

Jan. 17, 1933.

A. D. STINE

1,894,362

COMBINATION FURNITURE

Filed Feb. 12, 1931

4 Sheets-Sheet 1

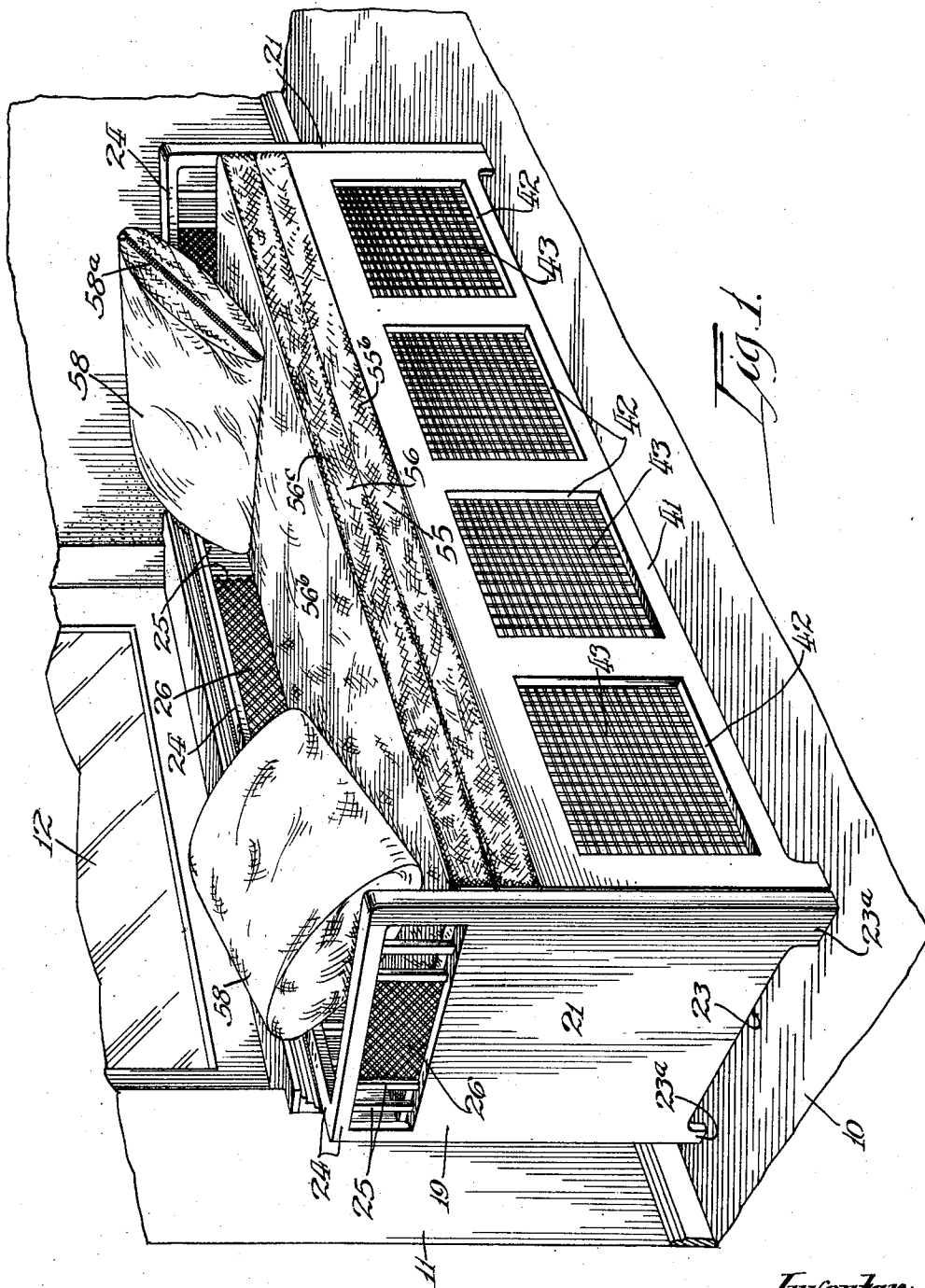


Fig. 1.

