Nov. 21, 1939. B. H. FOSTER 2,180,515

ASBESTOS FABRIC COVER FOR IRONING SURFACES

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Fig. 1.

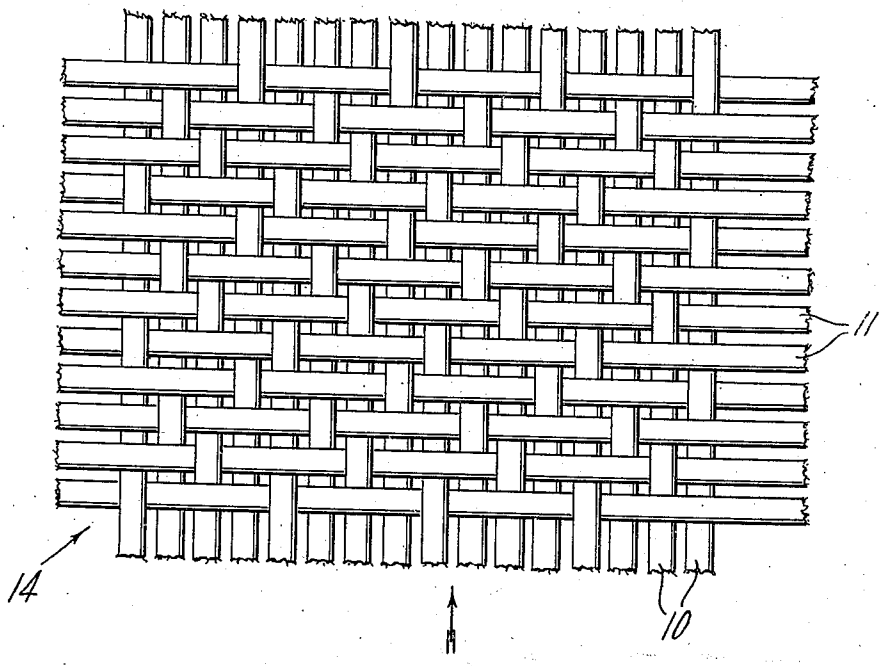
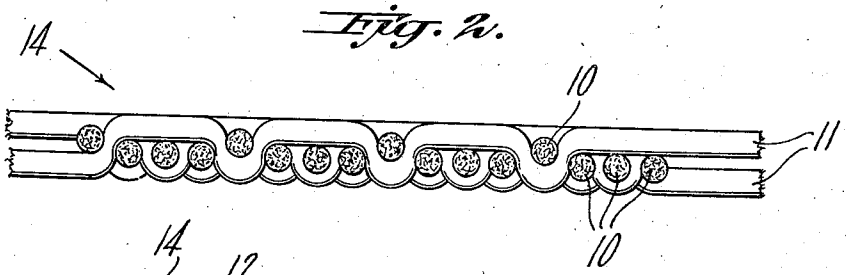


Fig. 2.



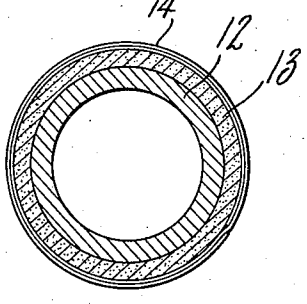


Fig. 3.

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ASBESTOS FABRIC COVER FOR IRONING SURFACES

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2 Claims. (Cl. 139—420)

This invention relates to woven asbestos covers for ironing surfaces and more particularly to an asbestos fabric the surface of which is sufficiently fine and smooth to avoid marking the goods being ironed more than they are marked by the cotton duck cover used upon commercial ironing machines.

When laundry goods are ironed either on a domestic ironing board or on an ironing machine employing one or more rotating rolls, the goods will show the impression of the surface of the fabric used as a cover for the ironing surface. If this covering material has a coarse surface a corresponding coarse impression or marking will be imparted to the goods being ironed. Therefore, in order to impart to the goods being ironed a smooth surface practically free from surface marking it is necessary to use a relatively fine woven fabric having a smooth surface as a cover for the ironing surface.

Laundries are divided into three classes with respect to the type of ironing work done. These are known in the trade as; I. institutional laundries, II. linen supply laundries, and III. commercial laundries. Institutional laundries are those provided for hospitals, hotels, etc., and are used largely in ironing coarse flat work such as sheets and towels. Linen supply laundries are those supplying aprons, coats, etc. to business houses. Commercial laundries specialize in laundry for the home where a fine surface finish is required upon shirts, collars, handkerchiefs, etc.

In the first two types of laundry, a smooth finish is not so important as in the third type, and therefore a comparatively coarsely woven cover may be employed for the ironing surface of the first and second laundry, but for the third type of laundry the ironing surface should be covered with a fabric having a fine smooth surface that will not noticeably mark the goods being ironed.

