Sept. 30, 1958 J. M. HASH 2,853,833

INJECTOR HATCHET

Filed March 23, 1956

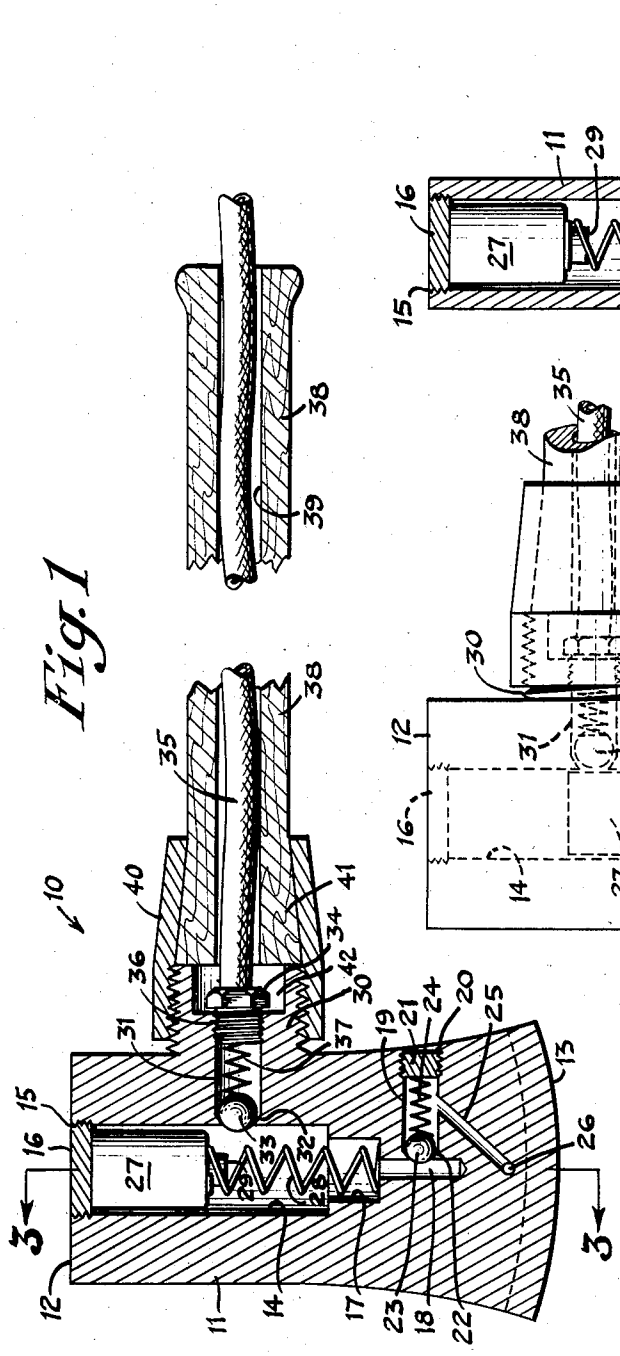


Fig. 1

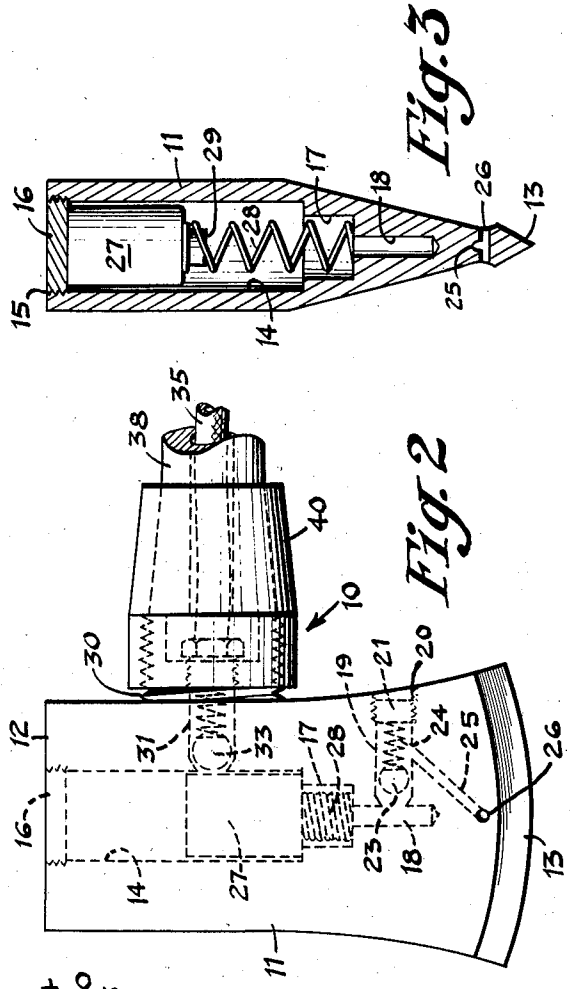


Fig. 2

Fig. 3

INVENTOR

JAMES M. HASH

BY Patrick D Beavers

ATTORNEY

United States Patent Office 2,853,833 Patented Sept. 30, 1958

2,853,833

INJECTOR HATCHET

James M. Hash, Miami, Okla.

Application March 23, 1956, Serial No. 573,407

3 Claims. (Cl. 47—57.5)

This invention relates to improvements in tools for treating trees and more especially to an injector hatchet.

An object of the invention is to provide a hatchet having a head provided with a plunger and a fluid supply connected to the head so that every time a blow is struck with the hatchet, fluid will be forced into the tree.

Many tools have been provided for treating diseased trees, some require holes to be bored into the tree to receive the tool so that a fluid can be injected into a tree, but such tools require separate operations.

Another object of the invention is, therefore, to provide a tool that will cut the tree and inject fluid into the tree at the time the cut is made.

With the above and other objects and advantages in view, the invention consists of the novel details of construction, arrangement and combination of parts more fully hereinafter described, claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a longitudinal sectional view, partly broken away, of a tool embodying the invention;

Fig. 2 is an elevational view of the head of the tool with the handle broken away; and

Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 1.

Referring more in detail to the drawing, wherein like parts are designated by like reference numerals, the hatchet or tool embodying the invention is generally designated by the reference numeral **10**.

The hatchet **10** comprises an impact head **11** having a butt end **12** and cutting edge **13**.

