Feb. 22, 1949. H. J. SUDBRINK 2,462,143

LIGHTER

Filed Oct. 3, 1945

Fig. 1

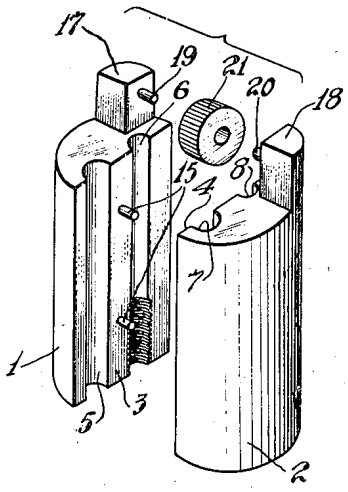



Fig. 2

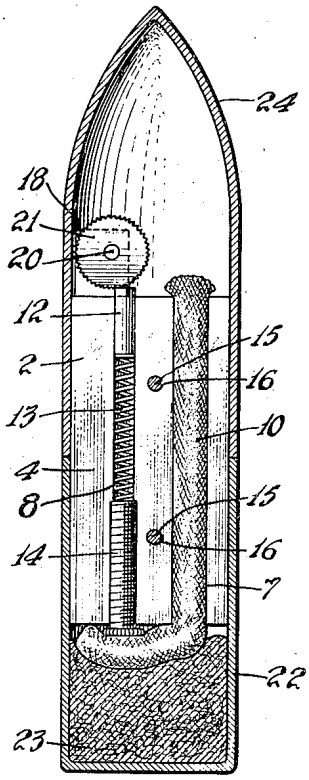



Fig. 3

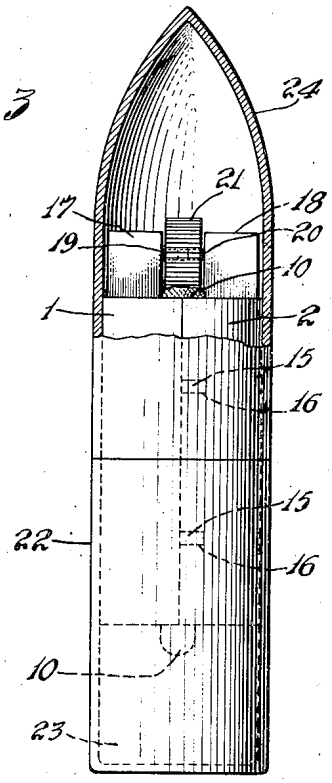
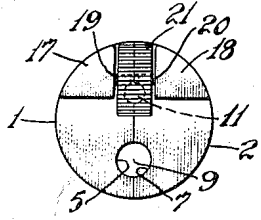



Fig. 4

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2,462,143

## LIGHTER

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3 Claims. (Cl. 67—7.1)

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The present invention relates to lighters and particularly to lighters of the pyrophoric type.

Lighters of known construction consist of a comparatively great number of parts which are set together by soldering or other means and it has been desirable for some time to simplify the construction in order to reduce the number of parts and thereby the cost of manufacturing of lighters. These known lighters, however, consist mainly of one shell or two half-shells into which tubes and other conventional elements are inserted.

It is the main object of the present invention to reduce the number of parts which comprise a lighter to a minimum in order to lower the cost of the individual parts, but also to reduce the labor for assembling the parts.

This object is achieved mainly by providing preferably two die-casts, one face of each is equipped with two half-cylindrical borings, so that upon setting the two die-casts face to face, the two half-cylindrical borings form in each cast two cylindrical borings adapted to receive the pyrophoric metal and the wick, respectively.

With these and other objects in view which will become apparent, the present invention will be clearly understood in connection with the following specification and the accompanying drawing in which:

Figure 1 is a perspective front view of the lighter, the parts being shown in spaced position for the purpose of better demonstration;

Fig. 2 is a sectional elevation of the lighter inserted in the shells in enlarged scale, also for better demonstration;

Fig. 3 is an elevation partly in section; and

Fig. 4 is a top plan view of the two die-casts in assembled position.

Referring now to the drawings and particularly to Fig. 1, the lighter consists of two die-casts 1, 2 of preferably half-circular cross section, although any other cross sections can be provided. Each die cast has a front face 3 and 4, respectively, which is equipped with half cylindrical recesses 5, 6 and 7, 8, respectively, extending in parallel arrangement in axial direction. When the two die-casts 1, 2 are set together, the half cylindrical recesses 5 and 7 form one boring 9 adapted to receive a wick 10 and the half cylindrical recesses 6 and 8 form another boring 11 adapted to receive the pyrophoric metal 12 or any other substance adapted to produce sparks. The pyrophoric metal 12 is held in its uppermost position by a spring 13 the upper ends of which engage the lower end of the metal 12. The lower

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end of the spring 13 engages the upper end of a threaded member 14, as a screw, screwed into the lower end of the boring 11 which is internally threaded for that purpose.

