A. W. LOVEJOY.

DUPLEX CLAMP.

APPLICATION FILED MAY 25, 1917.

1,253,402. Patented Jan. 15, 1918.

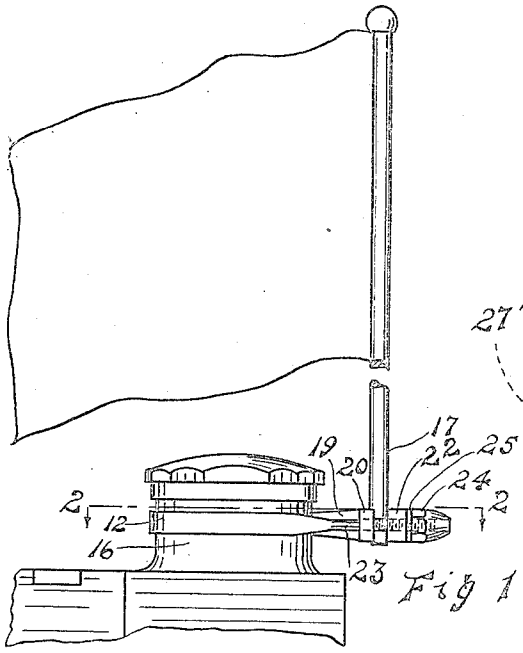



Fig 1

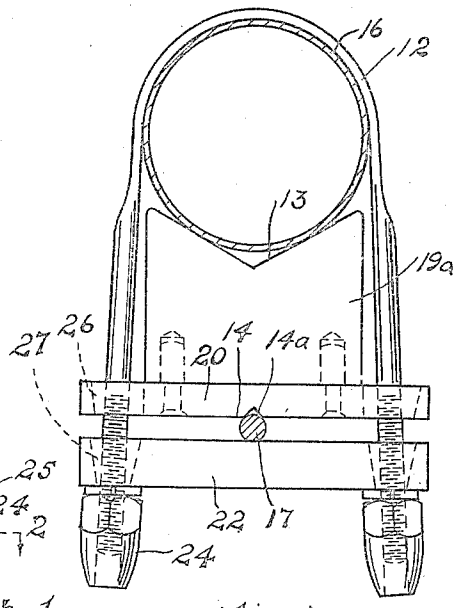



Fig. 3

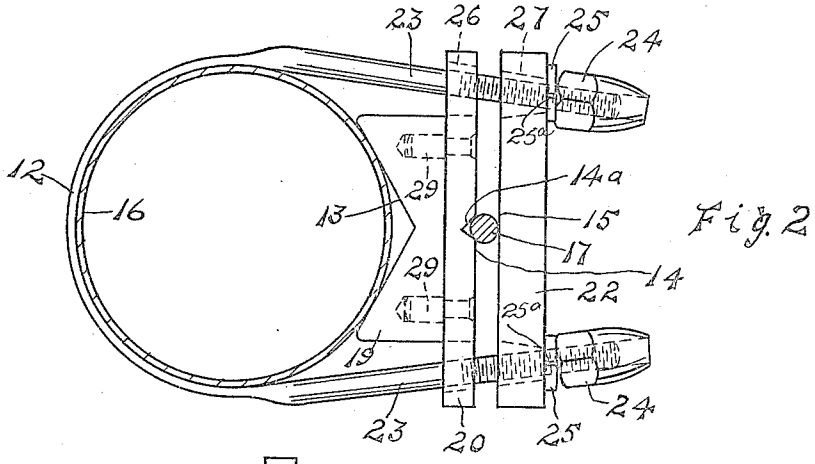



Fig. 2

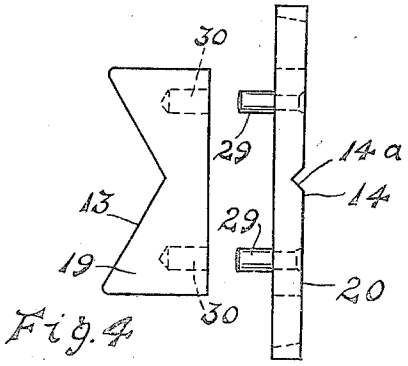



Fig. 4

Inventor
Arthur Waldo Lovejoy

By Wright Brown Quinby & May
Atty's.

# UNITED STATES PATENT OFFICE.

ARTHUR WALDO LOVEJOY, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO ARTHUR EDWIN HATCH, OF LOWELL, MASSACHUSETTS.

## DUPLEX CLAMP.

1,253,402. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed May 25, 1917. Serial No. 170,856.

*To all whom it may concern:*

Be it known that I, ARTHUR WALDO LOVEJOY, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Duplex Clamps, of which the following is a specification.

This invention relates to a twin or duplex clamp, including two connected pairs of opposed jaws, one of the two clamps being adapted to engage or grasp a supporting part such as the radiator nozzle of an automobile, while the other clamp is adapted to engage or grasp a supported part such as a flag staff, the clamps being adapted to be closed upon said parts by means common to both clamps.

The invention is embodied in the improvements hereinafter described and claimed.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side elevation of a portion of an automobile radiator, including the nozzle thereof and a duplex clamp embodying the invention, applied to said nozzle.

Fig. 2 is a section on line 2—2 of Fig. 1, and a plan view of the parts below said line.

Fig. 3 is a view similar to Fig. 2, showing the duplex clamp applied to a smaller supporting part.

Fig. 4 is a plan view of the two sections of the part hereinafter referred to as the inner block, said sections being separated.

The same reference characters indicate the same or similar parts in all of the figures.

