G. DURHAN.

APPARATUS FOR ORNAMENTING LEAD.

APPLICATION FILED MAY 13, 1919.

1,376,083. Patented Apr. 26, 1921.

Fig. 1.

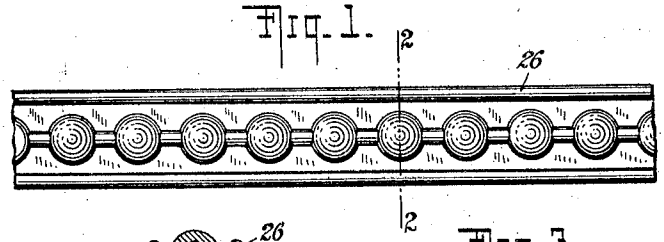


Fig. 2.

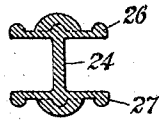


Fig. 3.



Fig. 4.

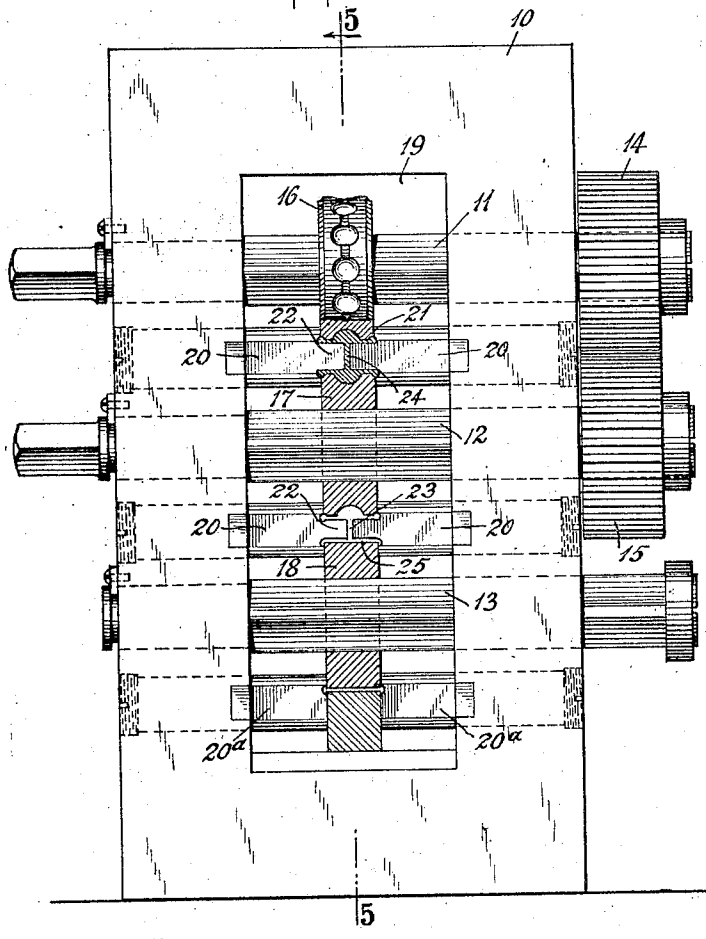
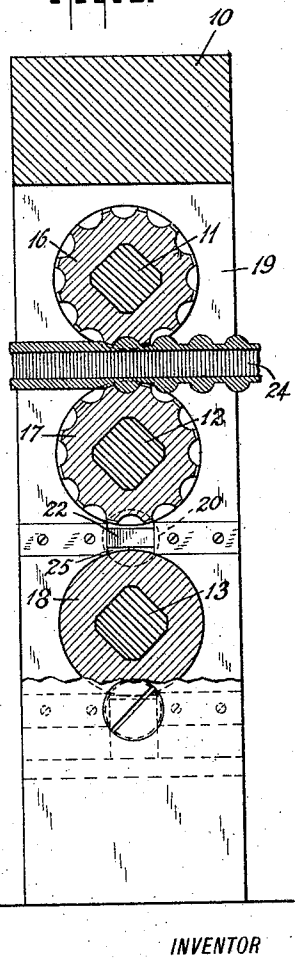


Fig. 5.



WITNESSES

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APPARATUS FOR ORNAMENTING LEAD.

1,376,083. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed May 13, 1919. Serial No. 296,859.

To all whom it may concern:

Be it known that I, GEORGE DURHAN, a citizen of the United States, and resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Ornamenting Lead, of which the following is a specification.

My invention relates to the ornamentation of lead, more particularly in the form of cames and strips generally used in the construction of leaded windows and the like.

The particular object of my invention is to provide a simple apparatus whereby surface ornamentations of any predetermined character may be produced upon said cames or strips in a simple and economical manner.

My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claim.

In the accompanying drawings, which for descriptive and illustrative purposes show a sample of the ornamented product and an example of my apparatus, Figure 1 is a face view of a came or strip, Fig. 2 is a section on the line 2—2 of Fig. 1 showing a came; Fig. 3 is a similar view showing a strip; Fig. 4 is an elevation of the apparatus and Fig. 5 is a section thereof on the line 5—5 of Fig. 4.

