E. E. RICE.

WIRE BRUSH.

APPLICATION FILED DEC. 12, 1908.

969,191. Patented Sept. 6, 1910.

2 SHEETS—SHEET 1.

Fig. 1

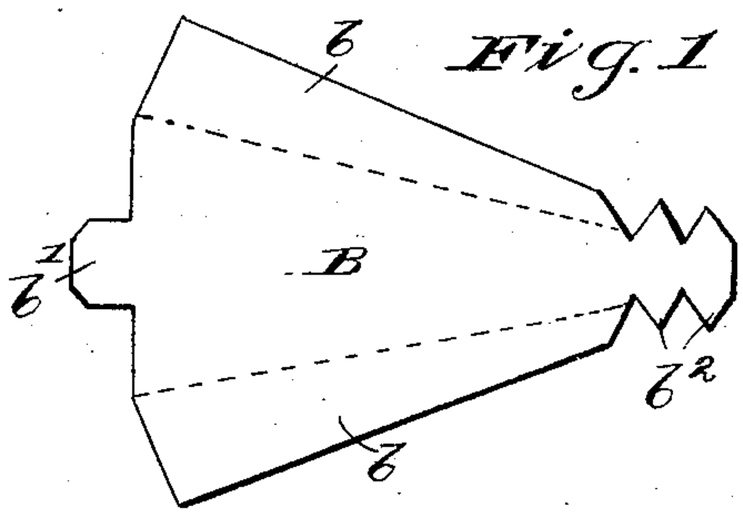


Fig. 2

