

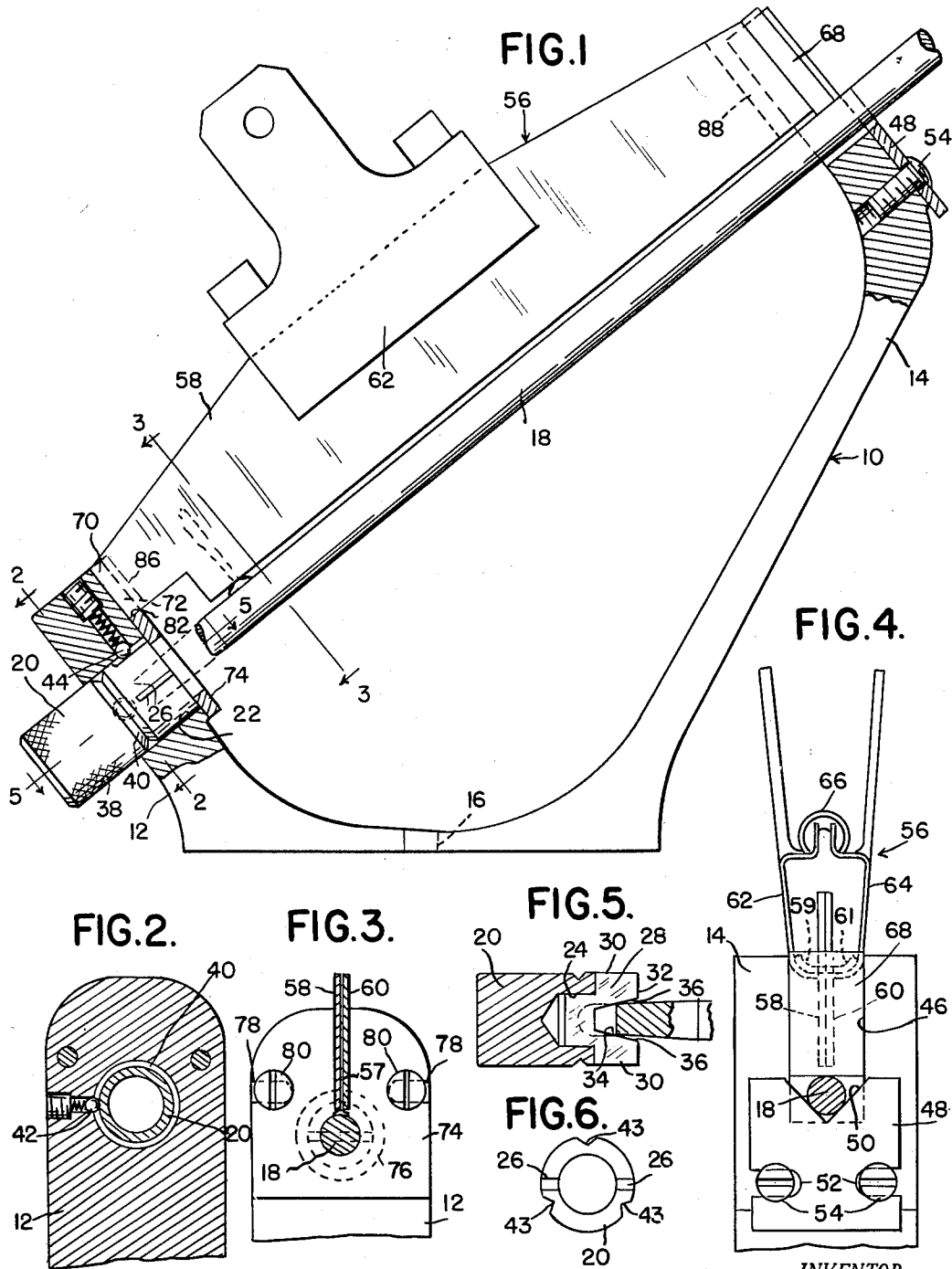
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ARROW FLETCHING FIXTURE

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ARROW FLETCHING FIXTURE

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This invention relates to arrow fletching fixtures.

Arrow fletching fixtures usually comprise a supporting structure for rotatably supporting the shaft of an arrow so that the shaft may be turned to a plurality of selected rotative positions to have feathers applied thereto in circumferentially arranged relation. One object of the invention is to provide a fixture for rotatably supporting the arrow shaft having provision for preventing lateral shifting of the shaft in any of its several rotative positions so that the feathers may be accurately applied.

Another object of the invention is to provide means for supporting the feather clamp in alignment with the arrow shaft and at the same time insuring that the clamp does not press against the shaft and tend to displace or shift it laterally.

A further object of the invention is to provide an arrow fletching fixture adapted for arrow shafts of different diameters.

Still another object of the invention is to provide an arrow fletching fixture comprised of a relatively few simple parts which is easily assembled and which makes it possible to apply the feathers to the arrow shaft with a high degree of accuracy.

