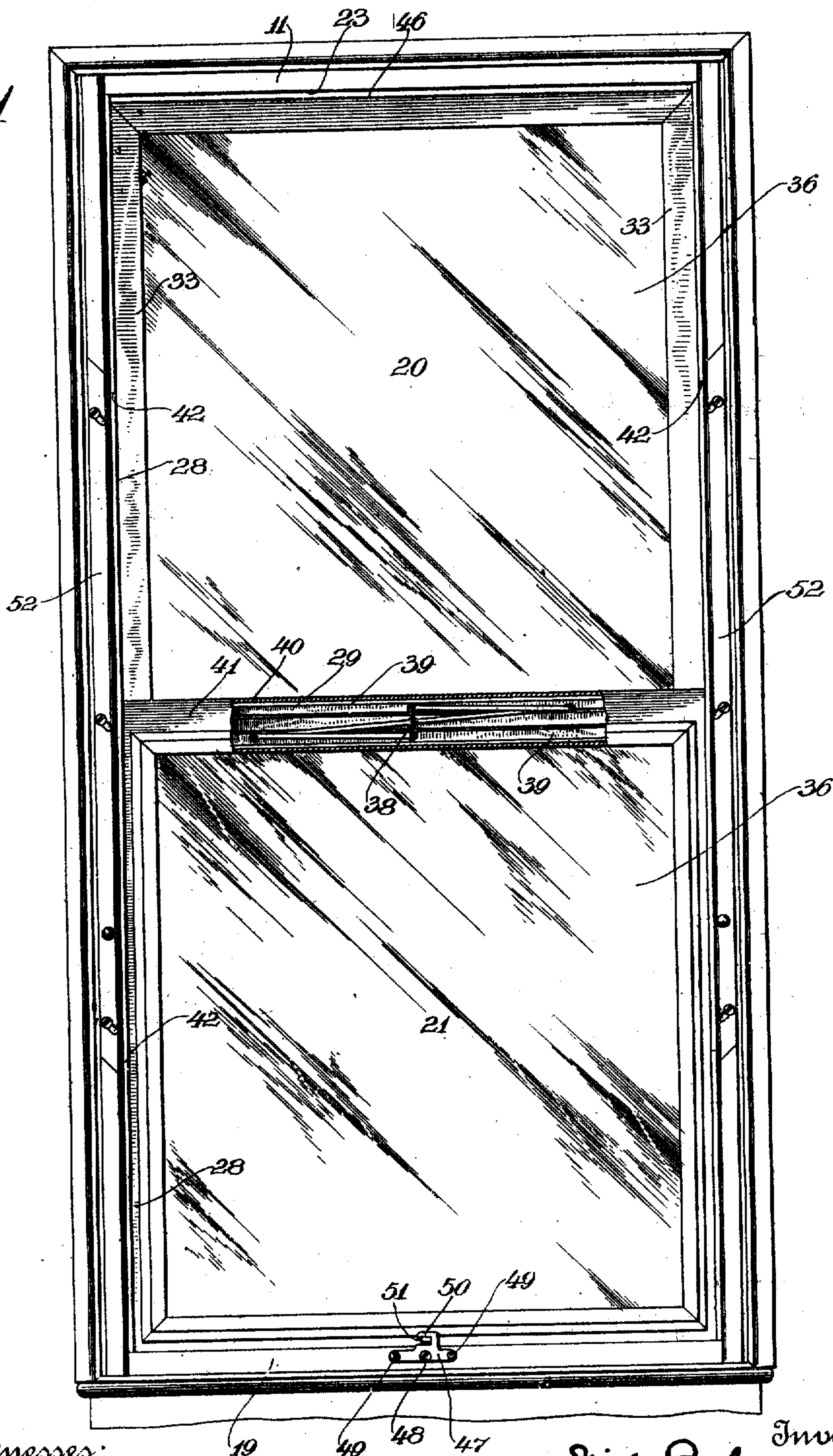


954,587.

