

No. 614,750.

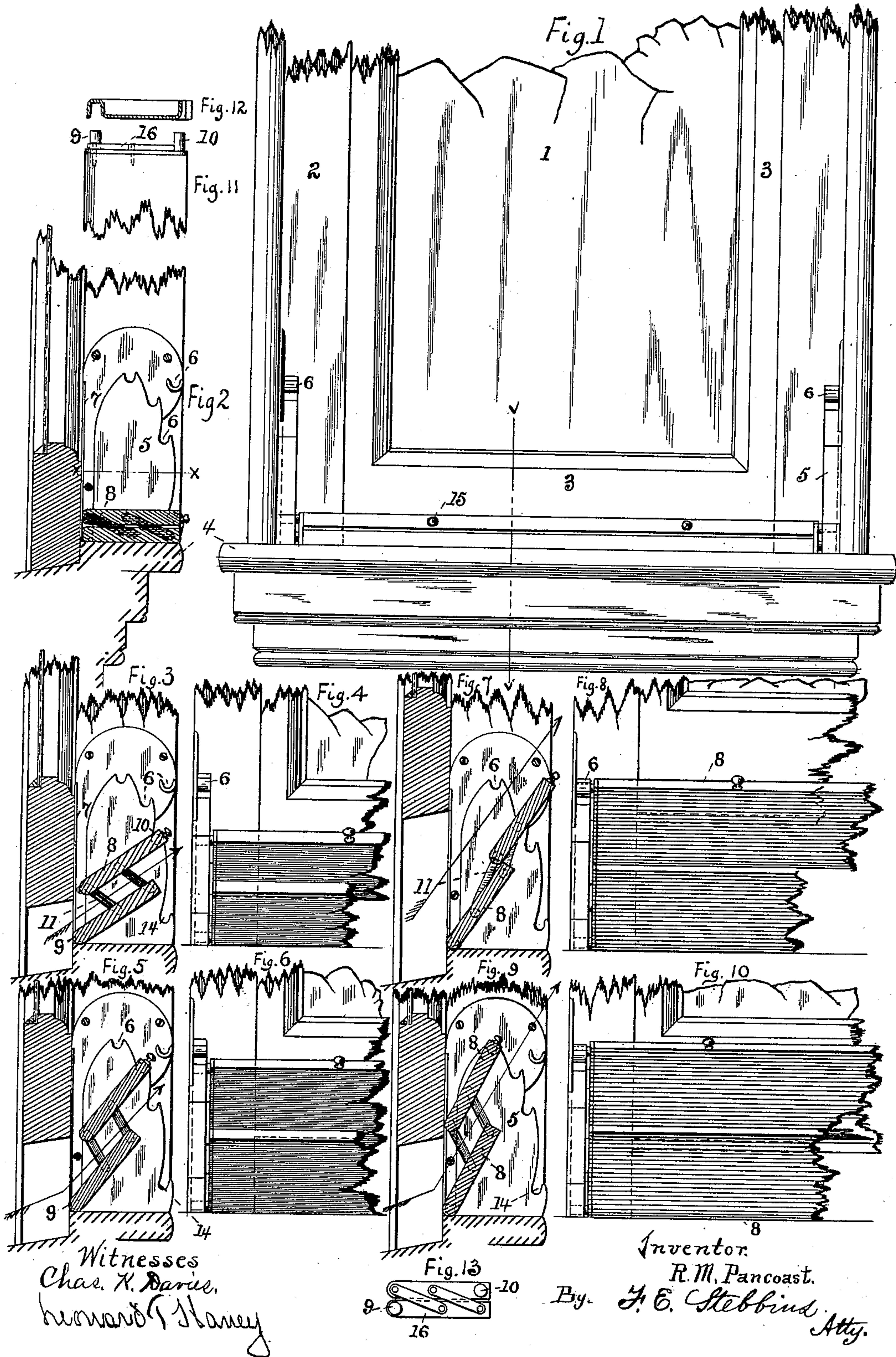
Patented Nov. 22, 1898.

R. M. PANCOAST.
WINDOW VENTILATOR.

(Application filed Sept. 23, 1897.)

