May 4, 1926.

1,583,133

H. FIERMAN

WINDOW SCREEN

Filed Oct. 22, 1925

Fig. 1

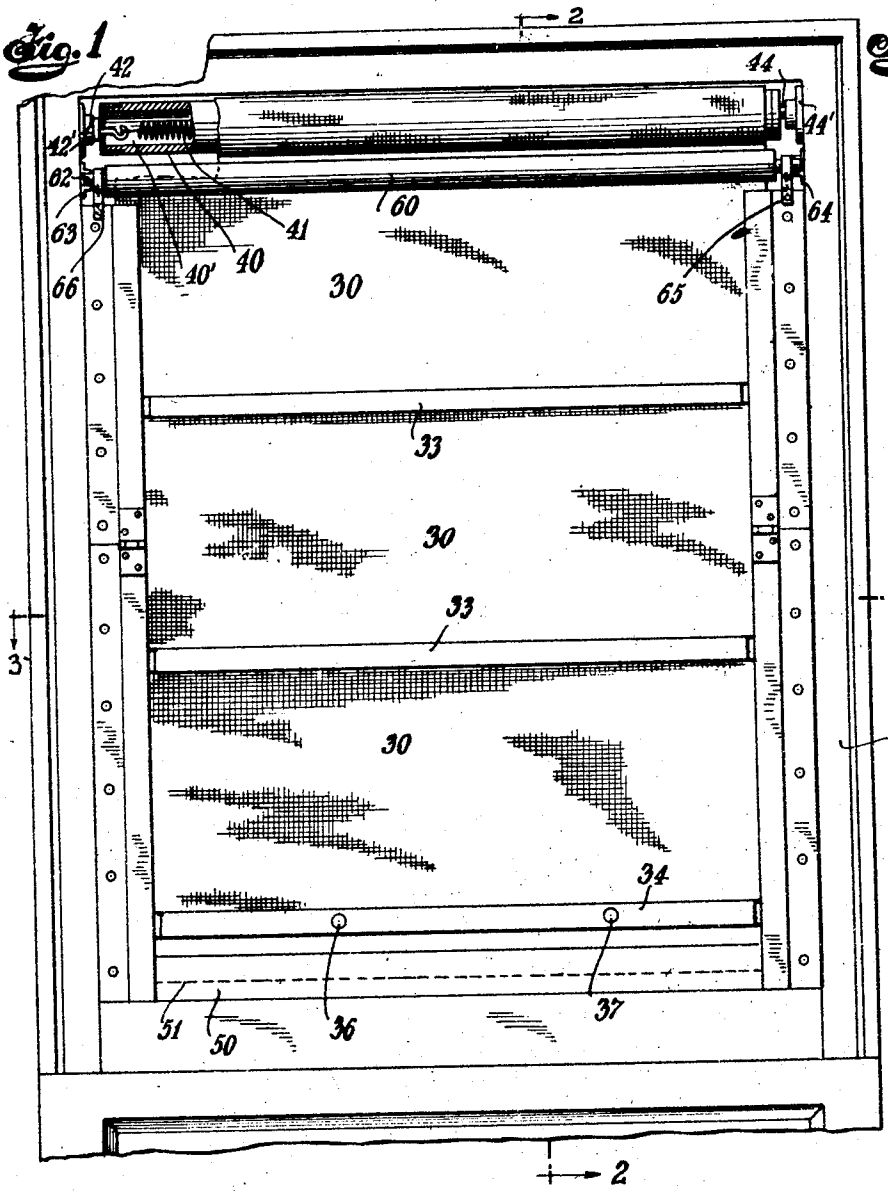


Fig. 2

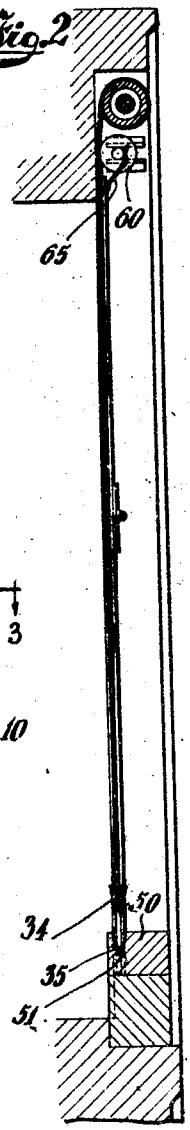


Fig. 3

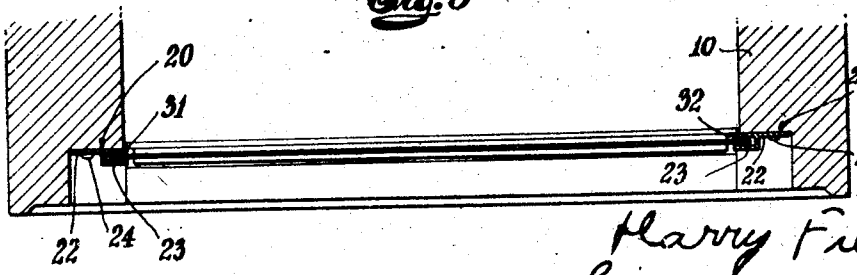
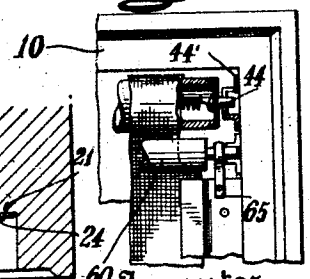


Fig. 4



Inventor

Harry Fierman

By his Attorneys

Edward H. Eckert

Patented May 4, 1926. 1,583,133

UNITED STATES PATENT OFFICE.

HARRY FIERMAN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO ZEIDEL KAUFMAN, OF BROOKLYN, NEW YORK.

WINDOW SCREEN.

Application filed October 22, 1925. Serial No. 64,080.

To all whom it may concern:

Be it known that I, HARRY FIERMAN, a citizen of the Republic of Poland, and a resident of the borough of Brooklyn, Kings County, city and State of New York, have invented an Improvement in Window Screens, of which the following is a specification.

My present invention relates to door and window screens for excluding flies, mosquitoes and other insects from the interiors of the houses and other structures to which such devices may be applied, and aims to devise structures of the general character specified above which are simple in construction, easy and convenient to fabricate and to assemble, easy to apply, and which possess other advantages in construction, operation and use in part pointed out in detail hereinafter and in part obvious to those skilled in the art to which the present invention relates.

In the accompanying specification I shall describe, and in the annexed drawing show, an illustrative embodiment of the present invention. It is, however, to be clearly understood that my invention is not limited to the specific form thereof herein shown and described for purposes of illustration only.

Referring to the drawing, wherein I have illustrated the aforesaid illustrative embodiment of the present invention:

