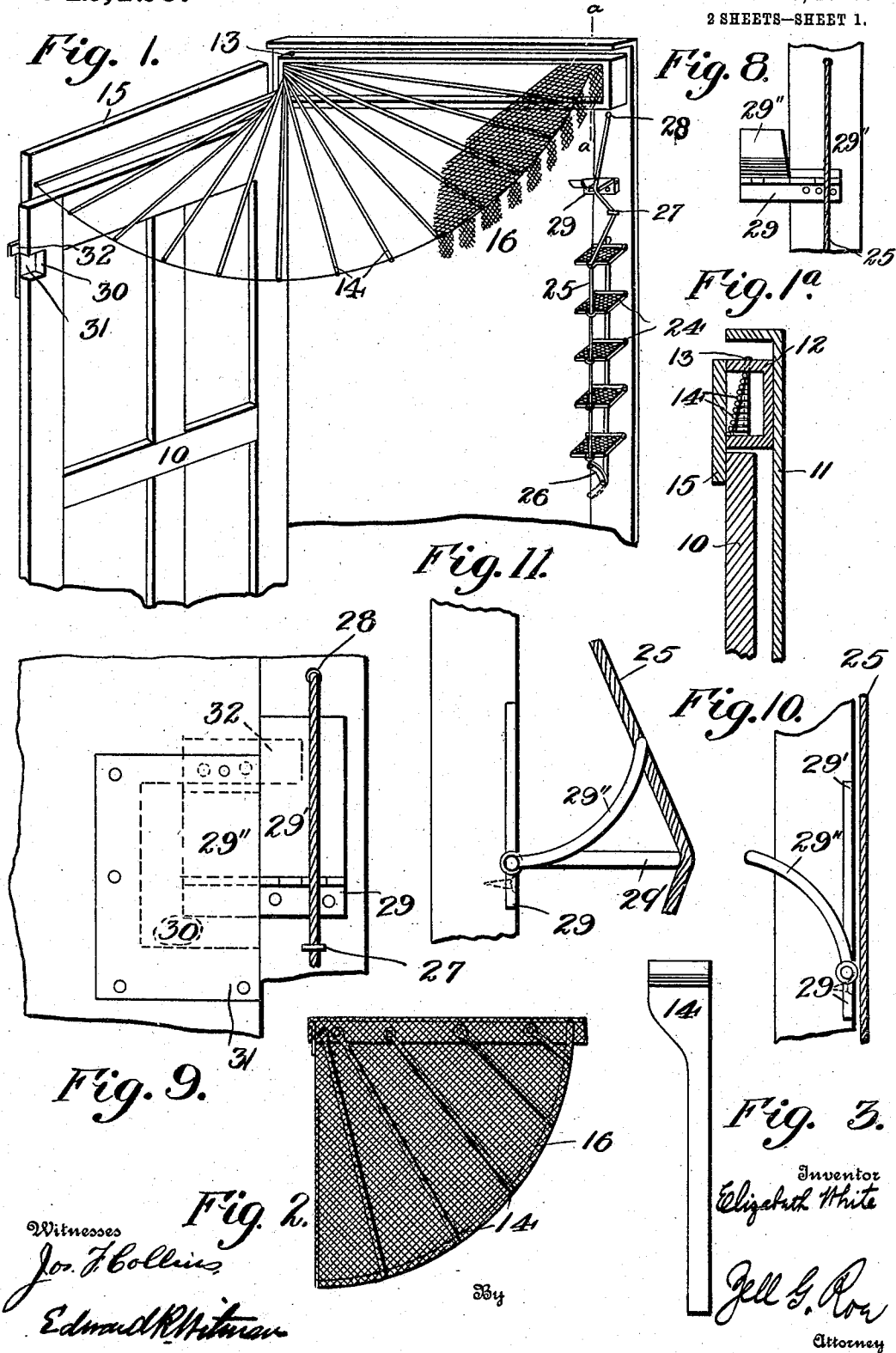


E. WHITE.
 FLY ATTACHMENT FOR SCREENS.
 APPLICATION FILED OCT. 3, 1908.

942,120.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.

