April 29, 1969 J. L. BURNS 3,441,251

TOOL FOR REMOVING ARROWS AND ARROWHEADS FROM TREES

Filed June 16, 1967 Sheet 1 of 2

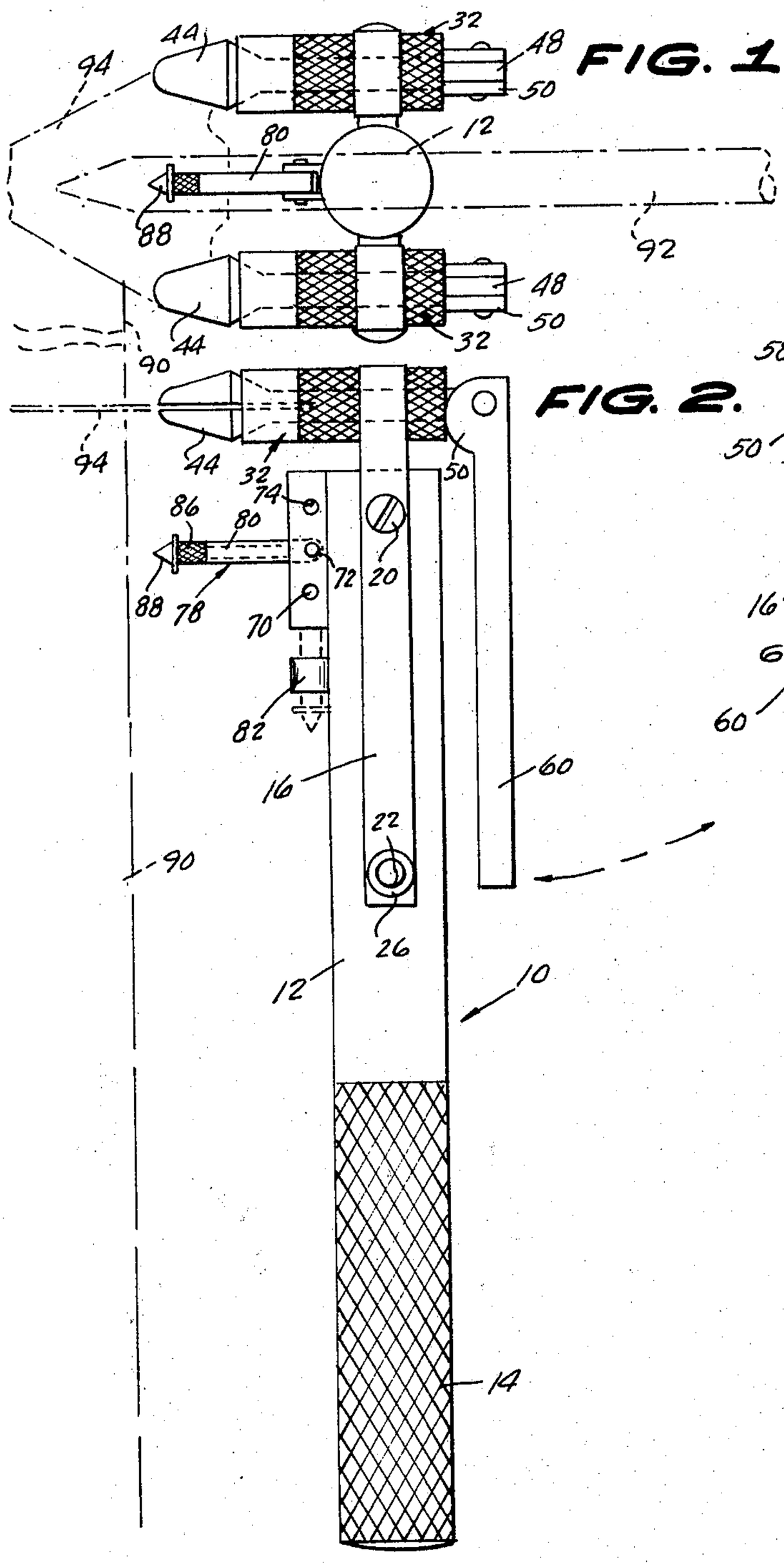
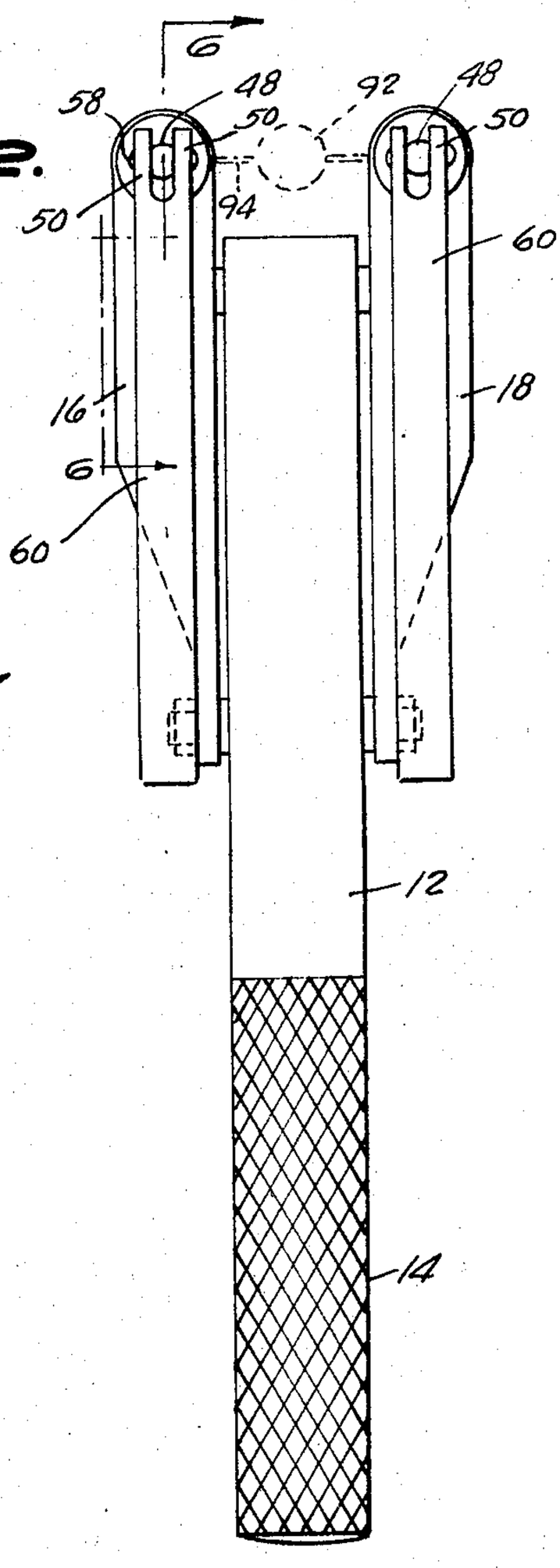