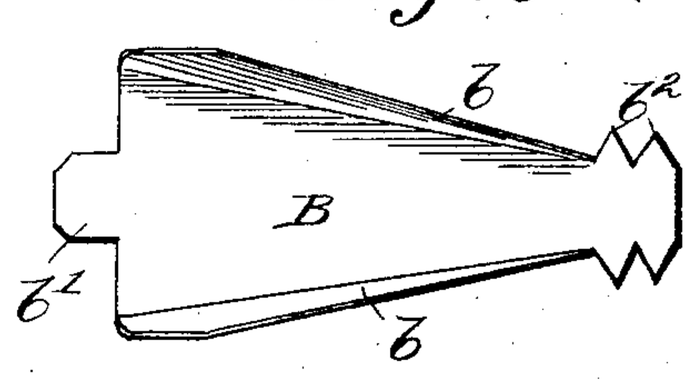


Fig. 3

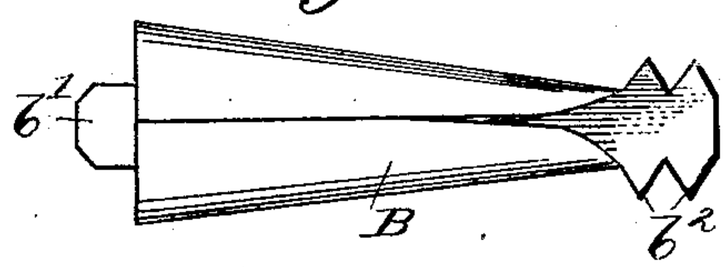


Fig. 4

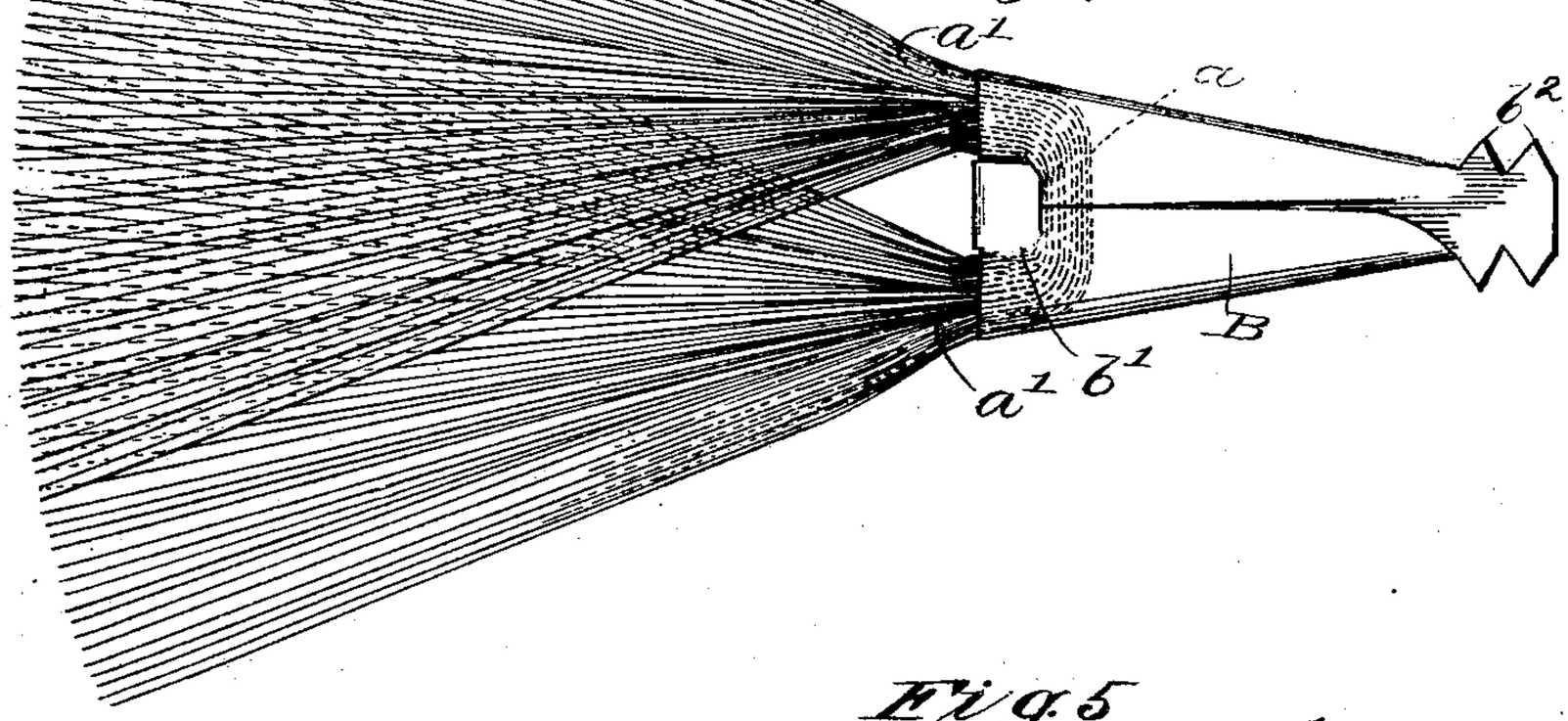
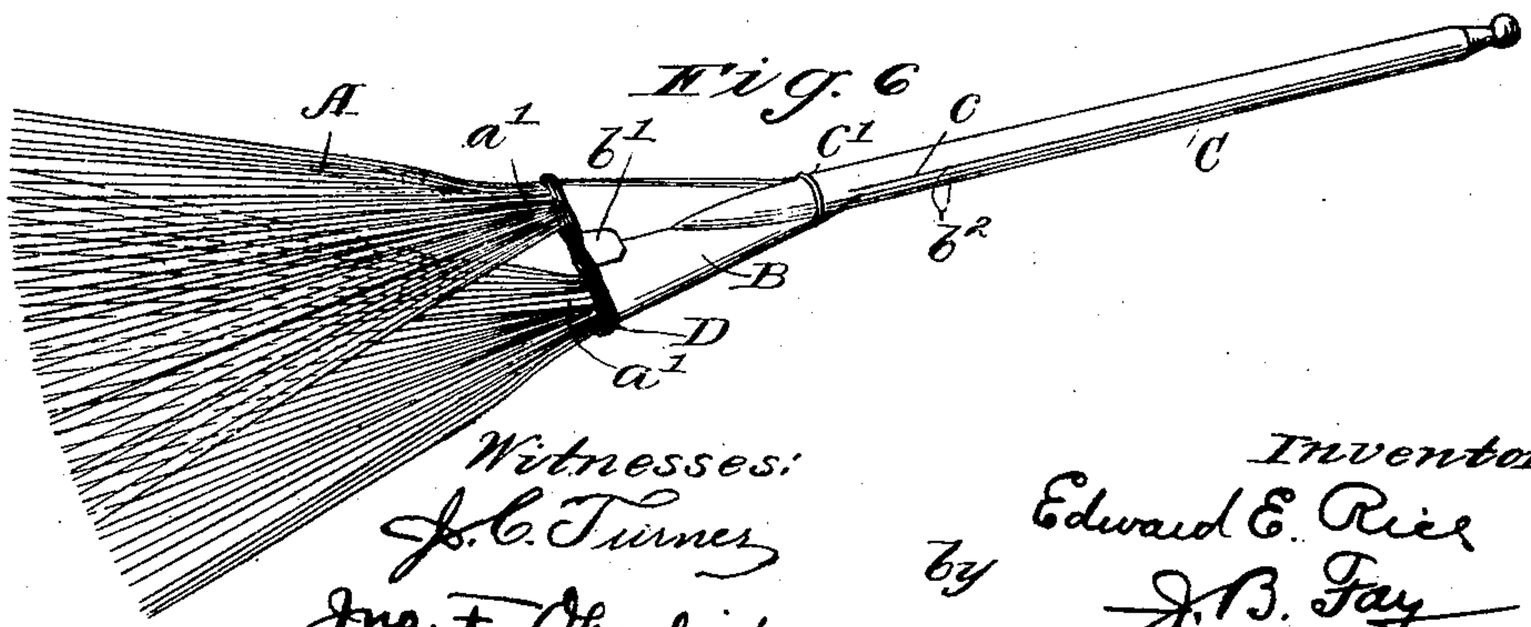


