PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Improvements relating to Striking Surfaces for use in Connection with Pocket and other Lighters.

I, SYDNEY SAGAR LEE, of 63, Burnley Road, Brierfield, in the County of Lancaster, a British Subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to a striking surface for use in connection with pocket and other lighters. Striking surfaces for articles of this class have usually been made in the form of saw toothed wheels or flat surfaces with file like teeth, but in either of these examples it has been the practice to make the points of the teeth in one circular plane or on one flat plane. When a piece of striking composition is introduced in a lighter provided with a wheel constructed in this manner, an efficient spark is produced until the end of the composition becomes worn to the curvature of the wheel. When this takes place the grip of the teeth on the striking material is reduced and the teeth tend to ride over the surface of the material without digging into it and the efficiency of the spark is reduced. This can only be restored by using excessive pressure between the striking composition and the wheel. As a further result of this construction the spaces between the teeth become made up and the efficiency of the striking surface is materially reduced, moreover owing to the points of all the teeth being on the same plane each tooth has an exceedingly small cut.

According to this invention instead of the teeth being formed on the same plane some or all of the teeth are arranged on different planes. In applying the invention to a striker of the wheel type instead of all the teeth having the same radius they or certain of them may be formed with a gradually increasing radius. An arrangement of this kind can be carried out in various ways, for example the wheel may be divided into three or more sections, the teeth in each section being formed of a gradually increasing radius. Alternatively the teeth in each section may be arranged in groups of two or more teeth per group, the teeth in each group having the same radius.

By constructing a wheel in the manner described, each tooth, or leader of a group of teeth as it approaches the face of the striking composition, will, by reason of its being below the level of such face, impinge against the edge of the latter and chip off a small portion. This is a positive action which will take place with each succeeding tooth or leader of a group of teeth.

In applying the invention to a striking surface of the straight type each succeeding tooth may be formed slightly higher than the preceding one or the teeth may also be arranged in groups with two or more teeth in each group, the points of the teeth in each group being on the same level, or the teeth may be arranged in any other manner so that the points of some of them are on a higher level than the points of others, the object being in each case to increase the striking effort of the teeth and produce a corresponding increase in efficient lighting.

Dated this 20th day of November, 1933.
APPLEYARD & CROSSLEY,
Penny Bank Chambers, Halifax,
Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements relating to Striking Surfaces for use in Connection with Pocket and other Lighters.

I, SYDNEY SAGAR LEE, of 63, Burnley Road, Brierfield, in the County of Lancaster, a British Subject, 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 a striking surface for use in connection with pocket

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and other lighters. Striking surfaces for articles of this class have usually been made in the form of saw toothed wheels or flat surfaces with file like teeth. When the striking surface is made in the form of a wheel the teeth have been arranged concentrically with the central axis of rotation of the wheel and when the striking surface has been made flat, the points of the teeth have usually all terminated on one working plane. When a piece of pyrophoric composition is introduced in a lighter provided with a wheel constructed in this manner, an efficient spark is produced until the end of the composition becomes worn to the curvature of the wheel. When this takes place and as the teeth become blunted the grip of the teeth on the pyrophoric material is reduced and the teeth tend to ride over the surface of the material without digging into it and the efficiency of the spark is reduced or the wheel ceases to function. It thus becomes necessary to increase the pressure between the pyrophoric composition and the wheel with a view to getting same to function properly. As a further result of this construction the spaces between the teeth become made up and the efficiency of the striking surface is materially reduced, moreover owing to the points of all the teeth being at the same radial distance from the centre of the wheel and the teeth being very small and of a fine pitch, each tooth has an exceedingly small cut.

According to this invention the points of the teeth on the wheel or certain of them are arranged at different radial distances from the axis of rotation of the wheel which may be concentric, or eccentric. An arrangement of this kind can be carried out in various ways, for example the wheel may be divided into two, three or more sections, the points of the teeth in each section being arranged at a gradually increasing distance from the turning centre of the wheel. Alternatively the teeth in each section may be arranged in groups of two or more teeth per group, the points of the teeth in each group being arranged at the same radial distance from the axis of rotation.

By constructing or mounting a wheel in the manner described, each tooth, or leader of a group of teeth as it approaches the face of the striking composition, will, by reason of its being below the level of such face, impinge against the edge of the latter and chip off a small portion. This is a positive action which will take place with each succeeding tooth or leader of a group of teeth.

In applying the invention to a striking surface of the straight type the teeth may also be arranged in groups at different heights with two or more teeth in each group, the points of the teeth in each group being on the same level, the object being to increase the striking effort of the teeth and produce a corresponding increase in efficient lighting.

In order that the said invention may be clearly understood and readily carried into effect the same is described more fully with reference to the accompanying drawings, in which:—

Fig. 1 is an elevation partly in section showing the usual construction of centrally mounted striking wheel.

Fig. 2 is a similar view showing two methods of constructing a wheel with two different forms of striking surfaces in accordance with this invention, and

Fig. 3 shows a method of carrying out the invention by means of an eccentrically mounted circular wheel.

