

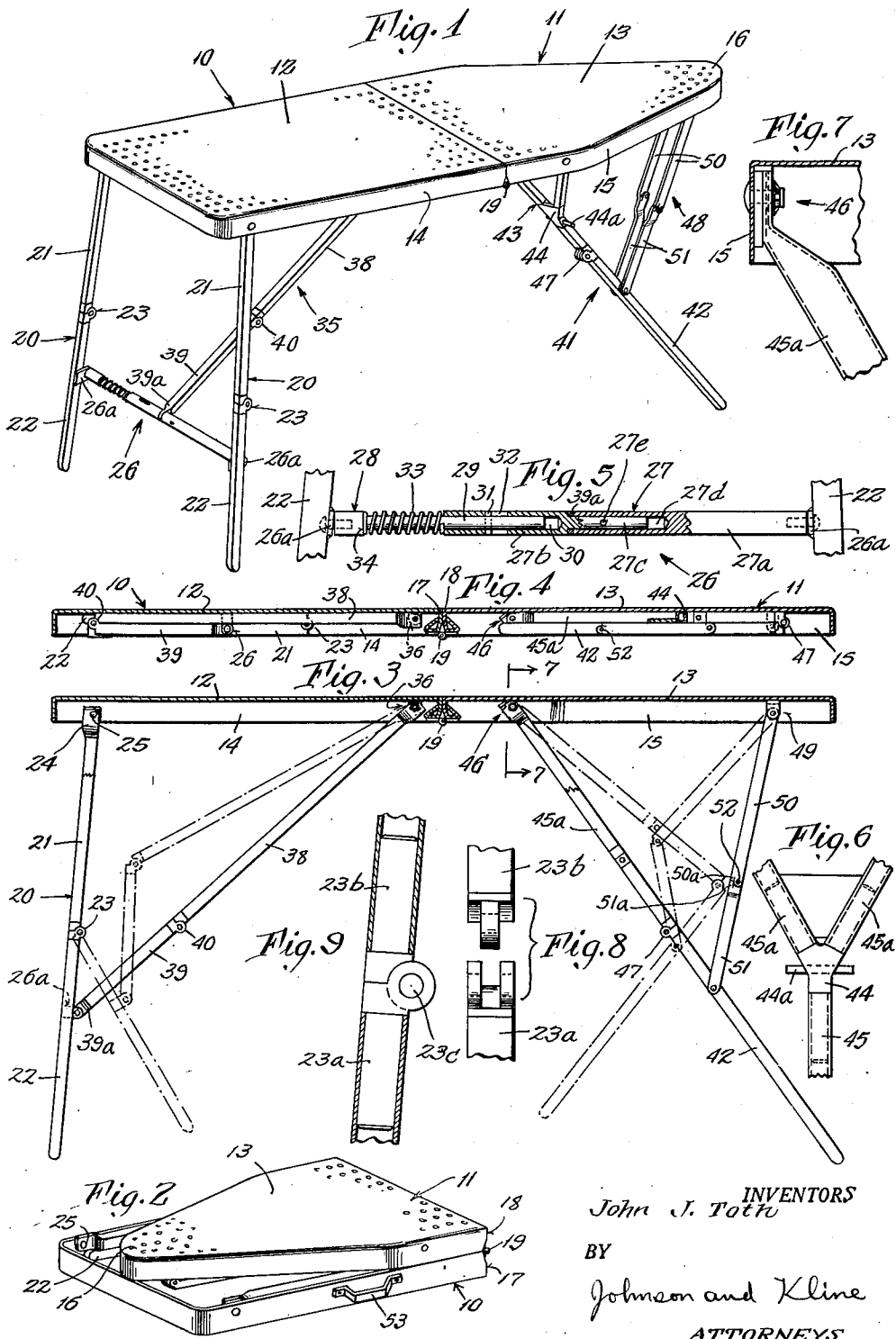
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J. J. TOTH

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FOLDING IRONING BOARD

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INVENTORS
John J. Toth
BY
Johnson and Kline
ATTORNEYS

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FOLDING IRONING BOARD

John J. Toth, Wilmington, Del.; Minnie L. Toth,
administratrix of said John J. Toth, deceased

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This invention relates to an improvement in ironing boards, especially of the type adapted to fold together to a compact form.

An object of this invention is to provide an improved ironing board of simple and economical construction, having a foldable table and legs formed of articulated sections which can be folded within the table when the latter is folded together.

