

No. 688,590

Patented Dec. 10, 1901.

W. D. BUTTERFIELD.  
SLIDING AND FOLDING PARTITION.

(Application filed Nov. 30, 1900.)

(No Model.)

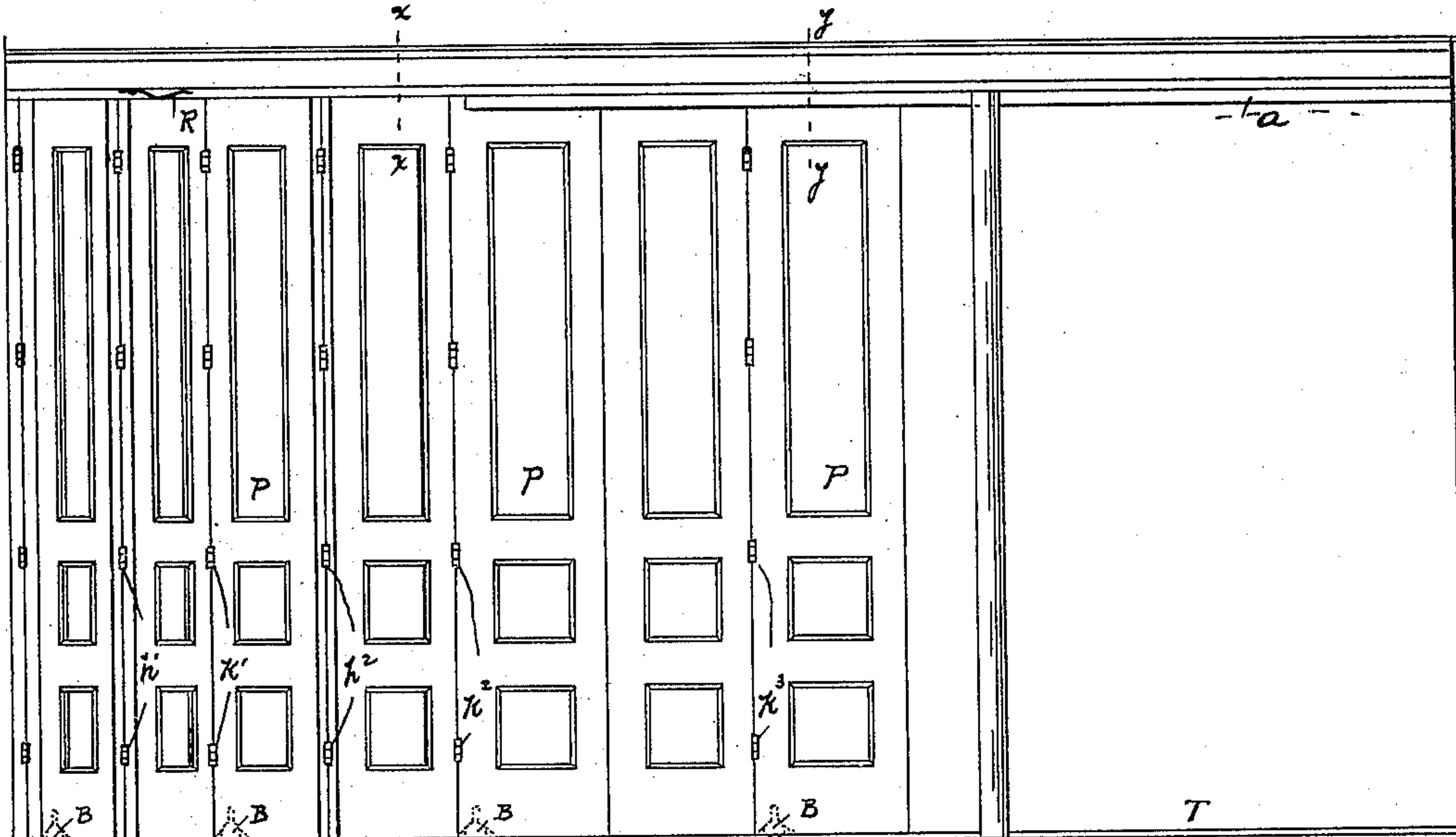


Fig. 1.

