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CAULKING STRIP

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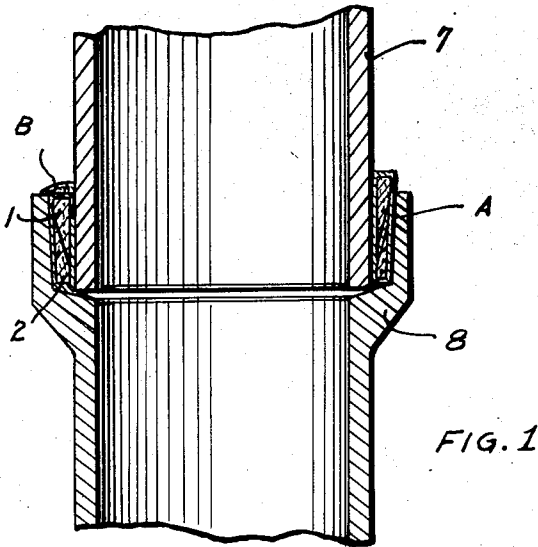


FIG. 1

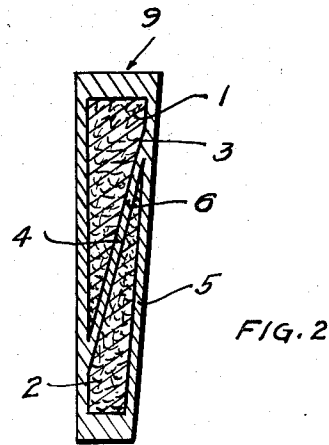


FIG. 2

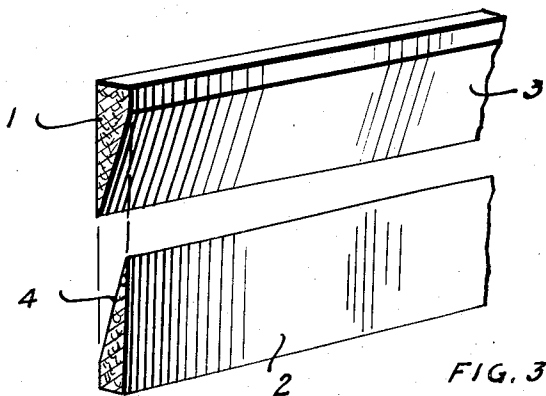


FIG. 3

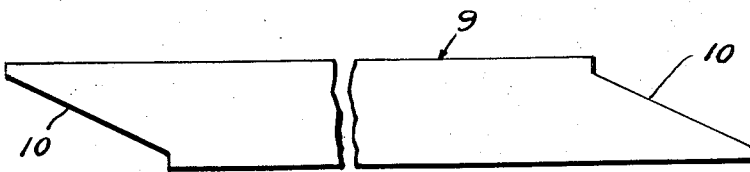


FIG. 4

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CAULKING STRIP

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4 Claims. (Cl. 288—7)

This invention relates to caulking of bell-and-spigot type joints in pipes.

The object of this invention is to provide caulking means including a caulking strip which can be simply inserted in the clearance space between the bell and spigot of such a joint, and which can be forced into that space to efficiently caulk the joint with a minimum of time and effort.

To accomplish the object, a caulking strip is provided which can be cut into desired lengths equal to the circumference of the spaces to be filled; the caulking strip including in its simplest form a core of felt material, or its equivalent, having a tapered cross-section, the core being embedded in an asphaltic compound which is relatively solid and self-supporting at atmospheric temperatures.

In its preferred form, the caulking strip includes two complementary cores of felt, each wedge-shaped in cross-section, and embedded side by side in such as asphaltic compound. Further, the cross-section of the completed strip is preferably of a shape corresponding with the clearance space between the bell and spigot to be filled.

A further aspect of the invention is a method of caulking a joint, which includes the formation of such a strip described above, cutting it into a length to fit the space to be filled, inserting it in the clearance space, and forcing or caulking the strip tightly into position in the space.

