United States Patent

Ohno

[15] **3,675,359**

[45] **July 11, 1972**

[54] FISH MOUTH IMPLEMENTS

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[73] Assignee: **Sargent & Company**, New Haven, Conn.

[22] Filed: **Nov. 12, 1970**

[21] Appl. No.: **88,638**

[52] **U.S. Cl.** **43/53.5**, 30/271, 81/415, 81/428

[51] **Int. Cl.** **A01k 97/00**, B25b 7/02

[58] **Field of Search** 43/53.5; 30/271; 81/428, 415, 81/416, 417

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Primary Examiner—James L. Jones, Jr.

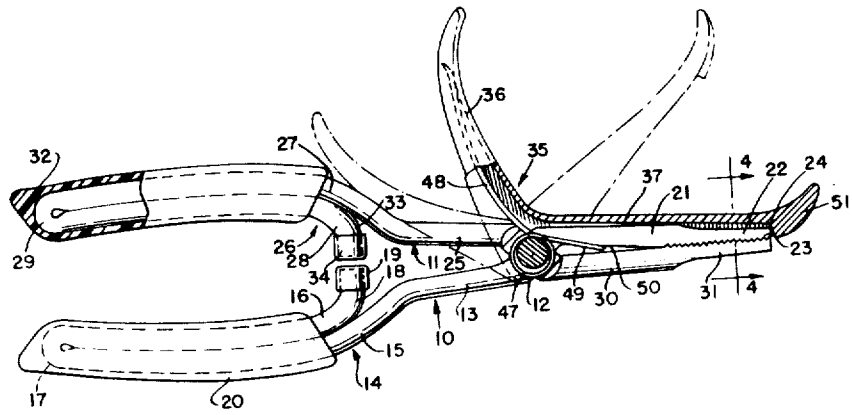
Attorney—Schellin and Hoffman

[57] **ABSTRACT**

This specification discloses several implements that are intended for use on the mouth of a fish for hook retrieving purpos es. They are all characterized as being of the pliers type with each implement comprising two pivotally connected lever members. These lever members are of a steel rod having appreciable properties of elasticity and resiliency. One end of each rod is folded back upon itself to provide a handle skeleton of double thickness with the free ends of the rods bent into confronting end portions which cooperate as abutments for limiting the extent to which the handles may be compressed. Each handle skeleton is covered by a hand grip of plastic and each end portion is capped by a cup shaped member of plastic.

The present invention relates to implements that are intended for use with the mouth of a fish for the broad purpose of retrieving a hook therefrom or kindred purposes. The implements are all of the pliers type and the invention is concerned primarily with the construction of the lever elements which are pivotally connected and which provide handles on one side of the pivot.

14 Claims, 22 Drawing Figures



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SHEET 1 OF 4

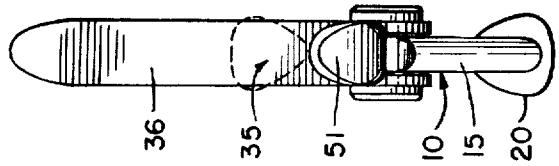


FIG. 3.

