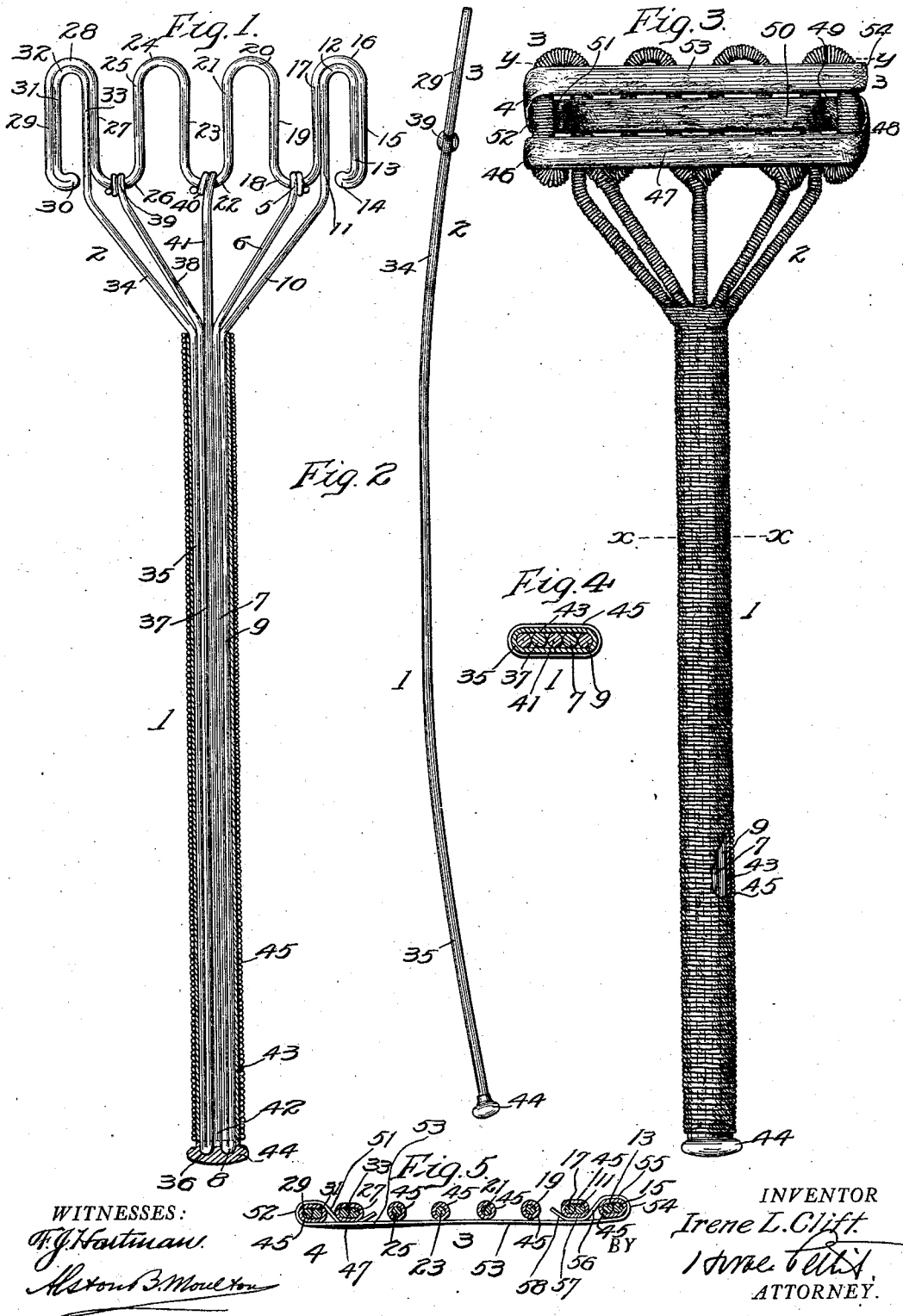


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APPLICATION FILED JULY 28, 1906.

