

(No Model.)

W. T. MACFARLANE.
STIRRER FOR MOLTEN METAL.

No. 418,622.

Patented Dec. 31, 1889.

Fig. 1.

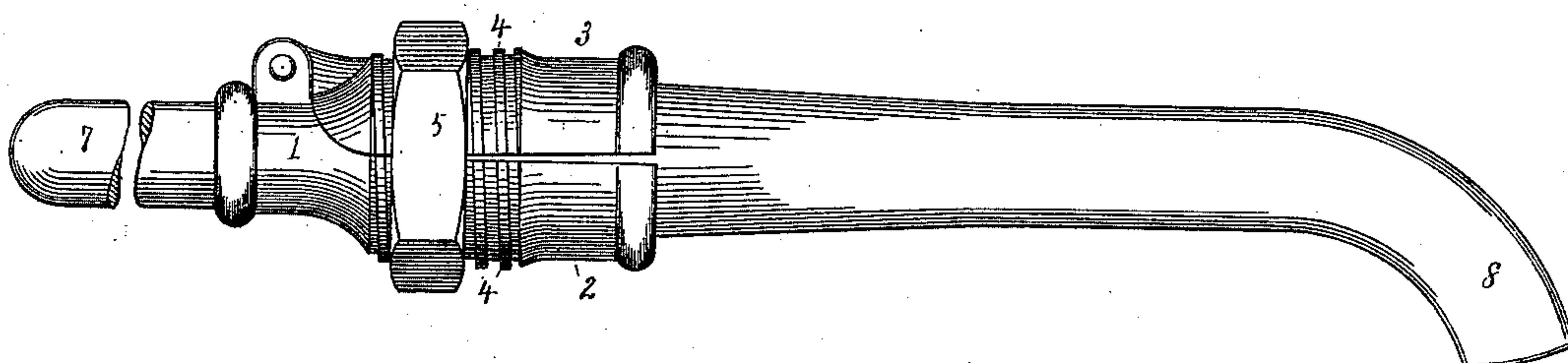


Fig. 2.

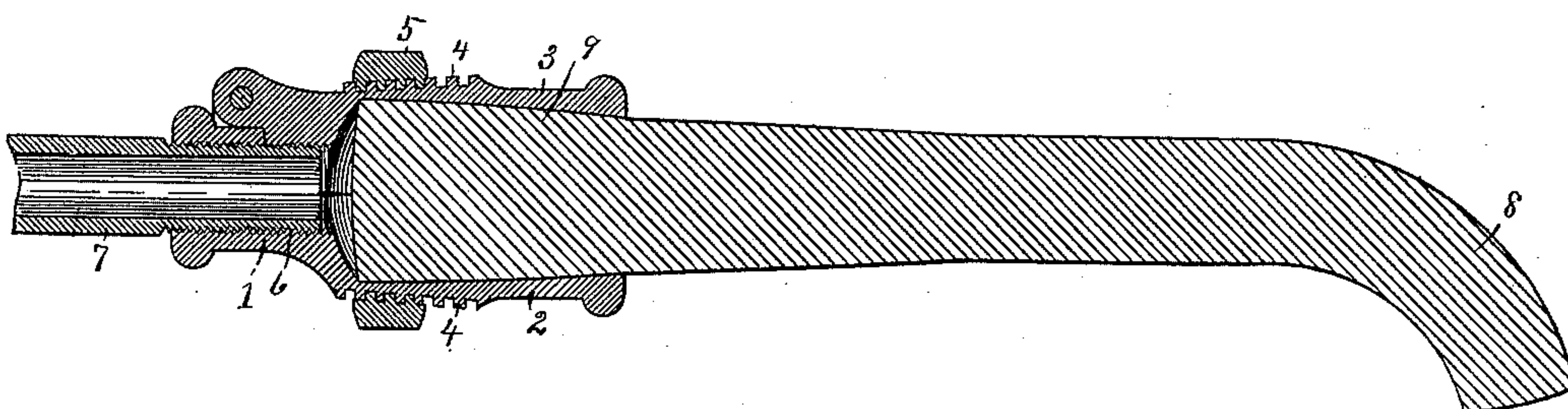
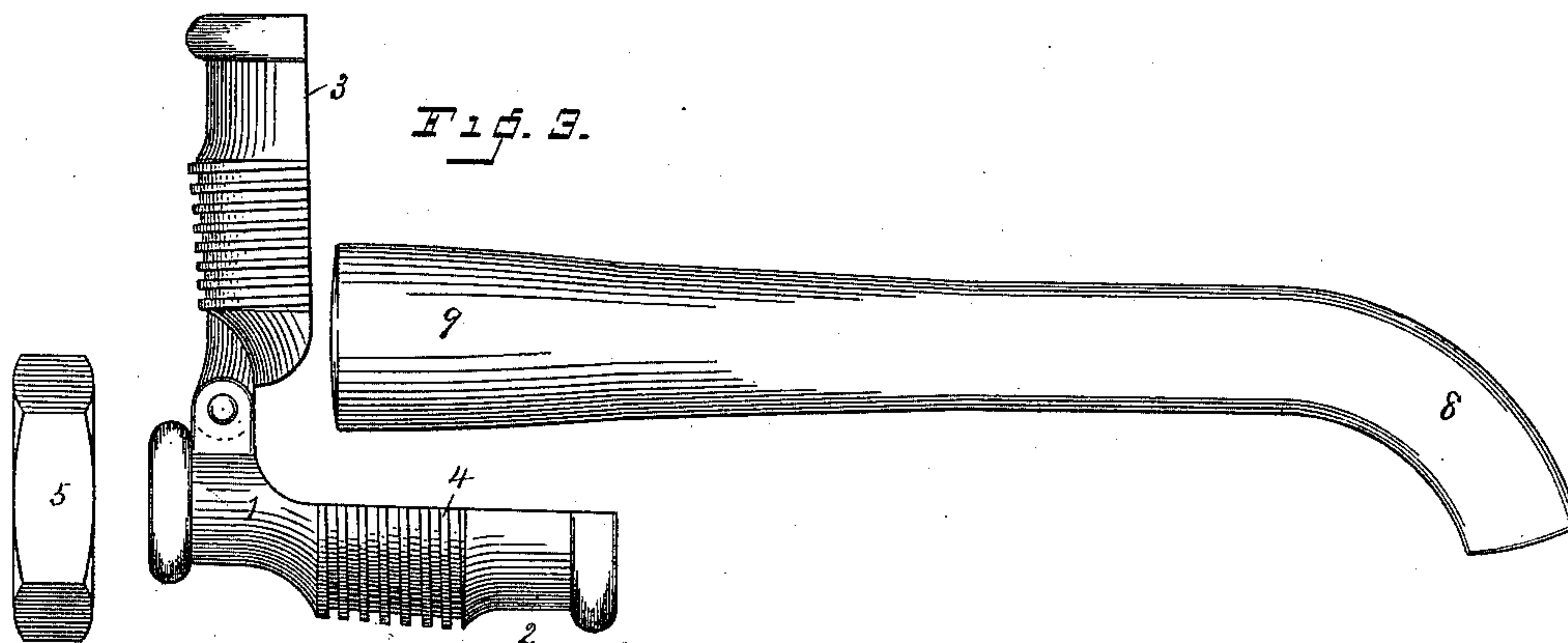


