(No Model.) 2 Sheets—Sheet 1.

H. K. WHITNER.

SAFETY APPARATUS.

No. 519,365. Patented May 8, 1894.

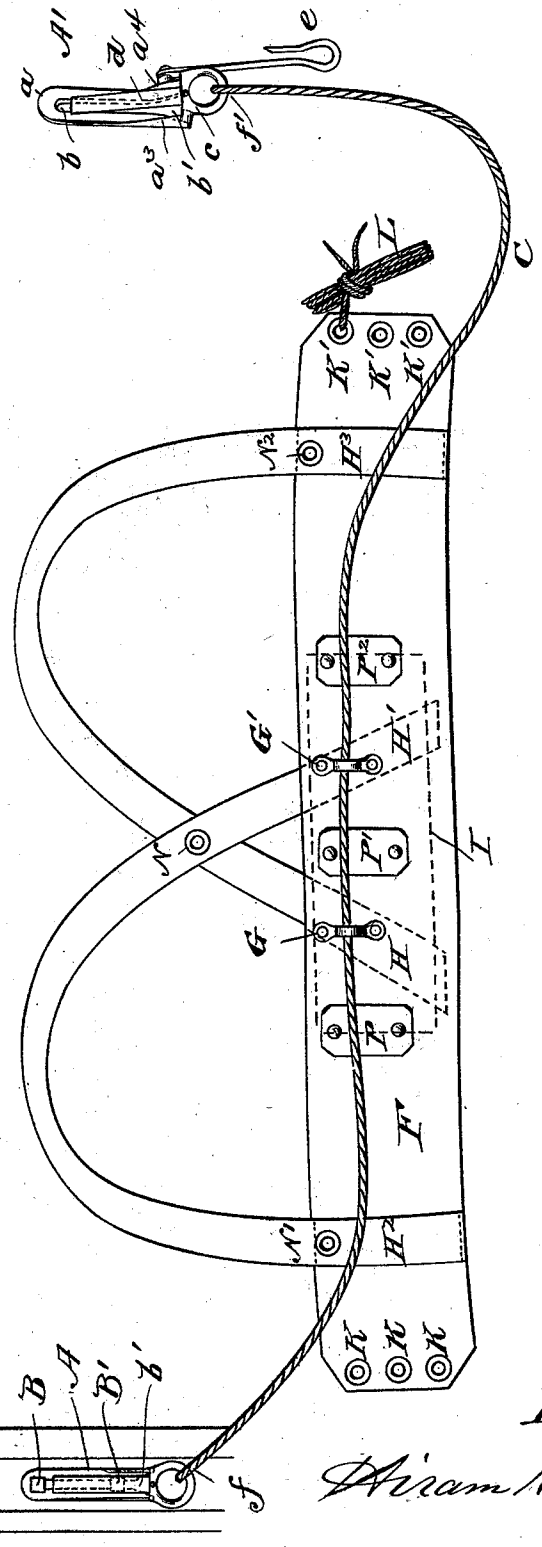


Fig. 1.

