Nov. 14, 1950 E. PEREMI ET AL 2,530,263

BALANCED DOOR

Filed Jan. 27, 1945 2 Sheets-Sheet 1

Fig. 5.

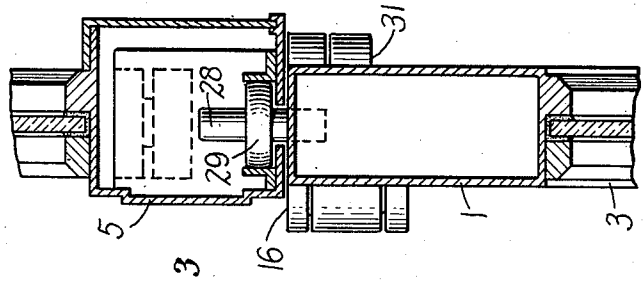


Fig. 1.

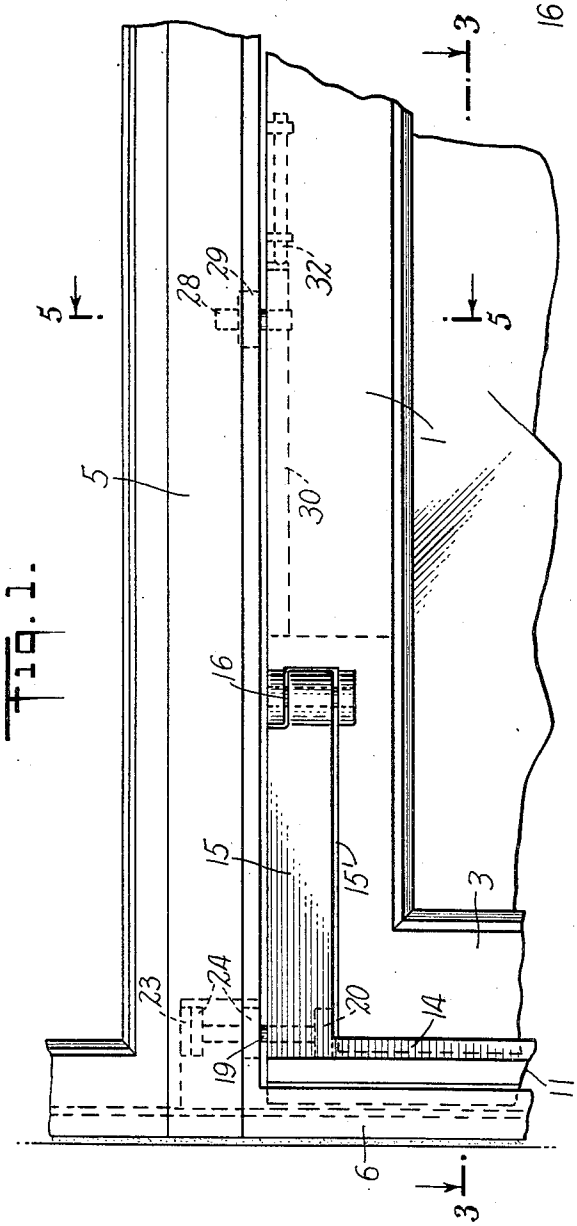
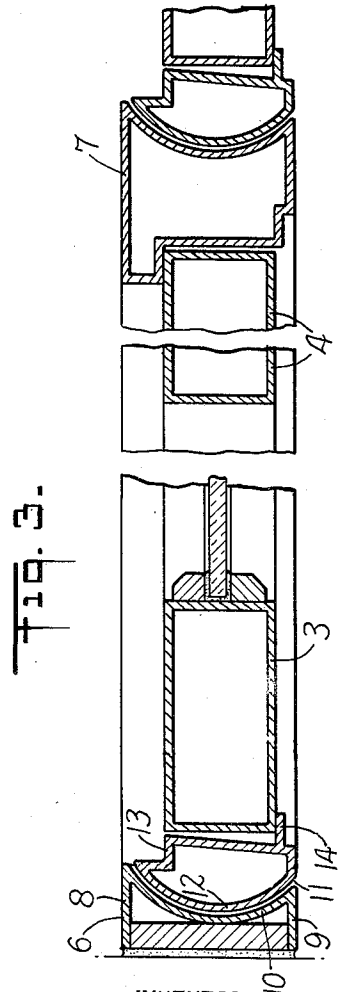


Fig. 3.