N. POULSON.
REVERSIBLE WINDOW.
APPLICATION FILED JAN. 26, 1908.

Patented Apr. 12, 1910.
6 SHEETS—SHEET 1.

Fig. 1



Witnesses:
A. Newcomb
M. Kinners

Niels Poulson, Inventor
By his Attorney
Edwin J. Prindle.

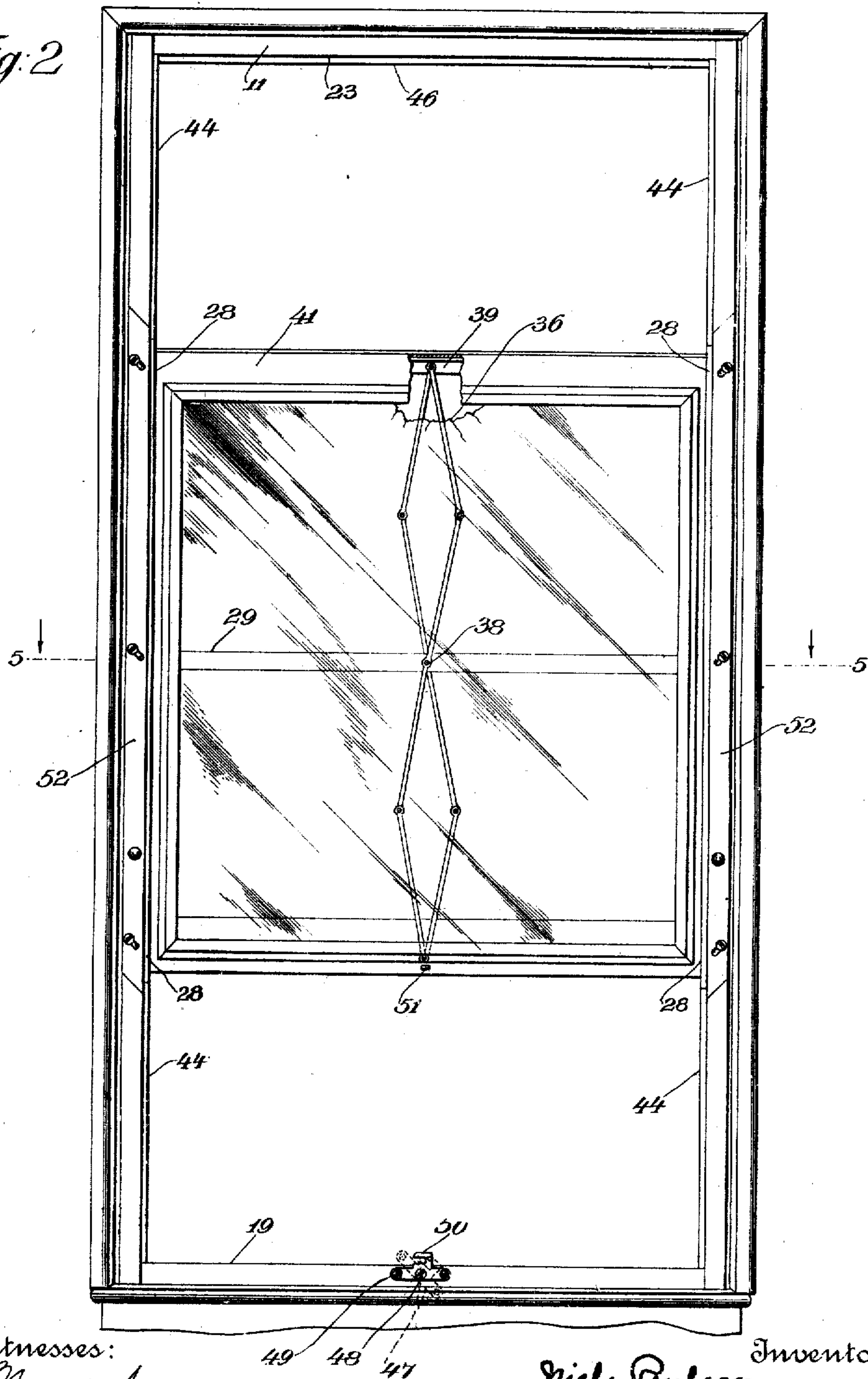
N. POULSON.
REVERSIBLE WINDOW.
APPLICATION FILED JAN. 25, 1908.