FIG. 1.

FIG. 2.

FIG. 3.



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FIG. 4.

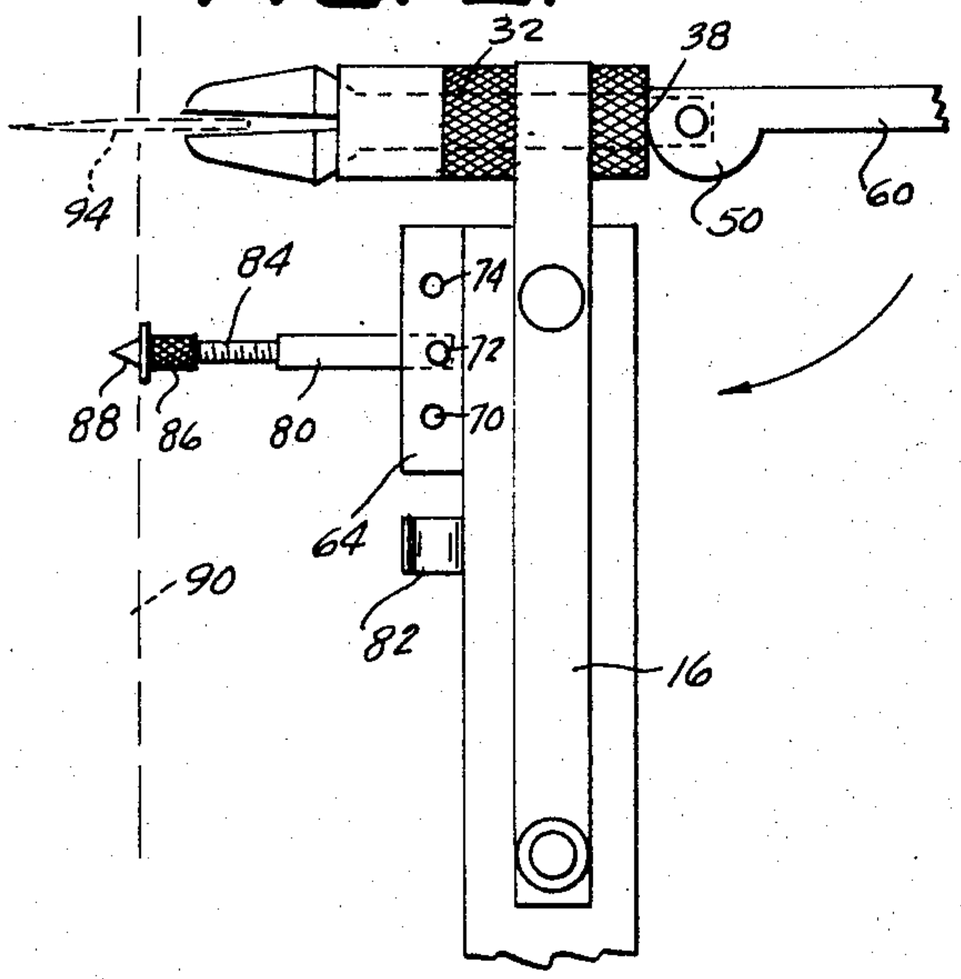


FIG. 5.

