May 17, 1932. E. KOHLSAAT 1,859,209

PERMANENT WINDOW SCREEN

Filed Nov. 22, 1927 2 Sheets-Sheet 1

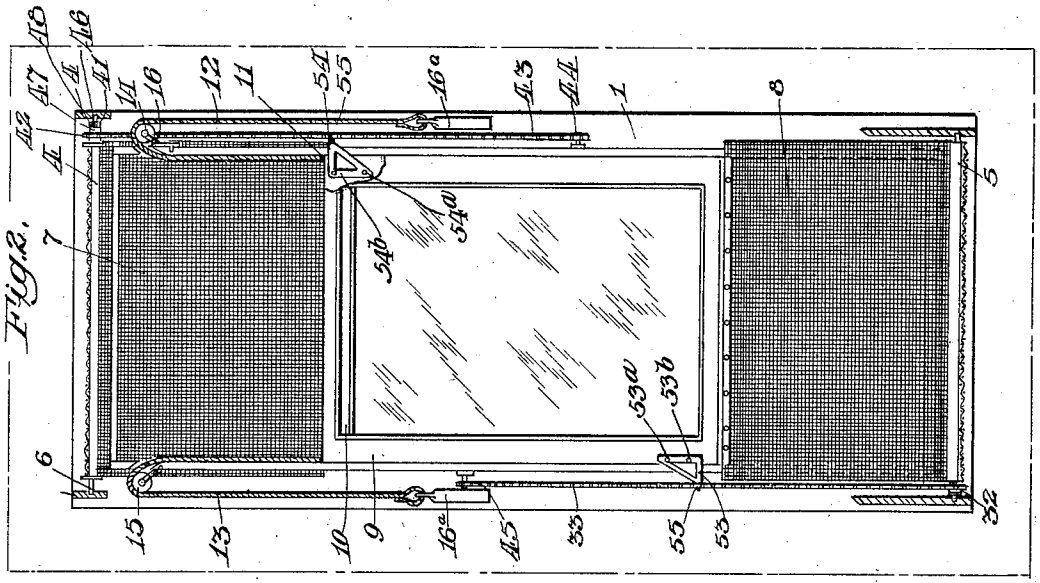


Fig. 2.

