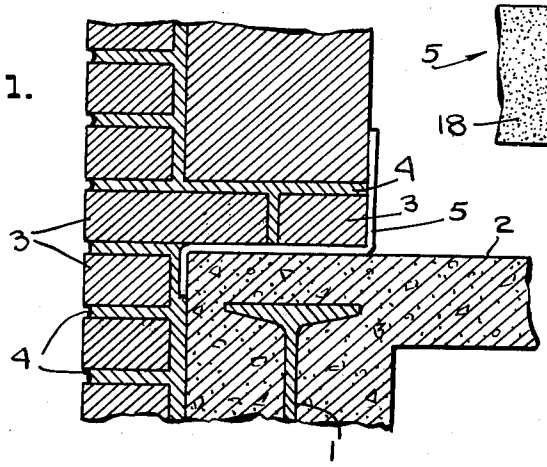
Oct. 25, 1955 A. G. MUNRO 2,721,819

FLASHING

Filed Feb. 21, 1955

Fig. 1.



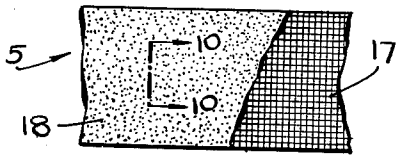
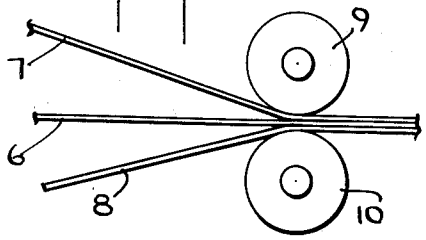


Fig. 9.

Fig. 2.



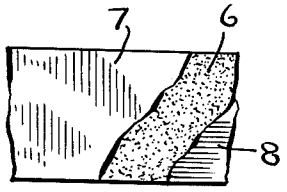


Fig. 3.

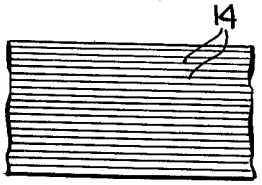
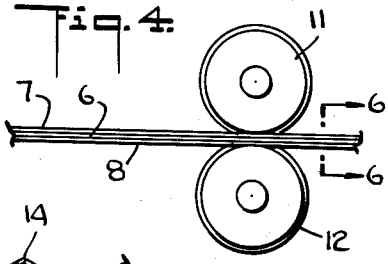


Fig. 5.

Fig. 4.



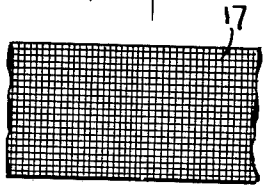


Fig. 8.

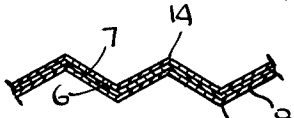


Fig. 6.

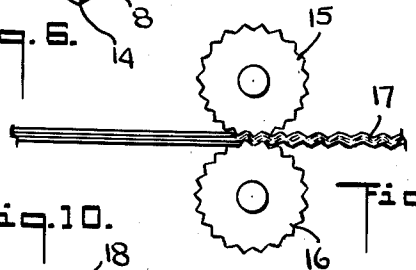
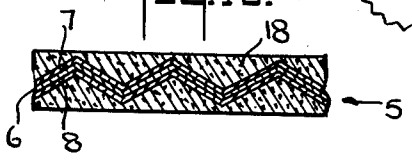


Fig. 7.

Fig. 10.



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FLASHING

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Application February 21, 1955, Serial No. 489,717

4 Claims. (Cl. 154—51)

This invention relates to dampproofing masonry walls and it has for its object to provide a novel and improved flexible flashing material for that purpose.

Another object of the invention is to provide a tough and durable flashing of the above type which is economical to manufacture and install, and which forms an impenetrable barrier against moisture vapor as well as free water at all vulnerable points in masonry construction.

Still another object is to construct a flashing of the type specified which is not only highly flexible and therefore readily conformable with the contour of brick and concrete walls, steel beams, etc., but is also extensible in two directions and immune to fracture regardless of the way in which a building may settle.

Various other objects and advantages will be apparent as the nature of the invention is more fully disclosed.

