageways and also vertically looped through said passageways and around the top of said panel to hold a separable conventional pillow, thereby providing heightened head support beyond the extremities of said panel when desired.

6. A back rest comprising a back supporting panel, an elastic loop, passageways in said panel suitable for the longitudinal movement of said elastic loop therein, said elastic loop being so disposed with the aid of said passageways as to provide one horizontal band to hold a conventional pillow substantially against and parallel to said panel and two vertical bands looping the front, top and back of said panel to hold a conventional pillow wrapped around the top of said panel to provide heightened head support beyond the extremities of said panel.

7. A back rest comprising an inclined back supporting member, a brace member, said members having upper and lower ends when erect, a wire bail journaled to both of

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said members at fixed points near their said lower ends providing constant spacing between said members, offsets in said bail at a constant distance from said journals, positioning means providing optional points of engagement between said upper ends of said members at various distances from said journals, passageways in the lower half of said back supporting member, an elastic loop movable longitudinally in said passageways and positioned horizontally around the lower front of said back supporting member to hold a conventional pillow and around the lower rear of said member to provide forces in conjunction with said offsets to hold said upper ends of said members in engagements.

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