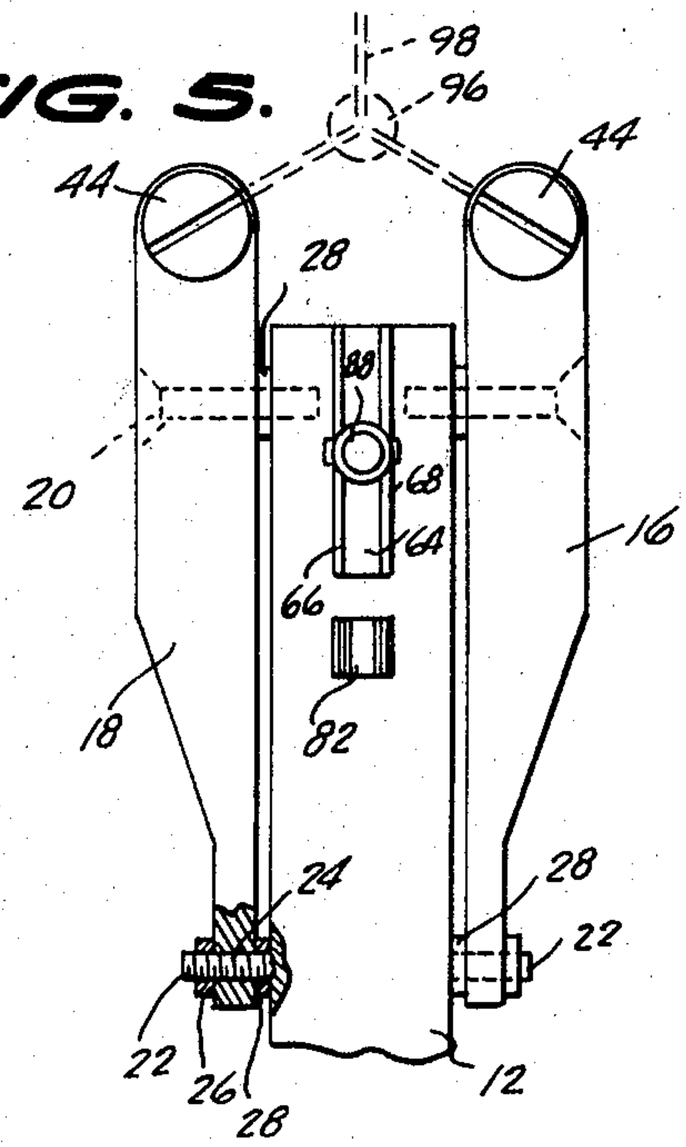
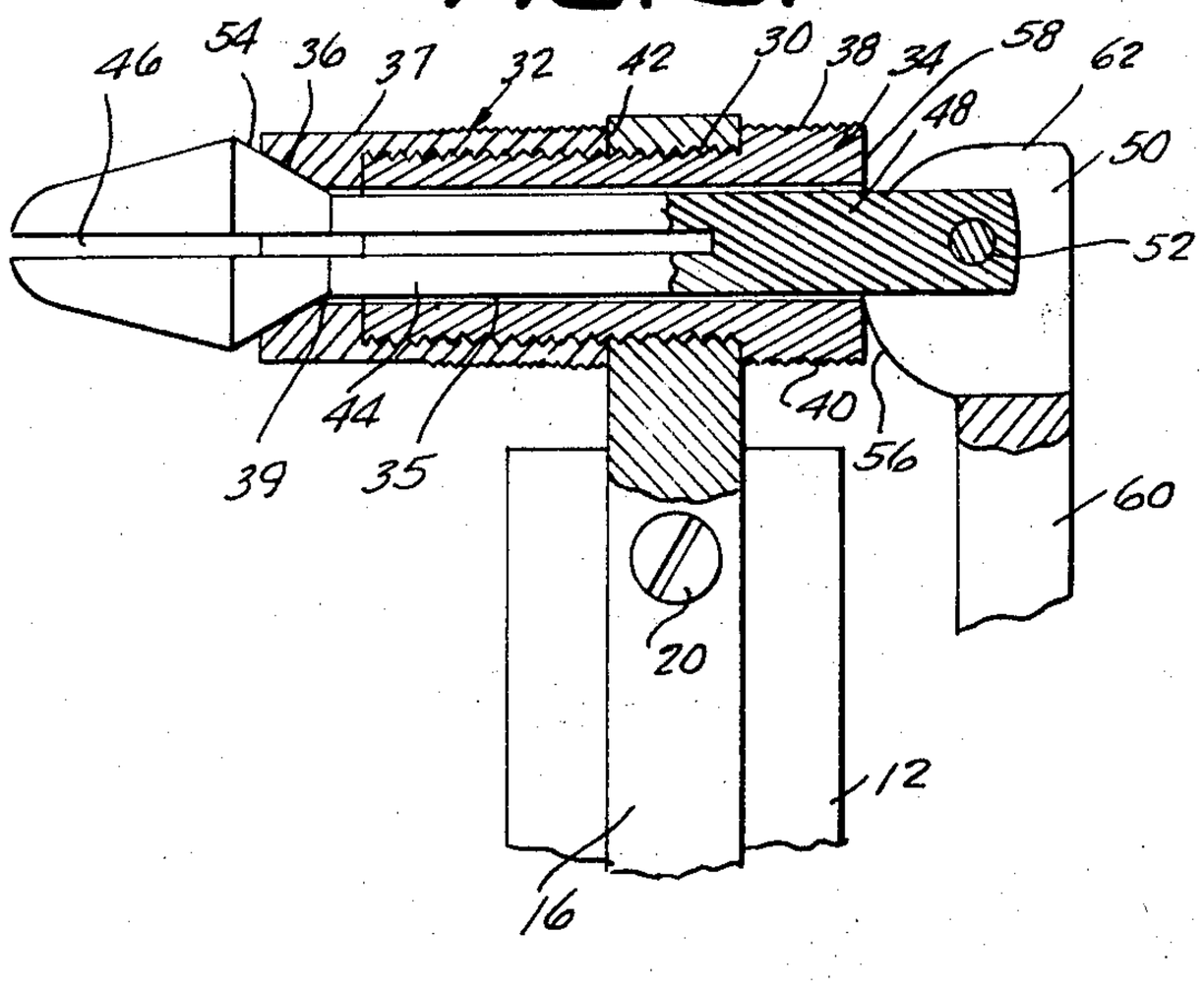


FIG. 6.



