(No Model.)

G. D. SMITH.

Torch.

No. 233,039. Patented Oct. 5, 1880.

FIG. 10.

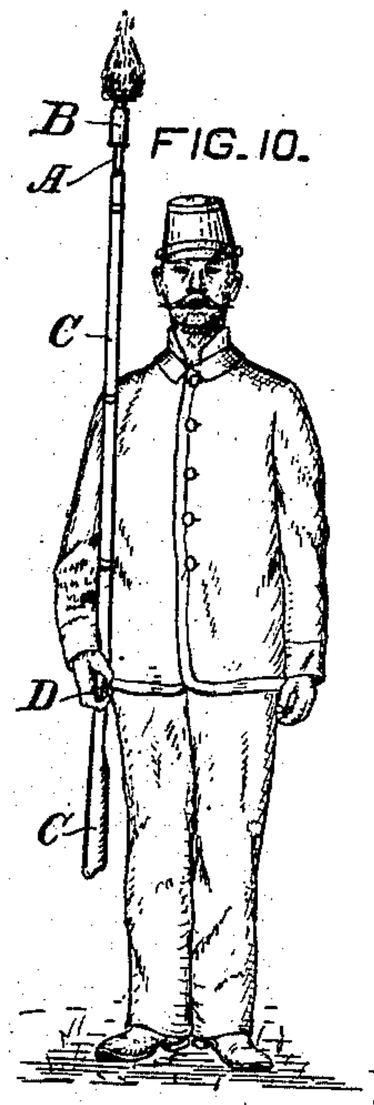

FIG. 11.

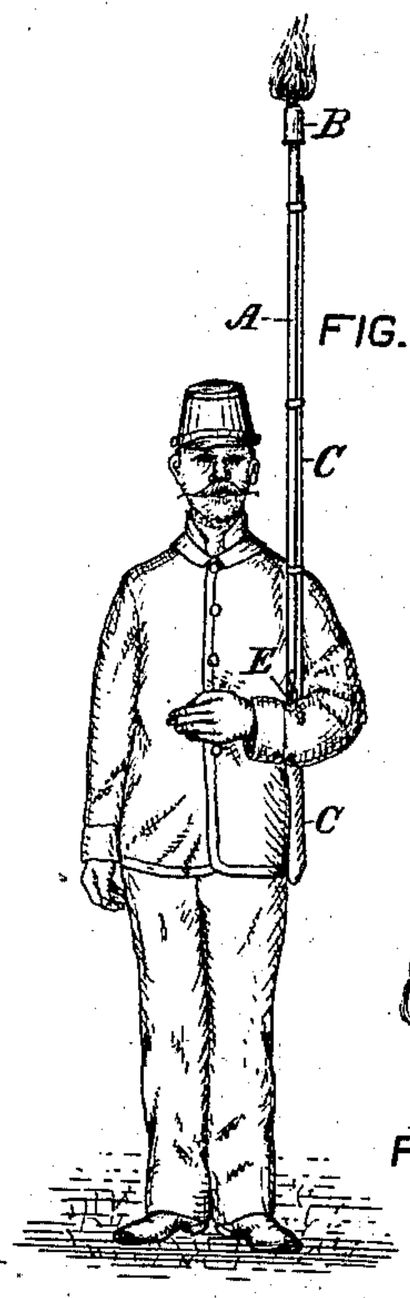

FIG. 12.

