G. O. HELVIG & T. MILLER.

SPRING CLAMP.

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1,066,495.

Patented July 8, 1913.

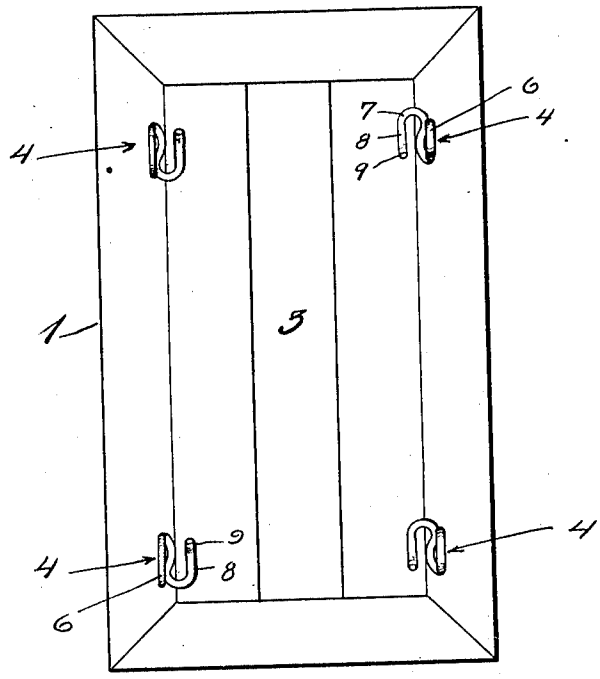


Fig. 1

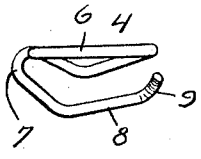


Fig. 2.

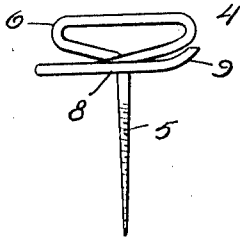


Fig. 3.

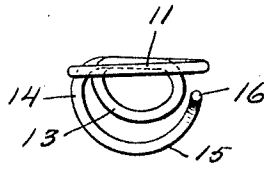


Fig. 4

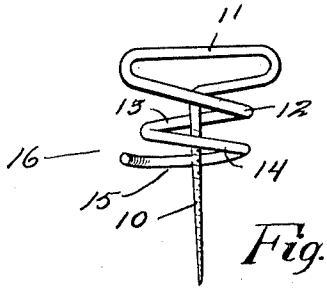


Fig. 5.

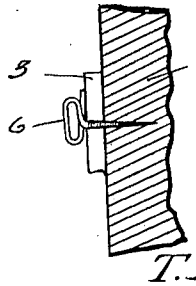


Fig. 6.

Witnesses

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SPRING-CLAMP.

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To all whom it may concern:

Be it known that we, GILBERT O. HELVIG and THOMAS MILLER, citizens of the United States, residing at Dawson, in the county of Lac qui Parle and State of Minnesota, have invented certain new and useful Improvements in Spring-Clamps, of which the following is a specification.

The present invention relates to a yielding clamp which is particularly adapted to hold storm windows, screen windows and the like in place.

An important object of this invention is to provide a device of the above mentioned character, which will securely hold a screen window in place so that it will not rattle and will make a tight connection with the window frame to prevent flies or the like passing between the window frame and the screen window, and to hold storm windows in air-tight engagement with the window frame to properly keep out the wind and rain.

A further object of the invention is to provide clamping means of the above mentioned character, which are self-adjusting so that they may be readily used with storm windows or the like of different thicknesses or which have their outer surfaces arranged flush with the window frame or extending outwardly beyond the same.

A further object of the invention is to provide means of the above mentioned character, which may be connected with the window frame for holding the storm window or the like in place without the aid of any tools, the same being readily screwed into their operative positions by turning with the fingers.

A further object of the invention is to provide a clamping device of the above mentioned character, which may be constructed of a single strand of wire, whereby it will be simple in construction and cheap to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is an outer side view of a window frame and storm window showing our improved clamping means associated therewith, Fig. 2 is a plan view of one of the clamping devices, Fig. 3 is a side view of the same, Fig. 4 is a plan view of a slightly different form of clamping device, Fig. 5 is a side view of the same, and, Fig. 6 is a detail section through the window frame, showing the storm window extending outwardly therebeyond and a clamping device holding the same in place.