Generally speaking cames and strips of the kind in question, while they may have predetermined cross-sectional shapes, have been made smooth throughout their length and free from surface ornamentation. This condition has existed for a great many years, in fact for so long that it had become generally accepted in the art that lead cames and strips could not be economically provided with surface ornamentation of any distinctive type. Heretofore lead ornamentation has been accomplished by casting in suitable molds; the results, however, have never been entirely satisfactory because of the expense of the process and the defectiveness of said results.

In order to overcome existing objections and to provide an efficient and economical method I propose to take the cames or strips, produced for instance in the usual manner by rolling or drawing out a suitable blank, and then subjecting these cames or strips or any part thereof to the pressure of suitable dies. In this way the metal of which the cames or strips are made, which generally speaking is lead, is displaced in such a manner as to resolve itself into the ornamental form previously decided upon. That is to say the configuration of a surface of the came or strip is changed from one of unbroken continuity to one having ornamentation of a predetermined type produced thereon.

In the preferred form the process is carried out by passing the came or strip in cooperative relation to a wheel, the surface of which comprises a die of suitable form whereby the ornamentation is progressively produced upon the surface of the came or strip as it is fed or travels along.

The process whereby the came or strip is ornamented may be efficiently performed by means of my improved apparatus, which in its illustrated form is adapted for the production of surface ornamentation on one or both of the flanges of lead cames. As shown in the drawings, the apparatus comprises a frame 10 on which shafts 11, 12 and 13 are journaled, the shafts 11 and 12 being geared together through the medium of pinions 14 and 15 secured thereon and being rotated in any convenient manner, as by means of a suitable crank detachably or otherwise connected with any one of said shafts. In addition the apparatus includes pressure wheels 16, 17 and 18 located respectively on the shafts 11, 12 and 13 in the space 19 of the frame 10 and spaced apart as shown in Fig. 4; in the illustrated example the peripheral surfaces of the wheels 16 and 17 comprise dies shaped in accordance with the surface ornamentation it is intended to produce, for instance, as shown in Fig. 1, while the corresponding surface of the wheel 18 is smooth. Jaws 20 and 20^a are mounted in coöperative pairs upon said frame 10 preferably so as to be adjustable in the direction of their length and extend toward each other with their end portions 21 in engagement with the opposite side surfaces of the wheels 16, 17 and 18, as shown in Fig. 4. The jaws 20 are formed with tongues 22 which project from the ends thereof into the spaces between the wheels 16 and 17, and 17 and 18; these tongues are of such length that the opposed ends thereof are spaced apart when the portions 21 of the jaws 20 are in engage-

ment with the respective wheels, thus forming spaces 23 for the accommodation of the webs 24 of the cames. The tongues 22 are, furthermore, of such width transversely as to form, with the wheels, spaces 25 for the accommodation of the flanges 26 and 27 of said cames.

In utilizing the apparatus as set up in Fig. 4, the came or lead after having been drawn out in the customary manner, is passed between the wheels 16 and 17 and the tongues 22 of the jaws 20; during this operation the webs 24 move lengthwise of the space 23 while the flanges 26 and 27 travel through the upper and lower spaces 25 respectively. The feeding of the cames is accomplished by rotating the wheels 16 and 17, the peripheral surfaces of which act coincidently as dies to displace the metal of the came in such a manner as to produce the intended surface ornamentation upon each flange 26 and 27 of said came, for instance, in the form shown in Fig. 1. During this operation the tongues act in the nature of anvils whereby the pressure of the wheels is resisted or, in other words, serve as rigid foundations for said flanges, while the formation of the ornamentation takes place. The operation of the apparatus is continued until the came has passed completely therethrough or until as much of said came has been ornamented as is desired. If the came is passed between the wheels 17 and 18 and the tongues 22, the flange 26 of the came will be ornamented in the manner described while the flange 27 will remain in the condition into which it was originally drawn or, in other words, will be free from surface ornamentation. To utilize the apparatus as last mentioned it is necessary to remove the gears 14 and 15 and to substitute proper gears on the shafts 12 and 13 whereby these two shafts are operatively geared together.

The process and apparatus are simple and efficient in operation and make it possible to ornament the flanges of the cames or lead strips in an economical and uniform manner. In spite of the fact that the art to which the present invention relates is a very old one, no one has ever produced a surface ornamentation of the kind illustrated upon the flanges of window leads or lead strips by displacing the metal under the pressure of suitable dies and that attempts to secure the desired results by casting have been unsuccessful because of the lack of precision and uniformity of the ornamentation and the prohibitive cost of production.

Various changes in the specific forms described and shown may be made within the scope of the claim without departing from the spirit of my invention.

I claim:

An apparatus of the kind described comprising a frame, a pressure wheel, the peripheral surface of which is arranged to displace the lead into predetermined ornamental form, a pair of jaws extending into engagement with opposite surfaces of said wheel and a pair of tongues extending from said jaws inwardly beyond said wheel surfaces to resist the pressure of said wheel.

In testimony whereof I have hereunto set my hand.

GEORGE DURHAN.