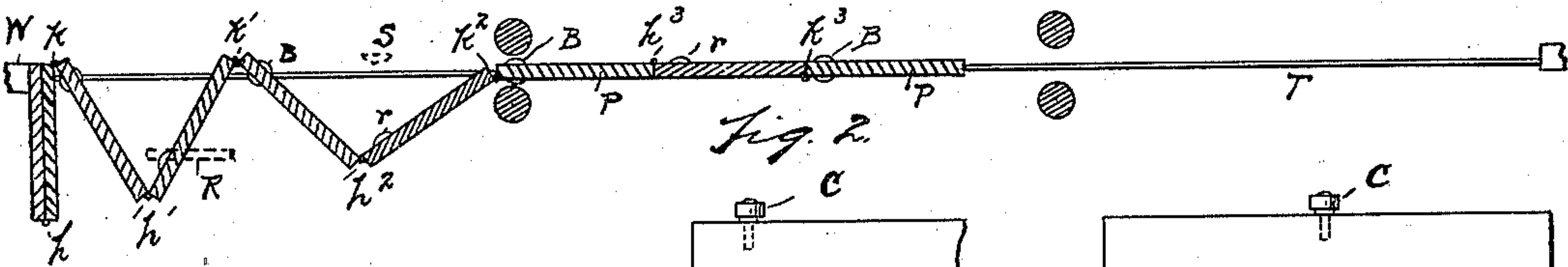


Fig. 2.

