Nov. 25, 1924.

D. E. CROSS

1,516,844

GLASS HANDLING TONGS

Filed Sept. 22, 1923

Fig. 2.

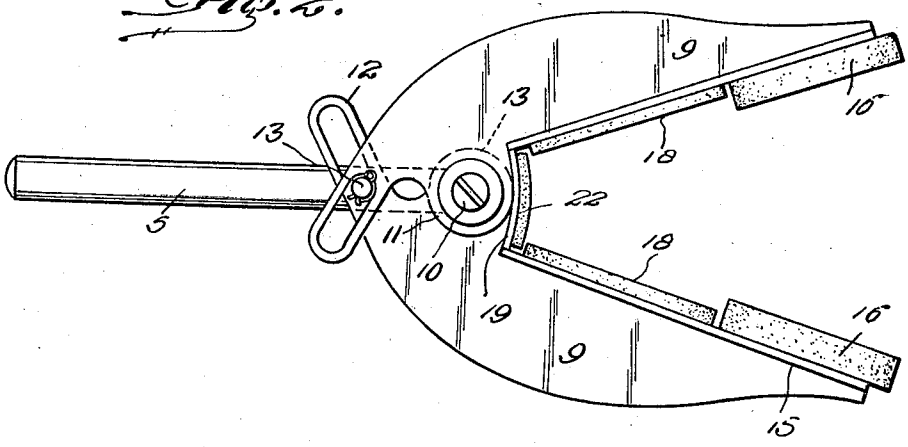
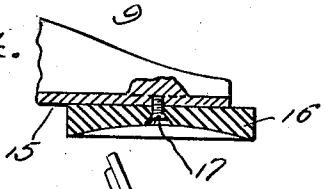


Fig. 4.



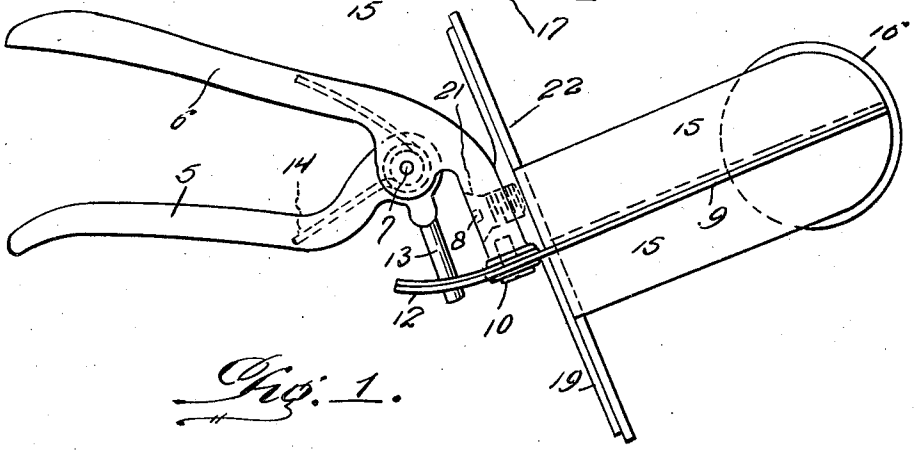
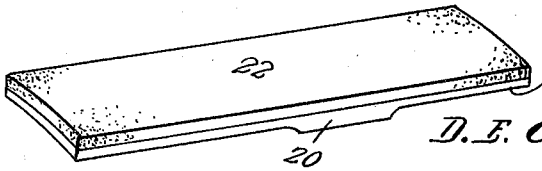


Fig. 1.

Fig. 3.



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UNITED STATES PATENT OFFICE.

DOSTON E. CROSS, OF MORGANTOWN, WEST VIRGINIA.

GLASS-HANDLING TONGS.

Application filed September 22, 1923. Serial No. 664,167.

To all whom it may concern:

Be it known that I, DOSTON E. CROSS, citizen of the United States, residing at Morgantown, in the county of Monongalia and State of West Virginia, have invented certain new and useful Improvements in Glass-Handling Tongs, of which the following is a specification.

This invention relates to certain new and useful improvements in glass handling tongs and has particular reference to a device by means of which glass may be handled with facility, ease, and safety.

The primary object of the invention is to provide a device of the above kind which embraces the desired qualities of simplicity and durability of construction as well as efficiency in operation, whereby the same may meet with all of the requirements for a successful commercial use.

A further object of the invention is to provide glass handling tongs which are composed of a minimum number of parts of simple and durable form, and these so co-related and constructed as to insure an effective grip upon the glass with relatively little exercise of strength.

Another object is to provide glass tongs by means of which glass may be handled by a minimum number of workmen with great facility and ease and without danger of injury to the workmen.