A plunger cylinder or cavity **14** is positioned in the center of the head **11** and is provided with an open end **15** in the butt end **12** and the open end **15** is closed by a screw plug **16**. The cylinder **14** has a reduced end portion **17** that communicates with a passage **18**. Extending at right angles to the passage **18** is a cavity **19** having an open end **20** that is closed by an adjustable screw plug **21**. A valve seat **22** is provided at the junction of the passage **18** and cavity **19** to receive a ball valve **23** and a compression spring **24** mounted in the cavity **19** engages the ball valve **23** and urges it into the valve seat **22**.

A common passage **25** communicates with the cavity **19** at one end and with a fluid feeding passage **26** at the opposite end.

The passage **26** extends transversely of the head **11** and is positioned adjacent the cutting edge **13** of the head **11**, as shown in Fig. 3, and it is to be noted that the cutting edge is wider at the outer ends of the passage **26**.

A plunger **27** is slidably mounted in the cylinder **14** and a compressor spring **28** mounted in the cylinder **14** engages the projection **29** on one end of the plunger **27** and the end of the end portion **17** of the cylinder **14** as shown in Fig. 1.

Extending at right angles to the head **11** is a threaded extension **30** which is provided with a passage **31**. The junction of the passage **31** and the cylinder **14** provides a valve seat **32** for a ball valve **33**. A coupling plug

34 for a flexible hose **35** is received in the open end **36** of the passage **31** and a compression spring **37** is mounted in the passage **31** and engages the ball valve **33** to urge the same into engagement with the seat **32**.

