Feb. 26, 1957 W. FELKER 2,783,040

RAIN SHIELD WINDOW SASH

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FIG. 1

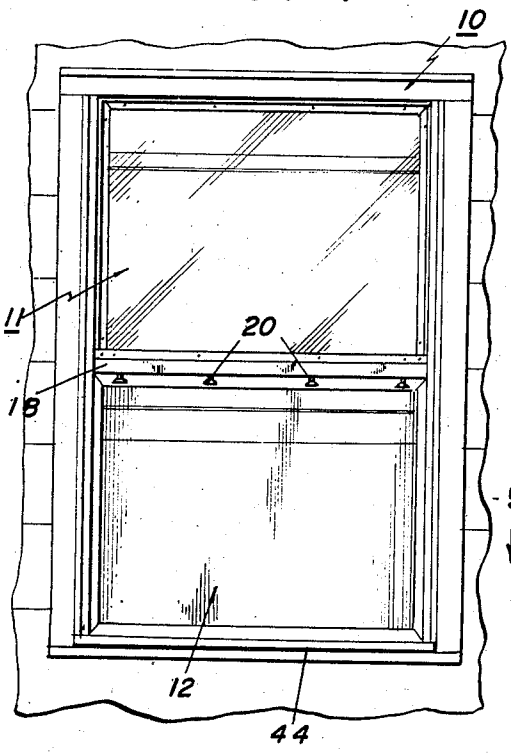


FIG. 2

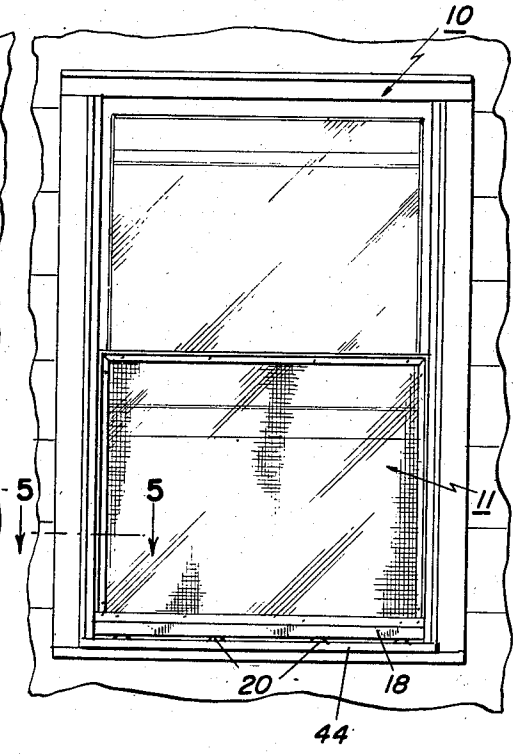
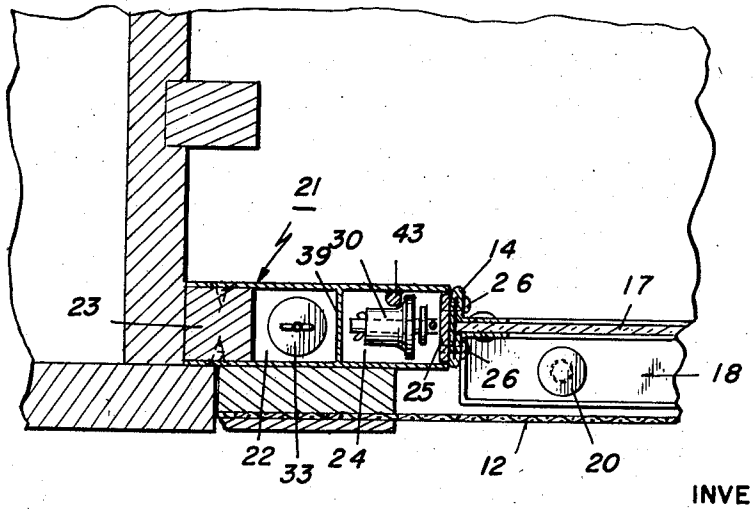


