

F. J. NASH.
BLADE HOLDER.
APPLICATION FILED JULY 29, 1904.

968,391.

Patented Aug. 23, 1910.

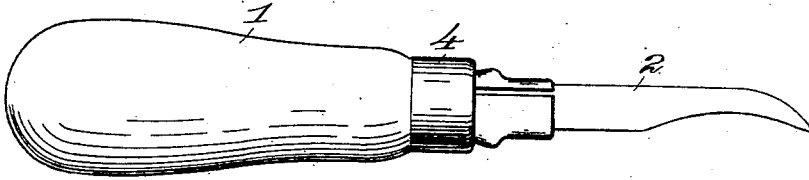


Fig. 1.

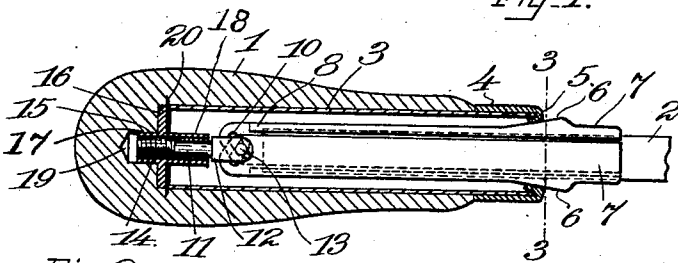


Fig. 2.

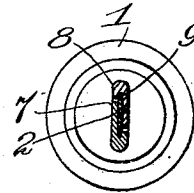


Fig. 3.

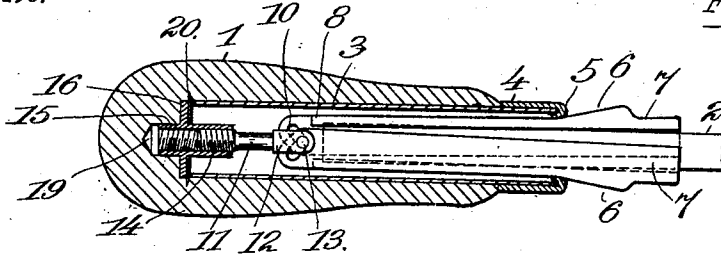


Fig. 4.



Fig. 5.

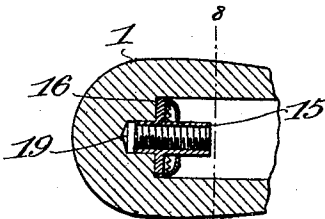


Fig. 7.

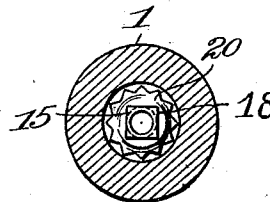


Fig. 8.

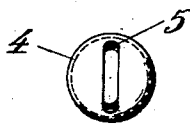


Fig. 6.

WITNESSES.

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BLADE-HOLDER.

968,391.

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To all whom it may concern:

Be it known that I, FREDERICK J. NASH, a citizen of the United States, residing at Somerville, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in Blade-Holders, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to that class of devices in which a blade or other tool is removably clamped in a holder, and comprises, more particularly, a holder in which blades of various widths and thicknesses may be firmly clamped along their whole length between two clamping jaws. The means for moving the jaws to clamp the blade acts positively upon them at two separated points so that both ends of the clamped portion of the blade are firmly held by the jaws. I preferably provide the jaws with grooves of such shape as to receive the blade and not only to hold it at its edges but also to clamp it tightly against the inner sides of the jaws, thus preventing lateral play.

Another important feature of my invention is the novel means for securing the clamping jaws in the handle proper whereby the handle may be made without any opening or hole at its outer end, as is commonly the case. Preferably, also, the thimble or ferrule which acts upon the clamping jaws is provided with lips to form an extended bearing surface for each jaw.

In addition to the features above specifically enumerated, other points of novelty, including details of construction and combinations of parts, will appear from the following description and claims taken in connection with the accompanying drawings, in which:—

Figure 1 is a side view of a knife, comprising a blade and a holder, which embodies my invention; Fig. 2 is a longitudinal section of the same in the position where the jaws firmly clamp the blade, parts being shown in elevation; Fig. 3 is a transverse section upon line 3—3 of Fig. 2; Fig. 4 is a view similar to Fig. 2 with the clamping jaws released from the blade; Fig. 5 is a detail of the claw for the anchoring sleeve; Fig. 6 is an end view of the thimble or ferrule; Fig. 7 is a detail showing the claw

and sleeve placed in the end of the handle preparatory to forcing the claw into the material of the handle during the assembling of the parts of the knife; and Fig. 8 is a transverse section upon line 8—8 of Fig. 7.

