

Dec. 5, 1933.

R. F. TABER

1,937,858

METHOD OF MAKING INDEX STRIPS

Original Filed Nov. 6, 1926 2 Sheets-Sheet 1

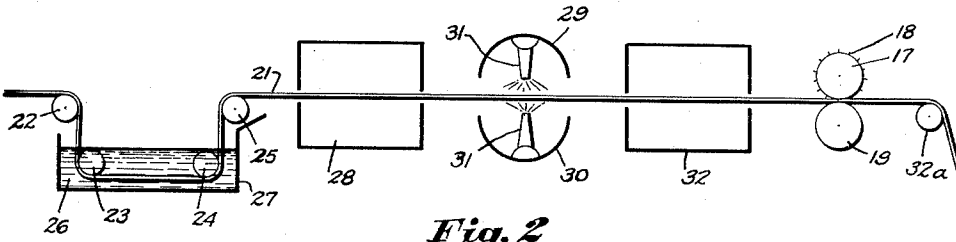


Fig. 2

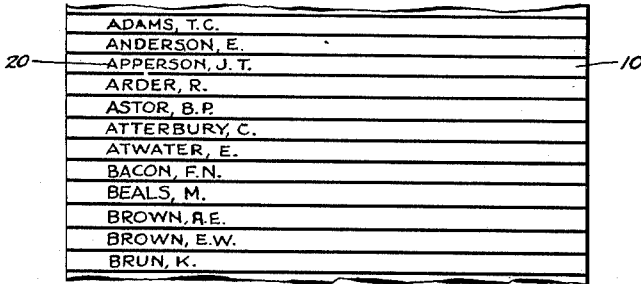


Fig. 1

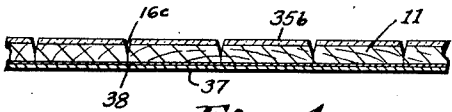


Fig. 4

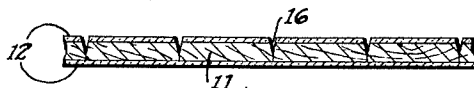


Fig. 3

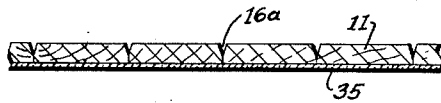
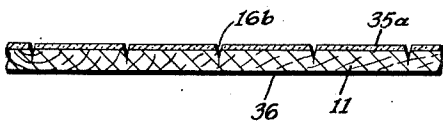


Fig. 5

Fig. 6



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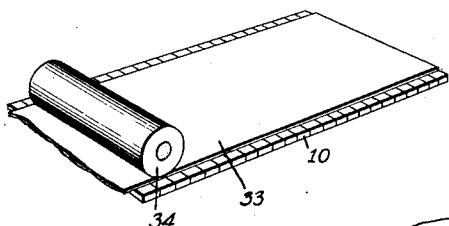
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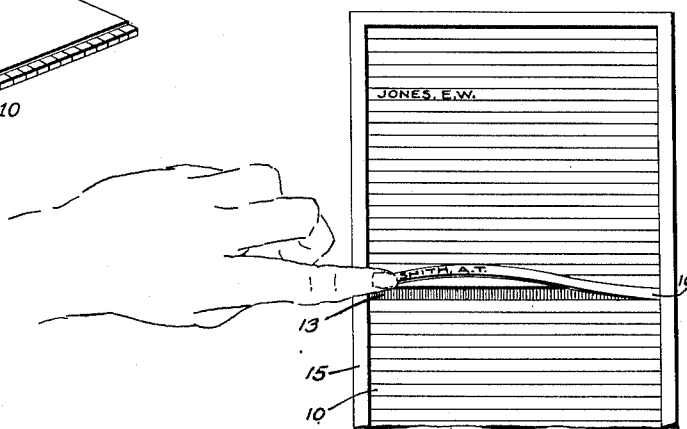
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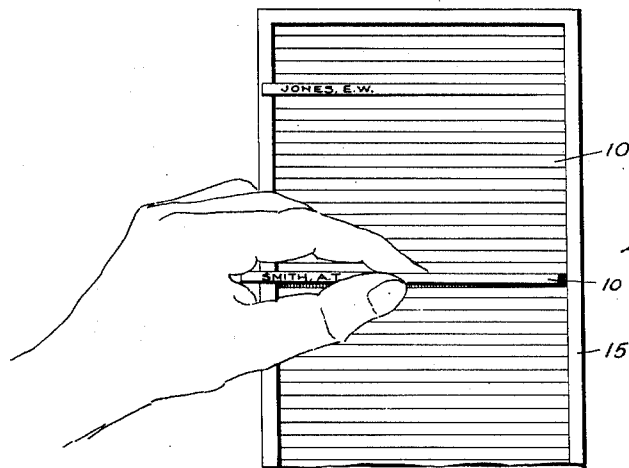
Original Filed Nov. 6, 1926 2 Sheets-Sheet 2



