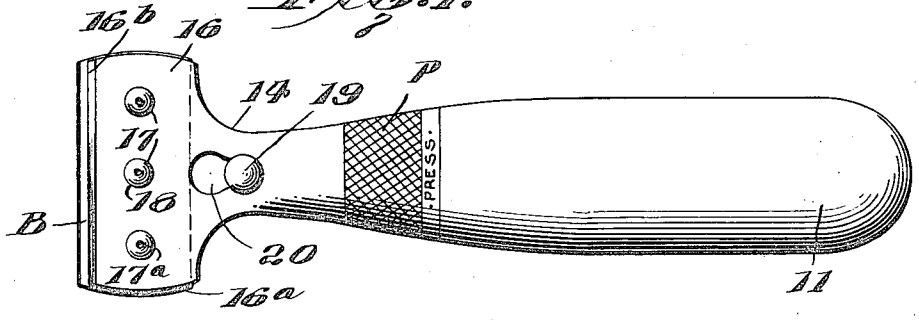
Dec. 2, 1924. 1,518,100

F. A. NIGHBERT

WINDOW CLEANING TOOL

Filed Oct. 30, 1923 2 Sheets-Sheet 1

Fig. 1.



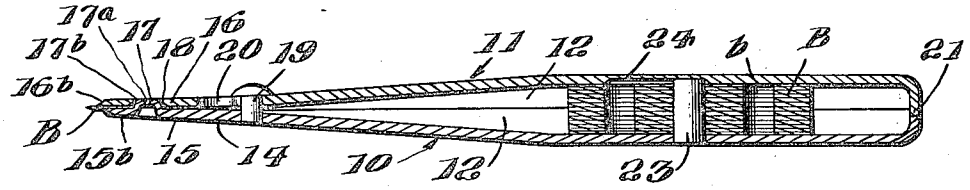


Fig. 2.

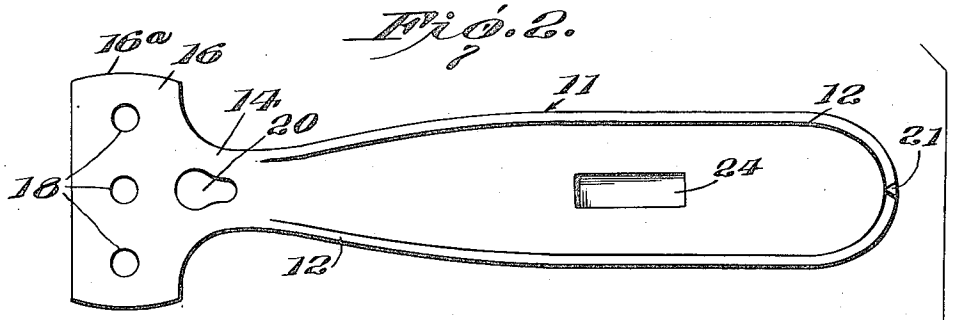
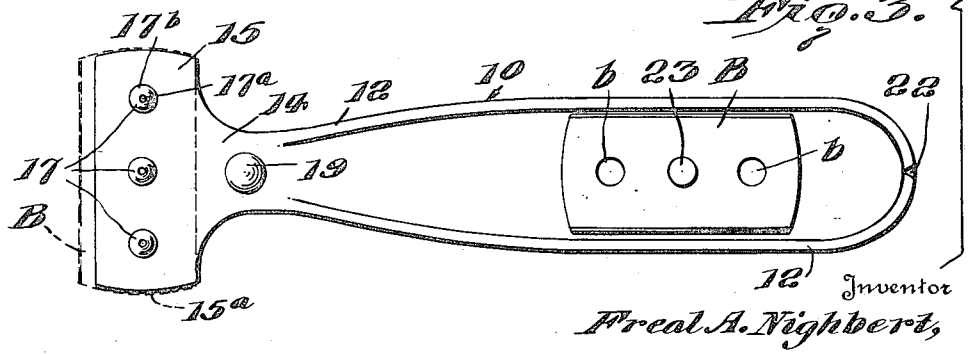


Fig. 3.



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WINDOW CLEANING TOOL

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Fig. 4.

