Aug. 14, 1945. H. E. SUNBURY 2,382,830

IRONING BOARD COVER

Filed Feb. 20, 1945

Fig. 1

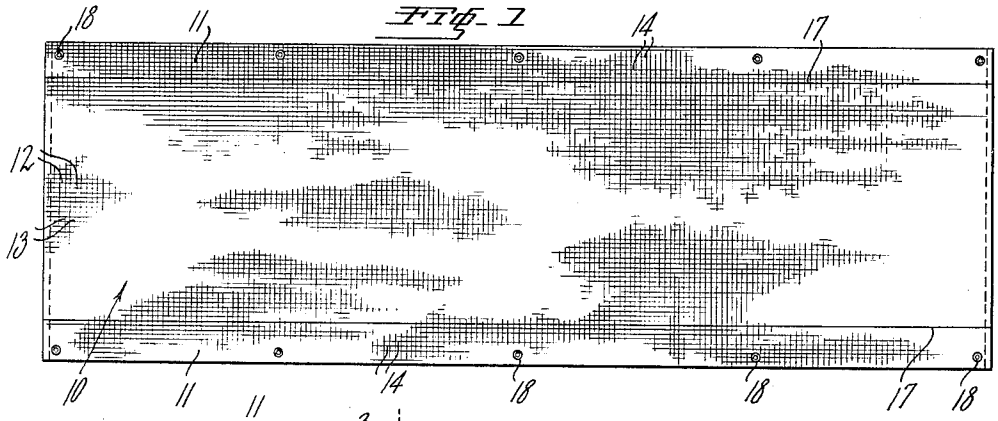


Fig. 2

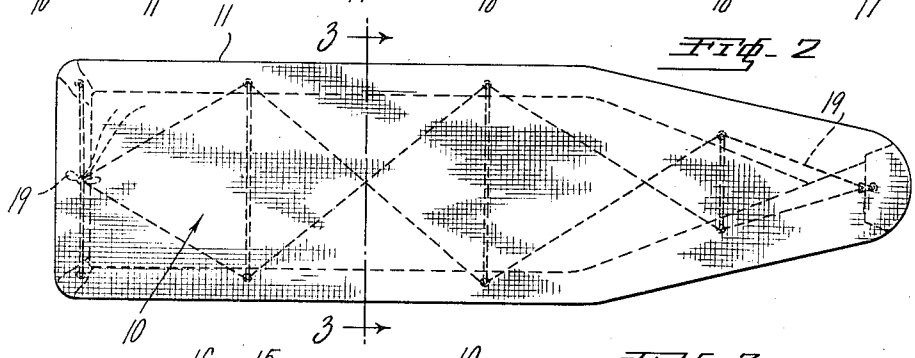
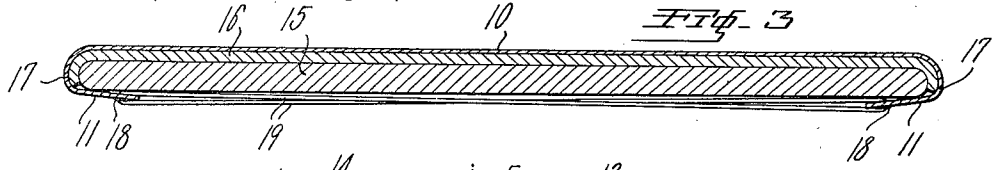


Fig. 3



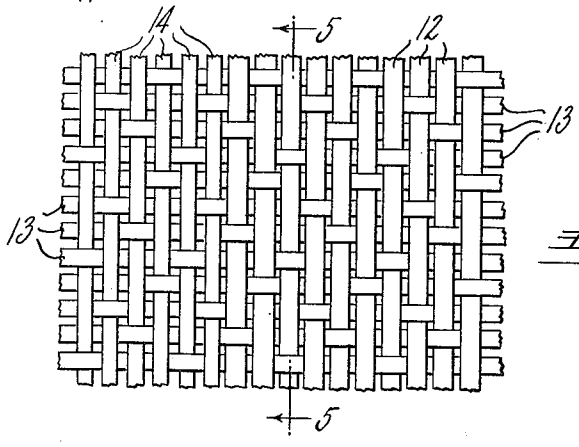
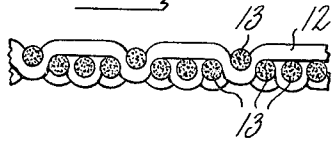


Fig. 4

Fig. 5



INVENTOR.
HERBERT E. SUNBURY
BY Lester J. Bradley
ATTORNEY

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IRONING BOARD COVER

Herbert E. Sunbury, Rutherford, N. J., assignor to United States Rubber Company, New York, N. Y., a corporation of New Jersey

Application February 20, 1945, Serial No. 578,823

4 Claims. (Cl. 28—80)

This invention relates to a smooth surface, fire-resistant cover for use upon household ironing boards.