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TOOL FOR REMOVING ARROWS AND ARROWHEADS FROM TREES

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ABSTRACT OF THE DISCLOSURE

A tool which has specially designed vice jaws for clamping about spaced points of an arrowhead embedded in a tree. The tool has an adjustable fulcrum spaced from the jaws, which is extended and embedded in the tree. With the jaws clamped to the arrowhead, and the fulcrum embedded in the tree, the tool is rocked and rotated about the fulcrum to loosen the arrowhead.

This invention relates to a unique and novel tool, and more particularly, a tool designed to remove arrows and arrowheads embedded in trees.

Hunting by bow and arrow is a widespread sport. Experience has indicated that many bowmen commonly shoot arrows into trees when they miss their target while hunting in a forest area. Approximately 150 pounds of pull is normally necessary to remove an arrow lodged in a tree. Accordingly, it is extremely difficult to remove the arrow, and often, the attempt results in its breakage. Loss of arrows in this manner makes hunting by bow and arrow an expensive sport.

Therefore, it is an object of this invention to provide a tool for removing an arrow and arrowhead embedded in a tree in a simple and expedient fashion.

A further object of this invention is to provide a tool of the character described which is adaptable to pull planar or multiplanar arrowheads.

Another object of this invention is to provide a tool of the character described which is light weight and portable, and capable of being placed in a scabbard worn on the belt of the hunter.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

FIGURE 1 is a top plan view of the tool of the present invention shown clamped into operative engagement with an arrow being pulled from a tree, illustrated in phantom lines;

FIGURE 2 is a front view in elevation of the tool shown in FIGURE 1;

FIGURE 3 is a side view in elevation of the tool shown in FIGURE 2, as seen from the right-hand side of FIGURE 2;

FIGURE 4 is a fragmentary view similar to FIGURE 2, but illustrating the tool just prior to operative engagement with the arrow to remove it from a tree;

FIGURE 5 is a fragmentary side view in elevation, with portions in sections, of the tool shown in FIGURE 2, as seen from the left-hand side of FIGURE 2, but illustrating the tool in engagement with an arrow having a multiplanar head, shown in phantom lines; and

FIGURE 6 is an enlarged cross-sectional view taken substantially along the plane indicated by line **6—6** of FIGURE 3.

Referring now to the drawings in detail, wherein like numerals indicate like elements throughout the several views, the tool for removing arrows and arrowheads from trees is generally indicated by the numeral **10**.

The tool **10** includes an elongated handle **12**, having a knurled portion **14** for a substantial length thereof adjacent one end. The knurled portion **14** prevents the hand of the user from slipping from the handle **12**.

Secured to opposed sides of handle **12**, at an end opposite knurled portion **14**, are arms **16** and **18**. Each arm is parallel to handle **12** and is secured to handle **12** by countersunk screw fasteners **20**. Integral threaded studs **22** also project laterally from handle **12** through bores **24** formed in the rear portion of each arm, and nuts **26** are threadedly received upon the ends of studs **22** to further secure arms **16** and **18** to the handle. Washers **28**, interposed between the arms and the handle **12** maintain each arm in spaced relation from the handle.

Each of arms **16** and **18** includes a threaded bore **30**, cut in its front portion. The longitudinal axis of bores **30** are perpendicular to the longitudinal axis of handle **12**.

Threadedly received within each of the bores **30** is a sleeve assembly **32**. Each sleeve assembly **32** is of identical construction and detail, and therefore, reference will be made only to the left-hand sleeve assembly shown in FIGURES 1–3.

