

No. 874,164.

S. E. CIBULAS.

PATENTED DEC. 17, 1907.

OPERATING MECHANISM FOR VENTILATING WINDOWS.

APPLICATION FILED SEPT. 19, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

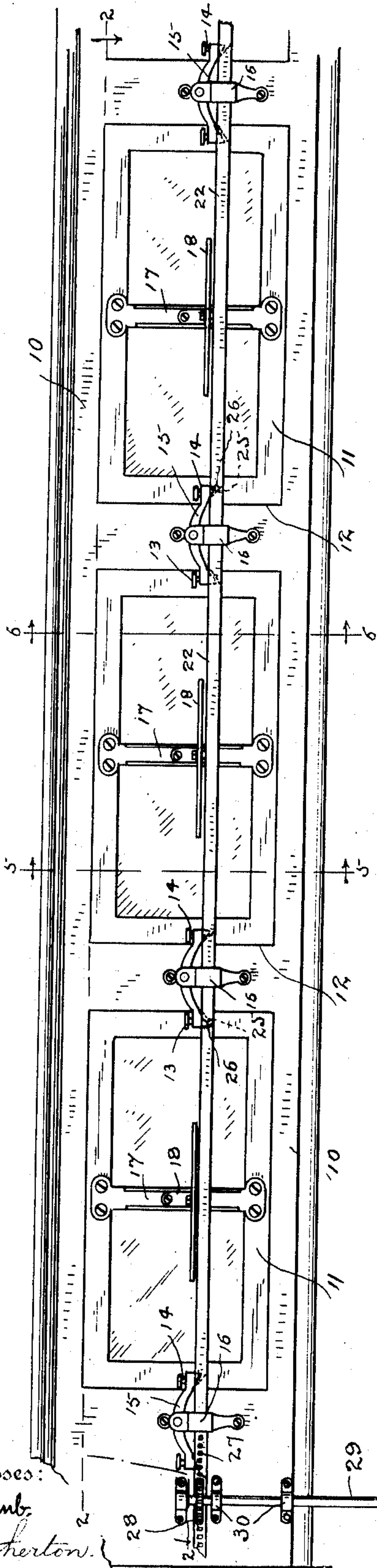
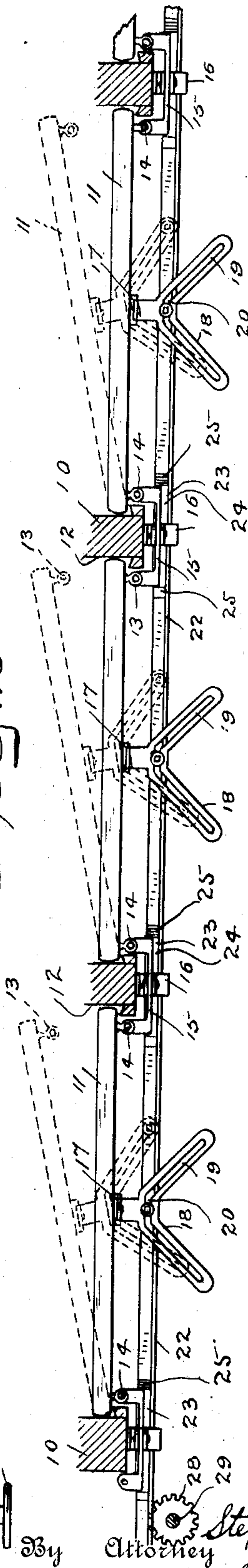