Another object is to provide foldable articulated supporting sections for an ironing board of the aforesaid type wherein downward force on the table tends to hold the supporting sections in rigidly extended position.

Still another object of the invention is to provide an ironing board having cross-bar reinforced, paired legs, and having automatic means for spreading said legs apart when they are being extended, thereby to increase the stability of the board while in use.

In accordance with my invention, the foregoing objects are accomplished by constructing an ironing board with a table having two hollow leaves of substantially equal length, which can be folded together at a transverse hinge; and supporting means comprising a plurality of articulated legs which can be folded and contained within the hollow portions of the leaves so as to be enclosed thereby when the two leaves are folded together. One feature of the invention is the provision of foldable support means, comprising a plurality of articulated legs constructed with "knee" joints i. e. hinges bendable in one direction only to collapse the legs, and comprising foldable braces or struts for holding the legs in divergent position when extended for use, the lower portions of the legs folding inward or toward the vertical at the "knee" joints so that downward pressure transmitted from the table to the legs tends to hold the latter in rigidly extended position. Another feature of the invention is the provision of an extensible cross bar joining a pair of legs, and means carried by the cross bar for urging the same to extended position to spread the legs apart, thereby resulting in a compact and sturdy structure, and lending added stability to the ironing board when in use. The cross bar is retractable to permit the legs to be moved inward so that they can be folded within the cavity of a leaf of the table.

The foregoing and other objects and advantages of the invention will be understood more readily from the following description of a preferred embodiment of the invention taken in

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connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of the ironing board of my invention, set up for use.

Fig. 2 is a perspective view of the ironing board folded together for traveling or storage.

Fig. 3 is a side elevation of the ironing board, set up for use, with one side of the table cut away to show the underlying structure, the position of the legs during the folding operation being indicated by dotted lines.

Fig. 4 is a side elevation of the ironing board, similar to Fig. 3, but wherein the legs are completely folded within the ironing table.

Fig. 5 is a detail, partly sectioned, of the cross bar joining the rear legs.

Fig. 6 is a detail in front elevation of a bifurcated junction in the front leg and a supporting brace therefor.

Fig. 7 is a vertical section along the line 7—7 in Fig. 3.

Fig. 8 is a detail showing in elevation the co-operable parts of the knee joints of the legs, and

Fig. 9 is a detail in section of an assembled knee joint.

As shown in the drawings, the ironing board of my invention comprises a table made up of two hollow leaves 10 and 11 of substantially equal length, open at the underside thereof. The leaves 10 and 11 include flat horizontal top portions 12 and 13 forming an ironing surface, and vertical side walls 14 and 15 in the form of depending flanges extending downward from the flat top portions to form a pair of squat box-like structures with downwardly facing inner cavities. The leaves 10 and 11 may be advantageously formed of sheet metal, or of plywood or any other suitable material and the top portions 12 and 13 can be perforated if desired to facilitate dissipation of steam during ironing. Preferably the rear leaf 10 is substantially rectangular, while the front leaf 11 is tapered to a blunt nose 16 as is usual in ironing boards. The abutting flanges 17 and 18 of the leaves 10 and 11 are folded to form triangular sections as shown in Figs. 3 and 4, and are joined at their lower portions by a hinge 19 e. g. a piano hinge, so that the leaves can be folded together with their hollow undersurfaces facing each other, as shown in Fig. 2, and opened for use as shown in Figs. 1 and 3, abutment of the flanges 17 and 18 securely holding the leaves in extended position with their top portions forming a single plane surface for ironing.

Foldable support means for the ironing board

comprises a plurality of legs which can be advantageously made of metal having a hollow square section, for example, a pair of legs being attached to the rear leaf 10 adjacent the rear end and on the flanges 14 thereof, and a single leg being attached to the front leaf 11.

In accordance with my invention, rear legs 20 each include an upper section 21 and a lower section 22 of substantially equal length, joined at a hinge 23, the adjacent ends of sections 21 and 22 abutting each other at the hinge when the legs are extended for use, the hinge thus forming a "knee" joint, bendable only in one direction to collapse the legs.

Referring to Figs. 8 and 9, each hinge 23 comprises mating hinge parts 23a and 23b the shanks of which extend longitudinally into the hollows of the leg sections 21 and 22, and preferably said shanks and leg sections are welded together to provide a permanent, rigid assembly. The hinge parts 23a and 23b are pivotally connected together by a pintle 23c. The upper ends 24 of the legs 20 are flattened and secured by pivots 25 to the inside of the flanges 14 of the rear leaf 10, adjacent the rear end thereof.