954,587.

Patented Apr. 12, 1910.

5 SHEETS—SHEET 2.

Fig. 2



Witnesses:
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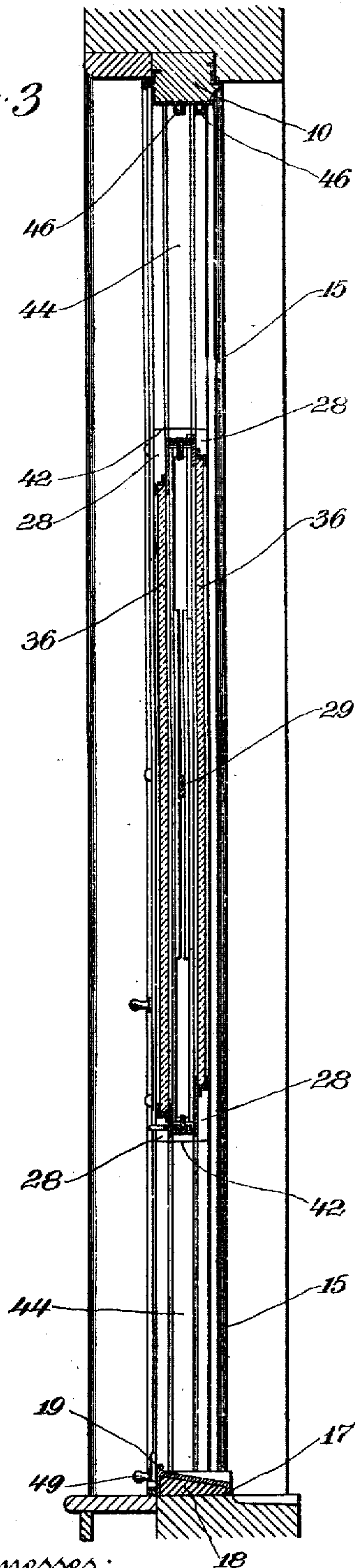
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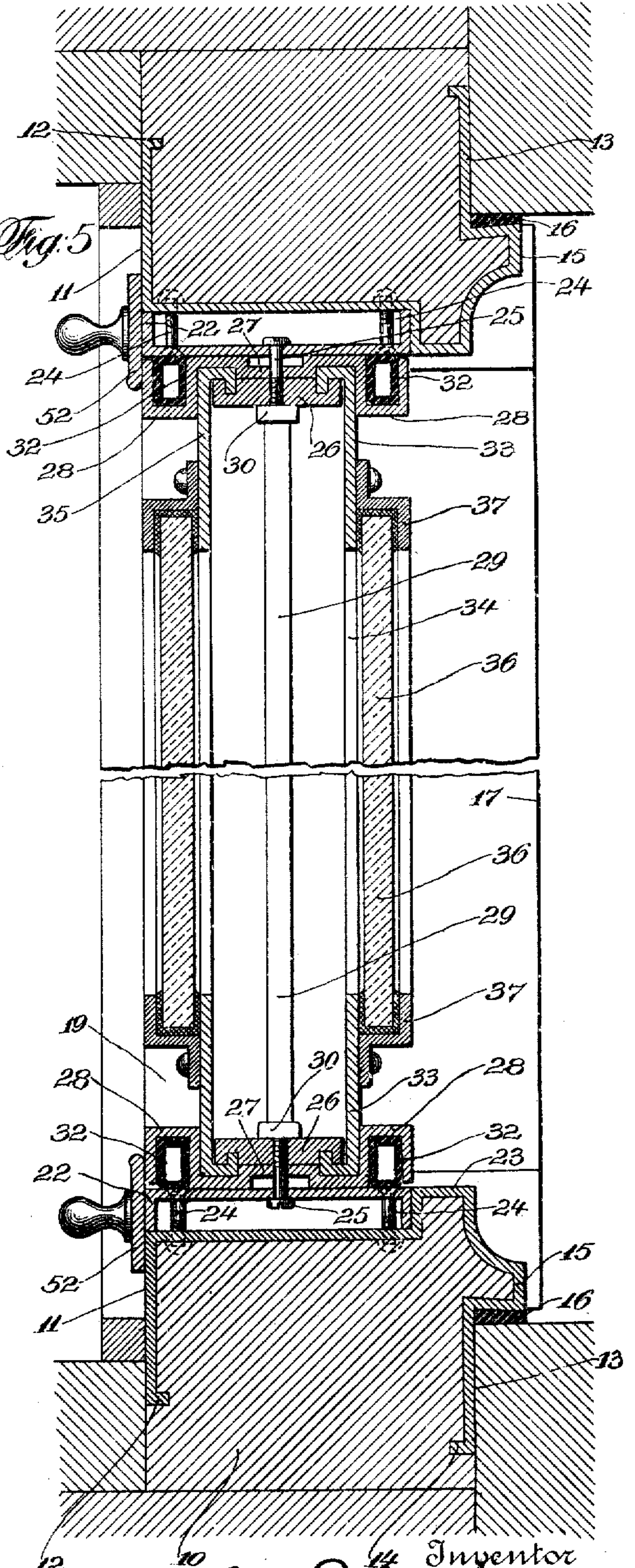
5 SHEETS—SHEET 3.