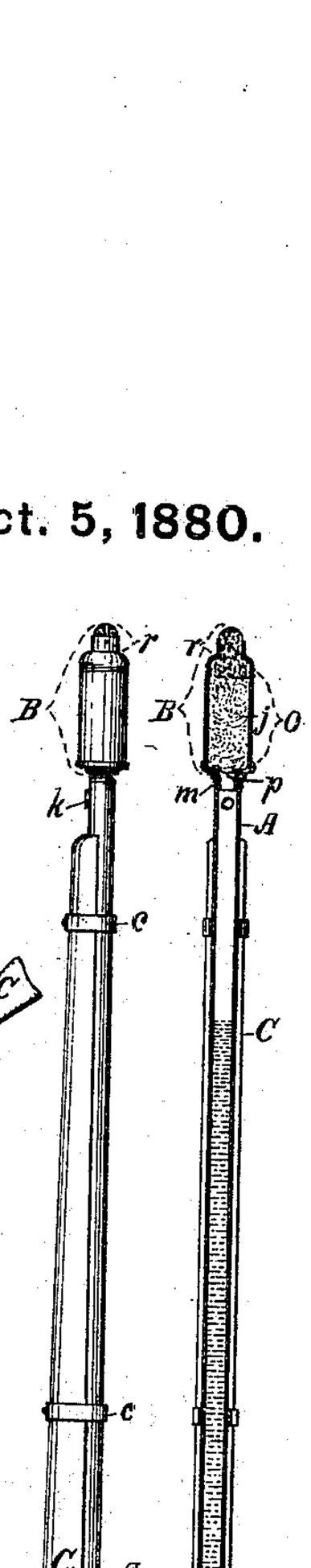

FIG. 3.

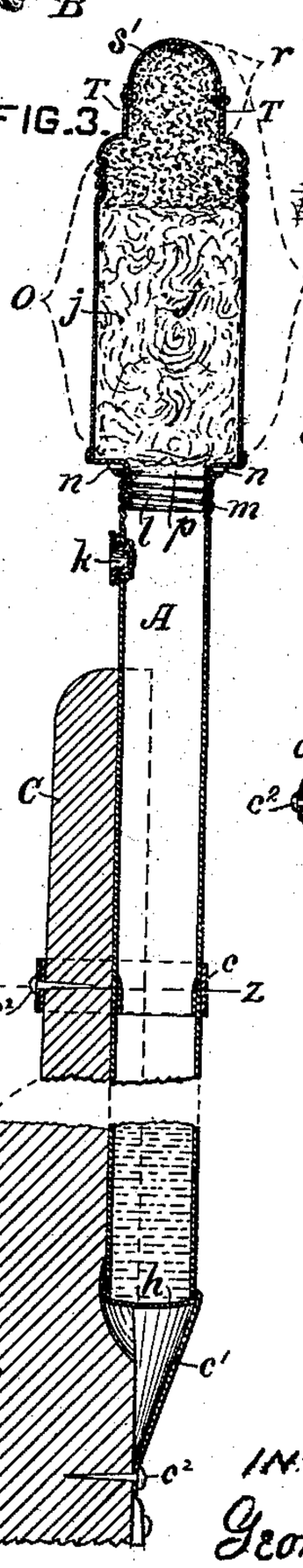

FIG. 5.

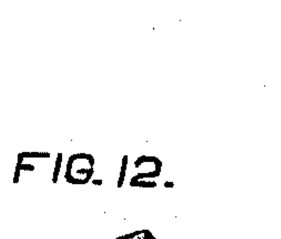

FIG. 4.

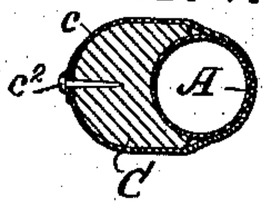

FIG. 8.

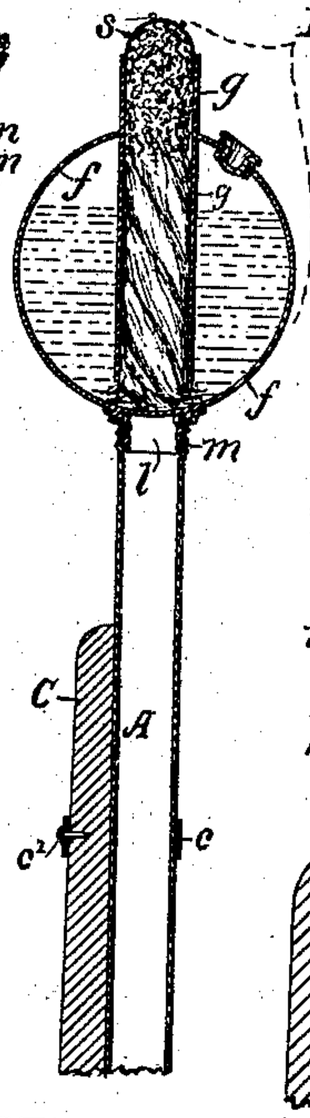

FIG. 9.

