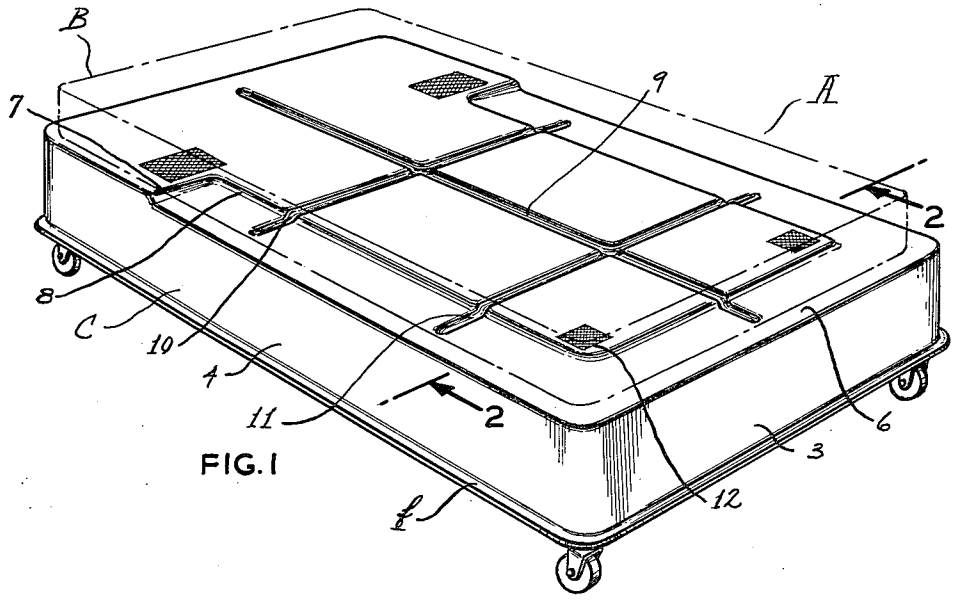
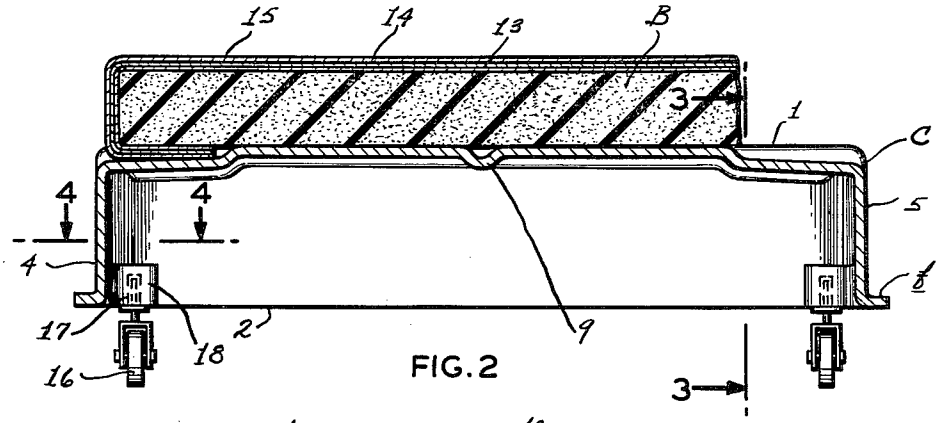
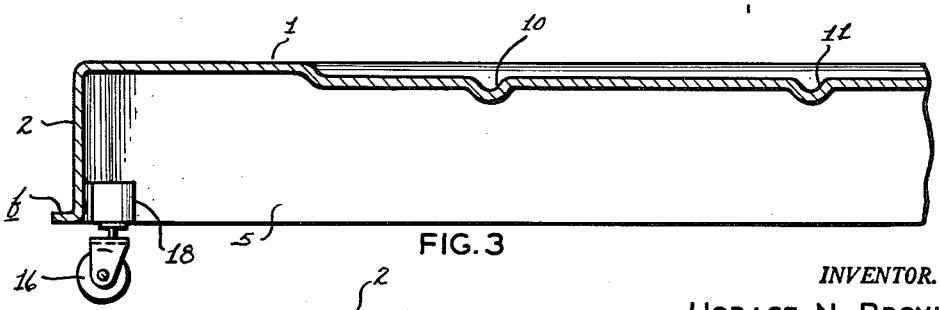
Aug. 21, 1962 H. N. BROYLES 3,049,729