Still another object of the invention is to provide glass handling tongs which may be engaged with the glass and utilized for moving the same without requiring the user to deviate materially from his natural standing posture, the device embodying handle members adapted to be pressed together in a natural vertical direction, and cooperatively related with a pair of horizontally movable jaw members whereby such pressing together of the handles will cause movement of said jaws toward each other for firmly engaging opposite sides of the glass.

Still another object of the invention is to provide glass tongs of the above kind whereby the handle and jaw members are normally separated and are mounted upon pivots respectively extending at right angles to each other.

Other objects will appear as the nature of the invention is better understood, and the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings, and claimed.

In the drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a side elevational view of glass handling tongs constructed in accordance with the present invention.

Figure 2 is a bottom plan view thereof with the jaws in normal or separated relation.

Figure 3 is a perspective view of the glass edge engaging member, and

Figure 4 is a fragmentary view, partly in elevation and partly in section of the outer end portion of one of the jaw members.

Referring more in detail to the drawings, the invention embodies a lower handle member 5 and an upper handle member 6, the inner end of the handle member 5 being pivoted as at 7 to the handle member 6, and the inner end of the handle member 6 projecting inwardly and downwardly from the pivot 7 beyond the inner end of the handle member 5 in the form of an arm 8.

A pair of jaw members 9 have their inner ends pivoted as at 10 against the free ends of the arm 8 of the upper handle member 6, and the pivot 10 preferably consists of a screw passing through the jaws 9 and threaded into the ends of said arm 8 as shown. It will thus be seen that the pivots 7 and 10 extend substantially at right angles or perpendicularly to each other so that the jaws 9 are mounted for movement toward or away from each other in one direction while the handles 5 and 6 are pivotally connected for movement toward or away from each other in a direction substantially at right angles thereto.

The jaws 9 preferably consist of flanged plates, the flanges of which are provided upon the inner edges of said jaws 9 to form relatively broad surfaces or jaw faces. The jaw members 9 have inwardly extending overlapping ears 11, through which the pivot pin extends, and the inner ends of said jaw members are reduced and formed inwardly of the pivot pin to provide a pair of oblique and crossed longitudinally slotted arms 12, and the inner end of the lower handle member 5 is provided with a rigid depending pin 13 that projects downwardly through the slot of said arms 12 substan-

tially parallel with and inwardly of the handle member 6 when the parts are disposed in ther normal condition as shown in Figures 1 and 2 under the action of a spring 14. The spring 14 is coiled about the pivot 7 and has its ends respectively engaging the inner sides of the handle members 5 and 6 so as to normally separate the latter and move the pin 13 to the forward ends of the slots of the arms 12 so as to swing the jaws 9 to a separated diverging relation.

The flanges forming the jaw faces of the jaw members 9 are indicated at 15 and extend to opposite sides thereof. Each jaw face has a suitable circular suction cup 16 fixed to the outer end portion thereof by any suitable means such as a screw 17, and the inner portion of each jaw surface or face is lined with a strip of some suitable soft yielding material as at 18, such as rubber.

The forward edges of the ears 11 cooperate to provide a relative wide shoulder between the inner ends of the jaw faces substantially corresponding to the thickness of the glass to be handled and a removable jaw is positioned against this shoulder to engage with the edge of the glass, said removable jaw embodying an elongated plate 19 that extends transversely of the jaw and which is formed with a transverse thickened portion 20 at one side of its transverse center, one end of which forms a shoulder adapted to rest upon the upper surface of the adjacent portion of the upper ear 11, whereby downward displacement of said movable jaw is effectively prevented when the tongues are properly engaged with the glass, so that the jaws 9 grip opposite sides of the latter and the removable jaw engages the adjacent edge thereof.

The plate 19 of the removable jaw is attached by a screw 21, through the enlargement 20 and the arm 8 of the upper handle member 6. Also the jaw plate member 19 has a lining of some suitable yielding material such as a sheet of rubber as indicated at 22. It is obvious that the linings 18 and 22 will prevent scratching or marring of the glass, and in addition to performing this function, the suction cup 15 will enable the operator to obtain a firm grip upon the glass for preventing slippage of the latter from between the jaws of the tongs.

With the parts in their normal separated position as shown, it is obvious that the jaws may be readily positioned at opposite sides of the glass with the inner jaw engaging the adjacent edge thereof whereby the handle members 5 and 6 are pressed together for causing separation of the arm 8 and pin 13. In effect, the pin 13 moves rearwardly away from the arm 8 in the slots of the arms 12 and due to the oblique and crossed relation of said arm 12 the jaws 9 will be effectively caused to swing toward each other into engagement with the sides of the glass against the action of the spring 14. The natural grasping of the device by the operator assisted by the weight of the glass held by the tongs and the holding quality of the suction cup 16 will insure against slipping of the glass from between the jaws of the tongs with the expenditure of a minimum amount of power in pressing the handles together.

By the use of tongs constructed as above, injury to the workman is rendered unlikely, and the handling operation is made easier.