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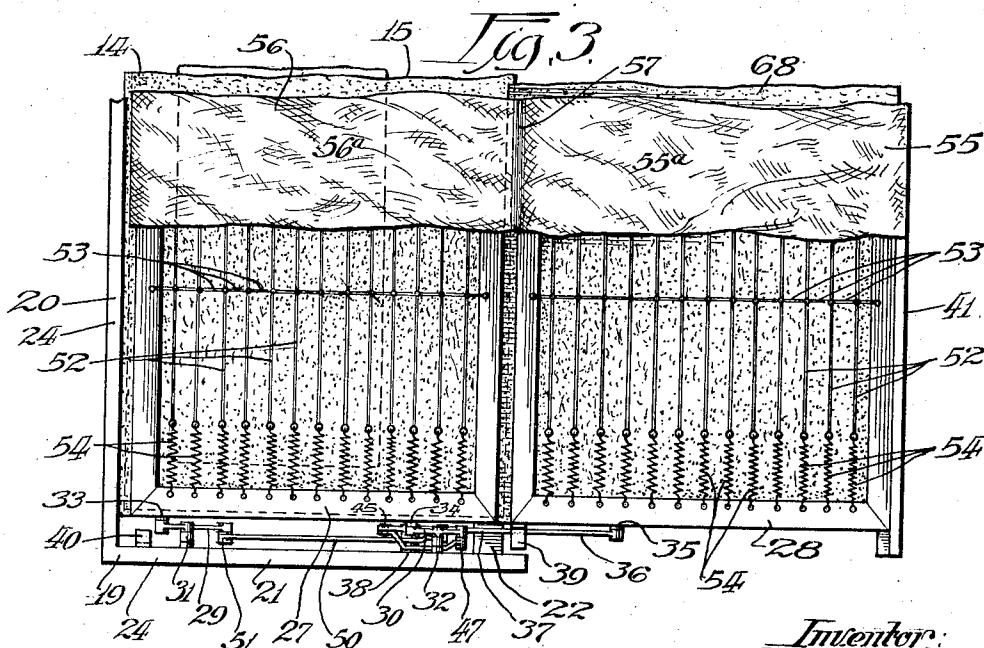
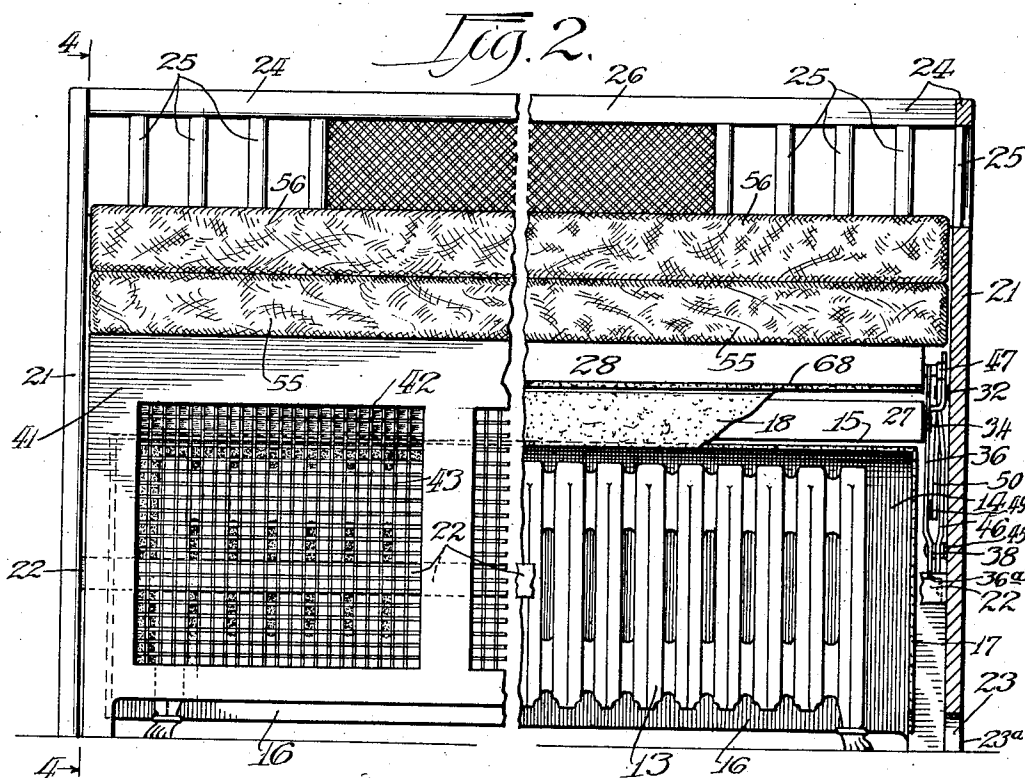
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COMBINATION FURNITURE