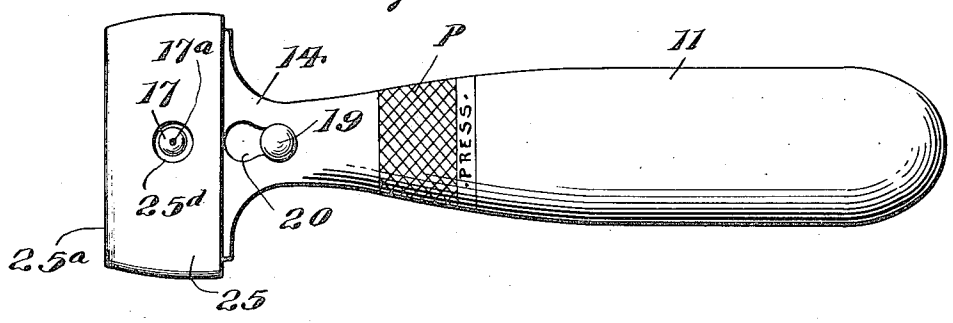
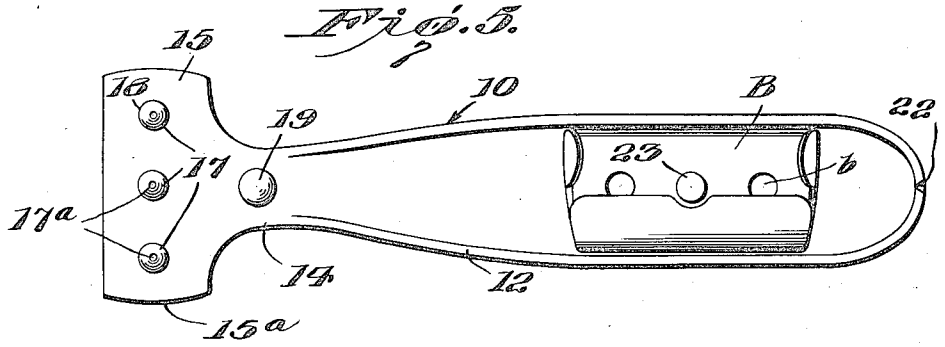


Fig. 5.



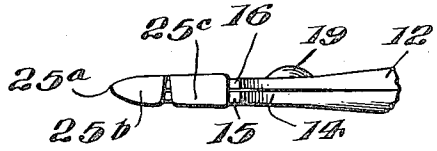


Fig. 6.

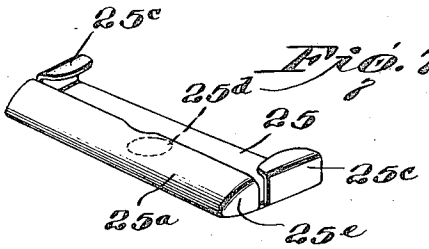


Fig. 7.

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Patented Dec. 2, 1924. 1,518,100

UNITED STATES PATENT OFFICE.

FREAL A. NIGHBERT, OF BAKERSFIELD, CALIFORNIA.

WINDOW-CLEANING TOOL.

Application filed October 30, 1923. Serial No. 671,776.

To all whom it may concern:

Be it known that I, FREAL A. NIGHBERT, a citizen of the United States of America, and resident of Bakersfield, county of Kern, State of California, have invented certain new and useful Improvements in and Relating to Window-Cleaning Tools, of which the following is a specification.

This invention relates to certain improvements in window cleaning and the like tools; and the nature and objects of the invention will be readily recognized and understood by those skilled in the art in the light of the following explanation and detailed description of the accompanying drawings illustrating what I at present consider to be the preferred embodiments or mechanical expressions of the invention from among various other forms, arrangements, combinations and constructions of which the invention is capable within the spirit and scope thereof.

The invention provides a tool for cleaning and removing foreign matter from smooth or glazed surfaces such as presented by glass, porcelain, enamel and the like, by scraping; and an object of the invention is to so form and construct such a tool that a surface enclosed or mounted in or on a frame or the like, such as glass window panes, can be scraped and cleaned with the tool adjacent and in proximity to the frame without marring or disfiguring the same by contact with or engagement by the cleaning tool.

Another object of the invention is to provide a scraping tool or implement for cleaning smooth or glazed surfaces of foreign matter collected thereon, which is formed and constructed to utilize old or discarded razor blades as scraping or blade elements therefor, and thus materially reduce the costs of production and of operation and use.

Another object of the invention is to provide a scraping tool or implement adapted to utilize discarded razor blades as scraping or blade elements, in which the razor blades are efficiently clamped and held in operative position in the tool and can be readily removed and replaced as required.

Another object of the invention is to provide a scraping or the like tool adapted to utilize discarded razor blades as scraping or blade elements, in which the tool is formed to receive and carry a supply of blades for replacement purposes.

