No. 677,294. Patented June 25, 1901.

# T. VAN KANNEL.

## REVOLVING DOOR.

(Application filed Apr. 9, 1901.)

(No Model.)

Fig. 1.

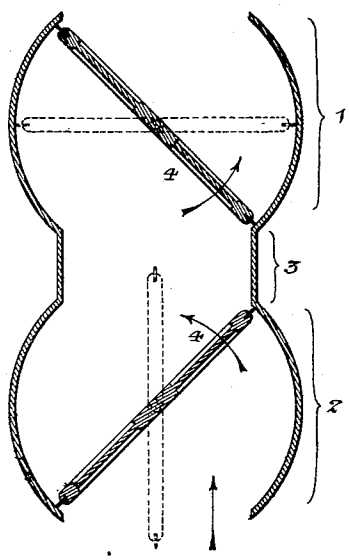



Fig. 5.

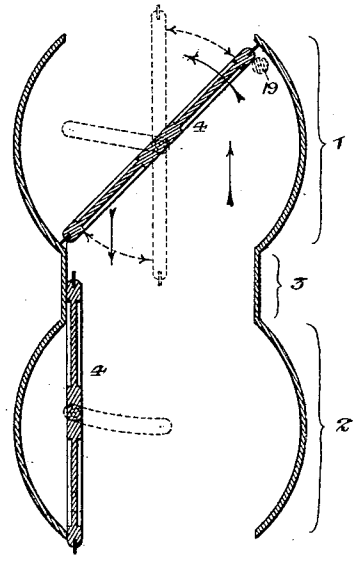



Fig. 2.

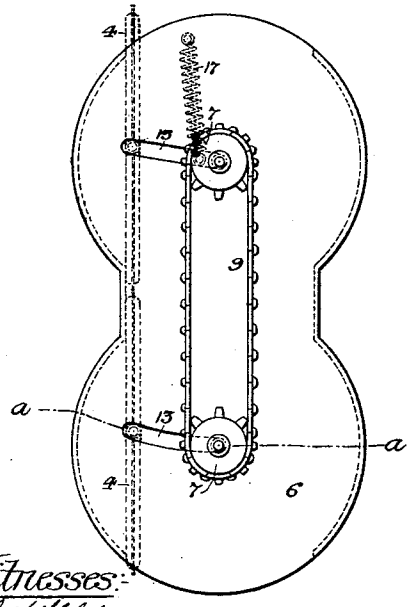



Fig. 6.

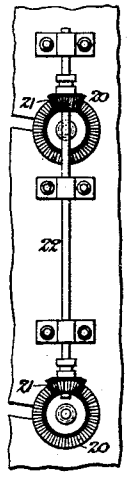



Fig. 3.

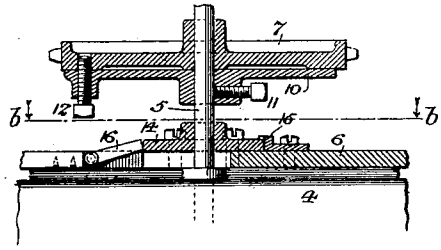
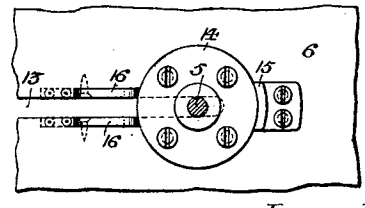



Fig. 4.




Witnesses:-
Louis M. Whitehead
T. E. Beckstold

Inventor:-
Theophilus Van Kannel
by his Attorneys:-
Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

THEOPHILUS VAN KANNEL, OF NEW YORK, N. Y., ASSIGNOR TO VAN KANNEL REVOLVING DOOR COMPANY, OF CHARLESTON, WEST VIRGINIA.

## REVOLVING DOOR.

SPECIFICATION forming part of Letters Patent No. 677,294, dated June 25, 1901.

Application filed April 9, 1901. Serial No. 55,075. (No model.)

