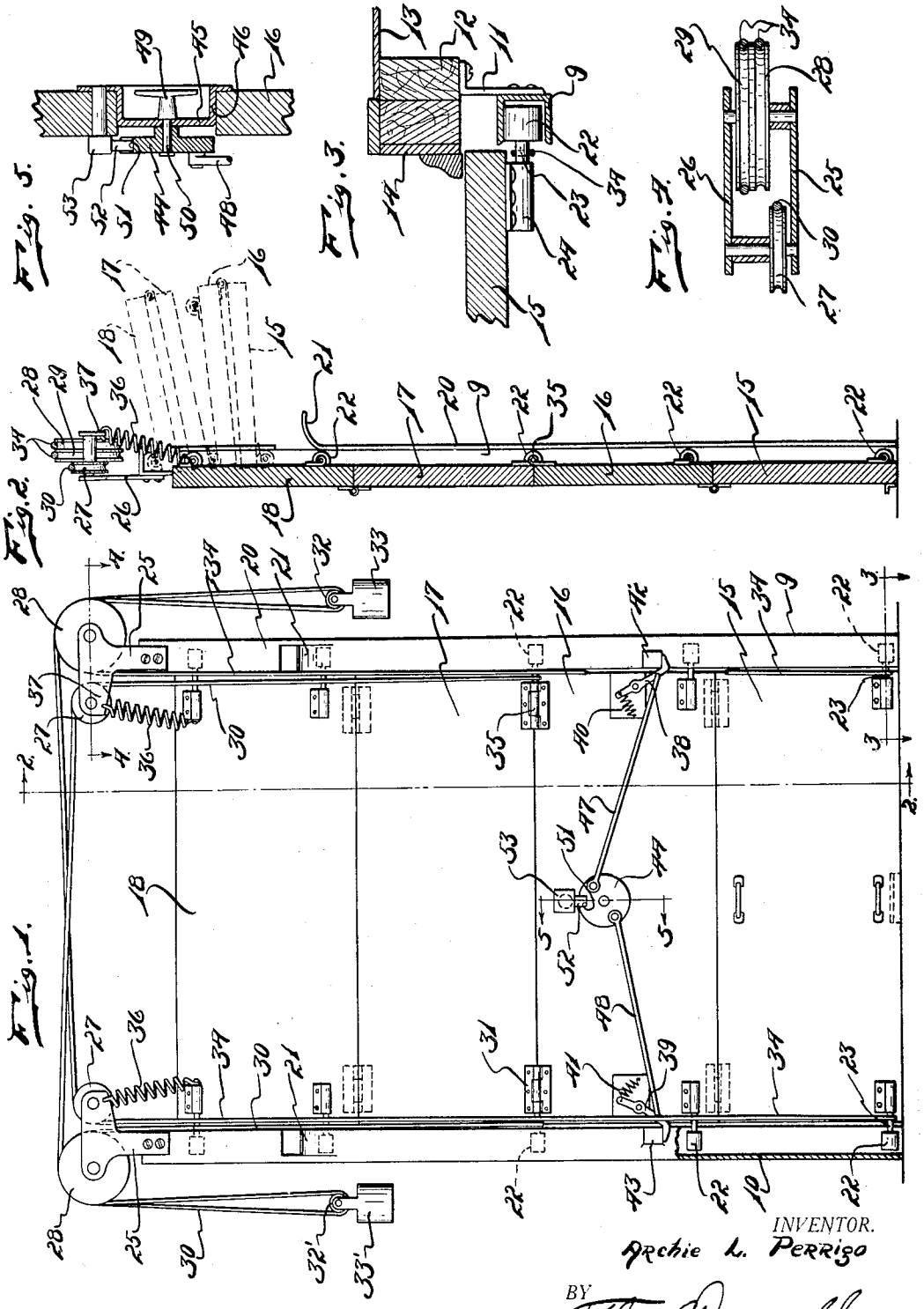
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DOOR

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DOOR

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5 Claims. (Cl. 20—20)

My invention relates to a new and useful improvement in a door and particularly one of the sectional type so arranged and constructed that it may be moved vertically with the sections in overlapping relation when the door is moved to open position.

