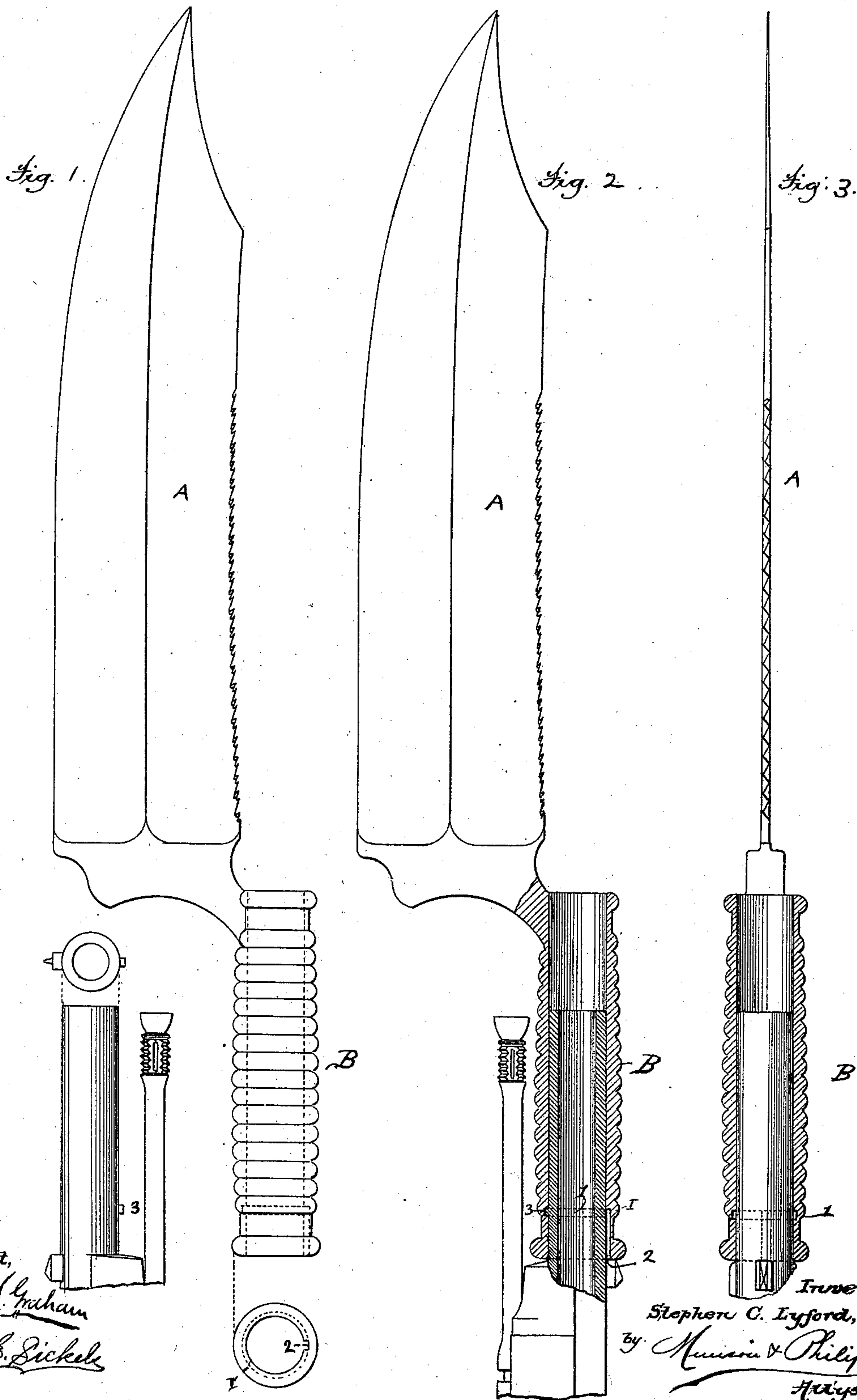


S. C. LYFORD.  
Intrenching Knife-Bayonet.

No. 212,244.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN INTRENCHING KNIFE-BAYONETS.

Specification forming part of Letters Patent No. **212,244**, dated February 11, 1879; application filed January 11, 1879.

*To all whom it may concern:*

Be it known that I, STEPHEN C. LYFORD, of the city of Washington, District of Columbia, have invented certain new and useful Improvements in Intrenching Knife-Bayonets; and I do hereby declare that the following specification, when taken in connection with the accompanying drawings, is such a full, clear, and exact description of the same as will enable others skilled in the art to which my invention pertains to make and use the same.

In said drawings, Figure 1 represents, in elevation, the muzzle end of a rifle and my improved intrenching knife-bayonet. Fig. 2 is a similar view, but illustrates the said implements adjusted together, a portion of each being in section to better show the means of fastening them together; and Fig. 3 is a similar view, but taken at right angles to that of Fig. 2.