Fig. 3



Witnesses:
 A. Newcomb
 M. Chivers

Fig. 5



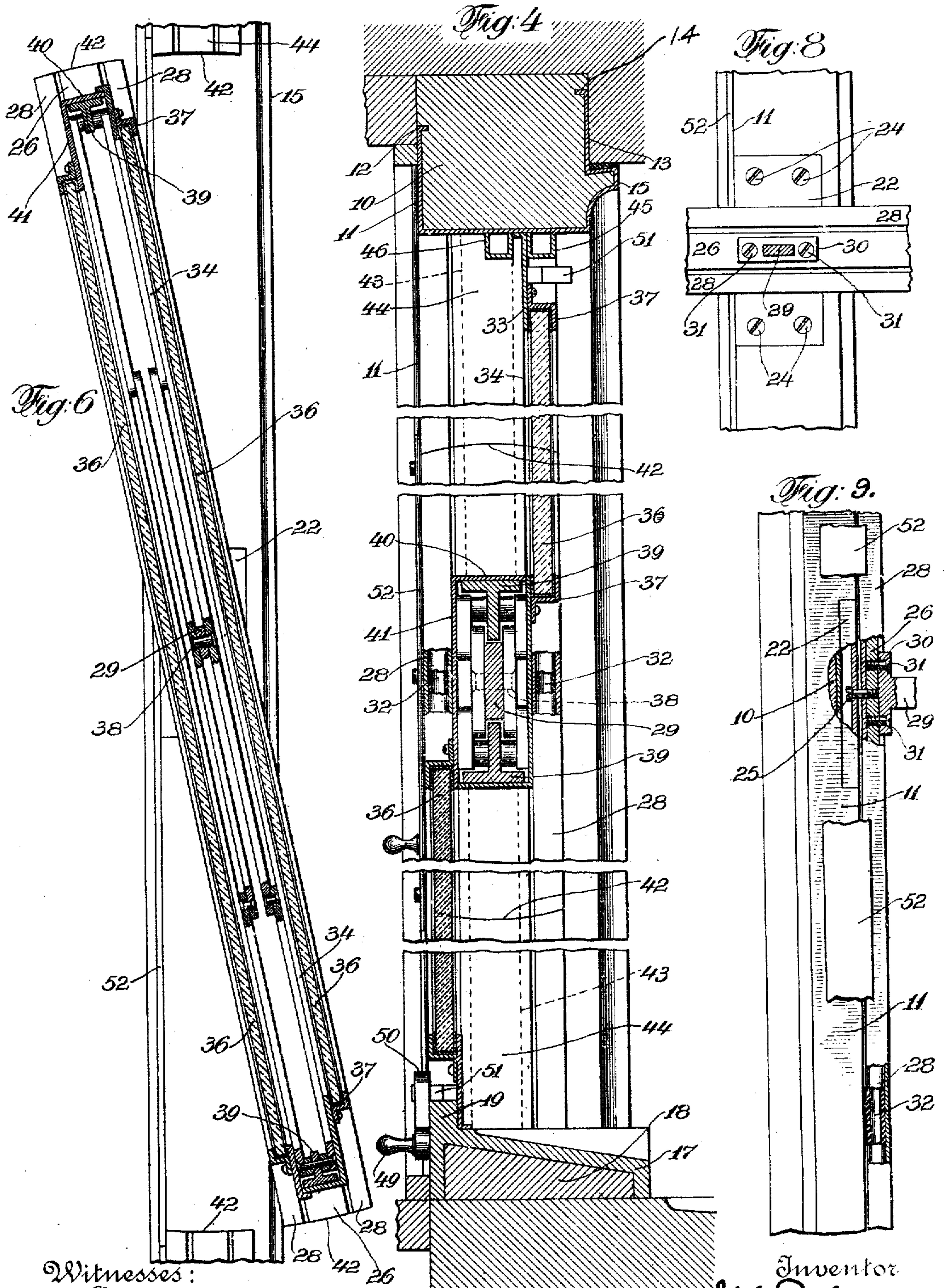
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 By Edwin J. Prindle, Attorney

