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T. BELSHAW

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ARROW FEATHERING MACHINE

Filed Nov. 20, 1931

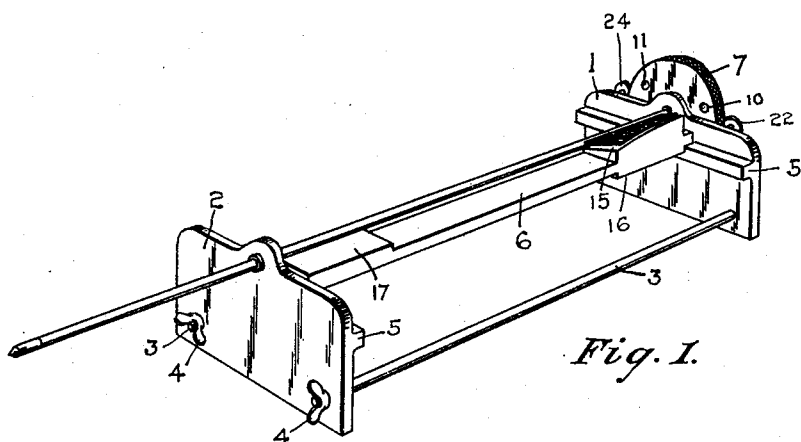


Fig. 1.

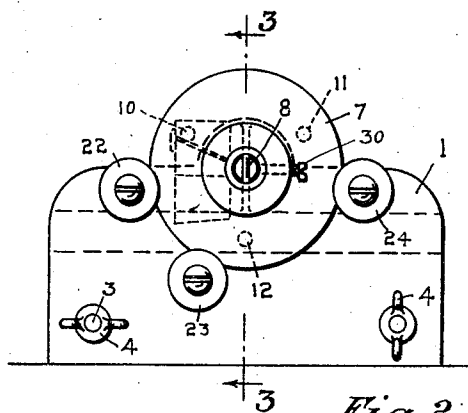


Fig. 2.

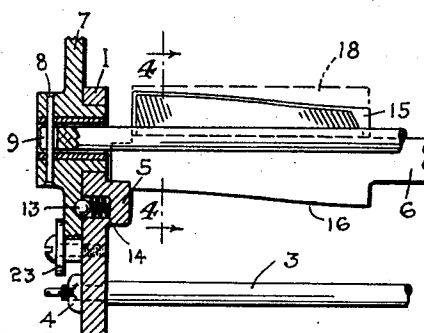


Fig. 3.

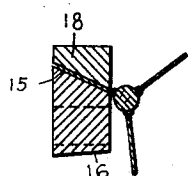


Fig. 4.

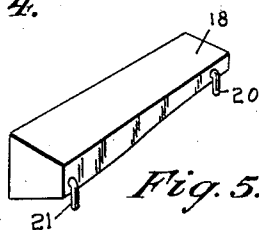


Fig. 5.

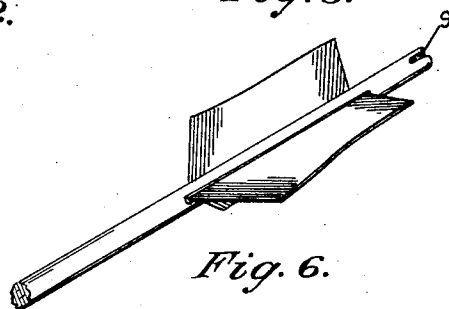


Fig. 6.

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ARROW FEATHERING MACHINE

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My invention relates to improvements in arrow feathering machines in which horizontal movable bars operate in conjunction with an indexed wheel; and the objects of my invention are; first to provide a bar having a portion or lay having a left hand screw, another portion a right hand screw and another portion straight or parallel; second two cleats or ways for the bar to slide on; third an indexed wheel to divide the circumference of the arrow shaft into three equal parts of 120 degrees each for the position of the three feathers used on the arrow.

A still further object for the left and right screw portions on the bar is to give to the arrow feathers a form of a true screw and cause them to rotate in their flight which makes a much more accurate shooting arrow than if it did not rotate, while the straight portion is for the use of those that still adhere to the straight type of feathering.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which:

Figure 1 is a perspective view of the entire machine.

Figure 2 is an end elevation of the machine showing the index wheel.

Figure 3 is a vertical mid-sectional view as indicated by line 3—3 in Figure 2.

Figure 4 is a cross sectional view at the line 4—4, on Figure 3, which shows a cross section of the feather bar and weight holding a feather up to the arrow shaft.

Figure 5 is a perspective view of the feather weight with the stops on the side.

Figure 6 is a perspective view of a portion of an arrow with the feathers attached which is the finished product.

Similar numerals refer to similar parts throughout the several views.

The end plates 1 and 2 are held securely spaced by the two shouldered rods, 3—3 (see Fig. 1 and Fig. 3) which are threaded and carry wing nuts 4—4—4—4 on the ends. The end plates 1 and 2 referred to are provided also with cleats or ways 5—5 to support the feathering bar 6 as shown in Fig. 1.

In Figure 2 is shown an indexed wheel 7 mounted on the end plate 1. Through the hub

of said wheel is a small bar 8 to fit into the nock of the arrow 9 (see Fig. 6) also a set screw 30 to pinch the side of the said arrow nock and hold the arrow in place. There are also shown 3 equally spaced shallow holes 10, 11, and 12 while a ball 13 more clearly shown in Fig. 3 is forced outwardly by the spring 14 into the said holes and hold the indexed wheel in the divisional positions as shown.