Further details will appear from the following description taken in connection with the accompany drawing, showing a preferred form of the invention, in which—

Fig. 1 is a longitudinal sectional view of a bell-and-spigot joint, showing the application of the caulking strip of this invention thereto;

Fig. 2 is a transverse section, somewhat enlarged, of the caulking strip before it is applied to the joint;

Fig. 3 is a perspective view of a pair of the felt bands shown in their relative positions, but separated so as to get a complete view of each; and

Fig. 4 is a side view of a section of the caulking strip as it is cut to length for use in a pipe joint.

Referring to the drawing, the caulking strip is a unitary structure, whose cross section is shown in Fig. 2, and comprises two bands 1 and 2 of felt or felt-like material. These bands may be made of felt, wool, jute, cotton or other material, which is fairly stiff so that it tends to retain its shape, but is deformable under pressure so that it may expand or otherwise be formed to the shape of the cavity in the pipe joint.

In place of a true felt-like material, a deformable plastic material can be used to form the core, which will be the full equivalent of a belt material and hence is included in the general designation of felt as herein used.

As shown in Figs. 2 and 3, each of the two bands is formed with its two opposite side faces sloping toward each other transversely so as to be wedge-shaped in cross section. The upper one may be slightly larger than the

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lower one so that the completed strip may have the slightly tapered form shown in Fig. 2.

When the two bands 1 and 2 are placed together, or spaced slightly apart as shown in Fig. 2, with a side face 3 of band 1 and a side face 4 of band 2 adjacent each other, the two bands together have a cross-section comprising an elongated quadrilateral with its major sides sloping toward each other. By "side faces," as used herein and in the appended claims, is meant the major faces of the bands, or of the finished strip, which extend up-and-down in Figs. 2 and 3, such as the faces 3 and 4.

In making the caulking strip, the two bands 1 and 2 are embedded in an asphaltic compound 5, in such a manner that the two bands are spaced from each other by a layer 6 of the compound between their matching faces 3 and 4, with the asphaltic compound completely enveloping both bands.

The cross-section of the completed strip, as shown in Fig. 2, is that of an elongated quadrilateral with its major sides inclined slightly toward each other.

The caulking strip is intended to be used for caulking a joint between a spigot end 7 of a pipe and a bell end 8 of a second pipe. These pipes are constructed commercially so that there is a circumferential clearance space between the bell and the spigot to be filled by a caulking material. This clearance space has a cross-section similar to that described above in connection with the cross-section of the caulking strip. This shape is illustrated in slightly exaggerated form in Fig. 2, and approximately accurate form in Fig. 1.

In preparing the strip, it is sized to conform to the clearance space between the bell and spigot, but made slightly smaller in cross-section than the clearance space, so that a piece of the strip cut to a proper circumferential length can be readily inserted in the clearance space, preparatory to caulking.

The asphaltic coating compound is preferably a condensation product of heavy residual oils, having such a consistency that it will be substantially solid at atmospheric temperatures, but which can be readily deformed by a caulking operation. By "substantially solid" is meant a condition in which the strip will retain its shape and size under ordinary handling. Suitable asphaltic compounds consisting of condensation products of heavy residual oils are known commercially. One group of such compounds, all of which has been found to be satisfactory, is known to the trade as "Kendrix Series 430 Resins." These particular resins are prepared with different physical properties but their physical properties lie within the following ranges:

Softening point ° F. (ASTM, E28-42T) 120°-290° F.
Needle penetration at 77° F. (ASTM D5-25) 37-192.
Temperature ° F. for 800 cps. viscosity at 313°-477° F.

It is anticipated that those skilled in the art may select a particular compound which is most suitable for a particular use, depending upon the size of the pipe, the climatic conditions of the regions in which it is intended to be handled and used, and perhaps other factors.