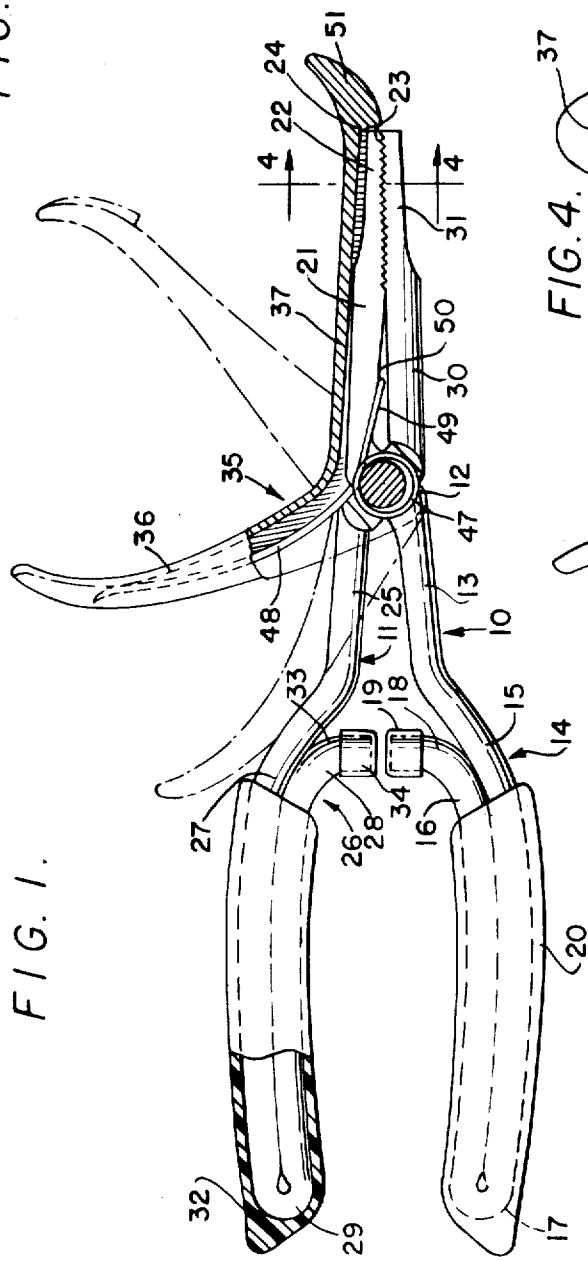


FIG. 1.

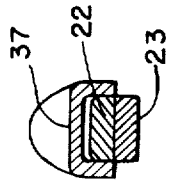


FIG. 4.

FIG. 2.

FIG. 5.

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FIG. 6.

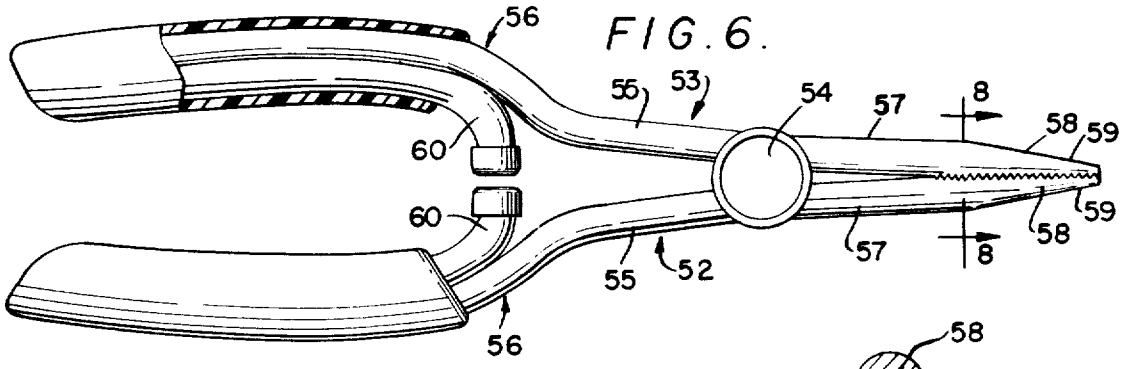


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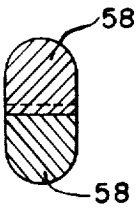


FIG. 7.

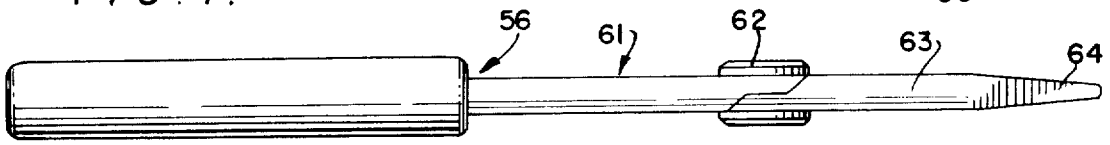


FIG. 9.