FIG. 5



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FIG. 3

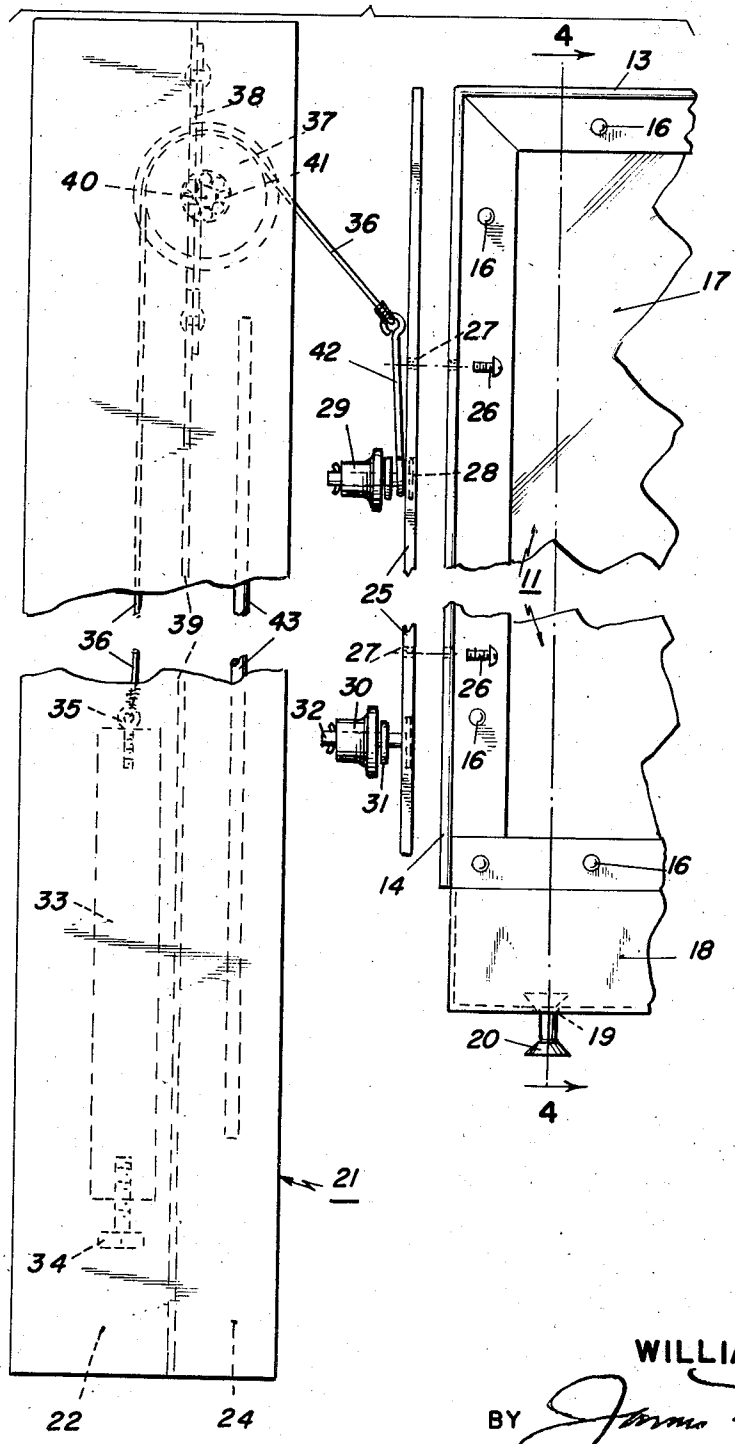
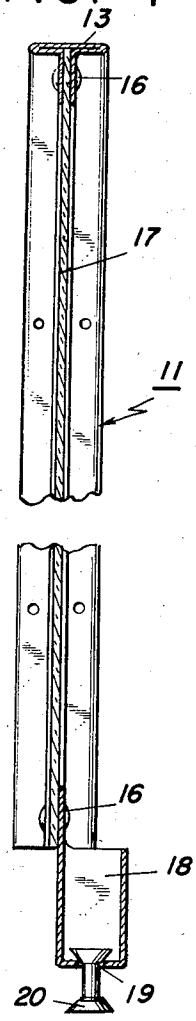


FIG. 4



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United States Patent Office 2,783,040 Patented Feb. 26, 1957

2,783,040

RAIN SHIELD WINDOW SASH

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Application November 24, 1953, Serial No. 394,037

4 Claims. (Cl. 268—123)

This invention relates to a new and improved rain shield window sash and more particularly to a light-weight auxiliary rain shield window sash for installation in the wooden frame which ordinarily accommodates the standard or conventional double hung window cash.