(No Model.)

4 Sheets—Sheet 1.



No. 614,750.

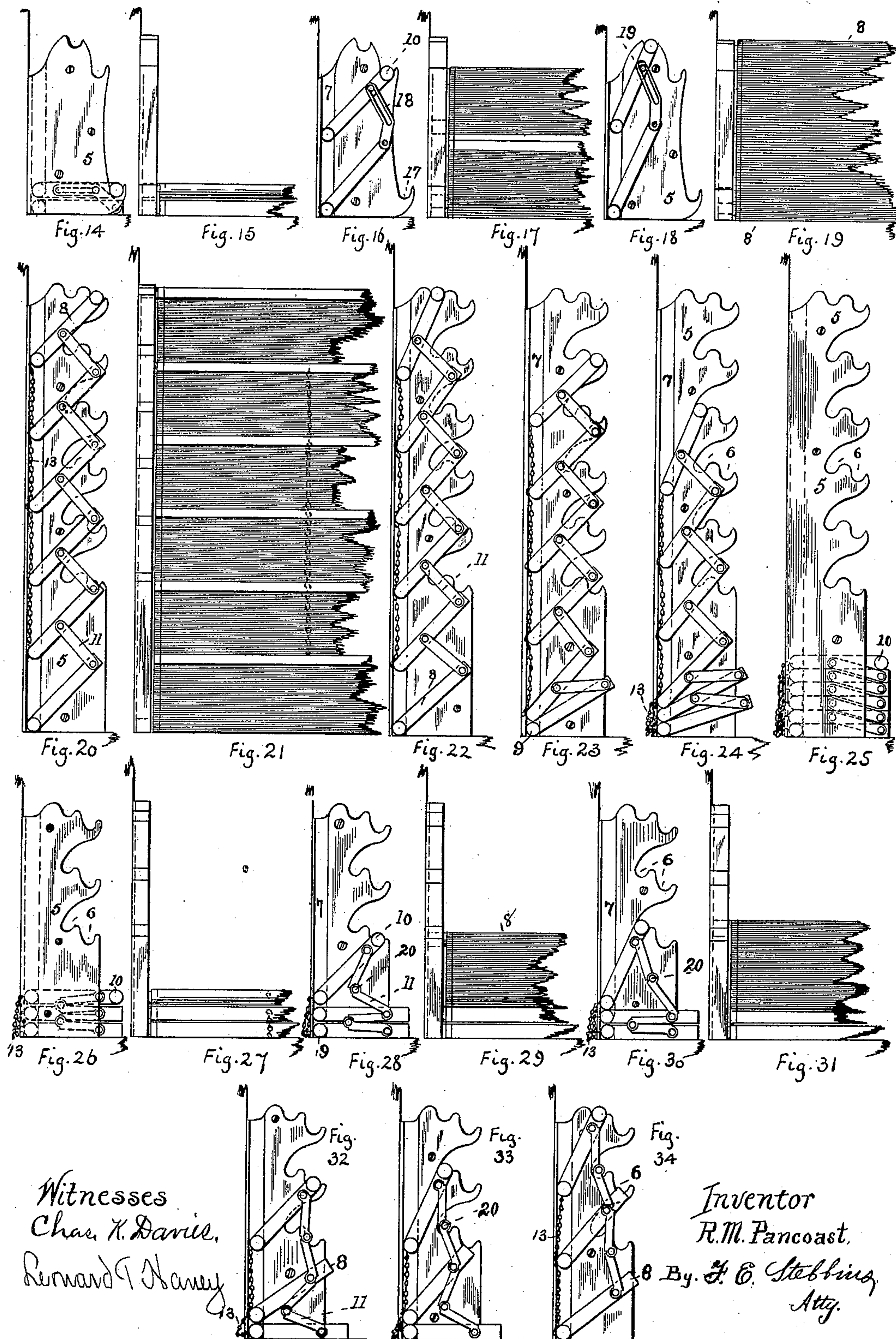
Patented Nov. 22, 1898.