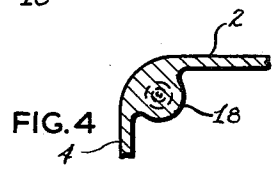
BED CONSTRUCTION

Filed June 17, 1959 3 Sheets-Sheet 1









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BED CONSTRUCTION

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FIG. 5

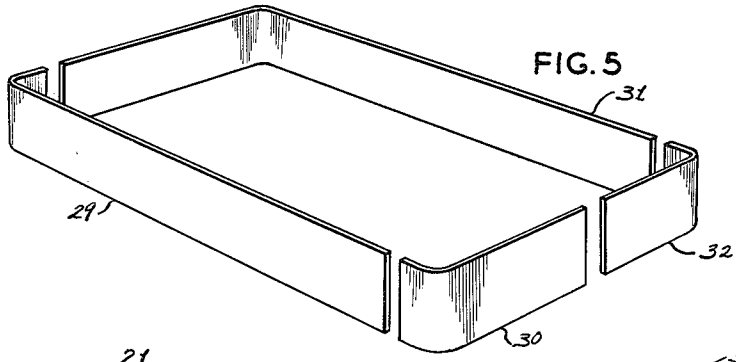


FIG. 6

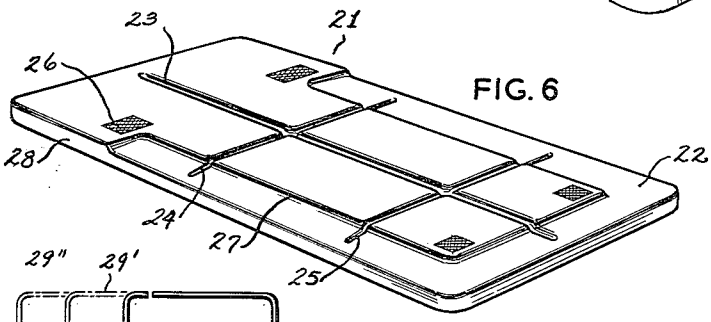
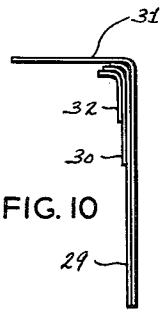


FIG. 10



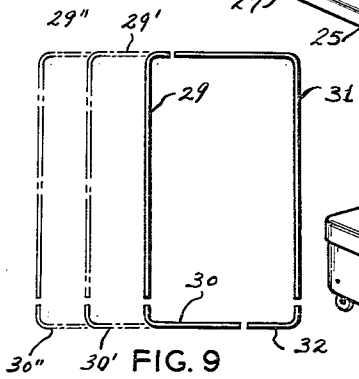
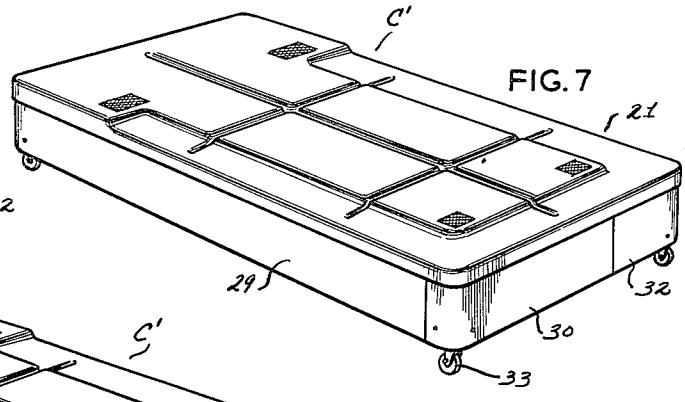