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

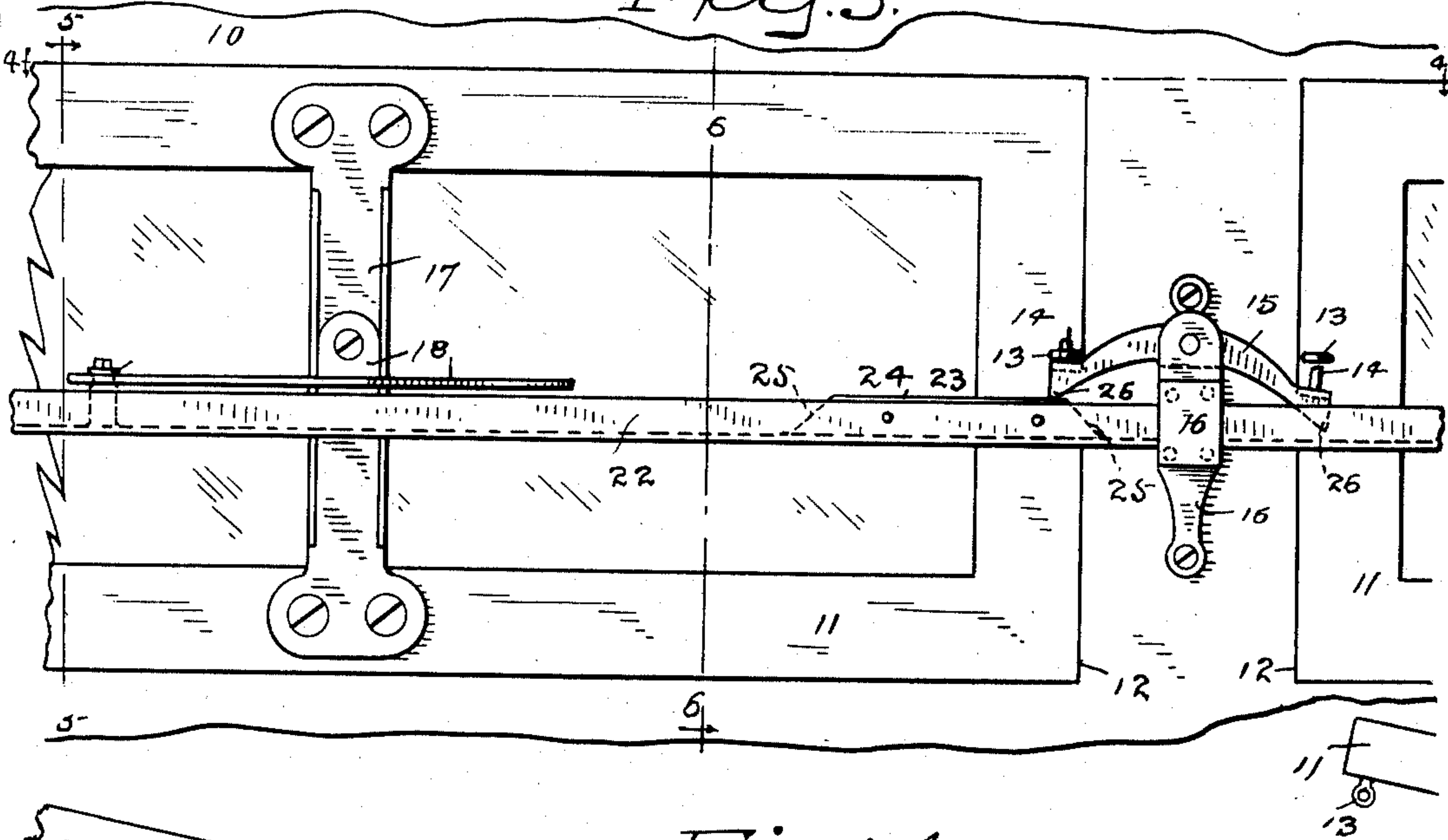


Fig. 4.