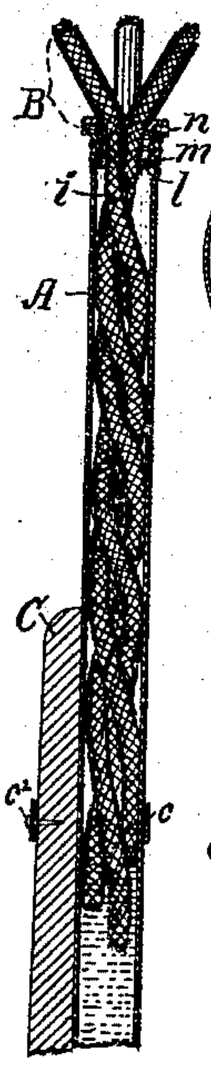

FIG. 6.

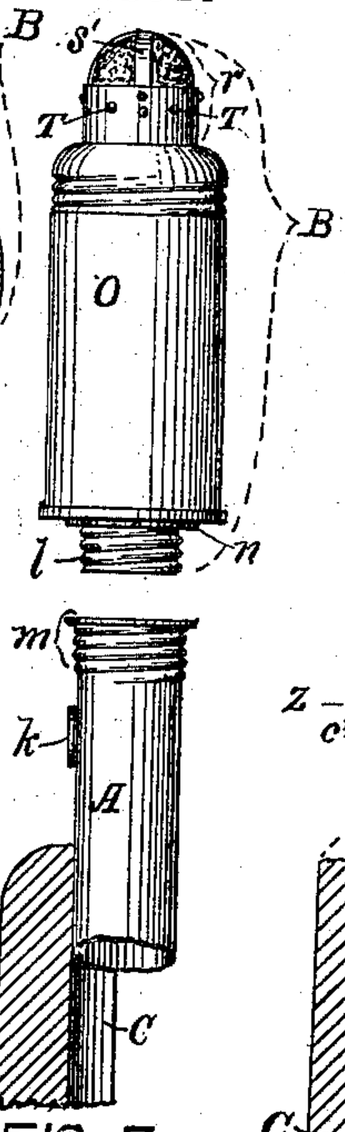

FIG. 7.

FIG. 1.

FIG. 2.

WITNESSES:

James A. Slade.

James T. Goodfellow.

INVENTOR

George D. Smith

UNITED STATES PATENT OFFICE.

GEORGE D. SMITH, OF TROY, NEW YORK, ASSIGNOR TO ADELAIDE S. SMITH, OF SAME PLACE.

TORCH.

SPECIFICATION forming part of Letters Patent No. 233,039, dated October 5, 1880.

Application filed July 29, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. SMITH, of the city of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Torches, of which the following is a specification.