FIG. 9

FIG. 7



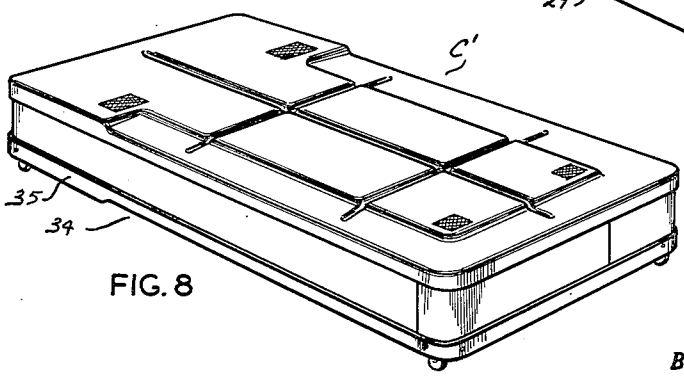


FIG. 8

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BED CONSTRUCTION

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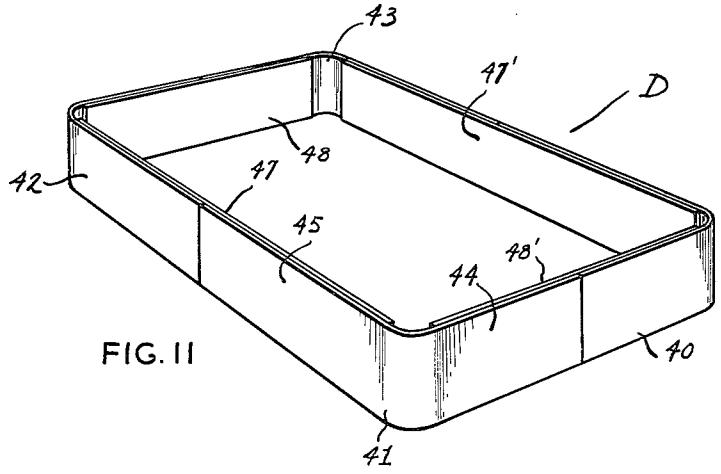


FIG. 11

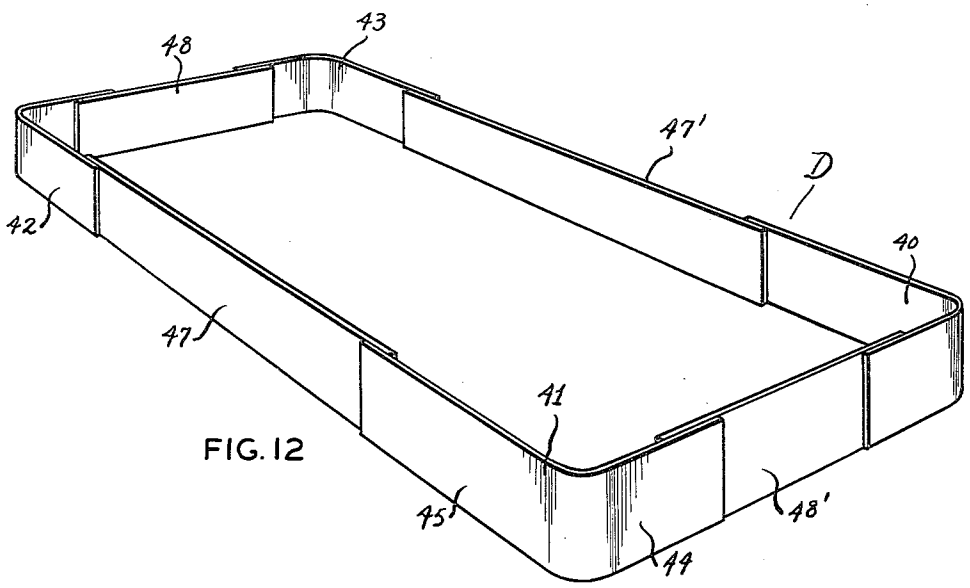


FIG. 12

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3,049,729

BED CONSTRUCTION

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Filed June 17, 1959, Ser. No. 820,955
1 Claim. (Cl. 5—200)

This invention relates in general to beds and, more particularly, to certain new and useful improvements in beds incorporating rubber mattresses and relatively rigid supports therefor.

