

No. 633,290.

Patented Sept. 19, 1899.

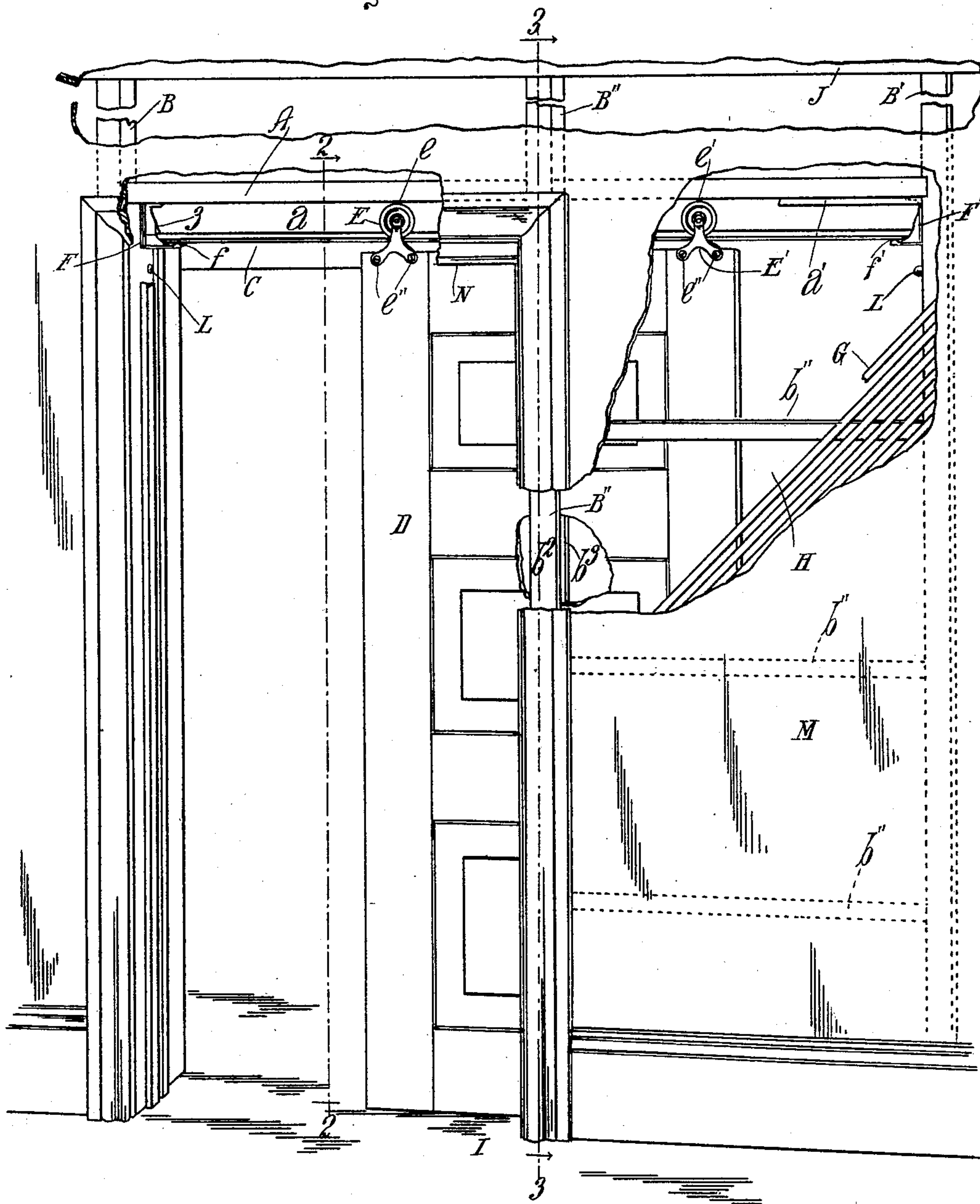
A. NEWELL.
SLIDING DOOR STRUCTURE.