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4 Sheets-Sheet 2



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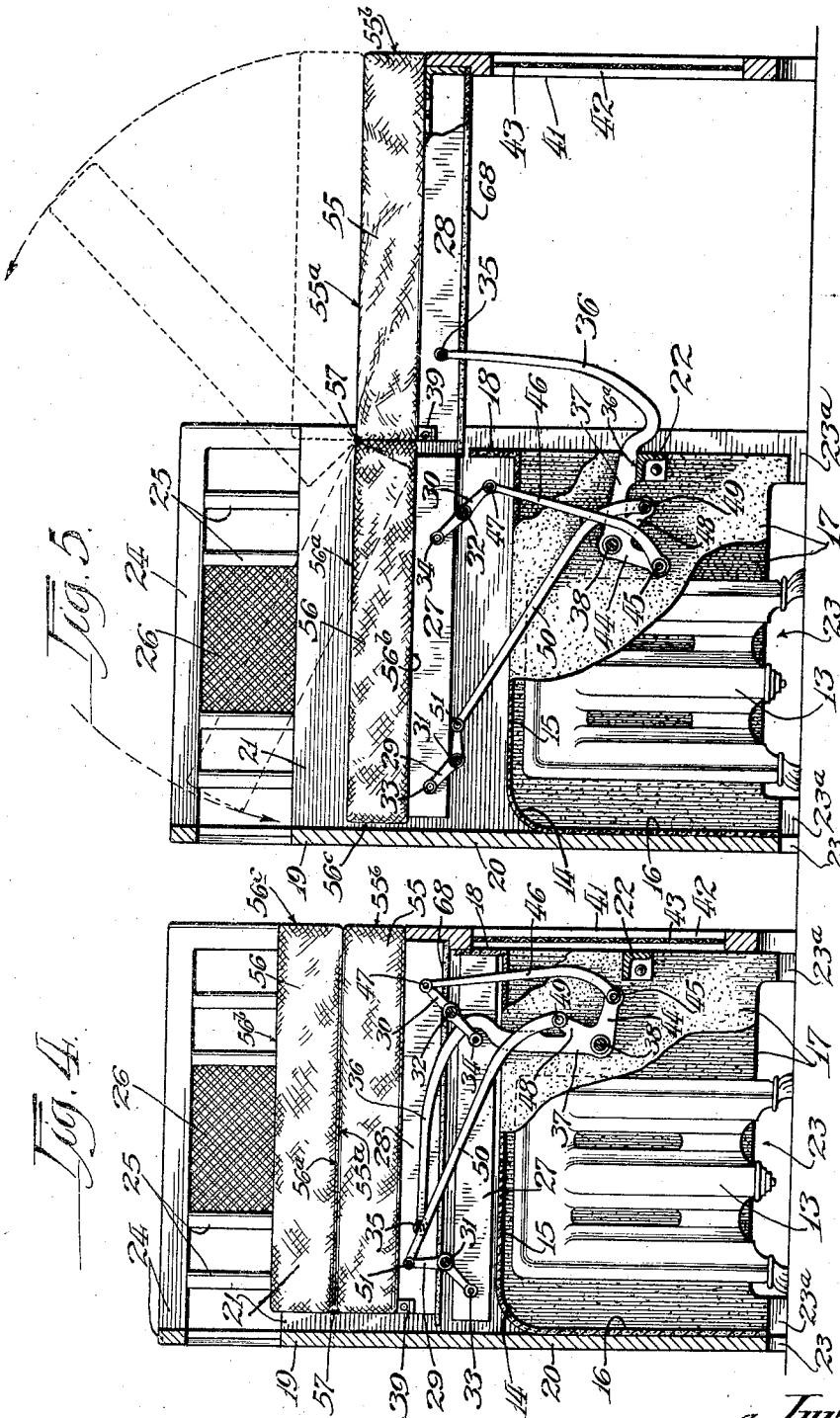
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COMBINATION FURNITURE