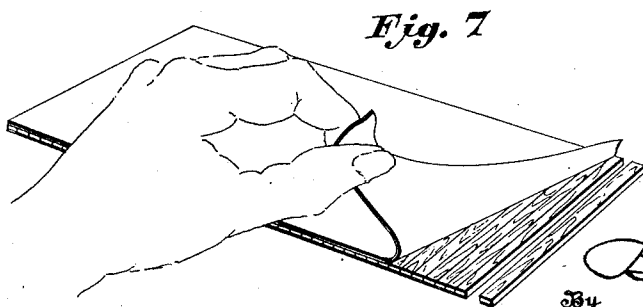
*Fig. 10*



*Fig. 9*



*Fig. 8*



*Fig. 7*

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# UNITED STATES PATENT OFFICE

1,937,858

## METHOD OF MAKING INDEX STRIPS

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Original application November 6, 1926, Serial No. 146,764, now Patent No. 1,801,401, dated April 21, 1931. Divided and this application February 9, 1931. Serial No. 514,597

2 Claims. (Cl. 154—2)

This invention relates to index strips, and has reference more particularly to index strips in the form of material separated by a series of score marks or perforations into a series of narrow and flexible index strips adapted to be inserted under the flanges of a supporting frame.

This application is a division of copending application Serial No. 146,764, filed November 6, 1926, Patent No. 1,801,401, April 21, 1931.

Index strips of the scored or perforated type have been constructed of wood coated with fibrous material such as paper, the narrow index strips being adapted to be readily inserted in a supporting frame or tray. This thin wood material has given considerable trouble, because of the fact that it readily takes up or gives up moisture as the humidity of the air changes, with the result that the index strips in a supporting frame warp and twist out of shape so that convenient reference thereto can not be made, and the index file has an unsightly appearance.

Index strips of this character have also not been as elastic as desired, since, when the strip is bent for insertion under the flanges of an index frame, the strips do not flatten out completely, and as a result, the surface of the index file has a rough and uneven appearance, due to the fact that numerous index strips are not lying flat on the index panel.

An object of this invention is to produce index strips of wood or other fibrous material which are coated on one or both sides with a moisture proof substance, and, if desired, also impregnating the fibrous material with a moisture proof substance.

Another object of this invention is to improve the elasticity of index strips of the class described so that the strips will lie flat on the panel when placed under the flanges of the index frame; also to improve index devices in other respects hereinafter specified and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which,

Fig. 1 is a plan view of the completed index mat.

Fig. 2 is a diagrammatic view of an apparatus suitable for carrying out my improved method of preparation for the index strips.

Fig. 3 is a transverse, fragmentary, sectional view through the index mat.

Fig. 4 is a transverse, fragmentary, sectional view through a modified form of the index mat.

Fig. 5 is a fragmentary sectional view similar

to Fig. 4 but of a further modified form of the index mat.

Fig. 6 is a fragmentary sectional view through a further modified form of the index mat.

Fig. 7 is a perspective view of an intermediate step in the preparation of the index strip shown in Fig. 4.

Fig. 8 is a fragmentary elevation of an index frame with one of the improved index strips being inserted under the flanges thereof.

Fig. 9 is a fragmentary elevation of an index frame showing the last step in the insertion of an index strip under the flanges of the frame.

Fig. 10 is a perspective view showing a scored composite mat being provided with notations by means of a stencil.

Referring to the drawings by numerals, 10 indicates an index strip which is preferably formed of a composite mat of material, as shown in Fig. 3. This composite mat may consist of a central body portion 11 of fibrous material such as wood, cardboard, or the like. This material composing the body portion is preferably but not necessarily impregnated with a moisture-proof substance such as nitro-cellulose, varnish or the like, so that said body portion will not warp out of shape when subjected to air of varying humidity.