N. POULSON.
REVERSIBLE WINDOW.
APPLICATION FILED JAN. 25, 1908.

Patented Apr. 12, 1910.

5 SHEETS—SHEET 4.

954,587.



Witnesses:
A. Newcomb
M. Oliver

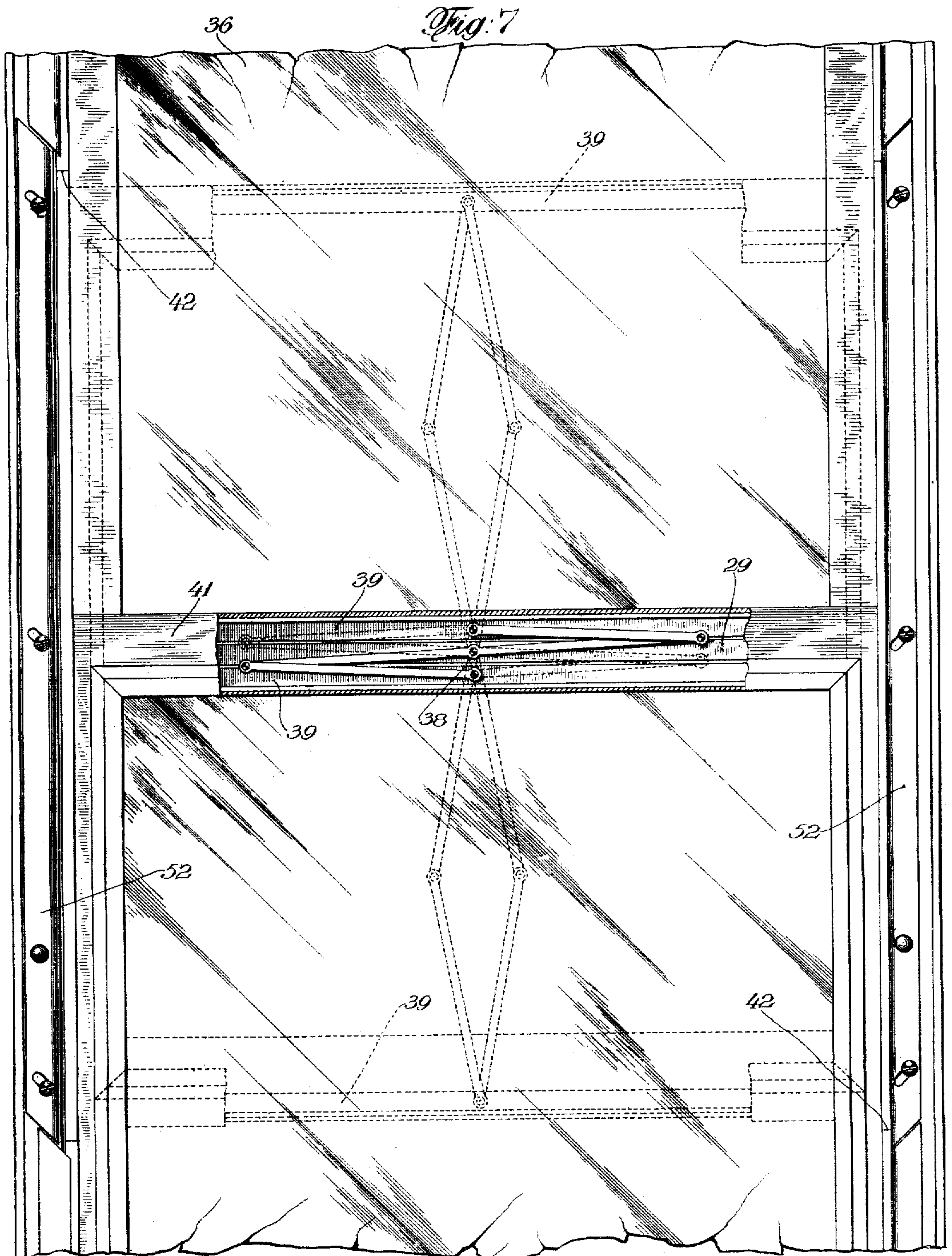
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N. POULSON.
 REVERSIBLE WINDOW.
 APPLICATION FILED JAN. 25, 1908.

Patented Apr. 12, 1910.

5 SHEETS—SHEET 5.

954,587.



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UNITED STATES PATENT OFFICE.

NIELS POULSON, OF BROOKLYN, NEW YORK.

REVERSIBLE WINDOW.

954,587.

Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed January 25, 1908. Serial No. 412,630.

To all whom it may concern:

Be it known that I, NIELS POULSON, of Brooklyn, in the county of Kings and in the State of New York, have invented certain new and useful Improvements in Re-

versible Windows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—
Figure 1 is a front elevation of a window construction embodying my invention, the window being closed; Fig. 2 is a similar view, the window being open; Fig. 3 is a vertical longitudinal section through the center of Fig. 1 showing the sashes in proper position preparatory to swinging; Fig. 4 is a vertical longitudinal section similar to Fig. 2, but on an enlarged scale, portions being broken away to shorten the view; Fig. 5 is a horizontal sectional view taken on the line 5—5 of Fig. 2, the section being on an enlarged scale and shortened by breaking away the middle portions; Fig. 6 is an enlarged sectional view similar to Fig. 3, showing the sash partly turned upon their pivots; Fig. 7 is an enlarged front elevation of the central portion of Fig. 2, the upper and lower parts of the frame being omitted; Fig. 8 is an enlarged detail view showing the construction of the parts about the pivots; and Fig. 9 is an enlarged detail view of a portion of the window frame and pivoted sash frame.

The object of my invention has been to provide a metal window construction having the advantages hereinafter specified; and to such ends my invention consists in the window construction hereinafter specified.

In carrying my invention into practice, I provide a window frame, preferably consisting of sheet metal filled with cement. Such frame preferably has its lintel and jambs of the same construction. The lintel has a sheet metal facing 11 which has a flange 12 that is seated in a groove in the cement of the jamb. There is an outer facing 13 having a similar flange 14, and also having a shoulder 15 to bear against the side of the window opening, the shoulder 15 preferably having a beveled face so as to effectively retain a rubber or other packing 16 to make a tight joint. The window-sill 17 is preferably a cast shell filled with cement 18, the casting having a beveled upper face or water table, and having a ledge

19 which extends upwardly on the inside of the sash when the latter is in its lowest position.