R. M. PANCOAST.
WINDOW VENTILATOR.

(Application filed Sept. 23, 1897.)

(No Model.)

4 Sheets—Sheet 2.



No. 614,750.

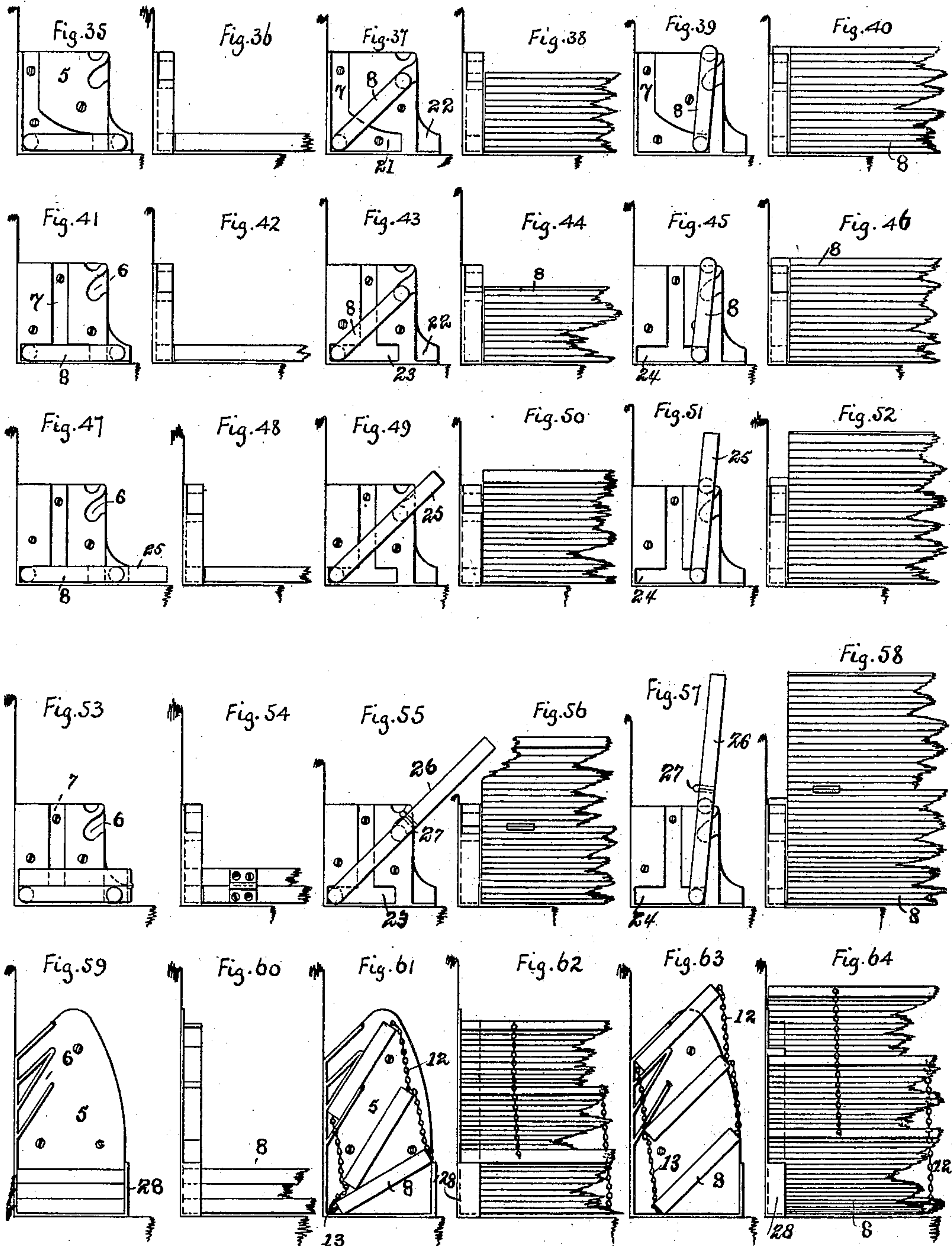
Patented Nov. 22, 1898.

