April 25, 1961 C. G. HEFFORD 2,980,977

SPRING-LOADED CLAMPS

Filed Dec. 16, 1957

FIG. 1.

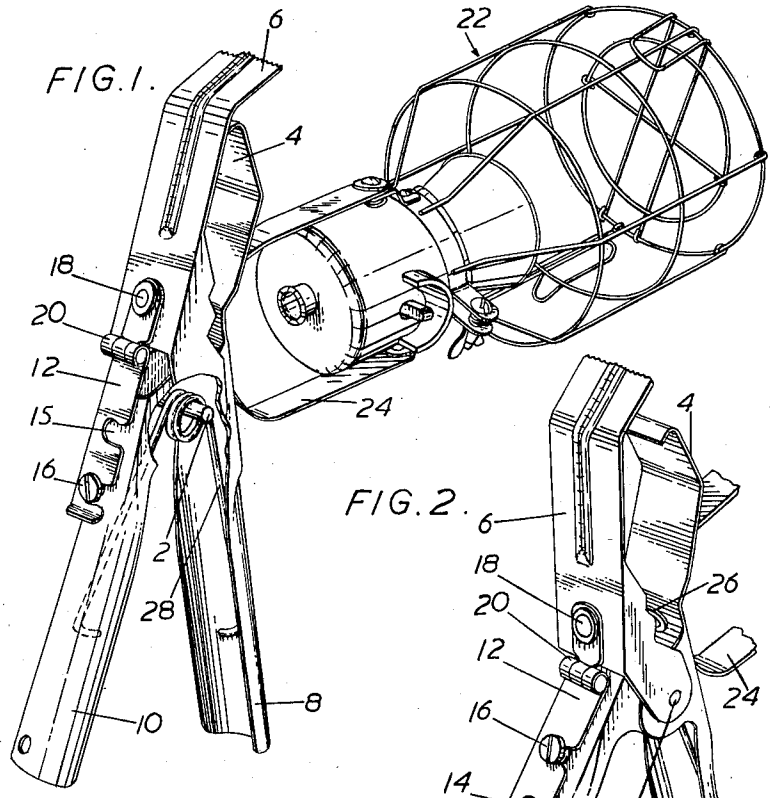
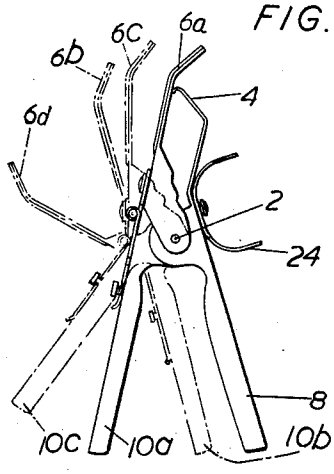


FIG. 2.

FIG. 3.



United States Patent Office 2,980,977 Patented Apr. 25, 1961

2,980,977

SPRING-LOADED CLAMPS

Charles G. Hefford, Caerphilly, South Wales, assignor to Stadium Limited, Enfield, Middlesex, England, a British company

Filed Dec. 16, 1957, Ser. No. 702,927

2 Claims. (Cl. 24—253)

Inspection lamps and other devices may be mounted on clamps which can be closed onto a convenient member to hold the device temporarily in a desired position. One form of clamp for this purpose consists of two arms pivoted together and having opposed jaws at one end and handles at the other end. A spring acts on the arms to urge the jaws together.

There is a definite upper limit imposed on the range of sizes of member which the jaws will grip, owing to the fact that the range of travel of the handles and the strength of the spring are limited by the size and strength of a user's hand, while the mechanical advantage between the handles and the jaws is limited by the magnitude of the force which the jaws must exert on the member if they are not to slip when the handles are released.

According to the present invention, in such a clamp one at least of the jaws is adjustable in position towards and away from the other jaw while the handles remain in the same relative position. The adjustment need not be progressive and need not be such that it can be made while the jaws are in contact with a member. The purpose of the adjustment is to provide two or more alternative ranges of relative movement of the jaws, of substantially the same extent but with different maximum and minimum values. It is of course convenient for the ranges to overlap somewhat. Thus the total range of sizes of member which the jaws will grip is increased in comparison with clamps in which no adjustment is possible.