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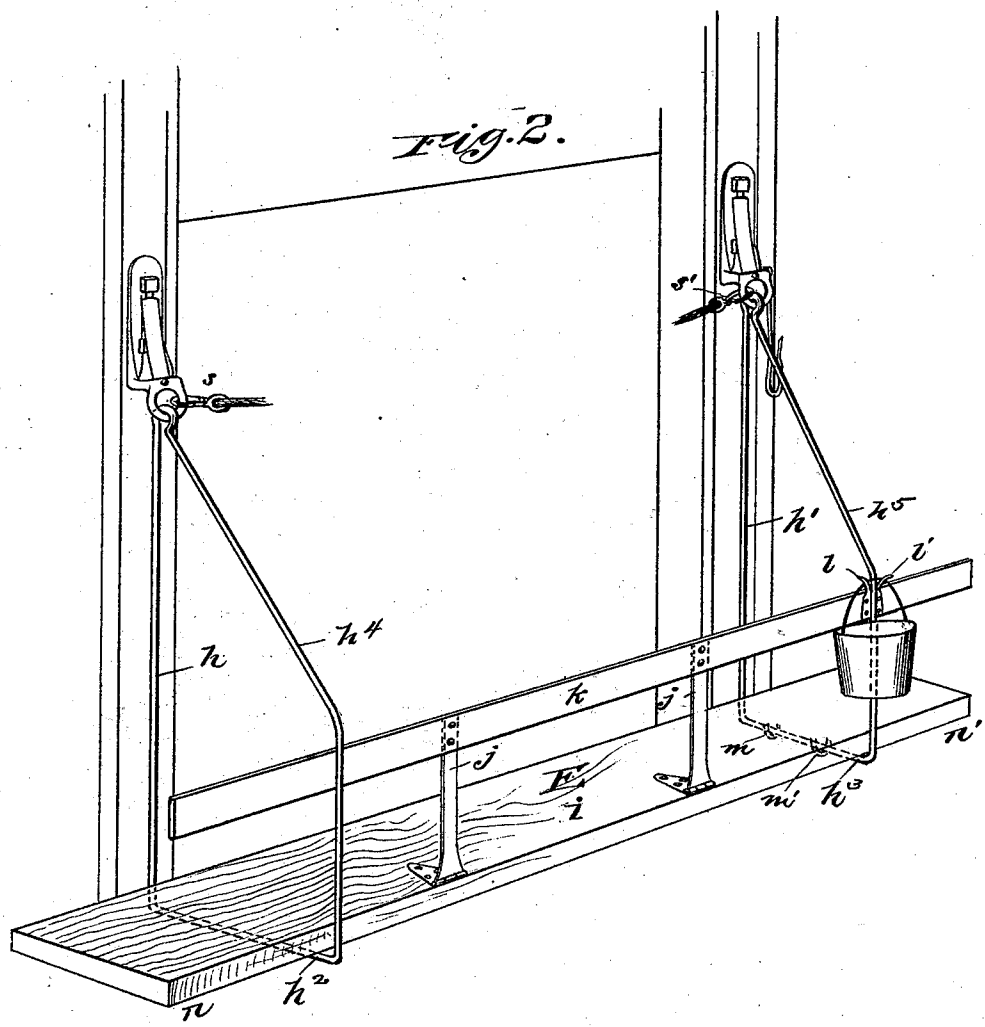
(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.



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SAFETY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 519,365, dated May 8, 1894.

Application filed November 25, 1893. Serial No. 491,955. (No model.)

To all whom it may concern:

Be it known that I, HIRAM K. WHITNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety Apparatus; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in safety apparatus and is generally adapted to the safety of window-cleaners and like hazardous occupations.

The object of my invention is to not only facilitate the work of those in exposed elevated positions by constructing a device that may be quickly applied, but by such means as I hereinafter show I insure greater stability at less cost than has heretofore been done. I am aware that staples and eye-bolts have been used in combination with snap-hooks, the latter terminals to a belt worn upon the person. Such combinations because of their cost and nature of application are single—not having a reserve to depend upon in case of mishap—staples are impracticable and eye-bolts because of enlarged exposure in proportion to shank inserted are susceptible to disarrangement by blows inflicted by awning hangers; sash cord repairsmen; by the incessant handling of fly-screens, &c. The solid headed bolts commonly known as lag-bolts, such as I preferably use, offer less exposure, and are not liable to be tampered with playfully, besides their cost offers no objection to their duplication, hence the reserve so desirable.

My invention consists in the construction and arrangement of parts as hereinafter set forth.

Figure 1 shows my safety apparatus attached to one side of a window frame. Fig. 2 shows a balcony attached to the sides of a window frame and embodying my improved anchorage in combination with a seat or foot rest.

In Fig. 1, A, and A′, are slotted terminals or anchorages. Terminal A, is shown in engagement with the protruding shanks of so-called permanent fixtures, B, and B′, preferably a duplication of solid-headed screw-bolts known as lag-bolts. Terminal A′ shows its parts in detail, they being similar to those of terminal A, in the main but is detached from its so-called permanent fixture found on the opposite side of a perfect window frame, but omitted in the drawings.

a, is a slotted plate having a bolt-way *b*, three-eighths of an inch in width and about four inches in length, widening at its mouth *b′*, and ending in a span bridge or bench *c*, immediately over said mouth of the slot and high enough to admit of the free passage of the protruding bolt-head of the so-called permanent fixture. The under side of said bench I preferably bevel or slope and to said beveled surface I rivet the retaining plate spring *d* giving it the proper tension. It would not be a departure from the spirit of my invention to use a retaining spiral spring; trigger; hammer; cam; or bolt in combination with said slotted plate, any one of which would equally well retain said slotted plate in position as shown in Fig. 1, terminal A, such substitution would be but equivalents thereof. Pierced enlargements of said benches are provided with ordinary rope eye thimbles *f* and *f′*, to receive the jacket-rope or stay C, thereby forming an anchorage of great stability and simplicity. Said slotted plate *a* will be greatly strengthened if provided with herring bones a^3 and a^4, Fig. 1, terminal A′. To the right-hand herring-bone of the right-hand terminal as shown in terminal A′, I secure the pail hook *e*.