A cross bar 26 joins the lower sections 22 of legs 20. The cross bar is preferably formed of telescopic sections to be extensible, and comprises two relatively movable parts 27 and 28 slidably connected together as by engagement of a rod 29 on the end of part 28 slidably inserted into a bore 30 extending inwardly in part 27 from the end thereof. Stop means is provided for limiting the relative telescopic movement of parts 27 and 28, comprising, for example, a transverse pin 31 on bar 29, slidable between the ends of a transverse slot 32 in part 27, intermediate the ends of the bore 30. A compression spring 33 bears against a shoulder 34 at the inner end of bar 29 and against the end of part 27, urging parts 27 and 28 to extended position. By virtue of the spring 33, the cross bar 26 automatically spreads the lower ends of legs 20 to divergent position so as to provide added stability in supporting the rear end of the ironing board during use.

As indicated in Figs. 3 and 4, the lower sections 22 of legs 20 fold inward and upward against upper sections 21 about hinges 23, and the legs when folded are pivotally movable about their upper ends 24 to the position shown in Fig. 4 within the cavity. When thus folded, they are completely received within the hollow interior of leaf 10. In order to accommodate the lower part of the leg structure to the width of the interior cavity of the leaf 10, cross bar 26 is longitudinally compressible against the pressure of spring 33 sufficiently to render legs 20 parallel. When the legs are folded within the cavity, the pressure of the spring 33 urges the legs against the inner surfaces of the flanges 14 of leaf 10, thus tending by reason of the increased frictional engagement of the legs with said surfaces, to retain the legs within the cavity.

In order to hold the legs 20 in extended position for use, a strut 35 is pivotally attached at one end, e. g. by means of a bracket 36, to the underside of the top portion 12 of leaf 10 adjacent the hinge 19, and the other end of the strut is pivotally attached to the cross bar 26. Strut 35 comprises two sections 38 and 39 joined at a hinge 40, to form a toggle which can be bent upwardly as shown by dotted lines in Fig. 3. The hinge 40 is similar to the hinges 23 described above. When the strut 35 and legs 20 are extended as shown in full lines in Fig. 3, the legs slant outward

or rearward from the end of leaf 10, so that pressure transmitted from the ironing board to the legs tends to urge the abutting ends of sections 21 and 22 of the legs against each other, holding the "knee" joint at hinges 23 in rigid, extended position.

In order to permit folding of the legs 20 within the leaf 10, the hinge 40 is arranged to break upwardly as shown in Fig. 3, the section 38 pivoting about the bracket 36 until it rests against the underside of the top portion 12 of leaf 10, while section 39 of the strut 35 folds inwardly against the section 38 to the position shown in Fig. 4. The distance between the pivots 25 and brackets 36, and the lengths of the leg sections 21, and of the strut sections 38 and 39 are so arranged that the legs can fold to the position shown in Fig. 4 with the folded strut positioned behind them.

To enable this to be accomplished, the cross bar 26 is connected at its ends to the legs 20 by plates 26a, thereby causing the bar to be offset inwardly therefrom as clearly shown in Figs. 1 and 3.

The pivotal connection between the strut section 39 and the cross bar 26 is accomplished as follows: The lower end 39a of the strut section 39 is flattened and apertured. The part 27 of the cross bar is formed of two portions 27a and 27b, the latter having a rod-like extension 27c passing through the aperture in the end 39a of the strut section 39, and fitting into a bore 27d in the portion 27a. A pin 27e secures the portions 27a and 27b together, leaving space between them as shown in Fig. 5 to accommodate the apertured strut end 39a.

The front leaf 11 of the ironing board is supported by a single leg 41 comprising a lower section 42 and an upper forked section 43, the latter comprising, for example, a Y-shaped junction member 44, a stem 45 and a pair of arms 45a the upper ends of which are pivotally attached at 46 to the flanges 15 of the leaf 11 adjacent the inner hinged end thereof. Sections 42 and 43 of the leg 41 are joined at a hinge 47 forming a "knee" joint by abutment of the ends of said sections in the same manner as in legs 20, the hinge 47 being similar to the hinges 40 and 23. The lower section 42 of leg 41 folds inward about the hinge 47 as indicated in Fig. 3, so that the two sections when folded together can be swung upward about pivot 46 to a position within the cavity at the underside of leaf 11.