I provide an upper sash 20 and a lower sash 21 which are capable of the usual vertical movements, and can also be swung about a horizontal pivot, as will be described in detail. The pivot construction is as follows: There is a block 22 which is removably secured in a socket formed in the sheet metal facing 23 of each jamb, the block being secured in place by screws 24. A screw 25 passes through the block 22 and is threaded into a T-bar 26. The T-bar is fastened to a channel having a central rectangular raised portion 27 and two outer rectangular raised portions 28. A cross bar 29 connects the T-bars on opposite sides of the window, the cross bar having plates 30 at each end which are secured by screws 31 Fig. 8 to the T-bar. Each of the rectangular portions 28 of the channel has within it a packing 32, preferably in the form of a rubber tube, to make a tight joint between the channel and the facing 23. The groove between the outer raised portion 28 of the channel and the central raised portion 26 thereof is occupied by an L-shaped flange 33 formed on the plate 34, which latter is the main portion of the upper window sash 20. Similarly the lower window sash has an L-shaped flange 35 occupying the corresponding seats between the inner raised portion 28 and the central one 26. The L-shaped flange of the sash interlocks with the flange of the T-bar in such a way that while freedom of movement may be permitted, a wind and rain tight joint is formed. The glass 36 is held against the plate 34 by Z-shaped bars 37 secured around the opening. The upper bar is preferably removably attached, as by screws, for the purpose of removing and replacing the glass.

In order that the sashes may always be symmetrically disposed with reference to the pivots so that their weight shall be balanced about the pivots, the central bar 29, extending from pivot to pivot, has a central pivot 38 of a lazy tongs fastened thereto, each end of the lazy tongs being pivoted to a T-bar 39, which is fastened to the horizontal portion 40 of an L-shaped bar, whose vertical portion 41 is secured to the main plate of the corresponding window sash. The channel bars and the T-bars 26 have their upper and lower edges formed on the arcs of a circle 42

so that they and the sash can be rotated about the pivots when the sash are wholly within the said circle. Channels 43 and T-bars 44 Fig. 6 are secured to the faces of the jambs 5 above and below the pivoted channels and T-bars, but in alinement therewith, to guide and hold the sash when they are moved up and down away from the central bar. Sheet metal beads 45 and 46 are secured to the underface of the lintel to receive the upper edge of the upper sash.

In order to lock the sash in their extended positions some form of catch is provided to secure the lower edge of the lower sash to the sill. That form of catch which I prefer consists of a plate 47 pivoted upon a screw 48 that is secured in the sill, the plate preferably having a handle 49 at each end. The said plate carries a hook 50 which can be swung over a lug 51 formed on or secured to the lower rail of the lower sash.

In order to lock the pivoted channels from rotation and to assist in making a wind tight joint, plates 52 Fig. 2 are fastened by screws to the facing 11, the said plates having inclined slots in which the grooves are received, so that when the plates are raised the inclination of the slots causes them to be retracted from the window opening, and when they are lowered to be forced into the window opening.

In the operation of my window, assuming the window to be in the closed position in which the sash are at their extreme upper and lower limits, the plate 47 Fig. 2, is tilted to the right so that the hook 50 is swung from over the lug 51. The lower sash is then raised and the lazy tongs causes the upper sash to simultaneously move downward and keeps the two sash symmetrically placed with reference to the axis through the pivots so that the weight of one sash always balances that of the other about the pivots. As the movements of the sashes are always in opposite directions they balance each other's weight so that no window weights are required. When the sashes are wholly contained within the guides of the pivoted channel and T-bar, and the plates 52 are retracted from the window opening, the said pivoted channels and T-bars, together with the sashes, can be swung on the pivots to a horizontal position, thus leaving the window opening practically unobstructed; or the sash can be reversed so that the outer side of the upper sash becomes the inner side of the lower sash, and can thus be cleaned from the inside of the room. It is thus easy to clean both sides of both sashes without reaching out of the window, a very important consideration. When it is desired to close the window opening, the pivoted channels and the sashes are swung to a vertical position, the plates 52 are moved downward and