Cotton covers designed to fit the ordinary household ironing board and provided with fastening means so that they may be easily secured in place upon the board and removed therefrom have been on the market for years. Such cotton covers are short-lived because the heat of the iron gradually chars the cotton fibers until the fabric distintegrates.

In commercial laundries engaged in laundering coarse articles such as coarse white aprons and white coats worn in stores and markets it has been customary for years to use a coarsely woven asbestos cover on the revolving ironing rolls, but these coarse asbestos covers are not suitable for use in ironing the household laundry such as bed linen, shirts, handkerchiefs and the like, because of the coarse impression such covers will leave on the work when ironed.

More recently there has been developed a fine weave asbestos fabric especially designed for use as a cover for ironing surfaces, and it has proven very satisfactory; it forms the subject matter of the Foster Patent No. 2,180,515.

The present invention relates to further improvements in the type of cover contemplated by the Foster patent, and more particularly to a cover which is designed throughout, for use upon the ordinary houshold ironing board.

The primary object of the present invention is to provide a long lived, smooth, fire-resistant cover for household ironing boards which is so constructed that the body area of the cover that constitutes the ironing surface is formed of asbestos warp and weft threads that are interwoven with a broken twill weave, and the marginal side portions or borders of such fabric are made more flexible so that they will conform accurately to the rounded side edges of the ironing board.

A cover so constructed provides a smooth firm highly desirable ironing surface that is non-inflammable, and which will give long service due to the fact that it will not be injured by continued exposure to the heat of the iron, and the more flexible side borders enable the cover to be easily secured in place upon an ironing board in a smooth taut condition that will prevent the cover from bulging upwardly appreciably or forming an objectionable wrinkle in front of the advancing iron.

The above and other objects of the present invention will be more fully understood from the following description when read in connection with the accompanying drawing wherein:

Fig. 1 is a plan view of the upper face of a long lived, fire-resistant, cover such as contemplated by the present invention;

Fig. 2 is a top plan view of a household ironing board having the cover of Fig. 1 secured in place thereupon;

Fig. 3 on a larger scale is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is an enlarged face view showing the weave of a body and border area of the fabric of Fig. 1; and

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

The ironing board cover contemplated by the present invention has a fire-resistant body area 10 having at least a 75% asbestos content, and side borders 11 having a considerable lower asbestos content and greater flexibility than the body area. The entire cover is preferably woven with a broken twill weave. The body area 10 of the fabric is formed of asbestos warps 12 and asbestos wefts 13 and the warp threads are preferably larger than the weft threads. The border areas 11 are formed of the asbestos wefts 13 and cotton warps 14.

By employing finer wefts than warps in the body area and interweaving these threads with a broken twill weave the warps will lie side by side in contact with each other throughout the major portion of the body area of the fabric. They will also float at one face and be disposed predominantly at such face of the fabric which should be used as the ironing surface. That is the fabric should be so placed on the ironing board that the surface at which the warps are disposed predominantly will be placed up so that the work to be ironed will rest upon this smooth ironing surface.

The body area 10 of the cover, as above stated, is formed of asbestos warps 12 and wefts 13 and the border areas 11 are formed of these asbestos wefts 13 and cotton warps 14 that preferably are smaller than the wefts 13. This causes the ironing board cover to have a smooth relatively stiff body area upon which the work will be ironed, and the more flexible borders which are positioned to fold around the rounded side edges of the ironing board. The width of the body area 10 should be slightly greater than the width of the board 15 upon which the cover is to be used. For example if the board is 15 inches wide throughout the main portion thereof the body area 10 of the fabric should be about 15¾ inches wide, so that when

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this cover is secured in place upon the board over the usual pad 16 the lines 17 where the border and body meet will lie adjacent the rounded side edges of the board 15 as shown in Fig. 3, to insure that the entire upper surface of the board including its rounded upper edges will be covered with the smooth fire-resistant portion of the cover. The following table is given as illustrative of one good practical embodiment of the present invention.