Fig. 3.



WITNESSES

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STIRRER FOR MOLTEN METAL.

SPECIFICATION forming part of Letters Patent No. 418,622, dated December 31, 1889.

Application filed August 26, 1889. Serial No. 321,940. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. MACFARLANE, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Stirrers and Skimmers for Molten Metal; 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 invention has for its object to produce an implement of this class consisting of a stirrer-blade of special construction and a metallic socket therefor so constructed as to hold the blade firmly, but without weakening the blade in the slightest, which may be tightened up to clamp the blade more closely as the socket expands in use, and which, furthermore, will permit a blade to be removed and a new one to be inserted at any time by any person, and with but an instant's delay.

With these ends in view I have devised the simple and novel construction of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to denote the several parts.

Figure 1 is an elevation of my improved implement, the stirrer-blade being firmly grasped by the jaws and held in position for use; Fig. 2, a longitudinal section corresponding therewith; and Fig. 3 is an elevation showing the blade and nut detached from the socket, the jaws being in the open position.

1 denotes the socket, provided with a fixed jaw 2 and a hinged jaw 3. The two jaws are provided with a tapering external screw-thread 4, which is engaged by a corresponding thread upon the inner side of a nut 5. At the base of the socket is an internal screw-thread 6, which is adapted to be engaged by an external thread upon a handle 7, said handle being ordinarily a piece of iron pipe threaded at one end to engage the thread in the base of the socket.

8 denotes the blade, which is made of any suitable shape or material, and is provided with a shank 9. I preferably, however, make it with a curved forward end, substantially as shown, and of a mixture of graphite and

clay, it being of course understood that these implements are subjected to intense heat in use, and unless made of a material more refractory than any known metal are quickly melted or destroyed by the heat to which they are exposed. It has heretofore been common to make sockets to receive the blades in a single piece straight upon the inner side and provided with a coarse internal screw-thread, and to form a corresponding thread upon the shank of the blade, the blade being held in place by being screwed into the socket. This form, however, has been found seriously objectionable in practice, as the cutting of the thread in the shanks of the blades weakened the latter greatly and caused frequent breaking of the shanks in the sockets, this having been found to be the weak point of the blades in use; and, furthermore, when the sockets expanded in use the blades became loose therein and could not readily be tightened up. I overcome this objection by causing the inner ends of the shanks of the blades to taper or flare outward slightly—that is to say, the greatest diameter of the shanks is at the outer end thereof, as is clearly shown in Figs. 2 and 3; and in order that they may be firmly gripped and held by the jaws I shape the inner sides thereof to correspond with the shape of the shanks of the blades—that is to say, the opening between the jaws is narrowest at the outer end thereof and widens inward therefrom. This feature of tapering the inner sides of the jaws in connection with the tapering external screw-thread thereon insures a firm hold upon the shank of the blade, and also permits the jaws to be tightened upon the shank at any time, should the socket expand in use, by giving a slight turn to the nut.

It will of course be understood that the wear in use is almost entirely upon the blades. The sockets will last for an almost unlimited length of time; but the blades wear out quickly and new ones are required. They are therefore furnished independently of the sockets.

Having thus described my invention, I claim—

The combination, with the stirrer-blade composed of refractory material and having

the tapering portion 9, largest at its outer or rear end, of the internally-tapered socket smallest at its forward end and composed of the fixed jaw 2, having a shank, and the movable jaw 3, permanently attached to said shank by a pivot or hinge, said socket having an external screw-threaded portion 4, which is tapered reversely to the internal taper of the socket, the tapered nut 5, fitting the said

threaded portion 4, and the handle 7, screwed into the shank of the said fixed jaw 2, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM T. MACFARLANE.

Witnesses:

A. B. FAIRCHILD,

C. M. NEWMAN.