(Application filed June 9, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses
Seymouringman.
Geo. A. Johnson

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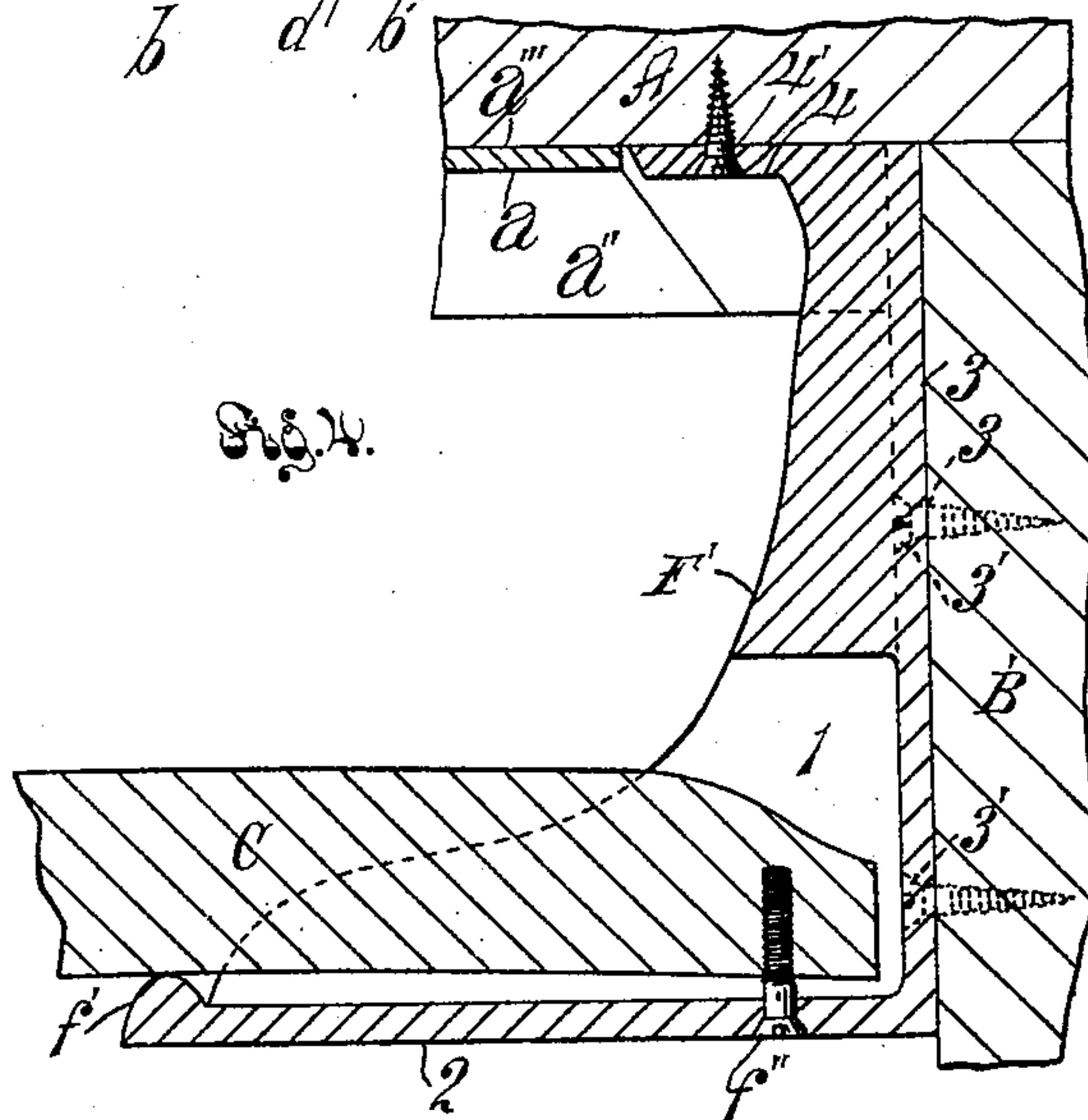
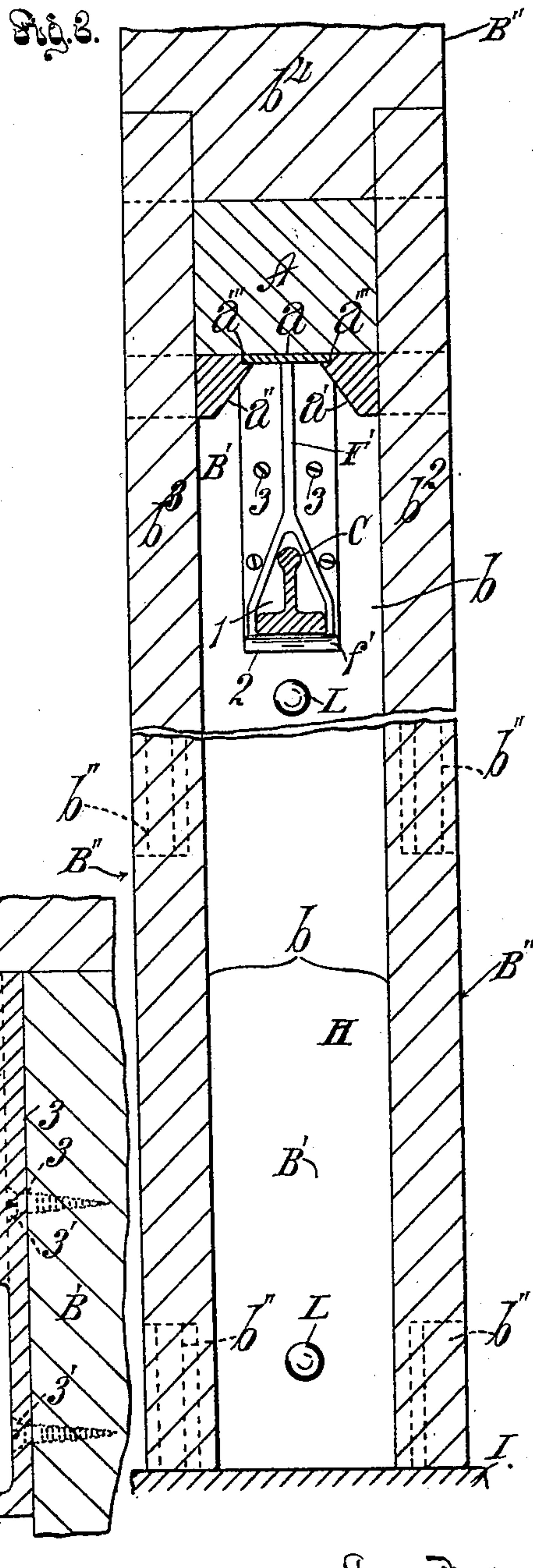
