Feb. 17, 1959 L. E. TURNER 2,873,995

PIPE HANDLING TOOL

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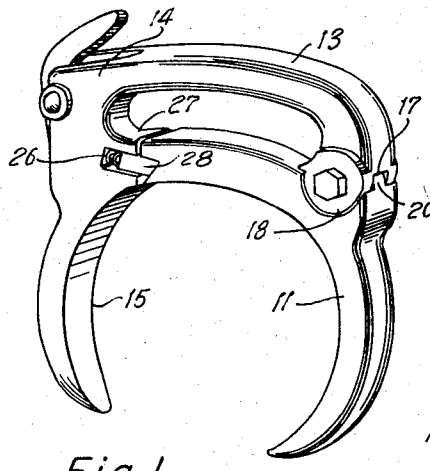


Fig. 1

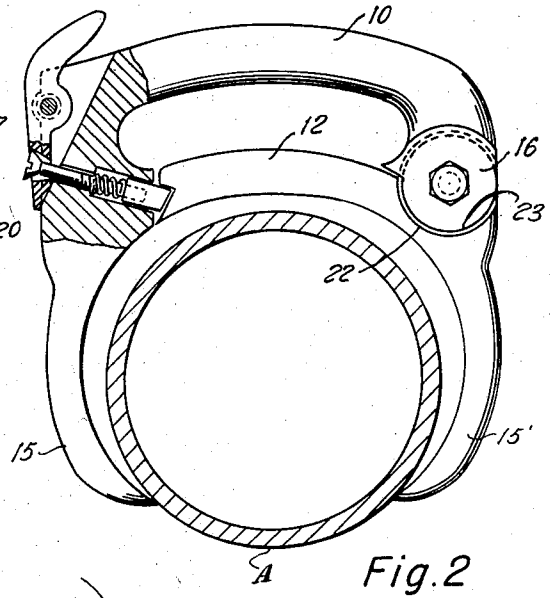


Fig. 2

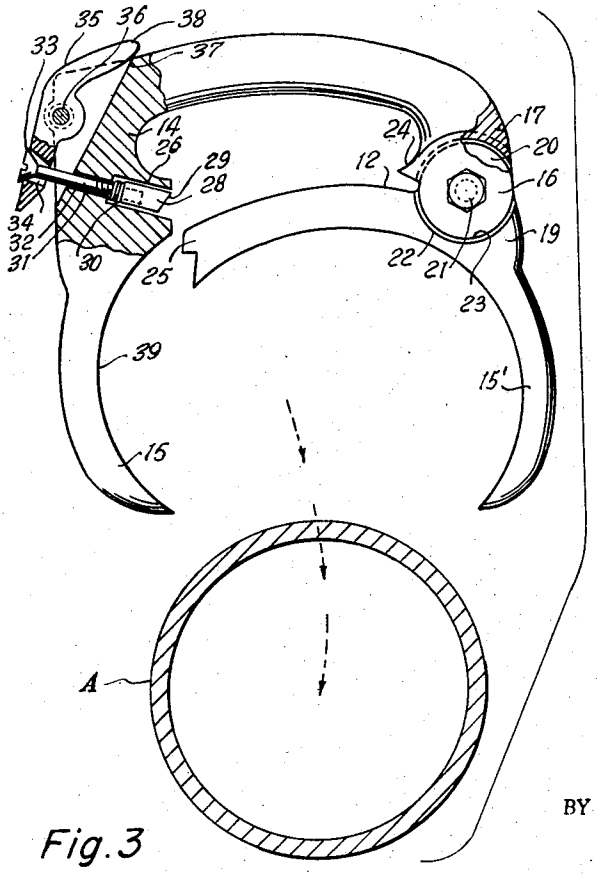


Fig. 3

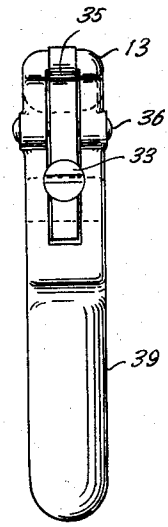


Fig. 4

INVENTOR

Leonard E. Turner

BY Ashley & Ashley

ATTORNEYS

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PIPE HANDLING TOOL

Leonard E. Turner, Stanton, Tex.

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7 Claims. (Cl. 294—15)

This invention relates to new and useful improvements in pipe handling tools.

One object of the invention is to provide an improved pipe handling tool having a hand support and a pivoted closure member carried by the hand support whereby the tool may be held suspended in one hand with its closure member over a pipe and free to swing, and the tool moved downwardly to swing the closure member automatically into a locking position.

