UNITED STATES PATENT OFFICE.

CHARLES L. LAURENCE, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANUFACTURE OF FLOOR-CLOTHS.

Specification forming part of Letters Patent No. **49,537**, dated August 22, 1865.

To all whom it may concern:

Be it known that I, CHARLES L. LAURENCE, of the city, county, and State of New York, have invented a new and Improved Method in the Manufacture of Floor-Cloths; and I do hereby declare that the following is a full and exact description of said invention.

For the purpose of the manufacture above stated the india-rubber to be employed in the manufacture is cleaned and rolled out roughly into a sheet, as usual. This sheet is soaked in a liquid which will soften and swell the india-rubber, and the soaking is continued until the sheet is so soft that if nipped between the thumb and fingers these may be readily made to meet through the sheet. The india-rubber, still retaining its original form, is removed from the liquid, and cork-dust is rolled or worked into it, as heretofore practiced, where india-rubber not previously softened in the manner above described has been employed. When the cork-dust is well incorporated the compound is rolled out into sheets between two fabrics. One of these fabrics is coarse and open, and remains permanently attached to the sheet of floor-cloth. It serves to support the sheet of soft compound until the softening-liquid is evaporated out of it, and in the finished article it prevents the sheet spreading and bulging at the points where it is most exposed to pressure and wear when in use. The other fabric, or that on which the face of the sheet is rolled, is a close fabric of finer texture, and is stripped from the sheet directly it leaves the rollers, the surface of the fabric being prepared so as to make it leave the compound readily. The sheet of compound is then placed in a drying-chamber, where it remains until the softening-liquid is evaporated.

In some cases I roll out the sheet between two black fabrics and allow both of them to remain on. Then after storing the sheet, when it is hard, I split it into two sheets with a sharp knife worked by machinery.

The india-rubber, when exposed to the softening-liquid, need not necessarily be in the form of a sheet so long as it is reduced sufficiently thin; but it is important that the india-rubber should not be dissolved, but retain its original form when removed from the liquid.

Having thus stated the nature of my invention, I will proceed more fully to describe the manner of performing the same.

I place at the rate of about two hundred pounds of coal naphtha in a suitable vessel, and introduce about one hundred pounds of india-rubber, in thin rolled sheets, into the solvent, and I allow the same to stand about twelve hours, when the naphtha will be taken up or absorbed by the india-rubber. I would remark that other solvents may be used in the place of coal naphtha. The above compound or mixture I prefer to be then placed in a powerful pug-mill or suitable masticator and worked for about two hours. This is done to equalize the consistency of the mixture before combining cork-dust therewith, after which it is ready for use. The amount or quantity of ground cork to be incorporated or mixed with one pound of india-rubber for floor-cloth is three pounds; but the proportions may be varied. I then take fifteen pounds of the prepared mixture and place it between a pair of horizontal quick-running iron or hard-wood rolls, preferring them to be about three feet long and eighteen inches diameter. The rolls are set to about one-quarter of an inch open. Immediately the rolls revolve the mixture adheres to both, covering them all round. I then take about fifteen pounds of ground cork and supply it to the mixture on the rolls as quickly as possible. In about ten minutes the cork will be taken up by the mixture. I then remove the product and place it in an air-tight box to prevent the naphtha or solvent used from evaporating till the whole of the three hundred pounds of compound or mixture is used or mixed, which, with the rolls above mentioned, will be in about three and a half hours. I then prefer to use a machine with a large pair of rolls six feet six inches long and two feet diameter; but these dimensions may be varied, and I employ a sheet of strong fabric and deliver it from a friction-drum (upon which it is wound) to the bottom roll, take another sheet of the same dimensions, and deliver the same to the top roll. The width of the fabric may vary according to the width of the floor-cloth required. The rolls are to be set so that the distance the two sheets of fabric in the bite of the rolls are apart will represent the thickness the floor-cloth is to be when finished, allowing for compression after

evaporation. I prefer that the length of the sheets of fabric should be not less than fifty yards. I now set the rolls in motion and feed or supply them with the combined india-rubber and cork compound. An even layer or strata of the compound will be formed between the two sheets of fabric, and the same will adhere tightly. The sheet thus formed, adhering to the fabric, is next taken to a hot-air stove and unwound from the mandrel on which it was rolled as it came from the rolls. The sheet is then suspended in the stove and the doors are closed. An inch jet of steam is admitted into the stove, the fire-heat being kept up as well. The heat is raised to about 200° of Fahrenheit, and kept under steam for two hours, there being a suitable escape from the stove. The steam is then shut off and the fire-heat alone continued for about two hours longer, or until the heat has thoroughly evaporated the solvent. The steam removes the unpleasant scent, and the fire-heat removes all the damp which condenses from the steam. The sheets are now ready to be finished. They are taken down and again passed through between the rolls, the fabric still adhering, the rolls being screwed down so as to nip the sheet tightly. The two sheets of fabric are stripped off the sheet of india-rubber and cork compound, either after passing the whole length through between the rolls, or it may be done as the sheet is passing from the rolls. The sheet of floor-cloth is, after removing the fabric, again passed through between the rolls so as to perfectly solidify it. The edges of the sheet are next trimmed, and the floor-cloth is ready for use. It may be painted or colored in any colors or patterns desired.

When it is desired that the floor-cloth should have a strong, coarse, woven back, the process is the same as above described, but only one of the fabrics is removed, which is of closer texture and suitable for being stripped off the surface of the compound of india-rubber and cork-dust, or two sheets of coarse fabric may be employed and the product obtained split by a splitting-machine into two sheets of floor-cloth, each having a strong woven back.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, by the process hereinbefore detailed, of india-rubber and cork-dust; also the use of the horizontal quick-running iron or hard-wood rolls, as above described in the said process; also the attachment to the sheets of compound of the fabric above mentioned, to the two surfaces thereof, and also the application of the steam and fire heat to the sheets in the process above described.

CHARLES L. LAURENCE.

Witnesses:

CHARLES C. LEEDS,

PHINEAS D. COLLINS.