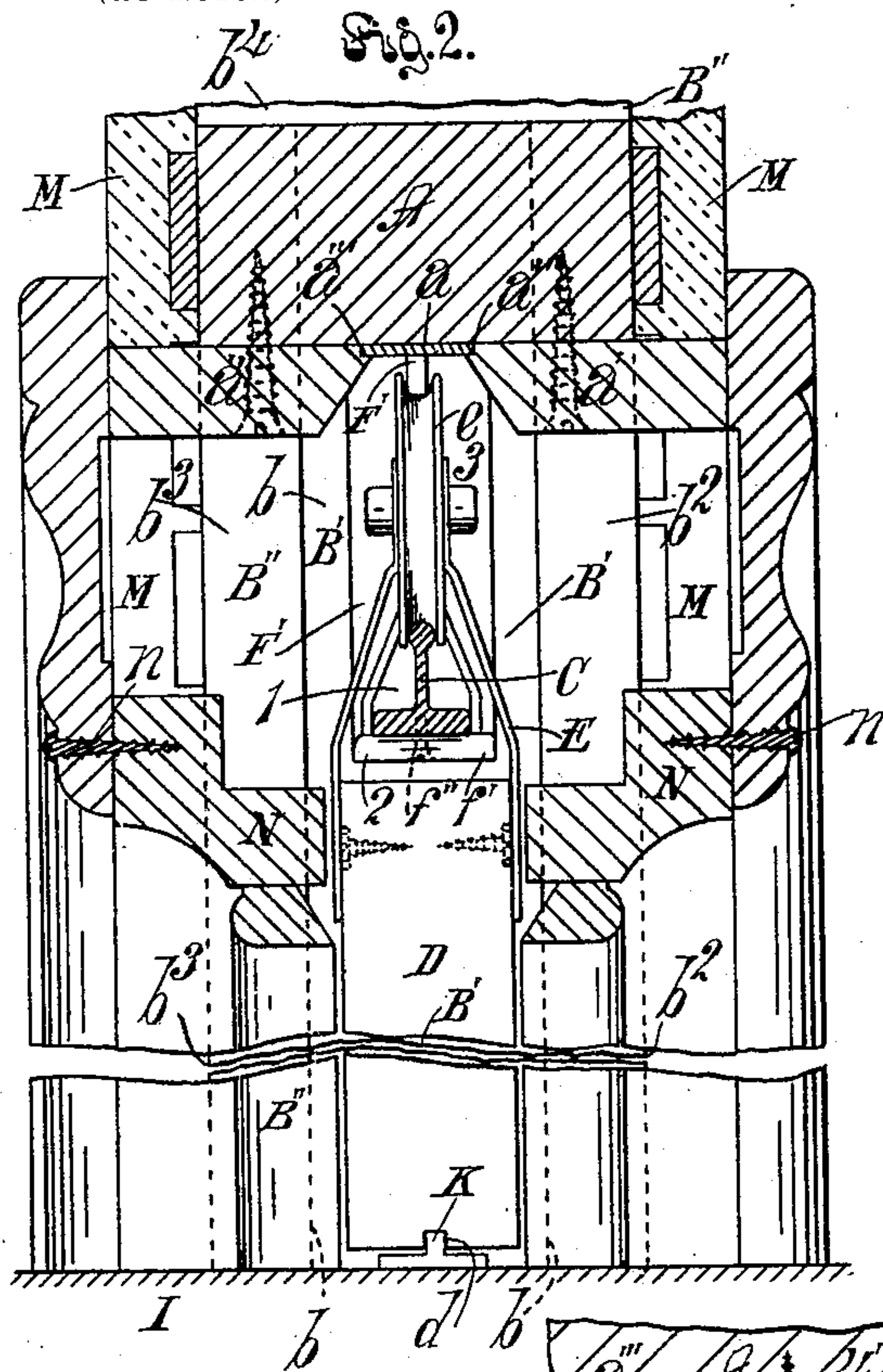
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