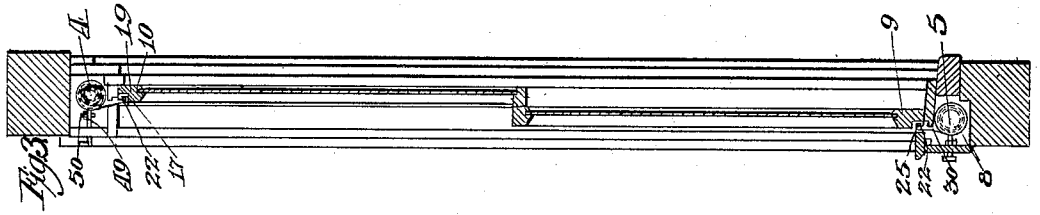


Fig. 3

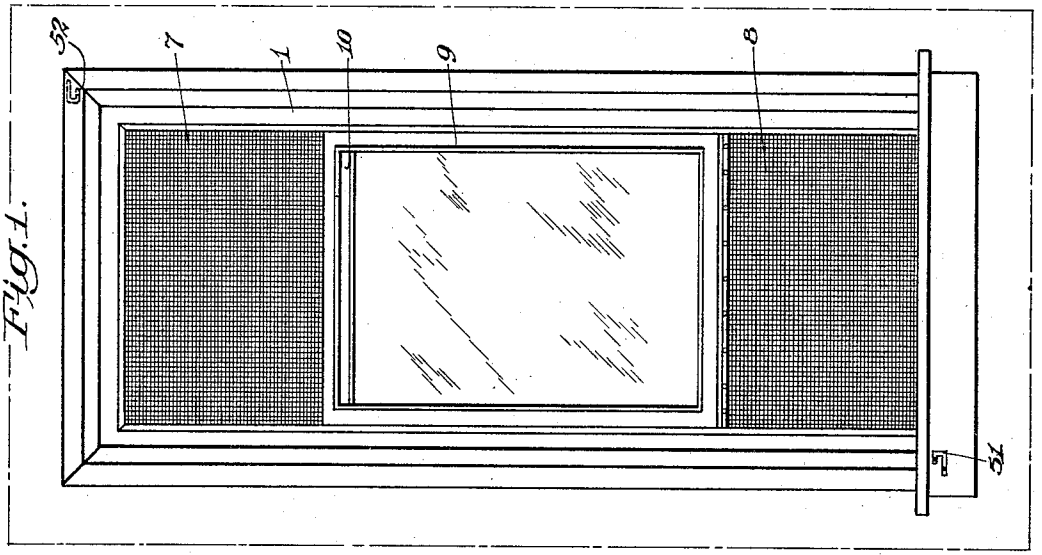


Fig. 1.

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Fig. 4.

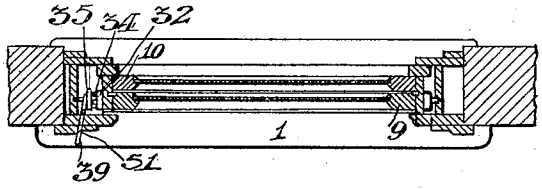


Fig. 6.

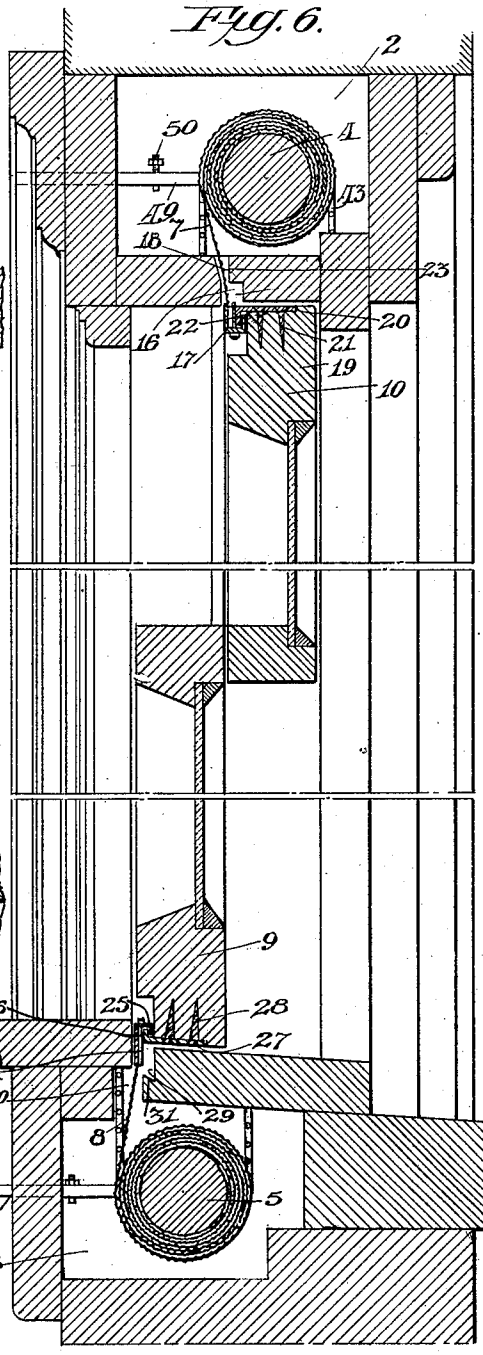
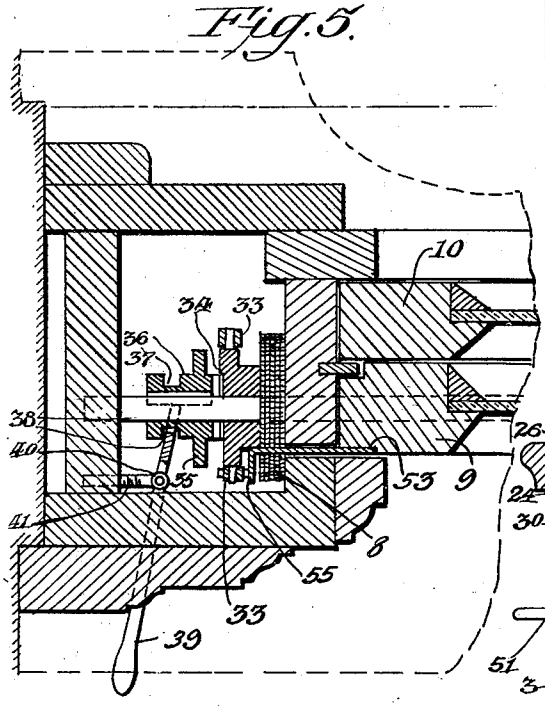


Fig. 5.