My invention relates to improvements in torches for night processions; and the principal objects of my improvements are to give to the whole torch a shape resembling that of a common musket with a lamp or burner on the muzzle of its barrel, and which shall enable a person to conveniently execute the usual military manual of arms for the musket with and by the torch when burning; to provide means whereby reserve burning-liquid can be kept in the torch away from the lamp or burner to prevent vaporization of the liquid in the torch, render the torch less top-heavy, and thereby facilitate the execution of the manual of arms with the torch and allow portions of the reserve liquid to be occasionally supplied to the lamp or burner by bringing the torch into the position of "secure arms;" to produce a torch-holder with which a person can conveniently execute the usual manual of arms for the musket, and having means by which various kinds of suitable lamps or burners can be firmly secured to and used with said holder, and thus produce an improved military torch in which the lamp or burner can be readily removed from the holder for convenient refilling and transportation, and to render the torch capable of more convenient manipulation and use and of sustaining a full flame for a longer period when the lamp is filled with fibrous or liquid-absorbing material, and the reserve burning-liquid is held in the torch away from the lamp. I attain these objects by the means represented in the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 a rear elevation, partly in section, of a torch which embodies all the distinguishing features of this invention. Fig. 3 is a longitudinal section, on a larger scale, of the lamp and burner and of the two end portions of the tubular reservoir of the same torch. Fig. 4 is a transverse section at the line *z z* in Fig. 3, and Fig. 5 is a plan of the burner end of the lamp of the same torch. Fig. 6 is a side elevation of the lamp of the same torch separated from the adjacent end part of its holder, which is shown in elevation and partial section in Fig. 7. Figs. 8 and 9 are longitudinal sections, on a smaller scale, of the upper end portions of two torches which embody some of the parts of my invention. Figs. 10, 11, and 12 represent persons holding my improved torches in different positions.

A is a long straight tube, which I commonly make of sheet-tin or other suitable sheet metal, and B is a lamp or burner, (shown secured directly upon one end of the tube A in Figs. 1, 2, 3, 8, 9, 10, 11, 12.)

C is a wooden handle or stock, which resembles a gun-stock in form and fits against and extends along one side of the tube A from near its end next to the lamp or burner to and beyond the other end of that tube, and that tube is secured to the stock C by bands *c*, and a rear projection, *c'*, with pins c^2 or other suitable fastenings, can be used for that purpose, so that the whole torch has the general appearance of a common musket with a lamp or burner on the end of its barrel.

D is a bow-shaped piece, preferably of metal, secured to and projecting from the front side of the stock C at or near its bend; and E is another piece, preferably of metal, secured to and projecting in finger-like form from the opposite portion of the rear side of the stock, as shown in Fig. 1.

By thus having the torch composed of the long straight tube A, lamp or burner B directly upon one end of that tube, and the stock or handle C in gun-stock form, reaching along one side of and secured laterally to the tube and extending beyond the other end thereof, and having the front and rear projections, D and E, all arranged and proportioned substantially as above described and shown in the accompanying drawings, the torch is rendered especially suitable for use by companies marching in military order and executing the usual manual of arms for the common musket or rifle with the torch, because the whole torch is in the general form of a common rifle or musket, elongated at its muzzle end, with a lamp or burner directly upon that end of its barrel, and can be easily and accurately held by the hand grasping the

parts D and E at the bend in the stock in the position of "carry," with the lamp or burner above the level of the head of the person, as represented in Fig. 10, and can be easily carried with the projection E resting on the forearm in the position of "support," (shown in Fig. 11,) and can be readily handled and passed into and held with military precision in all the principal well-known positions in the manual of arms, and at the same time the exposed long metallic tube A will serve to conduct off excess of heat from the lamp or burner B, and thus tend to prevent the overheating and vaporization of the burning-liquid before it reaches the combustion-point on the burner.

In Fig. 8 the reservoir *f* of the lamp is shown immediately surrounding the wick-tube *g* and near the flame end of the latter, so that the reserve burning-liquid may sometimes be liable to become overheated or vaporized in the reservoir by heat from the burner, and at the same time the liquid-reservoir is wholly beyond the projecting end of its supporting-tube A, and thereby renders the whole torch rather too top-heavy for the most convenient handling and carrying of the torch in executing the manual of arms therewith.

To overcome those defects I make the long tube A tight at its lower end, *h*, and throughout its length, and to constitute the reservoir for the burning-liquid, and with its other end open to the wicking *i*, Fig. 9, or fibrous material, *j*, in the lamp or burner, that is mounted tightly on that end of the tube A, essentially as illustrated in Fig. 2, 3, or 9. By thus having the torch composed of the long tubular reservoir A, lamp or burner B on one end of said reservoir and in communication with the interior of the latter, and the stock C along and secured to the tubular reservoir, and extending beyond the closed other end of the latter in gun-stock form, and having the projections D and E, the reserve burning-liquid is kept in the long reservoir A secure from vaporization by heat from the lamp or burner, and materially lessens and counterbalances the weight of the lamp or burner on the projecting upper end part of the tubular reservoir, and thereby facilitates the execution of the manual of arms with the torch, while the lamp or burner can be quickly resupplied with portions of the reserve burning-liquid from the long tube A by bringing the torch into the position of "secure," as indicated in Fig. 12.

