

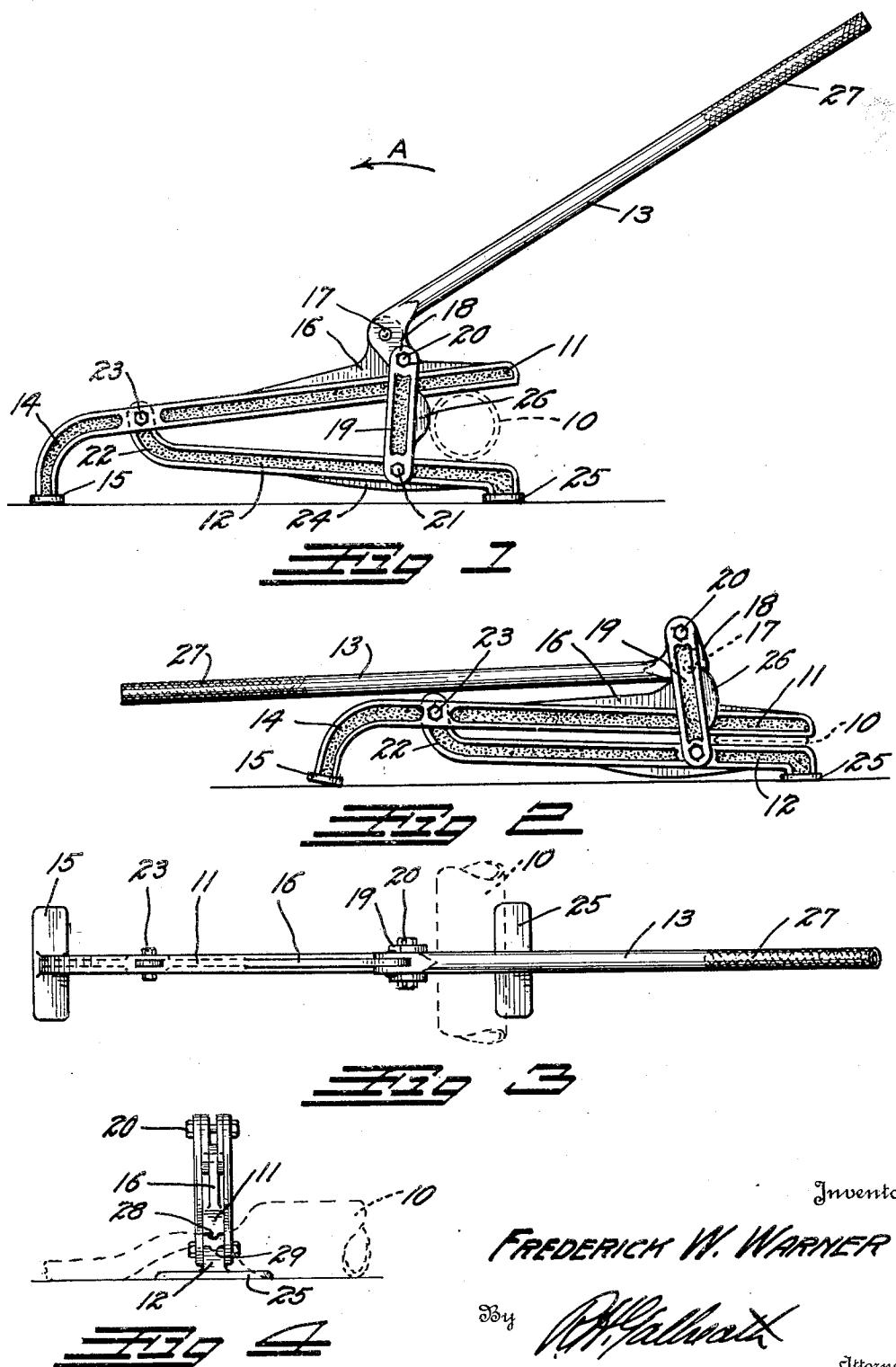
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FIRE HOSE CLAMP

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# UNITED STATES PATENT OFFICE

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## FIRE HOSE CLAMP

Application filed September 4, 1931. Serial No. 561,294.

This invention relates to a device for exerting a clamping or contracting action upon any desired object such as for clamping and contracting hoses or as to stop the flow therethrough and is more particularly designed for use by fire departments for shutting off the flow in fire hose lines at any desired point along the line.

The principal object of the invention is to construct a device of this character which can be operated by one man and which will exert a tremendous clamping or closing pressure so that when employed as a hose clamp it will have sufficient power to close a high pressure fire hose line.

Another object of the invention is to so construct the device that it will automatically lock itself in the closed position without the use of links, latches, locks, etc.

A further object of the invention is to eliminate all complicated latches, shooks, catches, etc., so that it can be easily and quickly operated in the dark or in a smoke filled room.

A still further object is to so construct the device that all danger of pinching, cutting, and breaking of the hose will be eliminated.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a side elevation illustrating the invention in the open position.

Fig. 2 is a similar elevation illustrating the device in the closed position.

Fig. 3 is a plan view of the opened device.

Fig. 4 is a front elevation of the closed device.

In the drawing the position of a typical hose is indicated at 10. The invention comprises an upper jaw member 11 arranged to

co-act with a lower jaw member 12 through the operation of an operating lever 13.