Another object of the invention is to provide a scraping or the like tool adapted to utilize old or discarded razor blades as the scraping or blade elements therefor, with a detachable guard element for protecting the operating edge of a scraping blade in operative position in the tool, and which guard element in detached position further forms a magazine or container capable of receiving and storing a supply of scraping blades.

Another object of the invention is the formation of a scraping or the like tool in complementary sections adapted to be detachably secured together to provide the complete tool, including the tool body and blade clamping and holding members, and to further provide means for detachably securing the tool sections into assembled tool forming position which means likewise secures the blade clamping and holding members into operative position.

Another object of the invention is the provision of a metal scraping or the like tool of simple design and construction capable of quantity production at low cost.

With the foregoing and various other objects and results in view, which other objects and results will be readily apparent to those skilled in this art from the following description, the invention consists in certain novel features in construction and in combinations and arrangements of elements, as will be more fully and particularly referred to and specified hereinafter.

Referring to the accompanying drawings:

Fig. 1 is a plan view of a tool of the invention with the elements thereof in assembled tool forming relation holding a blade in operative position.

Fig. 2, is a vertical longitudinal section through the tool of Fig. 1.

Fig. 3, is a plan view of the tool forming complementary sections or units separated, and showing the inner or opposed sides thereof and one manner of mounting a supply of blades therein.

Fig. 4, is a plan view of a tool of the invention with the scraping blade guard in operative position thereon protecting the operating edge of a scraping blade.

Fig. 5, is a plan view of one of the sections or units of which the tool is formed, with the scraping blade guard in position

therein forming a container for a supply of blades.

Fig. 6, is a detail view in side or edge elevation showing the scraping blade guard in mounted operative position on the tool protecting the operating edge of a blade therein.

Fig. 7, is a detail perspective view of the scraping blade guard and container for a supply of blades.

One possible form and embodiment of which the invention is capable is disclosed in the accompanying drawings by way of an example for purposes of explaining the various features presented by the invention, and embodies essentially in this instance, a pair of complementary sections or units adapted to be detachably secured together in tool forming relation and position. Preferably, although not so limited, the sections or units 10 and 11 are made of spring sheet material such as sheet brass, and are pressed, stamped, or otherwise formed from suitable blanks or the like, in any of a number of well known and generally practiced methods familiar to those skilled in the art involved. Each of the tool forming sections or units 10 and 11 embodies and provides a tool operating handle forming portion, and a scraping blade receiving and clamping plate forming portion. The operating handle forming portions of each section or unit are similar and comprise an elongated concave or dished body having the edge flange or wall 12 therearound, with the concave body reduced in width and depth at one end portion thereof, and the edge wall 12 terminating inwardly a distance along the body from the reduced end to form a substantially flat shank portion 14, as particularly shown in Figs. 1, 2 and 3 of the accompanying drawings. With the concave or dished portions 10 and 11, so formed, by placing and securing the same together against displacement with their concave sides facing and their edge walls 12 alined and abutting, a hollow tool body providing an operating handle having an exterior form and contour to fit and be readily grasped in the hand can be formed.

The outer end of the flat shank portion 14 of each of the sections or units 10 and 11 is extended and enlarged to form a scraping blade receiving and clamping plate forming portion integral with, and extending and disposed transversely of the sections or units 10 and 11 at the shank or reduced ends thereof. This enlarged portion of the shank or reduced end of the section or unit 10 provides the scraping blade receiving and clamping plate 15, hereinafter referred to for purposes of clearness and brevity as the base clamping or base plate 15; and the enlarged portion of the reduced end of the section or unit 11 provides the scraping blade clamping plate 16. The base plate 15 and clamping plate 16 are in the present instance of substantially the same shape but with the clamping plate 16 of slightly greater width or depth (see Fig. 2), and are formed to receive and clamp a razor blade in operative position therebetween of the well known and universally used safety razor type having a series of spaced bores or holes therethrough, although it is to be understood that the invention is not limited to use with blades of the safety razor type shown, or to any specific type of blade, as other types of blade to meet the requirements of the invention may be utilized. The base plate 15 of the section or unit 10, is formed with the rounded ends 15^a and with the outer side face 15^b thereof rounded or convex, as clearly shown in Fig. 2 of the drawings. The clamping plate 16 of the section or unit 11 is likewise formed with rounded ends 16^a, but the outer side face thereof is formed flat and provided with the beveled leading or forward edge 16^b, as shown in Fig. 2, particularly.

