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H. L. KAUFMANN

1,892,841

MATTRESS PROTECTOR

Filed May 24, 1932

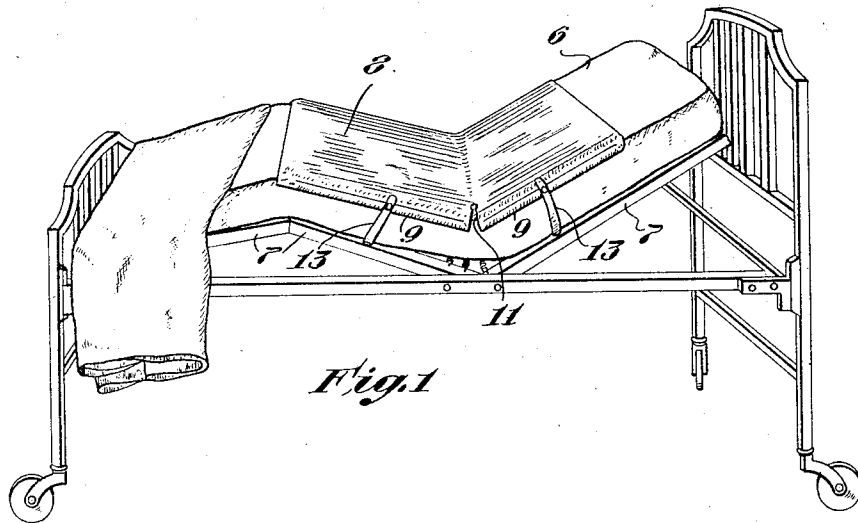


*Fig. 1*

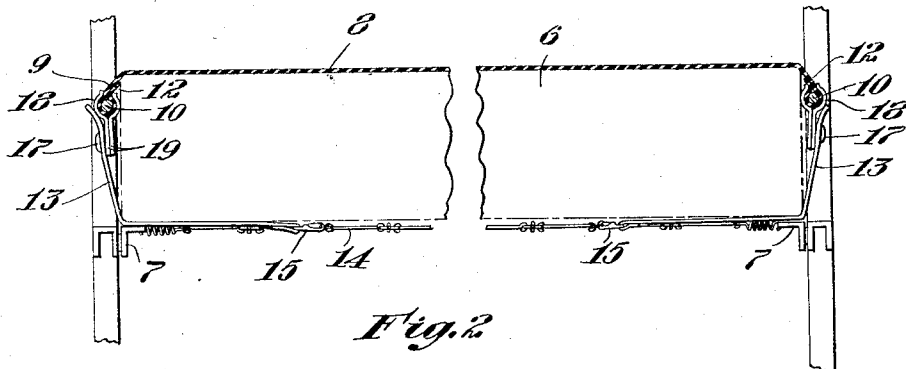


*Fig. 2*

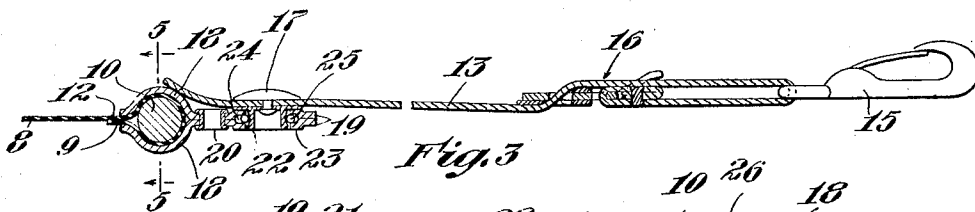


*Fig. 3*

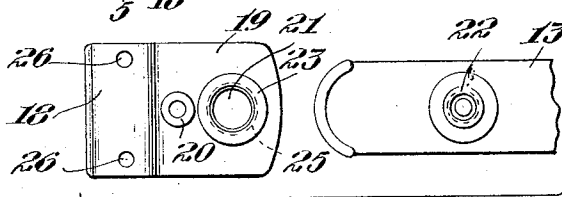


*Fig. 4*

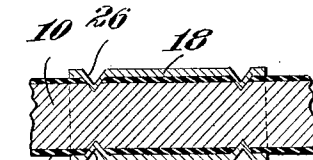


*Fig. 5*

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## UNITED STATES PATENT OFFICE

HENRY L. KAUFMANN, OF NEWTON, MASSACHUSETTS

## MATTRESS PROTECTOR

Application filed May 24, 1932. Serial No. 613,182.

This invention relates to mattress protectors and pertains more particularly to fastening devices for securing a rubber sheet or protector upon the mattress of a hospital bed or the like. The present invention is in the nature of an improvement upon the protector for mattresses described in my Patent No. 1,700,535 dated January 29, 1929.