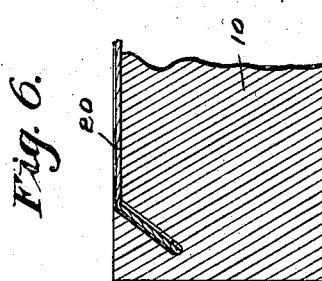
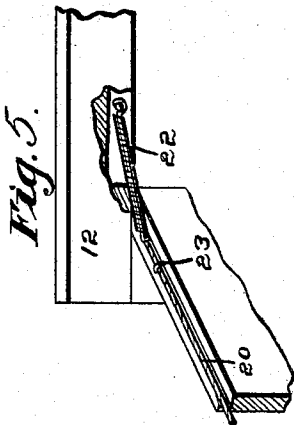
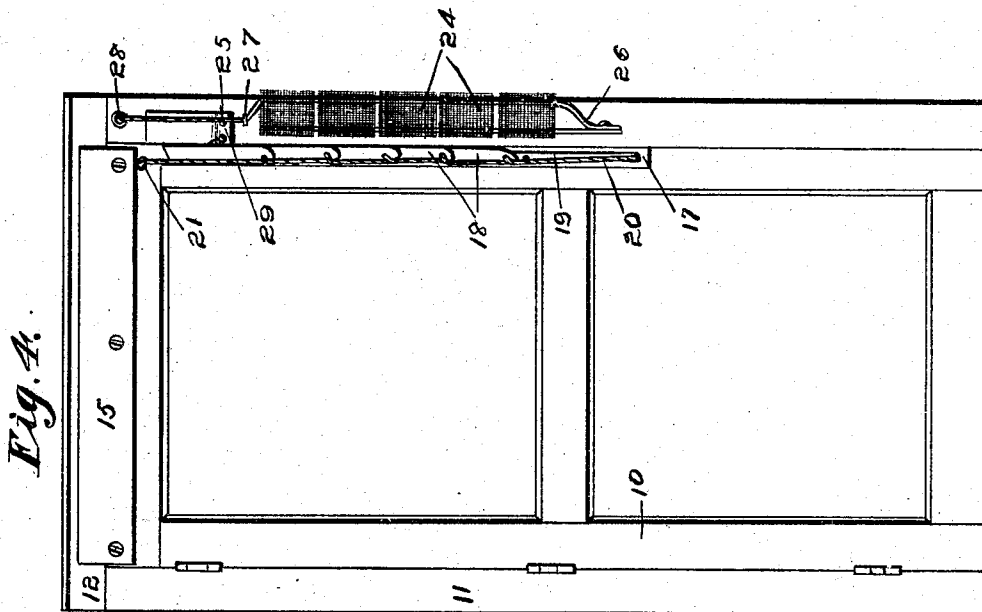
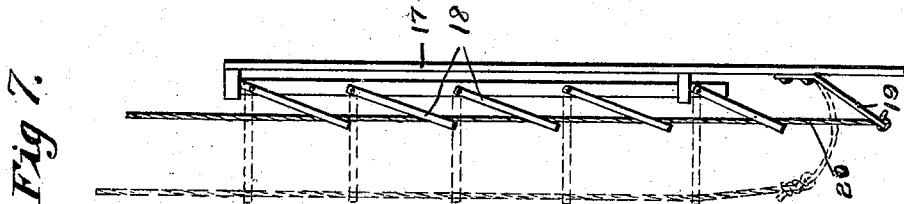


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2 SHEETS—SHEET 2.



Witnesses.

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by Zell & Roe Attys

UNITED STATES PATENT OFFICE.

ELIZABETH WHITE, OF BOONE, IOWA.

