WIND DIRECTION INDICATOR

This invention relates to a wind direction indicator and particularly to an indicator for use by hunters of birds and animals and suitable for mounting upon a barrel of a firearm such as a rifle. It functions by emiting a wisp of smoke which drifts in the direction of wind flow and thereby informs the hunter about wind direction.

In many instances, inability of a hunter to get his quarry results from the game sensing the hunter before it is sighted. Having once sighted the hunter, the game then moves away from the hunter and thus is not caught. Scenting of the hunter before he has sighted the game occurs when he is upwind of the game or in a position where the wind blows from the hunter towards the game so that he is easily scented and then avoided. Accordingly, the hunter should ascertain the direction of the wind and then hunt downwind of the game or with the wind blowing from the quarry towards himself.

My invention provides a wind direction indicator which permits a hunter to easily and quickly ascertain wind direction by emission of a wisp of smoke. Specifically, it comprises a casing having one end open and a cartridge member adapted to contain and enclose a material which produces smoke upon contact by air. The cartridge member is disposed in the casing and is capable of insertion into and removal from it through the open end thereof. The cartridge is made from a material which is adapted to be pierced by a piercing member. A cap is detachably and movably mounted upon the casing adjacent its open end and fits over this open end. This cap has connected thereto interiorly a piercing member which extends toward the cartridge when same is inserted in the casing and when the cap is positioned over the open end. The piercing member is adapted to pierce and penetrate the cartridge member by advancement of the cap mounted upon the casing toward the end opposite its open end.

A sealing member made from a substantially resilient material is carried by one of the piercing member and the cap. This sealing member surrounds a portion of the piercing member and is positioned for engagement with that portion of the cartridge surrounding the piercing member when it has penetrated the cartridge to effect an airtight seal between the cartridge and the piercing member.

The cap has at least one hole extending therethrough for escape of smoke from the cartridge and the casing. In the accompanying drawings, I have shown a preferred embodiment of my invention in which:

FIGURE 1 is a longitudinal section view showing my wind direction indicator with its piercing member spaced apart from its cartridge which contains a smoke-producing material;

FIGURE 2 is a view similar to FIGURE 1 with the piercing member shown having penetrated the cartridge;

FIGURE 3 is a side elevation view of a portion of a rifle barrel with my wind direction indicator attached thereto; and

FIGURE 4 is a perspective view of a spring clamp for attaching the indicator of FIGURE 1 to a rifle barrel.

Referring to FIGURES 1 and 2, my wind direction indicator comprises a casing 1 having one end 2 open and the other end 3 closed.Disposed within the casing there is a cartridge 4 made from a material such as sheet metal, a synthetic resin (Bakelite), or any other suitable material which is adapted to be perforated by a piercing member 5 mounted upon an interior side of a cap 6 which covers the open end 2 of the casing 1. The cartridge is insertable into and removable from the casing 1 through the open end 2 and accordingly can be thrown away after usage.

The cartridge contains and encloses a material 7 which produces smoke upon contact with air and examples of this material include but are not limited to white phosphorous, red phosphorous, a mixture of white phosphorous and punk, and a mixture of red phosphorous and punk.

This smoke-producing material is sealed from contact with air by the cartridge until the cartridge is perforated by the piercing member 5.

On the exterior surface of the casing at the open end 2 is a plurality of threads 8 which run a short distance towards the closed end 3 from the open end 2 and which receive corresponding threads 9 on the inside of the cap so that the cap can be advanced towards the closed end 3 to perforate the cartridge by engagement of the piercing member 5 therewith. This piercing member is adapted to the inside of the end wall 10 of the cap 6, has a sharp point 11 for perforating a wall of the cartridge and extends towards the cartridge when the cap covers the open end 2.

Surrounding a portion of the piercing member spaced apart from the sharp point 11 and mounted thereon is a sealing element or valve 12 made from a resilient material such as rubber, plastic, or any other suitable substance for effecting an airtight seal between the piercing member and the cartridge. As shown in FIGURE 1, opposite the piercing member 5 is a receptacle-like seat 13 defined by an end wall 14 of the cartridge and shaped to engageably receive the exterior surfaces 15 of the valve 12 which are similarly formed so that the airtight seal is made by engagement of the valve 12 with the seat 13 (FIGURE 2).

