

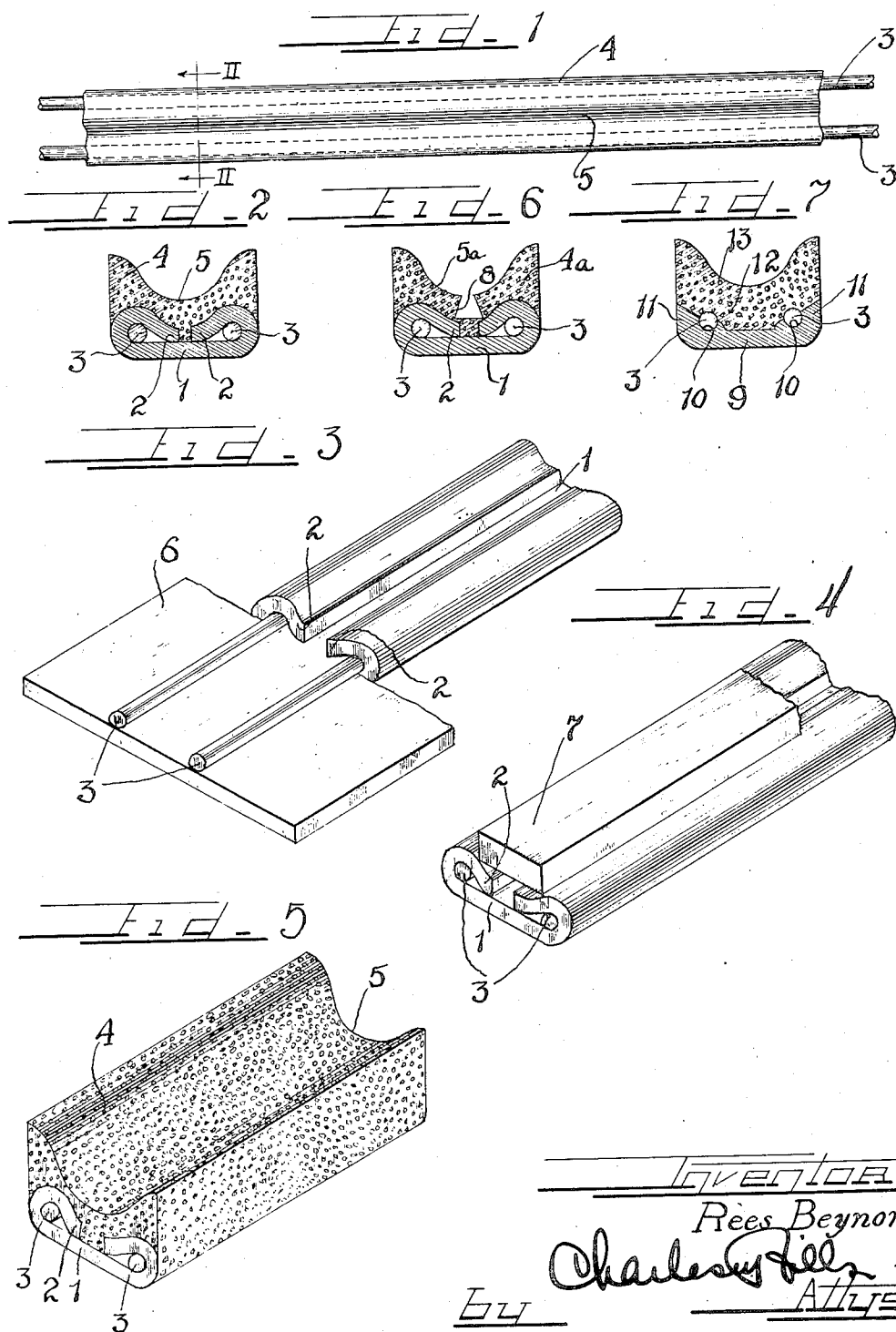
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CHANNEL STRIP AND METHOD OF MAKING THE SAME

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UNITED STATES PATENT OFFICE

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CHANNEL STRIP AND METHOD OF MAKING THE SAME

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This invention relates to improvements in cushioning members and also to an improved method for making the same, the invention being highly desirable for use in connection with vehicle windows when made in the form of a channel strip, but having other uses and purposes as will be apparent to one skilled in the art.

the entire length thereof securing means may readily be driven.