Through extensive research and investigation it has been well established that beds should incorporate a certain desired combination of softness and rigidity. Heretofore, to achieve this end, it has been customary to provide mattresses which are reasonably hard, being formed primarily from horse or cattle hair or staple cotton and disposing same upon a coil box spring, which latter is designed to provide the resilient or soft component. With the advent of the rubber mattress as fabricated from foam rubber, or the like, the necessity of providing a certain rigidity became all the more apparent since such mattresses are, understandably, markedly soft, and when placed upon a coil bedspring render the bed too soft from the standpoint of comfort as well as health. Thus, certain expedients have been attempted to counteract this softness, such as by the insertion of a board between the coil spring and the rubber mattress. But to the present such expedients have not proved generally acceptable in that the coil spring sets up a swaying motion, which is unnecessary, and in some cases objectionable.

Therefore, it is an object of the present invention to provide a bed construction incorporating a rigid foundation or support for a mattress, which is of sufficient rigidity so as to present the desired hardness when utilized with the rubber mattress.

It is a further object of the present invention to provide a bed construction incorporating a mattress foundation having a normal springiness which obviates the utilization of coil springs; and which may be economically produced, being capable of one-piece, homogeneous construction.

It is an additional object of the present invention to provide a mattress foundation which may be readily produced by molding, being of such light weight as to allow ready handling and manipulation by a housewife, and further having a high strength/weight ratio so as to support considerable loads; and to be durable and reliable in usage.

It is a still further object of the present invention to provide a mattress foundation which integrally incorporates recessed portions for accommodating infolded portions of bedclothing; and which likewise is adapted to resist relative movement of the mattress thereon.

It is another object of the present invention to provide a foundation for mattresses which may be produced in a "knock-down" state with constituent elements being adapted for compact storage or packaging and which may be easily assembled by unskilled individuals.

Other objects and details of the invention will be apparent from the following description, when read in connection with the accompanying drawings (three sheets) wherein—

FIGURE 1 is a perspective view of a bed foundation constructed in accordance with and embodying the present invention.

FIGURE 2 is a vertical transverse section taken on the line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary vertical transverse section taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a horizontal transverse section taken on the line 4—4 of FIGURE 2.

FIGURE 5 is a perspective view of the sectionalized

side and end walls of another form of bed foundation constructed in accordance with and embodying the present invention.

FIGURE 6 is a perspective view of the top portion of the bed construction illustrated in FIGURE 5.

FIGURE 7 is a perspective view of the bed foundation shown in FIGURES 5 and 6, in fully assembled condition.

FIGURE 8 is a perspective view of a further form of bed foundation constructed in accordance with and embodying the present invention.

FIGURE 9 is a plan view of the side and end walls of the bed foundations shown in FIGURES 7 and 8 and indicating by phantom lines expanded portions for producing frames of increased dimension.

FIGURE 10 is a plan view illustrating the end and wall sections shown in FIGURE 5 in nested or stored condition.

FIGURE 11 is a perspective view of the sectionalized frame of an additional form of expansible bed foundation constructed in accordance with and embodying the present invention.

FIGURE 12 is a perspective view of the frame shown in FIGURE 11, but illustrating same in fully expanded state.