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4 Sheets-Sheet 3



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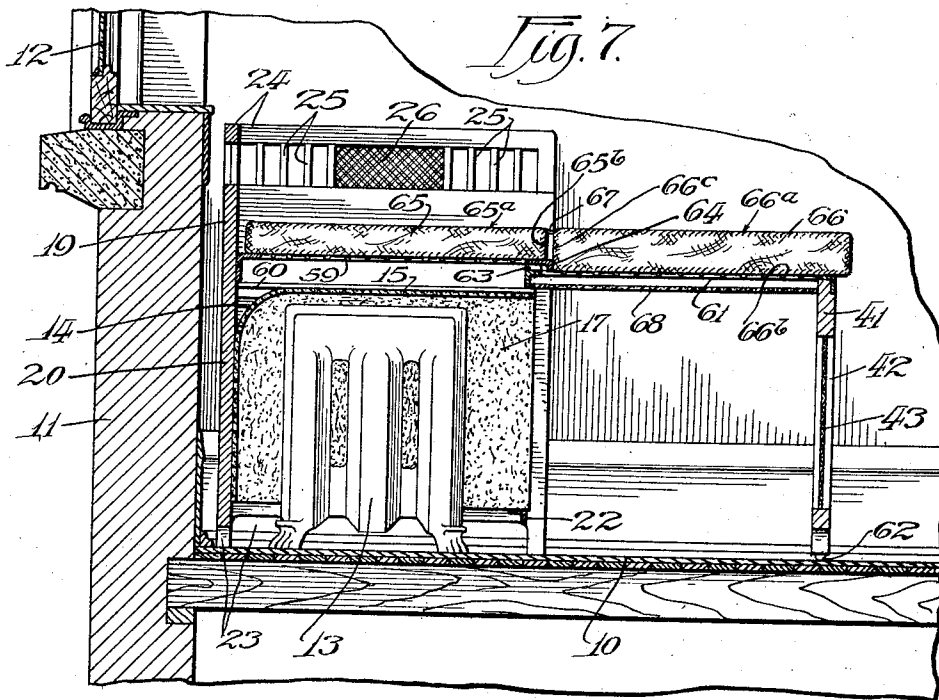
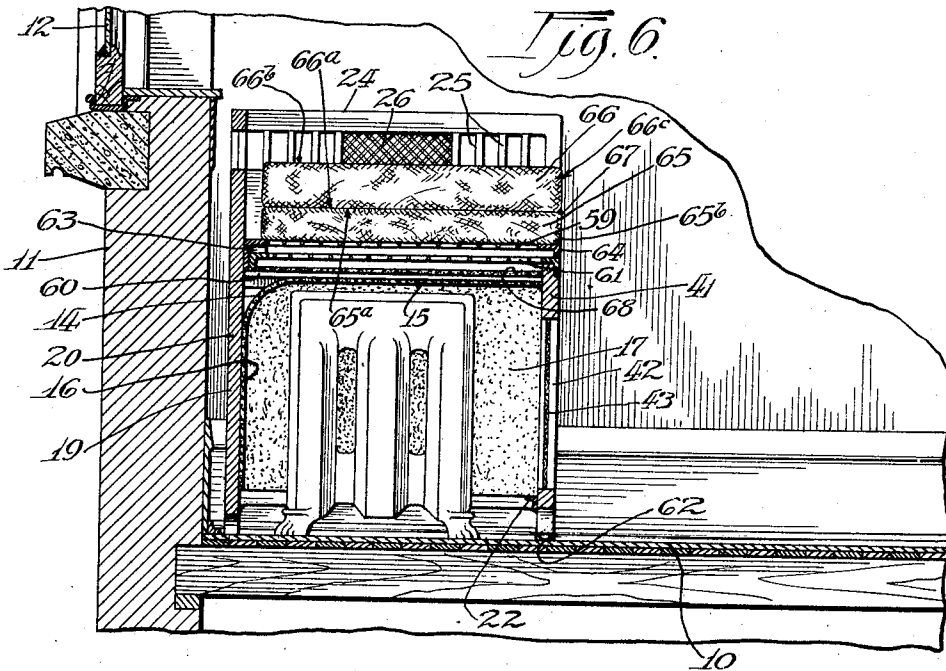
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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COMBINATION FURNITURE

Application filed February 12, 1931. Serial No. 515,319.