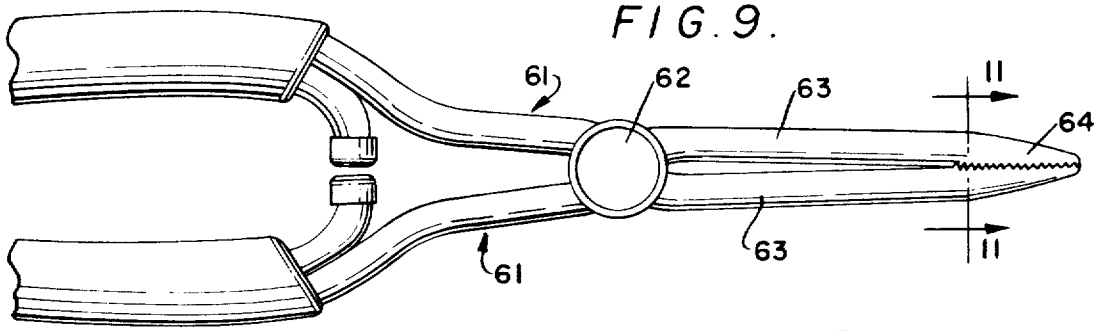


FIG. 11.

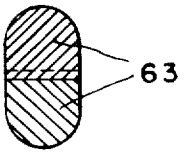
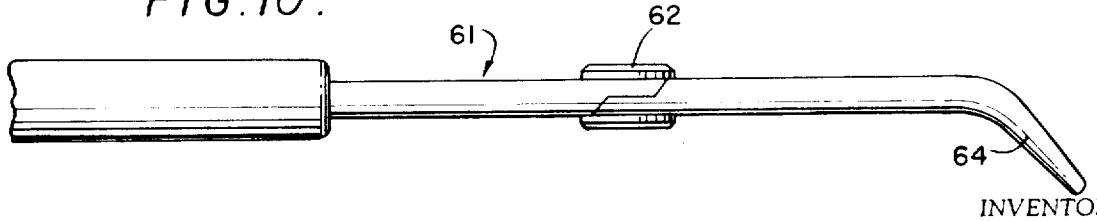


FIG. 10.



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FIG. 12.

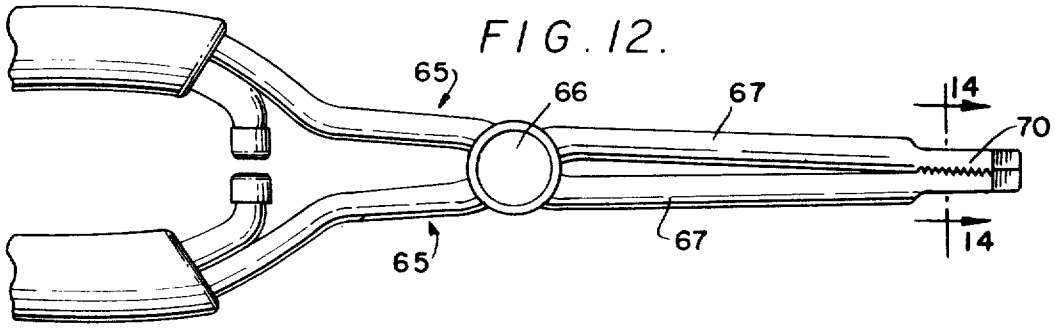


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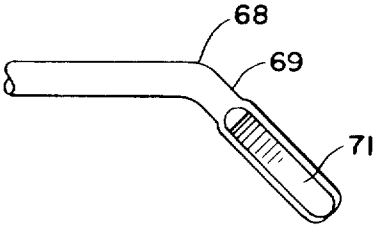


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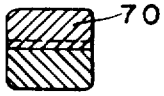


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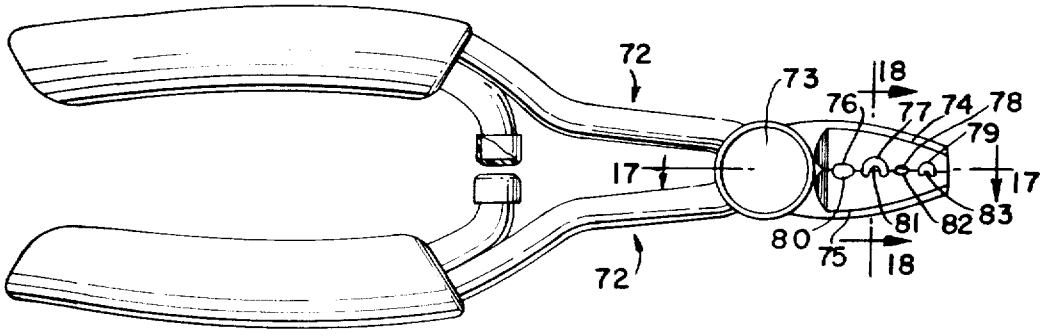


