

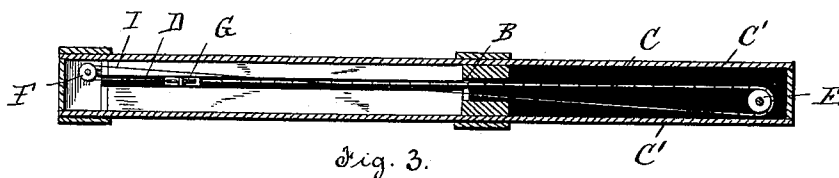
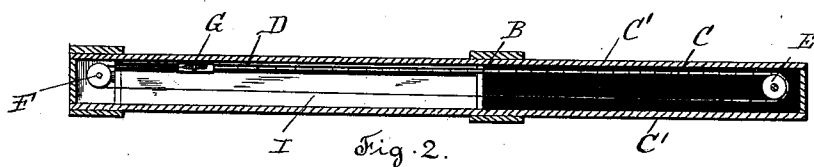
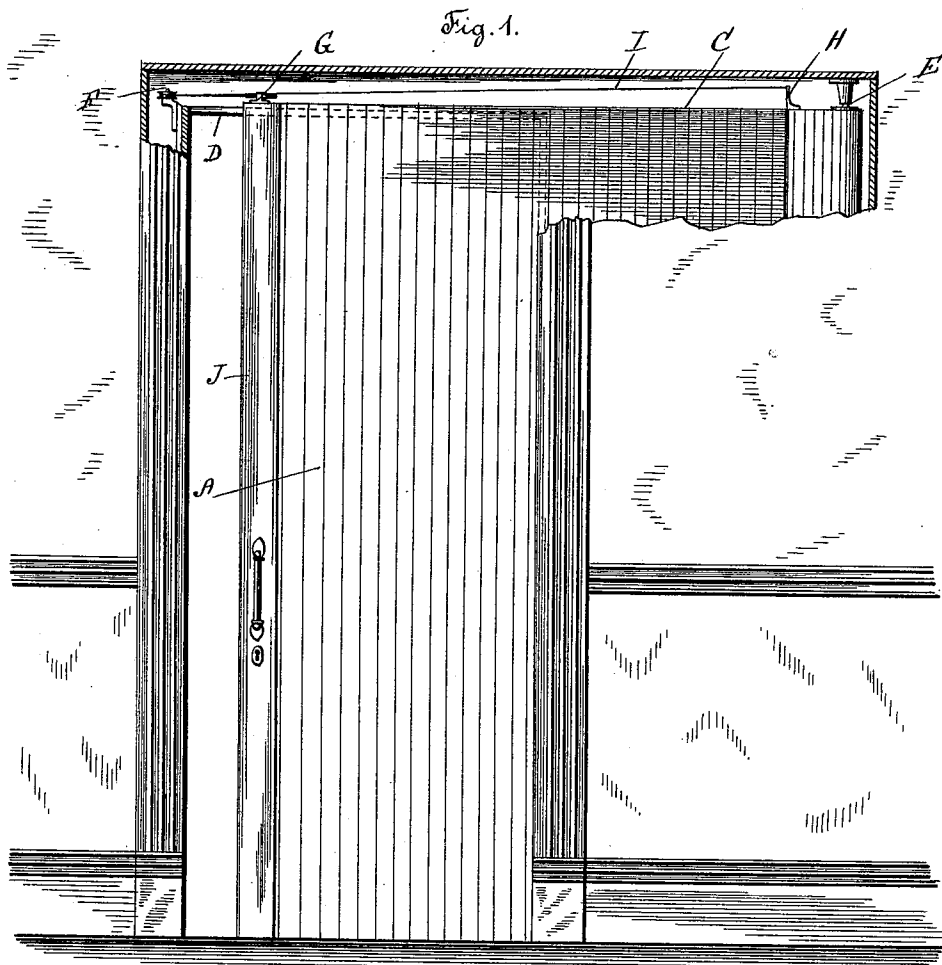
(No Model.)

2 Sheets—Sheet 1.

F. JEFTS.
FLEXIBLE DOOR.

No. 508,720.

Patented Nov. 14, 1893.



Witnesses
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Inventor
Frederick Jeffs.
By his Attorney
Rufus B. Fowler.

(No Model.)