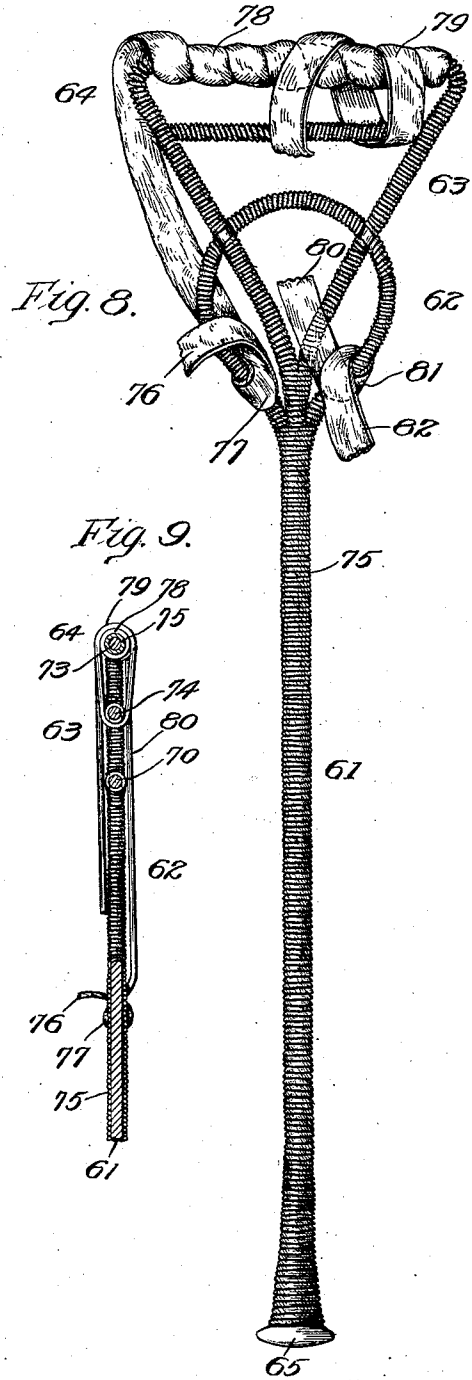
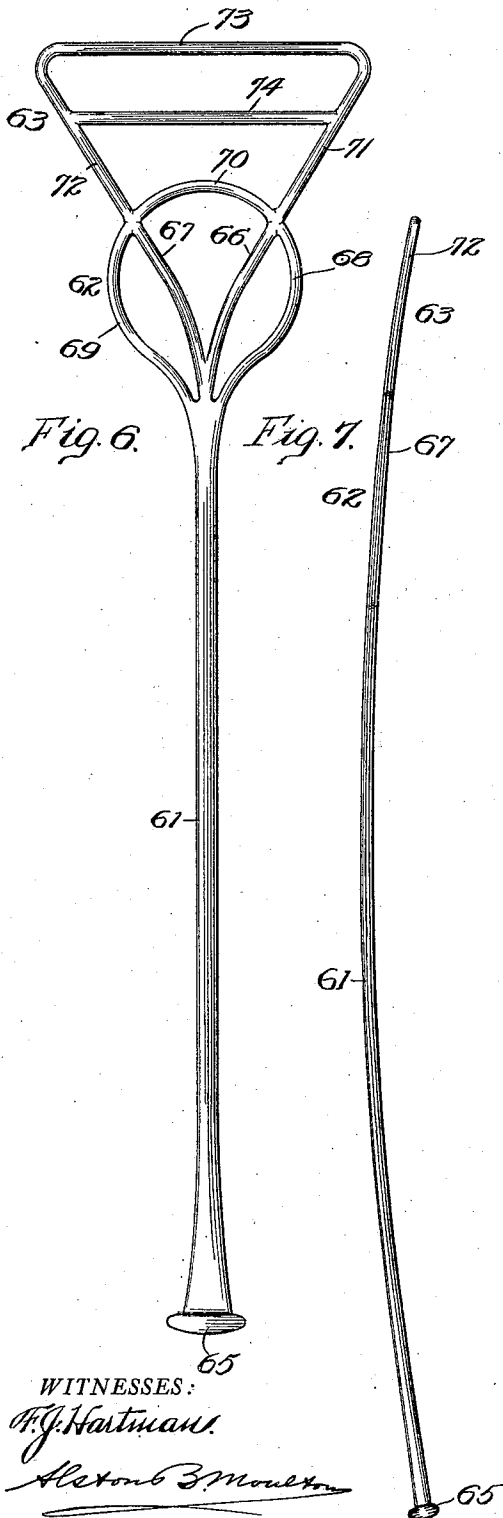
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