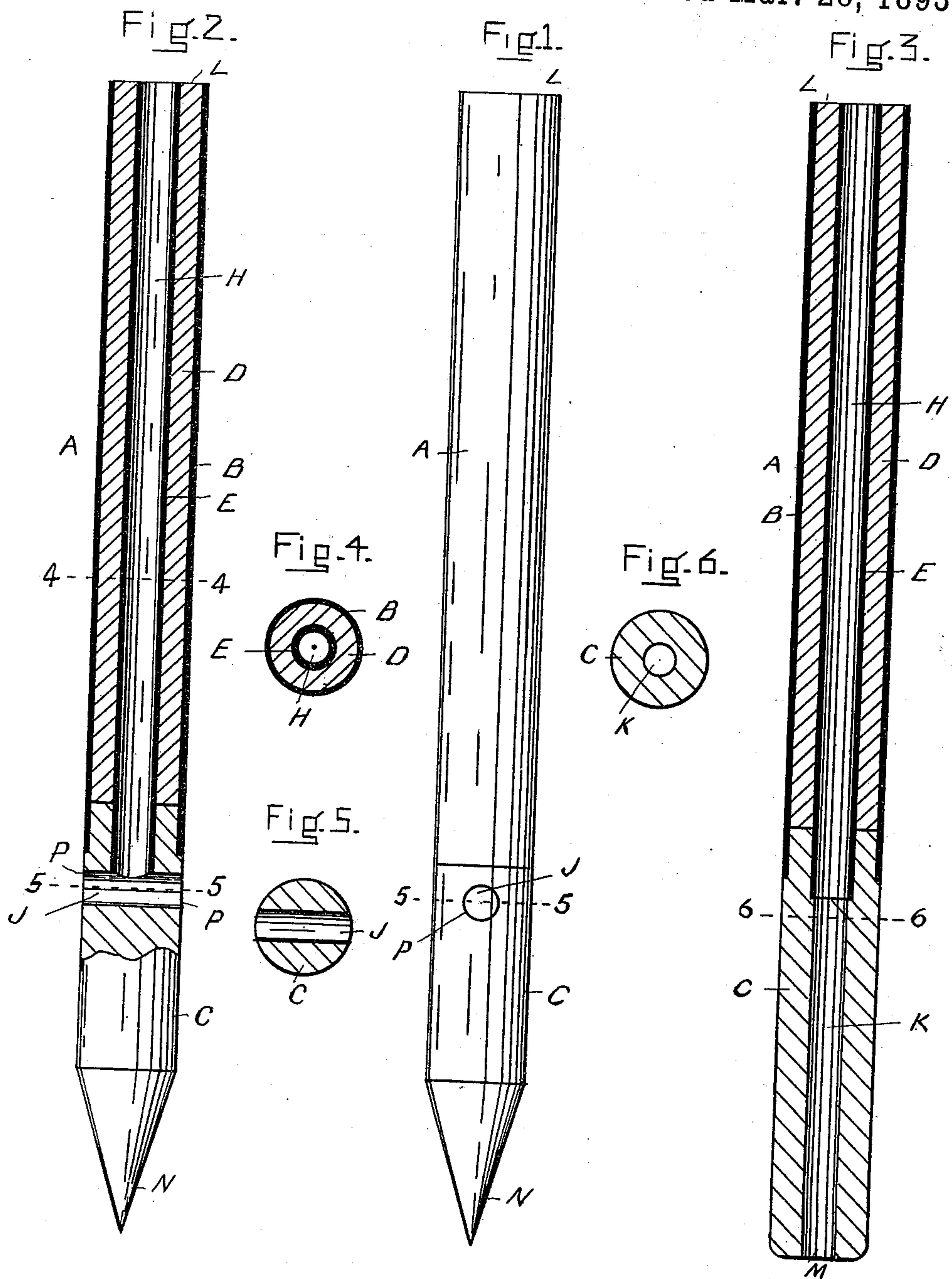


(No Model.)