inward, thus projecting over the pivoted channels and holding the sash in line with the upper and lower stationary channels. Upon pulling down the lower sash it readily enters the guides in the lower stationary channels, and at the same time the upper sash passes into the guides of the upper stationary channel. When the sashes are in their upper and lower positions, the lazy tongs and central bar are entirely concealed within the L-shaped meeting rails of the sashes.

It will be observed that my window construction has the following advantages: It requires no window weights, and therefore the construction of the window frame is exceedingly simple. It is entirely made of metal, and yet is so constructed that all of the metal used except the sill is rolled metal, and is therefore cheap and durable. It can be opened so that practically the entire window opening is unobstructed. Because the sashes can be reversed, both sides of both glasses can be cleaned from within the room. The glass can be readily replaced when broken.

While I have illustrated that embodiment of my invention which I prefer, it will be understood that there are many changes which could be made in the illustrated construction which would be within the scope of my invention, and I desire not to be limited beyond the necessary intendment of my claims and the requirements of the prior art.

I claim:

1. In a window construction, the combination of a window frame, a frame pivoted within said window frame, both of said frames having guide-ways, sash mounted in said guide-ways, and plates mounted on said window frame and adapted to be slid over the joints between said window frame and said pivoted frame.

2. In a window construction, the combination of a window frame, a frame pivoted within said window frame, both of said frames having guide-ways for sash, two sash mounted in said guide-ways, plates having downwardly and inwardly inclined slots, headed studs passing through said slots and into the window frame, and mechanism so connecting said sash that their movements shall be in opposite directions equally from the axis of said pivoted frame.

3. In a window construction, the combination of a window frame, a frame pivoted within said window frame, both of said frames having guide-ways, sash mounted in said guide-ways, and a lazy tongs, the opposite ends of said lazy tongs being connected to the meeting rails of said sash, and the central pivot of said lazy tongs being carried by said pivoted frame.

4. In a window construction, the combi-

5 nation of a window frame, a frame pivoted
within said window frame and comprising
a cross-bar in line with said pivots, both of
said frames having guide-ways, sash mount-
ed in said guide-ways, a lazy tongs, the op-
posite ends of said lazy tongs being respec-
tively connected with the meeting rails of
said sash, the central pivot of said lazy
tongs being on said cross-bar, said meeting
10 rails each comprising a half housing, so
that when said meeting rails are together,
said lazy tongs shall be completely inclosed
thereby.

15 5. In a window construction, the combi-
nation of a window frame, a frame pivoted
within said window frame, said pivoted
frame comprising side rails and a cross-bar
substantially in line with said pivots, both
of said frames having guide-ways, two sash
20 mounted in said guide-ways, T-bars secured
to the meeting rails of said sash, a lazy
tongs having each of its ends respectively
pivoted to one of said T-bars, and having

its central pivot on said cross-bar, whereby
said sash may be of light construction, each 25
of said T-bars having a half housing se-
cured thereto to inclose the lazy tongs when
the sash are in closed position.

6. In a window construction, the combi-
nation of a window frame, sash in said win- 30
dow frame, and a lazy tongs connecting said
sash for compelling the sash to move in
unison and in opposite directions.

7. In a window construction, the combi-
nation of a window frame, sash in said win- 35
dow frame and a lever mechanism connect-
ing the sash for causing them to move in
unison, said mechanism being adapted to
be folded into a horizontal position when
the sash closes the window. 40

In testimony that I claim the foregoing
I have hereunto set my hand.

NIELS POULSON.

Witnesses:

FRED W. SMITH,
WILLIAM A. O'CONNOR.