AUGUSTUS NEWELL, OF PASADENA, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO DANIEL SCHUYLER, OF SAN DIEGO, CALIFORNIA.

SLIDING-DOOR STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 633,290, dated September 19, 1899.

Application filed June 9, 1898. Serial No. 683,042. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS NEWELL, residing at Pasadena, in the county of Los Angeles and State of California, have invented
5 a new and useful Sliding-Door Structure, of which the following is a specification.

One object of my invention is to economize space in buildings. I provide a very simple, economical, and practicable sliding-door
10 structure adapted to do away with swinging doors, thus to economize the space in the rooms which is necessary for the accommodation of swinging doors. I provide a sliding
15 door which is as inexpensive as a swinging door, this being accomplished by a structure that is capable of being factory made in toto, so that the structure is made complete ready for insertion into the building.

My invention is more economical of space
20 than ordinary sliding doors, and by my invention I am able to mount sliding doors in a very thin lathed and plastered partition having a single row of studding of the sizes now in common use instead of the double row, as
25 required by present methods, and yet provide against any danger of the door getting out of fix. I effect a large economy of space and material over the ordinary forms of sliding doors in the partitions of buildings.

30 A further object is to provide a very simple and economical overhead support for the door-hangers, whereby I avoid any danger of sagging or displacement of the parts.

Another object of this invention is to prevent the formation of any open runways or
35 air-passages in the partitions from other parts of the building to the door. By my construction the door fits into a perfectly tight pocket in the partition, which does not communicate
40 with any other hollow portion of the partition and which practically fits the door. This prevents all drafts of air and any danger of the entrance or exit of mice or vermin into or from the partition.

45 A further object is to provide a perfect gage to gage the space between the top rail and track-rail of the track, so as to do away with the necessity of measurements and to secure accuracy without any adjustments or regu-
50 lating apparatus.

A further object is to give ready access to the door-hangers for repairs.

The accompanying drawings illustrate my invention.

Figure 1 is a fragmental perspective view
55 of my newly-invented sliding-door structure inserted into a building. Portions are broken away to expose parts that would otherwise be hidden. Fig. 2 is a fragmental sectional detail on line 2 2, Fig. 1. Fig. 3 is a section on
60 line 3 3, Fig. 1, omitting the door and casing. Fig. 4 is a vertical longitudinal mid-sectional detail of the bracket and end of the rail.

My invention comprises the combination of
65 a top rail A, end posts B B', which are ordinary studding of common size, rigidly fixed to the top rail to support the same, an intermediate stud B'', rigidly fixed to the top rail and slotted, as at b, to receive the door, a
70 lower door-hanger-supporting rail C, on suitable supports beneath the top rail A and extending through the slot, a door D, hangers E E' for the door, provided with wheels e e', running on the lower rail C and nearly but
75 not quite in contact with the lower face of the top rail A. The lower face of the top rail is preferably formed of a metallic plate a.

a' a'' indicate two cleats secured to the main
body A of the top rail by screws or nails and provided with gains a''', which seat the oppo-
80 site edges of the metal face-plate to hold the plate flat against the underside of the wooden body of the top rail, thus insuring a perfectly smooth track against which the wheels will
85 impinge in case of any raising of the door which might withdraw the wheels from the lower or track rail C.

The door-hangers in the preferred form are provided with wheels grooved to run upon the rail, and in the drawings I have shown a
90 hanger which straddles the rail and fastens to the opposite sides of the door. This hanger forms the subject-matter of a separate invention and is described and claimed in my application, Serial No. 683,041, which is filed
95 (June 9, 1898) simultaneously herewith, and for that reason no claim is made in this application for the said hanger. My door structure, however, may be used with other forms
100 of hangers; but in order to adapt it for this

improved form of hanger the rail is supported at its ends by brackets $F F'$, each of which is provided with a fulcrum extension $f f'$ toward the middle of said rail to support the rail, and with a tension device, which may be of any suitable character, but preferably a screw, as at f'' , to draw downward upon the free ends of said rails to produce a tension in the intermediate body of the rail to keep the rail straight under the weight of the door. By this means the rail is given such rigidity that in any ordinary use there will be practically no deflection of the rail. These brackets are made of metal and are rectangular and are provided with a channel 1, into which the end of the rail is set, and the screw f'' extends up through the bottom arm 2 near the upright arm 3 of the bracket. The upright arm 3 is provided with screw-holes 3', through which screws are inserted into the end post of the structure, and said upright arm is also preferably provided with a horizontal extension 4 parallel with the lower arm 2 and provided with a screw-hole 4', through which a screw is inserted into the top rail. The height of the bracket thus forms an accurate gage to gage the exact distance between the upper and lower rails, and the wheels of the hanger are thus given just sufficient play to allow them to run free of one rail when they are in contact with the other, so that in case the door is lifted, thus raising one or both of the hanger-wheels out of contact with the running-rail, such wheel or wheels will at once engage the top rail and will thereby be prevented from being displaced from the track. Any danger of friction by contact of one wheel with both rails at once is thus avoided. It will be understood that it is immaterial so far as this operation is concerned whether the wheel or the track is grooved. The operation would be the same in either instance.