Fig. 1 is a view, in front elevation, of the aforesaid illustrative embodiment of the present invention shown as applied to a house window;

Fig. 2 is a longitudinal sectional view of the aforesaid illustrative embodiment of the present invention taken along lines 2—2 of Fig. 1 of the drawing;

Fig. 3 is a cross sectional view of the aforesaid illustrative embodiment of the present invention taken along lines of 3—3 of Fig. 2 of the drawing; and

Fig. 4 is a view, in rear elevation, partly broken showing the aforesaid illustrative embodiment of the present invention.

Referring now to the aforesaid illustrative embodiment of the present invention, and more particularly to the drawing illustrating the same, 10 indicates the frame of a window for a house or the like in connection with which the aforesaid illustrative embodiment of the present invention may be successfully used. It may here be stated, however, that the devices of the present invention may be applied with equal success to doors and other desired parts of houses, office buildings and other structures where such devices may be desired.

To the window frame 10 or its equivalent, I apply a plurality of track members 20 and 21. The purpose of the track members 20 and 21 is to guide the edges of the flexible screen member which is shortly to be described. While various constructions of the track members 20 and 21 may be employed with considerable success for the purposes of the present invention, I prefer to employ track members having the form illustrated and each comprising a lateral flange member 22 having associated therewith the internally grooved portion 23 providing the guide-way or track-way for one of the edges of the flexible screen member. In attaching the track members 20 and 21 to the window frame 10 or its equivalent, suitable fastening members, such as the screws 24, may be employed.