To support the leg 41 in extended position, articulated braces 48 are pivotally attached by a bracket 49 to the underside of the top portion 13 of the leaf 11 adjacent the nose 16 thereof, the opposite or lower ends of the braces being pivotally pin-connected to the leg section 42 intermediate the ends thereof. Each brace 48 comprises upper and lower sections 50 and 51 respectively, which are pivotally connected together by a pin 52. The adjacent pin-connected ends of the brace sections 50 and 51 have portions 50a and 51a which are offset to abut each other and form a knee joint whereby said sections may be swung about the pins 52 toward each other in one direction only, to collapse the braces.

When the front leg 41 is in extended position, it projects outwardly or forwardly from the leaf 11 in an angular position diverging from the legs 20, with the hinge 47 on the inner or underside of the leg, so that pressure transmitted from the ironing board tends to hold the "knee" joint formed by said hinge in rigid, extended position.

In order to fold the front leg within the cavity

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of the leaf 11, the lower section 42 is folded inwardly and upwardly as indicated in Fig. 3 about the hinge 47 and against the upper section 43, and the braces 48 are simultaneously folded upward toward the under surface of the top portion 13 of leaf 11, whereupon the folded sections 42 and 43 of the leg 41 will be automatically moved upwardly about the pivot 46 to the position shown in Fig. 4 within the hollow under portion of the leaf 11.

The junction member 44 has a pin 44a which guides the brace sections 50 during the collapsing of the brace 48 and leg 41, as shown in Fig. 3.

When both sets of leg structures are folded within the leaves 10 and 11, the leaves can be folded together to the position shown in Fig. 2 for convenient storing or transportation thereof. A handle 53 may be provided, for example on the flange 14 of the leaf 10, to facilitate carrying the ironing board.

It will be seen that the ironing board of my invention constitutes a simple and economical structure, adapted to be conveniently manufactured and manipulated, characterized by stability when set up for use, and foldable to a compact form convenient for storing or transportation when traveling.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

I claim:

1. An ironing board comprising front and rear leaves and a substantially central transverse hinge connecting the leaves to enable them to fold together with their under surfaces juxtaposed, each of said leaves having a cavity on its underside, support means for the rear leaf of the board comprising a pair of legs pivotally attached to opposite sides of said leaf adjacent its outer end and within the cavity thereof; a two-part, telescopic extensible cross bar joining said legs adjacent their lower ends, said cross bar when extended holding said legs in mutually divergent position and being longitudinally compressible to render said legs substantially parallel; resilient means on said cross bar, normally urging said cross bar to extended positions, said legs being foldable within said cavity when the cross bar is compressed; and tension means comprising an articulated strut foldable within said cavity behind the legs when the latter are folded therein, for holding the legs in extended position to support the ironing board, said strut pivoting on said leaf and fastening to said cross bar.

2. An ironing board comprising front and rear leaves joined at a substantially central transverse hinge on the underside of the board, each of said leaves having a cavity on its underside, said leaves folding together at the hinge with their undersides juxtaposed; support means for the rear leaf of the board comprising a pair of legs pivotally attached to opposite sides of said rear leaf adjacent its outer end and within the cavity thereof; a two-part, telescopic extensible cross bar joining said legs adjacent their lower ends, said cross bar when extended holding the legs in mutually divergent position and being longitudinally compressible to render said legs substantially parallel; resilient means on the cross bar normally urging said cross bar to extended position; a "knee" joint in each of said legs substantially midway between their ends and intermediate said cross bar and the upper ends of the legs, at which the lower portions of the legs fold inwardly and upwardly against the up-

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per portions thereof, the two portions of the legs being movable, upon compression of the cross bar, about the pivotal attachment thereof to retracted position within said cavity; brace means under tension, including a strut pivotally attached at one end to said cross bar and at the opposite end to the under surface of the rear leaf within the cavity thereof adjacent the hinge between said leaves, said strut retaining said legs in a position downswung past center and having a toggle joint intermediate its ends so as to fold within said cavity behind the legs when the latter are folded at their "knee" joints and moved pivotally upward within the cavity of said leaf; support means for the front leaf of the ironing board, comprising a single leg bifurcated at its upper end, said bifurcated portion being pivotally attached to the front leaf within the cavity thereof adjacent the inner end of said leaf, said leg having a "knee" joint intermediate its ends, the lower portion of said leg being inwardly foldable about said "knee" joint against the upper portion of said leg, and the two portions being movable about said pivot to retracted position within said cavity; and an articulated compression brace pivotally attached at one end to the under surface of said front leaf and at the other end to the said leg for holding the leg in an angular forwardly extending position to support the front leaf when the board is in use.