Fig. 5

Fig. 6



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2 SHEETS—SHEET 2.

Fig. 7

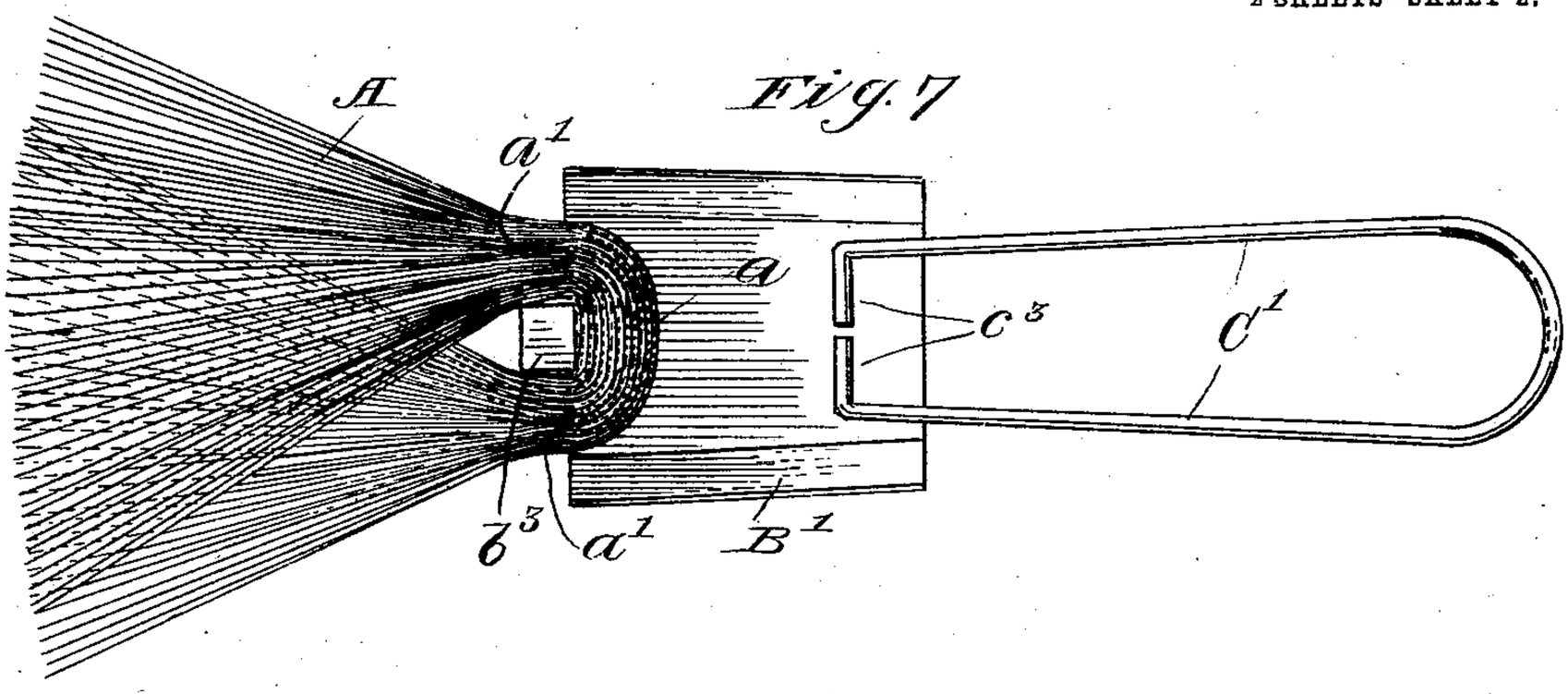


Fig. 8

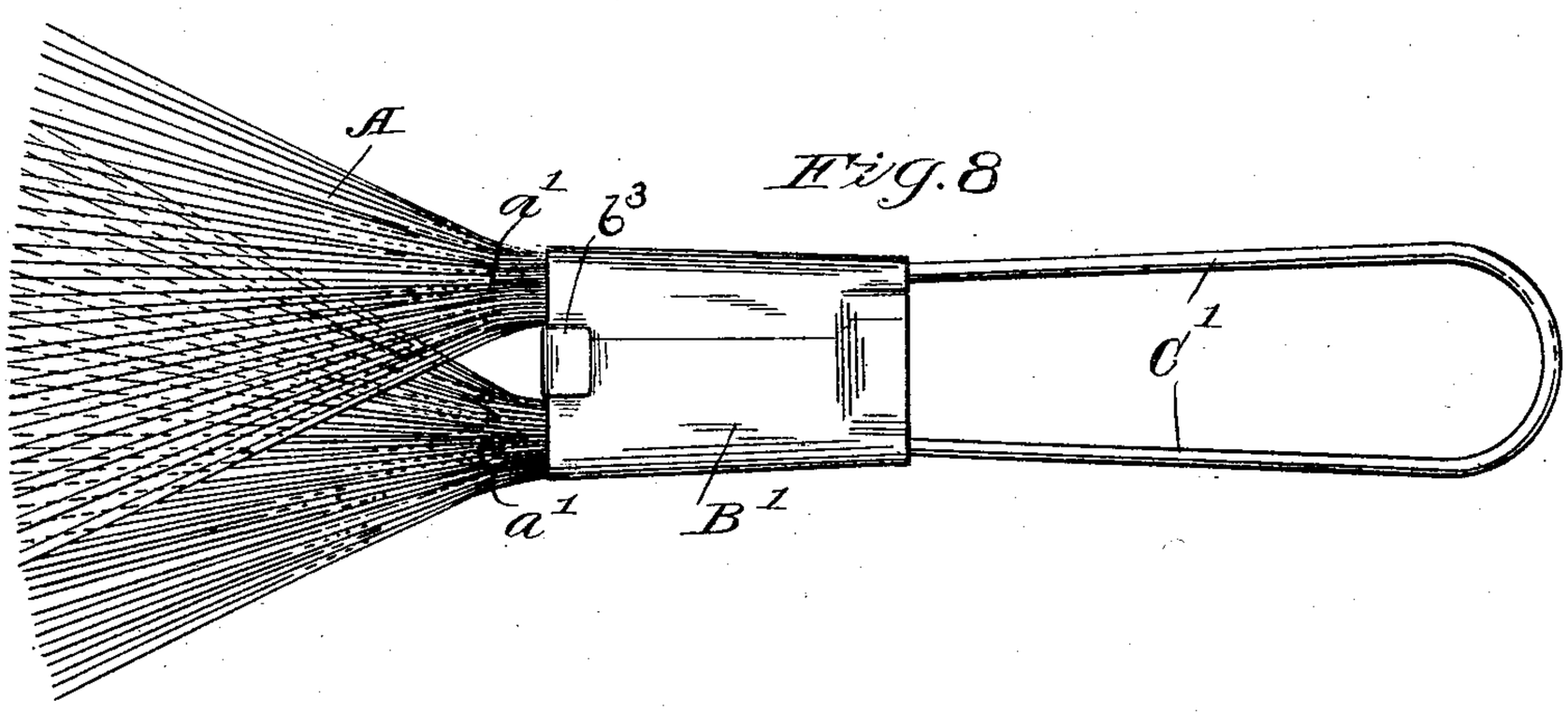
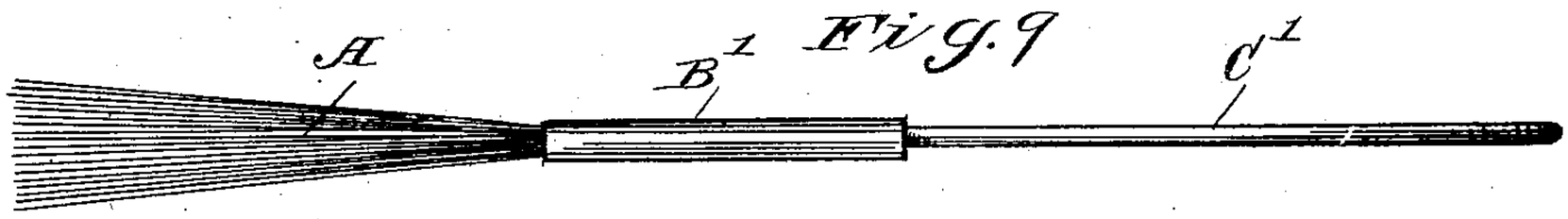


Fig. 9



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UNITED STATES PATENT OFFICE.

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WIRE BRUSH.

969,191. Specification of Letters Patent. Patented Sept. 6, 1910.

Application filed December 12, 1908. Serial No. 467,261.

To all whom it may concern:

Be it known that I, EDWARD E. RICE, a citizen of the United States, and a resident of New Durham, county of Strafford, and State of New Hampshire, have invented a new and useful Improvement in Wire Brushes, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

The present invention relating as indicated to wire brushes, has more particular regard to the construction of wire brushes such as are known on the market as fly-killers, or insect-killers. It will be understood, however, that certain features of construction exemplified in such invention are susceptible of use in various kinds of brushes irrespective of the particular use to which they are put, and also irrespective of whether the material of which they are constructed is wire, or bristles, or other suitable material, such as is employed in the manufacture of brooms and brushes.

The object of the invention is the provision of improved means for holding the wires or other material composing the brush, proper, as also of a suitable handle for such holding means.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but several of the various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figures 1, 2 and 3 represent in successive stages of its manufacture, a metallic ferrule forming one of the features of my improved construction of brush; Fig. 4 represents such ferrule with the brush, proper, secured therein; Fig. 5 is a side elevational view of the end of the handle with the brush mounted thereon; Fig. 6 is a perspective view on a smaller scale of the brush complete; while Figs. 7, 8, and 9 represent a modified construction of brush, the first of said figures showing the brush in a partially completed stage of manufacture, the other two being respectively a plan view and side elevational view of the same.

