

D. C. HUGHES.
METHOD OF SHAPING WIRE.
APPLICATION FILED NOV. 13, 1915.

1,275,926.

Patented Aug. 13, 1918

FIG. 1.

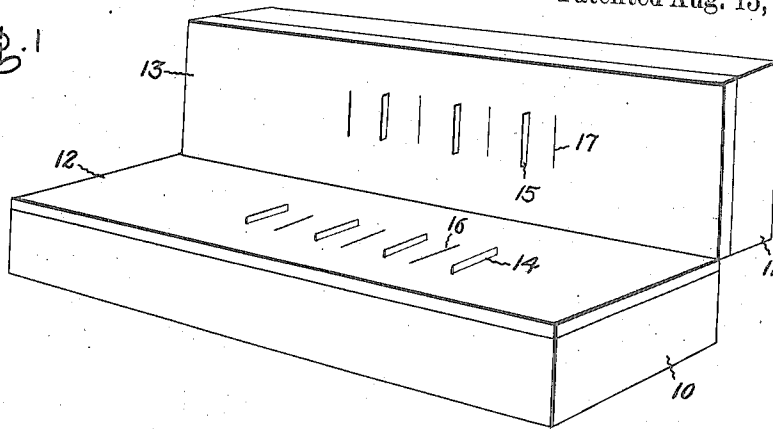


FIG. 2.

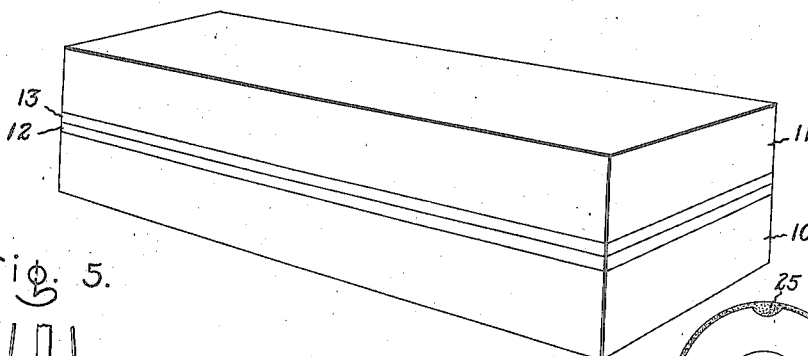


FIG. 5.

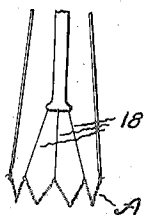


FIG. 3.

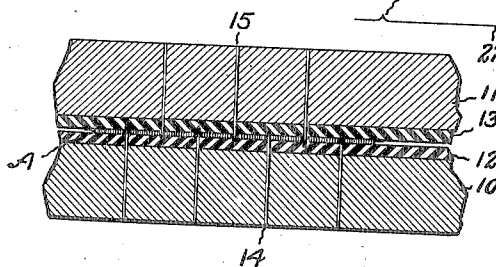


FIG. 6.

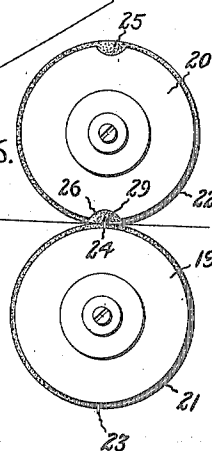
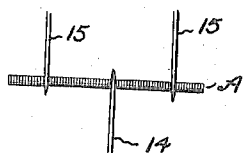


FIG. 4.



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UNITED STATES PATENT OFFICE.

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METHOD OF SHAPING WIRE.

1,275,926.

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Application filed November 13, 1915. Serial No. 61,408.

To all whom it may concern:

Be it known that I, DALE C. HUGHES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Methods of Shaping Wire, of which the following is a specification.

My invention relates to methods of shaping wire, and more particularly to such methods as are adapted to shaping wire of filamentary properties suitable, for instance, for filaments in electric incandescent lamps. The object of my invention is to provide a method whereby a fairly sharp bend or bends may be made in the wire at any desired point, which will be permanent in its character, and to accomplish this without injuring the wire.

According to my invention, the wire is pressed against a resilient body, such as rubber, by means of rigid members so shaped and positioned as to produce a proper bend or bends at the desired point or points. By this means a fairly sharp bend may be formed in the wire without cutting or otherwise weakening it. My invention is particularly adapted for the shaping of coiled filaments of the type now extensively used in electric incandescent lamps. By means of my invention a bend or bends may be formed at desired points in the filament without distorting the coils immediately adjacent to the point of the bend. After being treated according to my invention, filaments, both straight and coiled, may be draped upon the ordinary supports used in incandescent lamps without requiring any heat treatment.