This invention relates to furniture, and has for its principal object to produce a practical convertible couch and bed structure which may be utilized as an enclosure for the radiator of a hot water or steam heating system, whereby to serve the purpose of the ordinary shield which is employed to prevent smudging of the walls, as well as concealing the radiator, and at the same time providing for the utilization of the floor space which is taken up by the radiator and which ordinarily precludes the placing of an article of furniture in that region.

In the modern apartments, particularly those of limited floor area and so-called multiple room efficiency type, the problem is to provide for the utilization of the entire space to advantage, and, to this end, numerous articles of furniture of convertible or folding character are employed, and certain of which are portable or movably supported within closet space. Many disadvantages have been overcome in novel and practical ways, but there still remains a disadvantage in that the radiators of the hot water or steam heating system take up a considerable amount of floor space which could otherwise be used for the placing of articles of furniture, and, in many instances, particularly in dining and living rooms, not only in the so-called apartment type buildings, but also in the ordinary single residence structures, the radiators are placed at the side of the room just below the windows, and in these cases a special low type of radiator is used. Shielding devices of various types are provided for the ordinary type of radiator for preventing the undue soiling and smudging of the adjacent wall, these devices being, in some cases, merely hoods which deflect the heat forwardly and laterally so as to check a direct upward draft along the face of the wall, while in other cases complete enclosures or cabinets are placed about the radiator with openings or grills for the outlet of the heat. These devices are, of course, made more or less ornamental and also are utilized in place of various other articles of furniture. For the special low type radiators which are located below the windows,

enclosures have been provided which are utilized for window seats.

The present invention has for its principal object to produce a convertible structure which is normally closed and affords a neat and practical window seat or couch in combination with a shield for the radiator, whereby the device may be enjoyed in comfort and without any ill effects from the heat and at the same time does not materially detract from the efficiency of the radiator as a heating unit, said device being readily opened and converted into a full size bed without moving it from its normal location, and thus fulfilling another advantageous object in that it obviates the necessity for providing other arrangements for affording a full size bed such as the usual closetable or so-called in-a-door bed. Other objects and advantages to be attained will hereinafter more fully appear.

The invention consists primarily in the novel application of a convertible bed or couch and combined radiator shield, and in the novel general construction and parts and combinations and arrangements of parts hereinafter described and pointed out with particularity in the appended claims.

In the accompanying drawings, forming a part of this specification and illustrating a practical adaptation of the invention,—

Fig. 1 is a perspective view of the device arranged as a couch and window seat;

Fig. 2 is a view partly in front elevation and longitudinal vertical section, of a preferred construction and arrangement of the device, the middle portion being broken away to foreshorten the view;

Fig. 3 is a fragmentary top plan view, with parts removed to illustrate certain details of structure, and the device being shown in opened condition as a bed;

Fig. 4 is a section on the line 4—4 of Fig. 2, showing the device in closed condition as a couch;

Fig. 5 is a view taken on the same line of section as Fig. 4, but showing the device in opened condition as a bed;

Fig. 6 is a view similar to Fig. 4, of a modified structure; and

Fig. 7 is a view showing the device of the modified structure in opened condition as a bed.

Referring now to the drawings, the numeral 10 designates the floor of an apartment, and 11 one of the side walls, having therein a window 12, beneath which is located an ordinary hot water or steam heating radiator 13, said radiator being enclosed by the article of furniture of the present invention as illustrated more clearly in Figs. 2 and 4 of the drawings and now to be described.