Since no one has yet devised a masonry structure which is inherently leak-proof, it is customary in constructing modern buildings to employ moisture-resisting flashings or coatings of one kind or another to seal the many joints and seams that must of necessity be made waterproof. Typical flashings employed for this purpose consist of waterproofing sheets of paper treated with asphalt compositions, etc., which are laid between courses of brick, or on the concrete covering spandrel beams at floor levels, or wherever else protection is required.

The matter of cost, and limitations on bulk, militate against the use of some protective flashings heretofore proposed for the above purpose. The greatest problem, however, has been to devise a flashing which is sufficiently flexible, durable and at the same time expansible to insure close fitting to the irregular contours of walls, columns, etc., without fracturing, and to avoid bursting or tearing due to careless construction practices as well as the subsequent effects of age and particularly the tendency of buildings to settle.

The present invention provides a novel and improved composite flexible, expansible flashing for dampproofing masonry walls which avoids the foregoing disadvantages of the prior art. In its preferred form, my composite flashing comprises an inner core consisting of a moisture-impervious sheet of thermoplastic polyvinyl resin, tough membranes preferaby of fibrous material such as paper which cover both sides of the polyvinyl resin core and are thermoplastically bonded thereto, the whole assembly being creped or corrugated both longitudinally and transversely to permit same to stretch in two directions, and an outer coating of pliable, stretchable asphalt which covers both sides of the composite sheet and not only adheres tenaciously to the creped membranes but also constitutes a bonding agent with masonry.

The term "dampproofing" is used herein in its broadest sense, and includes waterproofing, rust-proofing, corrosion-proofing, mildew-proofing, and the setting up of barriers against the passage of moisture vapor as well as free water. In all of the many situations in which my flashing may be used in the construction of a building its

extreme pliability insures close fitting to the contour of concrete beams and columns, around steel shapes, pipes, etc., and for within-wall dampproofing, without danger of cracking or tearing. The two-way stretchability of the composite sheet is highly important since it is impossible to determine in advance which way a building will finally settle and cause conventional flashings to burst. Tests have demonstrated that my expansible flashing will stretch as much as 30% without tearing or losing any of its protective properties.

Although the novel features which are characteristic of this invention are set forth more in detail in the claims appended hereto, the nature and scope of the invention may be better understood by referring to the following description, taken in connection with the accompanying drawing forming a part thereof, in which a specific embodiment has been set forth for purposes of illustration.

In the drawing:

Fig. 1 is a vertical section through the wall of a building, illustrating the use of my flashing;

Fig. 2 is a diagrammatic view illustrating the first step in the manufacture of the flashing;

Fig. 3 is a broken plan view of the composite flashing before it is creped;

Fig. 4 is a diagrammatic view illustrating the longitudinal creping or corrugating of the sheet;

Fig. 5 is a plan view of the sheet as it emerges from the creping rolls of Fig. 4;

Fig. 6 is a transverse section through said sheet, taken on line **6—6** of Fig. 4;

Fig 7 is a diagrammatic view illustrating the transverse creping of the flashing;

Fig. 8 is a plan view of the sheet as it emerges from the rolls of Fig. 7;

Fig. 9 is a broken plan view of the finished sheet with the final coating of flexible, stretchable asphalt; and

Fig. 10 is a transverse section on line **10—10** of Fig. 9.

In the following description certain specific terms are used for convenience in referring to the various details of the invention. These terms, however, are to be interpreted as broadly as the state of the art will permit.

In the drawing, Fig. 1 shows a spandrel beam 1 supporting the concrete flooring **2** of a building, while 3 are the bricks forming the outer wall which are laid in the usual way with intermediate courses of mortar **4**.

The flexible spandrel beam flashing sheets **5** forming the subject matter of the present invention are laid between the flooring **2** and the courses of brick **3**, and are embedded in the surrounding mortar **4** as shown in Fig. 1. The construction of the flashing **5** will now be described.

The composite flashing comprises an inner core consisting of a moisture-impervious sheet **6** of thermoplastic polymerized vinyl resin such as a polyvinyl ester, polyvinyl acetate, polystyrene or the like, which is covered on both sides with fibrous membranes such as tough paper membranes **7** and **8**, as illustrated in Fig. 3. It may be fabricated by passing the three-ply sheet under pressure between smooth heated rolls **9** and **10**, as shown in Fig. 2, causing the membranes **7** and **8** to be thermoplastically bonded to the inner core **6**. Fig. 3 shows the smooth composite sheet as it emerges from the rolls of Fig. 2.