This invention relates to that class of intrenching-tools for the military service which are designed to be used with one or both hands for digging or scraping earth, and which can, in time of need, be used on the rifle as bayonets or in the hands as knives. The objections heretofore existing to such tools or weapons are, that being fixed—that is, temporarily fastened to the rifle in a firm position thereon, as in the case of the well-known trowel-bayonet and similar devices—the tool might be used as a spade, the rifle becoming its handle, thereby injuring the rifle by bending its barrel or fouling its bore at the muzzle end with sand or dirt, and thereby causing bursting or swelling the barrel at that point when the rifle was fired without cleaning, and of course thereby disabling the arm.

The object of my invention is to prevent the possibility of the soldier so using it, and in this manner removing objection to a tool adapted to be used effectively as a means of intrenching or as a weapon of offense or defense.

The invention consists in an improved structure of an intrenching knife-bayonet which admits of its blade being mounted upon the barrel of a rifle so as to turn freely around the same as its axis, whereby its use as a spade is

prevented, while its effectiveness as a bayonet or as a hand implement is unimpaired.

To that end the blade A is constructed of sufficient width to adapt it for use as a knife or as a digging instrument without destroying its efficiency as a bayonet, and its back is provided with a toothed edge, for use as a saw, if such construction is desired, which blade is so connected with its handle B (loosely or otherwise) that it shall project mainly or wholly at one side of the axial line of said handle. The handle is hollow (constructed in any suitable manner) and is bored out, so as to freely fit upon the barrel of the rifle, and thus enable the blade and handle to readily turn upon the barrel as its axis when it is mounted thereon for use as a bayonet.

Many means for securing it upon the barrel, which will not obstruct its free movement, may be devised. One well adapted for the purpose is shown in the drawings, the same consisting in providing the handle B with a slot, 1, cut in its interior wall in a plane at right angles to its axis, which is intercepted by a longitudinal slot, 2, running from the lower end of the handle. When the implement is placed upon the rifle its slot 2 is passed over a stud, 3, projecting from the side of the rifle-barrel, and near its muzzle end, which stud 3 finds its seat in the slot 1, when, upon rotating the implement, it will be securely held in position, and yet be capable of rotating freely throughout the whole circle of three hundred and sixty degrees upon the barrel as its axis; but it may be otherwise constructed—that is to say, the blade may be made so as to revolve around the handle as its axis, the axis of the barrel, of course, being coincident with that of the rifle, and by means of any simple device, the handle and blade being locked fast when not in position upon the barrel but when mounted upon the barrel always free to rotate.

Such a structure, while practicable, is not deemed to be the most desirable one.

When this intrenching knife-bayonet is constructed and mounted upon the rifle-barrel, as has been described, and the rifle is held in any position near the horizontal necessary for digging purposes, the action of the force of



gravity will cause the heavier side of its blade A to carry the same below the axis of the barrel, from which it will depend in a plane approximating a vertical line. The soldier will thus be unable to use it as a spade, for the reason that in the attempt to so use it the blade A will assume the position of a vertical plane, or approximately so, as it enters the earth, in whatever position relative to itself the rifle is held as its handle. If, however, by any means the blade be stuck into the earth in a position to act as a spade with the rifle as a handle, it will, upon being lifted, turn upon its axis and come out of the earth with its plane vertical.

The best embodiment of the invention now known is that illustrated, wherein the axis of the handle B, while lying in the plane of the blade A, is so far removed from the rear edge of the same as to allow the free discharge of the rifle when the implement is attached to the barrel; but the invention may be carried into practical effect by any construction which provides for the free rotation of the blade around the barrel or its handle as its axis, and wherein the blade is so formed that its weight will, by the force of gravity, keep said blade in a vertical plane, or nearly so, in whatever position the rifle is held, with its axis ap-

proximating to the horizontal, the structure, however, being such as not to obstruct the free discharge of the gun.

An implement constructed according to this invention cannot be used as a spade with the rifle as its handle, and yet its effectiveness as a bayonet for thrusting or as an intrenching-tool is not impaired.

What is claimed is—

1. An intrenching knife-bayonet constructed substantially as described, so that when it is mounted upon the barrel of a rifle its blade may freely turn, so as to gravitate and rest in a vertical plane, or nearly so, when the rifle is moved into a position approximating the horizontal.

2. An intrenching knife-bayonet consisting of a suitable blade, as A, and a hollow handle, as B, the latter being provided with the slots 1 2, adapted to pass over a stud, 3, projecting from the barrel, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STEPHEN C. LYFORD.

Witnesses:

WM. A. DECAINDRY,  
A. W. PENTLAND.