G. S. STUART.

WINDOW CLEANER'S SAFETY APPLIANCE.

APPLICATION FILED OCT. 14, 1918.

1,300,040.

Patented Apr. 8, 1919.

2 SHEETS—SHEET 1.

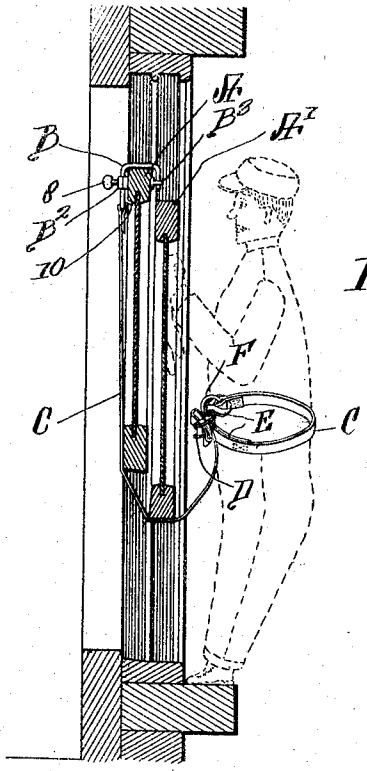


Fig. 1.

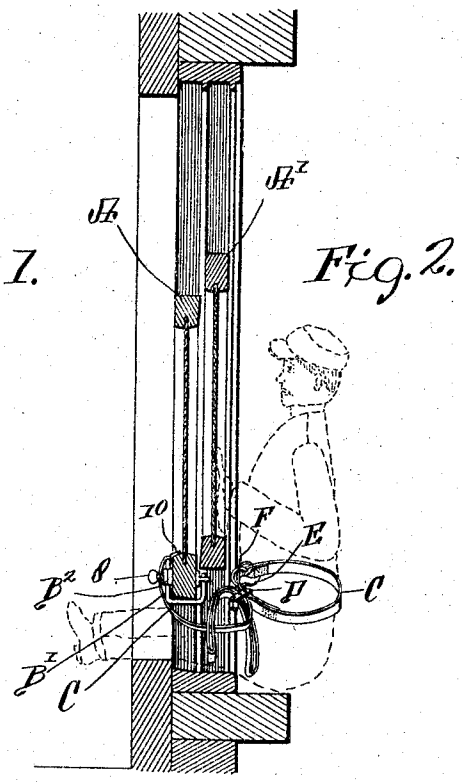


Fig. 2.

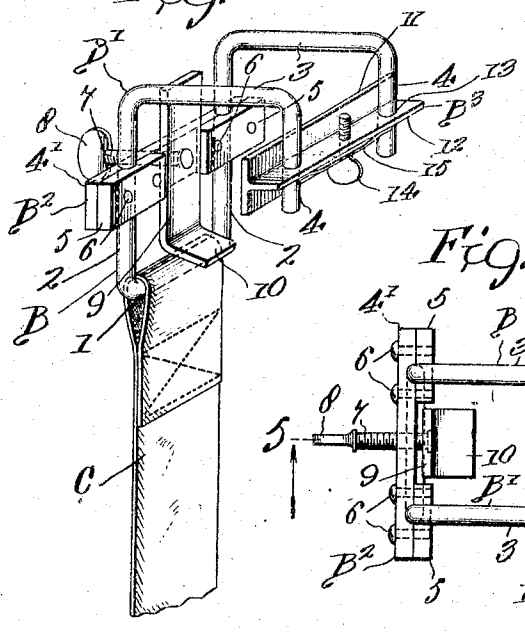


Fig. 3.

Fig. 4.

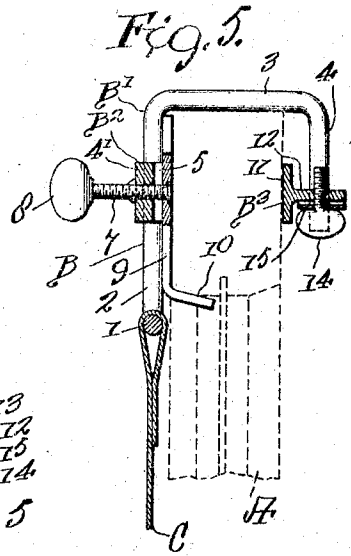


Fig. 5.

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2 SHEETS—SHEET 2.