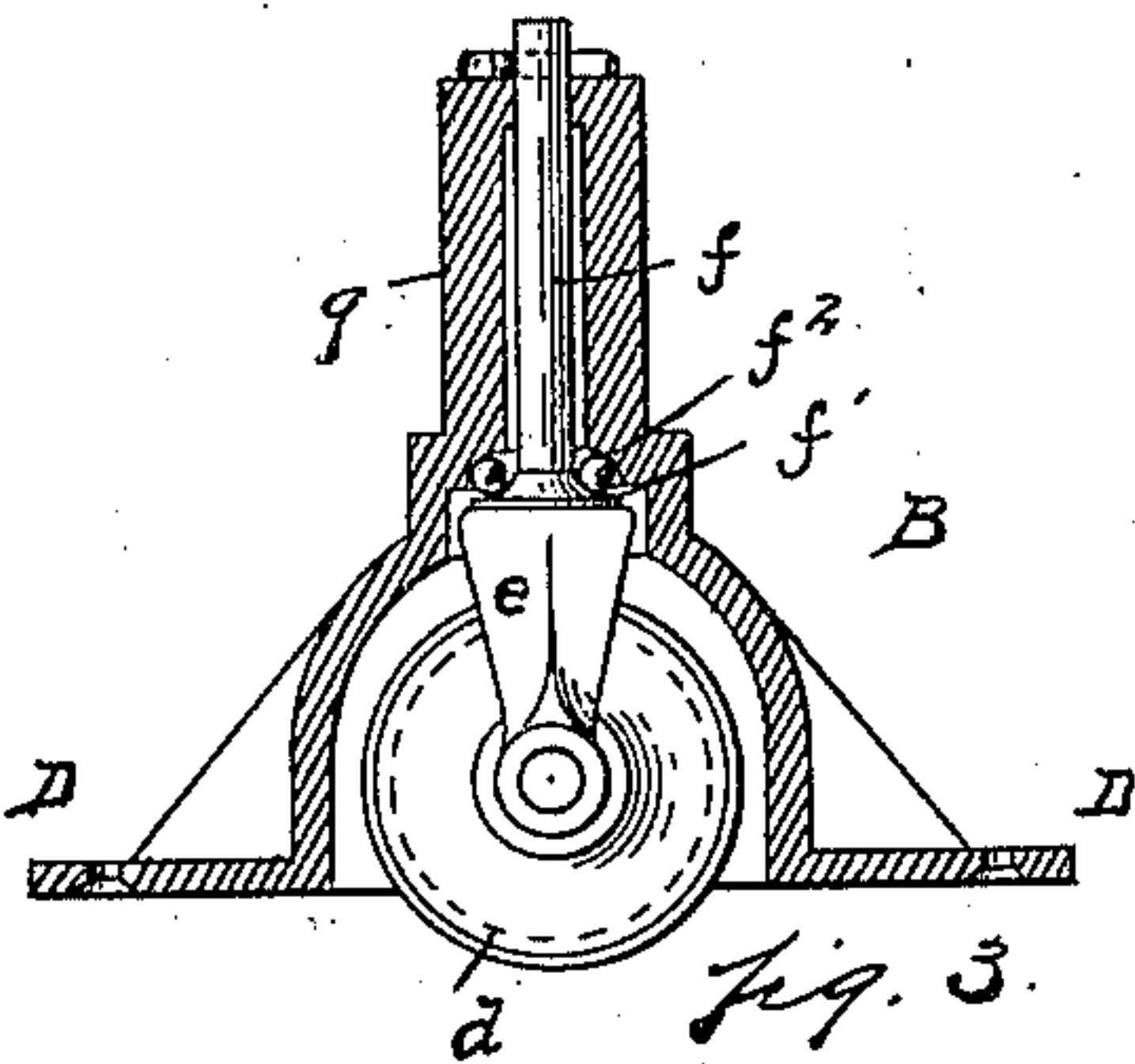


Fig. 3.

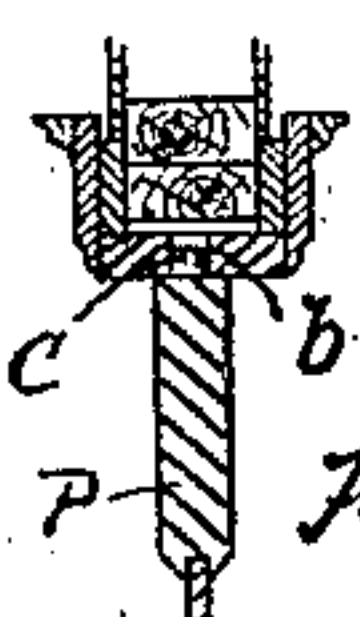


Fig. 6.

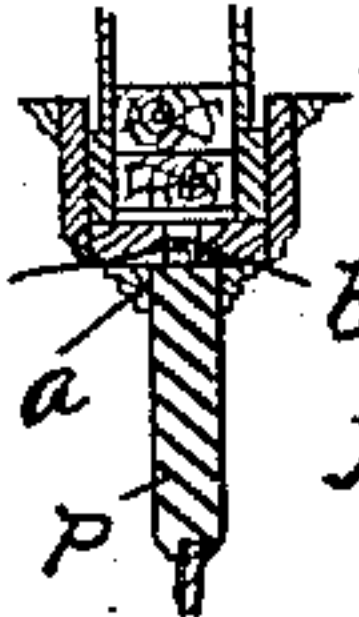


Fig. 7.