I sometimes make the lamp or burner B permanently or irremovably fast on the tube A, and in such case, if the tube A shall be the reservoir for the burning-liquid, I form one or the other end part of that tube with an aperture closed by a removable screw-plug, *k*, Fig. 3, for convenience in refilling that reservoir.

I commonly have the lamp or burner detachable from its holder by forming the adjacent end parts of the tube A and lamp or burner B with corresponding male and female screw-threads *l* and *m*, adapted to be screwed together, and thereby firmly fasten the lamp or burner on and to the tube, as illustrated in Fig. 3, 8, or 9, in order that the lamp or burner can be readily removed from the holder A C for convenience and safety in refilling the lamp or burner and reservoir, and in packing and transporting the burners or lamps and their holders. In such case, if the tube A shall be the reservoir for the burning-liquid, the joint between the male and female screws *l m* can be made sufficiently tight by an interposed packing-ring, *n*.

The combination, with the tube A, having the screw-thread *m* on one end, and the other end, *h*, closed, of the handle C, in gun-stock form, reaching along and secured laterally to said tube and extending beyond the closed end of the latter, and having the front and rear projections, D and E, constitutes a very superior torch-holder, by which the usual manual of arms for the musket can be freely executed, and upon the end of which can be readily secured and used any suitable kind of lamp or burner having a screw adapted to engage with the screw *m* of the tube A, as illustrated by Figs. 3, 8, and 9, whether the tube A shall or shall not be used as a reservoir for the burning-liquid.

I commonly prefer to combine with the tube A, when adapted for use as a reservoir for the burning-liquid, a lamp having a short cylindrical chamber, O, Figs. 2 and 3, of much greater internal diameter than the tube A, and fast directly upon the open end of that tube, and extending in the lengthwise direction of the latter, with a bottom opening, *p*, into said tube, and with the chamber O filled with porous or fibrous material *j*, which will quickly absorb and be saturated with and hold a large quantity of the burning-liquid when supplied to the lower end thereof, and having on the top of said chamber a short tubular burner, *r*, with a wick of fibrous asbestus or other suitable incombustible material in contact with and as a continuation of the filling *j* of the chamber O, all substantially as shown in Figs. 2 and 3.

I thus construct the torch in order that it shall be more durable, and that the lamp and its burner shall not be all at one side of the tubular reservoir A, but shall be a direct continuation of the latter, with the weight of the lamp balanced on the end of that tube to insure the convenient carrying and manipulation of the torch, and that the reserve liquid shall not be in contact with the lamp or its filling when the torch shall be held with the lamp uppermost, whereby vaporization of the liquid in the tube A is prevented, and that the filling *j* in the lamp-body O shall be saturated in a few moments with the kerosene or other burning-liquid from the tube A upon turning the torch into the inclined position shown in Fig. 12, and that said filling, when thus once saturated, shall hold so much of the liquid, and shall so give it up to the wick of the burner *r* when the torch is lighted and held with the lamp uppermost as to keep up a full flame on

the burner during all the time required by a company carrying torches in military order to execute all the different movements and positions of the usual manual of arms that can be gone through with by the torch, and with sufficient intervals between the movements to present a good military appearance, all before the torch shall require to be again inclined downward to renew the supply of liquid to the lamp.

I commonly prefer to have the lamp-chamber O secured on and to the end of the tube A by the male and female screw-coupling *l m*, for convenience in refilling the tube A with burning-liquid and in adjusting the filling *j* in the lamp-chamber. That filling can consist of fibrous asbestus or of asbestus fibers in the upper part and cotton in the lower part, or of other suitable material, and can be kept in place at the top of the burner by wire-gauze, S, or metallic strips S′, riveted or otherwise fastened to the tube of the burner.