R. M. PANCOAST.
WINDOW VENTILATOR.

(Application filed Sept. 23, 1897.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses
Chas. K. Davis,
Edward T. Hany.

Inventor
R. M. Pancoast
By J. E. Stebbins,
Atty.

No. 614,750.

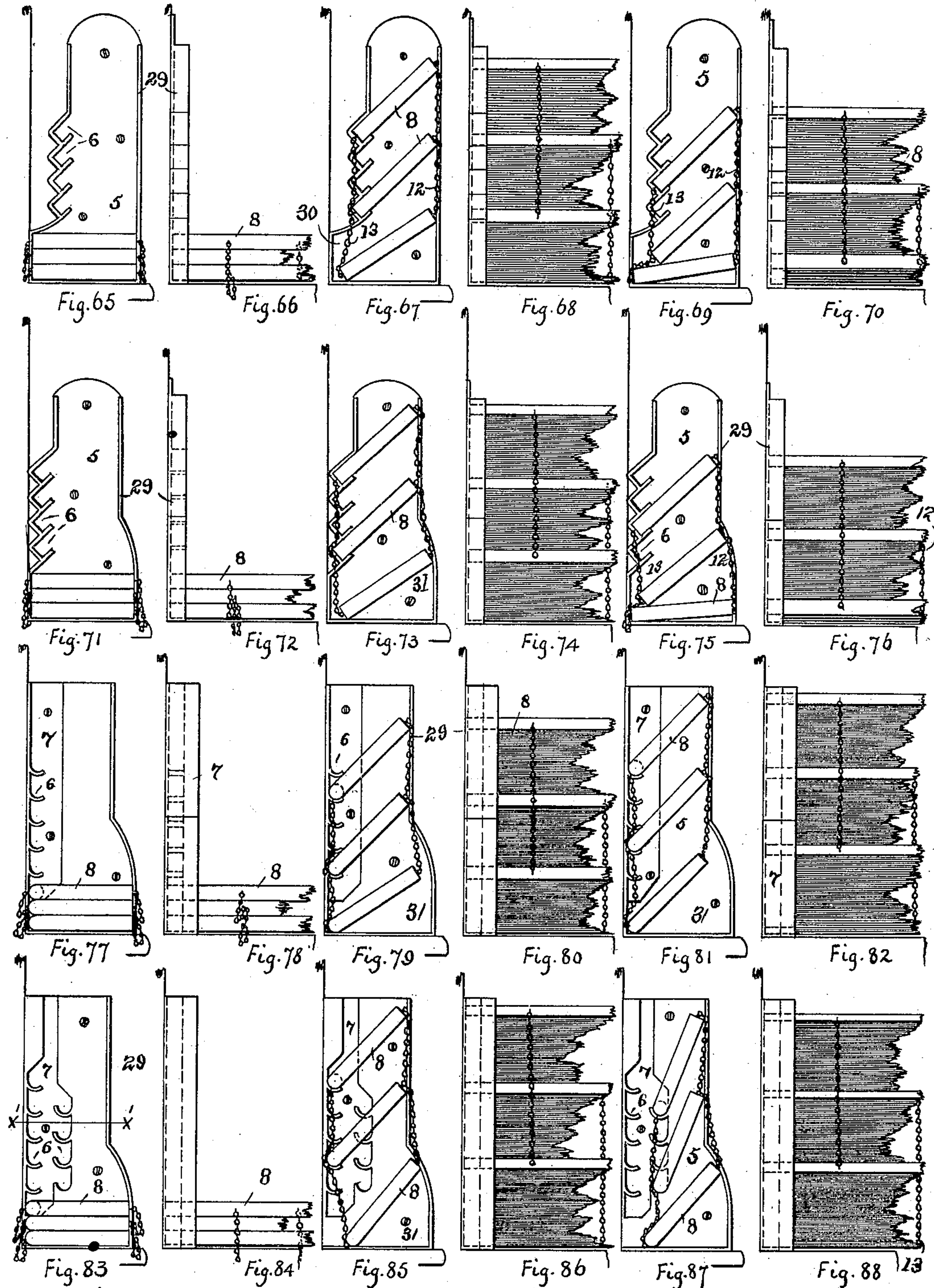
Patented Nov. 22, 1898.