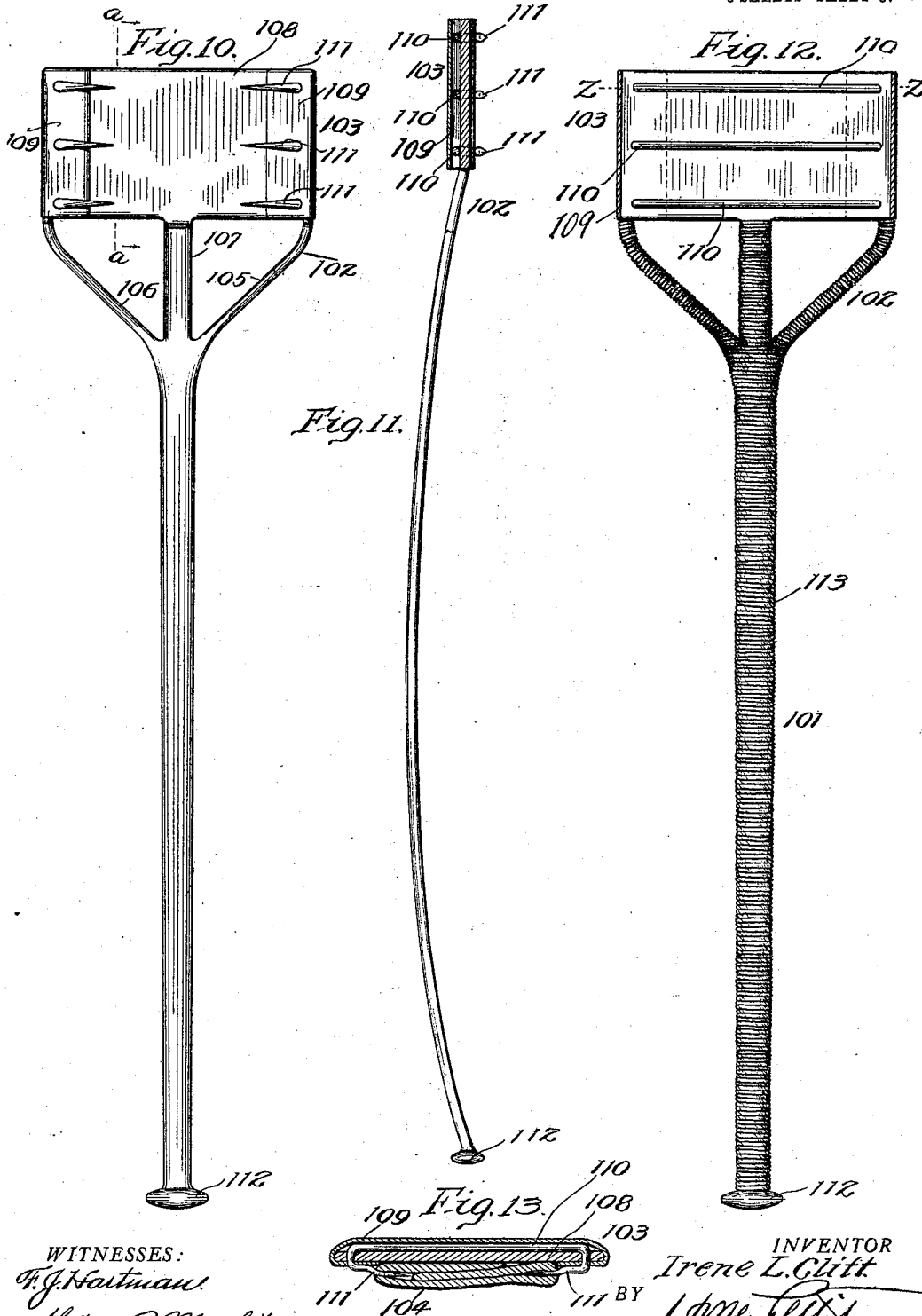
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UNITED STATES PATENT OFFICE.