The body portion 11 of the index strip may be further coated on each surface with a layer of material 12 which serves two purposes, namely: to make the body portion 11 further proof against moisture and to provide a surface which is adapted to take ink from a typewriter, stenciling roll, or the like. In the preferred form these surfaces 12 are composed of a material which may be applied by flowing, spraying or brushing a liquid such as enamels, nitro-cellulose paints or lacquers or other liquid which dries after being applied to the surface of the body portion 11. It should be understood that the body portion 11 is not necessarily impregnated with a moisture-proof material, since the surface 12 may in itself have sufficient moisture-proof properties, especially when said surface consists of a nitro-cellulose paint or lacquer. However, the materials used in impregnating the body portion 11 and in forming the surfaces 12, may be so selected that the elasticity of the resulting index strips is materially increased, thus causing the strips to lie flat on an index panel 13 of an index frame 14, when the ends of said strips are inserted under the flanges 15 of said index frame.

The composite mat which is to form the index strips, is preferably scored or partially cut

through its thickness by a plurality of parallel lines or slots 16. In the form of the invention shown in Fig. 3, the score marks 16 pass through the layer of lacquer 12, through the body portion 11, but do not pass through the opposite lacquer layer 12, the latter serving to hold the index strips together. These score marks 16 or perforations may be so formed as to pass through all of the layers of the composite mat along a partial length of each score line or slot 16. Thus the index strips may be held together by adhesion of enamel 12 adjacent the ends of said strip, while the portions of the strips intermediate the ends may be completely severed, thus considerably aiding in the subsequent manual separation of the index strips. These score marks or slots 16 may be formed by a roller 17 having suitably spaced knives 18 formed around its periphery, the index strips being adapted to pass between the roller 17 and another plain roller 19, so that the two rollers 17 and 19 are spaced apart a distance such that the knives 18 only partially sever the composite mat to form the index strips. The score line 16 may be formed by a reciprocating die having one or more knives on its surface, which cut the score lines 16 partially through the composite mat. Usually, however, the score line 16 is made by annular knives which travel continuously across the mat, each knife rotating as it travels so as to partially sever the composite mat.

A final step in the process of making finished index strips ready for filing under the flanges 15 of the index frame 14 consists in applying names or other data 20 to the index strips of the series before severing the same. These names 20 are preferably applied by imposing a stencil over the scored, composite mat, the stencil being preferably previously prepared by typewriting the desired data in lines. An inking roll is then passed over the stencil so that the ink from the roll passes through the typewritten notations on the stencil and are imprinted on the index strips. For this purpose it is desirable to use a stencil which is semi-transparent so that the stencil may be arranged over the composite scored mat with the typewritten notations on the stencil properly aligned with the index strips.

The method of preparing my improved index strips therefore includes the following steps.

- (1) Impregnating the material forming the body portion 11 with a moisture-proof agent,
- (2) Drying this agent or substance,
- (3) Spraying paint, lacquer or enamel on the two surfaces of the body portion 11,
- (4) Drying the paint, lacquer or enamel on the surfaces of the body portions,
- (5) Providing the composite strip thus formed with parallel score lines 16,
- (6) Applying notations to the individual index strips, as by stenciling,
- (7) Severing the scored and stenciled index mat to form individual index strips, each having a properly positioned notation.

The apparatus for carrying out my improved method is shown diagrammatically in Fig. 2, in which a continuous strip of material 21 such as cardboard, wood, etc., is prepared, if necessary, by splicing together pieces of short length. This continuous strip passes over rollers 22, 23, 24 and 25, the rollers 23 and 24 being immersed in an impregnating liquid contained in a tank 27. After passing over the draining roller 25, the impregnated strip 21 passes into a drying chamber 28 of any suitable construction, where the solvent

contained in the impregnating material 28 is evaporated from the strip 21, leaving the residual, moisture-proof material in the pores of the strip 21 with the surface of said strip in a dry condition for the reception of a surface material 12. The strip 21 then passes between spraying chambers 29 and 30, each of which contains a spray nozzle 31, so that said spray nozzles are oppositely directed and the nitro-cellulose, lacquer, paint or enamel is sprayed through said nozzles onto the opposite faces of the strip 21 so as to make a smooth and uniform surface suitable for the reception of printed notations and for also increasing the flexibility of said strips. A sprayed surface is especially effective for this purpose, since it provides a dull finish on the index strip which is especially desirable for receiving ink as commonly used in stenciling.