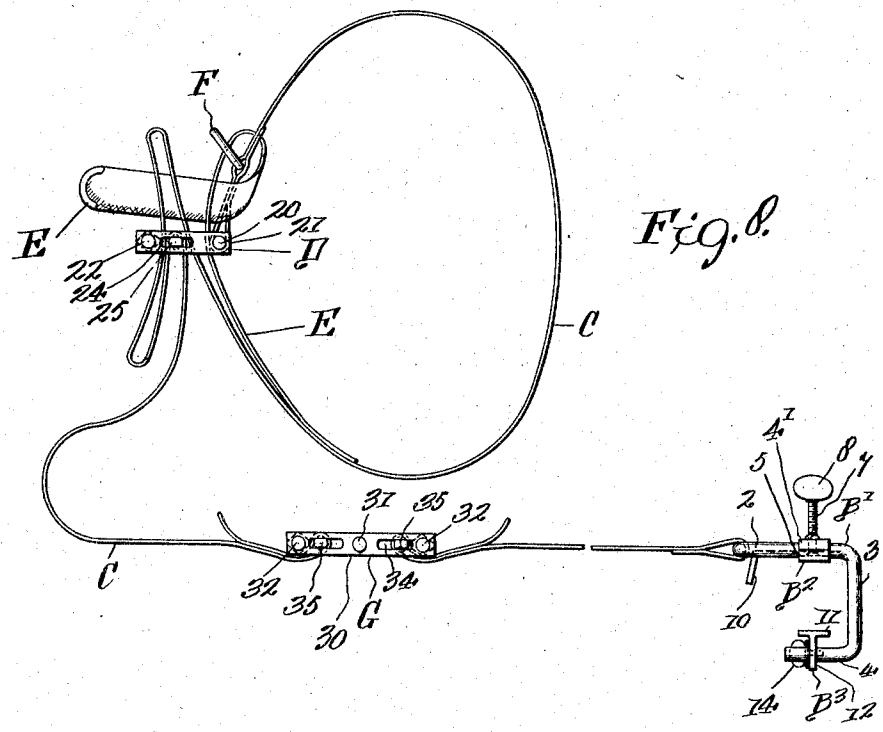


Fig. 8.

Fig. 6.

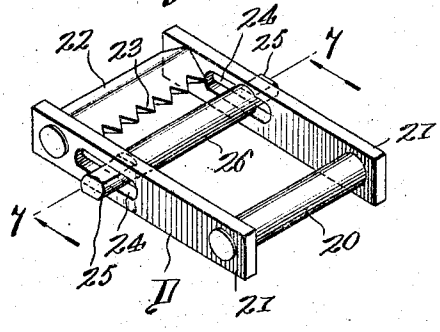


Fig. 9.

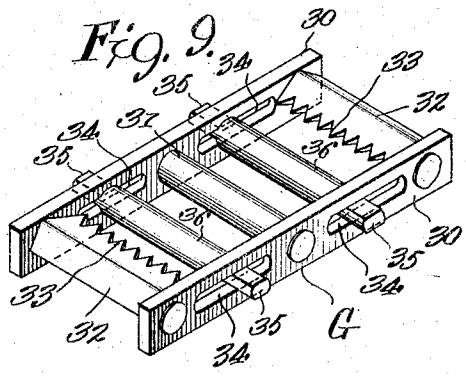
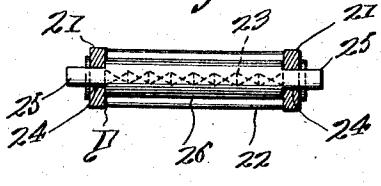


Fig. 7.



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UNITED STATES PATENT OFFICE.

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WINDOW-CLEANER'S SAFETY APPLIANCE.

1,300,040. Specification of Letters Patent. Patented Apr. 8, 1919.

Application filed October 14, 1918. Serial No. 257,976.

To all whom it may concern:

Be it known that I, GEORGE S. STUART, a citizen of the United States, residing at Tampa, in the county of Hillsborough and State of Florida, have invented certain new and useful Improvements in Window-Cleaners' Safety Appliances; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in window cleaners' safety appliances in general, and more particularly consists in a device for attachment to some fixed part, as, for instance, the window sash, and whereby the window cleaner may be securely held from falling when upon the window sill in the act of cleaning the outside surfaces of the window panes.

