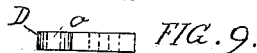
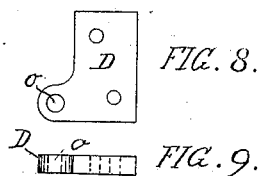
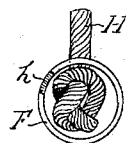
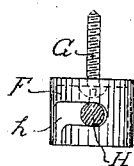
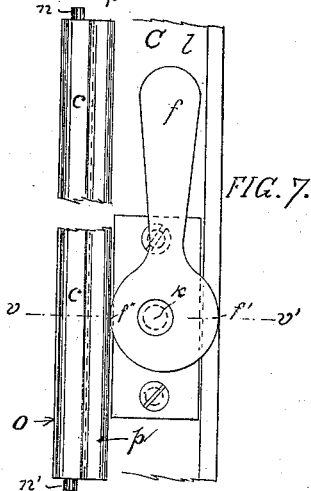
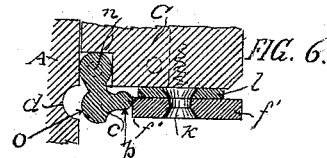
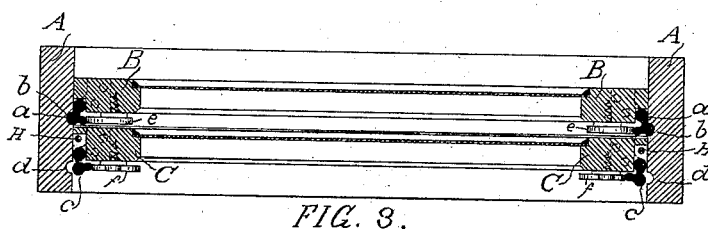
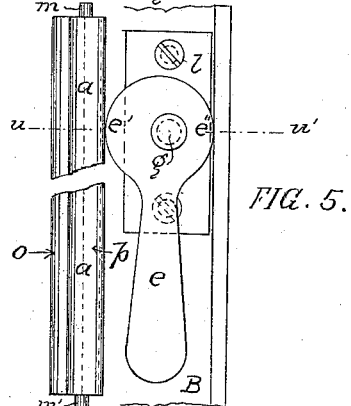
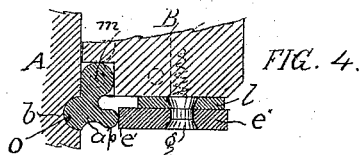
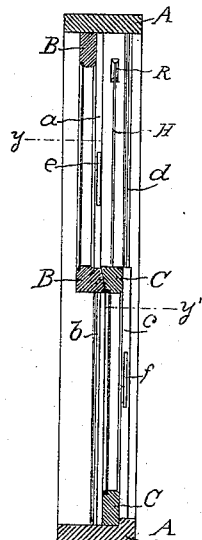
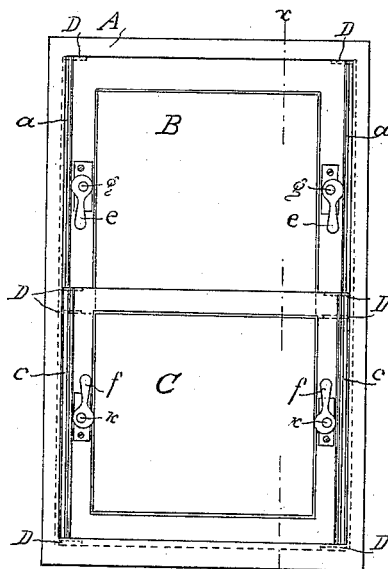


C. KRUESI.
WINDOW SASH AND FRAME.

Patented May 22, 1888.



W. Wagner.
J.-J. Rose.

INVENTOR.
Courad Kneiss.
 BY *C. F. Gooding.*

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CONRAD KRUESI, OF CHICAGO, ILLINOIS.

WINDOW SASH AND FRAME.

SPECIFICATION forming part of Letters Patent No. 383,134, dated May 22, 1888.

Application filed December 20, 1886. Serial No. 522,130. (No model.)

