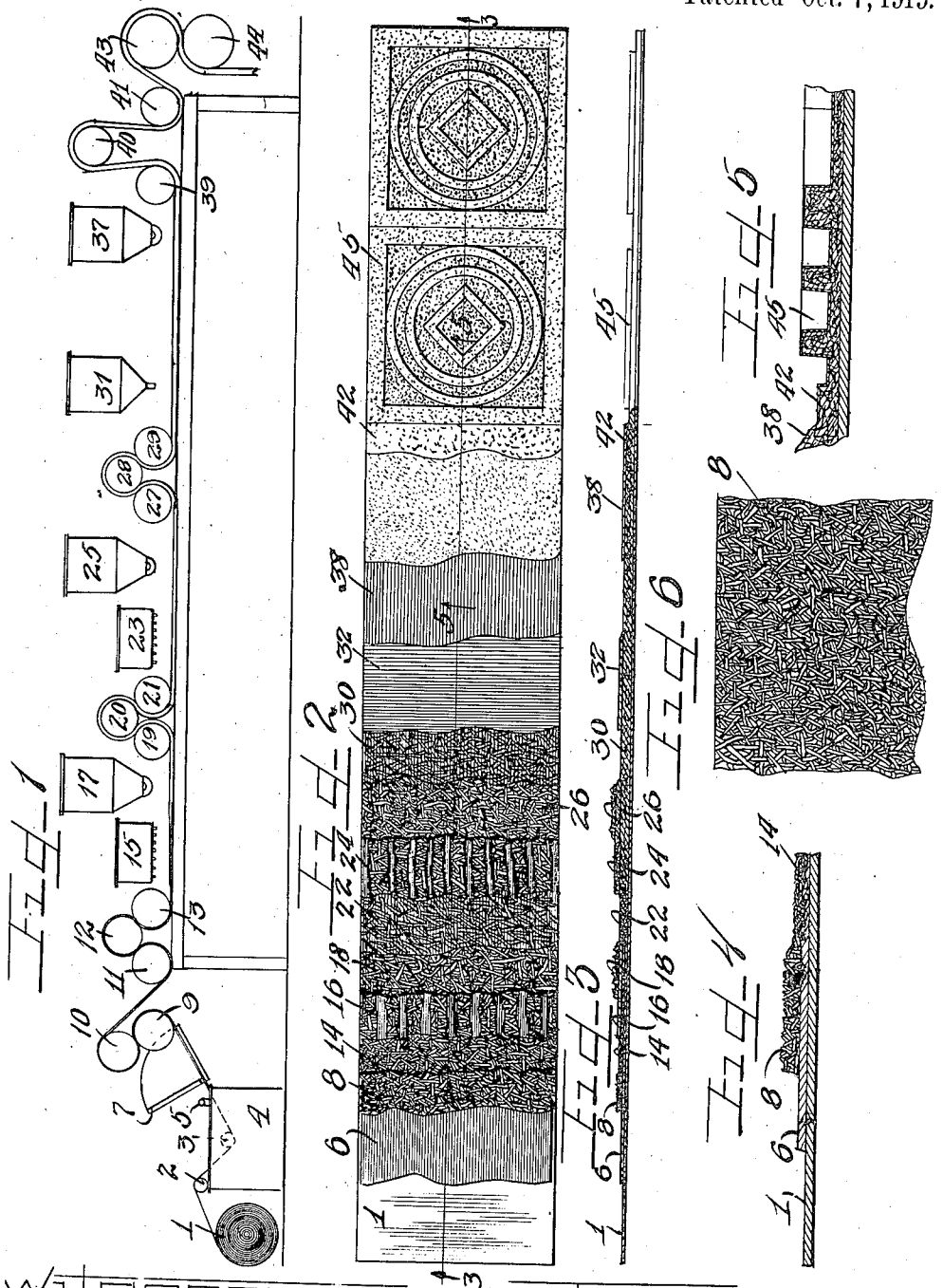
W. F. McKAY.

SURFACING MATERIAL AND PROCESS OF MAKING SAME.

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1,318,096.

Patented Oct. 7, 1919.



Witnesses

J. W. Angell

Charles Fildes Jr.

Inventor

William F. McKay

by Charles O. Fildes

Atty.

UNITED STATES PATENT OFFICE.

WILLIAM F. McKAY, OF LA GRANGE, ILLINOIS.

SURFACING MATERIAL AND PROCESS OF MAKING SAME.

1,318,096. Specification of Letters Patent. Patented Oct. 7, 1919.

Application filed August 28, 1917. Serial No. 188,581.