Preferably only one jaw is adjustable, and the adjustment is provided by pivoting the jaw on the same pivot as the two arms, and connecting the jaw to its arm by an adjustable link.

For example, the link may be a hasp pivoted to the jaw and having several notches which can alternatively engage a pin on the arm. If the pivot axis of the hasp is not parallel to the pivot axis of the arms and jaw, then the hasp should be hinged.

As another example the jaw may have a slotted quadrant co-operating with a locking screw on the arm.

The accompanying drawings show one example of an inspection lamp mounted on a clamp according to the present invention.

In these drawings:

Figure 1 is a perspective view showing the clamp closed with the adjustable jaw in one position;

Figure 2 is a fragmentary perspective view showing the clamp closed with the adjustable jaw in another position; and

Figure 3 is a diagram showing the ranges of movement of the adjustable jaw.

The clamp consists of two arms pivoted together on a pin 2 and having opposed jaws 4 and 6 at one end and handles 8 and 10 at the other end. The jaw 4 is integral

with the handle 8. The jaw 6 is independently pivoted on the pin 2 and is connected to the handle 10 by a hasp 12. This hasp has two alternative notches 14 and 15 which can engage a pin 16 on the handle 10. To permit the necessary movement during adjustment the hasp is pivoted to the jaw 6 on a stud 18 and includes a hinge 20.

An inspection lamp 22 is pivotally mounted in a fork 24, which is in turn pivoted to the base of the jaw 4 on a stud 26.

The two jaws are urged together by the action of a spring 28 which is coiled about the pin 2 and acts on the handles 8 and 10.

Figure 3 shows the different ranges of the movement of the clamp. When the notch 14 is engaging the pin 16, as shown in Figure 1, then the handle 10 is movable between the position 10*a* and 10*b* while the jaw 6 is movable between the position 6*a* and 6*b*. When the notch 15 is in engagement with the pin 16, as shown in Figure 2, then the handle 10 is movable between the position 10*c* and 10*b* and the jaw 6 is movable between the position 6*c* and 6*d*. It will be seen that the range of movement of the handle 10 is such that the two handles can be controlled by one hand while the two alternative ranges of movement of the jaw 6 overlap.

I claim:

1. A clamp comprising two arms pivoted together, each of said arms having a handle at one end and a jaw at the other end, said handles being opposed to one another, a spring acting on said arms to urge said jaws toward one another, the jaw of one af said arms being pivoted to the handle of said one arm and said one arm having means for securing its jaw rigidly at any one of a plurality of angular positions with respect to said handle of said one arm, and in which said securing means comprises a pin on the handle of said one arm and a hasp, said hasp being pivoted to said jaw of said one arm and including a hinge and being formed with two notches therein whereby said movable jaw can be secured in either of two angular positions with respect to said handle by the engagement of said pin in alternative notches in said hasp.

2. A clamp comprising two arms pivoted together, each of said arms having a handle at one end and a jaw at the other end, said handles being opposed to one another, a spring acting on said arms to urge said jaws toward one another, the jaw of one of said arms being pivoted to the handle of said one arm, and said one arm having means for securing its jaw rigidly at any one of a plurality of angular positions with respect to said handle of one arm, and in which said pivoted jaw of said one arm is pivoted to the said handle of said one arm about the same axis as said two arms are pivoted to one another.

References Cited in the file of this patent

UNITED STATES PATENTS

676,730	Wilson	June 18, 1901
717,367	Ellis	Dec. 30, 1902
1,100,486	Merliss	June 16, 1914
1,303,555	Haussmann	May 13, 1919
1,777,003	Kollath	Sept. 30, 1930
2,483,303	Rysick	Sept. 27, 1949
2,710,912	Holm	June 14, 1955
2,815,777	Iraids	Dec. 10, 1957
2,817,989	Nowak	Dec. 31, 1957

FOREIGN PATENTS

772,314	Great Britain	Apr. 10, 1957