L. NIXON.

INCENDIARY PROJECTILE.

APPLICATION FILED JULY 29, 1915.

1,175,800.

Patented Mar. 14, 1916.

Fig. 5.



Fig. 6.

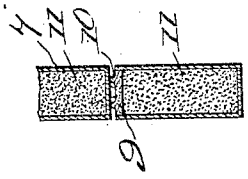


Fig. 2.

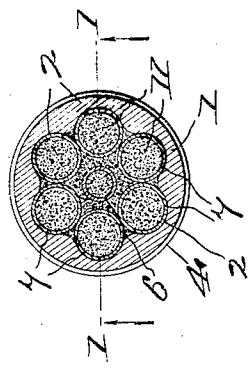


Fig. 3.

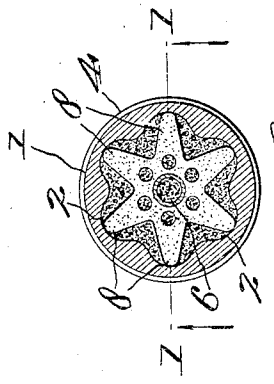


Fig. 1.

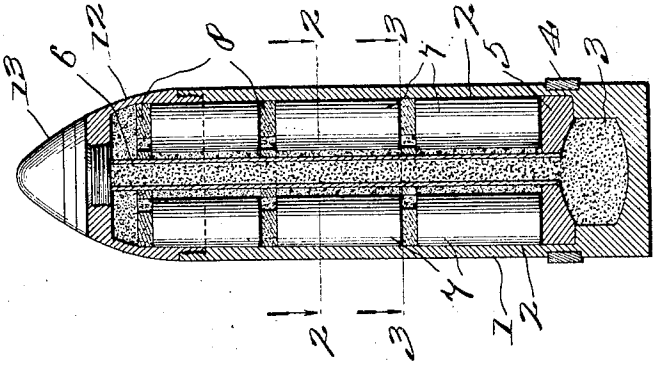
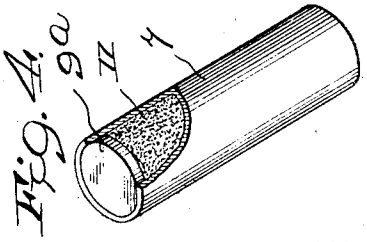


Fig. 4.



Witness

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UNITED STATES PATENT OFFICE.

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INCENDIARY PROJECTILE.

1,175,800. Specification of Letters Patent. Patented Mar. 14, 1916.

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To all whom it may concern:

Be it known that I, LEWIS NIXON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Incendiary Projectiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in incendiary projectiles intended to set fire to buildings, ships, fortifications, balloons, Zeppelins, or other air craft, or other objects composed wholly, or in part, of combustible materials; the invention is also adapted for use in attacking men in trenches, or elsewhere in the field.

According to my invention I use shrapnel of any ordinary or suitable design in which, instead of metal balls, I use cups of steel, brass, or other suitable material filled with a suitable substance capable of generating an intense heat on ignition; a heat preferably high enough to melt the cup and to form a burning mass of sufficient size and heat to set fire to inflammable objects of the character described, and also to injure or destroy those persons struck by these masses. These cups are preferably cylindrical and fit in internal grooves on the interior of the shell of the shrapnel, the exterior of the shrapnel being preferably of standard size and shape so they may be used with guns of existing types and may be packed in the usual containers for such ammunition. These cups are packed in the shrapnel around the central stem, and the spaces between the same are preferably filled up with a highly combustible mixture, such as slow burning powder, mixed with iron filings, or other suitable combustible and luminous material.

The shrapnel is provided with the usual bursting charge, which may be located in the front or rear end of the shrapnel, as desired, and a suitable fuse is supplied.

My invention may be applied to any general type of shrapnel, one type of which is shown in the accompanying drawings, but which instead of containing the sulfur with lead balls contains the combustible compound hereinbefore described.

Reference is had to the accompanying drawings, in which the same parts are indicated by corresponding reference numerals throughout the several views.

Figure 1 shows a central vertical section through the shrapnel, the cups and fuse being shown in elevation; Fig. 2 is a section along the line 2—2 of Fig. 1, and looking down; Fig. 3 is a section along the line 3—3 of Fig. 1, and looking down; Fig. 4 is a perspective view of one of the cups, parts being broken away to show the contents thereof, and the device being shown on larger scale; and Figs. 5 and 6 are details showing as a modification an inflammable cap adapted for use in spacing the cups from each other, so as to permit the fire to pass between the cups and enter the open ends thereof.

1 represents the main body of the shell of the shrapnel which may be made of malleable iron, or steel, which is preferably internally grooved as at 2, and is provided with the usual powder chamber 3 and rifling band 4. Inside of this shell is a base diaphragm 5 in which the central tube 6 is mounted. Surrounding this central tube are a series of cups 7, which project into the grooves and are thus held against rolling around when the spinning motion is imparted to the projectile from the rifling in the gun. The spaces between the cups, the tube and the interior portion of the shell are filled with inflammable composition, such as slow burning powder mixed with iron filings, or other suitable material, as shown in Figs. 2 and 3. These cups 7 are filled with inflammable material 11, and are closed by a wad or fuse of compressed inflammable material, such as 9[a] of Fig. 4, or 9 of Fig. 6. These cups are preferably spaced apart so that when the bursting charge is exploded the fire can get in the space between the ends of the cups and ignite the charge in the cups. The cups may be spaced apart in various ways, such, for instance, as by the stellated washer 8, see Fig. 3, the points of which project over the open ends of the cups and permit filling between the points of the inflammable composition aforesaid. These washers should preferably be made of inflammable material, such as colloided nitro cellulose, or ordinary smokeless powder. Instead of separate washers, as shown, each cup may be provided with an inflammable cap 9 made of

colloided nitro cellulose, or other suitable inflammable material, provided with segmental raised ribs 10, as shown in Figs. 5 and 6. The fire passing between the ends of the cups would ignite these caps and set fire to the highly inflammable material 11 inclosed in the cups. Any other suitable way of spacing the cups apart may be adopted if desired. The forward end of the shrapnel is closed by the usual screw head 12 and fuse 13.