After the lacquer surface 12 is applied to the surface of the strip 21, said strip passes into a second, suitable drying chamber 32 where the solvent in the nitro-cellulose lacquer or enamel is evaporated to form the ink receiving surface 12. Strip 21 then passes between the rollers 17 and 19 where the knives 18 partially sever the composite mat to form the score lines 16. It should be understood that instead of the rollers 17 and 19, any other form of scoring device may be used if desired as above described. After scoring the strip passes over roller 32d to any desired discharge point, after which the desired notations are applied to the index strip by stenciling, typewriting or the like as above described.

The apparatus for stenciling the names on the index strip may consist of a stencil sheet 33 which is provided with typewritten notations. This stencil sheet is superimposed on the index sheet 10 so that the lines of notations in said stencil sheet are properly aligned with the individual index strips on said index mat 10. An inking roll 34 is then passed over the stencil sheet 33 so that ink passes through the typewritten notations in the stencil sheet and causes an imprint of said notations to be formed on the index strip 10. The stencil sheet 33 is then removed and the index mat 10 is broken apart or severed into individual index strips. Each strip is then inserted under the flanges 15 of the index frame 14 as shown in Figs. 8 and 9.

In the form of the invention shown in Fig. 5, the paint, lacquer, or other ink receptive surface 35 is applied to only one surface of the body member 11. In this case the body member 11 is preferably impregnated with a moisture-proof material to prevent warping of same. The score marks 16a in this case pass through the wooden body portion 11 but do not pass through the lacquer surface 35 so that said lacquer surface serves to hold the index strips together in mat form until it is desired to sever same.

In the form shown in Fig. 6, the body portion 11 is also provided with a lacquer surface 35a on one face only as in Fig. 5. However, the score marks 16b pass through the lacquer surface 35a and partially, but not completely, through the wooden body portion 11, so that the unsevered part 36 of the body portion 11 serves to hold the individual index strips in mat form until it is desired to sever same.

The form of the invention shown in Fig. 4 comprises a body portion 11 of wood or other suitable material which may or may not be impregnated with a moisture-proof agent. This body portion 11 is provided with a surface 35b of lacquer, paint, or enamel which is adapted to take the

printing ink. The surface of the body portion opposite the lacquer surface 35b is covered with a sheet of any suitable tough and flexible sheet material such as a layer of transparent cellulose 37 attached to the body portion 11 by a layer of weak adhesive 38. The score marks 16c, in this form of the invention, pass through the lacquer surface 35b, the body portion 11, but not through the layer of cellulose 37. After the notations are stenciled onto the lacquer surface 35b of the index strips, said index strips are separated by tearing the flexible sheet of cellulose material 37 from the back of said index mat, as shown in Fig. 7, the adhesive 38 being weak enough to permit the ready separation of said flexible sheet 37. The flexible sheet 37 may be narrower in width than the index mat if desired so as to permit easier separation therefrom.

I would state in conclusion that while the illustrated examples constitute a preferred embodiment of my invention, I do not limit myself precisely to the details herein described, since manifestly the same can be considerably varied without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. A method of making index strips consisting in impregnating and coating a strip of wood veneer with a water-proof flexible material in liquid form, drying said coated strip to provide a smooth water-proof protective coating on said wood veneer bonded with the surface fiber of the strip to form an integral structure, and finally cutting said integral structure through the major portion of the cross section thereof from one side at a plurality of points thereby leaving a frangible connection to form a series of elongated narrow index strips separable by bending adjacent index strips at an acute angle to break said frangible connection.

2. A method of making index strips consisting in impregnating a thin sheet of wood veneer with a water-proofing material and coating both faces of said thin sheet of wood veneer with a water-proof flexible material in liquid form, drying said coated sheet to obtain an integral bonded structure with smooth protective coatings on each face of the wood veneer, and finally cutting said sheet through one of said coatings to form a plurality of frangibly connected elongated narrow index strips of substantially uniform size.

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30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150