To all whom it may concern:

Be it known that I, CONRAD KRUESI, a citizen of Switzerland, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Window Sash and Frames, of which the following is a specification, to wit:

This invention relates to an improvement in window sash and frames; and it consists in certain novel details of the construction and arrangement of the same, whereby the sash is more readily removed and replaced and is locked and held at any place, substantially as will be hereinafter more fully set forth and claimed.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a front elevation of a window frame and sash fitted as I shall describe. Fig. 2 is a central vertical section of the same; Fig. 3, a horizontal section of the same. Fig. 4 is an enlarged detail cross section of a part of one of the sash-rails and my fastener and guide. Fig. 5 is a detail front elevation of the guide partly broken away. Figs. 6 and 7 are views similar to Figs. 4 and 5, but representing the device in a different position. Fig. 8 is a plan view, and Fig. 9 an edge view, of the casting in which the guide is hinged. Fig. 10 is a top view, and Fig. 11 a side view, of my device for securing the sash-cord.

A represents a window-frame of any suitable size and shape, and either with or without the usual weight-well, according as it is desired to use a balanced sash or not. This frame is on its inner sides provided with two shallow vertical grooves, *b*, instead of the usual dividing and guidestrips; and while the form of these grooves may be greatly varied to suit different circumstances, I prefer the shallow half round form shown in the drawings. These grooves being sunk in the frame leaves the entire face of the frame smooth and free for the insertion and removal of the sash, as will be presently explained.

The upper and lower sash, B C, are made, in the usual manner, of a size to fit the frame.

Their corners on the inner vertical side rails are grooved out to receive a guide piece or leaf, *a c*, which is of any suitable material; but I contemplate making it of metal. These pieces are formed at each end with a projecting pivot or pintle, *m n*, which is received in small holes *o*, formed in the hinge-castings D, which are secured in the ends of the recesses of the sash. These hinged guides are formed with longitudinal tongues *o*, of proper form to fit in the shallow grooves of the frame, and are forced into these grooves by means of small eccentric levers *e f*, pivoted upon studs *g h* on the side rails of the sash. The eccentric levers work against wings *p* on the leaves *a c*, which project forward and are turned over the front of the sash. As seen in Figs. 5 and 7, these levers are eccentrically pivoted, leaving upon one side of the pivots a small part, *e' f''*, and upon the other a larger portion, *e' f'*, and it will be evident that when these levers are turned to press their larger sides against the hinged guides these latter are forced into the frame-grooves with varying force, either to serve as a guide for the sash in being raised or lowered or so tightly as to firmly lock the sash and effectually prevent its being moved. With this device to hold the sash the window can be perfectly secured at any point without the aid of balance-weights; but I prefer to use such weights, and secure their supporting-cord H, knotted at its end, in a small metallic socket, F, which is provided with a screw, G, to secure it to the sash, and has in one side an angular slot, *h*, opening through the outer edge of the socket, as will be understood from Figs. 10 and 11. The cord is readily inserted and removed from the angular slot, and is securely held in place when the sash is in the frame.

The operation of this device is at once plain. The sash, when placed in the frame, is guided in lifting and lowering by the hinged leaves or guides *a c*, which run in the grooves *b d* in the frame and retain the sash in place exactly as is done by the stops and beads in common use. When the sash is to be locked in any position, either closed or partially or wholly open, the eccentric levers are simply turned to press the hinged guide-leaves more firmly into the

grooved frame, and thus firmly secure the sash perfectly immovable. When the sash is to be taken out for cleaning or repairs, it is only necessary to turn the eccentric levers in the opposite direction, and the guide-leaves can be swung out on their hinges and leave the sash free to be drawn out of the frame and returned again without the use of tools of any kind. The convenience of this will be seen at a glance, and also that the hinged leaves are readily adjusted for shrinkage or swelling of the sash, caused by variations of weather, and take up all looseness and rattling.

The particular form of the hinged guide-leaves and their size will of course be regulated according to the dictates of fancy or the requirements of particular cases, and may be made of fancy form and ornamented according to taste or desired economy of construction.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a window-frame formed with grooved sides, of a sash provided with guides pivoted to the sash and provided with tongues to fit into the grooves, and projecting wings projecting in front of the sash, and means, substantially as described, for operating said guides.

2. The combination, with a window-frame formed with vertically-grooved sides, of a sash having its edges recessed, guides or leaves hinged in said recesses and projecting beyond the face of the sash, and eccentric levers pivoted upon the sash-rail and bearing against the projecting hinged leaf to press it into the groove with the required force, substantially as shown and described.

In testimony whereof I affix my signature in the presence of two witnesses.

CONRAD KRUESI.

Witnesses:

W. C. McARTHUR,
WM. D. COPPERNOLL.