Dec. 23, 1969 D. L. GREENMAN 3,484,896

HOLDING FIXTURE

Filed April 4, 1967

FIG. 4.

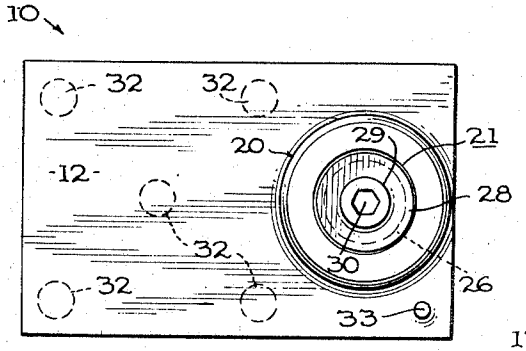


FIG. 1.

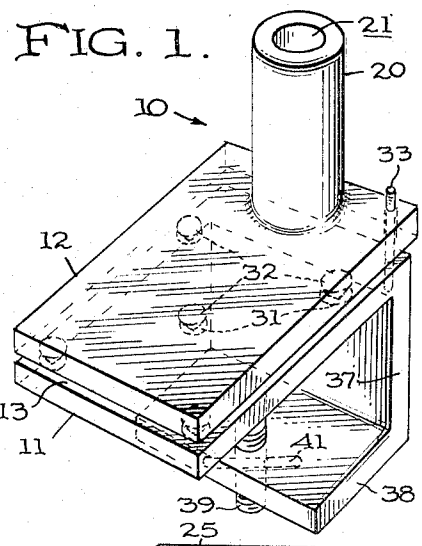


FIG. 2.

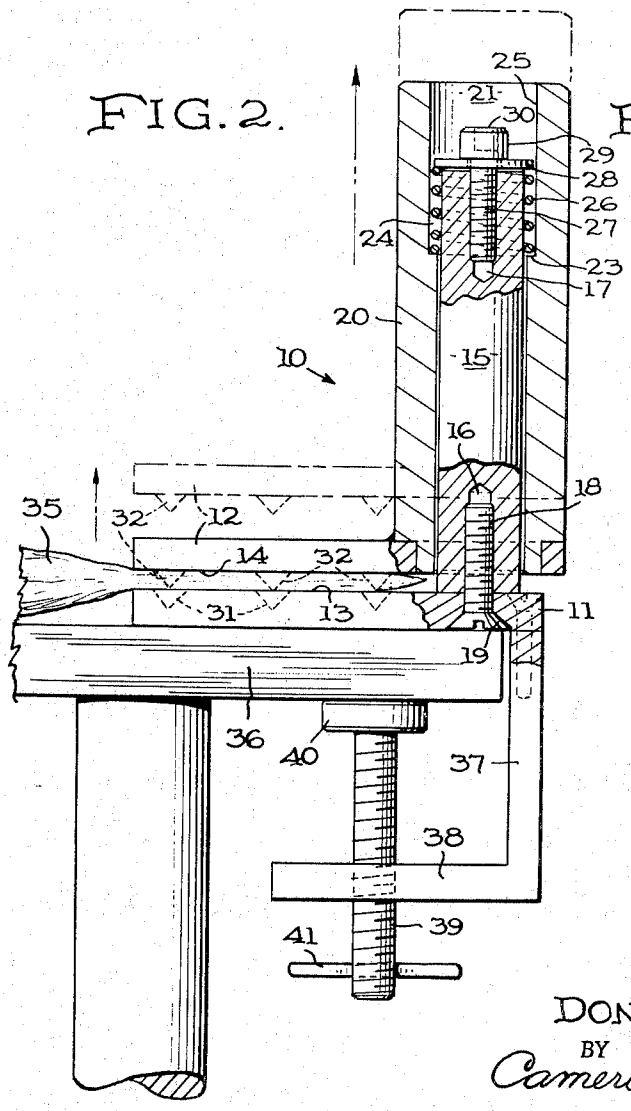
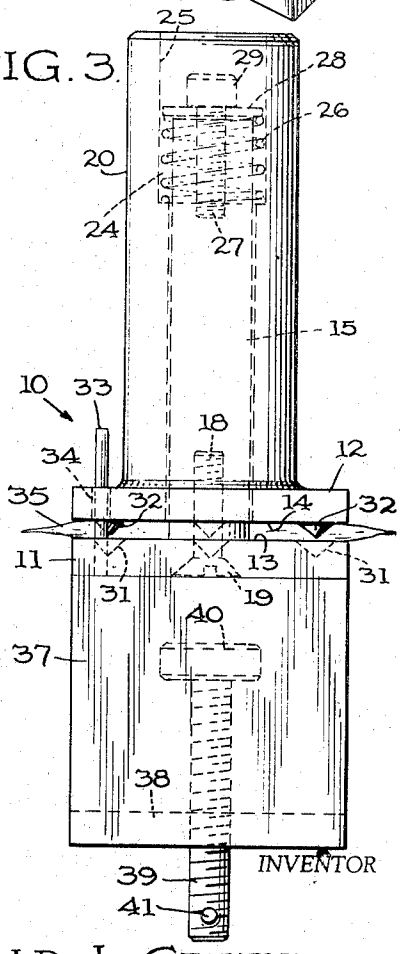