The invention also seeks the provision of a cushioning member in which no metallic parts are exposed.

Another object of the present invention is the provision of a cushioning member, which may be made in the form of a channel strip, and which has a relatively stiff back portion and a very elastic front portion of similar material.

A further object of the present invention is the provision of a new and novel method for making channel strips of the character described herein.

While some of the more salient features, characteristics, and advantages, of a device and method embodying this invention have been above pointed out, others will become apparent from the following disclosures.

The invention includes these and other features of construction and combinations of parts hereinafter described, and shown in a preferred form in the drawing, as more particularly indicated by the claims.

On the drawing:

Figure 1 is a fragmentary top plan view, with parts broken away, of a channel strip embodying features and involving principles of the present invention.

Figure 2 is an enlarged vertical sectional view taken substantially as indicated by line II—II of Figure 1.

Figure 3 is an enlarged fragmentary perspective view showing an early stage in the making of the device shown in Figures 1 and 2.

Figure 4 is a perspective view showing a later stage in the making of the device.

Figure 5 is a perspective view of the device when finished.

Figure 6 is a view similar to Figure 2 showing a slightly different form of construction.

Figure 7 is a view similar to Figure 6 showing a still different form of construction.

As shown on the drawing:

In the structure selected to illustrate an embodiment of the present invention, there is shown a channel strip including a base portion 1, preferably of kneaded or molded rub-

In the past, various channel strips have been developed for use as bumpers or tracks for vehicle windows, but in most instances these formerly known channel strips have proven objectionable. Sponge rubber, kneaded rubber, and the like, have been found to be highly suitable for bumpers for windows, since they form an exceedingly good seal against the elements when contacted by the edge of the window. These formerly known devices, especially when made of one of the aforesaid substances, were objectionably difficult to install or secure in proper position, due to peculiarities of structure. For example, in some instances, these channel strips were made of soft, spongy rubber in the form of a channel having on its rear side a strip of fabric. Obviously such a structure would be exceedingly flexible, and its flexibility would render the operation of tacking or otherwise securing it in place extremely difficult. Again, in some cases soft, spongy rubber was slit and grooved along its rear face and engaged in a metallic element having inturned margins for gripping the rear portion of the strip. This metallic element was provided with spaced apertures therealong through which securing means were to be driven, but difficulty arose in trying to locate the apertures through the front covering of soft rubber. Similarly, other previously known forms of channel strips have also proven objectionable. It might also be mentioned that another major objection to these formerly known strips was their lack of durability.

The present invention has been designed to overcome the above noted as well as other defects and objections in the provision of a cushioning element, which if so desired may be made in the form of a channel strip, and through the central portion of which along

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ber or caoutchouc material. The longitudinal margins of the base portion 1 are inwardly turned upon the base portion as indicated at 2, and each of these margins embraces a reinforcing or stiffening rod 3 extending longitudinally throughout substantially the entire length of the channel strip.

A front portion 4, preferably of soft sponge rubber or caoutchouc material, is secured to the base portion 1 over the inwardly turned margins thereof. This front portion is shaped to provide a channel 5 therein, and is secured to the base portion in any suitable manner, but preferably is molded into the proper shape and vulcanized to the base portion simultaneously as will be explained more fully hereinafter.

It will be apparent, therefore, that the completed channel strip or cushion member is of very durable construction and permits securing means to be readily and easily driven throughout a wide central portion which extends throughout the entire length of the strip. The base portion 1, although preferably made of elastic material is relatively stiff when compared with the material of greater elasticity forming the front portion 4, and the base portion provides suitable and sufficient body for the structure. The reinforcing rods 3 aid in preserving the desired shape of the channel strip and render the same more easy to handle.