Between the end wall 14 of the cartridge and the inside surface 16a of the end wall 16 of the cap 6 is a coil spring 20 which seats upon the end walls 10 and 14. When the cartridge 4 is inserted into the casing 1, the spring is seated against the end wall 14 and the cap 6 attached so that the spring seats against its end wall 6b. Accordingly, the spring 20 urges the cartridge 4 against the closed end 3 and thereby maintains it firmly in position to avoid rattle or noise from movement thereof and to permit easy penetration of the wall 16 by the piercing member 5.

Perforation of the cartridge 4 by the piercing member 5 results from screwing on the cap against the force of the coil spring 20 to advance it towards the closed end 3 and carry the point 11 of the piercing member 5 through an inner end wall 15 of the seat to form a hole 17 through the cartridge (FIGURE 2). Then further turning the cap until the inside of the end 10 thereof contacts the ends 18 of the walls of the casing defining the open end 2 brings the valve 12 into engagement with the exterior surfaces of the cartridge end wall 14 and forms the airtight seal between the valve and the cartridge. This seal prevents contact of the air with the smoke-producing material, and the cap is unscrewed an amount to withdraw the valve from engagement with the seat. Upon disengagement of the valve from the seat 13, air contacts the smoke-producing material in the cartridge through the hole 17 and generates smoke which escapes through the hole 17 and vents 19 in the end wall 19 of the cap to atmosphere.

Then, to stop smoke generation, the cap is moved along
the threads 8 to advance the valve 12 into engagement with the seat 13 and thereby seal off the air from the smoke-producing material (FIGURE 2).

As shown in FIGURES 3 and 4, a spring clamp made from stamped spring steel sections 21 and 21a attaches the wind direction indicator to a rifle barrel 22. These metal sections form a first split sleeve 23 rubber-coated interiorly thereof to receive and mount the indicator and a second split sleeve 24 integral with the first one, connected thereto by a web 25 and also rubber-coated interiorly thereof. This second split sleeve fits around the rifle barrel and attaches the indicator thereto.

My invention has important advantages which include ability to easily and quickly produce smoke and then effectively terminate smoke production so that a single cartridge may produce smoke on repeated occasions. Additionally, the cartridge is a throw-away type which is discarded when its supply of smoke-producing material is exhausted whereupon it is removed from its casing and a fresh one inserted therein.

While I have shown and described a certain preferred embodiment of my invention, it may be otherwise embodied within the scope of the following claims.

1. A wind direction indicator comprising a casing having one end open, a cartridge member adapted to contain and enclose a material which produces smoke upon contact by air, said cartridge member being adapted for insertion into and removal from said casing through said open end and being made from a material adapted to be pierced by a piercing member, a cap detachably and movably mounted upon said casing adjacent said open end and fitting over said open end, said cap having connected thereto interiorly a piercing member which extends toward said cartridge when same is inserted in said casing and when said cap is positioned at said open end and which is adapted to pierce and penetrate said cartridge member by advancing said cap mounted upon said casing towards the end thereof opposite said open end, a sealing member made from a resilient material, surrounding a portion of said piercing member, spaced apart from the piercing point thereof and positioned for engagement with that portion of said cartridge surrounding said piercing member when it has penetrated said cartridge to effect an airtight seal between said cartridge and said piercing member, said cap having at least one hole extending therethrough for escape of smoke from said cartridge and said casing.

2. The wind direction indicator of claim 1 characterized by said cartridge member having at that end facing said piercing member a receptacle positioned to receive said sealing member and effect engagement therewith when said piercing member has penetrated said cartridge to provide said airtight seal.

3. The wind direction indicator of claim 1 characterized by an attachment member having a first portion for receiving and supporting said casing and a second portion for connection to a firearm barrel.

4. The wind direction indicator of claim 1 characterized by said cartridge member having at that end facing said piercing member a receptacle positioned to receive said sealing member and effect engagement therewith when said piercing member has penetrated said cartridge to provide said airtight seal and by an attachment member having a first portion for receiving and supporting said casing and a second portion for connection to a firearm barrel.

5. The wind direction indicator of claim 1 characterized by said piercing member and said cap.

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