J. G. LEONARD

FRICITION METAL ARTICLE

Filed April 5, 1929

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Atty
My present invention relates to improvements in friction metal articles such as the lining of brake bands and the filling for friction boxes and the like.

5 My present invention consists of an addition to and extension of the invention disclosed in Patent No. 1,588,767 issued to me June 15, 1926, for "friction metal" and has for its objects the improving of the structure shown in said patent for certain uses.

The above mentioned patent discloses a friction metal produced by braiding together ribbons of lead foil to form a core and ribbons of foil of other metals, such as aluminum and copper, about the core and the pressing of the cord so formed into desired shape. My present invention consists in enclosing the structure above described in a braided casing formed of ribbons of an alloy having a melting point less than aluminum and copper and at about the temperature which will be produced by friction in the service to which the material is to be put. The material with the additional braided cover of ribbons of alloy is pressed into desired shape as described in the prior patent, but in this case the press plates are heated to produce incipient fusion of the exterior or alloy casing.

Two important objects are accomplished by the addition of the alloy casing and the heated pressing of the material which are, first, the accurate shaping of the material to the desired form, such as a curved brake band lining, thereby greatly reducing operations of installation, and, second, the presence of the thin coating of alloy prevents, to a very large extent, the scratching of the brake drum and assists materially in the uniformly progressive development of friction.

I have attained the above objects and results by means of the structure illustrated in the accompanying drawing in which—

Fig. 1 is a fragment of a cord of friction metal produced in accordance with my present invention, the ends of the respective braided portions being shown partially unbraided.

Fig. 2 is a transverse section on line 2—2 of Fig. 1.

Fig. 3 is a section after the material has been pressed into a form suitable for a brake lining, and Fig. 4 is a plan slightly enlarged of the formed product, the exterior layers being partially broken away to illustrate their relations to the structure as a whole.

Similar reference characters refer to similar parts throughout the respective several views.

The core 5 is formed by braiding together ribbons of foil 6 of lead or other soft metal or alloy. About the core 6 is a layer 7 formed by braiding together ribbons of foil of metal such as copper 8 and aluminum 9. Other metals may be employed in place of copper and aluminum but such metals should have a fusing or melting point well above the heat produced by the friction in the use to which the material is to be put. About the layer 7 is braided an exterior casing 10 from ribbons of metal or an alloy 11 having a fusing or melting point at or near the temperature which will be produced by the friction developed in the use to which the material is put.

When the use contemplated is lining for brake bands of automobiles I find that this outer casing 10 can be advantageously formed of ribbons a quarter of an inch wide of brass of the desired melting point.

These braiding operations may be accomplished concurrently in a braiding machine except that the braiding of the core must be commenced so as to produce sufficient core to enclose in the layer 7 and the braiding of the final layer must be postponed until sufficient core and layer 7 have been produced to receive the final layer.

After the cord is produced, as above described, it is pressed into desired form, as shown in Fig. 3, in a press heated to a point to secure incipient fusing of the exterior casing 10.

In use the exterior casing 10 subject to friction quickly disappears as a braided structure but the metal thereof coats the brake drums and appears in the layer 7 and the structure as a whole is capable of dependable use for many thousands of miles.

Having described my invention what I
claim as new and desire to secure by Letters Patent is:
1. A friction material comprising a core of a relatively soft metal surrounded by a layer of a plurality of different metals of relatively high melting point and an exterior casing of a metal or alloy having a melting point less than the metals of said intermediate layer, the constituent portions of said core, intermediate layer and casing consisting of ribbons of foil braided together, the whole being compressed and heated to the temperature of incipient fusion of said external casing.

2. A friction material comprising an interior braided portion of relatively high melting point enclosed in a braided casing of ribbons of metal foil, the metal whereof has a fusing point at or about the temperature developed by the friction of the contemplated use.

3. A friction material comprising an interior braided portion of relatively high melting point enclosed in a casing of braided ribbons of metal foil, the metal whereof has a fusing point at or about the temperature developed by the friction of the contemplated use, the whole being compressed and heated to a point of incipient fusion of said external casing.

4. A friction material consisting of a lead core surrounded by a copper and aluminum layer and enclosed in a brass exterior casing, the said respective metals being in the form of ribbons of foil braided together.

5. A friction material consisting of a lead core surrounded by a copper and aluminum layer and enclosed in a brass exterior casing, the said respective metals being in the form of ribbons of foil braided together, and the whole being compressed and heated to a point to secure incipient fusion of said external casing.

6. A friction material comprising an interior braided portion of relatively high melting point enclosed in a casing of braided ribbons of metal foil, the metal whereof has a fusing point at or about the temperature developed by the friction of the contemplated use.

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