The use of cotton duck covers for the ironing surfaces of various types of ironing machines has been the general practice in laundries heretofore, but these cotton covers are of short life and have to be replaced frequently.

The cotton covers used on flat work ironers provided with 4, 6 or 8 rolls have an average life of about three weeks. Cotton covers used on flat presses last about one to two weeks. The high temperature used in ironing is the cause of rapid deterioration and short life of the cotton cover. The replacement of these covers is a heavy maintenance expense.

It has been proposed heretofore to provide a woven asbestos fabric as a covering fabric for the ironing surfaces of the first and second class of laundries above mentioned, but such fabrics as constructed heretofore have been entirely unsuited for use as a covering fabric for the ironing surfaces of said third class of laundries. This is because their coarse surface impressed or marked the goods being ironed to such an extent that they could be used only for coarse heavy ironing work, and in such cases fineness of finish is sacrificed for long life and economy in the covering fabric. All attempts to use the asbestos fabrics as constructed heretofore as a covering for ironing surfaces in the commercial laundry field have been unsuccessful as the surface finish they produce is too coarse and rough to meet the requirements demanded by the commercial laundry.

Asbestos covers for ironing surfaces have a life many times that of cotton covers. Furthermore, when an asbestos cover is used, the ironing temperature employed may be higher than that which it is permissible to use when a cotton cover is employed, and the increase in the ironing temperature makes it possible to operate the ironing rolls at a higher speed, thus materially increasing the output of the machine.

Having in mind the foregoing, the primary object of the present invention is to provide an asbestos fabric cover for ironing surfaces, which is so constructed that it presents a much finer and smoother ironing surface than was provided by the asbestos fabric covers available heretofore.

The asbestos fabric of the present invention will impart to the goods being ironed a finish equal to, or better than the finish produced by the cotton cover now used in commercial laundries. This for the first time makes it practical to use an asbestos fabric cover for the ironing surfaces of commercial laundries, thereby opening up a new field of use for asbestos fabrics.

In order to provide an asbestos fabric suitable for use as ironing covers in commercial laundries, it was necessary to so construct the fabric as to impart thereto certain new properties, which are secured by employing relatively fine asbestos yarn in the warp and weft of the fabric and by developing a different weave for these yarns from that used in the asbestos fabrics proposed heretofore for laundry work. Important properties of the present asbestos fabric are smoothness, softness and flexibility. These properties result from the size of asbestos yarns used, the number of such yarns provided in the warp and weft per inch, the particular weave employed and the weight of such fabric.

More specifically, it is believed that an asbestos fabric in order to be satisfactory as a cover for ironing surfaces of commercial laundries should have the following features of construction:

1. The fabric should have the sum of the longitudinal and transverse asbestos thread counts in a square inch equal to at least 50.

2. The warp and weft threads should be of no larger size than 14 cut [1400 yards to the pound].

3. The fabric should have an asbestos content of at least 75%.

4. The weave should be other than plain so that the warps lie primarily to one face and the wefts primarily to the other face to form floats overlying a plurality of adjacent threads.

5. The weight of the fabric per square yard should not be more than 24 ounces.

The present invention will be more fully understood from the following description when read in connection with the accompanying drawing which illustrates one good practical form thereof.

In the drawing:

Fig. 1 is an enlarged view of one form of asbestos fabric constructed in accordance with the present invention.

Fig. 2 is an edge view of the fabric of Fig. 1 looking in the direction of the arrow shown in Fig. 1, and

Fig. 3 is a transverse sectional view through an ironing roll provided with the covering fabric of Fig. 1.

As above pointed out an important object of the present invention is to provide an asbestos fabric which has such a smooth surface that when employed as a cover for an ironing surface it will avoid making noticeable impressions or markings upon the goods being ironed. When a plain weave is employed in constructing a fabric uniformly spaced depressions or interstices are formed throughout the fabric adjacent the crossing thread. These are quite noticeable in a coarse fabric and when such a fabric is used as a covering for ironing purposes the impressions or markings caused by these interstices are transmitted to the goods being ironed to impart thereto a rough surface rather than the desired smooth finish.

Therefore, in carrying out the present invention the fabric is not constructed with a plain weave as has been customary in producing asbestos fabric heretofore, but the weave used is a twill or other type of weave which will produce a substantial floating of the warp threads upon one face of the fabric and of the weft threads upon the other face of the fabric. The effect of this is to provide a fabric in which the floating threads lie close together in substantially abutting relation to each other to thereby increase the smoothness of the surface of the fabric. This construction also permits the introduction of a greater number of threads per inch, of a given size thread, than is possible when a plain weave is employed.