T. M. PIERCE.
FIREWORKS TORCH.

No. 494,438.

Patented Mar. 28, 1893.



WITNESSES.

J. G. Tuttle
Barrie E. Nichol

INVENTOR.

Thomas M. Pierce.
Per. Edwin W. Brown
Attorney.

UNITED STATES PATENT OFFICE.

THOMAS M. PIERCE, OF CONCORD, MASSACHUSETTS.

FIREWORKS-TORCH.

SPECIFICATION forming part of Letters Patent No. 494,438, dated March 28, 1893.

Application filed January 16, 1892. Serial No. 418,268. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. PIERCE, of Concord, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Fireworks-Torches, of which the following is a full, clear, and exact description.

This invention has for its object the supply of air to the center of the flame of the burning composition of a fireworks torch, to produce not only a better flame but to lessen the quantity of smoke generated by the burning material, and the invention consists of a fireworks torch provided with a central longitudinal passage extending through the length of the torch and provided with an opening or openings at the side near or at the lower end, or extending through the bottom of the torch and handle connected thereto, all substantially as hereinafter fully described reference being had to the accompanying sheet of drawings in which is illustrated a fireworks torch constructed in accordance with this invention.

Figure 1, being a side view; Figs. 2 and 3, central vertical sections; Figs. 4 and 5, cross sections on lines 4—4, and 5—5, respectively, Fig. 2; Fig. 6, a cross section on line 6—6, Fig. 3.

In the drawings A, represents a fireworks torch of which B is a casing or tube of paper or other suitable material, C a handle inserted and secured in the lower end of the casing or tube, which handle can be of wood or any suitable material and D is the fireworks composition, all as usual in the manufacture of fireworks and needing no more particular description herein except as to the present invention.

Centrally longitudinally within the tube or casing B, is a tube E, of paper or any suitable material which extends the length of the tube or casing B, and is secured at its lower end in the handle C, which leaves a vertical annular chamber between it and the outer casing or tube, in which annular chamber is placed the fireworks composition D. Below the tube E is a horizontal passage J, which extends transversely through the handle and

communicates with the vertical passage H, of the central tube E.

In Fig. 3, the transverse passage J, is dispensed with and a central vertical passage K, made through the length of the handle communicating with the passage H, of the central tube.

In the use of the torch it is held in the hand by the handle, or supported in the ground and ignited at the upper end L, in the usual manner, and as the composition burns at the upper end a draft is created up through its central passage H, and through the body of the flame, the air passing in at the ends P of the transverse passage or at the lower end M, of the passage K in the handle, supplying air to the center of the flame in such quantity that the flame will be much brighter and more brilliant and freer of smoke.

The transverse air passage can be made in the casing itself in lieu of in the handle, but it is preferable to have the handle and such air passage in it, also such passage need open only to one side but it is preferable to have the passage extend across making two inlets for air, which is advantageous. The central tube also gives additional strength to the torch.

Having thus described my invention, what I claim is—

1. A fireworks torch, composed of an outer casing, a longitudinal central tube, an annular chamber between the two tubes for the fireworks composition, the central tube having an air passage through it and opening to the outside of the torch at or near its lower end for the purpose specified.

2. A fireworks torch, composed of an outer casing, a longitudinal central tube, an annular chamber between the two tubes for the fireworks composition, the central tube having an air passage through it and a transverse air passage having an outlet at the side of the torch at or near its lower end and communicating with the central tube air passage for the purpose specified.

3. A fireworks torch, composed of an outer casing, a longitudinal central tube, an air passage through the tube an annular cham-

ber between the two tubes for the fireworks
composition, and a transverse air passage ex-
tending from one side to the other of the
torch having an outlet on each side of the
5 torch at or near its lower end and centrally
connected to and communicating with the
central tube air passage for the purpose speci-
fied.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing 10
witnesses.

THOMAS M. PIERCE.

Witnesses:

EDWIN W. BROWN,
CARRIE E. NICHOLS.