A prime object of the invention is the provision of a rain shield sash effective, when installed, to prevent the driving of rain into and through the window when the lower sash is elevated for purposes of ventilation, thus obviating the necessity of attending to the closing of open windows when a rain storm develops.

A further object of the invention is to provide a rain shield window sash of the foregoing character which is entirely automatic in character and which moves automatically from a normally raised inoperative position to a lowered or closed position when rain falls or drives thereon.

A still further object is to provide a rain shield window sash which normally maintains an elevated position relative to the opening which will permit the free flow of air through the window but which is so constructed and arranged that rain falling upon the sash will cause it to lower itself automatically to a position where it fully covers the window opening so that the rain cannot be driven through the window opening to the interior of the building.

Another object is to provide a construction of the foregoing nature in which the rain shield window sash will remain in a lowered operative position as long as rain persists in driving against or otherwise accumulating on the surface of the same, but which will automatically raise itself to elevated inoperative position upon cessation of rain fall, so that fresh air may continue to pass through the lower window opening.

A still further object is to provide a rain shield window sash of this nature which operates entirely independent of the standard double hinge sash.

Other objects and advantages of the invention will become apparent as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then comprises the features hereinafter fully described and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

The invention more specifically comprises a light-weight auxiliary rain shield window sash mounted for vertical movement in the conventional window frame and slidably held in normal elevated position by a sash weight and pulley system in which the magnitude of the weight slightly overbalances the weight of the sash, a rain-water-receiving gutter disposed along the bottom edge of the sash which, when filled with a sufficient amount of water, will overcome the weight in the sash weight and pulley system and thus cause the sash to lower itself into closed position, and valves in the bottom of the gutter which are normally closed to retain the rain water in the gutter but

which open gradually as the gutter contacts the window sill, the valves and valve seats being of such size and configuration that sufficient water is retained in the gutter to provide weight for overbalancing the sash weight to keep the sash closed so long as rain continues but effective to release sufficient water through the valves to lighten the weight of the sash so that the sash weight is then effective to elevate the sash when rain fall ceases.

The invention will be best understood from a consideration of the following detailed description taken in conjunction with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not to be confined to any strict conformity with the showing of the drawings, but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

Reference is now made to the accompanying drawings in which like reference characters denote like parts and in which:

Fig. 1 is a front elevation view of the rain shield window sash of the invention mounted in normal elevated inoperative position in the wooden frame surrounding a conventional double hung window sash;

Fig. 2 is a front elevation view of a rain shield window sash in lower or closed position effective to cover the lower window opening;

Fig. 3 is an exploded view of the rain shield window sash showing in detail how the sash is mounted in operative position with respect to the main window frame;

Fig. 4 is a view in section taken along line 4—4 of Fig. 3; and

Fig. 5 is a view in section taken on line 5—5 of Fig. 2.

Referring now to Figs. 1 and 2, the numeral 10 denotes the conventional window frame which accommodates the so-called double hung window sash. In both Figs. 1 and 2 the lower window sash has been elevated to permit air to pass through the lower opening into the room or other space to be ventilated. The light-weight auxiliary rain shield window sash of the present invention is shown by the reference numeral 11 as in elevated inoperative position in Fig. 1 and in lowered operative position in Fig. 2. For purposes of illustration the conventional window screen 12 is shown covering the window opening.