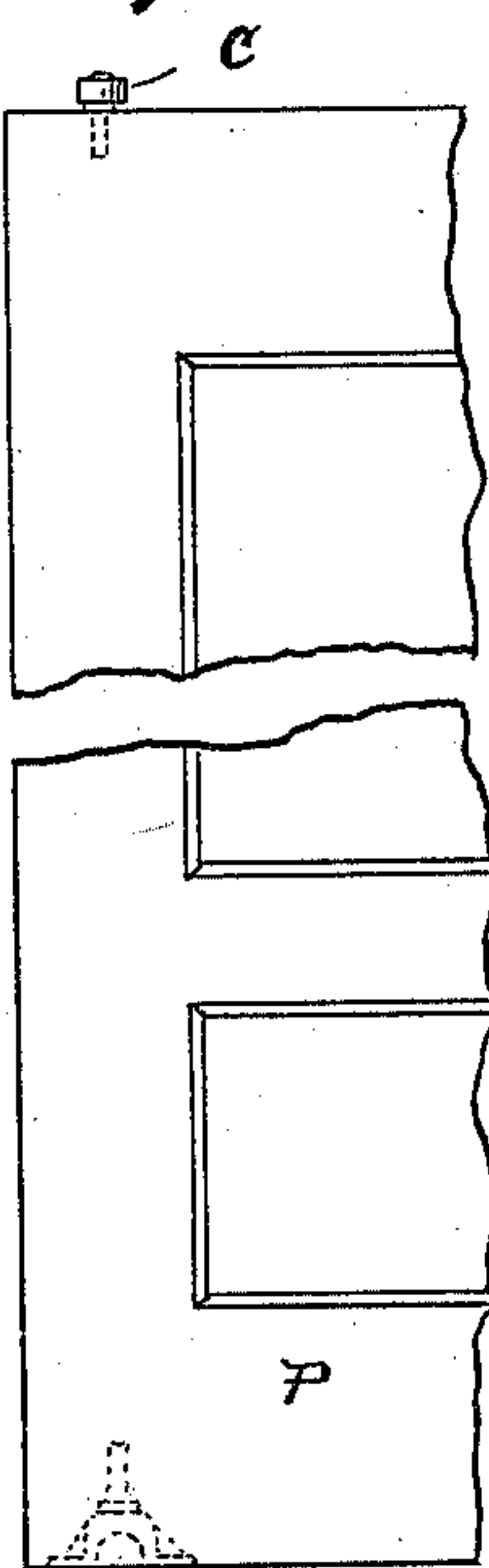


Fig. 4.