Cover construction

Finished; that is treated with resin and calendered.

Number of warp threads per inch	31 (av.)
Number of weft threads per inch	26 (av.)
Kind of warp yarn—drafted and twisted asbestos yarn	23 cut
Kind of weft yarn—drafted and twisted asbestos yarn	27 cut
Kind of cotton yarn in selvages	12/2
Width of asbestos ironing surface	15¾''
Width of selvages	1⅜'' to 1½''
Overall width	18½'' to 18¾''
Weight per sq. yd. of asbestos ironing surface	15 oz. (approx.)
Weight per lineal yd. of finished cover 18½'' wide	7.6 oz. (approx.)
Weave	3/1 broken twill
Warp strength [1]	68 lbs.
Weft strength [1]	45 lbs.
Gauge of ironing surface	.020'' (plus or minus .002'')
Asbestos content of asbestos ironing surface	80% minimum

[1] Standard A. S. T. M. 1'' x 3'' grab test.

It will be seen from the above table that the asbestos warps are somewhat larger than the asbestos wefts, and that there are about 31 asbestos warps to the inch and 26 asbestos wefts to the inch making a total of 57 longitudinal and transverse threads to the inch. The 23 cut of the table means 2300 yards to the pound and 27 cut means 2700 yards to the pound.

The pad 16 may be construed as heretofore and is commonly formed of a number of plies of cotton that are secured together at spaced intervals. Various means may be employed for removably securing the cover in place upon the ironing board and the cover shown in the drawing is provided with the spaced grommets 18 adapted to receive a tying cord 19 which may be laced back and forth under the board so as to confine the ends and side portions of the cover as shown.

Asbestos fibers are usually much shorter than cotton fibers and it is therefore customary to mix some cotton fibers with the asbestos fibers to facilitate drafting and spinning. It is important, however, that the asbestos yarns used in the cover of the present invention contain not less than 75% by weight of asbestos fiber, so that the resulting fabric will be fire-resistant and well adapted to withstand the ironing temperature for a long period of time. The yarns 12, 13 and 14 may be single or plied yarns.

Since the asbestos fibers are short, it is important to treat the woven fabric before it is placed in use with a resinous material which will lay the fibers and impart an increased smoothness to the ironing surface of the fabric The resin used for this purpose preferably should be insoluble in water so that the ironing board cover may be laundered. It should also have good heat resisting properties, be free of objectionable odor and should not stain or injure work being ironed under the ironing temperature. It should also be practically colorless so as not to darken the cover. One type of resin which is found well adapted for this use is a polymethylmethacrylate resin at 0.5 to 2.5% concentration on the fabric. To this resin may be added ingredients which will serve to flame-proof the ironing surface of the cover, that is flame-proof the small amount of cotton mixed with the asbestos fiber. Such ingredients should serve also to "whiten" the finish. The fabric to be treated is passed through a water dispersion of such resin in the concentration range above given. This will serve to impregnate the body and borders.

After the fabric has been impregnated with such water dispersion, the excess may be removed with squeeze rolls or otherwise. The wet treated cloth is then dried, and after it is dry it is preferably calendered to provide the fabric with increased stiffness and a very smooth ironing surface. After calendering the warp threads will be closer together than shown in the drawing.

While the border warps 14 are above described as formed of cotton they may, if desired, be formed of rayon or a mixture of cotton and rayon, or other organic yarns may be used.

Housewives using the ironing board cover of the present invention in ironing sheets and other types of work have observed that less effort is required to iron than when the same board is covered with the type of cotton cover used heretofore. They have also observed that the work clings better to the asbestos cover than to a cotton cover and therefore is less likely to wrinkle during the ironing operation. Experiments in the form of laboratory tests bear out what has just been said and show that when a dampened cloth is ironed upon the cover of the present invention, as much as 40% less effort may be required to move the iron back and forth over the work than is required if a cotton cover is used.