To all whom it may concern:

Be it known that I, WILLIAM F. McKAY, a citizen of the United States, and a resident of the city of La Grange, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Surfacing Material and Processes of Making Same; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to an improved process of manufacturing a surfacing material which is well adapted for use on floors, walls, ceilings and for other purposes, and according to the use thereof, slight changes in the process well within the scope of this invention may be made to better adapt the material for the particular use to which the material is to be subjected. The process for formation of the surfacing material is continuous, and takes place through a machine constructed for the purpose, whereby the manufacture of the surfacing material is simplified and made exceedingly economical from a cost consideration.

Heretofore, it has been almost general practice in the manufacture of surfacing material, such as for wall and floor coverings, and roofings to use various kinds of paper, felts and fabric as a base which have in their manufacture consisted of fibrous material reduced to a pulp. It is well known that fibrous materials, such as straw, in their natural state, have great water resisting properties as well as a natural ability to resist action of the elements where exposed to weather. However, such materials when reduced to a pulp and made into paper, for instance, that known as straw board, lose their resistive properties. I contemplate the use of artificial or natural fibrous materials retained substantially in their initial or natural state in the formation of a product by a process followed according to the principles of my invention, thus producing at low cost a material having high weather resistive properties, as well as strong wearing qualities.

It is an object therefore of this invention to provide a process for the manufacture of a weather-proof and insulating material adapted for any purpose whatsoever where the use requires a material of such character, wherein a fibrous material and moisture resisting adhesive material are worked into a homogeneous mass upon a suitable base member, which, upon processing, forms substantially a continuous unitary water-proof fabric, which may be cut and shaped to lengths desired and formed with any ornamentation.

It is also an object of this invention to provide a process for the manufacture of a surfacing material wherein a flexible sheeting is used as a base which is treated on its surface with a binding liquid upon which a fibrous material is afterward placed and worked thereinto with subsequent treatments of the adhesive material and fibrous material taking place, utilizing, if desired, different grades of fibrous material and different grades of adhesive material in the different steps of the process according to the purpose for which the material is to be used, and finally treating the material with a surfacing substance after which the material is passed through finishing rolls which may, if desired, impress an ornamentation in the material.

It is furthermore an important object of this invention to provide a material manufactured by a process involving the temporary or permanent use of a base with applications thereto of a binding or adhesive fluid and layers of fibrous material, and at the same time working the binding fluid and the fibrous material through suitable mechanisms for the purpose to form in substantially a unitary homogeneous fabric and finally giving the same a surface treatment with talc, graphite, gravel, sand, paper, or other material according to the purpose for which the material is to be used.

It is a further important object of this invention to provide a process for the manufacture of a wear and weather resisting material, utilizing a fibrous material and adhesive weather-proof fluid substantially in their natural state reduced to substantially a homogeneous mass and subsequently treated with a surfacing substance, and with the material formed in sheets or lengths of any desired dimension and impressed, if desired, with any ornamentation.

Other and further important objects of the invention will be apparent from the disclosure in the drawings and specification.

The invention (in a preferred form) is illustrated in the drawings, and hereinafter more fully described.

On the drawings:

Figure 1 is a diagrammatic side elevation of a contemplated mechanism for performing the process of manufacture of a material according to the principles of my invention.

Fig. 2 is a fragmentary plan view of a sheet of the material with the different layers thereof broken away to show the successive steps in the process.

Fig. 3 is a detail section taken on line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail section taken longitudinally at the left hand end of Fig. 2.

Fig. 5 is an enlarged detail section on line 5—5 of Fig. 2.

Fig. 6 is an enlarged plan view of the material after the second step in the progress.

As shown on the drawings:

The material or composition of matter formed according to the principles of my invention, is manufactured in the following manner: Referring to Fig. 1, a reel of paper or other suitable flexible or pliable base member which is desired to be used, denoted by the reference numeral 1, is journaled in any suitable means at one end of the machine and the sheet drawn from the reel is led over a roller 2, and downwardly beneath an idler roller 3, disposed within a tank 4. At the point of which the sheeting 1, is led upwardly out of the tank 4, a spray pipe 5, is provided, which streams a thin layer of the binder or adhesive liquid upon the surface of the sheeting, as denoted by the reference numeral 6, shown in Fig. 2. The treated sheeting is then led upwardly through a hopper 7, within which a quantity of straw 8, or other suitable fibrous material, is disposed, which as the sheeting moves along the bottom of the hopper adheres thereto and the sheeting is then led around rolls 9 and 10, respectively, which serve to work the fibrous material well into the binder.

