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W. L. HOGUE

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CLIP AND ANTI-FRICTION MATERIAL

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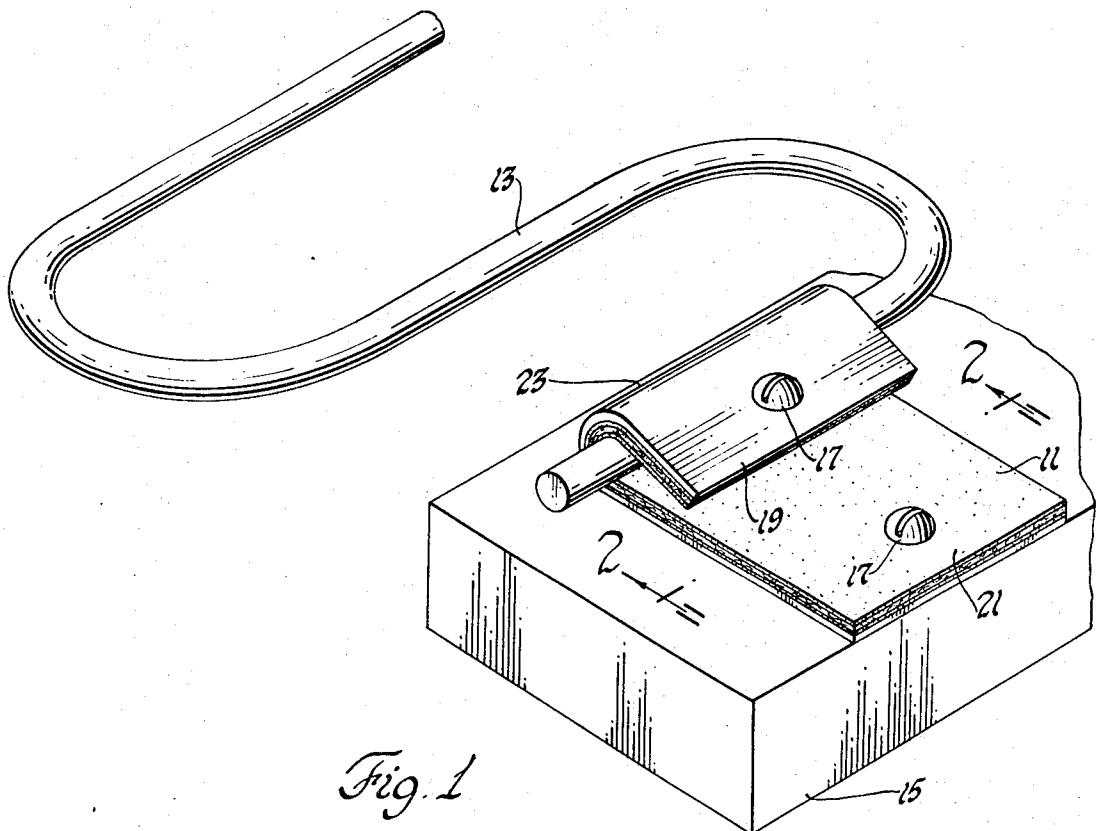


Fig. 1

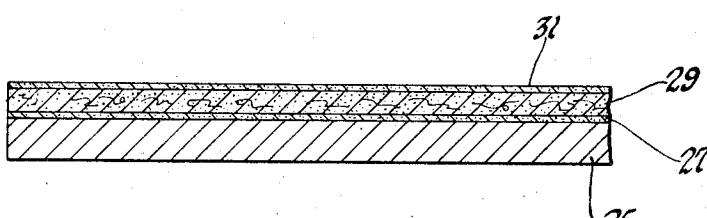


Fig. 2

INVENTOR.  
Wilford L. Hogue

BY

Bernard McElroy, Esq.  
ATTORNEYS

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**CLIP AND ANTI-FRICTION MATERIAL**

Wilford L. Hogue, Minerva, Ohio, assignor, by mesne assignments, to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware

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1 Claim

**ABSTRACT OF THE DISCLOSURE**

The subject matter of this invention is a clip for engaging a wire. It includes a metal backing member and a liner, preferably formed of paper, bonded to it. The liner is coated with a mixture that includes substantial amounts of solid paraffin, substantial amounts of a high molecular weight copolymer of methylstyrene and vinyl toluene and in addition preferably includes a small amount of edible mono and diglycerides of edible fat-forming fatty acids.