Referring now by reference characters to the drawings which illustrate the practical embodiments of the present invention, in FIGURES 1 through 4, A designates a bed comprised of a mattress B and a foundation or base C for support of the former. Foundation C is desirably of unitary construction, being formed from suitable moldable material, such as, particularly, glass reinforced plastics, which have been found to possess the properties most conducive to provide requisite bed characteristics, as will be more fully described hereinbelow. Foundation C, which may be considered to correspond in principle with a bedstead, is of rectangular cross-section, being of general box design, having a top wall 1, parallel end walls 2, 3, parallel side walls 4, 5, and being open at the bottom to thereby present a downwardly opening, hollow shell. The upper surface of top wall 1 is contoured to provide a continuous, generally U-shape in plan, marginal recess 6 extending across the normally lower or foot end of foundation C, from side to side thereof, and thence along each side of said top wall 1 to a point proximate, but spacedly from, the normally upper or head end; the termination of said recess 6 being defined by transverse sections 7 of a shallow shoulder 8 formed at the inner boundary of said recess 6.

Enhancing the inherent resistance of foundation C against the development of any undesired deformation through usage, is a series of rigidifying, downwardly projecting ridges in top wall 1; there being a longitudinal ridge 9 extending along the median line of said top wall 1 and a pair of mutually parallel, spaced apart, transverse ridges 10, 11 which intersect said ridge 9. The ends of ridges 9, 10, 11 terminate spacedly from the proximate peripheral portion of said foundation C. At spaced apart locations on the upper surface of top wall 1 are integrally arranged a plurality of friction-pad forming portions 12, each having a raised pattern or irregular surface for inhibiting relative movement of mattress B.

Foundation C is dimensioned for receiving and supporting mattress B which latter will firmly rest on top wall 1 with its outer side and foot portions overlying recess 6. Disposed about mattress B may be conventional bedclothing comprising, for example, inner and outer sheets 13, 14 and a cover or blanket 15 which are "tucked-in" in the customary style. However, such infolded portions are received within recess 6 which thereby cooperates with the confronting portion of mattress B to form a receptacle for the surplus portion of the bedclothing. Recess 6 is of

such lateral extent and depth as to completely and comfortably accommodate the "tucked-in" bedclothing, thereby preventing the development of the usual unsightly bulges or upward bending of the mattress corners, as with current bedding incorporating box springs. Thus, mattress B will at all times be presented in a level, horizontal manner with the bedclothing snugly disposed thereabout in a neat, orderly, and attractive manner. Furthermore, by use of the present novel construction, an individual making the bed will be spared the arduous labor of lifting the mattress in one hand and tucking with the other.

Foundation C along its bottom edge incorporates an out-turned, short peripheral flange *f* so as to further strengthen the side and end walls whereby the latter may be of relative thinness, and to provide an enlarged base for direct disposition of foundation C upon a floor or other support surface. Patently, said foundation C may, if desired, be rendered mobile by the utilization of casters **16** engaged within sockets **17** in integral corner blocks **18**.

Mattress B is preferably of rubber construction and thus possesses the softness and marked resiliency of such material. Foundation C is designed to form a firm base for mattress B and hence must have the desired degree of rigidity to provide the hardness requisite for body health. Heretofore, the softness of foam rubber mattresses, and the like, has militated against the wide acceptance of the same, since the use of such upon conventional bedsprings produces excessive softness, undesirable for comfort as well as health. Foundation C, being relatively rigid, yet having a limited yieldability, provides a proper support for rubber mattresses so that the pleasing softness of the latter is controlled and countered by the hardness of the former. The use of foundation C provides the firm base requisite for rubber mattresses and thereby makes possible the widespread adoption of the same. Furthermore, foundation C is of relatively light weight, having a wall thickness in the order of ⅛ to ¼ inch, whereby it may be handled in a facile manner, rendering bedmaking, manipulation, transporting, and the like, operations easily accomplished without strain, by a housewife. As produced from glass-reinforced plastics (that is, glass fibres and thermosetting resins, such as polyesters and epoxide), foundation C will be endowed with a high strength/weight ratio so that relatively considerably heavy loads may be accommodated without deformation, rupture or cracking, and said foundation is resistant to moisture, chemicals, and other foreign agents, as well as abrasions, so that upkeep presents no problem. Additionally, as produced from such materials, foundation C may be economically manufactured, being amenable to high speed, volume production, as the same is of one-piece, molded construction, being a homogeneous structure, which may incorporate a pigment within the resin to obviate coloration subsequent to manufacture. The hollow interior of foundation C presents a potential storage receptacle, as for bedclothing, etc., as the same, being placed directly upon a support surface would thus constitute a substantially dust-free enclosure.