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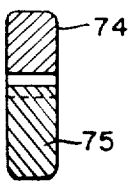
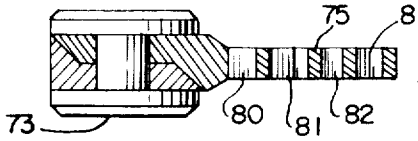


FIG. 17.



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FIG. 16.

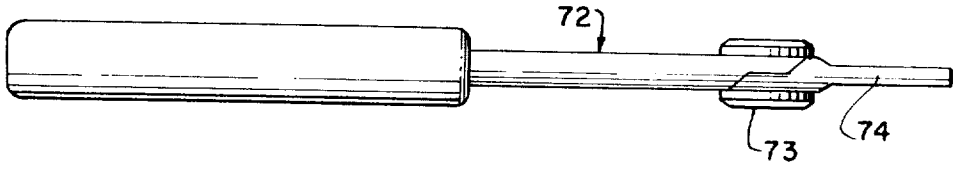


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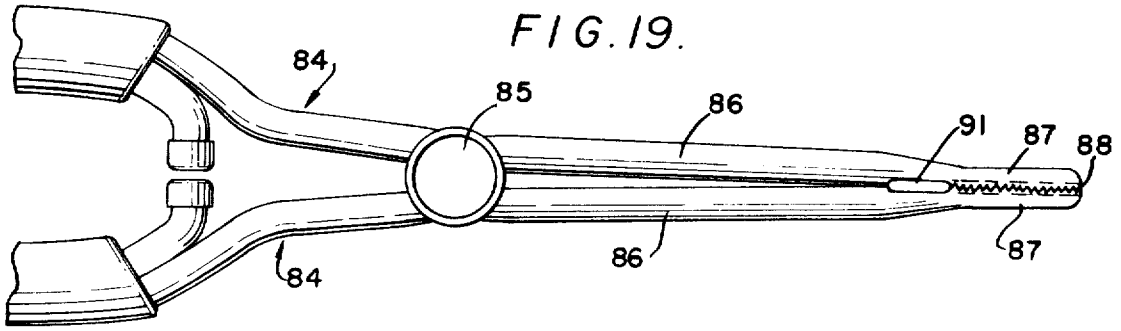


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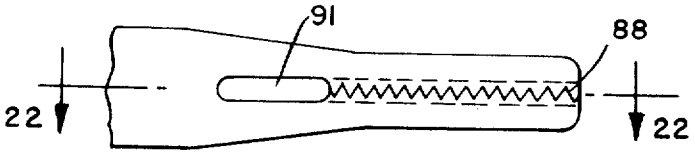


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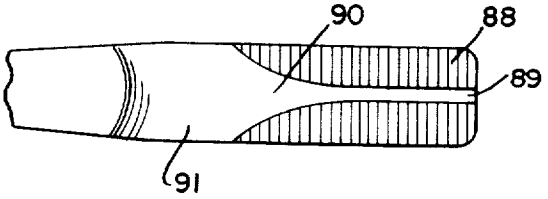
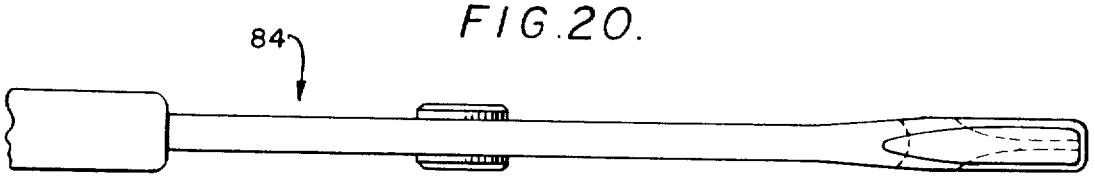


FIG. 20.