The upper jaw member 11 curves downwardly at its rearward extremity, as shown at 14, and terminates in a laterally extending foot 15 which rests upon the ground or any other suitable supporting surface. An upwardly extending rib 16 is formed upon the upper jaw member 11 to strengthen it at the point of greatest bending strain and to provide a support for the lever pivot 17.

The operating lever 13 is bifurcated adjacent the pivot 17 so that it passes on each side of the rib 16. The furcations extend at a lateral angle to form two short levers 18.

This construction constitutes what may be termed a bell crank lever. A connecting link 19 is connected to each of the short levers

18 by means of a suitable hinge bolt 20. The links extend downwardly on each side of the jaw members 11 and 12 and are secured to the lower jaw member 12 by means of a second hinge bolt 21.

The lower jaw member 12 is turned upwardly adjacent its rearward extremity as shown at 22 and is extended through a slot formed in the upper jaw member 11. It is hinged in place in the member 11 by means of a third hinge bolt 23. A strengthening rib 24 projects downwardly from the lower jaw member 12 adjacent the position of the

hinge pin 21 so as to strengthen it at the point of greatest bending moment. The forward extremity of the lower jaw member 12 is turned downwardly and terminates in a second laterally extending foot 25.

In use, the device is slipped over the hose or the hose is placed in it so that the latter will occupy the broken line position 10 of Fig. 1. It will be noted that a rounded projection 26 extends forwardly from each of the links 19. The projections 26 limit the amount of insertion of the hose. The handle 13 is swung in the direction of the arrow "A", Fig. 1. This causes the heel of the handle to bear downwardly, through the pivot 17, on the upper jaw and causes the short levers 18 to act upwardly through the links 19 on the lower jaw. As the handle

is swung rearwardly, the jaws will gradually close upon the hose. It will be noted that the hose will be forced below the projections 26, so that sufficient room will be provided for side expansion of the hose without it being pinched against the links 19. When the handle has reached its lowermost position, as shown in Fig. 2, the projections 26 will be entirely removed from contact with the hose.

It will be noted that when in the closed position the hinge pin 20 passes slightly rearward of the pivot 17 or, in other words, beyond the "dead center" of action so that the natural tendency of the hose to open or expand will act only to force the handle 13 further downwardly. This action automatically locks the device in the closed position without the use of the usual latches, locks, links, etc. To release the device it is only necessary for the operator to raise the handle 13 until the hinge bolt 20 passes the "dead center" position when the natural expansion of the hose will automatically open the device.

If desired the handle 13 may be knurled as shown at 27, to provide a more secure hand grip. When used as a hose clamp, it is preferred to form a longitudinally extending tongue 28 on the upper jaw to co-act with a longitudinal groove 29 in the lower jaw in order to provide a more efficient seal in the hose.

While the invention has been described as particularly applied to a device for contracting a hose so as to stop the flow therethrough, it can be readily understood that the contracting principle of this invention would find many other uses. For instance, the jaws could be provided with suitable dies for pressing, bending, or forming articles. They could be provided with any of the usual cutting blades for cutting metallic articles. In fact the principle embodied in the leverage system between the two jaws would be valuable wherever it was desired to exert a great contracting action. It is well within the skill of any ordinary mechanic to suitably form the active extremities of the jaws to accomplish any desired work. It is desired to be understood that all such uses are contemplated within the scope of this invention.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:—

1. A device for performing a contracting action comprising: a longitudinally extending upper jaw member; means for support-

ing the rearward extremity of said upper jaw member; a lower jaw member; means for supporting the forward extremity of said lower jaw member; hinge means connecting the rearward extremity of said lower jaw member to said upper jaw member intermediate the extremities of the latter; an operating lever pivoted on said upper jaw member; a short lever projecting from said operating lever and a link connecting the extremity of said short lever with said lower jaw member so that movement of the said operating lever will cause the forward extremities of both said jaw members to approach each other; a forwardly projecting boss formed on said connecting link so as to be positioned intermediate the planes of said jaws when in the open position and outside of the planes of said jaws when in the closed position.

2. A hose clamp comprising: an upper jaw member; a downwardly disposed rearward extremity on the upper jaw member arranged to support the latter; a lower jaw member; an upwardly disposed rearward extremity on said lower jaw member, said latter extremity being pivoted to said upper jaw member intermediate the extremities of the latter, an operating lever pivoted on said upper jaw member; a short lever extending forwardly from the pivoted end of said operating lever, and a connecting link connecting the extremity of said short lever to said lower jaw member so that when the lever is swung rearwardly and downwardly, said jaws will be brought to a parallel closed position.

3. A hose clamp comprising an elongated upper jaw member, a shorter lower jaw member disposed in the same vertical plane with the upper jaw member, the rear end of the lower jaw member being disposed upwardly and hingedly connected to the rear end portion of the upper jaw member, an upwardly extending rib formed on the top of the forward end portion of the upper jaw member, a bifurcated bell crank lever pivotally connected to said rib, a pair of links disposed on opposite sides of said jaw members, the lower ends of the links being pivotally connected to the lower jaw member, the upper ends of the links being pivotally connected to one end of the bell crank lever and an operating lever extending from the other end of the bell crank lever for effecting a closing and opening action of the jaw members, the pivotal connection between the upper ends of the links and the bell crank lever being beyond dead center when the jaws are in a closed position, said jaw members being disposed in substantially parallel relation when closed.

In testimony whereof, I affix my signature.

FREDERICK W. WARNER.