Sleeve assembly **32** includes a stud or bolt **34** threadedly received within bore **30** and having an axial bore **35** therethrough. Threadedly recieved upon the lower end of bolt **34** is a sleeve **37** having an axial bore **39**, forming a continuation of bore **35** in bolt **34**. The lower end of bore **39** is flared outwardly at **36** to form the frustum of a cone. The head **40** of bolt **34** is knurled, as is the upper portion of sleeve **37**.

Freely rotatable about its longitudinal axis within bores **35** and **39** of each sleeve assembly **32**, is a rod forming a vise jaw **44**. Each jaw **44** includes a centrally located longitudinal slot **46**, rendering the lower portion thereof compressible and resilient.

The upper portion or stem **48** of each jaw **44** is received between the furcations of a bifurcated cam **50**, and is secured thereto by a rivet **52** or other suitable fastener. The lower portion of each jaw is flared into frusto-conical shape, as shown at **54** and mates in complemental fashion with the flared lower end **36** of bore **39** in sleeve **37**.

Bifurcated cam **50** includes cam surfaces **56** adapted to ride along the top surface **58** of bolt **34**. Cam **50** is pivoted around rivet **52** by means of a cam lever **60** integrally connected thereto.

Cam surfaces **56** are so constructed that clockwise movement of cam lever **60** as shown in FIGURE 4 will cause stem **48** of vise jaw **44** to move to the right as shown in FIGURE 6, causing the frusto-conical portion **54** of vise jaw **44** to move along the flared surface **36** of bore **39**, to the right as shown in FIGURE 6. As portion **54** moves along the flared surface **36** to the right in FIGURE 6, it will cause slot **46** to close to grip an object positioned within the slot. When cam lever **60** is perpendicular to the axis of sleeve assembly **32**, or in the vertical position shown in FIGURE 2, cam surface **56** rides over its center into abutting engagement with top surface **58** of sleeve assembly **32**, providing a toggle action and locking vise jaw **44** in place, thus preventing slot **46** from opening and releasing any object held therein. With flat portion **62** of the cam surfaces **56** abutting top surface **58** of sleeve assembly **32**, when cam lever **60** is rotated counterclockwise in FIGURE 6, stem **48** has moved to the left in FIGURE 6, opening slot **46**.

Secured to the bottom surface of handle **12** is a substantially channel-shaped bracket **64**. The opposed flanges **66** and **68** have a series of aligned openings **70**, **72**, and **74** therethrough.

Supported within bracket **64**, between flanges **66** and **68** is a fulcrum means generally designated by the numeral **78**. Fulcrum means **78** includes an internally threaded sleeve **80** hingedly connected to bracket **64** by a cotter pin or equivalent means extended through one of

the aligned pairs of openings **70**, **72** and **74** in each of flanges **66** and **68** and sleeve **80**. Sleeve **80** is adapted to swing from a position parallel to the longitudinal axis of handle **12** where it is secured to a spring clip **82** as shown in phantom lines in FIGURE 2, to an operative position perpendicular to the handle.

A threaded rod **84**, terminating in a knurled head **86**, is threadedly received within sleeve **80**, and its exposed longitudinal extent may be adjusted by gripping and rotating head **86**. Knurled head **86** terminates in a spike **88**, adapted to be embedded in a tree **90**, shown in phantom lines in FIGURES 1, 2 and 4.

Assuming it is desired to remove an arrow **92**, having a substantially planar head **94** embedded in tree **90** as shown in phantom lines in FIGURES 1–4, laterally spaced portions of arrowhead **94** are positioned in the slot **46** in each vise jaw **44**, as shown in FIGURE 4. Cam levers **60** are disposed perpendicular to handle **12** to open slots **46**. The shaft of arrow **90** extends above handle **12**, through the space between vise jaws **44**.

Sleeve **80** is then rotated to a position substantially perpendicular to tree **90**, and knurled head **86** rotated until rod **84** is extended to a length where spike **88** can be embedded in tree **90**.