In my said patent, the rubber sheeting is stretched across the mattress and secured thereon by tension straps which connect to the springs of the bed and which are removably fastened to clamps embracing the margins of the sheeting, said margins being braced and reinforced by rigid rods fitted in hems at opposite sides of the sheeting. The fastening or coupling means for attaching the straps to the sheet margins are of such character that the sheet or protector must be applied right side up in order to permit ready attachment and removal of the straps.

It is accordingly the principal purpose of the present invention to produce a reversible protector which may be placed upon the mattress with either of its sides alternatively uppermost, and to provide strap fastening devices which are equally effective and accessible for manipulation in either selected position of the sheet. Further objects of the invention reside in the structural features of the coupling hereinafter more fully described and are pointed out in the appended claims.

A recommended embodiment of the invention is shown for the purpose of illustration in the accompanying drawing, in which:

Fig. 1 is a perspective view of the improved protector applied to a hospital bed of the type having connected frame sections angularly adjustable with respect to each other;

Fig. 2 is a diagrammatic transverse section of Fig. 1, taken to larger scale and showing the frame section in horizontal position;

Fig. 3 is an enlarged side view of one of the tension straps and the coupling devices for separably attaching it to the reinforced margin of the sheeting, the whole being shown in section;

Fig. 4 is a detail bottom view of the cou-

pling shown in Fig. 3, the coupling elements being separated from each other; and

Fig. 5 is a section taken on line 5—5 of Fig. 3.

In the particular embodiment chosen for the purpose of illustration the protector is applied to the mattress 6 of a hospital bed of the Gatch type in which the frame sections 7 are adjustable from flat position to the angular arrangement illustrated in Fig. 1. It will be apparent however that the subject matter of this invention may be employed on bed mattresses generally, and it will also be understood that the structural details of the specific apparatus herein shown and described may be modified to suit particular purposes without departing from the essence of the invention as defined in the claims hereof.

The protector comprises a sheet 8 of waterproof material such as rubber or rubberized fabric of a width approximately conforming to that of the mattress and of any appropriate length, the side margins of the sheet having hems 9 receiving rods or spreader bars 10 of wood or other suitable material. Preferably, the hems are divided and spaced from each other at each side of the sheet to permit an angular disposition of the reinforced margins (Fig. 1), and transverse slits 11 extend inwardly between the divided hems and their reinforcing rods at the respective sides of the sheeting. The doubled hems 9 may be secured by a rubber cement and/or by stitching 12.

Flexible tension members such as the straps 13 are separably fastened to the reinforced margins of the sheet by couplings hereinafter described, and the opposite ends of the straps are passed beneath the mattress and connected to the bed spring 14 as by snap hooks 15. The length of the straps may be adjusted by any common form of buckle or clasp as indicated at 16 (Fig. 3), and the adjustment should be such that the snap hooks are attached a substantial distance from the side of the bed to permit the bed coverings to be tucked in between the straps and the spring without unfastening the straps.

The separable coupling at the margins of

the sheeting includes a snap button 17 fixed to the strap 13, and a socket member comprising a pair of metal plates having clamp parts 18 applied to opposite sides of the reinforced hem 9 and securely gripped thereon by securing together the flat, projecting wings 19 of the complementary plates, as by a tubular rivet 20. The wing portions are thus held in juxtaposed relation and have registering openings forming a double-ended socket 21 for receiving the stud 22 of the snap button in interlocking engagement. The wings 19 have outwardly offset circular portions 23 bordering the socket 21, which form a groove or channel 24 between the respective plates; and a split ring 25 seats within this channel and serves as a locking spring for the stud 22 which may be inserted through the socket opening of either one of the plate wings.

It will be observed that the socket member of the coupling thus provides a complementary recess for the stud 22 and also serves to clamp the sheet hem 9 to the bracing rod 10, the latter being preferably secured against twisting or longitudinal displacement by prongs 26 struck inwardly from the curved clamp portions 18 and engaging in the surface of the rod (Fig. 5). In applying the plate members to the reinforced margin of the sheeting, the curved clamps 18 are placed upon the hem over its interior rod in complementary relation, the split ring is placed in the channel 24, and the wings are rigidly clamped together by inserting the rivet 20 in apertures of the wings and heading over the rivet by a suitable tool or machine, thereby tightly to grip the sheet margin and secure the wing portions in juxtaposed relation.