I preferably use two protruding lag-bolts to perfect each anchorage—in fact in practice I deem two B and B′, about three inches apart indispensable to assure stability and preclude any possibility of wrenching or twisting. The shank should be five-sixteenths of an inch in diameter, the inserted portion threaded with a so-called wood-screw, total length under the head two to two and a half inches. Each side of a window frame, or a sash frame presents points of insertion for said dual lag screws leaving on the one hand the place usurped by fly-screens while on the other hand we find the awning fixtures. But it would not be a departure from the spirit

of my invention to have but one lag-screw in each anchorage.

As hereinbefore mentioned I do not limit myself to any particular method of keying, any means that will block the passage of the protruding heads of said lag-screws in their accidental escape from the slot in question will be equivalents of what I have shown and preferably employ.

In Fig. 3 I have shown a modification in which I preferably make the slotted plate hereinbefore shown the terminal or anchorage of the portable balcony E, of which h and h' are pendent bracket arms being the long arms of two triangular geometrical figures; h^2 and h^3, are the short arms of said figures; while h^4 and h^5 are the hypotenuse to the same. One of said geometrical figures is detachable and is shown in position outside of the section of a window. The other by means of eye-bolts or staples m and m', is secured hinge fashion to a footboard i; j and j' are standards secured to said foot-board and supporting guard k, said guard has pail-hook l and l'. Said foot-board should end in extensions n and n' in order that when both brackets are in position upon the outside of a window and n extension is inserted into the detachable bracket and made to rest upon the horizontal arm h^2, said extension n and n' are adapted to rest respectively against the outside wall upon the respective sides of the window. The inward tendency when weighted by a person standing upon said structure tends to keep it in a rigid position. In combination with said portable balcony I may use my safety jacket, herein shown, but differing in that the rope-terminals to the jackets may be ordinary snap-hooks s and s', adapted to engage with the perforated enlargement of the hereinbefore mentioned portable slotted plate, there being ample space for the respective balcony brackets and snap-hooks. Said combination of lag-bolts and slotted plate will also make an admirable anchorage for portable fire-escapes. Furthermore my several years' experience with safeties for window cleaners in operating Patent No. 474,586 leads me to adhere to canvas jackets or belts in preference to leather with the latter's attendant buckles.

Having thus fully described my invention, I will now in claims point out what is new and novel:

1. The herein described safety apparatus for window cleaners, consisting of the combination, of the two or more protruding headed bolts, and the slotted plate adapted to carry the rope, said slotted plate having the single longitudinal slot therein, engaging both said bolts, said slot extending through the end of the window-frame engaging part of the plate and being bridged by the part bearing the ring or means for attaching a rope.

2. The herein described safety apparatus for window cleaners consisting of the combination, of the protruding headed bolts, the slotted plate engaging said bolts, and the spring or similar device by which said plate is keyed to said bolts, all substantially as shown and described.

3. In a safety apparatus the combination, with a rope sliding freely in a rope-way secured about the body of a window-cleaner, of the rope-terminal having a slotted plate a; bolt-way b and b'; bench c; spring-plate d and thimbled rope-eye f', adapted to engage with the protruding headed bolt secured into the window-frame, substantially as and for the purpose set forth.

4. In a safety apparatus the combination, with a rope sliding freely in a rope-way secured about the body of a window-cleaner, of the rope-terminal having a slotted plate a; bolt-way b and b'; bench c; spring-plate d; thimbled rope-eye f'; herring-bone a^4; pail-hook e adapted to engage with the protruding headed bolt secured into the window-frame, substantially as and for the purpose set forth.

5. In a safety apparatus as herein shown and described, a balcony or seat E, having a foot-board i, adapted to engage with bracket arms H^4, H^5, and bracket arms H, H', H^2, H^3, with their terminal slotted plates adapted to engage with protruding headed bolts, secured into the sides of a window frame and with snap-hooks S, S', the rope terminals of a safety jacket as a means of anchorage for said balcony and for said jacket and in combination with means for securing said jacket about the person of a window cleaner substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HIRAM K. WHITNER.

Witnesses:
L. F. MANN,
L. F. MCCREA.