INVENTORS
Edmund Peremi
BY Henry Weimann
Blair, Curtis & Hayward
ATTORNEYS

Nov. 14, 1950 E. PEREMI ET AL 2,530,263

BALANCED DOOR

Filed Jan. 27, 1945 2 Sheets-Sheet 2

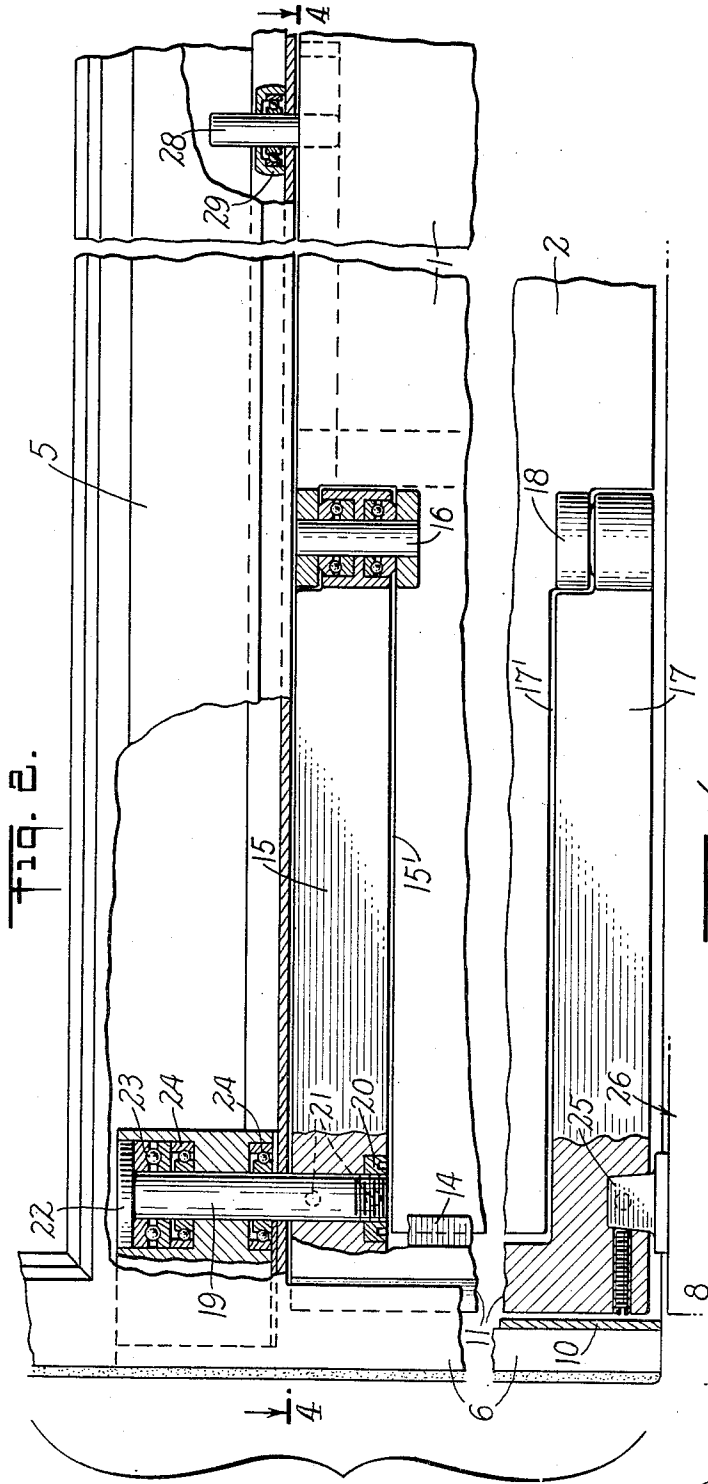


Fig. 2.