In the drawings, wherein for the purpose of illustration, we have shown the preferred embodiments of our invention, the numeral 1 designates a window frame of any well known or preferred type, which in this instance is closed by a storm window 3. This storm window preferably has its outer surface flush with the outer surface of the window frame 1.

In order that the storm window 3 may be firmly held in engagement with the window frame to form a tight connection therewith to prevent the entrance of air or rain into the room, we place our improved spring clamps 4 near the corners of the window frame, as shown. As shown in Figs. 2 and 3, each of these spring clamps 4 is formed of a single strand of spring wire having a tapered screw-threaded body portion 5, the upper end of which is bent to form a head 6 of any suitable shape to be engaged between the fingers so that the entire device may be turned in screwing it into the window frame. The head 6 has its free end 7 bent to form a horizontal laterally extending yielding clamping arm 8, which may preferably be curved, as shown, with the free end 9 thereof bent upwardly so that such free end will not be caught in the storm window or cut the same when moved into engagement therewith. Attention is called to the fact that the yielding clamping arm 8 is disposed entirely and upon one side only of the screw-threaded body portion 5.

In the use of these clamping devices, each of the same is screwed into the window frame 1 near the corner thereof. This can be easily done by the operator taking hold of the head 6 with the fingers and turning the same with the screw-threaded body portion 5 in engagement with the window frame. It is thus seen that our clamping devices may be easily and quickly connected with the window frame without the use of any tools. The laterally extending yielding clamping arms 8 engage the storm window 3 or the like near the corners thereof and yieldingly hold the same in firm engagement with the window frame. The degree of

pressure which these devices exert upon the storm window may be regulated by turning the same in either direction to increase or diminish the pressure as the case may be. Attention is called to the fact that the clamping devices 4 need only to be turned one-half of a revolution to bring the yielding clamping arms 8 out of engagement with the storm window 3, whereby the same may be removed. This is due to the fact that the laterally extending clamping arm 8 is disposed entirely upon one side of the screw-threaded body portion 5. As shown in Fig. 6, the storm window 3 extends outwardly beyond the outer surface of the window frame 1. The clamping device 4, however, will hold the storm window securely in place. In this case the screw-threaded body portion 5 is not driven quite as far into the window frame as when used in connection with the storm window 3, shown in Fig. 1, which storm window has its outer surface flush with the outer surface of the window frame 1, as hereinabove stated.

In Figs. 4 and 5 we have shown a slightly different form of clamping device. This clamping device is formed of a single strand of spring wire, having a tapered screw-threaded body portion 10, the upper end of which is bent to form a head 11. The head 11 has its lower free end 12 bent in the form of a plurality of turns 13 and 14, forming in effect, a coil spring. The lower turn 14 is formed larger than the upper turn 13 and has its free end portion 15 adapted for engagement with the storm window or the like. The end portion 15 has its free end 16 bent upwardly, as shown. Attention is called to the fact that the turns 13 and 14 are arranged eccentrically with relation to the screw-threaded body portion 15, whereby corresponding sides of the turns 13 and 14 are arranged adjacent the body portion 15 and the opposite sides thereof extend for a considerable distance away from such screw-threaded body portion. The object in doing this is to construct a device which will release the storm window or the like held thereby upon being turned one-half of a revolution. The use of the second form of our invention is similar to that described in connection with the first form and it is thought unnecessary to state it again.

Although our clamping devices are particularly well adapted for use in connection with a window frame for holding a storm window or the like in place, we wish it understood that we do not solely restrict ourselves to this use, as we have found that the same may be advantageously employed in a great many different ways. It is also to be understood that the forms of our invention herewith shown and described, are to be taken as preferred examples of the same, and that certain changes in the shape, sizes, and arrangements of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described our invention we claim:—

As an article of manufacture, a yielding clamping device formed of a single section of suitably stiff spring wire which is bent to form a body portion carrying at its outer end a vertical loop head extending radially with relation to the body portion whereby such body portion may be readily turned and a plurality of approximately horizontal spaced superposed spring turns carried by the free end of the vertical loop head, such spring turns surrounding the body portion and disposed eccentrically with relation thereto, the body portion being screw-threaded at one end thereof.

In testimony whereof we affix our signatures in presence of two witnesses.

GILBERT O. HELVIG.
THOMAS MILLER.

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