3. An ironing board comprising a flat top member; a pair of articulated two-piece legs pivotally connected to said top member and foldable from a position closely adjacent the member to an extended position protruding from the member; a two-part cross bar connected to the lower pieces of said legs, the parts of said bar being slidable on each other whereby the bar is longitudinally extendable and compressible; stop means on said bar to limit the extensibility thereof; and resilient means on the cross bar, normally urging said cross bar to its extended position wherein the stop means are operative, said bar when extended holding the legs when the latter are extended in divergent positions to provide increased stability for the top member.

4. An ironing board comprising a flat top member; a pair of articulated legs pivotally connected to edge portions of said top member and foldable from a position closely adjacent the member to an extended position protruding from the member; a two-part cross bar connected to said legs, the parts of said bar being slidable on each other whereby the bar is longitudinally extendable and compressible; stop means on said bar to limit the extensibility thereof; resilient means on the cross bar, normally urging said cross bar to its extended position wherein the stop means are operative, said bar when extended holding the legs when the latter are extended in divergent positions to provide increased stability for the top member; and means pivotally connected to said cross bar pivoting on said top member and foldable against the latter, for releasably holding the legs in extended position.

5. An ironing board comprising a flat top member; a pair of articulated legs pivotally connected to edge portions of said top member and foldable from a position closely adjacent the member to an extended position protruding from the member; a two-part cross bar connected to said legs, the parts of said bar being slidable on each other whereby the bar is longitudinally extendable and compressible; stop means on said bar to limit the extensibility thereof; resilient

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means on the cross bar, normally urging said cross bar to its extended position wherein the stop means are operative, said bar when extended holding the legs when the latter are extended in divergent positions to provide increased stability for the top member; and an articulated brace pivotally connected to one part of the cross bar and to a center portion of the top member and foldable against said member, said brace releasably holding the legs in extended position.

6. An ironing board comprising a flat top member; a pair of legs pivotally connected to edge portions of said top member and swingable from a folded position closely adjacent the member to an extended position protruding from the member; a two-part cross bar connected to said legs, the parts of said bar being slidable on each other whereby the bar is longitudinally extendable and compressible; stop means on said bar to limit the extensibility thereof; resilient means on the cross bar, normally urging said cross bar to its extended position wherein the stop means are operative, said bar when extended holding the legs when the latter are extended in divergent positions to provide increased stability for the top member; and an articulated brace pivoted on a center portion of the top member and to the cross bar intermediate the ends of the latter, said brace being swingable from an extended position projecting from the top member to a retracted, folded position closely adjacent the top member, and said brace when extended releasably holding the legs in extended position.

7. An ironing board comprising two leaves joined at a substantially central transverse hinge on the underside of the board, each of said leaves having a cavity on its underside, said leaves folding together at the hinge with their undersides juxtaposed; a pair of separate, mutually independent leg means pivotally attached to said leaves respectively, within the cavities thereof, one of said leg means including a pair of legs and the other leg means including at least one leg and one of said leg means being attached to its leaf adjacent the hinged end thereof and the other leg means being attached to its leaf remote from the hinged end thereof, said leg means being foldable approximately halfway between their ends and being swingable when folded about their pivotal attachment to a retracted position within said cavities in the leaves of the ironing board; and bracing means foldable within said cavities for holding said leg means in extended dependent, divergent positions for use, said bracing means including a tension strut and a compression strut respectively connected with the leg means, said tension strut spanning an obtuse dihedral angle and the compression strut spanning an acute angle between the intersecting planes of their respective leg means and the leaves connected thereto.

8. An ironing board comprising two leaves joined at a substantially central transverse hinge on the underside of the board, each of said leaves having a cavity on its underside, said leaves folding together at the hinge with their undersides juxtaposed; a pair of separate, mutually independent leg means pivotally attached to said leaves respectively, within the cavities thereof, one of said leg means including a pair of legs and the other leg means including at least one leg and one of said means being attached to its leaf adjacent the hinged end thereof and the other being attached to its leaf remote from the hinged end thereof, the outer portions of said

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leg means being foldable inwardly toward the table at "knee" joints disposed approximately midway between their ends; and bracing means foldable in said cavities for holding said leg means when extended in mutually divergent positions, whereby downward pressure transmitted from the ironing board to said supports tends to hold said "knee" joints in rigidly extended position, said bracing means including a tension strut and a compression strut respectively connected with the leg means, said tension strut spanning an obtuse dihedral angle and the compression strut spanning an acute angle between the intersecting planes of their respective leg means and the leaves connected thereto.