This invention relates to clips and antifriction material used therein and used in the manufacture of furniture and the like, and more particularly utilized for retaining wire springs.

The sinuous springs used, for example, in the furniture industry generally contain substantially parallel crossbars alternately joined by end loops. These springs are commonly secured in place by means of metallic clips. These clips, having a bend embracing the substantially straight portion of the end bar of the spring, are screwed, nailed or otherwise fastened to the frame or other support member of the furniture. Since the spring is mounted so as to constantly exert considerable pressure on the bend of the clip, the assembled spring and clip frequently produce objectionable noises resulting from the parts rubbing against each other. To prevent such noises, the inner surface of the clip has often been lined with paper or cloth. However, the sound deadening function of such linings is short-lived. In addition, a polyethylene coating has been used to lengthen the sound deadening effects of the paper or cloth. However, long lasting and cheaper clips are desired by the industry.

It is therefore, the principal object of this invention to produce improved relatively inexpensive metallic clips having superior and longer lasting noise deadening properties.

It is a further object of this invention to develop an improved antifriction material for metallic clips.

These objects as well as other desirable features have now been obtained by coating a lined (preferably with paper) metallic clip with a chemical formulation including substantial amounts of paraffin, ethylene vinyl acetate, and a copolymer of methylstyrene and vinyl toluene. In addition, in its most preferred embodiment, this composition includes a small amount of at least one mono or diglyceride of an edible fat-forming fatty acid.

The invention will be further explained by the following detailed description and illustrations in the accompanying drawings. For a more complete understanding of the invention, reference may be had to the accompanying drawings in which:

FIG. 1 is a perspective view of the inventive clip; and

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FIG. 2 is a sectional view through line 2—2 of FIG. 1.

As illustrated in FIG. 1, clip 11 has an upper portion 19 and a lower portion 21 joined by bend 23. Clip 11 is fastened to backing member 15 by means of screws 17. 5 With reference to FIG. 2, clip 11 is formed from a metallic layer 25 on which is spread a layer of adhesive 27 for fastening layer 29 of cushioning material (preferably paper) which is secured to the metallic layer 25 by adhesive 27. Layer 29 is coated with a chemical formulation hereinafter more fully described forming layer 31.

The chemical formulation referred to above includes substantial amounts of a fully refined paraffin or mixtures thereof. In the preferred embodiment, the paraffin chosen is one having at least 25 carbons with the most preferred paraffin having 32 carbons ( $C_{32}H_{66}$ ). However, only those paraffins that are solid at room temperature may be used. Although the amount of paraffins is not critical, in the preferred embodiment of the novel formulation, the paraffin makes up at least 50% by weight of the formulation with 58% being most preferred. The formulation also contains substantial amounts of a high molecular weight ethylene vinyl acetate resin. The most preferred formulation contains at least 20% by weight of the resin with 25% being most preferred. The formulation also contains substantial amounts of a copolymer of methylstyrene and vinyl toluene, which copolymer is more fully described in U.S.P.N. 3,000,868. The most 15 preferred embodiment of the invention described herein contains at least 10% by weight of this copolymer, with 15% being most preferred. In addition, and most significantly, it has been discovered that the above formulation is substantially improved in its ability to continue to 20 prevent squeaking even after repeated use of the clip by the addition of a small amount of an edible mono or diglyceride of an edible fat-forming fatty acid or a mixture thereof. The most preferred such compound is 25 glycerol monostearate having a melting point between 30 57° and 61° F. and being insoluble in water but soluble in hot alcohol, hydrocarbons, mineral oil, and vegetable 35 oils. Only a small amount is necessary with the most preferred embodiment of the novel formulation containing at least 1% by weight of such glycerides, with 2% 40 being most preferred.

The above described clip has been found to have remarkable sound deadening properties as well as being of economical construction. Therefore, such clips as a result of the novel formulation disclosed above represent 45 a substantial advance in the furniture making arts.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A clip adapted for engaging a wire of a spring comprising a metal backing member and a paper liner bonded to said member, said liner being coated with a composition containing at least about 50% by weight paraffin wax, at least about 20% by weight ethylene vinyl acetate resin, at least about 10% weight of a high molecular weight copolymer of methylstyrene and vinyl toluene, and a small amount, at least about 1% by weight, of glycerol monostearate, the molecules in said paraffin wax having at least 25 carbon atoms.

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HAROLD ANSHER, Primary Examiner

5 R. A. KILLWORTH, Assistant Examiner

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28.5; 287—189.35