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FISH MOUTH IMPLEMENTS

BACKGROUND OF THE INVENTION

Implements of the type with which this invention is concerned include tools commonly known as mouth spreaders, fish hook retrievers of various characters and fish line disgorgers. Each of these implements includes, as characteristic and essential elements, a pair of levers which are pivotally connected to provide a tool of the pliers type. Thus, each lever presents a jaw on one side of the pivot and a handle portion on the other side.

A feature which is common to the use of most of these implements is the gripping of a lip of a fish mouth by the jaws. If a subsequent operation such as the removal of a hook that is embedded in a lip is to be readily performed, the gripping of the lip must be firm and secure. The natural tendency of a user of one of these implements is to exert a high degree of pressure as squeezing action on the handles. Thus, after the jaws have been compressed to the maximum extent with a lip therebetween there is a tendency to exert further pressure on the handles.

The present invention proposes to make the levers from a steel rod having properties of elasticity and springness. The handle portions are spaced apart a distance to provide for further contracting movement therebetween after the jaws have been compressed to the limit. This action is accommodated by the resilient nature of the rods from which the levers are made. However, it is desirable that the elastic limit of the levers be not exceeded so as to avoid a permanent deformation of the levers.

In many of the tools of this nature now available to the public, the levers are of a rigid cast metal. Such implements are costly to produce and the rigid nature of the levers lack the elastic and resilient properties which are desirable in a tool of this type.

OBJECTS OF THE INVENTION

With the foregoing conditions in mind, the present invention has in view the following objects:

1. To provide an implement intended for use with the mouth of a fish which is of the pliers type and comprises a pair of levers pivotally connected and presenting jaws on one side of the pivot and handle portions on the other side with the levers having the properties of elasticity and resiliency to an appreciable degree.

2. To provide, in a tool of the character noted, levers fashioned from steel rods and which are bent back upon themselves in the handle portions to provide a double ply handle portion.

3. To provide, in an implement of the type aforesaid, abutment means in the handle portions for limiting relative contracting movement therebetween.

4. To provide, in a tool of the kind described, double thickness handle skeletons each of which has an inner ply terminating in an internal end portion constituting an abutment.

5. To provide, in an implement of the type noted, handle skeletons which are covered by hand grips of plastic.

6. To provide, in a tool of the character aforesaid, handle skeletons of double plies having internal end portions capped by plastic cups.

7. To provide, in an implement of the kind described, a new and improved rivet assembly constituting the pivotal connection between the levers.

Various other more detailed objects and advantages of the invention such as arise in connection with carrying out the above noted ideas in a practical embodiment will in part become apparent and in part be hereinafter stated as the description of the invention proceeds.

SUMMARY OF THE INVENTION

The foregoing objects are achieved by providing an implement of the character noted which comprises a pair of levers fashioned from steel rod and pivotally connected by a rivet assembly. These levers present a pair of jaws on one side of the pivot. These jaws are shaped to adapt the tool to the particular kind of operation required thereof in conjunction with the mouth of a fish. Handle portions are provided on the other side of the pivot. Each handle portion includes a double ply skeleton formed by folding the rod back on itself. Thus, each handle skeleton has an inner ply terminating in an internal end portion. These end portions are in spaced confronting relation and are capped. Plastic hand grips cover the handle skeletons.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawings wherein:

FIG. 1 is a side view, mainly in elevation but partially in section of an implement commonly known as a mouth spreader. In this view one element of the spreader is depicted in broken lines for one position thereof.

FIG. 2 is a side elevation of the implement of FIG. 1.

FIG. 3 is a view in end elevation looking at the jaw or nose end of the tool of FIGS. 1 and 2.

FIG. 4 is a detailed section through the jaws in closed position, being taken about on the plane of the line 4—4 of FIG. 1.

FIG. 5 is a perspective illustrating the elements of the rivet assembly in exploded relation.

FIG. 6 is a side elevation, with parts broken away and shown in section, of a tool commonly known as a straight nose hook retriever.

FIG. 7 is a top plan view of the tool of FIG. 6.

FIG. 8 is a detailed section through the jaws of the tool of FIGS. 6 and 7 in closed position, being taken on the line 8—8 of FIG. 6.