Referring first of all to the form of brush illustrated in Figs. 1 to 6 inclusive, this form being more specifically designed as a fly-killer, such brush will be seen to consist of a re-doubled bunch of wires A constituting the brush proper, the doubled-over ends, or bight a, of which is inserted in a ferrule B, by means of which such brush is attached to the handle. This ferrule is formed of a sheet metal stamping, the original form of which is that shown in Fig. 1. By suitably turning in its lateral portions b a tubular member is formed, open at its wider end to receive the bight of the bunch of wires as just described. Such wider end is formed with a projecting clip or tongue b', which latter is bent over to close the end between the respective divergent portions a' a' of the bunch of wires (see Figs. 4 and 6). After the wires are thus inserted and secured in place, the whole ferrule is pounded as flat as possible, so as to very firmly secure such wires therein, and reduce the ferrule in effect to a triangular sheet, but little thicker than the original sheet out of which it was made. In addition to clip b', the rear end or apex of the ferrule sheet is provided with lateral V-shaped clips b^2, the function of which will presently appear. The handle C to which ferrule B is secured in the case of the particular form of brush under consideration, is of wood terminally rounded and slotted as appears in Figs. 5 and 6. The ferrule is inserted into the slot c thus provided, and is secured to the handle by bending over the clips b^2 at its rear end to embrace the handle and passing a staple c' through the flattened portion of the ferrule and around the handle. The body of the brush, in view of the manner of its insertion in the ferrule, and the subsequent flattening of the same, will be of a correspondingly flattened form; the wires comprising the two divergent portions a' of the bunch are then preferably manipulated so that they will spread out to either side, crossing each other in the central part of the brush in such a way as to fill up evenly the whole space covered by the wires. To complete the brush, a piece of cord, preferably some soft but strong cord, is interwoven around and between these two diverging portions of the bunch at the point where

they emerge from the ferrule, so as to form a thin but efficient cushion and protection, that when the brush is struck upon finished wood-work or the like, the paint or varnish thereon will not be scratched or otherwise injured.

Aside from the simplicity of its construction, which admits of corresponding ease and economy in manufacture, the brush just described will be seen to present various commendable features. Owing to the extreme thinness of the brush base, practically its entire surface is rendered available for the purpose in hand, the wires conforming readily to whatever shape or surface they may be struck upon. This thinness, combined with the protection afforded by the interwoven string D, is of very considerable advantage. Finally by the use of the staple c' clasping around the handle and passing through holes in the flattened metal ferrule, the two portions of the handle end are firmly held together, and danger of its becoming split eliminated. The use of clips or prongs b^2 at the inner end of the ferrule to secure this to the handle, avoids entirely the necessity for holes through the handle, and thus contributes further to the cheapness and strength of the article.

The form of brush illustrated in Figs. 7, 8 and 9 is what is commonly known as a sink-brush, but as will be seen by reference to said figures, utilizes, in common with the fly-killer just described, a flattened ferrule B′ to retain the doubled-over bunch of wires A constituting the brush proper. Such ferrule, as before, is provided with an integral clip or tongue b^3 adapted to close its end between the divergent portions a' of the bunch of wires. Instead, however, of employing a wooden handle, I illustrate in this connection the use of a looped wire handle C′. The ferrule B′, it will be seen, is adapted to be secured to a handle of this type with a facility and security equal to that previously shown by simply stamping the same over the inner ends c^3 of the wire handle. Such stamping may be conveniently done simultaneously with the flattening of the ferrule to inclose the bight a of the bunch of wires. All the advantages noted as arising from my improved method of securing the wires in the ferrule in the case of the construction first described, are of course, enjoyed by this brush, while the simplicity and cheapness of the handle construction are obvious.