The particular fabric illustrated in the drawing which will now be described is a broken twill and consists of the longitudinally extending warp threads 10 and the transversely extending weft or filling threads 11. The threads 10 and 11 are shown in the drawing as of substantially the same size and in the actual fabric will be crowded much closer together than here shown. Each weft thread 11 is shown as passing over 3 and under 1 warp thread, and if this fabric is viewed from the opposite side it would be seen that each warp thread passes over 3 and under 1 weft thread. The particular fabric illustrated is woven with a broken twill because the employment of this irregular weave tends to make less conspicuous the impressions or markings it may transmit to the goods being ironed. It is desired to point out, however, that various types of twill weaves and sateen weaves may be employed.

An examination of Fig. 2 of the drawing will show how the twill weave employed helps to provide a fabric having the smooth flat surface desired. It will be noted from this figure that the warp threads 10 are shown in end views and that three of these warp threads lie below the weft thread 11 for every one warp thread 10 that lies above this weft thread, and as a result the single warp thread 10 above the weft thread 11 is displaced upwardly an appreciable amount above the central plane of the fabric. This tends to increase the smoothness of the upper face of the fabric which is formed largely of the weft threads 11. Similarly the lower face of the fabric shown in Fig. 2 of the drawing is also smooth, since the lower face is formed very largely of the warp threads 10.

The following is an analysis of one form of the fabric of the present invention which has gone into commercial use and which has given highly satisfactory results as to durability, wearing properties and smoothness of finish imparted to the goods being ironed.

Asbestos fabric construction

Warps per inch	34
Wefts per inch	31
Sum of ends in one square inch	65
Asbestos warp yarn	cut/1 20
Asbestos weft yarn	do 20
Strength of warp (1" x 3" grab test) *	lbs 96
Strength of weft (1" x 3" grab test) *	do 97
Gauge	inch .036
Weave	Broken twill 3 up 1 down

*Standard A.S.T.M. test.

The asbestos yarn used is preferably a single yarn and not a plied yarn, since a single yarn will flatten out better in the fabric than a plied yarn. The size of an asbestos yarn is designated by the word "cut".

For example

1 cut=100 yards to the pound

20 cuts=2000 yards to the pound

The fabric of the present invention is well adapted for use as a cover for domestic ironing boards, home electric ironing machines and various types of commercial machines of the flat press type or the type requiring one or more rotating rolls. The cover, however, when applied upon an ironing roll is subjected to much harder wear than when used upon a flat ironing board.

As a result of the construction just described either the upper or lower face of the fabric illustrated may be placed outwardly to engage the goods being ironed but the fabric preferably should be so arranged that the ironing action will take place longitudinally of the floating threads which engage the goods being ironed.

The ironing roll shown in Fig. 3 is or may be the conventional type of roll consisting of the hollow metal cylinder 12 about which is provided the usual padding material 13, and about this padding material is tightly wound in a plurality

of coils the asbestos fabric 14 having the construction illustrated in Figs. 1 and 2.

It is highly desirable in order to secure the maximum service from the present fabric to treat the same with a protecting agent such as flexible Bakelite, as in prior practice. The fabric is preferably treated six times having four coats of this agent applied to the ironing side of the asbestos fabric and two coats to the opposite side.

In addition to the properties of the present fabric which prevent it from marking the goods being ironed to a greater extent than cotton fabric, this fabric has the following advantages: It is easier to apply to the ironing roll and hugs the roll better, it expedites drying of the goods being ironed, requires less Bakelite to protect the same, and is far more economical than a cotton fabric because of its much longer life.

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

1. A single ply asbestos fabric cover for ironing surfaces having a life two or more times that of the cotton covers for ironing surfaces now in use, comprising a broken twill fabric having at least a 75% asbestos content and formed of nearly the same number of single end asbestos warp threads and single end asbestos weft threads united in a broken twill weave having the sum of at least 50 longitudinal and transverse asbestos thread counts to the square inch and a weight of not more than 24 ounces per square yard, to thereby provide an asbestos fabric having an ironing surface that is sufficiently smooth to mark the goods being ironed less than they are marked by the cotton duck covers now used upon commercial laundry machines for ironing home laundry.

2. A single ply asbestos fabric cover for ironing surfaces having a life two or more times that of the cotton covers for ironing surfaces now in use, comprising a broken twill fabric having at least a 75% asbestos content and formed of single end asbestos warp threads and single end asbestos weft threads interwoven into a broken twill weave having the sum of at least 50 longitudinal and transverse asbestos thread counts to the square inch and a weight of not more than 24 ounces per square yard, to thereby provide an asbestos fabric having an ironing surface that is sufficiently smooth to mark the goods being ironed to no greater extent than they are marked by the cotton duck covers now used upon commercial laundry machines for ironing home laundry.

BOUTWELL H. FOSTER.