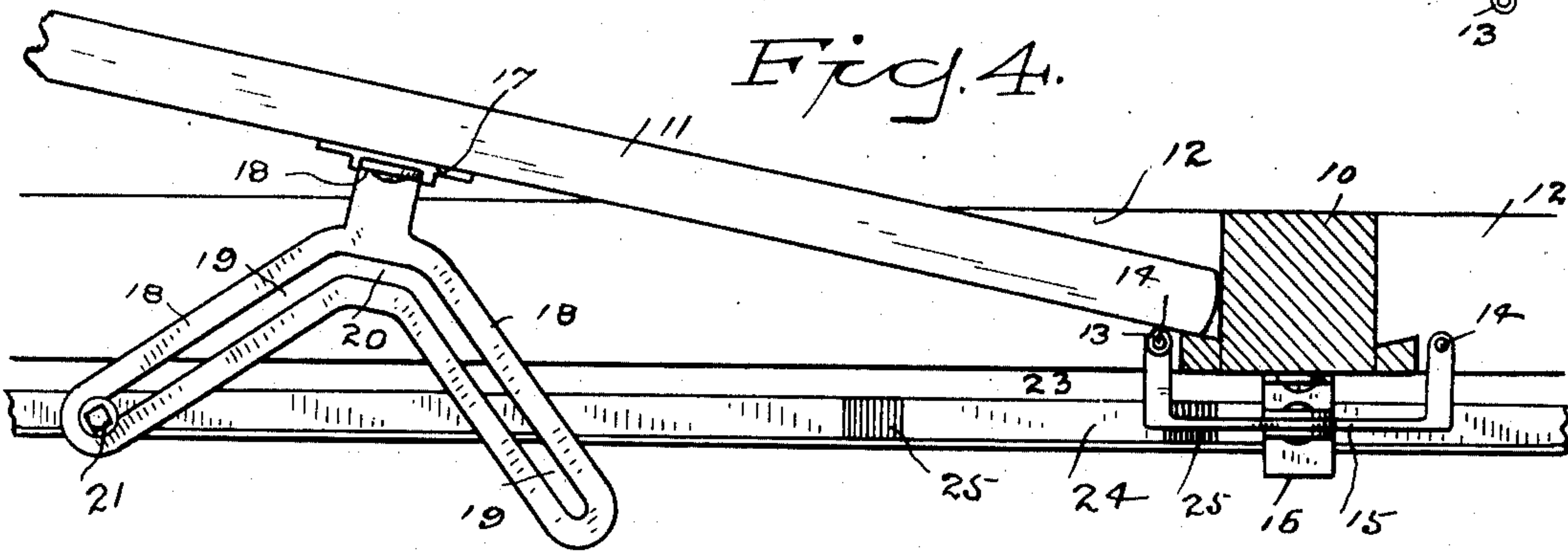


Fig. 5.