As above discussed, foundation C has been described as formed from glass-reinforced plastics, and for the reasons presented such material is to be the one of choice. However, it must be recognized that other materials of construction could be adopted, such as metal, wood, wood compositions, and the like, all of which might be of cast or molded one-piece construction and present the rigidity and firmness necessary for utilization with "soft" mattresses. However, glass reinforced plastics with their high strength/weight ratios appear to endow foundation C with certain desired characteristics not readily attainable with other, equally useful materials.

Directing attention of FIGURES 5 to 10 inclusive, there is shown another form of the present invention wherein C' generally denotes a "knock-down" or sectionalized bed foundation comprised of components adapted for snug, inter-relationship for compact packaging or storage and for ready assembly into a sturdy structure corresponding to foundation C hereinabove set forth. As shown in FIGURES 5 and 6, foundation C' comprises a top member **21** having its upper or mattress-receiving surface contoured to present a U-shaped recess **22**, reinforcing ridges **23**, **24**, **25**, friction pads **26** and a shoulder **27**, respectively substantially identical with recess **6**, ridges **9**, **10**, **11**, friction pads **12**, and shoulder **8** herein described in connection with foundation C. Said top member **21** along its margin is integral with a short, depending skirt or flange **28**. The side and end portions of foundation C' are formed from four right-angle sections **29**, **30**, **31** and **32**, each incorporating a corner of foundation C' and a portion of each of the adjacent end and side walls. Said sections **29**, **30**, **31** and **32** are thus each of preselected extent and when adapted for a bed of minimum width, such as 39 inches, their difference in extent is most marked. As the length of beds is generally constant for any one series, with the width thereof being variable, it will be seen, by reference to the diagram shown in FIGURE 9, that two of the four sections, namely **31**, **32**, may be used with any bed size, while the other two sections will vary for achieving the intended size. Thus, for example, the end wall portions associated with sections **29** and **30** will be elongated as requisite (as indicated at **29'**, **30'**, and **29''**, **30''**), for cooperating with basic sections **31**, **32** for providing foundation C' of increased size, such as for 54 and 60 inch width beds. Consequently, with two such sections being unchanged, foundation C' may be most economically produced.

The assembly of foundation C' is easily achieved, by joining the confronting ends of the side and end wall portions of adjacent sections, by any suitable means, such as in the case of glass-reinforced plastic, by epoxy resins, so as to unite the sections into a sturdy frame upon which top member **21** may be disposed, in the manner of a box lid. By means of skirt **28**, top member **21** will be reliably installed upon the end and side wall frame, being resistant to displacement, and, if desired, extraneous securing means might be adopted, such as, by the application of suitable adhesives to the inner face of skirt **28**, and the adjacent, opposite portions of the side and end walls. It will be recognized that foundation C' may be made mobile by the provision of casters **33** supported from blocks integrally formed in the inner, corner portions of sections **29**, **30**, **31** and **32**.

As shown in FIGURE 10, sections **29**, **30**, **31** and **32**, each being formed on the same angle, may be nested, with the smaller sections being placed within the larger sections, so as to provide a most compact grouping to facilitate handling and transportability, as well as necessitating limited space for storage.

As shown in FIGURE 8, there may be provided a bottom member **34** having an upstanding peripheral flange **35**, of substantially the same extent as flange **28** of top member **21** so that foundation C' may then be endowed with the character of a completely enclosed box. Such bottom member **34** may be provided with openings at its corners to permit passage therethrough of the casters and the said bottom member thus renders foundation member C' simultaneously mobile while serving storage purposes. Although bottom member **34** may be of planar design the same may be readily constituted of an inverted top member so that the same mold may be utilized for both top and bottom members and thus permit a marked economy in production.