FLY ATTACHMENT FOR SCREENS.

942,120.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed October 3, 1908. Serial No. 456,072.

To all whom it may concern:

Be it known that I, ELIZABETH WHITE, a citizen of the United States, residing in Boone, county of Boone, and State of Iowa, have invented a new and useful Improvement in Fly Attachments for Screens, of which the following is a specification.

The object of my invention is to provide an attachment for screen doors, which will prevent flies from entering the room when the door is thrown open.

A further object is to provide such a device which will be effective for preventing the flies from entering either at the top of the door, or the sides thereof.

From experience, it has been found that when a door is open, many more flies will enter the room from the top thereof than from the sides, and to this end, I have provided a folding screen which is opened and closed by the operation of the door moving on its hinges. In connection with this folding screen, I have provided flappers, one for the forward side of the door and one for the casing which is adjacent the forward side of the door.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of a door casing and a door, fitted out with my device; Fig. 1^a is a vertical sectional view on line *a-a* of Fig. 1. Fig. 2 shows a detail view of a modified form which I use for the top screen of my door; Fig. 3 shows a detail view of any one of the ribs I employ in my modified form; Fig. 4 shows a front elevation view of a door, fitted out with my device; Figs. 5 and 6 show detail views of the manner in which the flappers at the side of the door are operated; and Fig. 7 shows a detail view of the flapper which is secured to the side of the door. Figs. 8, 9, 10 and 11 are detail views of a fan or flapper operating mechanism.

Referring to the accompanying drawings, the reference numeral 10 is used to indicate a door, which may be either a solid wood door or a screen door, and the numeral 11 indicates the casing therefor. Secured to the casing, immediately above the door, and parallel therewith, its lower surface being in line with the upper edge surface of the door, is a box like frame 12, said frame being slightly longer than the width of the door.

Near that end of the box like frame which is adjacent the hinged edge surface of the door, is a pivotal bearing 13, which by preferable construction is but a rod or small shaft extending vertically from the base to the top of the box like frame, and having its bearings therein. Loosely secured for radial movement from said bearing 13, are a plurality of ribs 14, each of which extends to the forward end of the box like frame, and all of said ribs being designed to be contained within the box like frame. Secured to the forward surface of the door and at the upper extremity thereof, and extending upwardly above the upper extremity of the door, is a plate 15 which, when the door is closed, is designed to form a forward cover or side for the box like frame 12.

The numeral 16 indicates a flexible screen, which is preferably composed of a light cloth such as cheese cloth or the like, said cloth being cut so that its forward edge surface is circular in conformation and its sides at right angles to each other, so that it assumes in effect the conformation of one quarter of a circle, as is fully shown in Fig. 1. The sides of this screen are designed to be the same length as the width of the door, and one side thereof is secured to the under surface of the member forming the top of the box 12, and the other side thereof is secured to the inner portion of the plate 15. Thus, it is obvious, that the door may open without tearing the said screen, and when the door is open, the screen is stretched as shown in Fig. 1.

The ribs 14 are spaced and secured to the under portion of the screen in such a manner, that when the door is open the ribs are at various places between the casing and the door and the said ribs are designed to be secured permanently to their respective places on the screen and to the under surface of the screen for the purpose of constituting supports therefor, when the door is open. When the door closes, the ribs radiate from their common bearing, until they assume their respective positions in the box, and the screen is accordingly doubled up and folded within the box, so as to be out of the way. I also provide a fringe to extend downwardly from the forward circular edge of the screen, as shown in Fig. 1. It is obvious that as the plate 15 is secured to the door, and the box like frame 12 is secured to the casing, the opening of the door will stretch and open

the screen and that the screen will completely cover the opening between the top of the door and the casing.

I have provided a modified form to be used when there is but a small space above the door and a small casing, and in this modified form, the ribs are not joined to a common radial center, but are placed as shown in Fig. 2, so that the effect of their movement is not simultaneous, but is nevertheless uniform. This construction permits of the use of a much narrower box for this purpose.