A further object of this invention is to provide an arrow fletching fixture which is substantially fool-proof in operation and which even relatively unskilled workmen can operate with very accurate results.

Other objects of the invention will be apparent as the following description proceeds, especially when taken in conjunction with the accompanying drawings wherein:

Figure 1 is a side elevational view of apparatus embodying my invention, partly in section;

Figure 2 is a sectional view taken along the line 2—2 on Figure 1;

Figure 3 is a sectional view taken along the line 3—3 on Figure 1;

Figure 4 is an end view;

Figure 5 is a sectional view of the rotatable nock holder; and

Figure 6 is an end view of the nock holder.

Referring now more particularly to the drawings and especially to Figure 1 thereof, the arrow fletching fixture is generally indicated at 10 and will be seen to comprise a frame having legs 12 and 14 which support the arrow shaft. The fixture 10 is provided with an opening 16 in the bottom for receiving suitable securing means adapted to securely mount the fixture on a base support such as a turntable, for example. In accordance with accepted practice, a plurality of fixtures 10 may be mounted in a circular array on a turntable so that an operator standing at an operating station may tend all of these fixtures, applying in sequence a feather to each of the arrow shafts supported on the fixtures. Then by the time the glue for securing the feather to the shaft of the first fixture has dried, the first fixture will return to the operating station whereupon the operator may apply the second feather to the arrow shafts in sequence.

The fixture 10 is arranged and constructed to rotat-

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ably support the shaft 18 of an arrow extending between the legs 12 and 14 of the fixture as shown in Figure 1. The nock of the arrow is received and securely supported against lateral shifting movement by a rotatable nock holder 20 mounted in a circular opening 22 formed in leg 12 of the fixture. The nock holder is formed with an axially extending recess or bore 24 which faces in the direction of the other leg 14 and into which the nock end of the arrow shaft is adapted to extend. The nock holder is formed with a pair of diametrically opposite slots 26 and disposed in the bore 24 is a relatively thin flat plate 28 having its opposite side portions 30 disposed in the slots 26. The inner edge 32 of the plate which faces the other leg 14 of the fixture is formed to provide a notch 34. The opposite side walls 36 of the notch diverge slightly as shown at an angle of approximately 9 degrees to the axis of the nock holder.

As seen in Figure 5, the nock of the shaft 18 receives the inner edge portion 32 of plate 28 and the opposite sides of the nock are securely gripped between the diverging sides 36 of the notch 34. The plate 28 may thus receive and support arrow shafts of different diameters.

The nock holder 20 will be seen to have a knurled outer end portion 38 for rotating the nock holder and the latter is also formed with a circumferential groove 40 in its outer surface into which a spring pressed ball 42 extends, preventing axial movement of the nock holder but permitting free rotation thereof. Obviously other means such as the tip of a screw would perform the function of ball 42 if desired. In addition, the nock holder 20 is provided on its outer surface with a plurality of equally circumferentially spaced grooves 43 which extend axially of the nock holder. In the illustration, three such grooves 43 are provided and a spring pressed ball 44 is adapted to seat in one of these grooves and to releasably lock the nock holder in selected rotative position. The ball 44 is cammed out of a groove 43 by merely manually turning the outer knurled end of the nock holder. An indexing mechanism for the arrow shaft is thus provided.

Referring now to Figures 1 and 4, the end portion of leg 14 of the fixture is formed with a slot 46 through which the shaft of the arrow extends. Slot 46 is aligned with the axis of rotation of nock holder 20. Mounted on the outer side of the end of leg 14 is a plate 48 having a V-shaped recess 50 in which the shaft of the arrow is seated. The opposite sides of plate 48 are formed with slots 52 and receive bolts 54 which secure the plate to leg 14 of the fixture. As seen in Figure 4, these slots permit a degree of lateral adjustment in the mounting of plate 48 so that the recess 50 may be accurately positioned to support a shaft in alignment with the axis of rotation of the nock holder 20.

A feather clamp, illustrated generally at 56, is provided for gripping a feather 57 to be applied to the shaft. Provision is made for supporting the clamp adjacent to and in substantial alignment with the arrow shaft. The clamp comprises a pair of cooperating clamping members 58 and 60 which are secured to legs 62 and 64 of the clamp. As seen in Figure 4, portions at the inner ends of the clamping members are turned out as at 59 and 61 and may be secured to legs 62 and 64 as by spot welding, for example. The spring 66 urges the clamping members toward one another to clamp a feather therebetween.

As seen in Figures 1 and 4, the clamping member 58 is provided with a guide block 68 at one end which is adapted to be slidably received between the opposite guiding surfaces of the slot 46 in leg 14 of the fixture. This guide block 68 rests upon the arrow shaft in operative position. The other end of the clamping member 58 has an extension 70 which is adapted to be slidably re-

ceived in a slot 72 formed in plate 74 secured to the inner side of leg 12 of the fixture. Plate 74 also has a central opening 76 loosely receiving the arrow shaft. The plate is provided with slots 78 on opposite sides which receive bolts 80 for securing the plate to the fixture, the slots permitting a limited lateral adjustment in the mounting of the plate.