The die-cast 1 is equipped with preferably two centering pins 15, and the die-cast 2 with two corresponding centering holes 16 (Fig. 2) providing a tight fit for the pins 15, so that upon inserting the pins 15 into the holes 16 the die-casts 1 and 2 will form one single cylindrical body having borings 9 and 11.

Each die-cast has further an upwardly extending projection 17 and 18, respectively, of preferably sector-like cross section, which projections are equipped with studs 19 and 20 arranged in co-axial position. The studs serve as axle for an abrasive wheel 21, which desirably has teeth resembling ratchet teeth, freely rotatable on the studs 19 and 20. The abrasive wheel 21 is in contact with the upper end of the pyrophoric metal which is urged against the teeth by means of the spring 13. When the abrasive wheel 21, as shown in Fig. 2, is rotated in counterclockwise direction, portions of the pyrophoric metal are torn from the body thereof and form a shower of sparks directed to the right of the wick 10.

The cylindrical body formed by the die-casts 1 and 2 is inserted into a lower cylindrical shell 22 having a layer of cotton 23 at its bottom adapted to receive fuel and the lower end of the wick 10 is in intimate contact with the cotton layer in order to assure proper suction of fuel from the cotton to the upper end of the wick 10. An upper cylindrical shell 24 covering the upper half of the lighter body is provided preferably abutting the upper end of the lower shell 22. It is, however, possible to arrange a shoulder (not shown) on the body, serving as abutment for the upper shell 24.

Upon inserting the wick 10 into the recess 5 and setting the abrasive wheel 21 on stud 19 of the die-cast 1, the die-cast 2 is brought face to face to die-cast 1, the pins 15 opposite the holes 16 and with one hammer blow the two die-casts 1 and 2 transformed into one cylindrical body, at the same time the stud 20 being introduced into the other end of the cylindrical boring of the abrasive wheel 21. It is then only necessary to insert the pyrophoric metal 12, the spring 13 and the threaded member 14 into the boring 11 to complete the lighter. Finally the thus assembled lighter is inserted into the lower shell 22 in which a cotton layer 23 soaked with a fuel has

been provided previously and the top shell 24 put over the lighter.

While I have disclosed one embodiment of the present invention, it is to be understood that this embodiment has been given by example only and not to limit the scope of the present invention which is determined by the annexed claims.

What I claim is:

1. In a lighter at least two die-casts forming together a body, a flat face on each of said die-casts, two recesses in parallel arrangement in each of said faces, said recesses are adapted to form borings in said body when the said die-casts are put together face to face, said borings receiving a wick and a pyrophoric material, respectively, an abrasive wheel, integral projections on each of said die-casts, stud members in coaxial arrangement on each of said projections, said abrasive wheel freely rotatable on said stud members above said boring receiving the pyrophoric metal, the latter boring receiving the pyrophoric metal having an inner thread at its lower end adapted to receive a threaded member, means for retaining said die-casts in face-to-face position, and upper and lower shell sections jointly enclosing said body, said lower shell section serving as a fuel tank.

2. In a lighter, two longitudinal die-casts of half-circular cross-section forming together a cylindrical body when the flat faces of each of said half-cylindrical die-casts are put together, two half-cylindrical recesses in axial direction in the flat face of each of said half-cylindrical die-



casts to form cylindrical borings when the said two die-casts are set together face to face, said borings receiving a wick and a pyrophoric metal, respectively, integral projections extending upwardly from said half-cylindrical die-casts, stud members on each of said projections in co-axial arrangement, an abrasive wheel freely rotatable on said stud members above said boring on the pyrophoric metal, the latter boring receiving the pyrophoric metal having an inner thread at its lower end adapted to receive a threaded member, at least two pins extending from one face and complementary recesses in the other face of said half-cylindrical die-casts, and upper and lower shell sections jointly enclosing said body, said lower shell section serving as a fuel tank.

3. In a lighter, as set forth in claim 1, said means for retaining said die-casts in face to face position comprising at least two centering pins extending from the face of one of said die-casts, and complementary recesses in the face of said other die-cast in a position corresponding to said pins.

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