Secured to the forward surface of the door, and as near to the opening side thereof as it can be placed so as not to interfere with the operation of the door, I have mounted a frame 17, and secured to said frame are a number of arms 18, evenly spaced and arranged and secured for radial movement outwardly and upwardly from their bearings, and their bearings are such that the movement of the arms will be outwardly and upwardly at right angles from the forward surface of the door. At the base of the frame I have secured a leaf-spring 19, and to this spring is secured a cord or small cable 20, which extends upwardly in a line with, and secured to, each of said arms and thence continues upwardly through an orifice 21 in the door, which is near the top thereof and in line with the said arms, said orifice extending obliquely from the forward surface of the door to the upper edge surface of the door, as shown in Figs. 4 and 6, and the said cord thence continues along the upper edge of the door, to a point near the rear edge surface thereof. Secured to the end of this cord, is a coil spring 22, its other end being secured to the casing. The said cord is held in position on the upper edge surface of the door, by eyelets or staples 23, and the cord is designed for movement within said eyelets. By this construction, one end of the spring being secured to the casing and the other end of the cord being secured to the leaf-spring as described, when the door opens, the cord is pulled upwardly, the spring relieving the tension of the cord, and as the cord moves upwardly, it pulls the arms 18 upwardly, in a uniform and simultaneous movement, from their respective radial bearings. The plurality of arms, mounted as described, constitutes a flapper which operates with the opening and closing of the door and to these arms may be secured pieces of cloths or the like, if desired.

Secured to the casing of the door, adjacent the opening side thereof, I have secured a plurality of depending frames or flappers, 24, all of which are evenly spaced and arranged and mounted for radial movement outwardly and upwardly from their respective bearings, which are at their respective ends. Each of these frames are constructed

in such a manner as to be adapted to be covered with a cloth or screen of any desired kind, as shown in the drawings. A cord or small cable 25 extends vertically downward along the casing of the door, engaging and secured to the lower depending extremities of each of the said flappers and the lower end of said cord is secured to a leaf-spring 26, which is itself secured to a casing as shown. The upper end of said cord projects above the said series of flappers through eyelets 27 and is secured in the casing near the top of the door, as shown at 28. The numeral 29 indicates the base of a hinge secured to and mortised in the casing and mounted above the said series of flappers, said hinge extending inwardly beyond the edge of the casing, as shown in Figs. 8 and 9. The upper member of the said hinge is divided, as shown, into a straight member 29' and an upwardly curved member 29'', said members being adapted to swing together, so that when member 29' lies flat against the door jamb, as shown in Fig. 10, member 29'' will be swung inwardly past said jamb and its curved portion projected rearwardly, while its base portion lies in a recess 30 formed in the door to receive said member 29''. Member 29'' in practice forms a cam, which projects, as aforesaid into recess 30, and wipes over a plate 31 secured to the back of the door and over said recess 30, for the purpose of elevating and lowering the member 29' to operate said flappers.

The numeral 32 indicates a second plate secured to the outer surface of the door and projecting outwardly and in the normal position, the door being closed, the plate 32 rests between the casing and the upwardly extending vertical portion of the upper member of the hinge. The cord 25, in its position on the casing above the series of flappers, is in line with and immediately over the upwardly extending vertical portion of the upper member of the hinge. By this construction, when the door is opened, the plate 32 engaging the rear surface of the upwardly extending vertical portion of the upper member of the hinge pushes the same forwardly, the movement of the said vertical portion describing an arc from its pivotal connection with the hinge. As this portion is underneath the cord or cable 25, it is obvious that it forces the said cable outwardly thus raising it from its leaf-spring connection at its base, and as this cord moves outwardly from the casing, the series of flappers 24 are raised outwardly and upwardly from their respective bearings, in uniform and simultaneous movement. It is obvious, that the door being opened quickly, as is usually the case, will cause these screen flappers provided with screen cloth, or the like, to oscillate and flap, thus driving the

flies away from the opening left between the casing and the door.