It is an object of the present invention to provide a door of this class which will be simple in structure, economical of manufacture, durable and highly efficient in use.

Another object of the invention is the provision of a door of this class having a guide track for guiding the sections in their movement to open position and from which the sections disengage as they approach the full open position.

Another object of the invention is the provision of resilient supporting means for supporting the sections when moved to overlapped relation.

Another object of the invention is the provision of a counterbalance means so arranged and constructed that the door may be easily and quickly moved to open and closed position with a minimum amount of effort.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawing which forms a part of this specification, and in which,

Fig. 1 is a front elevational view of the invention.

Fig. 2 is a view taken on line 2—2 of Fig. 1.

Fig. 3 is a view taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1.

In the invention I provide a pair of vertically extended guide members or tracks 9 and 10 preferably formed from channel iron. An L shaped bracket 11 serves to secure the tracks 9 and 10 to the vertically extended stanchions or supports 12 on which the walls 13 of the structure with which the door is used are mounted. A guide strip 14 projects outwardly from the stanchions 13, and extends vertically.

The door comprises sections 15, 16, 17 and 18 which are hinged together at their adjacent edges. The inner side 20 of each of the tracks is angularly turned inwardly as at 21. Each of the sections 15, 16 and 18 is provided with a pair of rollers 22 mounted on a shaft 23 which is supported in a suitable bracket 24. The rollers 22 engage in the channel of the tracks 9 and 10. Supported on and projecting upwardly from each of the tracks 9 and 10 is a pair of spaced plates 25 and 26 between each of which is rotatably mounted a small pulley or sheave 27 and a pair of pulleys 28 and 29.

A cord 30 is connected at one end to the pintle of the hinge 31 and passed around the roller 27 and thence over the roller 28 and around the roller 32 carried by the weight 33. This cord then passes over the pulley 29 and is fastened to the pintle of the hinge 35.

A cord 34 is fastened to one of the shafts 23 which is mounted on the section 15, and passed up over the pulley 27 and thence over the pulley 28 and around the pulley 32′ carried by the weight 33′ and thence upwardly over the pulley 29 and downwardly and secured to the other shaft 23 which is mounted on the section 15. A spring 36 is connected at one end to the section 18 adjacent its upper end and connected at its opposite end to the arm 37 projecting outwardly from the plate 25.

At opposite sides of the section 16 are mounted swingable latch bars 38 and 39 each being held by springs 40 and 41 respectively in position for engaging the projections 42 and 43 respectively. A rotatable disc 44 is mounted on a plate 45 which is positioned in a recess 46 formed centrally in the section 16. An arm 47 connected eccentrically to the disc 44 connects to the latch 38 and an arm 48 is connected at one end eccentrically to the disc 44 and at the opposite end to the latch 39. A handle 49 is secured by the stud 50 which forms an extension thereof to the disc 44. The plate 45 is formed cup shaped to provide a recess for the engagement of the handle 49 therein. Upon rotation of the handle 49, the disc 44 will be rotated so as to retract the latch bars 38 and 39 and move them to inoperative position thus permitting the door to be moved to open position. The disc 44 is provided with a peripheral notch 51 in which engages the plunger 52 of a lock having a tumbler barrel 53 of any desired type so that the use of a key is necessary for retracting the plunger 52 from the recess 51. The locking and unlocking of the door is believed obvious from this description.

In operation when the door is in closed position and the latch bars are moved to inoperative position, an upward pressure on the section 15 will cause the uppermost section 18 to swing to horizontal position. It will be noted that this upper section has two pairs of rollers 22 which engage in the track, one pair adjacent its lower edge and the other pair adjacent its upper edge. The

counterbalance weights 33 and 33' will assist in the beginning in the raising of the door.