For caulking larger sized pipes, in the order of ten inches or more in diameter, it is found advantageous to add to the asphaltic compound a filler such as asbestos fiber, or some other finely divided material so as to produce a suitable strip.

The caulking strips may be produced in long sections, and then cut to lengths equal to the circumference of the pipe spigot 7, for which the strip is intended. The ends of the section should be sloped, as shown at 10 in Fig. 4, so that when these ends are matched together, there is an overlapping to produce a tight waterproof and root proof protection after caulking.

Sharp points should be avoided in cutting a length of

caulking strip for insertion, and the ends may be shaped as shown in Fig. 4.

In order to prevent contacting edges from fusing together in handling and shipping, the caulking strips may be dusted with such as asbestos fiber, limestone, silica, or clay dust.

When the pipe joint is to be caulked, the pipe spigot 7 may be inserted into the bell 8 in the usual manner, as illustrated in Fig. 1.

Before inserting a cut length of caulking strip, the bell and spigot are first wiped or primed with a cutback material which displaces any dirt or water adhering to the surfaces, and coats the pipe surfaces with a tacky asphalt coating, to which the strip readily adheres.

The dust or other material placed on the caulking strip for handling, as previously described, is dissolved and penetrated by the primed surfaces of the pipe when the caulking strip is caulked in place.

Instead of dusting the caulking strip for handling as previously described, satisfactory results may also be obtained by giving the caulking strip a spray coating of asphalt rubber emulsion. With this type of coating, the primer used on the pipe should be of the same type of asphalt rubber emulsion material as applied to the strip.

The cut section of the caulking strip is then wrapped around the spigot 7 and moved downward, Fig. 1, into the space between the bell and spigot as indicated at A. It will be noted that as the cross-section of the strip is of the same cross-section as the spaced and slightly smaller, it can easily be inserted into this space. Also, its width is such that its upper edge stands somewhat above the rim of the bell.

The strip may then be caulked by use of a suitable caulking tool. This action forces the entire strip down into the cavity between the bell and the spigot. On account of the viscosity of the coating 4 and 5, the upper band 1 may move down relatively to the lower band 2, and in so doing, causes the strip to expand laterally so as to completely fill the cavity and conform to the shape thereof. The size of the strip is adjusted so that when the caulking operation is complete, the two wedge-shaped bands 1 and 2 are nearly opposite to each other, and have expanded the strip so as to be tightly wedged against the sides of the cavity. The extra width of the strip provides sufficient coating compound to seal the opening of the cavity as indicated at B in Fig. 1.

It will be seen that this invention provides a strip in the form of a single unit when cut, as shown in Fig. 4, which may be easily handled and applied to the pipe

joint and caulked in a manner to form a tight seal which is permanent.

In the preferred form illustrated and described, two cores or bands 1 and 2 are shown, each of wedge shape. It may be understood, however, that a single core or band having a wedge shape or tapered cross-section may be employed satisfactorily.

It may be further understood that various changes other than those specifically described may be made within the scope of the appended claims, without departing from the spirit of this invention, and while securing the advantages in whole or in part of the invention.

I claim:

1. A caulking strip of the character described, comprising, an elongated strip of felt, said strip of felt having a cross-section which tapers from a portion of greater thickness to a portion of lesser thickness thereby forming a wedge-shaped cross-section, a second complementary strip of felt positioned adjacent said first mentioned strip of felt, said second strip of felt having a cross-section in which the direction of taper extends in the opposite direction to that of said first mentioned strip of felt, and a coating of asphalt compound surrounding and embedding said strips of felt to form a unitary caulking strip.
2. A caulking strip according to claim 1 having a layer of the asphalt compound between the adjacent faces of said strips.
3. A caulking strip according to claim 1 in which the felt strips are saturated with asphalt compound.
4. A caulking strip in accordance with claim 1 in which the complete strip has a cross section which tapers from a portion of greater thickness to a portion of lesser thickness thereby forming a slightly tapered cross-section.

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