Referring now more particularly to Figs. 3 and 4, the rain shield window sash of the pesent invention comprises a frame of aluminum or other light-weight metal having a top 13, and two sides 14. The top and sides are generally T-shaped in configuration and cross section as shown in Fig. 4, with a double depending web portion 15 in which is mounted by means of rivets 16, a sheet 17 of light-weight Plexiglass or other light-weight transparent or translucent material. The bottom of the framework consists of a light-weight aluminum gutter portion 18 likewise affixed by rivets 16 to the framework 13, 14. Along the bottom of the gutter 18 there is provided a series of openings 19 in which is accommodated a plurality of valve members 20, the openings serving as valve seats for the valves 19.

Referring now more particularly to Figs. 3 and 5, the operating mechanism for the auxiliary rain shield window sash is accommodated in a double housing generally designated at 21. One part of the housing, designated by reference character 22 is adapted to slide over and be affixed to the wooden blind or screen stop 23 which is ordinarily between the lower outer sash runway and the screen. The other part of the housing is designated by the numeral 24. In assembling the rain shield window sash for operation there is provided a mounting strip 25 which consists of a channel member folded upon itself, shown with more particularity in Fig. 3. This mounting strip 25 is adapted to be affixed to the side of the frame 14 by means of a plurality of bolts 26 which pass through

a plurality of corresponding openings in the mounting strip. The channel of the mounting strip is adapted to receive and securely hold heads **28** of bolts **29** upon the other ends of which are mounted guide wheels **30**, maintained in position by stops **31** and wing nuts **32**. Depending in housing **22** is a sash weight **33** fitted at its bottom with a threaded bolt **34** by means of which additional weights may be added. A fine bronze cable **36** is attached as at **35** to the top of the weight **33** and this cable passes over a pulley wheel **37** mounted, as shown, between the two housings **22** and **24**. As shown, the pulley wheel **37** is mounted in a slot **38** formed in partition **39** dividing housings **22** and **24** one from the other. The pulley wheel **37** is mounted on a short shaft **40** and the assembly is provided with ball bearings **41** to provide for delicate and sensitive balance betwen the weight and the sash. The other end of the light-weight bronze cable **36** is provided with a hook member **42** the lower end of which is hooked around the bolt **29** between stop **31** and the mounting strip **25**. The housing **24** is provided with a guide track **43** against which wheels **30** are adapted to run. The above defined elements when assembled take the mounting and configuration shown in Fig. 5.

While the drawings depict the sash frame made up of separate elements, and the housing **21** consisting of two attached sub-housings **22** and **24**, it will be understood that it is within the purview of the invention to manufacture and provide the sash frame and housing as one piece elements, as by extrusion of aluminum.

From the foregoing description it is believed that the operation of the device is readily apparent. As already indicated, the rain shield window sash is normally held, as in Fig. 1, in elevated inoperative position. This is effected by making weight **33** some two or three ounces heavier than the total weight of the rain shield window sash. When a sudden rain storm or squall comes up and the rain begins driving against the surface of the rain shield window sash, rain water will begin to accumulate in gutter **18**. When the amount of accumulated rain water amounts to more than the two or three ounces by which the sash weight **33** overbalances the weight of the sash, then the rain shield sash will begin to drop and thus cover the opening in the window. Because of the delicate balance in the operative mechanism, the sash will lower itself upon accumulation of five or six ounces of rain water in the gutter. When the valves **20** come into contact with the window sill **44**, they become unseated and allow the accumulated rain water to drain slowly from the gutter **18**. At this point, it will be readily understood that as long as the rain continues and sufficient water is accumulated in gutter **18**, the sash will remain closed, but when the rain begins to let up, sufficient accumulated rain water has escaped through valve seats **19**, and the gutter is not receiving sufficient water to hold it down, then the sash will automatically return to its elevated inoperative position.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the rain shield window sash will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes freely comprehended by the spirit of the invention as herein described and the scope of the appended claims.