Another object of the invention is to provide an improved tool of the character described which has a closure member adapted to be latched in pipe holding position and adapted when unlatched to automatically swing downward and free the pipe, when the tool is moved upwardly.

A further object of the invention is to provide an improved pipe handling tool which comprises comparatively few parts and lends itself to free and automatic operation.

Still another object of the invention is to provide an improved pipe handling tool so arranged that it may be grasped by a fixed handle with a closure member medially and pivotally suspended over a pipe and free, when unlatched, to be automatically swung to a closed or open movement upon a downward or upward movement of the tool.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing, wherein an example of the invention is shown, and wherein:

Fig. 1 is a perspective view of a pipe handling tool in its closed position and constructed in accordance with the invention,

Fig. 2 is a view in elevation of the tool gripping a pipe, shown in transverse section, a portion of the head of the tool being broken away to show the latch mechanism,

Fig. 3 is a view similar to Fig. 2, with the closure member unlatched and the tool elevated above the pipe, and

Fig. 4 is an end elevational view of the latch end of the tool in its closed position.

In the drawings, the numeral **10** designates a hand member and **11** designates an arcuate closure member pivoted intermediate its ends to one end of the hand member whereby, when the closure member is released and the hand member is supported or held in the hand of the operator, the closure member swings down to an open position as is shown in Fig. 3. Upon moving the tool downwardly over and transversely of a pipe, so as to straddle the same, a finger **12** formed on the closure member and underlying the hand member is engaged by the pipe and causes the closure member to swing around the pipe and coact with the hand member in gripping said pipe. Upon release, the closure member is swung from the pipe when the hand member is lifted. The arrangement and relation of the elements, one to another, is important.

The entire tool is made of a suitable metal or other material and the hand member **10** includes an arcuate handle or grip **13**, properly rounded transversely, intermediate its ends, to provide a comfortable hand grip. At the left hand end (in the drawings) the handle is merged into a head **14** from which a curved clamping jaw **15** depends. At the opposite or right hand end (in the drawings), the handle is curved abruptly downwardly into a hanger **16**, which is bifurcated to provide a medial slot **17** with depending lugs **18** on each side (Fig. 1).

The arcuate closure member **11** at its medial portion and on its upper and outer side, has an integral boss **19** which is provided with an upstanding central tongue **20**, movably engaging in the slot between the lugs **18** and centrally pivoted on a transverse hinge bolt **21** fastened in said lugs. The boss **19** has an arcuate recess **22** on each side of the base of the tongue to accommodate the rounded bottoms **23** of the lugs and provide freedom of swinging movement. Likewise the top of the slot **17** is curved to accommodate the arcuate top of the boss **19**. The hanger **16** has on its inner side a projecting stop **24** overhanging the finger **12**. The finger is formed at its free end with a keeper **25** which is adapted to register with the outer end of an elongated transverse slot **26** in a boss **27** extending from the head **14**. A transverse spring-pressed latch bar **28** is disposed to slide longitudinally in the slot and has its outer end **29** bevelled downwardly and inwardly so as to be depressed when thef ree end of the finger **12** is swung upward thereacross. As the end of the finger rides over the bevelled end of the latch bar, a coiled spring **30**, which has been compressed, expels the end of the end bar under the keeper **25**, whereby the closure member **11** is fastened in its closed position. A screw bolt **31**, slidable in an opening **32** extending through the head **14** is screwed into the inner end of the latch bar **28** and the spring **30** is coiled around the bolt and confined in the slot **26**. The head **33** of the bolt **31** is loosely engaged in a recess **34** in the outer end of a centrally pivoted lever **35**. The lever is pivoted at **36** in a slot **37** in the outer face of the head **14** and has an angularly disposed arm **38** projecting from the upper end of the slot. By depressing the arm, the lever is swung and the latch bar **28** is withdrawn from the keeper **25**.

The closure member **11** has its lower portion formed into a curved swinging jaw **15'** which is substantially a duplicate of the jaw **15**. The structure, and relation to each other, of the jaws and the finger **12** is highly important. It is to be noted that the jaw members and the finger have approximately cylindrical faces **39**, which, when the tool is closed, form a substantially continuous arcuate wall in surrounding relation to the pipe surface. The pivoting and fastened positions of the closure member **11** are such that when the latch bar **28** is withdrawn, the member **11** will swing down to the position shown in Fig. 4.