*To all whom it may concern:*

Be it known that I, THEOPHILUS VAN KANNEL, a citizen of the United States, and a resident of New York city, State of New York, have invented certain Improvements in Revolving Doors, of which the following is a specification.

One object of my invention is to construct a revolving door which while possessing the advantages of an ordinary revolving door as regards the exclusion of wind, rain, snow, dust, noise, &c., will permit freer passage than such ordinary revolving door, further objects being to provide for placing the wing structures of the door out of the way at one side of the casing when unobstructed passage through the latter is desired and to permit use of the door as a vibrating door instead of a revolving door when such use is desired.

In the accompanying drawings, Figure 1 is a sectional plan view of a revolving door constructed in accordance with my present invention. Fig. 2 is a top view of the same. Fig. 3 is an enlarged transverse section of the upper portion of the structure on the line *a a*, Fig. 2. Fig. 4 is a sectional plan view on the line *b b*, Fig. 3. Fig. 5 is a view similar to Fig. 1, but illustrating the use of the door as a vibrating door; and Fig. 6 is a view illustrating a modification of part of the door mechanism.

The ordinary revolving door for which I have secured a number of previous patents and which consists of a casing having opposite segmental sides and a central post with four or more radiating wings has been objected to in some cases because of the limited space between successive wings and the limited width of passage afforded, and in order to overcome this objection I have devised the duplex door forming the subject of my present invention, said door having a casing comprising two parts 1 and 2, one in advance of the other, each part of the casing having the usual segmental sides, which are connected by intervening walls 3. Within each portion of the casing and concentric with the segmental sides of the same is located the upright post or pivot 5 of a rotatable door 4, which consists of but two wings projecting in opposite directions from the central post or pivot, so as to constitute, in effect, a single revoluble partition extending across the casing from side to side of the same, the edges of this partition being provided with flexible contact-strips in the same manner and for the same purpose as those of the usual revolving doors.

The pivot post or stud 5 of each door is provided at a point preferably above the top 6 of the casing with a sprocket-wheel 7, the sprocket-wheels of the two doors being connected by an endless chain 9, so that both wheels are compelled to rotate in unison and in the same direction, and the doors of the two casings are set at a right angle to each other. Hence when one door is parallel with the central longitudinal line of the casing the other will be transverse thereto. A space equal to one-half of the diameter of the casing is therefore always unobstructed. Hence freer passage through the casing is provided for than when the central post or pivot has four or more wings, as in the usual form of door, while owing to the employment of the duplex casing and the two doors the passage through the casing is always closed against the inflow of air, and the door therefore has the same advantages in this respect as the ordinary single revolving door.

In order to permit the doors to move into line with each other and be shifted to one side of the casing, as shown by dotted lines in Fig. 2, it becomes necessary to permit movement of one door independently of the other to the extent of at least a quarter of a turn, and this is preferably effected by releasing the sprocket-wheel 7 of one of the pivot-shafts 5 from connection with said shaft. For this purpose the sprocket-wheel may, as shown in Fig. 3, be loosely mounted on the upper end of the shaft above a disk 10, which is secured to the pivot-shaft by a set-screw 11 or other convenient device and carries a locking screw or pin 12, adapted to an opening in the sprocket-wheel 7, so that on withdrawing this pin or screw the sprocket-wheel will be released from its connection with the disk. The top 6 of each casing has a lateral slot 13, through which the pivot-shaft of the door

can be moved when it is desired to shift the doors to one side of the casing, as shown in Fig. 2, the locking screw or pin 12 being readily accessible through one of these slots.

The top bearing-plate 14 for the pivot-shaft of the door may be retained in its central position by engagement with a fixed stud or shoulder 15 at one side and one or more movable pawls or catches 16 at the opposite side, as shown in Figs. 3 and 4, said movable pawls or catches being depressed or otherwise moved out of engagement with the bearing when it is desired to move the door to one side of the casing.