FIG. 3.



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HOLDING FIXTURE

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ABSTRACT OF THE DISCLOSURE

A holding fixture having a pair of cooperating jaw plates which are preloaded to exert a holding force on an article inserted therebetween. One jaw plate is fixed and includes a guide post which is disposed within a barrel member secured to the other jaw plate which is movable relative to the fixed jaw plate. The guide post and barrel are constructed to form a chamber within which is received a compression spring arranged to act on and preload the movable jaw plate. A screw adjust is provided to selectively vary the clamping force exerted by the fixture.

BACKGROUND OF THE INVENTION

The present invention relates to a holding fixture adapted for use with a variety of articles and which is particularly applicable to scaling and trimming fish preparatory to cooking. Accordingly, the invention will be described in connection with holding a fish for filleting, scaling or skinning; however, it is not intended thereby to limit the invention only to such use.

In preparing fish for use as food, scaling is not only unpleasant, but is also troublesome due to the difficulty of holding a fish while scraping off the scales. Heretofore, a few devices have been proposed for facilitating this procedure, but these devices are of complicated nature, are expensive to manufacture and are troublesome to mount, manipulate and keep clean.

A primary object of the present invention is to provide a holding fixture which can be conveniently attached to a fixed support member and adapted to firmly grip an article to be worked on so as to allow both hands of the person working the article to be free.

Another object of the present invention is to provide a holding fixture which is simple and economical in construction, yet highly efficient in operation.

Another object of the present invention is to provide a holding fixture readily adapted for holding a fish for filleting, scaling or skinning and which can be easily cleaned.

SUMMARY

To this end, the holding fixture of the present invention comprises a pair of jaw plates, one of which is fixed and the other of which is movable. The fixed jaw plate has secured thereto a mounting clamp that enables the fixture to be rapidly attached to any convenient flat supporting surface. The movable jaw plate supports a cylindrical barrel which is slidingly received on a guide post extending from the fixed jaw plate and which cooperates with the guide post to maintain the clamping faces of the jaw plates substantially parallel. A compression spring preloads the upper jaw plate and is supported between the barrel and the guide post and a screw adjust is provided to permit the movable jaw to be selectively preloaded with a desired holding pressure which renders the fixture adaptable for use with a variety of articles.

Other objects and advantages of the invention will be apparent from a consideration of the following description taken in connection with the accompanying drawing wherein like reference characters identify like parts throughout the several views.

Referring to the drawing:

FIG. 1 is a perspective view of the holding fixture of the present invention;

FIG. 2 is a side elevational view, partly in cross section, of the holding fixture of the present invention with the movable jaw shown in raised position by phantom lines;

FIG. 3 is a rear elevational view of the holding fixture of the present invention; and

FIG. 4 is a plan view of the holding fixture of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As viewed in the drawing, reference numeral **10** generally designates the holding fixture of the invention which includes a pair of cooperating jaw members or plates **11** and **12**. Jaw plate **11** is fixed, while the upper jaw member **12**, as viewed in the drawing, is manually movable relative to the lower jaw member **11**. As indicated by the arrows and phantom lines in FIG. 2, the jaw plates are separated by raising jaw plate **12**, while the clamping surfaces **13** and **14** are maintained substantially parallel to each other. Advantageously, the movable jaw plate **12** can also be swung laterally to permit cleaning of the parts.