2 Sheets—Sheet 2.

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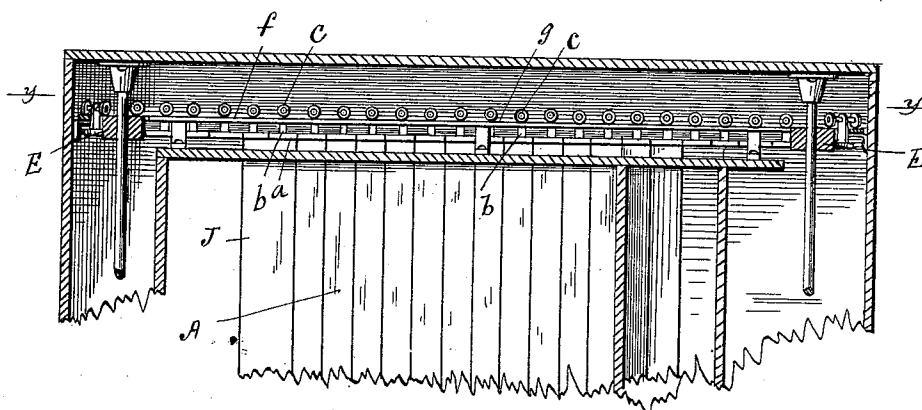


Fig. 4.

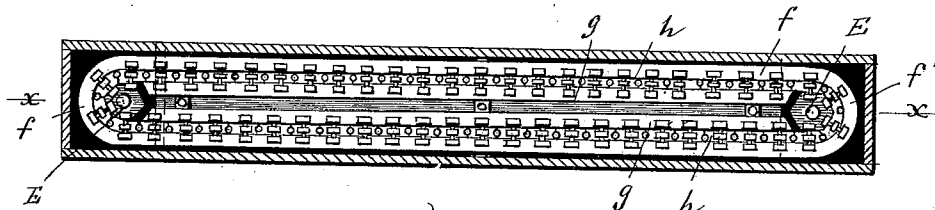


Fig. 5.

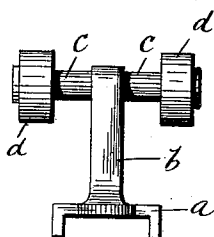


Fig. 6.

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UNITED STATES PATENT OFFICE.

FREDERICK JEFTS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE LUGRIN FLEXIBLE DOOR COMPANY, OF PORTLAND, MAINE.

FLEXIBLE DOOR.

SPECIFICATION forming part of Letters Patent No. 508,720, dated November 14, 1893.

Application filed January 30, 1891. Serial No. 379,862. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK JEFTS, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Flexible Doors, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1, represents a flexible door embodying my invention and shown in elevation and as partially opened with a portion of the casing broken away, in order to show the interior of the pocket in which the door is received when opened. Fig. 2, represents a sectional view on line X, X, Fig. 1, showing the top of the door and its connected operating mechanism. Fig. 3, is a similar sectional view, but showing a slight modification in the arrangement of the operating mechanism. Fig. 4, represents the upper portion of a flexible door the inclosing casings being shown in sectional view, in order to disclose the operating mechanism which consists of an endless chain provided with friction rolls and supported upon an overhead track, the door being suspended from the links of the chain, the section being taken on line X, X, Fig. 5. Fig. 5, represents a top view of the operating chain the inclosed casing being shown in sectional view on line Y, Y, Fig. 4, and Fig. 6, represents in full size one of the links forming the chain shown in Figs. 4, and 5.

Similar letters refer to similar parts in the several figures.

My invention relates to certain improvements in the method of operating flexible doors, which are arranged to be moved horizontally and received into a pocket at the side of the door opening.

Referring to the drawings, A, denotes the body of the flexible door, which can be constructed in any known method of making flexible curtains or shutters, either by attaching a series of parallel bars, or strips, to a flexible body of canvas, or other material, or by hinging the parallel bars, or strips, together at their edges by any known method. The door jams upon one side and lintel at

the top of the door opening are provided with grooves or openings. The groove B, Figs. 2, and 3, in the side jamb allow the door to pass into and out of the pocket C, in the operation of opening and closing the door and the groove D, in the lintel serves as a guide for the upper edge of the door A. The pocket C, is inclosed within the walls of the partition C', C', and within the pocket C, at a distance from the opening B, equal to half the width of the door is placed the vertical roll E, suitably journaled in bearings at the top and bottom, said roll E, being preferably so placed within the pocket C, that the door A, when extended through the opening B, will be tangential to one side of the roll E, as represented in Figs. 2 and 3.

F, denotes a small scored pulley journaled upon a stud within the pocket upon the opposite side of the door opening and in a plane above the upper edge of the door A.

G, and H, denote arms attached to the opposite edges of the door and extending upward a short distance above the upper edge.