The following table is given as the result of a number of laboratory experiments using a six pound electric iron heated to normal temperature for the particular type of material being ironed. The pull required to drag the iron over the material was measured by a spring scale. Both dry and damp materials were tested with the following results.

Measure of co-efficient of sliding friction

	Cotton cover	Asbestos cover
Hot iron against dry sheeting	0.31	0.31
Hot iron against damp sheeting	.49	.25
Hot iron against dry handkerchief	.31	.35
Hot iron against damp handkerchief	.37	.35
Hot iron against dry rayon	.29	.27
Hot iron against damp rayon	.65	.51

These laboratory tests brought out one very unexpected result. It has been common knowledge for many years that in ironing damp cotton fabrics the iron will slide more freely over the fabric as the moisture evaporates and the fabric becomes dry. The laboratory tests showed that when the present asbestos cover is used in place of the ordinary cotton cover the reverse is true, in that the iron slides more easily over the damp cotton work resting upon the present asbestos cover than it slides over this same work when it becomes dry, this will be apparent from the above table.

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A smooth fire-resistant cover for household ironing boards constructed in accordance with the present invention will not mark the goods being ironed any more than will the type of cotton cover now in general use, the present cover will last many times as long as the usual cotton cover. Furthermore since the present cover is stiffer than a cotton cover of the same weight it will have lesser tendency to bulge or wrinkle in front of the advancing iron, and will present a smoother and glossier ironing surface upon which the work rests. Also the present cover improves with use as its ironing surface grows smoother as used.

One extremely important result from using the cover of the present invention is that considerable less energy is required to move the iron back and forth over the work being ironed, and faster ironing due to the fact that asbestos is a better conductor of heat than cotton. That is in ironing, the asbestos cover will have a temperature of about 10 to 15 degrees Fahrenheit higher than a cotton cover, with the result that the underside of the material being ironed will be hotter. Tests also show that the danger of scorching the material being ironed is less when an asbestos cover is used since the higher thermal conductivity of the asbestos carries the excessively high heat off from the goods. Another important result is the lower fire hazard should the housewife inadvertently leave a hot iron resting upon this fire-resistant cover when she is called away from her ironing.

The reference to asbestos threads in the specification and claims is to be construed as meaning threads in which the weight of the asbestos fibers constitutes at least 75% of the total weight of the thread.

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

1. A long life, fire-resistant cover for household ironing boards, comprising a woven fabric having a body area formed of asbestos warps and asbestos wefts that are interwoven with a broken twill weave, and integral side borders formed of interwoven cotton warps and asbestos wefts, to thereby provide a smooth non-inflammable fabric that covers the top of the board and more flexible borders adapted to conform closely to the rounded side edges of the board, the warps in the body area being larger than the wefts and disposed predominantly at the ironing surface and impregnated with a fiber laying resin.

2. A long life, fire-resistant cover for household ironing boards, comprising a woven fabric having a body area formed of asbestos warps and asbestos wefts that are interwoven with a broken twill weave having the sum of approximately 50 or more longitudinal and transverse threads to the square inch, and integral side borders formed of interwoven cotton warps and asbestos wefts, to thereby provide a smooth ironing surface that covers the top of the board and more flexible borders adapted to conform closely to the rounded side edges of the board, and the body area being impregnated with a fiber laying resin.

3 A long life, fire-resistant cover for household ironing boards, comprising a woven fabric having a body area formed of asbestos warps and asbestos wefts that are interwoven with a broken twill weave, and integral side borders formed of interwoven cotton warps and asbestos wefts, to thereby provide a smooth non-inflammable fabric that covers the top of the board and more flexible borders adapted to conform closely to the rounded side edges of the board, said fabric having such body area impregnated with a fiber laying resin and causing the frictional resistance to the travel of an iron over work resting upon such area to be less when the work is wet than when dry.

4. A long life, fire-resistant cover for household ironing boards, comprising a woven fabric having a body area formed of asbestos warps and asbestos wefts that are interwoven with a broken twill weave, and integral side borders formed of interwoven warps of organic yarns and asbestos wefts, to thereby provide a smooth non-inflammable fabric that covers the top of the board and more flexible borders adapted to conform closely to the rounded side edges of the board, the warps in the body area being larger than the wefts and disposed predominantly at the ironing surface and impregnated with a fiber laying resin.

HERBERT E. SUNBURY.

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