IRENE L. CLIFT, OF PHILADELPHIA, PENNSYLVANIA.

WINDOW-CLEANER.

No. 929,391.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed July 28, 1906. Serial No. 328,177.

To all whom it may concern:

Be it known that I, IRENE L. CLIFT, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Window-Cleaners, of which the following is a specification.

My invention relates to cleaning apparatus and more particularly to that used for cleaning flat surfaces such as window panes and the like.

The object of my invention is to provide a cheap, economical and durable device on which may be wound or otherwise secured a cloth or other cleansing material, the said device being of such a size and shape that it can be readily operated on the outside of or between the window sashes by a person on the inside, thus avoiding the necessity of removing the sashes whenever it is desired to clean the windows.

For the full, clear and complete disclosure of my invention, reference may be had to the following description and accompanying drawings, in which like reference characters refer to corresponding parts.

In the drawings, Figure 1 is a front view of my invention, a part thereof being shown in section and the cord wrappings being partly removed. Fig. 2 is a side view of so much of my device as is constructed from wire. Fig. 3 is a front view, showing the cloth wrapped around the head of the cleaner, a part of the handle portion being broken away. Fig. 4 is a horizontal section taken on the line $x-x$ of Fig. 3. Fig. 5 is a horizontal section taken on the line $y-y$ of Fig. 3. Figs. 6 and 7 are front and side views of another form of my invention, the cord wrappings being removed. Fig. 8 is a front view thereof, showing a manner of winding the cloth to the head. Fig. 9 is a fragmentary vertical section taken through the middle of the head, showing the cloth wrappings wound for use. Figs. 10 and 11 are front and longitudinal sectional views of another form of my device and showing the cord wrappings removed. Fig. 12 is a rear view of my device showing the rear portion of the head covering removed. Fig. 13 is a transverse section taken on line $z-z$ of Fig. 12, showing a cloth attached to the head.

Referring to Figs. 1 to 5 inclusive, 1 represents the handle of my device from the end of which diverges a plurality of members 2, the said members terminating in a head 3 upon

which is wound in a peculiar manner hereinafter to be described, the cloth 4. The handle, diverging members and head are all made up of three single pieces of wire, the coil 5 representing one extremity of one wire converging at 6, extending downwardly in a straight portion 7, bent upon itself at 8, extending upwardly at 9 and diverging again at 10, projecting into the loop 11—12 and 13, turned inwardly to form the hook 14 and back upon itself around the loop, forming another loop 15—16 and 17, and likewise the intermediate loops 18—19—20—21—22—23—24—25 and 26, the said intermediate loops terminating in the outer loop 27—28—29 turned inwardly to form the hook 30 and bent back upon itself to form the inside loop 31—32—33, extending downwardly and inwardly at 34 and downwardly again at 35, bent upon itself at 36, extending upwardly at 37, diverging at 38, and terminating in the coil 39, the said coils 5 and 39 respectively being attached or wound around the intermediate loops 18 and 26. Between the inner and upwardly extending portions of the wires 7 and 37 extends downwardly the straight wire 41, terminating at 42, between the bends 36 and 8 of the two adjacent wires. The part under 40 is coiled around the bend 22 of one of the intermediate loops. The portions 35—37—41—7 and 9 of the wires are all arranged one opposite the other and close together and are incased by a flat metal sleeve 43, at the bottom of which and on the extremities of the wires is fastened the ferrule 44, all of the said parts are then tightly wound with cord, as shown in Fig. 3, and around the loops on the head is wrapped the cloth 4 by placing one end thereof in front of the loop portions 27 and 33, threading it rearwardly through the left end outer loop and around the end of the same as indicated at 46, along the front portion at 47, around the end of the right hand loop at 48, threaded forwardly through the side loop at 49, along the front portion at 50, and rearwardly again through the left hand loop at 51, around the outer portion of the same at 52, along the front at 53, around the left hand loop at 54 and 55, forwardly through the same at 56 and between the portions 11—17 of the wire and the front portion 53 of the cloth, terminating in the end 58.