A indicates the striking wheel and B the piece of pyrophoric material. In the illustration shown in Fig. 1 the wheel A is of the usual type and revolves on a central axis C. In this arrangement the teeth all describe the same circle and when the striking surface of the composition B becomes worn to the curvature of this circle and the points of the teeth become blunted the action of the teeth on the composition becomes impaired and the sparking is rendered less efficient or the wheel may cease to function altogether. In the examples shown in Fig. 2 the teeth do not all describe the same circle. In the upper portion of the wheel which illustrates one example, the teeth are arranged in groups having any predetermined number of teeth in each group, say for example five. Two of the teeth D describe the smallest circle, the next two teeth D^1 describe an intermediate circle and the fifth tooth D^2 describes the outermost circle. In the example shown in the lower portion of the wheel the teeth are also arranged in groups with say for example, five teeth in each group, but in this construction all the teeth D, D^1, D^2, D^3 and D^4 describe different circles of a gradually increasing radius from the centre C of the wheel. These two examples are given by way of illustration only and there may be any number of teeth in each group and the teeth may be arranged in any other manner therein with a view to causing the wheel to function in the improved manner according to this invention.

In the example shown in Fig. 3 a circular wheel is formed with the usual teeth but the axis C^1 of rotation of such wheel is arranged eccentrically so that as the teeth come in contact with the composi-

tion B they are slightly below its surface because they describe portions of circles as shown by the lines E, with the result that the teeth operate in the same manner as the examples shown with reference to Fig. 2. This application of the invention is particularly intended for use in connection with a lighter in which a lever is depressed against the action of a spring to actuate mechanism to give the wheel a partial turn which may be the operative movement of the wheel or a reverse movement in which latter case when the lever is released the spring turns the wheel in a forward direction to make an operative movement and at the same time restores the lever to its normal position.

It has been proposed to provide a lighter with a flat file arranged at an incline so that the teeth occupy different levels.

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

1. A striking wheel or sector for use in connection with pocket and other lighters in which the points of the teeth on the wheel or sector or certain of them are arranged at different radial distances from the centre of rotation of the wheel which may be concentric or eccentric.

2. A flat striking surface for use in connection with pocket and other lighters in which the points of the teeth are arranged in groups at different heights with two or more teeth in each group, the points of the teeth in each group being on the same level substantially as described for the purpose specified.

3. A striking surface for use in connection with pocket and other lighters constructed, arranged and adapted to operate substantially as hereinbefore described with reference to any of the examples shown in Figs. 2 and 3 of the accompanying drawings.

Dated this 23rd day of January, 1934.

APPLEYARD & CROSSLEY,
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Agents for the Applicant.

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FIG.1.

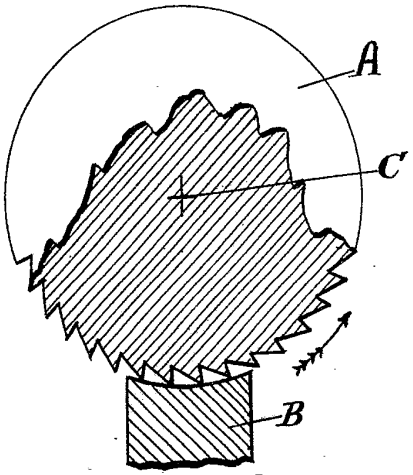


FIG.2.

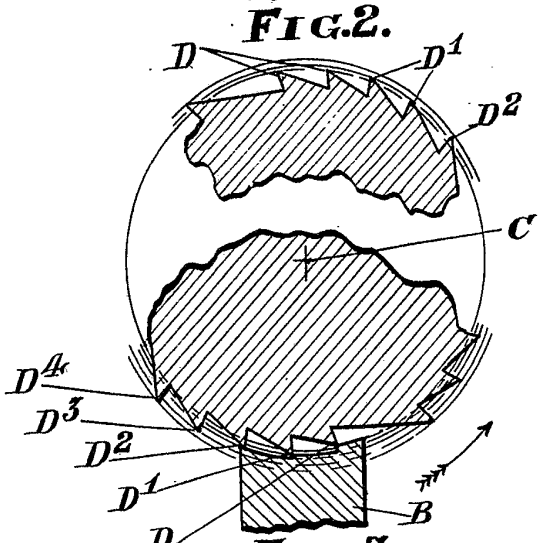
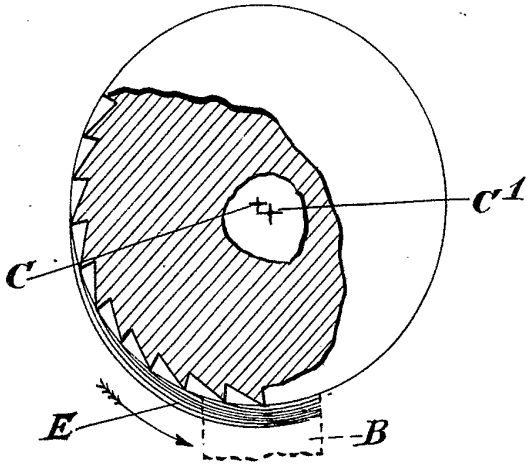


FIG.3.



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