Cam levers **60** are then rotated in a clockwise direction, as shown in FIGURE 4, until they are parallel to handle **12**, causing slots **46** to close and vise jaws **44** to clamp about the spaced portion of arrowhead **94**.

Handle **12** is then rocked about spike **88** to loosen arrowhead **94**. The tool **10** is then moved away from tree **90**, along with arrow **92**. Then, cam levers **60** are swung counterclockwise, in FIGURE 4, freeing arrow **92** from tool **10**.

If more leverage is required to rock the arrowhead, sleeve **80** can be repositioned and connected to aligned openings **70**, as the case may require.

FIGURE 5 illustrates the manner of using tool **10** to free a multiplanar arrowhead **98** on an arrow **96**. This is accomplished by rotating the right and left cam levers **60** in opposite directions in the same plane to aline slots **46** in vise jaws **44** with two prongs of arrowhead **98**. Rotation of cam levers **60** in the same plane, but in opposite directions, will cause stems **48** of each vise jaw **44** to rotate in bores **35** and **39** of sleeve assembly **32** about its longitudinal axis, repositioning slots **46** in alignment with the prongs of arrowhead **98**.

After realignment of slots **46** has been accomplished, vise jaws **44** are clamped about arrowhead **98**, and procedure described with regard to removal of arrowhead **92**, is repeated.

While a specific embodiment of my invention has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

I claim:

1. A tool for removing arrows and arrowheads from trees comprising a handle, at least one jaw means connected to one end of said handle and extending substantially perpendicular to the longitudinal axis thereof for clamping engagement with an arrowhead embedded in a tree, and fulcrum means connected to said handle and extending substantially perpendicular to the longitudinal axis thereof intermediate its ends for piercing said tree below said arrowhead to provide a pivot about which said jaw means is rocked by said handle to loosen said arrowhead.

2. A tool in accordance with claim **1** wherein said fulcrum means is linearly adjustable towards and away from said handle.

3. A tool in accordance with claim **1** wherein said jaw means is rotatable about its longitudinal axis.

4. A tool in accordance with claim **1** wherein said jaw means includes a compressible rod having a longitudinal slot adapted to receive in clamping engagement a portion of said arrowhead, and means for closing and opening said slot, said means including a sleeve assembly housing said rod, said rod being rotatable about its longitudinal axis in said sleeve assembly, complemental engaging flared surfaces on said rod and sleeve assembly, and means connected to one end of said rod for moving said rod linearly in said sleeve assembly.

5. A tool in accordance with claim **4** wherein said last-named means includes a cam pivotally connected to said rod having a cam surface in abutment with one end of said sleeve assembly, and a cam lever connected to said cam for rotating said cam about its pivotable connection to said rod.

6. A tool in accordance with claim **5** wherein said cam surface is shaped to override its center and lock said rod in place when the longitudinal slot in said rod is substantially closed.

7. A tool in accordance with claim **1** including two spaced jaw means connected to and above one end of said handle, each of said jaw means extending substantially perpendicular to the longitudinal axis of said handle for clamping engagement with an arrowhead embedded in a tree.

8. A tool in accordance with claim **7** wherein said fulcrum means is linearly adjustable towards and away from said handle, and each of said jaw means is rotatable about its longitudinal axis.

9. A tool in accordance with claim **8** wherein each of said jaw means includes a compressible rod having a longitudinal slot adapted to receive in clamping engagement a portion of said arrowhead, and means for closing and opening said slots, said means including a sleeve assembly housing each rod, each rod being rotatable about its longitudinal axis in each sleeve assembly, complemental flared surfaces on each rod and sleeve assembly, and means connected to one end of each rod for moving each rod linearly in its sleeve assembly.

10. A tool in accordance with claim **9** wherein said last-named means includes a cam pivotably connected to each rod, each cam having a cam surface in abutment with one end of the sleeve assembly housing said rod, and a cam lever connected to each cam for rotating it about its pivotable connection to the rod.

11. A tool in accordance with claim **2** wherein said fulcrum means is linearly adjustable parallel to said handle for varying the rocking leverage of said handle.

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