Obviously the brush as shown in Fig. 4, for example, might be regarded as a complete structure, since by merely extending and suitably forming the ferrule, the latter would constitute a handle answering in every respect to the wooden handle C or the looped wire handle C′. It may also be suggested that the clip b' or b^3 that is used to retain the bunch of wires in the ferrule is not of necessity integral with such ferrule but may be a separate fastener entirely.

Attention should finally be called to the fact that by spreading out the base of the brush, I am enabled to employ tempered steel wire in the body of the brush. While such use has been suggested, it has not been successfully accomplished heretofore, at least in fly-killers, owing to the difficulty of properly bending and shaping the strands to give the broad base. By my improved construction, however, the wires, without being shaped at all, will still cover an area equal to or even greater than that of the formed brush.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a brush of the character described, a ferrule; a doubled-over bunch of wires having the bight inserted in said ferrule, the latter being flattened to spread the wires into corresponding flattened form; and a fastening closing said ferrule between the respective divergent portions of said bunch of wires.

2. In a brush of the character described, a metallic ferrule; and a doubled-over bunch of wires having the bight inserted in said ferrule, the latter being flattened to spread the wires into corresponding flattened form, and the end of said ferrule being formed with an integral clip adapted to be bent back to close such end between the respective divergent portions of said bunch of wires.

3. In a brush of the character described, a ferrule; and a doubled-over bunch of wires having the bight secured in said ferrule, the latter being flattened to spread the wires into corresponding flattened form and the respective portions of such wires crossing each other, substantially as set forth.

4. In a brush of the character described, a ferrule; a doubled-over bunch of wires having the bight inserted in said ferrule, the latter being flattened to spread the wires into corresponding flattened form; and a clip closing the end of said ferrule between the respective divergent portions of said bunch of wires, such portions crossing each other, substantially as set forth.

5. In a brush, the combination of a terminally slotted handle; a ferrule; a bunch of wires secured in said ferrule, the latter being flattened to spread the wires into corresponding flattened form and to permit of the insertion of said ferrule in the slot of said handle; and means for securing said ferrule in place when thus inserted.

6. In a brush, the combination of a terminally slotted handle; a ferrule; a bunch of wires secured in said ferrule, the latter being flattened to spread the wires into corresponding flattened form and to permit of the insertion of said ferrule in the slot of said handle; and means for securing said ferrule in place when thus inserted, such means including a staple passing through said flattened ferrule and clasping around the handle.

7. In a brush, the combination of a terminally slotted handle; a ferrule; a bunch of wires secured in said ferrule, the latter being flattened to spread the wires into corresponding flattened form and to permit of the insertion of said ferrule in the slot of said handle; and means for securing said ferrule in place when thus inserted, such means including clips provided on the lateral edges of said ferrule and bent over upon the handle.

8. In a brush, the combination of a terminally slotted handle; a ferrule; a bunch of wires secured in said ferrule, the latter being flattened to spread the wires into corresponding flattened form and to permit of the insertion of said ferrule in the slot of said handle; and means for securing said ferrule in place when thus inserted, such means including a staple passing through said flattened ferrule and clasping around the handle, and clips provided on the lateral edges of said ferrule and bent over upon the handle.

9. In a brush, the combination of a handle; a bunch of strands terminally secured to said handle; and a cushion surrounding the base of said strands at their point of attachment to said handle, substantially as and for the purpose described.

10. In a brush, the combination of a handle; a ferrule terminally attached thereto; a doubled-over bunch of wires having the bight secured in said ferrule; and a cushion surrounding the base of said wires where they emerge from said ferrule.

11. In a brush, the combination of a handle; a ferrule terminally attached thereto; a doubled-over bunch of wires having the bight inserted in said ferrule, the latter being flattened to spread the wires into corresponding flattened form; a clip closing the end of said ferrule between the respective divergent portions of said bunch of wires; and a cord intertwined with such portions at the point where they emerge from said ferrule, so as to form a cushion.

Signed by me this 11th day of December, 1908.

EDWARD E. RICE.

Attested by—
MARY GLADWELL,
JNO. F. OBERLIN.