Referring to Figs. 6 to 9 inclusive, in which another form of my device is illus-

trated, 61 is the handle portion, 62 the members diverging therefrom and 63 is the head around which is wrapped the cloth 64, in the manner illustrated in Figs. 8 and 9. 65 is an enlarged portion at the base of the handle. The diverging members consist of the two members 66 and 67 and the curved members 68 and 69, which are continued at their upper portions into a curved member 70, the three members 68, 69 and 70 forming substantially a complete circle, which is intersected by the members 66 and 67. From these intersections diverge the members 71 and 72, which are connected at their top portions by the members 73 and bridged below the member 73 by the member 74. The article thus far described is made out of cast metal, or any other suitable material, and is curved in the direction of its length, as illustrated in Fig. 7. The entire frame, with the exception of the enlarged portion 65, is wound with cord or twine, as illustrated in Fig. 8, and around the head is wound the cloth 64 in the following manner:—The one extremity 76 is wound around the member 69, as shown at 77, and is carried upwardly and wrapped tightly the entire length of the member 73, as shown at 78. The cloth is then carried in successive coils as shown at 79, around the wrapped member 73 and around the member 74, after which it is carried down to the curved member 68, as shown at 80, and wound around the same as shown at 81, the extremity 82 flapping loose therefrom. In Fig. 8 the cloth is shown partly broken away and loosened in places, to illustrate the manner of the winding. In Fig. 9, however, is illustrated a section of the frame wrapped with cord, the said section being taken through the middle portion thereof longitudinally of the head and handle portion, the cloth, however, being shown in elevation in its position as finally wrapped. The extremities 76 and 82 of the cloth may be tied or simply wedged in between the diverging members to secure the same to the frame. In this modification, as well as in the form illustrated in Figs. 1 to 5 inclusive, for the cloth I may substitute any other well-known form of cleansing fabric or other material which may be adapted to be fastened to the head.

Referring to Figs. 10 to 13 inclusive, 101 indicates the handle portion of another form of my device, 102 the diverging members and 103 the head thereof, to one side of which is secured the cloth 104. The diverging members are made up of the parts 105 and 106, between which extends the member 107 and to the extremities of all three members is fastened the body portion of the head 108. Passing through the body portion are the three wires 110, each having pointed extremities 111 bent around parallel sub-

stantially with the front surface of the body portion. Wrapped around the rear side of the body portion over the wires 110 is a strip of canvas, duck or like fabric 109, the extremities of which are turned around the front portion having the pointed wires 111 extending therethrough and securing the ends thereof to the body portion. The cloth 104 or any other suitable cleansing material is fastened over the pointed wires 111 and may be wedged between the same and the body portion.

In all of the above described constructions the handle portions are resilient and being curved as described enable the head portions to be rubbed against the outside of or inserted between the window sashes, the said head being thin and elongated for this purpose. The front of the head to which is secured the cleansing cloth or material, can, by the natural movement of the arm, assisted by the curvature and resiliency of the handle, be pressed against the window glass and operated in the usual manner of cleansing windows. In the form illustrated in Figs. 1 to 5 inclusive, the hooks 14 and 30 prevent the cloth windings from dropping down off the head should they become loose during the operation of the device. The cord wrappings are for the purpose of preventing the painted or other parts of the window from being scratched. Although I have shown the cloth wound around the heads in several peculiar manners, yet by virtue of the construction of the head, the cloth may be secured thereto in any other manner which seems most desirable.

Having thus described my invention, what I claim and desire to protect by Letters-Patent of the United States, is,—

1. A window cleaner, comprising a curved handle having a plurality of members extending therefrom, a thin elongated head having substantially square corners, and wires having pointed extremities piercing said head, the said extremities being bent substantially parallel with the front side of said head.

2. A window cleaner comprising a resilient curved handle, a substantially flat head secured thereto, wires having pointed ends piercing said head and terminating on the front side thereof to hold cleansing material, and a strip of fabric covering the back and ends of said head and secured in place by said pointed ends, the ends of the handle being substantially in the plane of the said head.

In witness whereof I have hereunto set my hand this 27th day of July, A. D. 1906.

IRENE L. CLIFT.

Witnesses:

ALEXANDER PARK,
ALSTON B. MOULTON.