It is an object of my present invention to provide a device for the above described purpose which will be simple in construction, readily attachable to the window sash and extremely effective for the purpose intended.

My present invention is intended more especially to provide certain improvements over the construction shown in my allowed application, filed June 10, 1918, Serial No. 239190, and entitled Window cleaner's safety appliance.

In the accompanying drawings forming a part of this application, and in which similar reference symbols indicate corresponding parts in the several views:—

Figure 1 is a vertical sectional view through a window showing a window cleaner in dotted lines and an appliance mounted on the window sashes which is constructed in accordance with my present invention, with the device attached to the upper end of the inner sash.

Fig. 2 is a similar view showing the safety device attached to the lower end of the inner sash.

Fig. 3 is a detail showing the adjustable clamp used to attach the safety appliance to the sash.

Fig. 4 is a plan view of the clamp shown in Fig. 3.

Fig. 5 shows a section along the line 5—5 of Fig. 4, and looking in the direction of the arrows.

Fig. 6 is a detail showing in perspective the clasp for taking up the slack in the strap or band used in the apparatus.

Fig. 7 shows a section along the line 7—7 of Fig. 6, and looking in the direction of the arrows.

Fig. 8 is a view on a larger scale of the complete apparatus including as an additional feature an adjustable double clasp to adapt the device to be used with two lengths of strap; and

Fig. 9 is a detail view showing in perspective the double clasp shown in Fig. 8.

A and A′ designate the inner and outer sashes which are fitted for the usual vertical movement in the window frame. The device is intended for use with any of the well known forms of sliding sashes and window frames, and it comprises an adjustable clamp B and a strong strap or band C of textile material, leather, or other suitable flexible material which is connected to said clamp and to the belt of the window cleaner.

This strap may be made of a single piece of material, as shown in Figs. 1 and 2, or of two lengths as shown in Fig. 8.

One end of the strap C is made fast to the clamp B, and to the other end of the strap the clasp D is connected, as shown most clearly in Fig. 8. To the main strap, near its end, I attach an auxiliary strap E forming part of the belt of the wearer, as will be hereinafter described; and where it is desired, instead of using a continuous strap as shown in Figs. 1 and 2, to use a strap made of two or more separate pieces, I may use a suitable connecting clasp such as shown at G in Figs. 8 and 9.

Referring to the details of the various parts of the device, already referred to in general terms, the clamp B consists of a main frame B′ which is preferably formed of a single rod of metal of sufficient strength, having its central portion 1 straight to engage a loop in the end of the strap C, as shown in Fig. 3, and from this central portion project the arms 2 which form with the central portion 1 a substantially U-shaped frame on which the sliding bracket B^2 is mounted. From the arms 2, the rod is bent forward, as at 3, then downwardly as at 4, to form holding arms for the sliding bracket B^3. The sliding bracket B^2 comprises a plate 4^1, spanning the arms 2 and clamp

plates 5 which may be clamped at the desired position on the arm 2 by means of the screws 6.

Engaging in screw threads in the plate 4^1 is the clamp screw 7, having the thumb lug 8 at one end, and journaled at the other end to the L-shaped holding piece 9 having a projecting arm 10 adapted to engage on the inner edge of either the upper or lower stile of the sash, as will be hereinafter described.

The sliding bracket B^3 is preferably in the form of a T-iron, having the vertical web 11 and the horizontal web 12, which horizontal web is perforated, as at 13, to receive the arms 4, and is also perforated to receive the clamp screw 14 which engages the bent leaf spring 15. By easing up on this clamp screw, the spring 15 will be relaxed and the sliding bracket B^3 may be adjusted to the desired position on the arms 4; then by setting up on this screw the leaf spring is caused to force the arms 4 into frictional engagement with the walls of the perforations 13 in the horizontal web 12, and thus the sliding bracket B^3 may be clamped to the desired position on the arms 4. This position should be approximately opposite the position to which the sliding bracket B^2 is adjusted, so that when the clamp screw 8 is set up there may be a balance pressure from both sides of the clamp on the stile of the window sash, the position of the parts when in operation being shown in Figs. 1, 2 and 5.

The holding piece 9 may be moved toward or away from the stile of the sash, so as to clamp the said stile between it and the sliding bracket B^3, and the arm 10, projecting on the inside of the stile of the sash opposite to the arms 3 engaging the outside of the stile of the sash, will serve to hold the clamp securely in place on the sash so it cannot be accidentally shaken loose, or removed at all without easing up on the clamp screw 7.