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UNITED STATES PATENT OFFICE

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PERMANENT WINDOW SCREEN

Application filed November 22, 1927. Serial No. 235,049.

The present invention relates to the art of windows and screens therefor, it being obvious that all window screens heretofore are removable, therefore dispensed with during the winter months, necessitating storage space and installation for use during the summer months, there being a great deal of inconvenience in both instances, particularly when installed, it being necessary to remove the screen in order to wash windows or for a house-keeper to shake articles out of the window or to look out, hence it is the purpose of the present invention to provide what may be known as a permanent screen for windows, permanent to the extent that the screen is always convenient and may or may not be used, and when the screen is to be used it may be moved into position through the simple act of raising or lowering the sashes, and when the screen is not to be used the sashes may be lowered and raised and the screen detached, in which case the screening may be supported in storage above and below the window casement.

Another purpose is to provide means to permit either the upper screen or the lower screen to be detached from its respective sash to permit it to be moved independently of its screen.

It is to be understood that the particulars herein given are in no way limitive, and that while still keeping within the scope of the invention, any desired modification of details and proportions may be made in the construction of the appliance according to circumstances.

The invention comprises further features and combination of parts to be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a view in elevation showing the two sashes moved to their raised and lowered positions with the screens corresponding to the positions in which case the sashes are arranged at a point approximately the center of the height of the window frame.

Figure 2 is a similar view also showing the frame in section with the sashes correspondingly adjusted.

Figure 3 is a vertical sectional view of Figure 2 showing the sashes lowered and raised with the screens reeled within their housings.

Figure 4 is a cross sectional view of Figure 2.

Figure 5 is an enlarged horizontal detailed sectional view through one side of the window frame at the lower end of the frame more clearly showing the clutch of the lower screen carrying roller.

Figure 6 is an enlarged vertical sectional view through a window showing the upper and lower sashes and the upper and lower screen rollers, with the screens attached to the sashes and illustrating the sprocket chains for the screen rollers.

Referring to the drawings, 1 identifies a frame which may be of a conventional construction, and housed in the upper and lower parts thereof, 2 and 3, are rollers 4 and 5, said rollers having pintles 6 journaled in bearings of the frame of the window.

Upper and lower screens 7 and 8 are attached to the rollers and are wound thereabout.

Mounted in the window frame for raising and lowering movements are lower and upper sashes 9 and 10 and attached to said sashes as at 11 are cords 12 and 13, which are engaged over pulleys 14 and 15 and are provided with weights 16*a*.

The upper part of the frame of the window is provided with a slot 16 through which the upper screen 7 (which is wound around the roller 4 and attached thereto) passes. This screen 7 at its lower end, that is its end portion which unwinds from the roller 4, has a channel bar 17 attached thereto by means of a strip 18. The upper rail 19 of the upper sash 10 has a plate or strip 20 attached by screws 21. This strip or plate 20 has a downturned flange 22 with which the channel bar 17 of the screen 7 engages, so that the unwinding end portion of the upper screen may be attached to the upper sash, so that when the upper sash is lowered the upper screen may be lowered therewith.

It is possible to partially lower the upper sash, detach the channel strip 17 from the downturned flange 22 of the plate 20, in

which case the channel strip may be allowed to rest against a shoulder 23 of the slot 16.

The lower screen 8 has attached to an unwinding portion by means of a strip 24, a channel strip 25, which over-engages a flange 26 of a plate 27, which is attached by screws or the like 28 to the lower rail of the lower sash 9 of the window.

It is possible to raise the lower sash 9, detach the channel strip 25 from the flange 26 of the plate 27, allowing the channel strip to engage or rest back in an off-set cavity 29 of a slot 30 in the lower part of the frame of the window, so that the lower sash may be raised without moving the lower screen 8. In other words it is possible to detach the upper screen 7 and lower the upper sash independently or the lower screen 8 may be detached and the lower sash raised independently.