FIG. 9 is a side elevation, with portions of the handles omitted, of a tool known as a hook nose retriever.

FIG. 10 is a top plan view of the tool of FIG. 9.

FIG. 11 is a detailed section through the jaws of the tool of FIG. 9, being taken on the line 11—11 of FIG. 9.

FIG. 12 is a side elevation, with portions of the handle omitted, of a modified form of a hook nose fish hook retriever.

FIG. 13 is a detailed top plan of the jaws of the tool of FIG. 12.

FIG. 14 is a detailed section through the jaws of the tool of FIG. 12 in closed position, being taken on the line 14—14 of FIG. 12.

FIG. 15 is a side elevation of another tool commonly known as a fisherman's leader sleeve crimping pliers.

FIG. 16 is a top plan view of the tool of FIG. 15.

FIG. 17 is a detailed section through the pivot and jaws of the tool of FIGS. 15 and 16 being taken on the plane of the line 17—17 of FIG. 15.

FIG. 18 is a detailed section through the jaws of the tool of FIG. 15, being taken on the line 18—18 of FIG. 15.

FIG. 19 is a side elevation, with portions of the handles omitted, of an implement commonly known as a fish hook disgorger.

FIG. 20 is a top plan of the implement of FIG. 19.

FIG. 21 is a detail on an enlarged scale of the jaws of the implement of FIG. 20.

FIG. 22 is a detailed section through the jaws of the implement of FIG. 20, being taken on the line 22—22 of FIG. 21.

Referring now to the drawings, and first more particularly to FIGS. 1 to 5 inclusive, the fish mouth spreader therein illustrated will be described.

This implement comprises two levers which are identified in their entireties as 10 and 11. These levers are fashioned from steel rod that initially is of round cross section. At an area 12 the rod of lever 10 is flattened and formed with a pivot opening. On what is called the handle side, lever 10 includes a handle strut 13 comprising a single ply of the rod and a handle skeleton 14 comprising an outer ply 15 and an inner ply 16. Plies 15 and 16 are integrally joined by a bend 17 and are in engagement with one another. The inner free end of inner ply 16 is bent inwardly towards lever 11 to provide a foot 18. The end of the latter is covered by a cap 19 of a material such as plastic or rubber. Overlapping plies 15 and 16 are covered by

a hand grip 20 of an appropriate material such as plastic or rubber.

The pivot area 12 is disposed at an angle to strut 13 and on the jaw side of the pivot opening takes the form of a jaw bar 21 having an end portion 22 that is flattened whereby it is constituted a jaw. The inner face of jaw 22 is formed with ribs or teeth 23. It terminates in a substantially flat end face 24.

Lever 11 is of substantially the same construction as lever 10. Thus it includes a flattened area corresponding to area 12 of lever 10, a handle strut 25, a handle skeleton 26, comprising outer ply 27 and inner ply 28 joined by a bend 29, and a jaw bar 30 terminating in a flattened jaw 31 having ribs or teeth corresponding to teeth 23 on jaw 22 with which they cooperate. Overlapping plies 26 and 27 are covered by a hand grip 32 and the inner end of ply 26 is bent towards lever 10 to provide a foot 33 covered by a cap 34.

The levers 10 and 11 constitute a tool of the pliers type in which contraction of the handles causes contraction of jaws 22 and 31. The steel rod from which they are fashioned has good properties of elasticity and resiliency. Thus, with jaws 22 and 31 contracted to the fullest extent, the handles may be further compressed with such action being accommodated by handle struts 13 and 25. However, such action is limited by caps 19 and 24 which function as abutments to prevent the handle struts from being deformed beyond their elastic limit.

A spreader member is identified generally at 35. It is of a channel construction and is in the shape of a bell crank. It includes an operating arm 36 the channel of which opens towards lever 11. It also includes a fish mouth engaging arm 37 the channel of which opens onto jaw bar 21 of lever 10. Arms 36 and 37 meet at an angle and at this zone the side walls which define the channel are formed with pivot openings which align with the pivot openings in the areas 12 of levers 10 and 11.