The base plate 15 of the tool forming section or unit 10, is provided with a series of rounded projections or knobs 17 on the inner side or blade engaging face thereof, which are spaced apart and substantially alined longitudinally of and along the base plate 15. These rounded projections or knobs 17 are formed on the plate in any suitable or desired manner, as by pressing, stamping or striking the same up from the plate by means of suitable blunt or rounded instruments or dies. The projecting rounded knobs 17 so formed are provided with the central bores or apertures 17^a therethrough, so that, in effect, these knobs form projecting shoulders or flanges 17^b having sloping or inclined sides. The knobs 17 are so spaced and arranged on the base plate 15 as to register with and extend into and through the bores or holes in the type of razor or other blades to be mounted and clamped on the base plate in operative position in the tool, as will be more fully referred to and explained hereinafter. The clamping plate 16 of the tool forming section or unit 11 is provided with a series of bores 18 therethrough, arranged and positioned thereon so as to register with and receive the series of knobs 17 on the base plate 15 of section 10 when the two sections or units 10 and 11 are placed and secured together in tool forming relation and position.

The tool forming sections or units 10 and 11 are detachably secured and maintained in tool forming position by means of a headed pin 19 fixed on the flat shank portion 14 of the section or unit 10 and extending or projecting from the inner side thereof; and an elongated opening 20 formed through the shank portion 14 of the section or unit 11,

enlarged at the forward end thereof to receive and permit passage of the headed pin 19 therethrough when the section 11 is imposed upon the section 10. The headed pin 19 and opening 20 of the sections 10 and 11, respectively, are so arranged that the section 11 can be imposed or placed upon the section 10 with the pin 19 extended through the forward enlarged portion of the opening 20, and then by pressing the two sections together at points to the rear of the shank portions 14 thereof, suitable roughened finger gripping areas P being provided for this purpose as shown in Figs. 1 and 4, the section 11 can be forced forwardly into tool forming position on section 10 with the clamping plate 16 snapped over projections 17 and bearing upon the base plate 15, and the sections maintained in this position by the headed pin extending through the rearwardly reduced portion of opening 20. (See particularly Fig. 2.) In normal separated or free position the sections 10 and 11 are inclined at the clamping plate ends thereof from the plane of the sections. The sections 10 and 11 in imposed tool forming position have the shank portions 14 and plate portions 15 and 16 bent or flexed outwardly from their normal free position and hence are under pressure and maintained securely in position by the head of pin 19 bearing and confining the two sections tightly together, as clearly shown in Fig. 2 of the drawings. In order to prevent lateral movement or displacement of the sections in mounted position, a tooth 21 is provided on the edge wall 12 at the end of the handle forming portion of section 11, and a notch or groove 22 is formed at the corresponding point on section 10 to receive the tooth 21 when the two sections are in position secured together.

In the present example of the invention a well known type of safety razor blade is utilized to provide the scraping element or blade of the tool above described. One of such blades B is illustrated in plan view in Fig. 3 and a supply or pack of the blades B is shown in vertical section in Fig. 2 of the drawings. This type of blade B is formed with a series of spaced bores or openings *b* alined along the longitudinal center thereof, and the projections or knobs 17 of the base plate 15 of section 10 are arranged to fit into and extend through the openings *b* of a blade placed in operative position on the base plate. A blade B is placed upon the base plate 15 with the projections 17 extending through the bores *b* of the blade, and a cutting edge of the blade extended a distance outwardly from the edge of the plate 15. (See Fig. 3.) The projections or knobs 17 forming the inclined or sloping shoulders 17^b are preferably formed at the bases thereof to provide a tight fit with the blade bores *b*, so that a blade is in effect forced or snapped into and from position on the base plate 15. With a blade B in position on the base plate 15, the section or unit 11 is detachably secured in position on the section or unit 10 in the manner hereinbefore described, and the clamping plate 16 is forced and held down upon the base plate 15 with the blade B interposed and tightly held in position between the plates 15 and 16, and the cutting edge of the blade extended a distance forwardly therefrom. The blade B can be quickly and readily removed for replacement by detaching the sections 10 and 11 and snapping the blade from the plate 15 and projections 17. The sections or tool forming units 10 and 11 are detached by pressing thereon at the points P, and then forcing the section 11 rearwardly with respect to the section 10 to force the clamping plate 16 over the inclined projections 17 of base plate 15 and to bring the headed pin 19 in position to pass through the enlarged portion of the opening 20 and permit separation of the sections.