Preferably, the present invention is embodied in a portable structure, as shown, so as to be readily removable from the radiator should occasion require, either for gaining access to the radiator in making repairs or for other reasons, or should it be desired to place the couch or bed in some other location. However, the invention may be embodied in a fixture of the character of the ordinary built-in window seat. As shown, it comprises an encasing hood 14 surrounding the radiator, except at the front, preferably with its walls spaced from the radiator all around. This hood 14, which constitutes the shield proper, may be constructed of any suitable material preferably having heat insulating qualities, such, for example, as an asbestos or other fibre composition board. As shown, the hood includes a top portion 15, rear wall 16 and end walls 17, there being an upstanding flange 18 extending across the front edge portion of the top portion 15, said flange 18 cooperating with a heat insulating plate on an extensible bed section to be later described.

The hood 14 serves the dual purpose of a radiator shield proper and an insulating lining for preventing the transmission of the heat to the supporting frames and cushions or mattresses thereon which otherwise would preclude the practical application and use of an article of furniture of this character. As shown, the structure comprises a main body frame 19 including the back wall 20 and end walls 21, there obviously being no front wall, but the end walls being connected by a cross brace 22, preferably an angle iron, as shown more clearly in Figs. 4 and 5 of the drawings. The hood 14 is conveniently supported within the structure by attaching its rear wall 16 to the back wall 20 of the main body frame, the end walls 17 of said hood being preferably spaced from the end walls 21 of the body frame, as shown more clearly in Fig. 2. The main body frame 19 may be constructed of metal or wood, as preferred. As shown, the back and end walls are solid or have closed panels throughout except that their bottom marginal portions are cut away, as at 23, to afford feet 23^a at their ends with ample clearance intermediate said feet for ventilating purposes, the recessing of the end

walls being preferably to a greater degree than that of the back wall. The frame may be artistically designed and ornamented in any desirable manner. As shown, the upper portions of the back and end walls are ornamented with a railing 24 and connecting bars or struts 25 with intermediate fanciful panels 26.

Referring now more particularly to Figs. 2 to 5, inclusive, of the drawings, there is mounted within the main body frame 19 a vertically movable bed bottom or supporting frame 27, above which is normally supported an extension frame 28 which is adapted to be moved to an outer position to convert the couch into a full size bed, as will be presently more fully described. The mounting for the frame 27 includes a pair of rocking levers 29, 30, at each end thereof, said levers being respectively pivotally attached, as at 31 and 32, to the end walls 21 of the main body frame 19. One arm of the lever 29 is pivotally attached, as at 33, to the frame 27 near the rear side thereof, and the corresponding arm of the lever 30 is likewise pivotally attached, as at 34, to the frame 27 near the front side thereof, by which arrangement said frame 27 is moved vertically with an arcuate sweep when said lever members 29 and 30 are actuated to raise and lower the frame, as will later be described.

The actuation of the lever members 29 and 30 is effected by operating the extension frame 28, and by the operative connections between said two frames 27, 28, the frame 27 is supported in its normally lowered position and in its raised position when the extension frame is respectively in its closed and opened positions. The extension frame 28 has pivotally attached thereto at its opposite ends and near its rear side, as at 35, the arms 36 of lever members 37 which are pivotally mounted as at 38 on the end walls 21 of the main frame 19. In the closed position of the extension frame 28 it is supported above the frame 27, the support being through the medium of angle brackets 39 on the ends of the frame 28 resting upon brackets 40 provided therefor on the end walls 21 of the main body frame 19, said frame 28, in both its opened and closed positions, being supported at its front side by a vertical frame 41 constituting the front closure panel for the main body frame, said vertical frame 41 being formed with openings 42 for letting out the heat from the radiator 13, said openings 42 being covered by suitable open work or panels or grilles 43. In the opened position of the frame 28 its rear portion is supported by the lever members 37, the arms 36 of which are provided with seating portions 36^a which rest upon the cross brace 22.