The knife, shown as a shoe knife, comprises the hollow handle 1 of any suitable material, such as wood or hard rubber, and the blade 2. Within the handle and extending outwardly beyond it is the metallic bushing 3 upon the projecting end of which is journaled the tightening thimble or ferrule 4 having, preferably, inturned portions or lips 5, into which the end of the bushing 3 extends. The portions 5 serve to reinforce the edge of the thimble and constitute extended bearings which fit upon and cooperate with the cam surfaces 6 of the jaws 7 to clamp the blade. As shown, the lips 5 are made of the same inclination as cam surfaces 6. Each of the jaws 7 has a flange 8 at its outer edge, so as to be approximately of the shape in section of a narrow J, the groove 9 at the flanged or hook end of the section preferably being slightly tapered to receive the knife blade. By reason of these grooves, when the jaws are forced toward each other by the action of cam surfaces 6, as will be hereinafter described, they are also drawn together laterally, so that the knife blade is clamped at both its sides and its edges, so that those parts of the jaw which engage the blade are shaped substantially to fit it. The J-shape of the jaw is an important feature of the present invention. Such a shape gives a maximum degree of stiffness against transverse bending since the thick part of the jaw is at its edge. When, as shown, the web of the jaw covers a greater portion of the width of the blade it tends to prevent the blade from twisting in the jaw. Moreover, by reason of the cooperation of the blade with the two jaws, when it is clamped in the handle, the blade and jaws are all locked together as a unit and one jaw cannot move laterally with reference to the other. The flange 8 is cut away at the inner end of each jaw and an oblique slot 10 extends outwardly and backwardly in the web, or side portion, of said jaw. This slot may be of any desired angle of inclination. If desired it may be inclined at the same angle as the cam surface 6 of the complementary jaw, thus obtaining an exact parallel motion of the jaws. A connecting link 11 has a yoke,

12 at one end to receive the slotted ends of the jaws. A pin 13, driven through the opposite sides of the yoke, passes freely through both slots 10 in jaws 7. The rear end 14 of link 11 is threaded and engages a similar internal thread on an anchoring sleeve or nut 15. This sleeve extends on both sides of an integral collar or flange 16 which fits into the recess of the hollow handle 1. This handle is also provided with a blind hole 19 to receive the projecting end 17 of sleeve 15, as shown. The toothed periphery of the claw or washer 20 is forced into the handle to retain the sleeve against longitudinal movement. Since the square hole 21 of the claw fits over the square end 18 of sleeve 15, the claw also prevents rotation of the sleeve while the blade is being clamped.

The method of assembling the parts in the handle is illustrated in Figs. 7 and 8. The handle 1 being bored out as shown, the sleeve 15 is put in place with its end 17 seated in the blind hole in the end of the handle. This may be done in any convenient way, as by making use of a rod longer than the handle and having a reduced end to fit into the outer end of the sleeve. Carried by this rod, the sleeve may be inserted into the handle and forced into place. The cup-shaped claw or washer 20 is put upon the sleeve 15 either before or after the sleeve is inserted into the handle. With the parts assembled as shown in Figs. 7 and 8, the claw is now flattened out, forcing its toothed edge into the handle to some extent, as appears in Figs. 2 and 4. This can be done readily by using a bar of somewhat less diameter than the bore of the handle 1, said bar having a recess to receive the end of sleeve 15. Pressure being exerted on the end of this bar, which extends beyond the end of the handle, the claw is forced into place. Bushing 3 is then inserted to fit tightly in the hollow handle and bear against the claw.

Thimble or ferrule 4 is slipped over jaws 7, and link 11 is secured to the jaws in an obvious manner. After the threaded portion 14 of the link has been started in sleeve 15, the holder is complete and ready to receive a blade 2, as is shown in Fig. 4. By rotating jaws 7 relative to the handle 1, sleeve 15 draws said jaws inwardly through the action of cams 6 and inclined slots 10, whereby the jaws are moved bodily toward each other to clamp the knife blade. By this construction, the jaws bear upon the blade along their whole length within the holder. In use, the bushing 3 serves as a bearing upon which thimble 4 is journaled, and lips 5 form extended bearing surfaces for cams 6. Assuming the parts to be in the open position shown by Fig. 4, the pull of the links 11 upon the jaws causes the two jaws to be drawn together simultaneously at both ends—at the inner end, by the trav-

eling of pin 13 within the slots 10, and at the outer end, by the traveling of the extended bearing surfaces 5 of the thimble up the cam surfaces 6. The jaws thus are caused to clamp the blade firmly along the whole length of the tang within the holder and the blade will not work loose or slip in the holder. By reason of the inturned lips 5, the comparatively thin edge of the thimble 4 is reinforced so that it will not be crushed or cut by the cam surfaces of the jaws 7.