Referring now to FIGURES 11 and 12, there is shown the side and end wall construction of another form of sectionalized frame, designated generally D, of a bed foundation of the present invention adapted for facile lateral and/or lengthwise expansion. Said frame D comprises four identical right-angular sections **40**, **41**, **42**, **43**, each of which incorporates end and side legs **44**, **45**. The said end and side legs **44**, **45** of each such section, are equal in extent to one-half (½) the adjacent end and side wall respectively of the frame D when the latter is in condensed or normal condition (FIGURE 12) where-

in the end marginal surface of each leg **44**, **45** of each section will abut, in butt joint formation with, the confronting end face of the corresponding leg of the adjacent section, with the same being reliably secured, as by any suitable adhesive, such as an epoxy resin.

Provided for each side and end wall of frame D is a flat, elongated cleat **47**, **47'** and **48**, **48'** respectively, of substantially the same height and thickness as the associated wall. Said cleats **47**, **47'**, **48**, **48'** are presented against the inwardly directed surface of the legs of the sections **40**, **41**, **42**, **43** constituting the related frame wall, and being secured thereto as by any conventional adhesive, with the said cleats thus overlapping the joints of such walls.

Normally if frame D is to be utilized in its fully condensed state as shown in FIGURE 12, the said cleats **47**, **47'**, **48**, **48'** are not requisite, since the constituent sections, being mutually secured, will form a stable and rigid frame for the bed foundation to be formed, and which latter will be completely presented upon disposition of a top member of the character shown at **21** in the drawings and by application of casters in the customary manner. However, when it is desired to expand frame D, whether laterally or longitudinally or both ways, the said cleats come into play, for the purpose of effecting such expansion. As shown in FIGURE 12, the said cleats **47**, **47'**, **48**, **48'** constitute integral portions of the related side and end walls of the expanded frame bridging the distance between the now separated sections **40**, **41**, **42**, **43** and with the outer end portions of such cleats being fixed as by adhesives, to the adjacent inner face portions of the associated frame sections. As will be readily observed, said sections may be mutually positioned so that only the length of the frame is increased, or so that only the width of the frame is increased, or so that both the width and length would be increased. The resultant expanded frame is a rigid structure and will be surmounted by a top member, the type shown at **21**, which has been properly formed and dimensioned for application upon the increased frame.

The marked attributes of this form of the invention will become all the more apparent when one considers the advantages in production gained thereby. The elements of frame D as shown in FIGURE 11 may be shipped from a factory to a distant assembly plant at which latter place, being proximate the sales outlet or ultimate user, the frame elements may then be relatively positioned to form a frame of the particular desired size with the elements being properly secured.

Thus, this form of the manufacture permits of great economy in production since the sections will be of identical form and is conducive to marked savings in shipping and assembly.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the bed construction may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

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

In a bed construction, the improvement comprising a mattress foundation of unitary molded plastic construction having a continuous, relatively thin, horizontal top wall, and continuous, relatively thin, side and end walls depending from said top wall for support thereof, said top wall having on its upper surface a marginal upwardly opening recess extending across one end thereof and partially along the adjacent sides, there being a plurality of spaced-apart, integrally provided friction pad-forming portions on the said upper surface of said top wall spaced from said marginal recess.

References Cited in the file of this patent

UNITED STATES PATENTS

2,370,851	Eppenstein	Mar. 6, 1945
2,541,297	Sampson et al.	Feb. 13, 1951
2,691,237	Heim	Oct. 12, 1954
2,703,136	Masse	Mar. 1, 1955
2,827,952	Propst	Mar. 25, 1958
2,847,685	Freedlander	Aug. 19, 1958
2,890,464	Frey	June 16, 1959
2,892,489	Hurley	June 30, 1959
2,936,826	Reineman	May 17, 1960