The lever members 37 are provided with arms 44 which have pivotally attached thereto, as at 45, the ends of link members 46

whose opposite ends are pivotally attached, as at 47, to the rocking levers 30. Similarly, the lever members 37 are provided with additional arms 48 to which are pivotally attached, as at 49, the ends of link members 50 whose opposite ends are pivotally attached to the rocking levers 29, as at 51. The throw or travel of the rocking levers 29 and 30 and the respective arms 44 and 48 of the lever members 37 is proportioned so that in the closed position of the extension frame 28, as shown in Fig. 4, the frame 27 is lowered and supported in suspension from the pivots 31 and 32, due to the link connections between said rocking levers 29 and 30 and lever arms 44 and 48. By this arrangement, when the extension frame 28 is in opened position as shown in Fig. 5, the frame 27 is elevated to the same plane with the frame 28, in which position the frame 27 is securely supported for the reason that the axes of the pivots 45 and 47 for the links 46 are in dead central alinement through the axes of the pivots 38 of the lever members 37, at which time the axes of the pivots 49 and 51 of the link connection 50 are also in dead central alinement through the axes of the pivots 38 of said lever members 37.

Any suitable mattress or upholstery padding may be used in connection with the frames 27 and 28, and said frames may be provided with any desirable type of spring bottom for supporting the mattress or upholstery. As shown more clearly in Fig. 3 of the drawings, an ordinary type of spring bed bottom, is conventionally shown as comprising the longitudinal link members 52 and transverse members 53, the bottom being connected at its ends to the adjacent end members of the frames by the usual coil springs 54. As shown, the mattress is made in two sections 55 and 56, respectively, the section 55 being mounted normally on the extension frame 28 and the section 56 resting on the section 55 in the closed position of the frame 28, said section 56 being preferably hingedly tied, as at 57, to the section 55 so that the section 56 may be conveniently folded upon the section 55 and from the latter onto the frame 27 when the extension frame 28 is in opened position.

Obviously, the surface 55^a of the mattress section 55 and the corresponding surface 56^a of the section 56 may be upholstered as ordinary bedding, while the opposite side 56^b of the section 56, which is exposed when said section 56 is folded upon the section 55 in the closed position of the extension frame 28, may be upholstered more ornately and of any desirable characteristic material, as also will be its front side 56^c and the front side 55^b of the section 55.

As the article of furniture embodying the present invention is designed more particularly for use in connection with the relative-

ly low radiators which are generally used adjacent to the window openings of an apartment, obviously the structure may be carried out within the limited restrictions as to height on account of utilizing it as a window seat or couch which is convertible into a full size bed, without appreciably detracting from the qualities of such an article of furniture for ease and comfort in its use. In this connection it may be here noted that the space between the two mattress supporting frames 27 and 28, in the closed condition of the device, may be varied somewhat, and in many cases made ample for the storage of a reasonable amount of bedclothing, and in addition to this provision it is preferable to use in connection with the couch casings 58 made of fanciful material, the same as the outer upholstering material of the mattress section 56, or of a character which will harmonize therewith, and to place in said casings the pillows and possibly some of the bedclothing, such as sheets, during the day, said casings being readily removable and preferably provided with the closure fasteners of the type known as the hookless fasteners, shown conventionally at 58^a in Fig. 1 of the drawings.

In Figs. 6 and 7 a modified structure is illustrated. In this modification the main frame 19 is practically identical with that of the first herein described structure, and the hood 14 constituting the radiator shield proper is substantially the same in both structures, except that in the present modification the upstanding flange 18 at the front edge of the top 15 is omitted. So, too, in this modification the end walls 17 of the hood 14 may extend closer to the end walls 21 of the main body frame 19 and, in fact, may be in direct contact with and secured to said end walls 21, as there is no necessity for the space which is provided in the first herein described structure for the accommodation of the several lever members 29, 30, 37, and links 46 and 50. In place of the vertically movable bed bottom frame 27, a stationary frame 59 is mounted in the main body frame 19. Slidably mounted on guide members 60 in a plane below the frame 59 is an extension frame 61, to the forward edge portion of which is attached a frame 41 identical with that in the first herein described structure, said frame 41 being provided at its lower edge with suitable anti-friction buttons or rollers 62, and a suitable stop 63 being provided on said extension frame 61 for engaging a shoulder 64 on the under side of the stationary frame 59 for limiting the open position of said extension frame. Substantially the same arrangement of mattresses is shown in this modification as in the first herein described adaptation of the invention, except that the under section 65 of the mattress is carried by the

stationary frame 59 and the upper section 66 is adapted to be swung over in inverted position on the extension frame 61 in its open position, the two mattresses being hingedly connected at their forward meeting corners, as at 67, the side 65^a of the section 65 and the side 66^a of the other section 66 being upholstered as for an ordinary bed, while the opposite side 66^b of the section 66 is upholstered similarly to the side 56^b of the first herein described mattress section 56, and, of course, the side portions 65^b and 66^c of the two mattress sections 65 and 66 are upholstered with the same effect as the side 66^b of said section 66.