The uppermost pair of rollers on the section 18 engage in the tracks 9 and 10 above the cut away or angularly turned portion 21 and the lower pair of rollers on this section engage, when the door is in closed position in the tracks 9 and 10 slightly below the portion 21 as clearly appears in Fig. 2. As the upward movement of the door is effected, the lower pair of rollers on the section 18 will ride out of the tracks 9 and 10 and the upper pair of rollers will serve as pivots on which this uppermost section 18 may swing to horizontal position. As the upward movement continues, the sections 17 and 16 will also swing to horizontal position, the rollers 22 on the section 16 riding out of the tracks 9 and 10 when the portion 21 is reached. In the ordinary operation, the rollers on the section 15 do not ride out of the tracks but the sections assume the position shown in dotted lines in Fig. 2. On account of the method of counterbalancing, the door is easily and quickly moved to either open or closed position.

When the door is moved to open position, the springs 36 serve as hangers for supporting the sections in their folded over relation and when the sections are moved to closed position the tension on the springs 36 is increased. This spring mounting permits a sufficient floating condition so that the engagement of the rollers in the tracks 9 and 10 as the door is being moved to closed position will easily be accomplished. In moving the door to closed position, downward pressure would be exerted on the outer edge of the section 15, this edge being the lower edge of the section 15 when the door is in closed position.

While I have illustrated and described the preferred form of construction of my invention, I do not wish to limit myself to the precise details of structure shown but desire to avail myself of such variations and modifications as may come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A door of the class described, comprising: a pair of parallel vertically extending spaced guide tracks; a plurality of door forming sections positioned edge to edge; means for hingedly connecting adjacent edges of said sections together; guide rollers mounted on a plurality of said sections and projected outwardly from end edges thereof and engaging in said tracks; an angularly turned portion on said tracks for permitting rollers passing the same in one direction to disengage from said tracks, said sections swinging to overlapped position in horizontal planes upon disengagement of said rollers from said tracks.

2. A door of the class described, comprising: a plurality of sections positioned in alignment with each other and engaging at adjacent edges; means for hingedly connecting adjacent edges of said sections together; a pair of vertically extended spaced tracks; rollers carried by and projecting outwardly from end edges of a plurality of said sections and engaging in said tracks, said tracks being angularly turned adjacent their upper end for permitting rollers moving to said angularly turned portion to ride out of said tracks; and a pair of pivot forming rollers on the uppermost of said sections.

3. A door of the class described, comprising: a plurality of sections positioned in alignment with each other and engaging at adjacent edges; means for hingedly connecting adjacent edges of said sections together; a pair of vertically extended spaced tracks; rollers carried by and projecting outwardly from end edges of a plurality of said sections and engaging in said tracks, said tracks being angularly turned adjacent their upper end for permitting rollers moving to said angularly turned portion to ride out of said tracks; a pair of pivot forming rollers on the uppermost of said sections; and resilient means for supporting said uppermost section.

4. A door of the class described, comprising: a pair of spaced channel bearing tracks; a plurality of door forming sections positioned edge to edge in alignment with each other; means for hingedly connecting said sections together at adjacent edges, said sections being swingable into horizontal position and folded over relation upon movement to open position in said door; and resilient means for supporting the uppermost of said sections, the tension of said means being increased upon movement of said sections to closed position.

5. A door of the class described, comprising: a pair of parallel vertically extended spaced guide tracks a plurality of door forming sections positioned edge to edge; means for hingedly connecting adjacent edges of said sections together; guide means projecting outwardly from end edges of a plurality of said sections and slidably engaging in said tracks; an angularly turned portion on said tracks for permitting the guide means passing the same in one direction to disengage from said tracks, said sections swinging to overlapped position in horizontal planes upon disengagement of said guide means from said tracks.

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