The present invention also includes a novel method of making the previously described channel strip. With reference now to Figure 3, it will be seen that at the outset a pair of stiffening rods 3 are laid with the proper space therebetween on a flat sheet 6 of material which forms the base 1 when the margins of the sheet 6 are folded inwardly upon the sheet as indicated at 2. Thusly, the margins embrace the rods 3, and are preferably secured to the upper surface of the base portion 1 by vulcanization, a suitable adhesive, or equivalent manner.

As seen more clearly in Figure 4, a strip or length 7 from which the top portion 4 of the channel strip is formed, is laid upon the inwardly turned margins of the bottom portion 1. This length 7 is preferably of a rubber or caoutchouc compound previously impregnated with a rising ingredient, such as baking soda for example, and is preferably of a size insufficient to fill the mold in which the finished channel strip is formed. The base structure with the length 7 thereon is next placed in a mold of proper configuration to produce a channel strip of the desired size and shape, and the material within the mold is subjected to heat, whereby the length 7 is caused to expand and fill the upper portion of the mold with a soft, highly elastic, rubber composition of spongy texture, forming the upper portion 4 of the channel strip. Simultaneously with the expanding of the length 7

into the upper portion 4, this portion is also vulcanized to the base portion 1 and in effect becomes an integral part of the base portion. The resulting channel strip is, therefore, for practically all purposes an integral structure including a relatively stiff base portion and a soft highly elastic front portion.

In Figure 6 I have shown a slightly different form of channel strip, which may be made by the same method and in the same manner as previously stated herein, with the single exception that a different form of mold is used. In this instance, the base portion of the channel strip is identical with that disclosed in Figures 1 and 2, but the configuration of the mold provides a top portion 4a having a channel 5a therein and also a second channel or groove 8 adjacent the bottom of the channel 5a. The groove 8 is preferably of trapezoidal cross section, and when securing means for the strip are driven through the top portion 4a forming the bottom of the groove 8 and through the base portion 1, the upper edges of the groove tend to close or move together so as to conceal the heads of the securing means. If the channel strip is used as a bumper for a vehicle window, the window edge is thereby prevented from striking the heads of the securing means. In some instances, the edge of the window may penetrate slightly into the groove 8 and thus effect a more positive and watertight seal.

In Figure 7 I have shown a still different form of construction, wherein a base portion 9 is previously molded or otherwise formed with a pair of spaced grooves 10 therein, each groove being formed in an upturned margin 11. Reinforcing or stiffening rods 3 are inserted in the grooves simultaneously with or after the forming of the base portion 9, as is found most expedient. Afterwards a top portion 12, preferably of sponge rubber, is molded into the proper shape with the groove 13 therein and simultaneously vulcanized to the base portion in the manner hereinabove described with reference to Figures 3, 4 and 5.

Although I have disclosed and described the present invention as being made in the form of a channel strip of rubber or caoutchouc material, it is of course understood that the invention may be made in various forms to provide a cushioning element or member adaptable for an individual occasion or purpose, and that the structure may be made of any suitable material.

From the foregoing it will be apparent that I have provided a cushioning member or channel strip which presents an extremely soft and yielding front surface, and which nevertheless is sufficiently rigid to enable the strip to be handled with great facility. Moreover securing means may be driven through the strip with great facility, and

notwithstanding the highly elastic front portion, the strip has sufficient body to render the securing means effective for all practical purposes. In addition the structure disclosed and described herein may be made economically in a new and improved manner, and the finished product is of a durable and lasting nature.

I am aware that many changes may be made and numerous details of construction or method 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 hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. The method of forming a cushioning member, said method including the provision of a relatively stiff rubber base, attaching reinforcing means to said base, attaching a front portion of sponge rubber to said base and simultaneously molding said front portion to form a cushioning element.

2. The method of forming a channel strip, said method including the providing of a base of flexible material, stiffening said base, securing a front portion of elastic material on said base and simultaneously molding said front portion to form a channel and a groove in said front portion adjacent the bottom of said channel.

3. The method of making a cushioning member, which comprises folding a strip of hard rubber over a number of reinforcing members and molding a soft rubber member to the reinforced strip.

4. The method of making a cushioning member, which comprises securing a relatively soft window receiving member and a number of relatively hard reinforcing members to a base of elastic material.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

REES BEYNON.