A rivet assembly is shown with its elements in exploded relation in FIG. 5. This rivet assembly is identified generally at 38. It comprises a shallow cup shaped member 39 having a disc like bottom 40 to which is integrally joined a trunnion 41. From the latter extends a rivet 42. The member 39 is first applied to the assembled levers 10 and 11 and spreader element 35 with the various pivot openings in alignment. In this position trunnion 41 assumes what might be called a "middle position." Another shallow cup shaped member 43 having a hole 44 in its bottom is now fitted over rivet 42 from the side opposite to that to which member 39 is applied. Rivet 42 is now clinched in a well known manner. Decorative discs 45 and 46 are then fitted in the exposed recesses of cup shaped members 39 and 43. Discs 45 and 46 may be of any appropriate material such as plastic.

As levers 10 and 11 and spreader elements 35 are assembled, a wire spring is also assembled therewith by placing the coiled portion 47 thereof about trunnion 41, with one end portion 48 of the spring being received in the channel of operating arm 36 and another end portion 49 of the spring extending between jaw bars 21 and 30. Spring portion 49 has a turned out end 50 that fits beneath jaw bar 21. This spring made up of components 47, 48 and 49 biases spreader arm 37 into closed position, that is the position in which the channel of arm 37 receives jaw bar 21 and jaw 22. Arm 37 terminates in an end portion 51 that fits over end face 24 of jaw 22.

While the mode of operation of the fish mouth spreader is believed to be obvious from the illustration of FIGS. 1 to 5 inclusive and description of parts set forth above, it may be briefly outlined as follows:

With spreader element 35 biased into closed position in jaw bar 21, hand grips 20 and 32 are spaced apart to separate jaws 22 and 31 sufficiently to receive the lip of a fish therebetween. The jaws are then inserted into the mouth of a fish with a lip assuming a position between the jaws. Hand grips 20 and 32 are now compressed to cause the lip to be firmly gripped. As pointed out above, the hand grips may be contracted even after the lip is firmly engaged due to the resilient nature of struts 13 and 25.

The user now engages arm 36 of the spreader 35 and rotates the latter by moving arm 36 towards strut 25 and the handle skeleton. This causes arm 37 which is in engagement with the other lip of the fish to spread or open the mouth of the fish. A fish hook which is embedded in the fish's mouth may now be easily removed.

FIGS. 6, 7 and 8 disclose a fish hook retriever of the same pliers type construction as the spreader of FIGS. 1 to 5. Thus, levers 52 and 53 are pivotally connected by a rivet assembly 54 which is substantially the same as rivet assembly 38 of FIG. 5. Each of the levers 52 and 53 includes a handle strut 55, handle skeletons 56 of double ply construction, and jaw bars 57 terminating in jaws 58. The outer surfaces of the latter are inclined at 59 so that when the jaws are closed a tapered construction is presented which facilitates insertion into the mouth of a fish.

Levers 52 and 53 are of the same resilient rod construction as levers 10 and 11 of FIGS. 1 to 5 and the handle skeletons include feet 60 which are capped and constitute abutments.

The tool of FIGS. 6, 7 and 8 is used in the manner of a pair of pliers to grip the lip of a fish when it is desired to retrieve a hook therefrom or to grip hook or lure.

FIGS. 9, 10, and 11 illustrate a fish hook retriever of the same general type as that of FIGS, 6, 7 and 8 with the main differences residing in the structure on the jaw side.

Thus, lever 61 is pivotally connected by rivet assembly 62. The structure on the handle side is the same as that of FIGS. 6, 7 and 8. From pivot 62 jaw bar 63 extends. These jaw bars are somewhat longer than the jaw bars 57 of FIGS. 6, 7 and 8 and terminate in faces 64 which are disposed at an angle to the jaw bars 63. This angle is in the nature of 45° as shown in FIG. 10.

The tool of FIGS. 12, 13 and 14 is similar in most respects to the tool of FIGS. 9, 10 and 11 with differences remedy in the construction of the jaws. This tool includes levers 65 pivotally connected at 66 and on the jaw side of the latter provide jaw bars 67 which are bent at 68 (FIG. 13) to provide jaws 69. The latter have teeth 70 on their meeting faces and the outer faces are formed with recesses 71.