My invention will be more clearly understood from a reading of the detailed description thereof which follows and from the accompanying drawing, in which Figure 1 is a view in perspective of one form of apparatus which may be used to practice my invention, the said apparatus being shown in position for the reception of the wire to be shaped. Fig. 2 is a view in perspective showing the said apparatus in closed position. Fig. 3 is a vertical longitudinal section of the said apparatus. Fig. 4 is a detail on an enlarged scale showing a coiled filament and a portion of the apparatus shown in Figs. 1, 2 and 3 in operative relation

thereto. Fig. 5 is a view in elevation of a coiled filament mounted upon the supports of an electric incandescent lamp. Fig. 6 is an elevation of a modified form of my apparatus.

Referring now to the drawing, and more particularly to Figs. 1 to 4 inclusive, a pair of blocks 10 and 11 are shown, having facings 12 and 13, respectively, of soft rubber or other resilient material. Mounted in each of the said blocks and extending transversely thereof are series of rigid die members 14 and 15, respectively, the former being in the lower block 10, and the latter in the upper block 11. These are preferably of metal and have fairly sharp edges. They extend beyond the surface of the resilient facing, preferably about one-sixteenth of an inch, although it will be apparent that this may be varied to suit different kinds and sizes of wire. The members 14 are staggered with reference to the members 15, there being slots 16 in the resilient facing 12 opposite to the members 15, and slots 17 in the facing 13 opposite to the members 14. These slots are of such dimensions that each of them will receive a die member when the apparatus is in the closed position shown in Fig. 2. In Figs. 3 and 4, a coiled filament A is shown in position in the closed apparatus. As is shown in the drawing, the die members 14 and 15 force portions of the coiled filament into the slots 17 and 16, respectively. Owing to the resilient character of the facings 12 and 13, the sides and bottoms of the various slots will give enough so as to prevent cutting or other injury to the filament, and in the particular case shown, namely, that of a coiled filament, there will be practically no distortion of the coils adjacent to the bends.

In Fig. 5 there is shown a coiled filament shaped according to my invention mounted on the supporting hooks 18 of an incandescent lamp. My invention allows the permanent shaping of cold filaments and the mounting thereof directly on the lamp supports, as shown, without any intermediate heating thereof.

In Fig. 6 is illustrated a modification of the above described apparatus, in which rolls 19 and 20 are provided with resilient facings 21 and 22, respectively, which are preferably soft rubber. The roll 19 carries die

members 23 and 24, and the resilient facing of the roll 20 is provided with thickened portions 25 and 26 with which the said die members 23 and 24, respectively, engage.
5 These thickened portions may be provided with slots similar to 16 and 17 in the other apparatus. Any suitable means may be provided for rotating the rolls 19 and 20 in synchronism while the filament 27 is drawn
10 at a uniform speed therethrough so that it will be crimped or bent at points 28 and 29. It will be apparent, also, that a rotary apparatus of this kind may be used with suitable modification for shaping coiled fila-
15 ments.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The method of shaping a coiled metal filament which consists in compressing the
20 same between a substantially rigid member and a resilient member, said members being suitably shaped to produce the desired effect upon the wire.

2. The method of forming a bend in a
25 coiled metal filament which consists in compressing it between a substantially rigid member and a resilient member, the former member being shaped to produce a bend of the desired sharpness, and the latter member
30 having a recess therein to receive the said former member.

3. The method of forming a bend in a metal filament which consists in compressing the same between two members, one of
35 which has a rigid sharp-edged projection thereon, and the other of which has a slot

disposed opposite to and adapted to receive said projection.

4. The method of forming a bend in a coiled metallic filament which consists in
40 applying a non-yielding pressure to one side of the filament localized at the point of bend and simultaneously therewith applying to the opposite side of the filament a yielding pressure, said yielding pressure be-
45 ing distributed along the filament.

5. The method of forming a bend in a closely coiled metallic filament which consists in compressing the said filament be-
50 tween a substantially rigid member and a member composed of a resilient material.

6. The method of forming a bend in a closely coiled metallic filament which consists in compressing the filament between a
55 substantially rigid member and a member composed of a resilient material, said resilient material having an aperture therein to receive said substantially rigid member.

7. The method of forming a bend in wire which consists in compressing the wire be-
60 tween a substantially rigid member and a member composed of resilient material.

8. The method of forming a bend in wire which consists in compressing the wire be-
65 tween a substantially rigid member and a member composed of resilient material, said resilient material having an aperture therein to receive said substantially rigid member.

In witness whereof, I have hereunto set my hand this 10th day of November, 1915. 70

DALE C. HUGHES.