To this end, jaw plate **11** has affixed thereto an upwardly extending post **15** which is bored at opposite ends, as at **16** and **17**. Bore **16** is threaded and receives a guide post securing screw **18** which passes through a clearance opening **19** in jaw plate **11** to rigidly fasten the guide post thereto.

The upper jaw plate has affixed thereto a cylindrical barrel **20** having a central bore **21** extending axially thereof. Bore **21** has a diameter slightly greater than the diameter of guide post **15** so that the barrel can be conveniently slid in place over the post. As seen in FIG. 2, when barrel **20** is disposed over guide post **15**, jaw plate **12** can be swung in either direction and post **15** acts as a pivot. Also, jaw plate **12** can be raised relative to jaw plate **11** while the clamping surfaces are maintained substantially parallel to each other.

Barrel **20** may be formed integral with the upper jaw member **12** or may be secured thereto in any conventional manner. For example, as shown in FIG. 2, the outer diameter of the barrel at its lower end is reduced, as at **22**, and press fitted into an aperture provided in the jaw plate. For added strength, the barrel may be welded at the juncture point.

At the upper end of the barrel, the diameter of bore **21** is made larger than the diameter of the bore along the lower end of the barrel so as to form a step or annular shoulder **23**. The larger diameter of the upper section of the bore forms a space or chamber **24** between the inner surface **25** of bore **21** and a section of the outer surface of guide post **15**. A compression spring **26** is disposed within the space **24** and one end of the compression spring seats on the annular shoulder **23**, while the other end of the compression spring is held in position by an adjustment mechanism which can be manually set to selectively preload the holding force of the jaw plates.

Advantageously, compression spring **26** is selected to provide an adjustable clamping force of 7 to 10 lbs.; however, it will be readily apparent that different limits may be provided by selecting a spring with different characteristics. Normally, the spring is selected according to the particular use of the holding fixture and preferably is such that the holding force can be overcome without excessive manual exertion.

The adjust mechanism includes a screw **27** which passes through a pressure disc **28** and has its threaded

shank received in a threaded bore **17** at the upper end of guide post **15**. Pressure disc **28** may simply be a flat washer having central opening smaller than the head **29** of screw **27** and an outer diameter greater than the diameter of the guide post **15** to thereby provide a contacting pressure surface which bears against the uppermost end of compression spring **26**. Head **29** is conveniently slotted or recessed at **30** in a well-known manner for reception of an adjustment tool used to turn the screw and vary the clamping force of the holding fixture.

To facilitate holding of an article in the fixture, adjacent clamping surfaces **13** and **14** of jaw plates **11** and **12** may be provided with conical indentations **31** disposed to receive correspondingly shaped protrusions **32** which are press fitted into the corresponding jaw member. As shown, the indentations **31** are all disposed in the lower jaw **11** and the protrusions **32** are all disposed in the upper jaw **12**; however, the positions of the cooperating pairs of indentations and protrusions may be reversed if desired, and the shape need not be conical.

To keep the upper jaw from rotating out of alignment with respect to the lower jaw, a pin **33** is secured to one of the jaws and extends upwardly into a bore **34** provided in the other jaw. In this manner, lateral displacement of the jaws is prevented and the mating jaws are maintained in alignment. Advantageously, pin **33** is press fitted into lower jaw plate **11**, while bore **34** extends through upper jaw plate **12** and the pin and bore are disposed toward the rear of the jaw plates. In this manner, the article **35** to be clamped between the jaw plates may be inserted from the front or from either side of the holding fixture.

