Sept. 4, 1934. S. WHITWORTH 1,972,212

METHOD OF MAKING BRAKE SHOES

Filed March 5, 1930

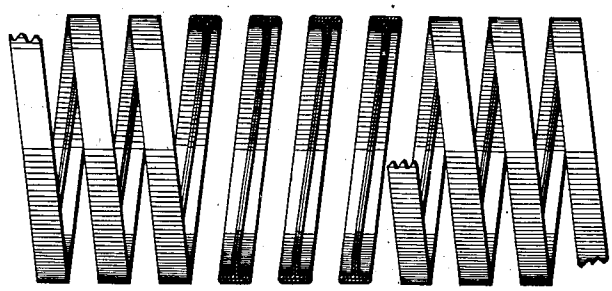


FIG. 1

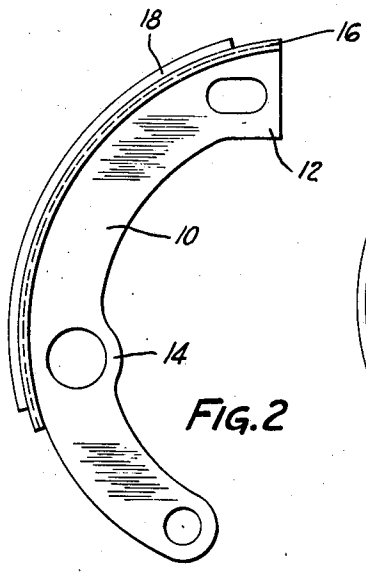


FIG. 2

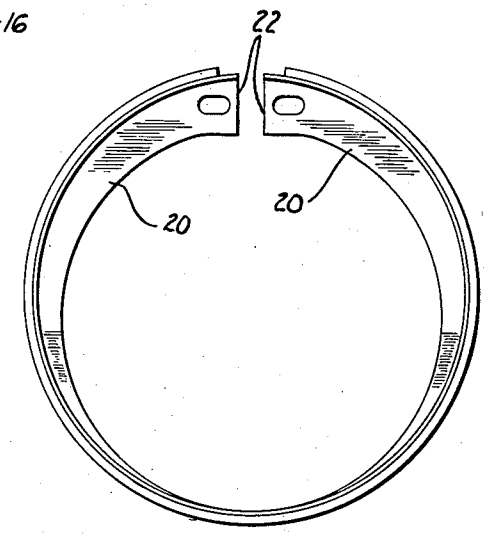


FIG. 3

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METHOD OF MAKING BRAKE SHOES

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5 Claims. (Cl. 29—152.1)

This invention relates to brakes in general and more particularly to a method of fabricating the most essential part of an internal expanding automotive brake, namely, the friction element thereof.

Heretofore, the manufacture of both the band and shoe elements of this type of brake has been effected by any one of several processes, such as die casting or welding, which processes can be improved upon by simplification with a consequent cost reduction.

To the end, therefore, that the production of the friction element be simplified. there is suggested the process elaborated in more detail below, preferably comprising the shaping, by either a hot or cold rolling process, of suitably dimensioned and sectioned stock into a helix or spiral form and subsequently cutting, from the helix so formed, either brake shoe segments or annular band brake segments as desired. The segments may then be straightened, perforated and otherwise shaped to effect the finished product.

Further details and novel features of the invention will become apparent from the following detailed description of a preferred mode of practicing my invention exemplified in the drawing forming a part of this specification, in which:

Figure 1 is a view partly in elevation and partly in section showing a T section type of stock rolled to the helix form;

Figure 2 discloses a brake shoe member in its final state, the same having been cut as a segment from the helix of Figure 1; and

Figure 3 discloses a band or annular type of friction element employed in internal expanding brakes which may also be cut from the stock of Figure 1.

In practicing the preferred embodiment of my invention, I suggest first that a straight length of relatively narrow gauge flat sheet steel stock be folded to provide a double thickness rim and web of T shape in cross section. The straight length of this T section stock so folded may then be sufficiently heated to render the same pliable, and bent into a coil or helix, as shown in Figure 1. From this stock, which is readily portable and also readily packed and stored, the segments necessary to effect the brake shoe of Figure 2 or the band brake element of Figure 3 are cut. To finally form the brake shoe product of Figure 2, it is necessary to straighten the stock so that the web portion 10 thereof lies in a single plane. The web portion may also be cut away intermediate the ends of the shoe to provide reinforcing or thickened end and intermediate portions 12 and 14, respectively.

The web portion may also be provided with suitable openings at the aforementioned reinforced portions to accommodate certain of the usual remaining elements of the brake assembly with which it co-operates. The rim 16 of the shoe segment may also be provided with the conventional brake lining 18, rigidly secured thereto as by riveting.

From the same diametered stock of Figure 1, the continuous or annular band friction element of Figure 3 may be formed, the web of which may subsequently be cut away intermediate its ends to provide the tapered web portions 20 to increase the flexibility of the band. I prefer that all of the web be deleted throughout a substantial sector of the center of the band. The ends of the rim of the band may also be turned inwardly against the end of the web to provide thrust abutments 22 for the cam operating means of the brake. As with the shoe of Figure 2, it is, of course, first necessary to straighten this band segment so that the web thereof lies in a common plane.

There are thus effected very effective one piece friction elements by an extremely simple sequence of operations. While I have described a preferred mode of practicing my invention, it is to be understood that the same is merely an exemplification of many possible ways of carrying out the same and it is to be understood that the invention is limited only by the scope of the appended claims.

I claim:

1. That method of fabricating a brake friction element or the like comprising forming a flat length of formable metal into two substantially perpendicular flanges rolling the thus sectioned stock into a helix, cutting to length, from said helix-shaped stock, discontinuous cylindrical brake friction elements, and thereafter shaping by permanently inherently deforming said elements to their final operative form.

2. That method of fabricating a brake friction element or the like comprising folding flat material to form a laminated T-sectioned stock, hot rolling the T-sectioned stock into a helix, cutting to length from said helix-shaped stock, discontinuous cylindrical brake shoe friction elements of relatively short length, and thereafter permanently deforming said shoe elements to their final operative form.

3. That method of fabricating a brake friction element or the like comprising rolling, from a

length of flat, relatively narrow sheet stock, double thickness rim and web T-section stock, rolling said stock so formed into a helix, cutting to length from said helix cylindrically shaped brake friction elements and thereafter permanently deforming said friction elements to their final operative form.

4. That method of fabricating a brake shoe friction element or the like, comprising rolling, from a length of flat, relatively narrow sheet stock, double thickness web and rim T-section stock, rolling stock so formed into a helix, cutting to length from said helix split annular bandlike friction elements, bending said elements so that their web portions tend to inherently lie in a common plane, but thereafter cutting away the web portion of the band intermediate the ends of the band to provide tapered reinforcing band end portions and a relatively flexible intermediate portion.

5. A process for making brake shoes or the like comprising passing laminated material having cross-section of a structural shape through rolls to form a continuous spiral, cutting the spiral into sections of proper length, and then forming the sections to bring each section to the arc of a circle instead of the arc of a spiral.

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