In practice the structure is completed at the mill, and the end posts $B B'$ and the middle posts B'' may extend to any desired length above the top rail, thus to reach from floor to ceiling of the story where used. This is indicated by the broken studding above the top rail in Fig. 1; but it is to be understood that it is not essential to this structure that the posts should extend above the top rail. The middle or slotted studding B'' is preferably built up of three members $b^2 b^3 b^4$, and to give perfect rigidity to the members $b^2 b^3$ and form a firm support or backing for the lathing I provide braces b'' , connecting them to one of the end studdings or posts.

The several members of the frame in which the door is hung are joined together by gains and mortises, as indicated in the drawings, in order to give absolute rigidity to the structure.

In practice the structure complete, with the door in place, may be shipped from the factory to the building ready to be inserted into the place which has been provided for it by the architect, and the members of the structure are to be so securely fastened together

that there will be no racking and no displacement of any of the parts, and after the building is completed there will be no danger of any relative displacement of parts, such as is liable to occur where the structure is a part of the building instead of being a separate manufacture joined before being placed into the building.

It is to be noted that in case of any sagging of the building there is no liability of any displacement of the two rails relative to each other and that there is no liability of any displacement of parts which will bind the door and prevent it from operating, even if the building should settle.

G indicates diagonal lathing nailed to the end post B' and the members of the middle post B'' , respectively, to close the structure on that side of the door-opening which chambers the door. The pocket or closed portion H thus forms a part of the partition-wall. In practice the lathing is nailed to the studding $B' B''$ and the braces b'' . The studding, when the structure is in place, are fastened at their lower ends to the floor I of the building and at their upper ends preferably to the ceiling-joists J.

K indicates a pin projecting from the floor I into a groove d in the bottom edge of the door to prevent the door from swaying.

L indicates cushions to receive the door to prevent any undesirable jar or noise in case the door is closed or opened violently.

M indicates plaster over the lathing to complete the walls of the pocket.

The channeled rail-supporting arms of the brackets prevent any lateral movement of the track-rail.

N indicates removable sections of the door-casing, which extend down in front of the upper part of the door to hide the hangers $E E'$, which are set far enough from the edges of the door to be covered by such strip.

In case it is desired for any reason to remove the door the screws n , which hold the removable sections in place, are removed, thus allowing the sections N to be removed, thus giving access to the screws e'' , which fasten the hangers to the door. By removing the screws e'' from the door and hangers the door is released and can be removed.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a door-hanger-supporting rail; brackets for the ends of said rail with fulcrum extensions toward the middle of said rail to support the rail; and tension devices to draw down the free ends of said rails to produce a tension in the intermediate body of the rail.

2. The combination with the top rail, track-rail and end posts, of brackets fastened to the end posts respectively and provided respectively with a rail-supporting arm which carries the track-rail, and with an upright arm to extend to the under face of the top

rail, thus forming an accurate and fixed gage for the distance between the two rails.

3. The track-gaging bracket having a track-rail-supporting arm with track-rail fulcrum thereon and an upright arm to form in conjunction with said fulcrum a fixed gage for the space between the top and lower rails of the track.

4. A supporting-bracket for the rails of sliding doors comprising an upright arm to fasten against a support; two arms projecting therefrom, one being provided in its upper face with a channel to receive the door-supporting rail, and with a fulcrum at the outer end of the channel, and the other arm being above the channeled arm with the plane of its upper surface at a fixed distance perpendicularly from the fulcrum.

5. The bracket having a rail-supporting arm; an upright arm with a screw-hole there-through and at the top thereof a horizontal arm with a screw-hole therethrough.

6. The combination of the top rail; end posts fastened thereto; track-rail brackets with channels therein and provided at their ends with fulcrums respectively; a rail in said channels and resting upon said fulcrums; and screws inserted through the brackets and screwed into the rails to draw the ends of the rails toward the brackets between the fulcrums and the end posts.

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Witnesses:

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