The holding fixture **10** is adapted to be clamped to any convenient flat supporting surface such as, for example, table **36**. To this end, the lower jaw plate has depending therefrom an angle member **37** having a lower extension **38** turned inwardly and parallel to the jaw plate **11** so as to form with the lower jaw plate a U-shape clamp. The lower portion **38** is provided with a threaded opening within which is received the threaded shank **39** of a clamp screw. One end of the screw **39** has secured thereto a head member **40** having a flat surface adapted to engage the supporting surface **36** to which the fixture is to be clamped. The other end of the screw is drilled to receive a transverse cross pin **41** adapted to be gripped for turning the clamp screw.

In operation, the fixture **10** is mounted to a table or the like by screwing upon the clamping screw **39**. The upper jaw plate **12** is maintained under a preloaded spring pressure which can be increased by tightening the screw **27** downwardly into the guide post **15** or decreased by backing off on the screw. As shown in FIG. 2 screw **27** is tightened for maximum clamping force.

To insert an article between the jaws, the jaws are separated by manually gripping barrel **20** of the upper jaw **12** and lifting upon the barrel with a sufficient force to overcome the spring force. As the upper jaw is raised, the article **35** is inserted in position, after which the barrel is released and jaw **12** automatically returns under the force of spring **26** to secure the article in position. To ensure that the jaws do not rotate out of alignment in a raised position, pin **33** should be of a length sufficient to extend into the bore **34** when the jaw is raised to a position for inserting the article to be held.

It is apparent that the holding fixture will efficiently hold the tail end of a fish in an automatic manner as soon as the fish is inserted between the jaw plates, due to the downward pressure of the upper jaw plate and the gripping surfaces provided on the adjacent clamping surfaces.

Although the invention has been described with respect to a single embodiment, it should be apparent that various changes and modifications will suggest themselves to those skilled in the art and it is intended by the appended claims to cover all such modifications which come within the scope of the invention.

What is claimed is:

1. A holding fixture comprising a pair of cooperating jaw plates adapted to receive and hold an article therebetween, means on one jaw plate for rigidly fastening said one jaw plate to a supporting surface, the other jaw plate being movable with respect to said one jaw plate, a barrel member secured to the movable jaw plate, a fixed guide post secured at one end to the fixed jaw plate and having a threaded bore at its other end, said guide post being disposed within said barrel member for maintaining said movable jaw plate substantially parallel to the fixed jaw plate, spring means supported between said barrel member and said guide post for preloading said movable jaw plate against said fixed jaw plate, a spring adjust mechanism including a pressure disc adapted to be supported to said guide post in engagement with said spring, screw adjust means extending through said disc and being threaded into the threaded bore of said guide post for selectively presetting the clamping force of said jaw members, and pin means affixed to said fixed jaw plate and cooperatively associated with the other jaw plate to permit relative lateral displacement of said jaw plates when said jaw plates are displaced a fixed distance from their clamping position and to prevent lateral displacement of said jaw plates when in the clamping position.

2. A holding fixture comprising a pair of cooperating jaw plates adapted to receive and hold an article therebetween, one of said jaw plates being fixed and the other of said jaw plates being movable with respect to said fixed jaw plate, a mounting clamp secured to said fixed jaw plate, said mounting clamp including an adjustable clamp screw for clamping the fixed jaw plate to a flat support surface, a fixed cylindrical guide post secured at one end to said fixed jaw plate and having a threaded bore at the other end, a cylindrical barrel secured to said movable jaw plate, said barrel having an axial bore and an inner annular shoulder formed thereon, said guide post being disposed within said bore such that said barrel is slidingly received on said post, a compression spring supported between said barrel and said guide post, said compression spring having one end disposed on said annular shoulder, a spring adjust mechanism including a flat pressure disc adapted to be supported to said guide post and engaging the other end of said spring, screw adjust means extending through said pressure disc and being threaded into the threaded bore of said guide post for selectively presetting the clamping force of said jaw plates, a pin affixed to said fixed jaw plate, said movable jaw plate including a bore disposed in alignment with said pin to receive said pin therein only when said jaw plates are in the article holding position so as to permit relative lateral displacement of said jaw plates when clamping position displaced a fixed distance from their said bore.

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