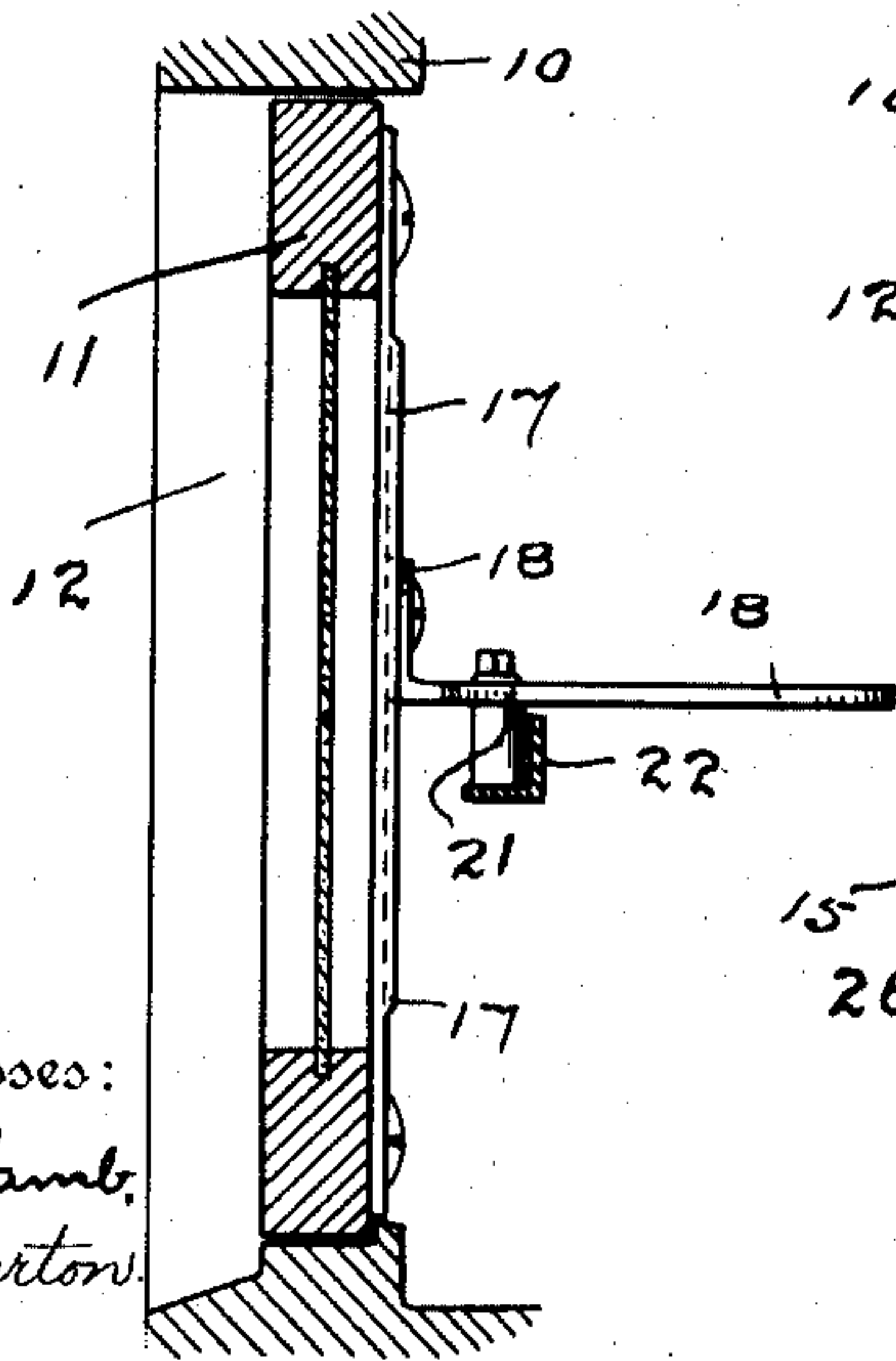
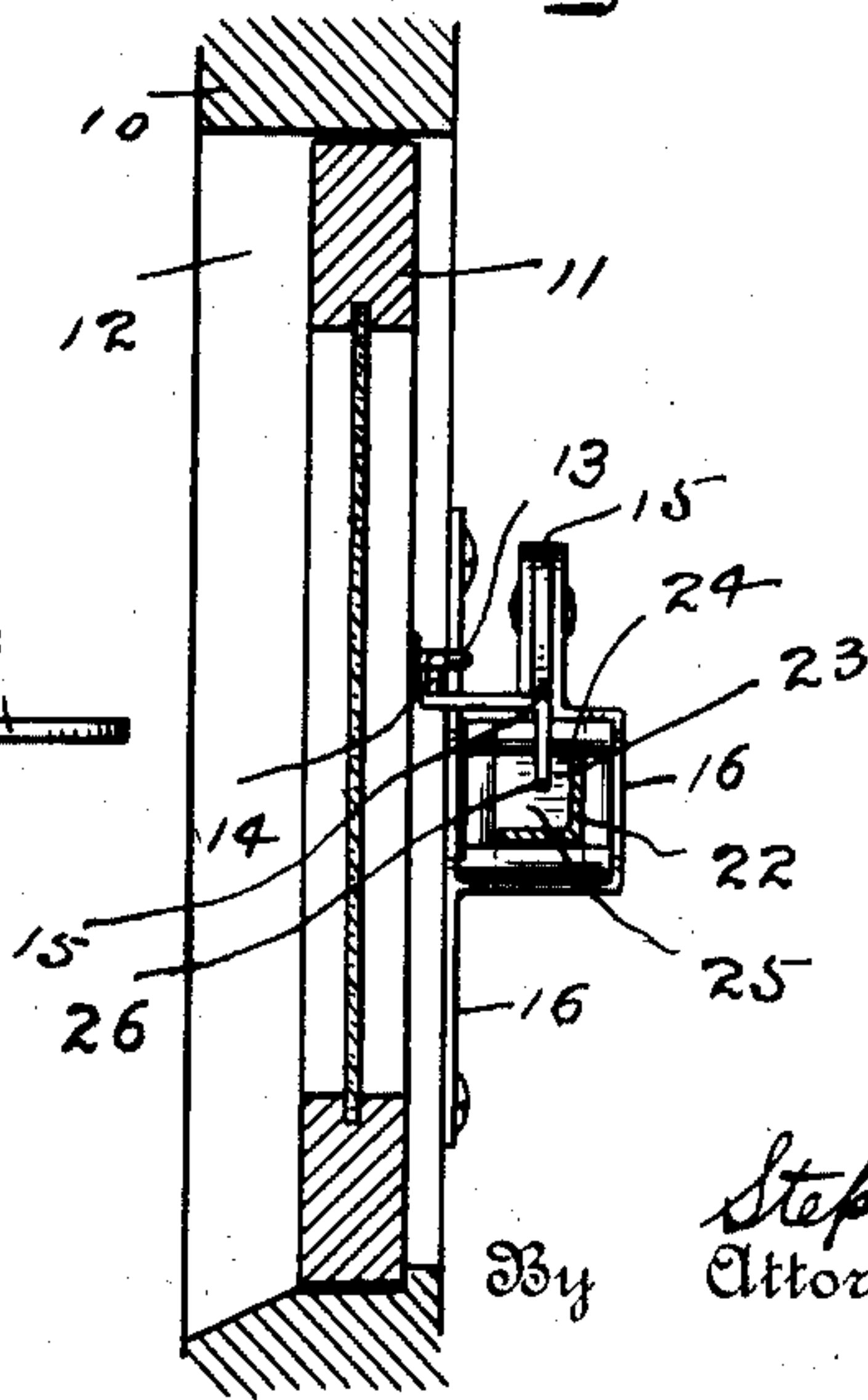