One of the slots in the top of the casing—preferably that in the outer section 2 of the same—is formed on an arc concentric with the pivot-shaft of the door in the inner section of the casing. Hence said outer door may, if desired, be swung to one side of the casing without varying the distance between the two pivots, while the inner door is permitted to remain in operative position. This arrangement may be desirable in mild weather, and the inner door may then be used as a vibrating door instead of a revolving door, a suitable spring—such, for instance, as shown by dotted lines at 17 in Fig. 2—being connected to the sprocket-wheel or other convenient element of the inner-door structure, which spring has a tendency to retain the door in the position shown by full lines in Fig. 5, in which position it is in contact with a suitable stop, such as shown by dotted lines at 19 in said figure, so that it can only swing in the direction of the dotted arrows.

Instead of using the sprocket wheels and chains I may employ other means for positively connecting the pivot-shafts of the two doors. For instance, each shaft may have a bevel-wheel, such as shown at 20 in Fig. 6, these bevel-wheels meshing with pinions 21 on a longitudinal shaft 22, suitably mounted on the top of the casing, the pinions being movable on the shaft, so as to be freed from engagement with the bevel-wheels when it is desired to move the doors to one side of the casing.

I have not considered it necessary to illustrate the lower portion of the door or its casing or the lower releasable pivot connection, as my invention has no relation to these parts, which may be constructed in a manner similar to those of an ordinary revolving door.

While I prefer that the opposite sides of each portion of the casing shall form segments of circles, the term "segmental sides" as employed in the claims is not intended to be limited strictly to segments of circles, as sections of a hexagon, octagon, or other polygonal figure may in some cases be used instead of the segments of a circle, and the term "segmental side" is intended to cover such departures from a true segment.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A door structure comprising a casing having two portions, one in advance of the other, and each having segmental sides and centrally-pivoted rotating partitions, one in each portion of the casing and extending across the same, and means for connecting said partitions so as to cause joint movement of the same, substantially as specified.

2. A door structure comprising a casing having two portions one in advance of the other and each having segmental sides, centrally-pivoted rotating partitions one in each portion of the casing and extending across the same, one partition being disposed at a right angle in respect to the other, and means for connecting said partitions so as to cause joint movement of the same, substantially as specified.

3. A door structure comprising a casing having two portions one in advance of the other and each having segmental sides, centrally-pivoted revoluble partitions, one in each portion of the casing and extending across the same, means for connecting said partitions so as to cause joint movement of the same, and provision for releasing one of the partitions from such connection, substantially as specified.

4. A door structure comprising a casing having two portions one in advance of the other and each having segmental sides, centrally-pivoted revoluble partitions one in each portion of the casing and extending across the same, a connection between said partitions for causing joint movement of the same, provision for releasing one of the partitions from such connection, and means for moving said partition to one side of the casing, substantially as specified.

5. A door structure comprising a casing having two portions one in advance of the other and each with segmental sides, centrally-pivoted partitions, one in each portion of the casing and extending across the same, means for connecting the partitions so as to cause joint movement thereof, provision for releasing one of the partitions from such connection, and means for moving both of the partitions to one side of the casing, substantially as specified.

6. A door structure comprising a casing having two portions one in advance of the other, and each having segmental sides, a centrally-pivoted partition extending across each portion of the casing, connections for causing joint movement of the two partitions, means for releasing one of the partitions from such connection and moving it to one side of the casing, and a yielding retainer for holding the other partition in a position of rest but permitting vibration of the same, substantially as specified.

7. A door structure comprising a casing having two portions one in advance of the other and each having segmental sides, a cen-

trally-pivoted partition extending across each portion of the casing, gearing connecting the pivot-shafts of the two partitions so as to cause joint movement of the same, and a releasing device for one member of said gearing, comprising a disk secured to the pivot-shaft and having an adjustable pin or bolt for securing it to the gear element of the shaft, substantially as specified.

8. A door structure having a casing with opposite segmental sides and laterally-slotted top, a centrally-pivoted partition extending across said casing, the pivot-shaft passing through the slot in the top of the casing, a bearing for said pivot-shaft on the top of the casing, and a movable stop for engaging with said shaft-bearing when the pivot-shaft is in its central position, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEOPHILUS VAN KANNEL.

Witnesses:
CHARLES F. GESSERT,
J. W. FARRELL.