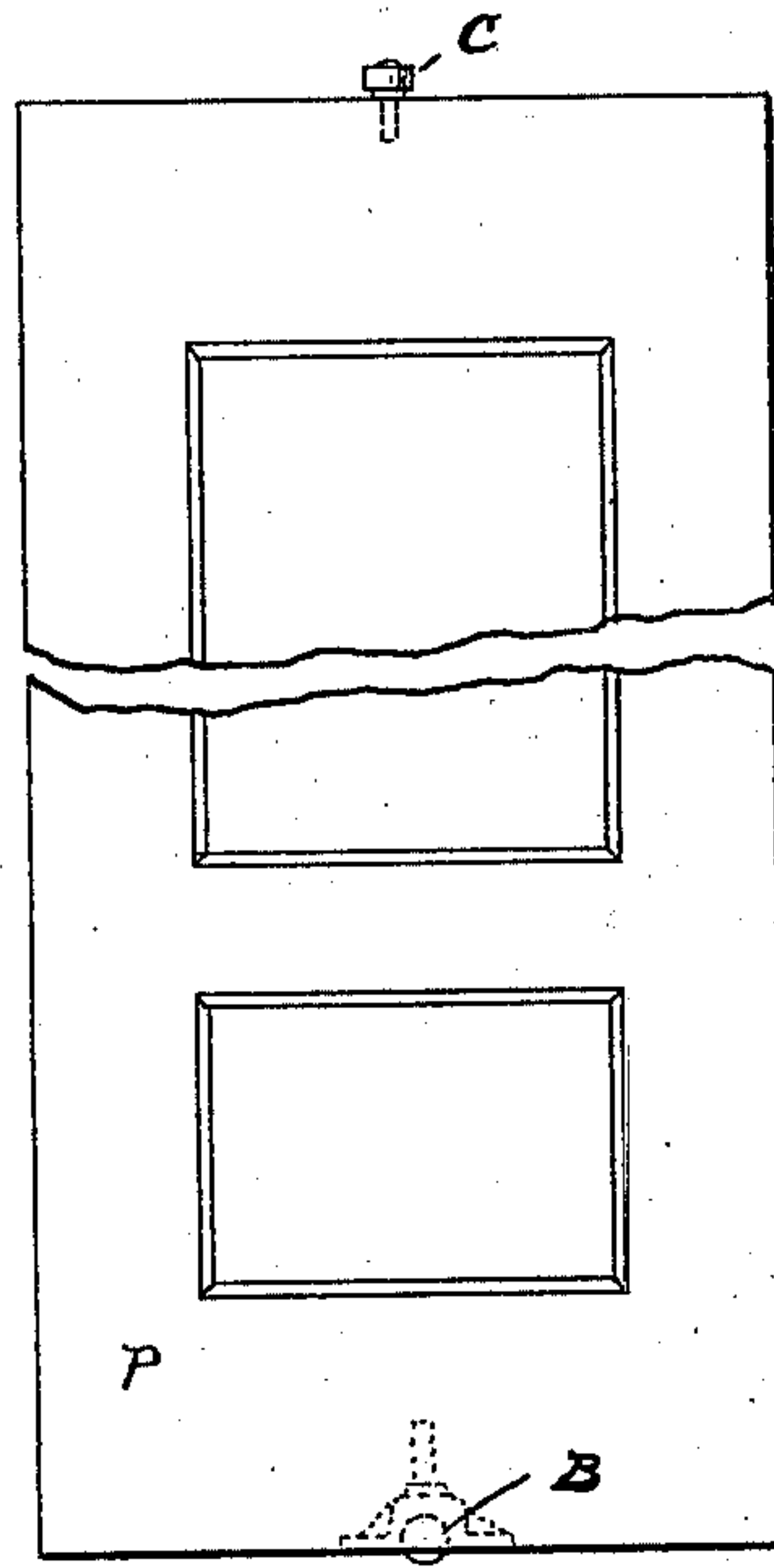


Fig. 5.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## SLIDING AND FOLDING PARTITION.

SPECIFICATION forming part of Letters Patent No. 688,590, dated December 10, 1901.

Application filed November 30, 1900. Serial No. 38,135. (No model.)

*To all whom it may concern:*

Be it known that I, WELLS D. BUTTERFIELD, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented certain new and useful Improvements in Sliding and Folding Partitions; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to sliding and folding partitions, and has for its object improved fixtures to be used in connection with improved partitions adapted to be extended to close an opening or produce a partition across a room or to be contracted to the side of an opening and folded into small space, leaving the greater part or nearly all of the opening clear.

The fixtures which form the object of this invention may be used with an opening of so large an extent that it is necessary to support the ceiling on posts, and these posts may be as numerous as may be desired, or the partition may be placed in front of and close to a step, as is sometimes desirable in church-buildings where it is desired to screen off a gallery or a portion of a gallery.

The invention also relates to a peculiarly-constructed swiveled wheel comparable to a caster, but different somewhat from an ordinary caster-wheel, which is employed to support and carry the leaves of the folding partition.

In the drawings, Figure 1 is an elevation of a partition partly folded and partly extended across an opening. Fig. 2 is a horizontal section of the parts shown in Fig. 1. Fig. 3 is a section of the carrying-wheel employed. Fig. 4 is an elevation showing a part of a panel of the partition. Fig. 5 is an elevation showing a part of a panel with the carrying-wheel and guide-pin arranged different to the arrangement shown in Fig. 4. Fig. 6 is a section across the guide *a* at *x x*. Fig. 7 is a section across the guide *a* at *y y*.

On the ceiling, running along the top of the opening to be closed by the partition, is a grooved guideway *a*, that in a partition having leaves which are to slide to and fold at

one side of the opening extends from the side opposite that to which the leaves are made fast toward the side which holds the leaves and terminates at a distance therefrom sufficiently far to enable the leaves to swing out and fold to their folded position. This distance will be equal to the width of two of the leaves plus the distance occupied by all the folds of leaves when the partition is folded. The distance may be slightly less or slightly greater than that specified above, but should not vary greatly therefrom. Above the groove *a* and inside it is a second groove *b*, preferably of shorter breadth, and this groove *b* extends entirely across the opening. The lower surface of the bounding-walls of the groove *a* is preferably below the ceiling. The second groove *b* is preferably in the plane of the ceiling.

The leaves *P* of the partition are generally made similar to a panel; but they may have any shape or style of configuration that may be desired. The several leaves are hinged together to fold alternately to the right and to the left, the hinges *h*, *h'*, *h*<sup>2</sup>, and *h*<sup>3</sup> being arranged to allow the panels to fold in one direction and the hinges *k*, *k'*, *k*<sup>2</sup>, *k*<sup>3</sup> being arranged to allow the panels to fold in the opposite direction.