In using the tool, the operator grasps the handle **13** with the parts in the positions shown in Fig. 4 and lowers the tool over the pipe A. As the tool is lowered, the finger **12** is brought into engagement with the pipe, whereby the jaw **15'** is swung inwardly toward the pipe. Continued lowering of the tool causes the finger **12** to swing upwardly until it engages the latch bar **28** and is thus secured in gripping position. When in such position, the lower ends of the jaws will be below the transverse center of the pipe and close enough to the pipe to grip the same below its transverse center when the tool is lifted.

It is pointed out that the tool being suspended by the handle **13** and the finger **12** being latched, any movement of the tool, either up or down, will have no effect upon the pipe gripping action of its elements and

there is no danger of losing the grip around the pipe nor is the fatigue as great as if the hand gripping action was applied at the finger **12**. When it is desired to release the pipe, it is merely necessary to depress the arm **39** which withdraws the latch bar **28** and frees the finger **12**, and then, simply by the user's lifting the tool upwardly, the closure member **11** swings downwardly and frees the tool from the pipe. It is to be noted that the upper surface of the latch bar **28** which engages the keeper **25** is inclined downwardly and the keeper is similarly inclined. Thus, the weigh of a pipe or other article supported between the jaws **15** and **15'** is applied to the latch bar and keeper in such a manner as not to impede the ready withdrawal of the latch bar from beneath the keeper when the pipe is to be released.

When the tool is held suspended in the operator's hand, the closure member is pendant and free to swing on its pivot bolt **21** to move the jaws **15** and **15'** apart to receive a pipe. In use it is merely necessary to position the jaws **15** and **15'** over the pipe and move the tool downwardly, the closing together of the jaws and the latching of the closure member in pipe-supporting position becoming automatic after the finger **12** contacts the pipe and the downward movement is continued.

This tool is particularly adapted to placing and lifting thin-walled irrigating pipe from one furrow to another furrow, but has other uses also.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. A handling tool including, a handle member having a handle intermediate its ends, a hinge at one end of the handle member, a latch at the opposite end of the handle member, a relatively fixed jaw depending from the handle member, and a closure member pivotally connected intermediate its ends at the hinge and including a jaw disposed to coact with the fixed jaw in gripping an article and also including a finger having a free end and disposed in the path of an article to be gripped between the jaws and adapted to engage the latch at its free end.

2. A handling tool including, a handle member, a depending clamping jaw fixed to the handle member, an arcuate closure member medially and pivotally connected to one end of the handle member having a swinging jaw depending at one side of its pivot to coact with the clamping jaw and a finger extending from the opposite side of its pivot disposed to be engaged by an article to be gripped between the jaws to automatically move the swinging jaw toward the clamping jaw, and a latch carried by the handle member in position to be engaged by the finger when the closure member is swung to a closed position.

3. A handling tool including, a handle member, a depending clamping jaw fixed to the handle member, an arcuate closure member medially and pivotally connected to one end of the handle member having a swinging jaw depending at one side of its pivot to coact with the clamping jaw and a finger extending from the opposite side of its pivot disposed to be engaged by an article to be gripped between the jaws to automatically close the swinging jaw, and latch means carried by the handle member for engaging the closure member, the closure member when unlatched being free to swing downwardly and away from the clamping jaw and to straddle an article to be engaged.

4. A handling tool as set forth in claim 1 wherein the jaws and the finger have coacting approximately cylindrical faces for engaging around a cylindrical article.

5. A handling tool including, a head member having a handle intermediate its ends, a clamp depending from one end of the head member in fixed relation thereto, a curved closure member hingedly connected intermediate its ends to one end of the head member and having a finger member and a clamp member, the finger member having a latch element on its outer end, and a latch carried by the head disposed to engage the latch element of the finger member of the closure member.

6. A handling tool including, a head member having a handle intermediate its ends, a clamp depending from one end of the head member in fixed relation thereto, a curved closure member hinged intermediate its ends to the opposite end of the head member and having a finger member underlying the handle and a clamp member depending in spaced relation to the clamp, the finger member having a latch element on its outer end, a latch carried by the head disposed to engage the latch element of the finger member of the closure member, and a stop carried by the head member in the path of the closure member to limit the upward swing of the finger member.

7. A handling tool including, a head member having a handle intermediate its ends, a clamping jaw depending from one end of the head member in fixed relation thereto, a curved closure member hingedly connected intermediate its ends to the opposite end of the head member and having a finger member and a clamp member, the finger member having a latch element on its outer end, a latch carried by the head disposed to engage the latch element of the finger member of the closure member, and a latch operating arm extending from the head member at the latch, the latch extending at a downward angle with respect to the handle.

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