Fig. 6.



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UNITED STATES PATENT OFFICE.

STEPHEN E. CIBULAS, OF BRIDGEPORT, CONNECTICUT.

OPERATING MECHANISM FOR VENTILATING WINDOWS.

No. 874,164.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed September 19, 1907. Serial No. 393,668.

To all whom it may concern:

Be it known that I, STEPHEN E. CIBULAS, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Operating Mechanism for Ventilating Windows, of which the following is a specification.

This invention has for its object to provide mechanism for operating a series of windows, as for example the ventilating windows of railway cars, in such a manner that every window in the series may be locked in the closed position or swung to the open position from either end so that every window can be made a ventilating window when the car is going in either direction.

It is of course well understood that in using end swinging windows for car ventilators, it is desirable that the end toward the direction in which the car is moving should be closed and the other end swung open, so that air will not be drawn into the car but air will be drawn from the car by suction. For example, if the car is moving toward the left, as seen in Figs. 1 and 2 of the drawings, the left ends of the ventilating windows would be in the closed position and the right ends swung toward the open position. In many of the window operating mechanisms now in use, one end only of the windows can be swung to the open position. This is all right when the car is moving in one direction but is objectionable when the car is moving in the other direction as the windows must be kept closed or opened but slightly and even then air will be drawn into the car bringing dust and cinders with it instead of being drawn out of the car as is required. The objections to a ventilating system in which the windows swing in one direction only have been partially overcome by the use of operating mechanism constructed to swing alternate windows from opposite ends, the first, third, fifth, etc. windows being swung to the closed position when the second, fourth, sixth, etc. windows are swung to the open position, and vice versa. An important objection to this system is that only half of the windows in a series can be opened at any time.

My present invention overcomes the objections inherent in both of the above systems and provides operating mechanism by means of which every window in a series may be swung to the open position from

either end, thus providing efficient ventilation and exclusion of dust and cinders when the car is moving in either direction.

With these and other objects in view I have devised the simple and novel window operating mechanism which I will now describe, referring to the accompanying drawings forming a part of this specification and using reference characters to indicate the several parts:

Figure 1 is an elevation illustrating the application of my novel operating mechanism to the ventilating windows of a railway car, the windows being in the closed position; Fig. 2 a longitudinal section on the line 2—2 in Fig. 1, looking down, as indicated by arrows, the position of the windows when swung to the open position from the left end being indicated by dotted lines; Fig. 3 a detail elevation on an enlarged scale, showing the position of the operating mechanism when a window is swung to the open position from the right end; Fig. 4 a longitudinal section on the line 4—4 in Fig. 3, the window and the operating mechanism appearing in plan; Fig. 5 a vertical section on the line 5—5 in Figs. 1 and 3, looking toward the right as indicated by arrows; and Fig. 6 is a vertical section on the line 6—6 in Figs. 1 and 3, looking toward the right as indicated by arrows.