The composite sheet as it appears in Fig. 3 is next creped or corrugated longitudinally, for example by passing same between the rolls **11** and **12** of Fig. 4. The rolls **11** and **12** are corrugated or grooved circumferentially in any desired manner, depending upon the shape, depth and number of corrugations to be impressed in the sheet. Figs. 5 and 6 show the sheet as it emerges

from the rolls **11** and **12** of Fig. 4, and for purposes of illustration the corrugations are shown to be of angular V-shape and are designated by the reference numeral **14**.

The longitudinally creped sheet of Figs. 5 and 6 is next creped or corrugated in a transverse direction, for example by passing same between the rolls **15** and **16** of Fig. 7. These rolls **15** and **16** may be corrugated or grooved transversely, or in a direction parallel to their axes, or they may be grooved diagonally or both transversely and diagonally to insure the desired stretch in more than one direction. Here again the configuration of the roll surfaces depends upon the shape, depth and number of corrugations to be impressed in the sheet. Fig. 8 shows the sheet as it emerges from the rolls **15** and **16** of Fig. 7, and the cross-hatched surface designated by the reference numeral **17** indicates that the composite sheet is now creped both longitudinally and transversely, or also diagonally as described above, and is thus capable of stretching in more than one direction.

The composite sheet of Fig. 8, multi-creped as described above, is finally coated on both sides with any suitable soft, flexible, stretchable and plastic asphalt composition **18** which constitutes a bonding agent with masonry. Figs. 9 and 10 show the finished composite flashing, from which it will be seen that the asphalt coating **18** completely covers the composite corrugated sheet and gives the finished flashing a smooth surface which is readily bonded with the masonry as shown in Fig. 1.

To cite but one example of a moistureproof flexible flashing embodying the invention, and fabricated as herein disclosed, two and a half pounds of asphalt composition were employed per nine square feet of flashing with a finished thickness of about one-sixteenth inch; tensile strength 500 lbs. per square inch; bursting strength 158 lbs; stretch over 22% without fracturing, in some cases 30% before tearing.

Although a specific embodiment has been shown and described herein for purposes of illustration, it will be evident to those skilled in the art that the invention is capable of various modifications and adaptations within the scope of the appended claims.

The invention claimed is:

1. A composite flexible, expansible flashing for dampproofing masonry walls comprising an inner moisture-impervious sheet of thermoplastic polyvinyl resin, membranes covering both sides of said inner sheet and thermoplastically bonded thereto, the composite sheet being flexible and bendable and being creped both longitudinally and transversely permitting same to stretch in two directions, and flexible, stretchable plastic material covering both sides of said composite sheet whereby said sheet may be bonded to surrounding masonry structure.

2. A composite flexible, expansible flashing for dampproofing masonry walls comprising an inner moisture-impervious sheet of thermoplastic polyvinyl resin, membranes covering both sides of said inner sheet and thermoplastically bonded thereto, the composite sheet being flexible and bendable and being creped both longitudinally and transversely permitting same to stretch in two directions, and a coating of flexible, stretchable asphalt covering both sides of said composite sheet whereby said sheet may be bonded to surrounding masonry structure.

3. A composite flexible, expansible flashing for dampproofing masonry walls comprising an inner moisture-impervious sheet of thermoplastic polyvinyl resin, fibrous paper sheets covering both sides of said inner sheet and thermoplastically bonded thereto, the composite sheet being flexible and bendable and being corrugated both longitudinally and transversely permitting same to stretch in two directions, and a coating of flexible, stretchable asphalt covering both sides of said paper sheets and being bonded to corrugations thereof whereby said composite sheet may be bonded to surrounding masonry structure.

4. Method of making a composite flexible, expansible flashing for dampproofing masonry walls which comprises thermoplastically bonding sheets of membranes to both sides of a moisture-impervious sheet of thermoplastic polyvinyl resin, creping the resulting composite sheet both longitudinally and transversely to permit it to stretch in two directions, and covering both sides of the creped sheet with a flexible, stretchable plastic material which is bondable to surrounding masonry.

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