T T are perforations for side flame-jets.

Before my invention a torch had been devised with a removable burner secured by a screw-connection to one end of a tubular reservoir, from which the liquid for burning could be supplied to the burner at intervals by occasionally turning or inclining the torch downward, and I do not broadly claim such a torch.

I also believe that prior to my invention a torch had a lamp supported and pivoted upon the smaller end part of a stock or handle having the general form of a musket, and I do not broadly claim a torch having such a stock or handle. The musket-shaped stock of such previously-made torch did not have any long metallic tube or barrel, and the metallic body of the lamp of such torch was not firmly secured directly upon, nor in metallic connection with, nor concentrically to, a heat conducting and dispersing metallic tubular support, and much less such torch did not have its lamp or burner supported by and adapted to receive a supply of burning-liquid from a long tubular reservoir. That previously-made torch had its lamp pivoted to the two arms of a shank, which was bent laterally, somewhat like the shank of a bayonet, and was swiveled to revolve in a socket in the end part of the stock or handle, about as represented in United States Patent No. 183,332, so that the torch was very eccentrically top-heavy on different sides of the longitudinal axis of its stock or handle at different times, according to the temporary radial direction of the rotary bent lamp-supporting shank, and was thus rendered very unsteady and difficult to manage and carry in the various positions required by the manual of arms.

I am also aware that before my invention lamps for torches have had wicks of asbestus fibers held in by cross-wires over the top, and I do not claim such a lamp.

What I claim as my invention is—

1. A torch composed of a long straight heat-conducting metallic tube, a lamp having a metallic body of greater diameter than said tube and firmly secured immediately and concentrically upon and in annular metallic contact with one end of that tube, and the handle C, in the form of a gun-stock, reaching along and secured laterally against one side only of said tube and extending beyond the other end thereof, and having the front and rear projections, D and E, all as set forth.

2. A torch composed of the long straight tube A, having the entirely-closed end *h*, and adapted to hold reserve burning-liquid, the lamp or burner B, secured directly upon the other end of said tube and open at its bottom to the interior thereof, and adapted to receive burning-liquid therefrom, as described, and the handle C, in gun-stock form, reaching along and secured to said tube and extending beyond the closed end thereof, and having the front and rear projection, D and E, as set forth.

3. A torch composed of the long tube A, removable lamp or burner B, screw-coupling *l m*, by which the lamp or burner is detachably secured on and to one end of said tube, and the handle C, in gun-stock form, reaching along and secured to said tube and extending beyond the other end thereof, and having the front and rear projections, D and E, all substantially as set forth.

4. A torch-holder composed of the tube A, having the closed end *h*, and the screw-thread *m* at its other end, and the handle C, in the form of a gun-stock, reaching along and secured laterally to said tube and extending beyond the closed end thereof, and having the front and rear projections, D and E, all substantially as set forth.

5. In a torch, the combination, with the long straight tubular reservoir A, of the lamp having the chamber O arranged on and in direct continuation of said reservoir, and of greater transverse area than and open at its bottom to the interior of the long reservoir, and filled with the liquid-absorbing material *j*, and having at its top the burner *r*, with an incombustible wick, all substantially as set forth.

6. In a torch, the combination, with the long straight tubular reservoir A, having the screw *m* at its open end, of the removable lamp having the screw *l*, engaging with the screw *m*, and the chamber O, of greater transverse area than the long reservoir, and open at its bottom to said reservoir, and filled with liquid-absorbing material *j*, and having the burner *r*, with an incombustible wick, all substantially as shown and described.

In testimony whereof I hereunto set my hand, in the presence of two subscribing witnesses, this 27th day of July, 1880.

GEORGE D. SMITH.

Witnesses:

JAMES H. SLADE,

JAMES T. GOODFELLOW.