When the lower screen 8 is detached it is accomplished by disengaging the channel strip 25 from the flange 26 of the plate 27, in which case the channel strip 25 rests against a shoulder 31 of the off-set cavity 29 of the slot 30.

The left hand end of the roller 5 about which the lower screen 8 winds is provided with a sprocket 32 about which a sprocket chain 33 engages, and to one side of the sprocket 32 a clutch member 34 is provided, there being a clutch member 35 on the spindle of the lower roller 5 to engage with the clutch member 34 so as to cause the clutch member 35, which is loosely mounted on the spindle of the lower roller 5, to rotate with the roller.

The clutch member 35 has an extension sleeve 36 provided with a groove 37 with which the forks 38 of a lever 39 engage. The lever 39 is pivoted at 40 to supports 41, so that movement of the lever 39 in one direction will move the clutch member 35 to engage with the clutch member 34, whereby the lower sash may be raised or lowered.

The upper roller has a sprocket 42 mounted upon its pintle, and passing about the sprocket 42 is a sprocket chain 43, and which also passes about a sprocket 44, which is mounted midway the height of a window frame, the sprocket chain 33 passing about a similar sprocket 45 likewise midway the height of a window frame.

Carried by the sprocket 42 is a clutch 46 with the teeth of which a clutch 47 engages. The clutch 47 has engaged therewith a clutch member 48, with a groove of which the forks of a lever 49 cooperates, so that by tilting said lever upon its pivot 50, the clutch member may engage with the teeth of the sprocket.

The clutch lever 49 may be moved in one direction to disengage its clutch from the sprocket of the upper roller 4, and when the clutch lever 49 is moved in the opposite direction its clutch may engage with the clutch of the upper roller 4.

The levers 39 and 49 are pivoted at 40 and 50, and the free end of said levers 39 and 49 are operative in slots 51 and 52, which are L-shaped. By means of these slots 51 and 52 the levers 39 and 49 are held in different positions to hold the clutches in and out of engagement with the clutches of the rollers 4 and 5.

By means of the sprocket chain 33 and 43 the rollers are operated evenly. In other words when the upper sash is lowered the upper screen unreels from the roller 4, and when the lower sash is raised, the lower screen is correspondingly moved.

Pivotally carried by the lower and upper sashes 9 and 10 are triangular members 53 and 54 which have projections 55 for engagement with the chains 33 and 43, so that the sashes may move with the chains, when the sashes are operative, that is when the angle members 53 and 54 are tilted in the desired directions to attain this result. Said angle members are disengaged from the sprocket chains, when the screens 8 and 7 are disengaged from the upper and lower sashes, so that the sashes may be raised and lowered independently, that is without moving the screens, the screens remaining in storage within the upper and lower parts of the casement or window frame.

The members 53 and 54 are pivoted at 53*a* and 54*a* to the lower and upper sashes, the upper right hand corner of the lower sash being broken away in Figure 2 to show the member 54. Said members 53 and 54 may be tilted on their pivots by removing the pins 53*b* and 54*b*, which are used to hold the projections 55 of the members 53 and 54 in engagement with the sprocket chains. In other words the pins 53*b* and 54*b* pass through the members and into the sashes. When it is desired to move the sashes without operating the screens, which have been previously detached from the sashes, the pins 53*b* and 54*b* may be removed and the members 53 and 54 tilted, disconnecting the members from the chains. By moving the clutch members 35 and 47, it is possible to leave the spockets 32 and 42 and their chains idle. In order to move the clutch members 35 and 47, the levers 39 and 49 are tilted in their proper direction.

The invention having been set forth, what is claimed is:

In a window structure having a sash and an angle plate secured to the lower edge of the sash, a roller mounted in the sill of the window frame and having a screen connected thereto and reeled thereabout, a sprocket loose upon one end of the roller, an idler sprocket mounted in the frame, a chain passing about the idler sprocket and the loose sprocket and provided with detachable con-

nections with the sash, and means on one end of the roller for connecting and disconnecting the loose sprocket to and from the roller, whereby the sash may operate the roller through the medium of the chain, or the roller may remain idle when the screen is detached from the sash.

In testimony whereof he affixes his signature.

ERNST KOHLSAAT.