On the floor and across the opening is a track *T*, made of a half-round bar or preferably of sheet metal, pressed with a half-round rib, that is laid on the floor with the rib to the upper side, and under each alternate panel of the partition is a swiveled wheel *B*. In place of the ribbed track a grooved track may be used, if preferred, and the wheel then runs in the grooves instead of on the rib. The swiveled wheel is placed in the leaf with reference to the way in which the leaves are to fold. If they are to fold all to one side of the track across the opening, they are placed near the corner of the leaf and are attached on each alternate leaf. If the leaves are to fold across the track, so that in their folded position they extend about equally on each side of the track, the swiveled wheels are attached to the leaf about midway of the bottom line, as shown in Fig. 5. In each leaf to which there is attached a swiveled wheel there is also attached a vertical pin supporting a vertical journaled roller *C*. The pin and



roller C are directly above the swiveled wheel B. The swiveled wheel consists of a grooved wheel *d*, journaled in the forks *e* of a vertical stem *f*, and the stem is journaled vertically in a shell *g*, that has a bell-mouthed opening opening downward large enough to receive nearly all of the wheel *d*, leaving only enough of the rim of the wheel projecting below the bottom of the mouth of the shell to enable it to engage properly on the track T. The shell is provided with flanges D, through which there are screw-holes. On the stem *f* is a shoulder *f'*, and opposed to the shoulder is a ball-track *f*<sup>2</sup> in the walls of the shell *g*. Between the shoulder *f'* and the track *f*<sup>2</sup> are placed friction-balls, giving to the swiveled wheel a thrust against an end ball-bearing.

On the ceiling, at one side of the groove *b* and spaced from the end wall W by a distance a little greater than the cross distance of two leaves of the partition, is a knob or projection S, and each alternate leaf of the partition has a projection *r*, properly located to engage the knob S when the leaf is pushed toward the wall W alongside of or by the knob S. Whenever the projection *r* on the door engages the knob S, the leaf is forced out of line, and this leaf and the one with which it is immediately connected begin to bend one with respect to each other, and as the partition continues to be pushed toward the wall W the bending or folding is continued until the folds are assembled folded closely together against the wall W. When the reverse movement takes place and the partition is pulled away from the wall W, the folds consecutively engage against and pass under a spring R, and the spring R engages frictionally against the top of the leaves and restrains their free movement, and the leaves which have passed beyond the spring straighten into the line, because of the resistance to the free forward movement of the leaf which is in engagement with the spring-detainer and which subsequently itself comes into line when the next succeeding leaf has been brought into contact with the spring-retainer.

I do not consider either the projection *r* or the knob S as essential to the working of the device; neither do I consider the spring R as essential to its perfect working in extending

or spreading out the folds of the partition. They are, however, both useful and in some cases quite desirable. Sometimes instead of using the spring R, I broaden or widen the mouth of the guide-groove *a*, and this directs the folds properly in operation.

What I claim is—

1. In a sliding and folding partition, in combination with hinged leaves forming the parts of such partition, a ceiling-guide adapted to engage the top of the partition extending partially across the opening and leaving a part of the ceiling free from such guide, a roller-guide in the ceiling extending across the opening and adapted to engage a roller projecting above the partition, substantially as described.

2. In a sliding and folding partition, in combination with leaves hinged together to form such partition, a floor-track, a swiveled track-wheel arranged to traverse said floor-track and secured to the leaves of said partition, a ceiling-guide extending partially across the opening, arranged to engage the top end of the leaves of said partition, and a second ceiling-guide arranged to engage a roller projecting above the leaves of said partition, substantially as described.

3. In a folding and sliding partition, in combination with a floor-track, a partition of folding leaves, and means for supporting said leaves, movably on said track, a ceiling-guide extending partially across the opening to be closed by said partition, a knob and a projection on a leaf of the partition, the projection and the knob being adapted to engage and to force the leaf bearing the knob out from a straight line with other leaves of the partition, substantially as described.

4. In a sliding and folding partition, in combination with the leaves, a spring-detainer arranged to contact the leaves successively as the partition is extended, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WELLS D. BUTTERFIELD.

Witnesses:

C. C. JENNINGS,  
J. N. GOODRICH.