The concave or dished formation of the handle forming portions of the sections provides a space or chamber within the tool formed thereby, and the invention utilizes this space or chamber to store and transport a supply of blades. The section or unit 10 is provided with a pin 23 in the dished or concave body portion thereof, and the inner face of the dished portion of section 11 is formed with a longitudinally disposed groove 24 into which the free end of pin 23 fits with the sections in attached assembled position, and in which the pin 23 is freely slidable to permit movement of the section 11 in attaching and detaching the same from section 10, as will be clear by reference to the drawings in connection with the foregoing description. A supply of the blades B are confined and positioned in the handle of the tool by placing the same therein with the pin 23 extending through one of the bores *b* thereof, as illustrated in Figs. 2 and 3 in which a pack of blades B are so mounted.

The invention further provides and includes a detachable guard for protecting the cutting or operating edge of a blade mounted in operative position in the tool, and which guard likewise forms a magazine or container for a supply of blades. In the illustrated example, such a guard 25 is disclosed in Figs. 4 to 7, inclusive of the accompanying drawings, and comprises a plate having the forward portion thereof bent or otherwise turned back upon itself to form the cutting edge receiving guard flange 25^a having the opposite side or end flanges 25^b. The body plate of the guard 25 is further provided with the opposite side or end re-

taining flanges 25[c] extending over a distance onto and spaced from the plate or body of the guard. The guard so formed is provided with a bore 25[d] through the body forming plate thereof, for the purpose explained hereinafter. In order to mount the guard 25 in position protecting the cutting edge of a blade B, it is slipped over the clamping plates 15 and 16 of the tool with the guard flange 25[a] receiving and covering the cutting edge of the blade and the retaining flanges 25[c] extending over and engaging the opposite ends of the plates 15 and 16. The mounted position of the guard is clearly shown in Figs. 4 and 6 of the drawings. The guard 25 is readily removed by slipping the same from position on and engaging the clamping plates 15 and 16 of the tool. When detached the guard 25 forms a container or magazine for a supply of blades B, which are placed therein as shown in Fig. 5 of the drawings, and the guard with the blades therein can be placed within the tool handle in a position similar to that of the blades B in the tool handle shown in Figs. 2 and 3. with the pin 23 of section 10 extending through the bore 25[d] of the guard and through alined bores *b* of the blades therein.

In the operation and use of the tool for scraping or cleaning purposes the rounded end edges 15[a] and 16[a] of the clamping plates 15 and 16, together with the rounded and sloping convex surface 15[b] of plate 15, and the beveled edge 16[b] of the flat plate 16, permit of using the tool to clean and scrape frame enclosed surfaces, such as window panes, adjacent and in proximity to the frames and in the corners formed thereby, without engaging and marring the frame with the tool. Further, the rounded convex outer face 15[b] of the clamping plate 15 can be used as a bearing surface to guide and assist in maintaining the cutting edge of a blade in engagement with a surface in scraping the same. The blades B can be readily mounted and removed in and from operating position between the clamping plates 15 and 16 by detaching the sections or units 10 and 11 of which the tool is formed.

The formation of the tool in the complementary sections to provide the handle and blade supply space, and the operating blade clamping plates, permits of ready manufacture at low cost, while the construction and arrangement of the sections to use old and discarded razor blades further reduces the cost of production and makes it possible for a user to readily secure at little or no expense the blades necessary for operation.

It is evident that various modifications, changes, variations and substitutions might be resorted to without departing from the spirit and scope of the invention, and hence I do not wish to limit myself to the exact and specific disclosures hereof.

Desiring to protect my invention in the broadest manner legally possible, what I claim is:

1. A scraping tool embodying complementary sections adapted to be detachably secured together to form the tool, each of said sections comprising a substantially concave handle forming portion terminating at one end in a blade clamping plate, means for detachably securing said sections together with the concave handle forming portions providing a hollow handle and the clamping plates bearing against each other but adapted to receive and clamp a blade in operative position therebetween, and a detachable guard fitting over said plates to cover and protect the cutting edge of a blade therebetween, the said guard formed when detached to receive and contain a supply of blades and capable of being mounted and confined within the hollow handle formed by the concave portions of said sections.

2. A scraping tool embodying complementary concave resilient material sections detachably secured together to form the tool, each of said sections embodying a handle forming portion having the base wall inclined longitudinally at an end thereof and terminating in a substantially flat clamping plate connected with the handle forming portion by a shank portion, blade engaging and retaining means on one of said clamping plates, and means for detachably securing said sections together in tool forming position with the inclined ends of the walls extended inwardly toward each other and compressed so that the shank portions are flexed outwardly to permit the clamping plates to bear against each other under tension.

Signed at Bakersfield, California, this 22nd day of October, 1923.

FREAL A. NIGHBERT.