While I have shown the bursting charge placed in the rear end of the shrapnel, it will be obvious that the bursting charge may be placed in the front end, if desired, and that the relative dimensions of the cup may be varied at will.

It will be seen that when the shrapnel hereinbefore described bursts under the action of its fuse, not only will the fragments of the shell act in the usual way as dangerous to man and beast, and also to property; but the inflammable material found in the interior of the shrapnel outside of the cups will, when burning, give a bright light and render the shrapnel especially useful as range indicating means at night. Also the cups containing highly inflammable matter will be scattered over considerable area, and the material burning in these cups will cause them to become highly heated even to the melting point, setting fire to any inflammable object which any one of the cups may strike.

If one of these shrapnel bursts near an aeroplane or Zeppelin, it would throw a number of highly heated masses forward, tending to set fire to the air craft at a number of places; while if one of these shrapnel bursts over a ship, or building, or group of buildings, it would be likely to simultaneously start a number of fires. In a similar way the shrapnel may be used against intrenchments, combining the danger from injury from broken pieces of the shell of the shrapnel with the danger to the soldier of being struck with an intensely hot missile, such as one of the cups 7 containing more or less of the burning composition contained therein, or even a molten mass.

While the shrapnel shown are of small type, and with only a single row of cups between the stem and the walls of the shrapnel, there may be a series of annular tiers of cups with larger shrapnel, and all the cups may be made larger, or smaller, as desired.

I do not claim any particular form or arrangement of central stem or bursting charge, as these may be varied at will without departing from the spirit of my invention.

It will be obvious that various modifications might be made in the herein described device, which could be used without departing from the spirit of my invention.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:—

1. A projectile of the character described, comprising a shell having a series of axially disposed grooves on the interior thereof, and also a chamber for the bursting charge and a central stem connected to said chamber, a fuse communicating with said central stem, and a series of metal cups containing highly inflammable material mounted in said shell and engaging in said grooves, said cups being normally closed by combustible caps adapted to be destroyed when the shell explodes, substantially as described.

2. A projectile of the character described, comprising a shell having a series of axially disposed grooves on the interior thereof, and also a chamber for the bursting charge and a central stem connected to said chamber, a fuse communicating with said central stem, a series of metal cups containing highly inflammable material mounted in said shell and engaging in said grooves, and inflammable material filling the spaces between said cups and said shell and said stem, said cups being normally closed by combustible caps adapted to be destroyed when the shell explodes, substantially as described.

3. A projectile of the character described, comprising a shell having a series of axially disposed grooves on the interior thereof, and also a chamber for the bursting charge and a central stem connected to said chamber, a fuse communicating with said central stem, a series of metal cups containing highly inflammable material mounted in said shell and engaging in said grooves, and spacing members made of inflammable material and separating adjacent tiers of cups, said cups being normally closed by combustible caps adapted to be destroyed when the shell explodes, substantially as described.

4. A projectile of the character described, comprising a shell having a series of axially disposed grooves on the interior thereof, and also a chamber for the bursting charge and a central stem connected to said chamber, a fuse communicating with said central stem, a series of metal cups containing highly inflammable material mounted in said shell and engaging in said grooves, spacing members made of inflammable material and separating adjacent tiers of cups, and inflammable material filling the spaces between said cups and said shell and said stem, said cups being normally closed by combustible caps adapted to be destroyed when the shell explodes, substantially as described.

5. A projectile of the character described, comprising a shell having a series of axially disposed grooves on the interior thereof, and also a chamber for the bursting charge and a central stem connected to said chamber, a fuse communicating with said central stem,

a series of metal cups containing highly inflammable material mounted in said shell and engaging in said grooves, and stellated disks of colloided nitro cellulose separating adjacent tiers of cups, substantially as described.

6. A projectile of the character described, comprising a shell having a series of axially disposed grooves on the interior thereof, and also a chamber for the bursting charge and a central stem connected to said chamber, a fuse communicating with said central stem, a series of metal cups containing highly inflammable material mounted in said shell and engaging in said grooves, stellated disks of colloided nitro cellulose separating adjacent tiers of cups, and inflammable material filling the spaces between said cups and said shell and said stem, substantially as described.

7. An incendiary projectile comprising a shell, fuse, and bursting charge, a series of metal cups contained in said shell and filled with material which when ignited will burn with such intense heat as to melt the cup itself, and destructible closures for said cups whereby the contents of the cups are ignited when the shell is exploded.

8. An incendiary projectile comprising a shell, fuse, and bursting charge, a series of metal cups contained in said shell and filled with material which when ignited will burn with such intense heat as to melt the cup itself, said cups being embedded in a mass of inflammable material contained in said shell and adapted to be ignited by the bursting charge of the projectile, and destructible closures for said cups whereby the contents of the cups are ignited when the shell is exploded.

In testimony whereof, I affix my signature.

LEWIS NIXON.