As the material is passed around the upper roll, any of the straw or other fibrous material which has not been worked into the material but has left the hopper 7, falls back into the hopper, and the material on the sheet then continues around the three rolls 11, 12 and 13, where working of the fibrous material into the binder is furthered. The sheeting thus far treated, as it leaves the roller 13, is denoted by the reference numeral 14, as shown in Fig. 2 and passes beneath a tank 15, which streams a further quantity of binder liquid thereon and this point in the process is denoted by the reference numeral 16, in Fig. 2. As the sheeting leaves the tank 15, it passes beneath a discharging hopper 17, which drops a further quantity of fibrous material thereon, and this step in the process is denoted by the reference numeral 18, in Fig. 2. The material thus far treated, is then led around and between the rolls 19, 20 and 21, respectively, shown in Fig. 1, and the material so far treated is denoted by the reference numeral 22, in Fig. 2. The material is then passed beneath another tank 23, and a further quantity of binding fluid, which may if desired be of a slightly different character than that theretofore used, is streamed upon the material from the tank 23, and this step in the process of formation of the material is denoted by the reference numeral 24, in Fig. 2. The material then leads beneath the discharging hopper 25, which permits a further quantity of the fibrous substance to fall upon the material thus far formed, and this step in the process is denoted by the reference numeral 26, after which the material is led around and between rolls 27, 28 and 29, to thoroughly interwork the binder liquid and the fibrous substances into substantially a homogenous mass, this step in the process being denoted by the reference numeral 30.

The material then passes beneath the discharging hopper or tank 31, which sprays a layer of the liquid thereon of a slightly different character from the liquid heretofore used to afford a finishing surface coat upon the material, and this step is denoted by the reference numeral 32, in Fig. 2. After this step in the process, the material is led beneath the discharging hopper 37, which sprays a suitable surface substance of graphite, ground cork, talc, sand, gravel, or any other suitable material upon the surface of the product thus far formed, and this step in the process is denoted by the reference numeral 38. The product thus far formed is then passed around and between the respective rolls 39, 40 and 41, so that any superfluous quantity of the surfacing material which is not worked into the product by said rolls, falls therefrom, and the product at this step in the process is denoted by the reference numeral 42, in Fig. 2. The material is then passed between forming rolls 43 and 44, if so desired, to form an ornamental design thereon and to thoroughly and finally compress the product and this step in the process is denoted by the reference numeral 45. The base is used primarily as a carrier for the fibrous composition to be formed and may be of a character which permits removal thereof from the finished product if so desired. The product formed is actually a fibrous fabric and is possessed of exceptionally strong wearing and weather-proof qualities and may be used for many purposes, such as surfacing floors, walls, roofs, ceilings and the like, or as an insulation member between walls, floors and ceilings.

Its extent and use is in fact almost infinite, and the fabric or material so formed may be made of different colors and designs to suit the particular purpose or use desired.

I am aware that various details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. The process of forming a wear and weather-proof material consisting in alternately applying a binder liquid and a layer of straw to the surface of a sheet of substance.

2. The process of forming a weather-proof material, consisting in alternately treating a base member with layers of binder liquid and straw, and thoroughly interworking the same to form a unitary and substantially homogeneous product.

3. The process of forming a wear and weather-proof material, consisting in the application of a binder fluid to the surface of a sheet and subsequent additions of fibrous material thereto and looping same over and under rolls to form a solid pliable sheet of material.

4. The process of forming a wear and weather-proof material by working straw in its natural state into a binder fluid upon the surface of a sheet of fibrous substance.

5. A weather-proof sheet composed of straw and adhesive bonding material rolled into a thin, compact mass.

6. A weather-proof sheet consisting of a ribbon, a surfacing material, and a layer of criss-cross overlapping strands of fibrous material bonded together and compressed between and bonded to the ribbon material and the surfacing material to afford tensile strength and impenetrability to the sheet.

7. A weather-proof sheet consisting of a layer of fibrous material comprising overlapping strands, flattened and arranged criss-cross and substantially parallel with the surface of the sheet, and an adhesive material mingled with the strands of fibrous material for combining said strands in a unitary mass.

8. A weather-proof sheet consisting of a ribbon, a layer of criss-cross overlapping strands of fibrous material bonded to the ribbon, a surfacing material bonded to and covering the layer of fibrous material, said sheet being provided with an ornamental design impressed in the surfacing material and fibrous material.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM F. McKAY.

Witnesses:

CHARLES W. HILLS, Jr.,

EARL M. HARDINE.