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PATENT SPECIFICATION



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COMPLETE SPECIFICATION

Improvements in Friction Wheels for use in Wheel and Flint Lighters

We, MAURICE JELLINEK LIMITED, a British Company, of Brackendale, North Park, Gerrards Cross, Buckinghamshire, and PAUL JELLINEK, a British Subject, of "Phenice Croft", Bucks Green, near Rudgwick, Sussex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to lighters in which friction wheels coact with flints for producing ignition by means of sparks, examples being pocket and table lighters for pipes, cigarettes and the like, gas lighters, sparking wheels used in connection with mechanical toys and so on. The invention is concerned with the construction of the wheel.

These wheels have heretofore commonly been produced by serrating or roughing, by means of a suitable tool, the rim of a disc of the fairly substantial thickness required for the wheel. Generally the lighter comprises a single wheel, but it has also been proposed to use two wheels side by side, either spaced wholly apart or tilted so that the rims touch at one point. The thickness of the wheels is generally such that attempts to produce the serration in a press by means of a die have either not been successful or were at any rate attended with difficulty. Other methods of serrating or roughing the rim of a disc in such a manner that it will constitute an efficient and reliable friction wheel are also generally more difficult in the case of a thick disc than in the case of a thinner one.

These difficulties we overcome, according to our invention, by building up the wheel from a plurality of discs or laminæ, placed side by side and serrated before their assembly. The process of serrating these discs, each of which has only a fraction of the thickness of the finished wheel, is simpler and cheaper than would be that of serrating a disc of the full thickness, and it can be effected by stamping the discs out of sheet or strip metal. The number of discs used depends, of course, on the thickness thereof and the thickness

of the wheel as a whole. We have found three discs to be in general a convenient number. The discs which we use for the wheel need not be of uniform thickness.

Our method of building up the wheel may be performed in such a way as to secure an advantage with reference to the efficiency of the friction surface produced at the rim. Heretofore the practice has sometimes been adopted for serrating the wheel by making grooves slantwise across the rim, instead of straight across, so that the teeth are approximately helical. Our method enables a similar effect, with what we believe to be increased efficiency, to be obtained by so disposing the discs that the teeth of each are offset with respect to the teeth of the adjacent disc or discs. The result of this is that the tooth tips are disposed in echelon across the rim, or substantially along helical lines, and this we find to have a very good effect on the action of the wheel, rendering the same very reliable. The off-set given to the teeth may amount, for example, to half the length of the tooth pitch.

The discs may be held together in the proper relation to each other in a variety of ways, for example by welding or rivetting. Where staggering of the teeth is desired, rivet holes may be placed in the appropriate positions in relation to the teeth, or the centre holes of the discs may be made of a non-circular shape, to fit on to a correspondingly shaped axle, or on to a centre piece which is externally of that shape but has a cylindrical bore to fit a cylindrical axle.

The invention is illustrated in the accompanying drawings, which show examples and in which

Fig. 1 is a side view of a wheel according to the invention, and

Fig. 2 an edge view thereof.

Figs. 3 and 4 are fragmentary views showing portions of two discs with rivet holes placed respectively so that the teeth of the two discs will be off-set with respect to each other when the rivets are inserted.

Fig. 5 is a side view of a wheel having a centre piece with a cylindrical bore but

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a non-cylindrical circumference.

The wheel shown in Figs. 1 and 2 is composed of three discs, A, B, C assembled so that the teeth are off-set in relation to each other as we have described. The centre holes D of the discs are in the shape of a parallelogram and to secure the off-set the sides of the hole in the central disc are in relation to the teeth in a position different from that of the sides of the outside holes.

Figs. 3 and 4 show portions of the two discs with rivet holes E, placed so as to produce the off-set of the teeth.

Fig. 5 is a side view of a wheel composed of discs having non-circular centre holes mounted on a centre piece F, the part F being a short cylinder having two flats for fitting into the holes and a cylindrical bore for the axle.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. The method of producing a friction

wheel for wheel and flint lighters, consisting in assembling side by side a plurality of toothed discs stamped out of sheet or strip metal.

2. The method of producing a friction wheel for wheel and flint lighters as claimed in claim 1, with the toothed discs assembled so that the teeth of each are off-set in relation to the teeth of the adjacent disc or discs.

3. A friction wheel for wheel and flint lighters, composed of a plurality of laminae serrated before their assembly.

4. A friction wheel for wheel and flint lighters, composed of a plurality of laminae serrated before their assembly, the teeth of each lamina being off-set with respect to the teeth of the adjacent lamina or laminae.

Dated this 16th day of November, 1942.

For the Applicants,

HERBERT HADDAN & CO.,

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London, W.C.2.

[This Drawing is a full-size reproduction of the Original.]

Fig. 1.

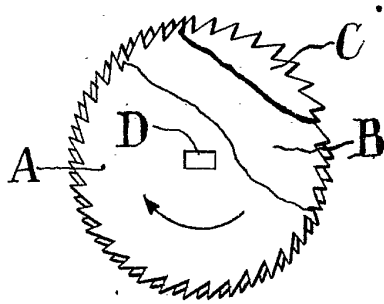


Fig. 2.

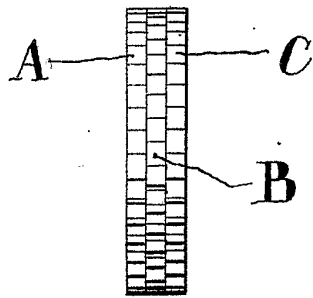


Fig. 3.



Fig. 4.



Fig. 5.