It will be seen that I have produced a neat and effective holder which can be readily put together and which is convenient to use.

While I have set forth specifically the various features of my improved holder, it is obvious that changes may be made in details of construction, and that certain features may be used in other holders, or that other tools than a knife blade may be clamped, without departing from the spirit of my invention.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a blade holder, a handle, a pair of clamping jaws each substantially J-shape in section, and extending on one side over the greater portion of the width of the blade and means for forcing said jaws together.

2. In a blade holder, a handle, a pair of normally overlapping clamping jaws, and means for forcing said jaws together, each jaw having blade engaging portions constructed to act upon one edge and both sides of a blade to hold it firmly against movement in any direction and each jaw extending over the greater portion of the width of the blade on one side.

3. In a blade holder, a handle, a pair of clamping jaws each having a web and a flange formed at one longitudinal edge of the web, said flange having along it a groove which narrows toward its bottom, and each jaw being wider than one-half the width of the pair of jaws as a whole and means for forcing said jaws together.

4. In a blade holder, a handle, a pair of normally overlapping clamping jaws each comprising a web with a flange upon one longitudinal edge of the web, said web having an oblique slot beyond or at the rear of said flange, and said flange terminating forward of the rear or inner end of the jaw and having a tapering groove along the flange to receive a blade, together with means straddling the rear ends of the jaws and co-acting with the slots therein to force said jaws together.

5. In a blade holder, a handle, a pair of clamping jaws having oblique slots near their inner ends in combination with means

for engaging the slotted ends of the jaws, and devices for moving said means longitudinally of the handle to force the slotted ends of the jaws together when the handle and jaws are relatively rotated.

6. In a blade holder, a handle, a pair of clamping jaws having near their inner ends oppositely inclined slots diverging toward said ends in combination with a single member for engaging the slotted ends of both jaws, and devices for moving said member longitudinally of the handle to force the slotted ends of the jaws together when the handle and jaws are relatively rotated.

7. In a blade holder, a handle, a pair of clamping jaws having oblique slots near their inner ends, a pin passing transversely through the slots, and a bifurcated link having screw-threaded connection with the handle and being connected also to the pin whereby the jaws may be moved toward each other to clamp a blade when the handle and jaws are relatively rotated.

8. In a blade holder, a handle, a pair of clamping jaws having near one end slots oppositely inclined with reference to a line passing through both slots at right angles to the jaws and having cam surfaces near the other end, and means co-acting with the slots and connected with the handle whereby the jaws by force applied near each end may be moved toward each other to clamp a blade when the handle and jaws are relatively rotated.

9. In a blade holder, a handle, a pair of clamping jaws, a sleeve in the handle to which said jaws are operatively connected, said sleeve being provided with a non-cylindrical end and a substantially disk-shaped claw or washer fitted upon said end and having a toothed periphery embedded in the handle.

10. A blade holder comprising a handle, a bushing therein, a tightening thimble surrounding the bushing, a pair of tightening jaws having cam surfaces to coöperate with the thimble, an anchoring device fixed in the

handle and bearing against the end of the bushing, and a connection between said device and the jaws whereby upon relative rotation of said device and jaws the jaws are forced toward each other.

11. A blade holder comprising a handle, a rotatable tightening thimble closed at its outer end except for an oblong slot therein and having inturned reinforcing lips at the ends of the slot which extend inward beyond the inner wall of the closed end of the thimble, a pair of clamping jaws having cam surfaces adapted to engage said lips, and means for forcing the cam surfaces against the lips to cause the jaws to clamp a blade.

12. A blade holder, comprising a hollow handle, a bushing therein, a tightening thimble, a pair of grooved clamping jaws having oblique slots near their inner ends and provided with cam surfaces upon their outer edges, a threaded sleeve or nut, and means to secure it in the handle, a link having means at one end to engage the slots in the jaws and provided with threads at the opposite end, so that it may be screwed into the sleeve in order to move the jaws together by force applied near each end to clamp a blade.

13. A blade holder comprising a hollow handle, a pair of grooved clamping jaws having oblique slots near their inner ends and cam surfaces upon their outer edges, a threaded sleeve or nut immovably secured in the handle, and means coöperating with the threaded sleeve and with the slots in the jaws whereby upon relative rotation of the handle and jaws the latter are moved together by force applied near each end to clamp a blade.

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

FREDERICK J. NASH.

Witnesses:

FREDERICK L. EDMANDS,
ARTHUR L. RUSSELL.