R. M. PANCOAST.
WINDOW VENTILATOR.

(Application filed Sept. 23, 1897.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses,
Chas. K. Davis.
Leonard T. Haney



Inventor
R. M. Pancoast.
By P. E. Stebbins. Atty.

UNITED STATES PATENT OFFICE.

RICHARD M. PANCOAST, OF CAMDEN, NEW JERSEY.

WINDOW-VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 614,750, dated November 22, 1898.

Application filed September 23, 1897. Serial No. 652,769. (No model.)

To all whom it may concern:

Be it known that I, RICHARD M. PANCOAST, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Window-Ventilators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

The object of my invention is the production of a window-ventilator, first, which may readily be adapted to any window in private houses, public halls, cars, boats, or other structures; second, which shall admit air in thin sheets or layers, so that it will be distributed and diffused within the apartment and mixed with the air therein in a proper manner; third, which shall deflect upwardly the air entering the apartment, so that no occupant even near the window will be subjected to an injurious draft; fourth, which admits of adjustment whereby the area of the openings for the inward passage of the air may be varied and the upward angle of the deflection of the air-currents changed; fifth, which shall not project inwardly beyond the window-sill or upwardly above the window-sash, and, sixth, which is so constructed and arranged that parts thereof may readily be removed when it is desired to dust, clean, or paint the woodwork of the window or window-casing.

With these objects or ends in view my invention consists in certain novel constructions, arrangements, and combinations of parts hereinafter described and specified in the claims.

I illustrate by the accompanying drawings several practical modes of the physical embodiment of the invention; but these pictured examples are not exhaustive of all possible modes of the application of the principle.

Figures 1 to 13 show an example of the window-ventilator with the several parts in the different views arranged in dissimilar relative positions. The sectional views are

taken on the line V V, Fig. 1. In Figs. 1 and 2 the window-sash is closed and the slats dropped upon the window-sill and between the end plates. In Figs. 3 and 4 the sash is raised a short distance and the slats adjusted on the first set of bearings. In Figs. 5 and 6 the sash is raised still farther upwardly and the slats adjusted on the second set of bearings. In Figs. 7 and 8 and 9 and 10, respectively, the window is raised and the slats adjusted in the third and fourth sets of bearings, so as to lie in different planes oblique to the plane of the window. In Figs. 11, 12, and 13 are shown details of the construction of the end plate, the trunnions, and the pendulous connections of the slats. Fig. 12 is a section of the end plate, taken on line X X of Fig. 2; and Fig. 13, an end view of the two slats and the swivel-arms which flexibly unite them.

Figs. 14 to 19 show a second example, which differs from the first example mainly in the top slat, as well as the under one, being provided with trunnions at the rear edge, in having but one pair of swivel-arms, and those slotted, as shown, and in the end plates being made with two sets of bearings. Fig. 14 is an end view in elevation with the slats lowered between the end plates; Fig. 15, a fragmentary front view; Fig. 16, a view with the end plate shown in Fig. 14 removed and the slats adjusted on the first set of bearings. Fig. 17 is a fragmentary view of Fig. 16, and Figs. 18 and 19 views showing the slats adjusted on the second set of bearings.

Figs. 20 to 25 show a third example, which is characterized by having the rear edges of the slats, except the lower one, united by a chain or other flexible means, the top and bottom slats provided with trunnions at their rear edges, and the end plates made with a multiplicity of sets of bearings, twelve in number, for the trunnions on the front edge of the top slat. In Figs. 20, 22, 23, 24, and 25 the slats are adjusted in various positions, as shown. Fig. 21 is a fragmentary front view in elevation of Fig. 20.

Figs. 26 to 34 show a fourth example, which differs from the third mainly in being provided with only half as many slats and in having each swivel-arm made in two parts and said parts so united as to form a self-

folding joint. In Figs. 26 and 27 the slats are represented in a lowered position resting on the window-sill and between the end plates, and in the remaining figures the slats are shown adjusted in several of the different bearings.