The other end of the strap C is provided with a loop to engage the stud 20 of the clasp D, which clasp is provided with side pieces 21 and an end piece 22 dentated as at 23, see Figs. 6 and 7, so as to catch in the strap and hold the same against sliding through the clasp.

The side pieces 21 are slotted, as at 24, to receive the flattened ends 25 of the sliding stud 26. The bights of the straps are rove through the clasp D, as shown most clearly in Fig. 8, and thus any slack in the strap may be taken up and the length of the strap may be adjusted to suit the needs of the window cleaner.

The strap C is provided near its free end with an auxiliary strap E, which serves as part of the belt of the wearer, and said strap C is also provided near its free end with a ring or buckle F through which the end of the auxiliary strap E is rove.

Where a ring is used, as shown in Fig. 8, the free end of the strap E may be tucked in, as shown, and the belt may be conveniently and quickly adjusted to the person of the window cleaner.

Where it is desired to use two or more lengths of strap C, I may use a double clasp G, such as shown in Figs. 8 and 9, in which the side members 30 are connected together by the central stud 31 and by the end studs 32, which latter are dentated as at 33. These side pieces 30 are also slotted, as at 34, to receive the flattened ends 35 of the sliding studs 36. By reeving the ends of the strap C into this double clasp G, as shown in Fig. 8, the abutting ends of the two straps may be connected together, and I provide an adjustment by means of which the slack of the straps C may be taken up at either end of the clasp G, or may be taken up in the clasp D, as previously explained.

The operation of the device is as follows:—

The sliding brackets B^2 and B^3 being adjusted to the proper position on their respective arms 2 and 4, and being clamped to this position, respectively, by means of the screws 6 and the spring 15 operated upon by the screw 14, place the arm 10 of the holding piece on the inside of the stile to which it is desired to attach the clamp, and then set up tight on the screw 7; the clamp will then be securely attached to the stile of the sash. Said clamp may be just as conveniently attached to the bottom stile as to the top stile of the sash, as shown in Figs. 1 and 2.

After securing the clamp in place, adjust the belt to the person of the window cleaner and take up the slack of the strap C, as hereinbefore described. The window cleaner can then work from the outside of the window with perfect safety.

It will be obvious that the clamp should be attached to the window stile in front of the belt of the window cleaner so that the pull on the strap C will bind the parts tighter; the parts are shown in detail in Fig. 8, but not in the proper direction as if the clamp were attached to the window stile.

From the foregoing description, taken in connection with the drawings, it will be obvious that I have provided a compact device for the purposes intended which admits of being readily rolled up for carriage from window to window, and admits of ready removal and replacement on the several windows.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

Having thus described my invention, what

I claim and desire to secure by Letters Patent of the United States is:—

1. A window cleaner's safety appliance comprising a clamp adapted to be securely attached to one of the stiles of a window sash, a strong flexible strap secured at one end to said clamp, a clasp secured to the other end of said strap, an auxiliary strap secured to said strap near said clasp and combining with the end portion of said strap next to said clasp to provide a belt for the window cleaner, an intermediate portion of the first named strap forming a loop passed between the jaws of the clasp and held thereby at any desired point, substantially as described.

2. A window cleaner's safety appliance comprising a clamp adapted to be securely attached to one of the stiles of a window sash, a strong flexible strap secured at one end to said clamp, a clasp having two end bars and parallel sides, with an intermediate movable bar, one of said end bars being secured to the free end of said strap, and a loop of said strap being rove between the end bars and over the movable bar of said clasp, whereby the tension on said strap will cause the movable bar to pinch a portion of the loop against the outer end bar, an auxiliary strap secured to the first mentioned strap near said clasp and combining with the end portion of said strap next said clasp to provide a belt for the window cleaner, and a ring secured to said first-mentioned strap near said clamp adapted to engage the free end of said auxiliary strap, substantially as described.

3. A window cleaner's safety appliance comprising a clamp adapted to be securely attached to one of the stiles of a window sash, said clamp having a main frame formed of a single piece of rod, bent to form parallel legs, oppositely disposed sliding brackets adjustably mounted on said legs, and an L-shaped holding piece adjustably mounted on one of said brackets, with a clamp screw for adjusting said holding piece, and a harness for the window cleaner secured to said clamp, substantially as described.

GEORGE S. STUART.

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