No. 773,995. PATENTED NOV. 1, 1904.

L. W. SEESER.

MANUFACTURE OF LINOLEUM.

APPLICATION FILED SEPT. 15, 1903.

NO MODEL.

Fig. 1.

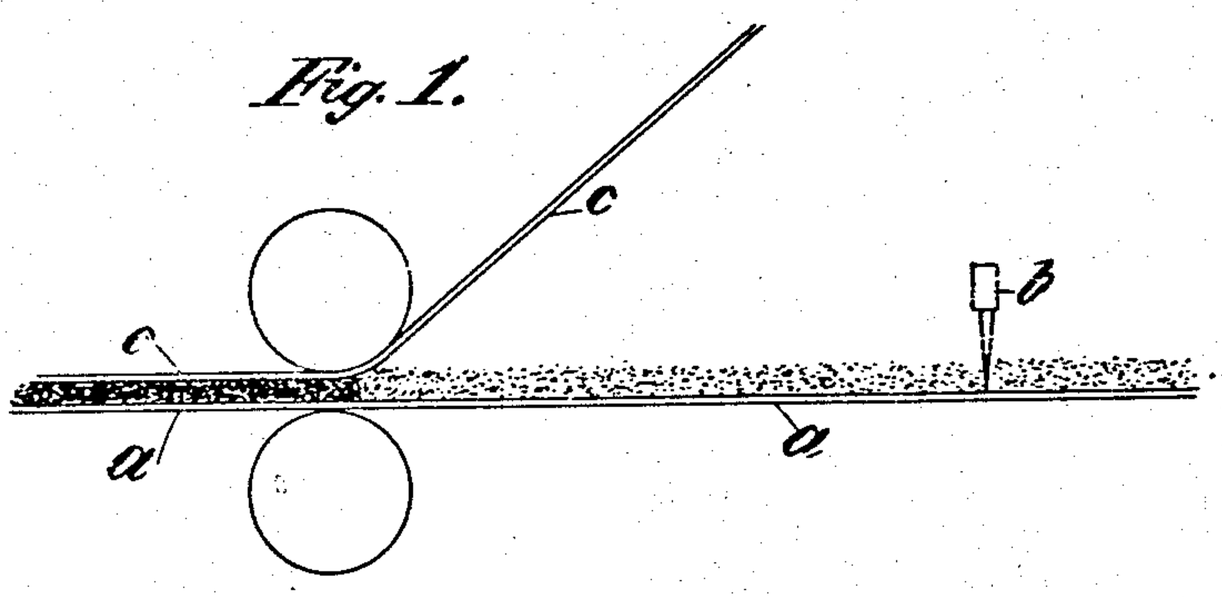

Fig. 2.

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UNITED STATES PATENT OFFICE.

LUDWIG WILHELM SEESER, OF RAGUHN, GERMANY.

MANUFACTURE OF LINOLEUM.

SPECIFICATION forming part of Letters Patent No. 773,995, dated November 1, 1904.

Application filed September 15, 1903. Serial No. 173,267. (No specimens.)

To all whom it may concern:

Be it known that I, LUDWIG WILHELM SEESER, a subject of the Duke of Anhalt, and a resident of Raguhn, in the Dukedom of Anhalt, German Empire, have invented certain new and useful Improvements Relating to the Manufacture of Linoleum or the Like, of which the following is a full, clear, and exact description.