The bottom 82 of slot 72 is arranged and positioned with respect to the lower edge of clamping member 58 to maintain and support the clamping member in spaced relation to the shaft of the arrow. It will also be noted that the lower edge portion of guide block 68 extends below the lower edge of clamping member 58. Thus the clamping member 58 does not press down upon the arrow shaft and engages the latter only where the guide block 68 at one end thereof rests upon the shaft. Accordingly, there is no tendency to shift the nock end of the shaft and a high degree of accuracy can be maintained. Where arrows having larger diameter shafts are to be feathered or where feather clamps of other dimensions are employed, shims may be provided in slot 72 to maintain the proper clearance between the clamp and the shaft.

The other clamping member 60 is completely free of the fixture in operative position and it will be seen that the ends of clamping member 60 terminate at 86 and 88. The lower edge of clamping member 60 coincides with that of clamping member 58 so as to have the same spaced relationship to the shaft as clamping member 58.

The operation of the fixture will be readily apparent from the foregoing. The shaft of an arrow to be feathered is seated in the V-shaped recess of plate 48 with its nock end projecting into nock holder 20. The plate 28 of the nock holder is securely received by the nock of the shaft and the opposite sides of notch 34 tightly grip and prevent any lateral shifting of the shaft in all rotative positions thereof. The clamp is then applied to the fixture, the portions 68 and 70 thereof being slidably received in respective slots 46 and 72. A feather is, of course, held by clamping members 58 and 60 with a portion of the feather projecting beyond the lower edges of the clamping members in position to press against the shaft and to be adhered thereto as by glue. After the feather is securely glued to the shaft, the clamp is removed and the nock holder 20 indexed to the next rotative position, determined by the axial grooves 43, to turn the shaft to a position for the application of a second feather. The second feather is applied as the first and the process is repeated in applying the third feather.

The feathers will desirably be applied to the shaft at a slight angle to cause the shaft to spin in flight. To accomplish this, an initial adjustment in the lateral positioning of plate 74 is made, so that the slot 72 which receives the end of clamping member 58 is moved slightly to one side so as to move the clamp and feather slightly out of true alignment with the shaft. All of the feathers may then be applied to the shaft at a slight angle without further adjustment of plate 74.

The drawings and foregoing specification constitute a description of the improved arrow fletching fixture in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim my invention is:

1. An arrow fletching fixture comprising spaced frame members for supporting the shaft of an arrow, a nock holder rotatably supported on one of said frame mem-

bers and having a portion for receiving the nock of the arrow, means on the other frame member for rotatably supporting the shaft of the arrow, a feather holding clamp comprising a pair of plates pivoted together for movement toward and away from each other, guide means on each of said frame members for supporting said clamp adjacent to one side of and in general alignment with the shaft of the arrow thus supported, each of said guide means having a slot extending radially of the shaft of the arrow for receiving opposite ends of one of said plates, the bottom of the slot in the guide means on said one frame member providing a positive abutment located to engage said one plate and support the adjacent portions of said clamp in spaced relation to the shaft.

2. An arrow fletching fixture comprising spaced frame members for supporting the shaft of an arrow, a nock holder rotatably supported on one of said frame members and having a portion for receiving the nock of the arrow, the other frame member having a slot for receiving the shaft of the arrow and having means for rotatably supporting the shaft, a feather holding clamp comprising first and second clamping members pivoted together for movement toward and away from each other, means for supporting said clamp adjacent to one side of and in general alignment with the shaft of the arrow thus supported including a part on said one frame member having a second slot aligned with the first slot for receiving one end of the first clamping member, said first slot being adapted to receive the other end of said first clamping member, said first clamping member having a depending portion adapted to rest upon the portion of the shaft received in said first slot, the bottom of said second slot providing a positive abutment located to engage said first clamping member and support said clamp in spaced relation to the shaft, and means for mounting said part on said frame in selected positions of transverse adjustment.

3. An arrow fletching fixture comprising spaced frame members for supporting the shaft of an arrow, a nock holder rotatably supported on one of said frame members and having a portion for receiving the nock of the arrow, means on the other frame member for rotatably supporting the shaft of the arrow, a feather holding clamp comprising a pair of plates pivoted together for movement toward and away from each other, means on said frame members for engaging opposite ends of one of said plates to support said clamp adjacent one side of and in general alignment with the shaft of the arrow thus supported, including a part on said one frame member providing a positive abutment disposed and arranged to engage said one plate and maintain the adjacent portions of said clamp spaced from the shaft, said part having a slot opening radially outwardly of the shaft for receiving said one plate, and the bottom of said slot serving as said positive abutment.

4. The fixture as defined in claim 3, having securing means for mounting said part on said one frame member in selected positions of transverse adjustment.

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