It will thus be noted that the track members 20 and 21 are not only removable but also adjustable. For the purpose of removing the track members 20 and 21, it is only necessary to unfasten the screws 24. In order to adjust the track members 20 and 21 to accommodate various frame members of various widths, it is only necessary to unfasten the screws 24 after which the track members 20 and 21 may be refastened in their adjusted position. It may here be stated that in the case of long windows necessitating the use of long track members, the track members may be in several parts, as in two parts, designated by reference characters 20′ and 20″, and 21′, respectively. The sections 20′ and 20″, as also the sections 21′ and 21″, are joined together by the hinges 25 suitably attached to the respective sections so that the sections may be folded back upon each other to facilitate their shipment in compact condition.

Riding along the track members 20 and 21, as within the grooves 23 of the same, is a flexible screen member, generally designated by reference character 30 and consisting of a bronze, copper or other flexible metal screen of the desired mesh. The lateral edges 31 and 32 of the flexible screen member 30 are preferably reinforced or bound, or may be folded over slightly to give the edges of the same a finished appearance and to facilitate its riding in the

grooves 23 of the track members 20 and 21. However, the edges of the flexible screen member 30 may be left in their original condition without being folded over, bound or otherwise reinforced.

Attached to the flexible screen member 30 are a plurality of, here shown as two, reinforcing members 33, which may be in the form of flat bars or rods, the ends of which are reduced in cross section so as to ride freely in the grooves 23 of the track member 20 and 21. The purpose of the reinforcing bars or rods or equivalent members 33 is to stretch and maintain in extended position the flexible screen member 30 and to prevent the same from sagging or being bent or twisted out of position two readily.

At 34 I have indicated a bottom reinforcing bar which is downwardly tapered so as to have the comparatively thin lower edge 35 within which the lower edge of the flexible screen member 30 is suitably attached. The lower reinforcing member 34 may be provided with a plurality of knobs or operating members 36 and 37 for facilitating the manipulation of the flexible screen member 30 up and down into its various intermediate and end positions.

I provide means, preferably spring-operated means, for winding up the flexible screen member 30. I also provide means for maintaining or stopping the flexible screen member 30 in its various intermediate and end positions, as desired. For this purpose I provide adjacent the top of the window frame 10 a spring-actuated roller 40 provided with an internal torsion spring 41 in the form of a coil spring having the external spindle 42 and the locking means 43 for locking the roller 40 and thus the flexible screen member 30 attached to the roller 40 in its various intermediate and end positions, as desired. At its other end, the roller 40 has its fixed spindle 44 as distinguished from the rotatable spindle 43 to which one end of the spring 41 is attached, the other end of the spring 41 being attached to the inside of the cavity 40′ in the roller 40. The spindles 42 and 44 are suitably supported in the manner which will be readily apparent to those skilled in the art to which the present invention relates, the brackets 42′ for supporting the rotatable spindle, 42 being slotted to receive the flattened end of the spindle 42 while the bracket 44′ to receive the spindle 44 is substantially centrally perforated for this purpose.

Connecting the tracks 20 and 21 is the bottom member or rail 50 grooved as indicated at 51 to receive the lower tapered edge 35 of the bottom reinforcing member 34. The groove 51 is tapered so as to snugly receive the lower tapered edge 35 of the bottom reinforcing member 34. The arrangement is such that there will be a close fit between the members 34 and 50 to prevent any chance that the flies, mosquitoes or other insects, excluded by the flexible screen member 30 can enter through the joint between the members 34 and 50.

As more clearly shown in Fig. 4 of the drawing, I provide means on the interior of the flexible screen member 30, preferably connected with the window frame 10 or its equivalent, for pressing the flexible screen member 30 from entering the spaces from which they are desired to be excluded. While various means may be employed for this purpose, I prefer to use the means illustrated, comprising the idle roller 60 having the spindles 61 and 62, suitably mounted in the slotted brackets 63 and 64. The roller 60 is pressed forwardly snugly against the flexible screen member 30 against the upper cross member or rail of the window frame 10.

This completes the description of the aforesaid illustrative embodiment of the present invention. The structure of the same has, it is believed, been made sufficiently clear in the foregoing description. Likewise the manner of assembling the aforesaid illustrative embodiment of the present invention has, it is believed, been made sufficiently clear in the foregoing description. While shown as used in connection with the window of a house or similar structure, it has been made clear that the devices may be used with equal success in connection with doors and other openings in houses, office buildings and other structures from which it is desired to exclude flies, mosquitoes and other insects.