10 indicates surrounding framework for windows, for example the body of a railway car, and 11 windows swinging in openings 12 therein. Each window is shown as provided at each end at its mid-height with an eye 13. These eyes are adapted to be engaged by hinge pins 14 at the ends of rocker arms 15 which are pivoted in brackets 16 secured on the inner side of the framework intermediate the windows, an additional rocker arm and bracket being provided at the end of the series from which the windows are actuated. Each window is provided at its mid-length with a cross piece 17 to which a plate 18 is rigidly secured, said plate being provided with an angle slot 19 having a relatively short straight portion 20 intermediate the angle portions. Each angle slot is engaged by an operating pin 21 carried by an operating bar or rod 22 which has its bearings in brackets 16. In the present instance I have shown the operating bar as an angle bar although of course the special shape of the operating bar in cross section is wholly immaterial so far as the principle

of the invention is concerned. 23 denotes
cams on the operating bar, each cam com-
prising a central high portion indicated by
24 and inclines 25 at the ends of the high
5 portions. These cams are engaged by bear-
ing portions 26 at the ends of the rocker
arms, for a purpose presently to be explained.
The operating bar may be actuated in either
10 direction to close all the windows in a series
or to open them from either end in any
ordinary or preferred manner. I have shown
the end of the operating bar as provided
with openings 27 which are engaged by the
15 teeth of a pinion 28 on an operating shaft 29
which is mounted to oscillate in bearings 30
and is shown as provided with a hand wheel
31 for convenience in operation.

The operation is as follows: When the
operating bar is at its mid-position, operat-
20 ing pins 21 will be at the mid-length of
straight portions 20 of angle slots 19, bear-
ing portions 26 of the rocker arms will be in
engagement respectively with the inclines
25, both of the hinge pins 14 on each rocker
25 arm will be in engagement with an eye 13
at one end of a window and all of the win-
dows in the series will be in the closed posi-
tion and locked there by the engagement of
a hinge pin with an eye at each end of each
30 window. Suppose now that it is desired to
swing the windows toward the open position
from the right end, as shown in Figs. 3 and
4. The operator simply moves the operating
bar toward the left as far as may be neces-
35 sary to swing the windows to the desired
open position. When the operating bar is
moved toward the left from its mid-position,
the operating pins 21 will travel from the
straight portions 20 of the angle slots down
40 the left portions of said angle slots, as shown
in Fig. 4. When the windows have reached
their extreme open position, the pins will
lie at the extreme ends of the angle slots.
Should it be required to swing the windows
45 toward the open position from the left end,
the operator would move the operating bar
toward the right, the operating pins 21
would then travel from straight portions 20
of the angle slots down the right portions of
50 said angle slots until the windows were
placed at the required open position or until
the pins had reached the ends of the slots.
In closing the series of windows, the operat-
ing pins travel from the angle slots to the
55 straight portions 20 of said slots. A con-
tinuation of the movement of the operating
bar will cause the operating pins to travel
into the other portions of the angle slots and
will swing the windows to the open position
60 from the opposite ends.

It will be noted that the hinge pins 14
are made long enough and the eyes 13 are
so placed on the window frames with rela-
tion to said pins that in the closed position
65 of the windows the eye at each end of each

window will be engaged by a hinge pin, the
rocker arm standing horizontally, as in Fig.
1. When the windows are swung to the
open position from the right end, as in Figs.
3 and 4, the right bearing portion of each
70 rocker arm will travel down the correspond-
ing incline of a cam 23 which will disengage
the right hinge pins from the eyes at the
left ends of the windows and will push the
hinge pins at the left ends of the rocker
75 arms further into the eyes at the right ends
of the windows so that there is no time at
which any window is not engaged by one
of the hinge pins and is also retained in any
position in which it may be placed through
80 the engagement of the operating pins with
the angle slots in plates 18, the same being
true of course when the operating bar is
moved in the opposite direction and the left
hinge pins are disengaged from the right ends
85 of the windows leaving the right hinge pins
engaged with the left ends of the windows
so that the windows may be swung to the
open position from the left end.