9. An ironing board comprising two leaves hingedly connected together and foldable one on the other with a space intervening; a pair of articulated legs and a cross bar interconnecting the legs, said legs being permanently pivotally connected to side portions of one of said leaves; a third articulated leg separate from said pair, permanently pivotally connected to the other leaf, all of said legs having, and being collapsible about pivots located substantially midway between their ends; and a pair of separate, mutually independent, articulated braces for said pair of legs and third leg respectively, said braces being permanently pivotally connected one to said cross bar and the other to said third leg and permanently pivotally connected to said leaves and arranged one as a compression strut and the other as a tension strut, said braces when extended supporting the legs in depending, divergent positions with the leaves in opened aligned position, said tension strut lying in a plane spanning an obtuse angle and the compression strut spanning an acute angle between their respective legs and the leaves and said legs and braces being foldable to compact positions to occupy the said intervening space between the leaves when the latter are folded one on the other.

10. An ironing board comprising two leaves hingedly connected together and foldable one on the other with a space intervening; a pair of articulated legs permanently pivotally connected to side portions of one of said leaves; a third articulated leg separate from said pair, permanently pivotally connected to the other leaf, all of said legs having, and being collapsible about pivots located substantially midway between their ends; and a pair of separate, mutually independent, means connected with said legs, said means including struts foldable in said intervening space for releasably holding the legs in depending, divergent, extended position, one of said means comprising a tension strut and the other comprising a compression strut, said legs when extended supporting the leaves in opened aligned position, and being foldable to compact positions with said means, to occupy the said intervening space between the leaves when the latter are folded one on the other, said tension strut lying in a plane spanning an obtuse angle and the compression strut spanning an acute angle between the intersecting planes of their respective legs and the leaves connected thereto.

11. An ironing board arranged to be supported in horizontal position comprising front and rear leaves and a substantially central transverse hinge connecting the leaves to enable them to fold together with their undersides juxtaposed, each of said leaves having a cavity on its underside; means supporting the front leaf; support means for the rear leaf of the board com-

prising a pair of two-part legs pivotally attached at opposite sides of said rear leaf adjacent its back end and within the cavity thereof; a cross bar joining together the lower parts of said legs; a "knee" joint in each of said legs substantially midway of their ends, connecting together the two leg parts, the lower parts of the legs at said joints being foldable inwardly and upwardly against the upper parts and the two parts when folded together being movable forward and upward as a unitary assemblage of immovable parts about the pivotal attachment thereof to retracted position within said cavity; and tension means normally under a tensile working stress, for retaining the legs in a position downswung past the vertical and extended angularly rearward of the leaves to form an obtuse dihedral angle therewith, including a strut pivotally attached at one end to said cross bar and pivotally attached at the opposite end to the undersurface of said rear leaf within the cavity adjacent the hinge between said leaves, said strut being forward of the legs and having a toggle joint intermediate its ends so as to fold within the said cavity behind the legs when the latter are folded at their "knee" joints and moved pivotally forward and upward within the cavity of said rear leaf.

12. An ironing board comprising a flat top member having front and rear leaves; means supporting the front end thereof; a pair of articulated legs pivotally connected to edge portions of the rear leaf of said top member at the back end thereof and swingable as a unit from a folded position closely adjacent the member to a partially extended position protruding from the

member, said legs having upper and lower parts of substantially equal length hingedly connected together and foldable on each other, said leg parts when folded being swingable forward and upward as a unitary assemblage of immovable parts against the underside of the top member, and when partially extended being swingable apart to form a fully extended leg forming an obtuse dihedral angle with the top member; and means normally under tension, for bracing said legs, said means including an articulated brace pivoted on a center portion of the top member and having means pivotally connecting it to the lower parts of the legs, said brace having lower and upper parts the latter of which is more than twice the length of the lower part and being swingable from an extended position projecting from the top member to a retracted position closely adjacent the top member, and said brace when extended releasably holding the legs in downward, angularly extended position.

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