The tool of FIGS. 15 to 18 is commonly known as fisherman's leader sleeve crimping pliers and is utilized to attach sleeves to leader loops. It comprises the levers 72 which are pivotally connected at 73 by a rivet assembly the same as that included in the implements previously described. The structure on the handle side of the pivot is the same as that for the other tools. However, jaws 74 and 75 are located close to pivot 73 and, in closed position, meet substantially along section line 17—17. Jaw 74 is formed with recesses 76, 77, 78 and 79 on its meeting edge. Jaw 75 is formed with recess 80 opposite to recess 76, a projection 81 opposed to recess 77 into which it partially extends, recess 82 opposite to recess 78, and projection 83 opposed to recess 79 into which it partially extends. The cooperating recesses and projections selectively perform different operations on a leader sleeve such as is ordinarily used to secure a leader to a fish hook.

A fish hook disgorger is illustrated in FIGS. 19 to 22 inclusive. It comprises the usual levers 84 which are pivotally connected at 85 by a rivet assembly. On the side of pivot 85 opposite to the handles, the levers 84 are formed with jaw bars 86. Each jaw bar 86 terminates in a flattened jaw 87 having a meeting face formed with ribs or teeth 88. The ribs 88 on each meeting face are interrupted by a medial groove 89 (FIG. 22) which terminates in an inner flared portion 90 which opens onto a recess 91. The purpose of this groove is to guide the implement jaws along the fish line or leader to a swallowed hook.

While preferred specific embodiments of the invention are hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact constructions, mechanisms and devices illustrated and described because various modifications of these details may be provided in putting the invention into practice.

What is claimed is:

1. In an implement of the pliers type intended for use in conjunction with the mouth of a fish for hook retrieving purposes,

a. a pair of levers pivotally connected by a rivet assembly,

b. each of said levers including a handle strut adjacent to the pivotal connection and of round cross section,
c. a two ply handle skeleton integrally joined to each handle strut and including an inner ply and outer ply joined to each other,
d. an inturned foot at the free end of each inner ply, with the feet being in spaced confronting relation,
e. a cap on each foot,
f. a hand grip on each skeleton frame,
g. a jaw bar formed as a part of each lever and extending from the pivotal connection on the side thereof opposite to the handle struts,
h. and a jaw formed at the end of each jaw bar and having a face confronting the corresponding face on the outer jaw.

2. The implement of claim **1** in which the faces of the jaws are formed with transverse ribs.

3. The implement of claim **1** wherein the pair of levers are fashioned from round steel rods and said pliers are of round cross section.

4. The implement of claim **1** in which the rivet assembly comprises a cup shaped member having a shallow recess on one face and a trunnion projecting from its other face, a rivet integral with the trunnion, a second cup shaped member having a shallow recess on its outer face and a central aperture receiving the rivet.

5. The implement of claim **4** wherein the recess of each cup possesses a disc.

6. The implement of claim **1** together with a mouth spreader in the form of a bell crank having an operating arm and a mouth engaging arm, said mouth spreader being pivotally mounted on said rivet assembly at the joinder of said arms, and a spring normally biasing said mouth engaging arm into engagement with one of said jaw bars.

7. The implement of claim **6** in which the mouth spreader is of channel formation with the channel of the operating arm opening towards a handle strut and the channel of the mouth engaging arm opening towards a jaw bar.

8. The implement of claim **7** in which the spring includes a central coil about the pivotal connection, an end portion received in the channel of the operating arm which it engages and another end portion between said jaw bars and having a bent end engaging the inner face of a jaw bar.

9. The implement of claim **8** in which the mouth engaging arm has an end portion overlying the end of a jaw.

10. The implement of claim **1** in which each of the jaws has an outer surface inclined toward the free end of the jaw with the inclined surfaces cooperating to provide a taper when the jaws are in closed position.

11. The implement of claim **10** in which the jaws are at an angle of substantially 45° with respect to the jaw bars.

12. The implement of claim **11** in which the outer face of each jaw is formed with a longitudinal recess.

13. The implement of claim **2** in which the face of each jaw having ribs thereon is formed with a medial groove terminating in a flared inner end that opens onto a recess in the jaw bar.

14. The implement of claim **1** wherein the inner ply and outer ply are joined by a bend and are in a folded back relation.

* * * * *