From the above description, it is believed that the construction and operation, as well as the advantages of the invention will be readily understood and appreciated by those skilled in the art.

Minor changes may be made without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. Glass handling tongs comprising pivotally connected handle members, pivotally connected jaw members supported by one of said handle members, the pivot of the handle members extending in a direction substantially at right angles to the direction in which the pivot of the jaw members extend, and means operatively connecting the other handle member to said jaw members whereby the jaw members are caused to move toward each other upon movement of the handle members together.

2. Glass handling tongs comprising pivotally connected handle members, pivotally connected jaw members supported by one of said handle members, the pivot of the handle members extending in a direction substantially at right angles to the direction in which the pivot of the jaw members extend, and means operatively connecting the other handle member to said jaw members whereby the jaw members are caused to move toward each other upon movement of the handle members together, said jaw members having obliquely extending longitudinally slotted crossed arms, and said last named means embodying a pin rigid with said other handle member and passing through the slots of said arms.

3. Glass handling tongs comprising pivotally connected handle members, pivotally connected jaw members supported by one of said handle members, the pivot of the handle members extending in a direction substantially at right angles to the direction in which the pivot of the jaw members extend, and means operatively connecting the other handle members to said jaw members whereby the jaw members are caused to move toward each other upon movement of the handle members together, and means carried by the handle member for normally sepa-

rating the latter and causing normal positioning of the jaw members in separated diverging relation.

4. Glass handling tongs comprising an upper handle member, a lower handle member having the inner end thereof pivoted to the upper handle member, said upper handle member having a downwardly directed inner end in the form of an arm projecting inwardly beyond the pivotal connection between the handle members, a pair of jaw members hinged to the free ends of said arm for movement toward and away from each other in a direction substantially at right angles to the direction of movement of the handles, a depending rigid pin upon the inner end of the lower handle member, longitudinally slotted oblique cross arms upon the inner ends of said jaws through the slots of which said depending pins project whereby movement of the jaw members toward each other is effected by movement of the handles toward each other and means to normally separate the handles and jaws.

5. Glass handling tongs comprising an upper handle member, a lower handle member having the inner end thereof pivoted to the upper handle member, said upper handle member having a downwardly directed inner end in the form of an arm projecting inwardly beyond the pivotal connection between the handle members, a pair of jaw members hinged to the free ends of said arm for movement toward and away from each other in a direction substantially at right angles to the direction of movement of the handles, a depending rigid pin upon the inner end of the lower handle member, longitudinally slotted oblique cross arms upon the inner end of said jaws through the slots of which said depending pins project whereby movement of the jaw members toward each other is effected by movement of the handles toward each other and means to normally separate the handles and jaws, and a third jaw adapted for engagement with the edge of the glass to be handled disposed between the inner end portion of the glass engaging portions of said jaw members and attached to the jaw supporting arm of the upper handle member.

6. Glass handling tongs comprising an upper handle member, a lower handle member having the inner end thereof pivoted to the upper handle member, said upper handle member having a downwardly directed inner end in the form of an arm projecting inwardly beyond the pivotal connection between the handle members, a pair of jaw members hinged to the free ends of said arm for movement toward and away from each other in a direction substantially at right angles to the direction of movement of the handles, a depending rigid pin upon the inner end of the lower handle member, longitudinally slotted oblique cross arms upon the inner end of said jaws through the slots of which said depending pins project whereby movement of the jaw members toward each other is effected by movement of the handles toward each other, and means to normally separate the handles and jaws, and a third jaw adapted for engagement with the edge of the glass to be handled disposed between the inner end portion of the glass engaging portions of said jaw members and attached to the jaw supporting arm of the upper handle member, and suction cups opposed to each other and secured upon the outer end portions of the faces of said jaws.

7. Glass handling tongs comprising an upper handle member, a lower handle member having the inner end thereof pivoted to the upper handle member, said upper handle member having a downwardly directed inner end in the form of an arm projecting inwardly beyond the pivotal connection between the handle members, a pair of jaw members hinged to the free ends of said arm for movement toward and away from each other in a direction substantially at right angles to the direction of movement of the handles, a depending rigid pin upon the inner end of the lower handle member, longitudinally slotted oblique cross arms upon the inner end of said jaws through the slots of which said depending pins project whereby movement of the jaw members toward each other is effected by movement of the handles toward each other, and means to normally separate the handles and jaws, and a third jaw adapted for engagement with the edge of the glass to be handled disposed between the inner end portion of the glass engaging portions of said jaw members and attached to the jaw supporting arm of the upper handle member, suction cups opposed to each other and secured upon the outer end portions of the faces of said jaws, said third jaw and the remaining portions of the jaw faces of the first named pairs of jaws being lined with a yielding material.

In testimony whereof I affix my signature.

DOSTON E. CROSS.