After the sheet is placed upon the mattress in proper position the stud members 22 are snapped into the complementary sockets 21 by pressing on the buttons 17, and the straps are pulled under the mattress above the spring and connected to the spring wires by the snap hooks 15. When the protector is to be removed or reversed, it is merely necessary to release the snap fastening by grasping and pulling upon the free end of the strap; and it is evident that the fastening may be reengaged in the same manner as before after the sheet is replaced; that is, with the strap fastened upon the outer most side of the coupling plates. The disposition of the strap and the arrangement of the coupling devices will be the same whether the sheet is replaced with its obverse or reverse surface uppermost; for the stud 22 will engage equally well when inserted into the socket 21 through the opening in either of the wing portions.

The opposite sides of the reversible sheet may be coated with rubber of contrasting colors in order to distinguish the obverse and reverse surfaces and also to indicate that a protector formed as herein described may be reversed when desired. Because of its re-

versibility, the sheeting is more durable than the sheets heretofore manufactured under my aforesaid patent, and the improved coupling presents obvious advantages over the fastening devices of the patented arrangement.

I claim:

1. In a mattress protector of the type described, a coupling for separably attaching a retaining strap to the margin of a flexible sheet, the coupling comprising a pair of complementary jaws having clamp portions applied to opposite sides of the sheet margin and substantially flat wing portions, means for clamping said plates together thereby to grip the sheet margin and to hold the wing portions in juxtaposed relation, said wing portions having registering openings forming a double ended socket, and a complementary member attached to the strap and detachably engageable in said socket through the opening in either of the wing portions, whereby the strap may be fastened to the outermost side of the coupling jaws whether the obverse or reverse surface of the sheet is uppermost.

2. In a mattress protector of the type described, a coupling for separably attaching a retaining strap to the margin of a flexible sheet, the coupling comprising a pair of complementary plates having clamp portions applied to opposite sides of the sheet margin and substantially flat wing portions, means for clamping said plates together thereby to grip the sheet margin and to hold the wing portions in juxtaposed relation, the respective wing portions having registering openings therethrough and outwardly offset, annular shoulders bordering said openings, thereby to form a double-ended socket and a peripheral channel between said annular shoulders, a spring in said channel, and a complementary stud member attached to the strap and detachably engageable in said socket through the opening in either of the wing portions, whereby the strap may be fastened to the outermost side of the coupling plates whether the obverse or reverse surface of the sheet is uppermost.

3. In a mattress protector of the type described, a coupling for separably attaching a retaining strap to the margin of a flexible sheet, the coupling comprising a pair of complementary plates having curved clamp portions applied to opposite sides of the sheet margin and substantially flat wing portions, means for clamping said plates together thereby to grip the sheet margin and to hold the wing portions in juxtaposed relation, the respective wing portions having registering openings therethrough and being formed with outwardly offset, annular shoulders around said openings, thereby to form a double-ended socket and a peripheral channel between said annular shoulders, a split-

ring seated in said channel, and a complementary stud member attached to the strap and detachably engageable in said socket through the opening in either of the wing portions, whereby the strap may be fastened to the outermost side of the coupling plates whether the obverse or reverse surface of the sheet is uppermost.

4. In a mattress protector of the type described, a coupling for separably attaching a retaining strap to the margin of a flexible sheet, the coupling comprising a pair of complementary plates having curved clamp portions applied to opposite sides of the sheet margin and substantially flat wing portions, means for clamping said plates together thereby to grip the sheet margin and to hold the wing portions in juxtaposed relation, the sheet margin having a hem and a bracing rod therein and the clamp portions having integral prongs engaging through the hem and into said rod, the respective wing portions having registering openings therethrough and being formed with outwardly offset, annular shoulders around said openings, thereby to form a double-ended socket and a peripheral channel between said annular shoulders, a split-ring seated in said channel, and a complementary stud member attached to the strap and detachably engageable in said socket through the opening in either of the wing portions, whereby the strap may be fastened to the outermost side of the coupling plates whether the obverse or reverse surface of the sheet is uppermost.

5. A separable coupling for connecting a pair of flexible members, comprising a pair of complementary metal plates having clamp portions applied to opposite sides of the margin of one of the members and substantially flat wing portions integral with the clamp portions, means passing through the wing portions for rigidly clamping the plates together thereby to grip said margin and hold the wing portions in juxtaposed relation, the respective wing portions having registering openings and being formed with outwardly offset, annular shoulders bordering said openings, thereby to form a double-ended socket and a peripheral channel between said annular shoulders, a split-ring seated in said channel, and a complementary stud member attached to the other of said members and detachably engageable by the split ring of said socket when the stud is alternatively inserted through the opening in either of the wing portions.

Signed by me at Boston, Massachusetts,  
this 20th day of May, 1932.

HENRY L. KAUFMANN.