What is claimed is:

1. In combination, a light-weight auxiliary rain shield window sash mounted for vertical movement in a standard window frame and slidably held in normal, elevated, inoperative position by a sash weight and pulley system in which the magnitude of the weight slightly overbalances the weight of the sash, a rain-water-receiving gutter disposed along the bottom edge of the sash which, when filled with a sufficient amount of water, will, due solely to the added weight of accumulated rain water in the gutter, overcome the weight in the sash weight and pulley system and thus cause the sash to move vertically and lower itself into closed position, and valves in the bottom of the gutter which are normally closed to retain the rain water in the gutter, said valves including valve operating means adapted to contact a window sill to gradually open the valves to release water from the gutter, said valves being closed and the sash remaining in lowered position so long as rain drives thereagainst at such a rate that a sufficient amount of water is retained in the gutter to provide weight for overbalancing the sash weight, but said sash being raised automatically when the rain ceases and the valve operating means contacts the window sill to release sufficient water through the valves to lighten the weight of the sash so that the sash weight is then effective to elevate the sash.

2. In combination, a light-weight auxiliary rain shield window sash mounted for vertical movement in a standard window frame and slidably held in normal, elevated, inoperative position by a sash weight and pulley system in which the magnitude of the weight slightly overbalances the weight of the sash, a rain-water-receiving gutter disposed along the bottom edge of the sash which, when filled with a sufficient amount of water, will, due solely to the added weight of accumulated rain water in the gutter, overcome the weight in the sash weight and pulley system and thus cause the sash to move vertically and lower itself into closed position, guide means on said sash for assuring true vertical movement of the sash in the window frame, and valves in the bottom of the gutter which are normally closed to retain the rain water in the gutter, said valves including valve operating means adapted to contact a window sill to gradually open the valves to release water from the gutter, said valves being closed and the sash remaining in lowered position so long as rain drives thereagainst at such a rate that a sufficient amount of water is retained in the gutter to provide weight for overbalancing the sash weight, but said sash being raised automatically when the rain ceases and the valve operating means contacts the window sill to release sufficient water through the valves to lighten the weight of the sash so that the sash weight is then effective to elevate the sash.

3. In combination, a light-weight auxiliary rain shield window sash mounted for vertical movement in a standard window frame and slidably held in normal, elevated, inoperative position by a sash weight and pulley system in which the magnitude of the weight slightly overbalances the weight of the sash, a rain-water-receiving gutter disposed along the bottom edge of the sash which, when filled with a sufficient amount of water, will, due solely to the added weight of accumulated rain water in the gutter, overcome the weight in the sash weight and pulley system and thus cause the sash to move vertically and lower itself into closed position, guide means on said sash for assuring true vertical movement of the sash in the window frame, guide means mounted on said window frame cooperating with said first-named guide means, and valves in the bottom of the gutter which are normally closed to retain the rain water in the gutter, said valves including valve operating means adapted to contact a window sill to gradually open the valves to release water from the gutter, said valves being closed and the sash remaining in lowered position so long as rain drives thereagainst at such a rate that a sufficient amount of water is retained in the gutter to provide weight for overbalancing the sash weight, but said sash being raised automatically when the rain ceases and the valve operating means contacts the window sill to release sufficient water through the valves to lighten the weight of the sash so that the sash weight is then effective to elevate the sash.

4. In combination, a light-weight auxiliary rain shield window sash mounted for vertical movement in a standard window frame and slidably held in normal, elevated, inoperative position by a sash weight and pulley system in which the magnitude of the weight slightly overbalances the weight of a sash, a rain-water-receiving gutter dis-

posed along the bottom edge of the sash which, when filled with a sufficient amount of water, will, due solely to the added weight of accumulated rain water in the gutter, overcome the weight in the sash weight and pulley system and thus cause the sash to move vertically and lower itself into closed position, guide means on said sash for assuring true vertical movement of the sash in the window frame, guide means mounted on said window frame cooperating with said first-named guide means, a housing mounted on said window frame enclosing both of said guide means, and valves in the bottom of the gutter which are normally closed to retain the rain water in the gutter, said valves including valve operating means adapted to contact a window sill to gradually open the valves to release water from the gutter, said valves being closed and the sash remaining in lowered position so long as rain drives thereagainst at such a rate that a sufficient

amount of water is retained in the gutter to provide weight for overbalancing the sash weight, but said sash being raised automatically when the rain ceases and the valve operating means contacts the window sill to release sufficient water through the valves to lighten the weight of the sash so that the sash weight is then effective to elevate the sash.

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