In Fig. 1 is shown the feathering bar 6 which has a portion 15 with a surface or lay that is a true screw left hand thread with a pitch of about 1 turn in 10 feet and on the underside is a portion with a right hand thread 16. On the opposite end of the bar is a portion 17 that lays parallel with the center line of the arrow. The purpose of the left hand screw portion is to give the feather a true screw pitch on the arrow and cause it to rotate in its flight also the right hand screw portion is for the same purpose except that it rotates in the opposite direction while the straight portion sets the feathers parallel with the center line of the shaft and does not rotate.

The weights 18 (Figs. 4 and 5) have a corresponding screwed portion to fit the feather lays on the bar for the purpose of holding the feather down true to the lay while being glued or cemented to the arrow shaft. The back of these said weights are straight and can be used for the straight portion when required.

The stops 20, and 21 (Fig. 5) are fastened to the side of the weight to prevent the weight from side motion.

The buttons 22, 23, and 24 Figure 2 are screwed to end plate 1 to hold the index wheel 7 in position.

The manner of operating is as follows:

Assuming that the parts described have been assembled, the feathering bar 6 placed on the left hand side of an arrow shaft while facing the indexed wheel 7, the feather weight 18 at hand ready for use.

If a left hand screw feathering is required the bar 6 is turned over to the left hand screw portion 15 and a properly prepared

feather is painted with glue or cement on the quill and placed on the said screw formed portion referred to. Then the corresponding weight is placed on the feather to hold the same down and the said bar and said weight are pushed up to the arrow shaft allowing the glued portion to come in contact with the arrow shaft. After the glue or cement is properly hardened the weight is removed and the indexed wheel 7 is given a turn until it clicks into one of the index divisions 10, 11, or 12 it is now ready to receive the next feather the same as first until all feathers are placed.

The method for the right hand screw feathering is the same as the left excepting that the right hand screw portion 16 is used, and for straight feathering the straight portion 17 is used while the flat backs of said weights are used to hold the feathers down.

Having described the manner of making, construction, and using my invention, I claim:

1. In an arrow feathering machine, a feathering bar having a plurality of seats for feather sections to be mounted to an arrow, said seats defining a right hand screw portion, a left hand screw portion and a straight portion to be positioned parallel with the arrow shaft and adapted, during the placing of a feather section on an arrow to set the feather section with a right hand screw pitch, a left hand screw pitch or parallel with the center line of the arrow shaft.

2. In an arrow feathering machine, an index wheel with a bar through the hub to receive the arrow nock and a screw set at right angles to the bar for the purpose of holding the arrow in the index wheel as set forth.

3. In an arrow feathering machine having means for rotatably supporting a rear section of an arrow shaft; a rotatable index wheel for receiving the arrow nock and causing said shaft to rotate with said wheel, a feathering bar slidably and detachably mounted, said bar being provided with a plurality of seats whereby a section of feather may be selectively adjusted to said shaft for gluing thereto, means for holding said section in adjusted gluing position to said shaft, and a catch device for said wheel whereby said shaft may be held in operative position for receiving said section.

4. In an arrow feathering machine, means for rotatably supporting an arrow shaft, a rotatable index wheel of a character to receive the arrow nock and cause said shaft to rotate, and a feathering bar engageable with said shaft, said bar having guiding and supporting elements for positioning arrow feathers to said shaft parallel with and angularly to the longitudinal axis of said shaft.

5. In an arrow feathering machine having means for rotatably supporting an arrow

shaft; a rotatable member for receiving the arrow nock and causing said shaft to rotate, a movable feathering bar, said bar being provided with a plurality of seats whereby an arrow feather may be placed in juxtaposition to said shaft in varying and predetermined positions for gluing to said shaft, and weight means complementary to said seats for holding said feather in adjusted gluing position relative to said shaft.

6. In an arrow feathering machine having a frame and means for rotatably supporting an arrow shaft in said frame; means for bringing circumferential portions of said shaft into operative position for feathering, comprising an index wheel having a hollow cylindrical hub rotatably mounted in said frame, and a transverse bar disposed in said hub and engageable with the arrow nock.

7. In an arrow feathering machine, a frame, said frame being apertured to rotatably support an arrow shaft, an index wheel having a hollow cylindrical hub rotatably mounted in said frame, said hub being in axial alignment with said aperture, a transverse bar disposed in said hub and engageable with the arrow nock, and a catch device associated with said frame and wheel for holding said shaft in predetermined positions.

8. An arrow feathering machine, comprising a frame, means carried by said frame for rotatably supporting the shaft of an arrow, a feathering bar engageable with said shaft for positioning feathers to be glued to said shaft, and a member engageable with the arrow nock for rotating said shaft and progressively presenting equally spaced circumferential portions of said shaft to said bar.

9. In an arrow feathering machine having means for rotatably supporting an arrow shaft and a rotatable member for receiving the arrow nock and causing said shaft to rotate; a movable feathering bar, said bar being provided with a curved seat whereby an arrow feather may be adjusted to afford a spiral-like contact for said feather with said shaft, and a weight having a working face complementary to said seat for holding said feather in adjusted gluing position relative to said shaft.

10. In an arrow feathering machine having means for rotatably supporting an arrow shaft and a rotatable member for receiving the arrow nock and causing said shaft to rotate; a feathering bar mounted for sliding movement, said bar being provided with a seat whereby an arrow feather may be adjusted to afford a contact for said feather with said shaft parallel with the longitudinal axis of said shaft, and a weight complementary to said seat for holding said feather in adjusted gluing position relative to said shaft.

11. In an arrow feathering machine, a knock-down frame, comprising a rear end

portion apertured to receive an arrow shaft,
a forward end portion carrying a rotatable
member for receiving the arrow nock and
causing said shaft to rotate with said mem-
5 ber, a seat for a feathering bar projecting
inwardly from each of said end portions, a
pair of shouldered rods connecting said end
portions, and means for detachably securing
said rods in place.

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