A handle **38** has a longitudinally extending bore **39** which is provided to receive the hose **35** as it leaves the head **11** and a coupling nut **40** engaging the projection **30** retains the handle **38** in fixed relation to the head **11**. The handle **38** has an enlarged tapered portion **41** where it is engaged by the coupling **40** so that a wedge effect is provided on the handle **38**. The projection **30** is also provided with a cavity **42** that is circumjacent to the plug **34** so that the plug will not be engaged and damaged by the end of the handle **38**.

The hose **35** is connected to a pressure tank containing fluid, not shown, that is usually carried on the back of the operator.

In operation the cutting edge **13** of the head **11** will be struck into a log or something to cause the plunger **27** to move downwardly within the cylinder **14**, such action will cause the plunger **27** to engage and unseat the ball valve **33** so that fluid from the hose **35** will pass into the cylinder **14** to the rear of the plunger **27**. When the plunger **27** returns to its normal position, as shown in Fig. 1, the fluid will pass around the plunger to the front thereof.

With the cylinder **14** full of fluid, every time a blow is struck with the hatchet **10** the plunger **27** will move downwardly in the cylinder **14** and force the fluid in the cylinder through the passage **18**, cavity **19** and passages **25** and **26** into the cut made in the tree. In viewing Fig. 2, it will be noted that the spring **28** is entirely received within the end portion **17** of the cylinder **14** when the plunger **27** has made its complete downward movement. Thus, the majority of the fluid in the cylinder **14** is completely forced therefrom.

When the plunger is in the position, as in Fig. 1, ball valve **33** is seated so that fluid will not enter the cylinder **14** from the tank and ball valve **23** is seated so that fluid will not drip from the ends of the passage **26**.

Thus, every time a cut is made in the tree by the cutting edge **13**, fluid will be injected into the cut by the movement of the plunger **27** and the action of the plunger **27** engaging the ball valve **33** will again fill the cylinder **14** with fluid.

It is believed that from the foregoing descriptions that the structure and operation of the hatchet embodying the invention will be clear to those skilled in the art and it is to be understood that changes in the minor details of construction, arrangement and combination of parts may be resorted to provided they fall within the spirit of the invention and the scope of the appended claims.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. A tool for injecting fluid into a tree comprising an impact head having a cutting edge thereon, a cylinder in said head, a plunger in said cylinder, a handle for said head, a flexible hose passing through said handle and communicating with said cylinder to feed fluid to said cylinder, a series of passages communicating with said cylinder, one of said passages extending transversely of said head so that as said cutting edge is driven into a tree fluid will pass outwardly of said one passage to enter the cut made in the tree by said cutting edge.

2. A tool for injecting fluid into a tree comprising a head having a sharpened edge, a handle for said head, a cylinder in said head, a piston freely mounted in said cylinder, a spring normally urging said piston away from said edge, said head having a passageway interconnecting said cylinder and the edge portion of the head, an out-

let valve in said passageway, said head having an inlet opening connected with said cylinder, an inlet valve in said opening, and a liquid supply tube extending through said handle to said inlet opening.

3. A tool for injecting fluid into a tree comprising a head having a sharpened edge, a handle for said head, a cylinder in said head, a piston freely mounted in said cylinder, a spring normally urging said piston away from said edge, a transverse passage extending through said head adjacent the sharpened edge thereof, said head having a passageway interconnecting said cylinder and the transverse passageway, an outlet valve in said passageway, said head having an inlet opening connected with said cylinder, an inlet valve in said opening, and a liquid supply tube extending through said handle to said inlet opening.

References Cited in the file of this patent

UNITED STATES PATENTS

1,536,872	Bailey	May 5, 1925
1,848,601	Blanchard	Mar. 8, 1932
2,687,598	Calhoun	Aug. 31, 1954
2,747,330	Simpkins	May 29, 1956

FOREIGN PATENTS

10,197	Australia	of 1913
8,852	Austria	Aug. 25, 1902
332,006	Great Britain	July 17, 1930