In both structures the extension frame is provided on its under side with a plate of heat insulating material 68 which constitutes an extension of the top portion 15 of the hood 14 which is the radiator shield proper portion of the article of furniture, the member 68 in the first herein described structure being in a plane just above the upper edge of the flange 18 of the top 15 of the hood, while in the modification last described said member 68 is located in a plane directly above the top 15 of the hood.

By the use of an article of furniture of the character herein shown and described in connection with a radiator, not only is the full advantage of an ordinary shield attained, but at the same time the radiator, which of itself obviously does not improve the appearance of the room, is hidden from view, and the article of furniture is located in space which is not ordinarily available, whereby the efficiency of the restricted floor space in the present day modern apartment is greatly enhanced. So, too, the particular convertible article of furniture of the present invention will obviate in many cases the necessity for providing a separate bed, and thereby the storage space or closet for containing the usual folding bed may be used to advantage in the accommodation of other utilities.

Obviously the construction and arrangement of the article of furniture and its particular application to the radiator may be modified in many respects without in the least departing from the spirit and scope of the invention as defined by the appended claims. The invention, therefore, is not limited to the specific construction and arrangement shown in the accompanying drawings.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an article of furniture of the character described, a main body frame closed at its back and opposite ends, a convertible couch and bed structure mounted in said body frame, comprising a vertically movable inner bed section and a cooperating extensible bed section, an insulating lining for said main frame constituting a hood under said con-

vertible couch and bed structure for the accommodation of the radiator and constituting a shield proper therefor, and a supplemental member carried on the underside of said extensible bed section constructed of heat insulating material and being arranged in cooperative relation to said hood to deflect the heat laterally from the radiator and to insulate the couch and bed structure from the heating effect of the radiator.

2. In a combined radiator shield and convertible couch and bed, a main body frame, an inner bed frame mounted in said body frame, an extension bed frame normally within the body frame, said two bed frames being disposed the one above the other in the closed condition of the device and said extension frame in its opened condition cooperating edgewise with said first mentioned bed frame in front thereof, a heat insulating hood in the main body frame below said bed frames for the accommodation of the radiator and insulating the bed from the heating effect of the radiator, and an insulating plate on the underside of said extension bed frame in cooperative relation to the top of said insulating hood.

3. A combined radiator shield and article of furniture, comprising an internal hood of heat insulating material for the accommodation of the radiator and constituting the shield proper, said hood having a top, a rear wall, and end walls, the hood having provision in its lower wall portions for ingress of outside air, cooperating portions of the structure externally of the hood constituting a convertible couch and bed, one of said portions being extensible laterally with respect to the other, in closed condition said portions being insulated by said hood from the heating effect of the radiator, the extensible portion of the structure carrying on its underside a supplemental insulating member cooperating as an extension of the top of said internal hood.

4. In an article of furniture of the character described, a main body frame, a convertible couch and bed structure mounted in said body frame, the same comprising a vertically movable bed section and a cooperating extensible bed section movable to a closed position above and an opened position at the side of said vertically movable section, a hood of insulation material located under said vertically movable bed section for the accommodation of a radiator and constituting a heat deflector and insulating shield proper for said bed sections, and a supplemental insulating member carried on the underside of the extensible bed section in cooperative relation to and constituting a substantial working extension of said hood.

5. A combined radiator shield and convertible couch and bed, comprising an inner hood structure of insulating material for the accommodation of the radiator, and an outer

structure comprising a main body frame supporting a bed section above said hood, and a cooperating bed section movably supported with respect to said main body frame whereby said two mentioned bed sections may be positioned the one above the other in closed relation and one of said sections positioned in extended relation to the other section in opened relation, and a supplemental insulating member carried by said extensible bed section in cooperative relation to and constituting a substantial working extension of said hood.

In testimony whereof I have signed my name to this specification.

ANNA D. STINE.

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