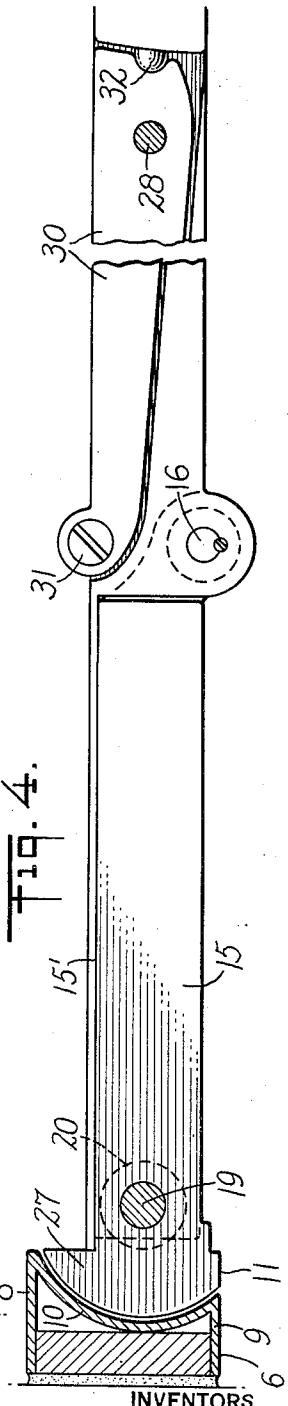


Fig. 4.

INVENTORS
Edmund Peremi
BY Henry Weimann
Blair, Curtis & Hayward
ATTORNEYS

Patented Nov. 14, 1950

2,530,263

UNITED STATES PATENT OFFICE

2,530,263

BALANCED DOOR

Edmund Peremi, Bayside, and Henry Weimann, Yonkers, N. Y., assignors, by mesne assignments, to General Bronze Corporation, Garden City, N. Y., a corporation of New York

Application January 27, 1945, Serial No. 574,843

10 Claims. (Cl. 20—16)

1

This invention relates to a door construction of the type called balanced and panic door.

An object of the invention resides in the provision of a structure in which the parts are so constructed and arranged that the door will have a pivotal movement and a movement of translation when acting as a balanced door, and will have a swinging movement about a single pivot when acting as a panic door.

A further object of the invention resides in so constructing and arranging the associated parts of the door construction that when the door operates as a panic door its movement about a single pivot will be positive, as it swings open in the doorway.

A further object of the invention resides in so forming the structure that it will be strong, durable and easily installed and maintained.

With these and other objects that will become apparent as the description progresses, the invention resides in the construction and arrangement of parts described in the specification, illustrated in the drawings and recited in the claims.

In the drawings, which illustrate an embodiment of our invention:

Figure 1 is a fragmentary view of the top portion of the door and doorway;

Figure 2 is a fragmentary view of both the top and bottom portions of the door and doorway;

Figure 3 is a horizontal sectional view on the line 3—3 of Figure 1;

Figure 4 is a horizontal sectional view on the line 4—4 of Figure 2; and

Figure 5 is a vertical sectional view on the line 5—5 of Figure 1.

In the embodiment of the invention illustrated in the drawings the upper and lower rails of the door are indicated by the reference numerals 1 and 2, and the stiles by the reference numerals 3 and 4. The head of the doorway is denoted by the reference numeral 5, and the jambs by the reference numerals 6 and 7.

Referring, now, particularly to Figure 3, it will be seen that the jamb 6 has inner and outer facings 8 and 9, and an arcuate facing or member 10 adjacent which is located a door coordinating element.

This coordinating element 11 is provided with an arcuate wall or member 12 which is struck on substantially the same arc as the member 10 of the jamb 6, is nested therewith, and is also provided with an extension 13 which projects toward the door. A weather sealing strip 14 projects from the coordinating element to seal the space

2

between the coordinating element and the stile 3 of the door.

We have illustrated the coordinating element as being formed of hollow sheet metal, but it is to be understood that this element may be otherwise formed, as for instance as a solid element.

At the upper end of the coordinating element a door supporting arm 15 is made rigid with the coordinating element, and projects into a recess 15' in the upper rail of the door, the recess opening through the outer face, only, of the rail. At its end the arm is pivoted at 16 to the upper rail 1.