To operate the device, assuming that the same is in the lowered position illustrated in Fig. 1 of the drawing, the operator takes hold of the knobs 36 and 37 attached to the lower reinforcing member 34 and raises the flexible screen member by elevating the lower reinforcing member 34. It may here be stated that the groove 51 in the bottom rail or member 50 is tapered enough to permit a sufficient downward manipulation of the flexible screen member to release the stops 43 without exposing the opening between the members 34 and 50 which flies, mosquitoes and other insects may enter. The stop member or members 43 being thus released, in a manner which will be readily apparent to those skilled in the art to which the present invention relates, the torsion spring 41, now under considerable torsional force, will act to elevate the flexible screen member 30 until the same has been raised the desired height. At this point, as exemplified in Fig. 4 of the drawing, the operator, by the manipulation of the lower reinforcing member 34 carrying the knobs 36 and 37, may bring the locking means 43 once more into play to maintain the flexible

screen member 30 in its newly adjusted position. This operation of adjustment may be repeated as often as desired between the extreme lower position of the flexible screen member 30, in which position the lower portion of the lower reinforcing member 34 rests in the tapered groove 51 of the bottom member or rail 50, and the extreme elevated position of the flexible screen member 30, in which position the entire opening of the window or the like 10 will be uncovered.

The advantages of the present invention, as exemplified in the foregoing illustrative embodiment of the same, are numerous and of great practical importance. The devices embodying such invention are simple in construction, easy and economical to fabricate and to assemble, and entirely satisfactory in operation. The devices may be readily installed in existing structures with little or no modification of the same or of the frames of the doors, windows and the like to which such devices may be applied. Once applied, the screens of the present invention may be adjusted to any desired position, depending upon the position of the window casements or other structures in connection with which such devices are employed. The devices are very simple to operate and possess other advantages which will be readily apparent to those skilled in the art to which the present invention relates.

What I claim as my invention is:

1. A screen for doors, windows and the like, comprising a flexible screen member, a supporting roller upon which said screen member may be wound and unwound, and means to retain the screen in a substantially uniform plane when unwound, said means including a track member engaging one of the longitudinal edges of the screen, a second roller mounted transversely of the screen between the supporting roller and the extremity of the track member, and means carried by said track member resiliently engaging the second mentioned roller, whereby to urge the same into yielding engagement with the screen.

2. A screen for doors, windows and the like comprising a flexible screen member, a rotatably mounted member on which said flexible screen member may be wound and unwound, and means to retain the screen in a uniform plane when unwound, said means including a pair of track members engaging the longitudinal edges of the screen, a pair of elongated bearing members positioned below and adjacent to the rotatable member upon which the flexible screen is wound, a second rotatable member slidably mounted in said bearings, and means to urge the second rotatable member into contact with the flexible screen whereby to confine that portion of the screen adjacent to the first mentioned rotatable member substantially in the plane of the track members.

3. A screen for doors, windows and the like comprising a flexible screen member, a rotatably mounted member on which said flexible screen member may be wound and unwound, and means to retain the screen in a uniform plane when unwound, said means including a pair of track members engaging the longitudinal edges of the screen, a pair of elongated bearing members positioned below and adjacent to the rotatable member upon which the flexible screen is wound, a second rotatable member slidably mounted in said bearings, and means carried by the upper extremities of the track members resiliently engaging the second mentioned rotatable member to urge the same into engagement with the flexible screen whereby to confine that portion of the screen adjacent to the first mentioned rotatable member substantially in the plane of the track members.

4. A screen for doors, windows and the like comprising a flexible screen member, a rotatably mounted member on which said flexible screen member may be wound and unwound, and means to retain the screen in a uniform plane when unwound, said means including a pair of track members engaging the longitudinal edges of the screen, a pair of elongated bearing members positioned below and adjacent to the rotatable member upon which the flexible screen is wound, a second rotatable member slidably mounted in said bearings, and a pair of leaf springs carried by the upper extremities of the track members, and bearing against opposite ends of the second mentioned rotatable member whereby to urge said member into resilient engagement with the screen to confine the upper portion thereof to the same plane as that defined by said track members.

In testimony, whereof, I have signed my name to this specification this 13th day of October, 1925.

HARRY FIERMAN.