Figs. 35 to 40 show a fifth example, in which one slat having two trunnions at each end is used, the same being adapted to a novel type of end plate. In Figs. 35 and 36 the slat is lowered, in Figs. 37 and 38 it is adjusted in the first set of bearings, and in Figs. 39 and 40 it occupies the second position of adjustment in the top bearings.

Figs. 41 to 46, 47 to 52, and 53 to 58 show, respectively, the sixth, seventh, and eighth examples. The end plates are of the same construction in each of these examples, but the slats differ. In Figs. 47 to 52 the slat is made wider than in Figs. 41 to 46, while in Figs. 53 to 58 it is compound, made in two parts hinged together, constituting when unfolded a single very wide slat.

Figs. 59 to 64 show a ninth example. Here the end plates are provided with a series of bearings for the upper slat, and the several slats themselves are united at their front and rear edges by flexible means, such as chains. In Figs. 59 and 60 the slats are lowered, in Figs. 61 and 62 the top slat is adjusted in the first set of bearings, and in Figs. 63 and 64 in the second set.

Figs. 65 to 70 show a tenth example, in which the slats are supported in bearings in a manner analogous to the arrangement in the ninth example. In Figs. 65 and 66 the slats are lowered, in Figs. 67 and 68 two of them are supported in the bearings, and in Figs. 69 and 70 one slat only is adjusted and the second and third pendulously supported.

Figs. 71 to 76 show the eleventh example, which differs from the tenth only in the form of the end plates, which, as shown, support the slats when adjusted quite near to the window. The several views correspond to those of the tenth example.

Figs. 77 to 82 show a twelfth example, where the slats are supported in position when adjusted both at their front and rear edges. In Figs. 77 and 78 the slats are lowered, and in Figs. 79 and 80 and 81 and 82, respectively, they are adjusted at different heights.

Figs. 83 to 89 show a thirteenth example, differing from the twelfth in having each end plate provided with two sets of bearings for the trunnions on the rear edge of the top slat. In Figs. 83 and 84 the slats are lowered, in Figs. 85 and 86 they are adjusted relative to the rear set of bearings, and in Figs. 86 to 88 they are adjusted relative to the front set. Fig. 89 is a section of the plate on line X X of Fig. 83.

Referring to the several figures, the numeral 1 designates a window; 2, a window-casing; 3, a window-sash, and 4 a window-sill. These elements are of any well-known

or desirable construction and need not be specifically described.

The principal novel elements of my invention consist, first, of the end plates 5, struck up or cast to shape and each plate having a series of bearings 6, located in different planes, and the majority of the said plates also provided with slots 7, as shown, the said bearings and slots being fashioned to the form desired in the process of manufacture; second, of the slats 8, provided in many of the examples with trunnions 9 at their rear edges, which fit within the slots 7, and with trunnions 10 at the front edges or near the front edges of the top slats. Still further, the slats are flexibly united or connected one to another by suitable means, such as swivel-arms 11, located, preferably, at the ends of the slats, or chains 12 uniting the front edges or chains 13 connecting the rear edges of several or all the slats, whereby the lower of said slats except the bottom one may be pendulously supported by the upper slat. The end plates in each of the illustrations are secured by screws or other means to the window-casings, one at each side of the sash, as shown in Fig. 1. The slats are adapted to fit the plates and their length will be determined by the width of the window, and when lowered they will occupy a horizontal position between the end plates. It will be observed that the said end plates and slats with the novel characteristics specified are elements common to the several examples; but each example possesses certain novel specific details of construction which will now be pointed out.

In the first example the numeral 14 designates seats formed in this instance at the lower and outer edges of the plates and within which the trunnions of the top slat rest when the slats are lowered, the object being to confine the same and prevent accidental displacement. 15 are knobs adapted to be grasped by the hands in manipulating the slats, and 16 are plates integral with the trunnions and secured to the ends of the slats. The views show the four possible adjustments of the slats, the arrows indicating the direction of the air-currents, which are deflected inwardly and upwardly at different angles. In this, as in all the other examples, the rear edge of the lower slat rests directly upon the window-sill, so that no air can pass beneath it and enter the apartment. Figs. 7 and 8 illustrate an adjustment adapted for the entrance of a large volume of air.