I, denotes a cord with one end attached to the arm G, passing around the scored pulley F, and having its opposite end attached to the arm H, the door A, and cord I, forming an endless connection passing around the roll E, and pulley F.

When the door A, is to be opened the stile J, is moved toward the right, Fig. 1, carrying the arm G, attached to the upper end of the stile J, and through the connecting cord I, drawing the arm H, and the connected inner edge of the door in the opposite direction; the door forming a part of the endless band passing around the roll E, and pulley F.

In the construction, as shown and described, the weight of the door is supported preferably upon trucks or rolls placed either in the lower ends of the stile J and at proper intervals in the lower ends of the parallel bars or strips forming the body of the door and resting upon the threshold or floor, or by means of rolls placed in the floor and upon which the lower edge of the door is made to rest. Such method of construction is however well known and forms no part of my present in-

vention and I have therefore not deemed it necessary to represent such supporting rolls in the drawings.

In place of the cord I, attached as shown to the opposite edges of the door by means of arms G, and H, a chain can obviously be employed passing entirely around the roll E, and pulley F, the chain itself being an endless chain each of the links corresponding in length with the width of the parallel bars or strips of which the body of the door is formed and each of the links being attached to the bars or strips. The upper end of the roll E, and the pulley F, in this case would form a sprocket to support the chain. Such a construction would obviously come within the scope of my present invention as it would embody an endless belt having its direction changed upon opposite sides of the door opening and of a flexible door or shutter made to form a part or be carried or moved by such an endless belt; and in Figs. 4, 5, and 6, I have shown a form of construction, in which such an endless chain is employed and by which the weight of the door is supported from the chain, which is maintained in a horizontal plane by means of supporting lugs or brackets formed upon the chain and engaging a horizontal track above the door. One of these links is shown in Fig. 6, and it consists of the body *a* of the link, which is attached to the upper end of one of the parallel bars and has extending upwardly from the center of the link a stud provided with laterally projecting prongs upon which friction rolls may be placed if desired.

In Fig. 6, *a*, denotes the body of one of the links attached to the upper ends of the bars. *b*, is a vertical post or stud preferably integral with the body of the link and extending upward from the center of the link and provided with the prongs *c, c*, extending transversely across the upper end of the door. *d, d*, denote friction rolls turning upon the prongs *c, c*. *f*, represents the outer track upon which one of the rolls *c*, runs and is provided with a curved section *f'*, concentric with the center of the roll E. *g*, denotes the inner track extending from the roll E, across the door opening and above the same and forms the track upon which the opposite roll *d* runs. The narrow groove *h*, between the tracks *f*, and *g*, forming a space for the upright posts *b*, to pass around the roll E. The weight of the door is supported upon the tracks *f*, and *g*, the upper end of the roll E, forming a con-

tinuation of the inner track *g*, as the end of the roll and the upper surface of the track *g*, are made to lie in the same horizontal plane.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a flexible door, arranged to move into a pocket at the side of the door opening, of a roll journaled in said pocket, by which the direction of the door is changed as it is moved into said pocket, a flexible connection connecting the opposite edges of said door and a pulley or roll, by which the direction of said flexible connection is changed, substantially as described.

2. The combination of an endless chain passing around rolls having vertical and parallel axes, rolls carrying said chain and journaled in pockets at opposite sides of the door opening, a track placed in a horizontal plane, prongs projecting laterally from said chain and supported on said horizontal track and a door suspended from said chain, substantially as described.

3. The combination of an endless chain, a door suspended from said chain, rolls having parallel and vertical axes and carrying said chain, the links in said chain having a post *b*, provided with the lateral prongs *c, c*, and a track by which said chain is supported by said links, substantially as described.

4. In a flexible door the combination of a pair of sprocket-wheels having parallel axes, an endless chain carried upon said sprocket-wheels lugs projecting from the links of said endless chain and engaging a track, a track lying in a plane at right angles with the axes of said sprocket-wheels and arranged to support said chain and a flexible curtain, or shutter, attached at one edge to said chain, substantially as described.

5. The combination of a flexible curtain or shutter attached at one edge to an endless chain an endless chain carried upon sprocket-wheels, sprocket-wheels having parallel axes and carrying said chain, laterally projecting prongs or lugs extending from the links in said chain, a track arranged to support said chain and friction rolls carried on said prongs or lugs and arranged to run on said track, whereby said chain and attached door are supported, substantially as described.

Dated the 15th day of January, 1891.

FREDERICK JEFTS.

Witnesses:

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HORATIO N. H. LUGRIN.