Hitherto linoleum or the like has been made by means of roller-pressure, one fabric being used upon which the covering material is applied in any suitable manner and pressed upon it between the rollers. The present process differs from this in that instead of one fabric two fabrics are used and passed with the covering material through the pressing-rollers, by which one of them can then again be separated from the rolled product. By using a second fabric the advantage is obtained that the fabric remaining on the rolled product cannot be so strongly stretched by the pull of the rollers as was hitherto the case on using only one single fabric, as two fabrics are of course able to offer more resistance to the pull of the rollers than would be the case with one only. By using only one fabric, as heretofore, it will, unless a fabric of very good and strong quality be used, which is expensive, and thus increases the cost of manufacture, as experience has shown, be greatly stretched by the strong pull of the rollers and subsequently contracts again, especially under the influence of changes in temperature, whereby the linoleum is rendered of a corrugated appearance, because the rolled covering or coating cannot contract in a uniform manner in relation to the stretched material or fabric. By the use of a second fabric according to the present invention this disadvantage that the finished covering becomes corrugated is avoided without the necessity of using a specially good and strong fabric, as both fabrics of ordinary quality are enabled when together to offer more resistance to stretching than one only. The second length of fabric can be passed through the rollers as desired either on the same side as the first length of material (on the lower side of the covering) or on the opposite side (upper side) of the covering. The use of a second fabric also enables goods to be made with a fluted or otherwise roughened rear or face, a suitable rough or wide meshed fabric, whose inequalities are pressed into the covering on passing through the rollers, being used for the second fabric. By suitably selecting the design of the roughened parts, meshes, perforations, or the like of the second fabric any desired design can be procured for the roughened parts, flutings, or depressions of the covering. Hitherto it was only possible to make such flutings or raised parts by using correspondingly fluted or raised rollers, whereas by the aid of the present invention this can now be done with the use of smooth rollers. If the second fabric of the character described be passed through the rollers upon the same side of the covering as the first—*i. e.*, on the under side of the covering—it then presses by means of its inequalities the several threads of the first fabric remaining on the coating into the said coating, so that they then lie embedded in the mass upon the finished covering. They are thus protected against external influences and form, in conjunction with the covering mass, one uniform whole, so that they are much more strongly combined with it than heretofore at the point where the backing material only lies flat against the covering mass. In this way an improved product is obtained.

On separating the lower length of fabric upon completion of the rolling it is preferably used with another or with the same rolling train as the first or upper length of fabric remaining on the covering, so that upon manufacture only one single kind of light fabric is requisite, which is worked up continuously and which passes in two superimposed lengths through the rollers under and with the linoleum-coating material. All this yields an extremely cheap manufacture with the described improvement of the product by means of better protection and more intimate combination of the backing fabric with the covering mass.

The accompanying drawing shows the application of the process according to which the linoleum-coating is first applied to the length of fabric *a*, and after this has passed through

the leveling or smoothing device *b* the second length of fabric *c* is guided above it. whereupon the whole together is put through the pressure-rollers. The lower fabric length *a* is then separated from the finished coating, and the lower side of the covering thus exposed is used as the upper side—*i. e.*, the linoleum is in the position contrary to that in which it is rolled—the length of the fabric *c* previously lying above now being underneath. This process therefore permits of the manufacture of linoleum with deep-seated designs and sharp outlines to the design on the pattern side (so-called "inlaid linoleum") by the continuous roller-pressing system instead of by means of step-by-step manufacture, for as the equalizing device *b* does not reach down to the bottom of the covering material there is produced upon the bottom of the covering which forms the pattern side of the coating no obliteration of the outlines. Only certain parts of the pattern require to be applied to the lower length of fabric *a* according to certain forms and heights, while in the other pattern-fields lying between these specially-formed fields the correspondingly differently colored masses can be simply loosely shaken in, it being immaterial should some of these subsequently-added materials fall over the fields already formed. The equalizing device then distributes the mass over all at an equal height and thickness on the whole with the rolled material, the pattern outlines being of course obliterated on the here still uppermost coated side; but this is immaterial, as the coating is subsequently used reversed, and no obliteration of the design has taken place in the underneath portion thereof. Hence with this process the troublesome, tedious, and expensive separate preparation of all the pattern-fields by applying the mass at an equal height with minute care is avoided, and this is an enormous advantage in the manufacture. The covering material placed loosely in the pattern-fields as above described is held fast by the two lengths of fabric *a* and *c* upon moving forward therewith toward and through the rollers and is thus prevented from displacement.

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

The herein-described process for making a linoleum product which consists in first placing the covering substance loosely upon the upper pattern-forming surface of the fabric-sheet, advancing said pattern-sheet with the substance thereon past the leveling device to cause a spreading and leveling of the loose mass to an equal height and thickness upon the fabric, then, after the leveling step, placing a second upper fabric-sheet directly on the leveled portion of the mass beyond the point where the leveling action is effected, next causing the two fabrics with the leveled covering substance therebetween to be synchronously passed between a pair of pressure-rollers, and then stripping the lower pattern-forming fabric from the pressed product and reversing the latter to present a pattern-impressed upper surface.

In witness whereof I have hereunto set my hand in presence of two witnesses.

LUDWIG WILHELM SEESER.

Witnesses:

RUDOLPH FRICKE,

P. P. S. DUNN.