My improved duplex clamp comprises opposed jaws 12 and 13, forming an inner clamp, opposed jaws 14 and 15, forming an outer clamp, and means common to all the jaws for closing the inner clamp on a supporting body, such as the cylindrical nozzle 16 of an automobile radiator, and for closing the outer clamp on a supported body, such as a flag staff 17, intended to be supported above the radiator.

The jaw 12 is a flexible metal strip, adapted to conform to supporting parts or bodies of different sizes, as will be seen by comparing Figs. 2 and 3. The jaw 13 is preferably recessed, as shown, and is formed by one face of a block, preferably of metal, and preferably composed of two sections 19 and 20, separably connected for a purpose hereinafter described, the jaw 13 being formed by the section 19. The jaw 14 is formed by the section 20, the jaws 13 and 14 facing in opposite directions.

The jaw 15 faces the jaw 14 and is formed by a block 22.

I have embodied the above-mentioned means common to all the jaws for closing the inner clamp on a supporting body, and the outer clamp on a supported body, in rods or arms 23 projecting from the ends of the jaw 12 and preferably integral therewith, the outer end portions of said arms being screw-threaded, and pressure-applying nuts 24 engaged with the threaded portions of the arms 23 and seated on spring washers 25 interposed between the nuts and the block 22. Said washers are split at $25^a$ (Fig. 2) and portions of their outer sides normally spring outward and bear yieldingly against the inner ends of the nuts to prevent accidental rotation of the latter.

The arms 23 pass through slots 26 in the end portions of the block section 20, and slots 27 in the end portions of the block 22.

It will now be seen that when the jaw 12 is applied to one side of the supporting body 16, and the jaw 13 to the opposite side of said body, and a flag staff, or other body to be supported is interposed between the jaws 14 and 15, inward adjustment of the nuts 24 on the rods 23 will simultaneously close each clamp on the body interposed between its jaws. The jaw 12 and its arms 23 may be entirely removed from the blocks, preparatory to application of the device to a supporting body, when the shape of said body requires this procedure.

The flexibility of the jaw 12 and the formation of the block forming the jaws 13 and 14 in separable sections, enable the inner clamp to be adapted to supporting bodies of different sizes, as will be seen by comparing Figs. 2 and 3.

When the supporting body is of relatively small size, as shown by Fig. 3, the block 19 used with a supporting body of larger size, is removed and replaced by a deeper block $19^a$, as shown by Fig. 3. The nuts 24 are adjusted to take up the flexible jaw 12, until it comes to a firm bearing on the body 16. The slots 26 and 27 are elongated and formed to permit lateral movements of the arms 23

from the positions shown by Fig. 2 to the positions shown by Fig. 3, said movements varying the flexure of the strip or jaw 12.

When the arms 23 are inclined relatively to each other as shown by Fig. 2, the inner ends of the nuts 24 are correspondingly inclined so that their bearing surfaces are correspondingly reduced. The portions of the spring washers 25 which, as above stated, bear yieldingly against portions of the inner ends of the nuts, compensate for the reduced bearing surfaces of the nuts and prevent accidental rotation or unscrewing of the nuts, not only when the arms 23 are adjusted as shown by Fig. 2, but also when they are otherwise adjusted as shown for example by Fig. 3.

The blocks 19 and 20 or 19ª and 20 may be separably connected by dowel pins 29 on one of the sections, these entering sockets 30 formed for their reception in the other section. The block 20 is longer than the block 19 or 19ª and is slotted as above stated, so that its end portions are slidable on and loosely confined by the arms 23. The shorter block 19 or 19ª is independent of said arms and removably confined by the dowels 29.

It is obvious that a duplex clamp embodying my invention as hereinafter claimed, may be made in various other forms and used with various other supporting and supported bodies.

I have here shown the jaw 14 provided with a recess 14ª, formed to prevent the supported body 17 from moving laterally and from swinging between the jaws 14 and 15. It is obvious that the form of the jaws of both clamps may be variously modified to conform to the bodies to which they are applied.

I claim:

1. A duplex clamp comprising a flexible strip forming one of the jaws of an inner clamp and adapted by its flexibility to conform to supporting bodies of different sizes, an outer movable block forming one of the jaws of an outer clamp, a two-faced inner movable block forming complemental jaws of both clamps, and means common to all the jaws for simultaneously closing the inner clamp on a supporting body and the outer clamp on a supported body, means being provided for permitting different flexures of the flexible strip.

2. A duplex clamp comprising one of the jaws of an inner clamp, arms projecting from opposite ends of said jaw, and provided with pressure-applying means, outer and inner blocks independently movable on said arms, the outer block contacting with said pressure-applying means and forming one of the jaws of an outer clamp, while the inner block is two-faced and forms the complemental jaw of the inner clamp and the complemental jaw of the outer clamp, said inner block being composed of a longer section and a shorter section separably connected with the longer section, the end portions of the longer section being slidable and loosely confined on said rods, and the shorter section being independent of the rods and removable and replaceable by a section of different size.

3. A duplex clamp comprising a flexible curved strip forming one of the jaws of an inner clamp and adapted by its flexibility to conform to cylindrical supporting bodies of different sizes, arms integral with said strip and projecting from opposite ends thereof, said arms being threaded and provided with pressure-applying nuts, outer and inner blocks having slots at their end portions through which said arms pass loosely, the outer block forming one of the jaws of an outer clamp, while the inner block is two-faced and forms the complemental jaws of the inner and outer clamps, said slots being formed to permit lateral movements and relative inclinations of said arms and nuts, and various flexures of said strip, and spring washers interposed between the nuts and the outer block, and adapted to prevent accidental rotation of the nuts.

In testimony whereof I have affixed my signature.

ARTHUR WALDO LOVEJOY.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**