The curved portion of the upper member of the hinge is designed to rest, in its normal position, the door being closed, within the recess 30 in the door and engaging the rear surface of the plate 31. When the position of the upper member of the hinge has been changed so that it extends outwardly at a right angle from the lower member thereof and the casing, it is obvious that it will remain so until thrown back into its normal position. This is accomplished when the door closes, by means of the rear surface of the plate 31 engaging the curved portion of the upper member of the hinge with a cam action thus forcing it upward and backward and moving the upper member of the hinge to its normal position. By construction, the parts are so arranged that when this is accomplished, and the various parts are again in their respective normal positions the plate 32 will again be engaging the rear surface of the upwardly extending vertical portion of the upper member of the hinge, and the leaf-spring will have pulled the cord 25 downwardly to its normal position and all the parts will again be ready for operation.

As hereinbefore described, while the door is opening, the series of arms on the forward surface of the door have been operating and flapping, thus driving the flies away from that portion of the door, and at the same time, the opening made between the top of the door and the casing has been covered by the folding screen. Thus, it is obvious, that the opening occasioned by the opening of the door, has been thoroughly protected during the operation.

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

1. An attachment for screen doors, comprising a box designed to be fitted to the casing above the door and consisting of a top and end pieces, said box being of a length slightly greater than the width of the door; a cover on the forward side of the door mounted so as to engage the forward open side of the box above the door, when the door is closed; ribs mounted for radial movement, secured within said box; a flexible screen, one end secured to the aforesaid box and its other end secured to the aforesaid cover said screen also being secured to the aforesaid ribs to fold therewith and be inclosed and covered in said box when the door is closed, substantially as shown and described.

2. A screen door attachment comprising, in combination, a frame vertically mounted on the front portion of the door and near the forward edge thereof; arms, evenly

spaced and arranged to be swung in outward and upward radial movement from their bearings on said frame, a continuous cable secured intermediately to the extremity of each of said arms, and extending upwardly to pass through an orifice in the upper portion of the door and thence to a point near the rear edge thereof, a coil spring secured to the upper end of said cable and to the door frame, and a leaf spring secured to the lower extremity of said cable and to said door.

3. An attachment for a screen door, comprising in combination a plurality of depending frames, evenly spaced and arranged and secured, for radial movement, to the casing adjacent the forward edge surface of the door; a leaf-spring secured to the casing immediately below said plurality of frames; a cable secured to said leaf-spring, and extending upwardly to a point near the top of the casing where it is secured thereto, said cable being also secured to the lower extremity of each of the said frames; a hinge secured to the casing above the said plurality of frames, said hinge projecting inwardly beyond the said casing, the upper member of said hinge being divided into two parts, one extending upwardly in a vertical plane between the casing and the said cable, the other portion thereof, curving upwardly and rearwardly; a recess in the door, designed to receive the curved portion of the upper member of the aforesaid hinge; a plate secured to the front of the door and covering the aforesaid recess; a second plate, mounted above the first mentioned plate and extending outwardly from the door to an engagement within the under surface of the vertical portion of the upper member of the hinge, substantially as shown and described.

4. A screen door attachment, comprising in combination a flexible screen designed to cover an opening at the top of the door when the door is open, said flexible screen being so constructed as to be folded up and retained within a box at the top of the door when the door is closed; a flapper, comprising a plurality of arms actuated by a cable having its upper end secured to the casing and its lower end secured to the door, mounted on the front of the door and near the forward edge surface thereof; a flapper, secured to the casing adjacent the forward edge surface of the door, comprising a plurality of frames secured for radial movement from their bearings, said flapper being operated by the opening and closing of the door, substantially as shown and described.

ELIZABETH WHITE.

Witnesses:

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B. L. QUINN.