In the second example 17 are the seats for the trunnions of the top slat when lowered, and 18 are slots in the swivel-arms engaging headed pins 19 on the top slat.

In the third example there are no seats to receive the trunnions of the upper slat when lowered, and the chain at the rear edge is not connected to the lower slat.

In the fourth example 20 are self-folding joints which unite the swivel-arms.

In the fifth example 21 is a forward extension of the slot 7 for the purpose of allowing the slat to take the position indicated in Fig. 39, and 22 are seats for the trunnions at the edges of the plates.

In the sixth, seventh, and eighth examples the slot 7 is arranged centrally of the end plate and extended to the front and rear, as indicated by 23 and 24, respectively. In example seven the slat is widened at 25 beyond the trunnions, and in example eight the slat is still further widened by a piece 26, secured to the outer edge thereof by hinges 27. When folded and lowered, the parts occupy the relative positions shown in Fig. 53 between the end plates.

In the ninth example the plates are provided with inwardly-extending edges 28, which confine the slats when lowered, and thus perform the functions of the seats in the first example.

In the tenth example 29 is an inwardly-projecting edge on the end plate, and 30 a rearward extension at the bottom, within which the rear edges of the slats are confined when lowered.

In the eleventh example 31 is a forward extension of the end plate, and 29 an inwardly-projecting edge.

In the twelfth example 29 is the inwardly-extending edge, and 31 the forward extension of the end plate. Here the bearings for the trunnions of the upper slat are located in the slot 7.

In the thirteenth example the inwardly-projecting edge and forward extension are the same as in example twelve; but the slot 7 contains two sets of bearings, one in advance of the other. Figs. 85 and 87 indicate the angular positions of the slats when supported on the front and the rear sets of bearings.

The manipulation of the slats in each of the examples illustrated is obvious. In the first, second, third, fourth, ninth, tenth, eleventh, twelfth, and thirteenth examples the top slat is grasped by the hand and adjusted on any one of the several sets of bearings, and at the same time the lower slats are raised to their proper relative positions, inasmuch as said slats are flexibly united to and pendulously supported by the upper slat through the medium of arms or chains. The number of slats supported will of course depend upon the height to which the top slat is raised and adjusted, and the inclination of the slats to

the plane of the window will be determined by the location of the sets of bearings on which the said upper slat is supported. In the fifth, sixth, seventh, and eighth examples the several possible adjustments of the single or widened or compound slat are likewise obvious and need no explanation.

From the foregoing description, taken in connection with the illustrations, it will clearly be seen that each of the several examples of my window-ventilator is adapted to attain and secure the object and end set forth in the preamble.

What I claim is—

1. The combination with a window, a window-casing, and a window-sill, of end plates having bearings and slots; and a slat adapted to fit the bearings and the slots; in substance as set forth.

2. The combination with a window, a window-casing, and a window-sill, of end plates having bearings and slots; and a plurality of slats; in substance as set forth.

3. The combination of a window, a window-casing, and a window-sill, of end plates having bearings and slots; and a plurality of slats flexibly united; in substance as set forth.

4. The combination with a window, a window-casing, and a window-sill, of end plates having bearings and slots; and a slat having trunnions; in substance as set forth.

5. The combination with a window, a window-casing, and a window-sill, of end plates having bearings and slots; and a plurality of slats having trunnions; in substance as set forth.

6. The combination in a window-ventilator of a slat having pairs of trunnions at the ends, and end plates having slots to receive one pair of trunnions and open bearings to receive the other pair; in substance as set forth.

7. The combination in a window-ventilator of end plates having sets of bearings, and a plurality of connected slats, the upper one of said slats adapted to be supported by any one of the sets of bearings, and also means to support an additional slat; in substance as set forth.

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

RICHARD M. PANCOAST.

Witnesses:

A. JAMES PANCOAST,
C. T. PANCOAST.