A corresponding arm 17 is rigid with the lower end of the coordinating element and lies within a recess 17' in the outer face of the lower rail of the door and is pivoted thereto, at 18, in alignment with the pivot 16.

A pivot pin 19, having a head 22 on the upper end thereof, is rotatably mounted in, and supported by, a thrust bearing 23 and lateral bearings 24 in the head 5 of the doorway. This pivot pin 19 is slidably and adjustably engaged in an opening in the upper arm 15. A nut 20, engaged with the lower end of the pivot pin 19 and located in a recess in the arm 15, makes it possible to adjust the door upwardly or downwardly on the pivot pin 19, as the occasion requires. Set screws 21 are provided for maintaining the door and the pivot pin in their relative adjusted positions.

The lower arm 17 is provided with a recess in which is secured a rotatable lug 25 of a commercial floor type door check, which is indicated generally by the reference character 26.

The pivot pin 19 and the lug 25 being in alignment, the arms rotate about their vertical axis as a pivot.

The curved members 10 and 12 of the door jamb 6 and the coordinator element have as their common pivot center the vertical axis of the pivot pin and the door check lug 25 and the distance between the outer curved face of the member 12 and the axis of rotation of the arms 15 and 17 is such that when the door is swung as a panic door on a single pivot to an open position, i. e., a position normal to the closed position, the door and the arms will lie beyond the adjacent ends of the walls 8 and 9 of the jamb 6 as indicated in dotted lines in Figure 3.

Thus when force is applied to the inner face of the door adjacent both of the stiles, the door and the supporting arms will be swung outwardly about the vertical center of the pivot pin 19 and the lug 25 and only about this pivot since the recesses in which the arms are located open only

through the outer faces of the upper and lower door rails.

A door of this construction may also be combined with such a balanced door mechanism and panic mechanism as illustrated in the Ellison Patent No. 2,019,528, dated November 5, 1935, and thus incorporated in a balanced and panic door.

In such a construction the guide pin **28**, which is provided with a roller **29**, is carried by the panic arm **30** which is pivoted at **31** to the door and is normally held rigid with the door by the panic latch **32**, as described in said patent. This guide pin **28** slides in a guideway in the head **5** when the door moves to an open position as a balanced door. In such movement there is of course a pivotal movement about the guide pin **28**, a movement of translation with the guide pin, and there is also a pivotal movement of the arms about the axis of the pivot pin **19** and a relative pivotal movement about the axis of the pivot **16** between the upper and lower supporting arms **15** and **17** and the door.

It will be noted that the ends of the arms **15** and **17** are provided with enlargements such as shown at **27** in Figure 4 of the drawings, and these enlarged ends are of the cross sectional configuration of the coordinating element **11**, with the result that the appearance of the coordinating element will be substantially the same throughout its length.

While we have illustrated and described a particular embodiment of our invention, the art will understand that certain details of construction may be changed without departing from the spirit of the invention or exceeding the scope of the claims.

We claim:

1. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted within the doorway and including a vertical member and spaced horizontal arms rigid with said vertical member, pivotal means connected with said arms, header and sill to support the coordinator, a door pivotally mounted on the ends of the arms, the vertical member of said coordinator being disposed between said pivotal means and the adjacent face of the adjacent jamb and the contiguous faces of said jamb and said coordinator being arcuate with the center of said pivotal means as the center of said arc.

2. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted within the doorway and including a vertical member and spaced horizontal arms rigid with said vertical member, pivotal means connected with said arms, header and sill to support the coordinator, a door pivotally mounted on the ends of the arms, the vertical member of the coordinator being disposed between said pivotal means and the adjacent face of the adjacent jamb and the contiguous faces of said jamb and said coordinator being arcuate with the center of said pivotal means as the center of the arc, said vertical coordinator member and the adjacent portion of the adjacent jamb having nested extensions thereon.

3. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted within the doorway and including a vertical member and spaced horizontal arms rigid with said vertical member, pivotal means connected with said arms, header and sill to support the coordinator, a door pivotally mounted on the ends of the arms, the vertical member of said coordinator being disposed between said pivotal means and the adjacent face of the adjacent jamb and the contiguous faces of said jamb and said coordinator being arcuate with the center of said pivotal means as the center of said arc, and a sealing strip carried by the vertical member of the coordinator and arranged in the path of movement and adapted to engage the adjacent edge of the door.

4. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted within the doorway and including a vertical member and spaced horizontal arms rigid with said vertical member, pivotal means connected with said arms, header and sill to support the coordinator, a door pivotally mounted on the ends of the arms, the vertical member of the coordinator being disposed between said pivotal means and the adjacent face of the adjacent jamb and the contiguous faces of said jamb and said coordinator being arcuate with the center of said pivotal means as the center of the arc, said vertical coordinator member and the adjacent portion of the adjacent jamb having nested extensions thereon, and a sealing strip carried by the vertical member of the coordinator and arranged in the path of movement and adapted to engage the adjacent edge of the door.

5. In a door construction, a doorway including jambs, a header and a sill, a coordinator including a vertical member and horizontal arms rigidly extending therefrom, a door pivotally carried by said arms, means pivotally supporting said coordinator on an axis spaced from the adjacent jamb, the vertical member of said coordinator being located between said pivotal axis and said jamb, and the adjacent face of said vertical member and said jamb being complemental to each other, the face on the vertical coordinator being adapted to move about the said pivotal axis as a pivot.

6. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted in said doorway and including a vertical portion and upper and lower horizontal arms rigid therewith and extending from the ends thereof, a door pivotally mounted on and between the free ends of said arms, means for pivotally supporting said coordinator and said door including a vertical pivot pin rotatably mounted in said header and secured to the upper of said arms, said pivot pin being independent of the vertical portion of said coordinator and located between said vertical portion of said coordinator and the free ends of said arms.

7. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted in said doorway and including a vertical portion and upper and lower horizontal arms rigid therewith and extending from the ends thereof, a door pivotally mounted on and between the free ends of said arms, means for vertically supporting said coordinator and said door including a vertical pivot pin rotatably mounted in said header and secured to the upper of said arms, said pivot pin being independent of the vertical portion of said coordinator and located between said vertical portion of said coordinator and the free ends of said arms, said pivot pin having a head on the upper end thereof supported by said header and for preventing downward movement of said pivot pin.

8. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted in said doorway and including a vertical portion and upper and lower horizontal arms rigid there-

with and extending from the ends thereof, a door pivotally mounted on and between the free ends of said arms, means for pivotally supporting said coordinator and said door including a vertical pivot pin rotatably mounted in said header and secured to the upper of said arms, said pivot pin being independent of the vertical portion of said coordinator and located between said vertical portion of said coordinator and the free ends of said arms, and means for adjusting said coordinator on said pivot pin.

9. In a door construction, a doorway including jambs, a header and a sill, a coordinator mounted within the doorway and including a vertical member and spaced horizontal arms rigid with said vertical member and extending outwardly from the ends thereof, a door pivotally mounted between and supported by said arms at the free ends thereof, means for pivotally supporting said coordinator on said header for swinging movements, said means being engaged with the upper arm of said coordinator and located inwardly of said vertical member of said coordinator, one face of said vertical member of said coordinator and the adjacent face of the adjacent jamb of said doorway being of complemental form whereby when said door is in a closed position the space between the hereinbefore referred to vertical member of said coordinator and said last referred to jamb will be substantially filled.

10. In a door construction, a doorway including a jamb and a header, a coordinator mounted within the doorway and including a vertical member arranged substantially parallel with said jamb, arms rigid with said vertical member and extending outwardly from adjacent the upper and lower ends thereof beneath said header, pivot means for supporting said coordinator from said header engaged with said header and with the upper arm of said coordinator and arranged between the free end of said upper arm and said vertical portion of said coordinator and remote from said jamb, and a door mounted between and supported by said arms.

EDMUND PEREMI.
HENRY WEIMANN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
564,002	Burton	July 14, 1896
2,019,526	Ellison	Nov. 5, 1935

FOREIGN PATENTS

Number	Country	Date
17,562	Great Britain	1912
181,467	Switzerland	of 1936