Having thus described my invention I 90
claim:

1. Operating mechanism for a plurality of
windows, comprising eyes for attachment to
the respective ends of windows, plates hav-
ing angle slots for attachment to the mid- 95
length of windows, rocker arms to be pivoted
intermediate the windows and having at
their ends hinge pins and an operating bar
having operating pins which engage the an-
gle slots and cams which engage the rocker 100
arms and place the hinge pins in engagement
with eyes when the bar is at its mid-position,
and when the bar is moved in either direction
tilt the rocker arms and disengage one hinge
pin on each rocker arm from an eye, leaving 105
the other hinge pin engaged, the operating
pins causing all the windows in the series to
swing to the open position from the engaged
end.

2. Operating mechanism for a plurality of 110
windows comprising pivoted rocker arms,
means for detachably connecting each end of
each rocker arm with the end of a window
and means for tilting the rocker arms to dis-
engage one end of each window leaving the 115
other end engaged, substantially as described,
for the purpose specified.

3. Operating mechanism for a plurality of
windows comprising pivoted rocker arms,
means for detachably connecting each end 120
of each rocker arm with the end of a win-
dow, an operating bar having cams for tilt-
ing the rocker arms, for the purpose set
forth, and connections intermediate the op-
erating bar and the mid-length of each win- 125
dow whereby the windows may be swung to
the open position from either end.

4. The combination with a plurality of
windows, eyes at the ends of the windows, and
plates attached to the windows at their mid- 130

length and provided with angle slots, of rocker arms pivoted intermediate the windows and having hinge pins detachably engaging eyes on contiguous windows and an operating bar having operating pins engaging the angle slots and cams engaging the rocker arms.

5. The combination with a plurality of windows, eyes at the ends of the windows, and plates attached to the windows at their mid-length and provided with angle slots having straight portions, of rocker arms pivoted intermediate the windows and having hinge pins detachably engaging eyes on contiguous windows and an operating bar having operating pins engaging the angle slots and cams engaging the rocker arms, whereby when the operating pins are in engagement with the straight portions of the angle slots the windows will be locked in the closed position and when the operating bar is moved in either direction the operating pins will pass into the portions of the angle slots toward the direction in which the bar is moved, the rocker arms will be tilted and the hinge pins at the ends of the windows in the direction the bar is moved will be disengaged from the eyes leaving the hinge pins at the other end of the windows engaged and swinging the ends of the windows in the direction in which the bar is moved to the open position.

6. The combination with a plurality of windows, eyes at the ends of the windows, and plates attached to the windows at their mid-length and provided with angle slots having straight portions, of rocker arms pivoted intermediate the windows and having hinge pins detachably engaging the eyes and bearing portions and an operating bar having

operating pins engaging the angle slots and cams engaging the bearing portions of the rocker arms and retaining the rocker arms in the horizontal position when the operating pins are in the straight portions of the angle slots and tilting said rocker arms when the operating bar is moved in either direction, substantially as described, for the purpose specified.

7. The combination with a plurality of windows, eyes at the ends of the windows, and plates attached to the windows at their mid-length and provided with angle slots, of rocker arms pivoted intermediate the windows and having hinge pins detachably engaging the eyes, an operating bar having operating pins engaging the angle slots and cams engaging the rocker arms and means for actuating the operating bar to lock the windows in the closed position or to swing all the windows to the open position from either end.

8. The combination with a plurality of windows, eyes at the ends of the windows, and plates attached to the windows at their mid-length and provided with angle slots, of rocker arms pivoted intermediate the windows and having hinge pins detachably engaging the eyes, an operating bar having operating pins engaging the angle slots, cams engaging the rocker arms and a series of openings and an operating shaft carrying a pinion engaging said openings.

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

STEPHEN E. CIBULAS.

Witnesses:

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