

(Model.)

2 Sheets—Sheet 1.

S. PALMER.

SLIDING DOOR.

No. 354,576.

Patented Dec. 21, 1886.



WITNESSES

Geo. A. Darby
A. Davenport

INVENTOR

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Stephen Palmer
by Geo. A. Mosher
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(Model.)

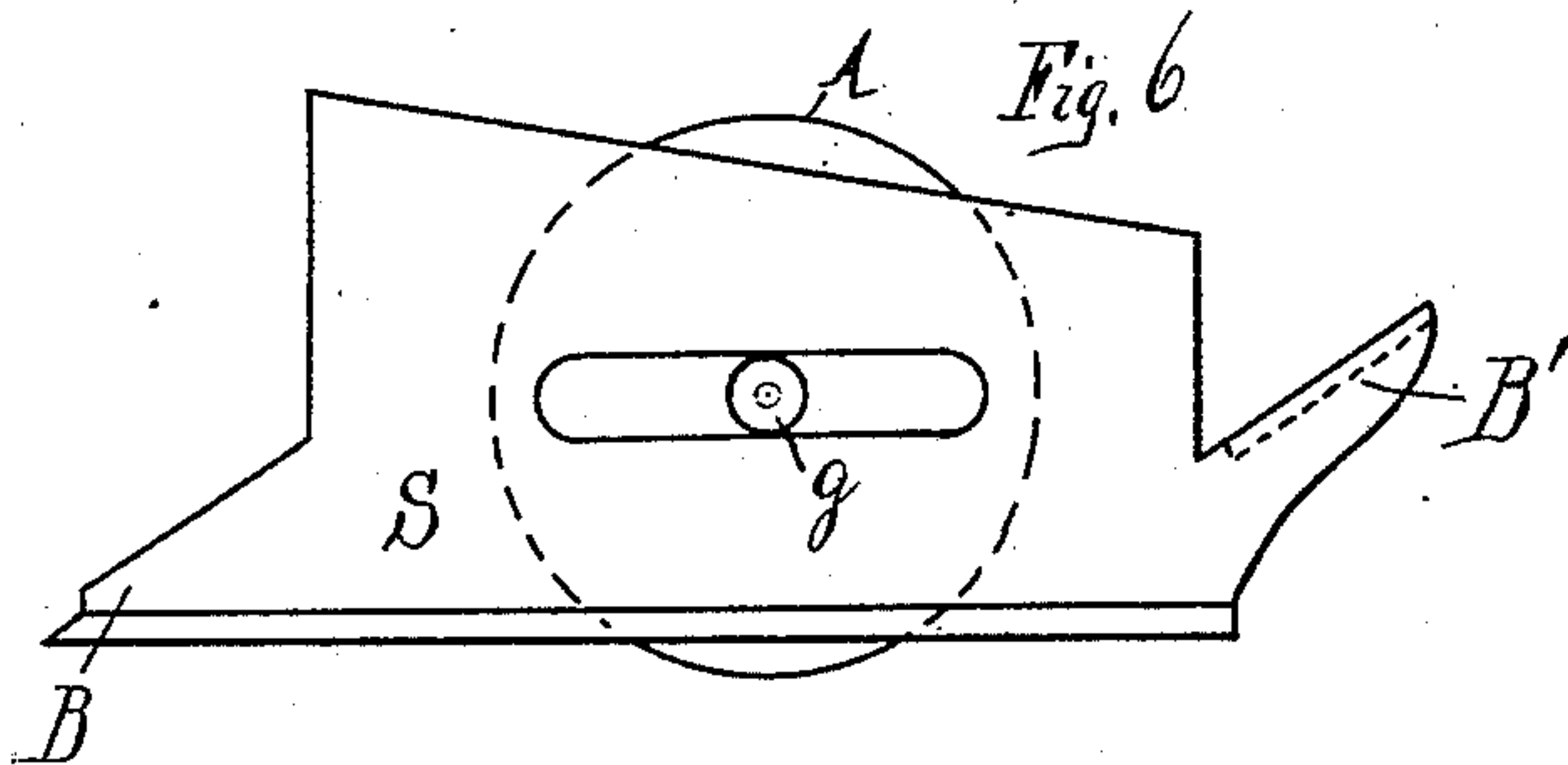
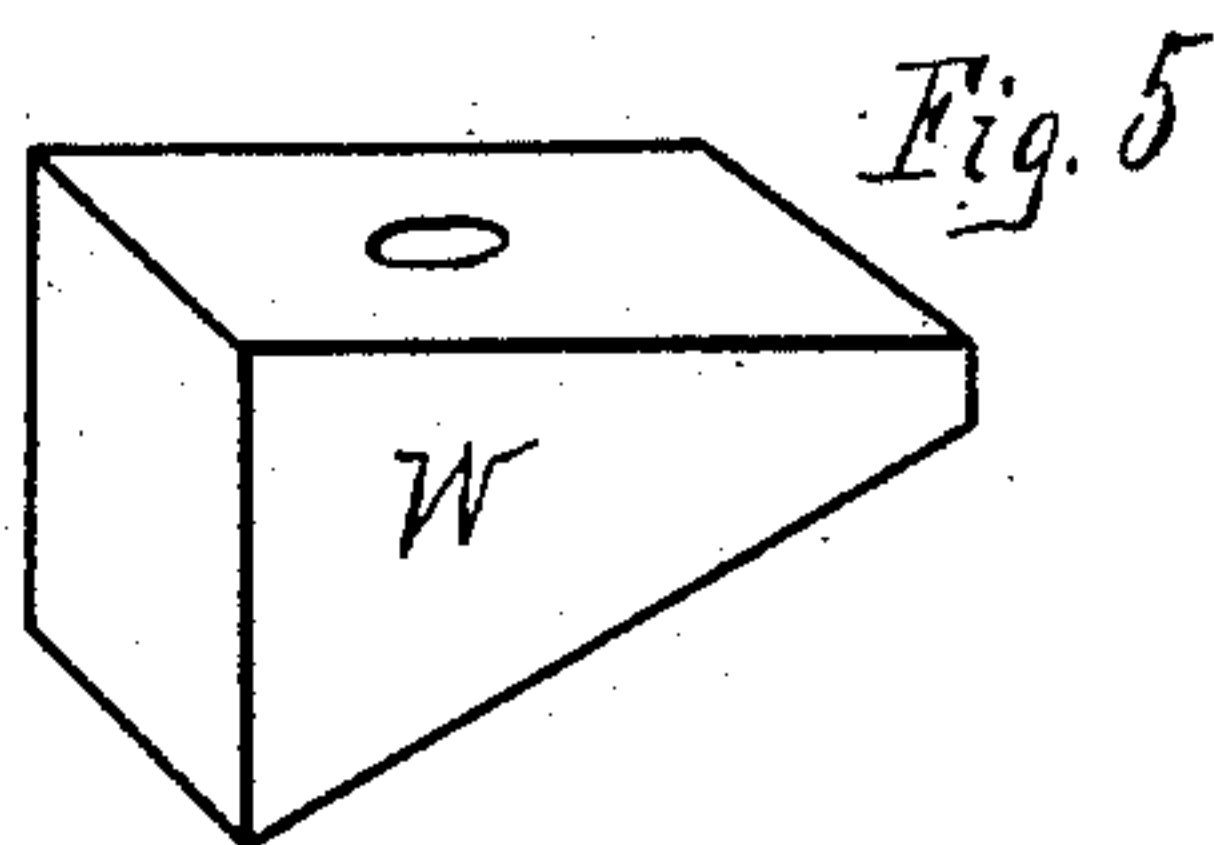
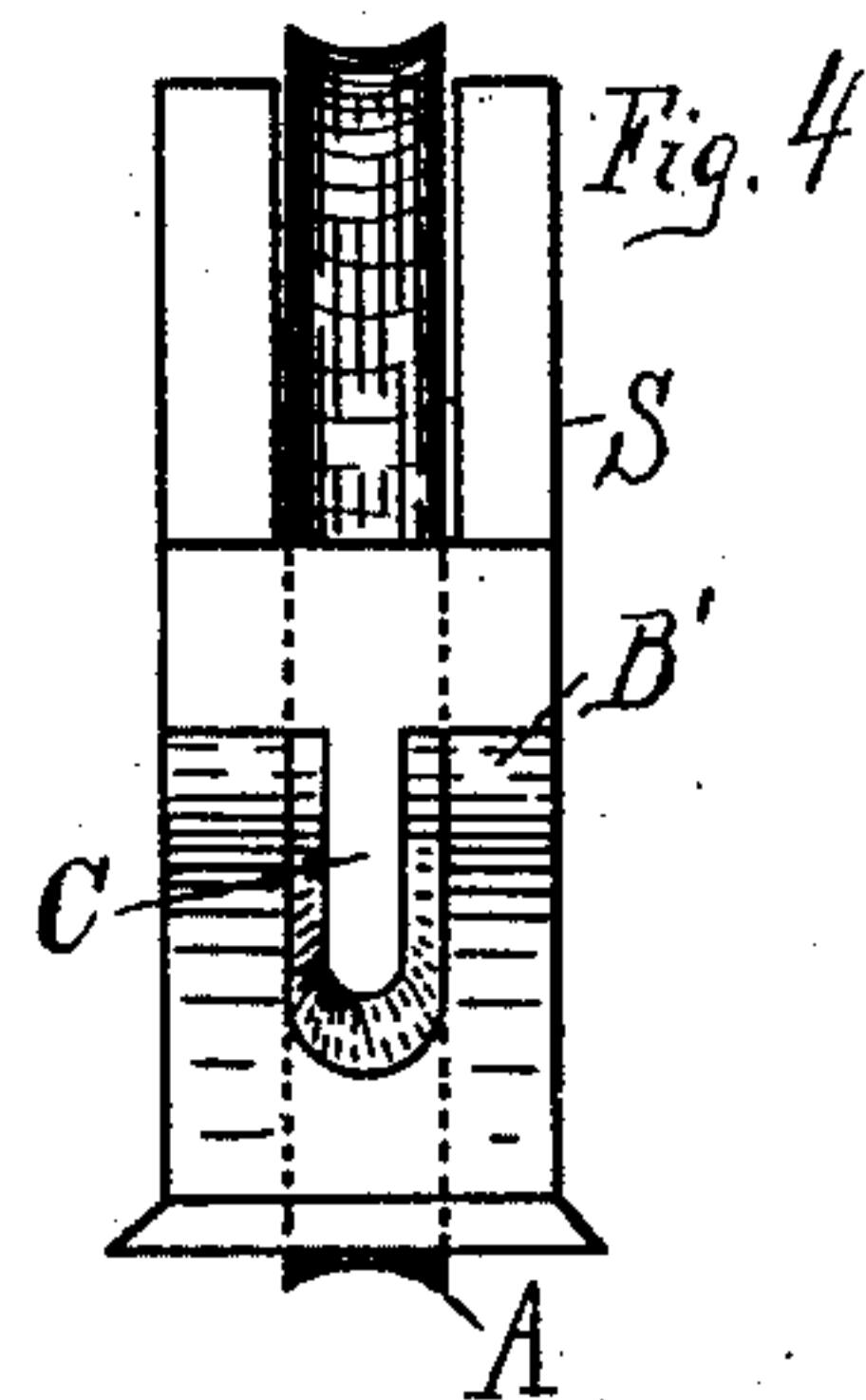
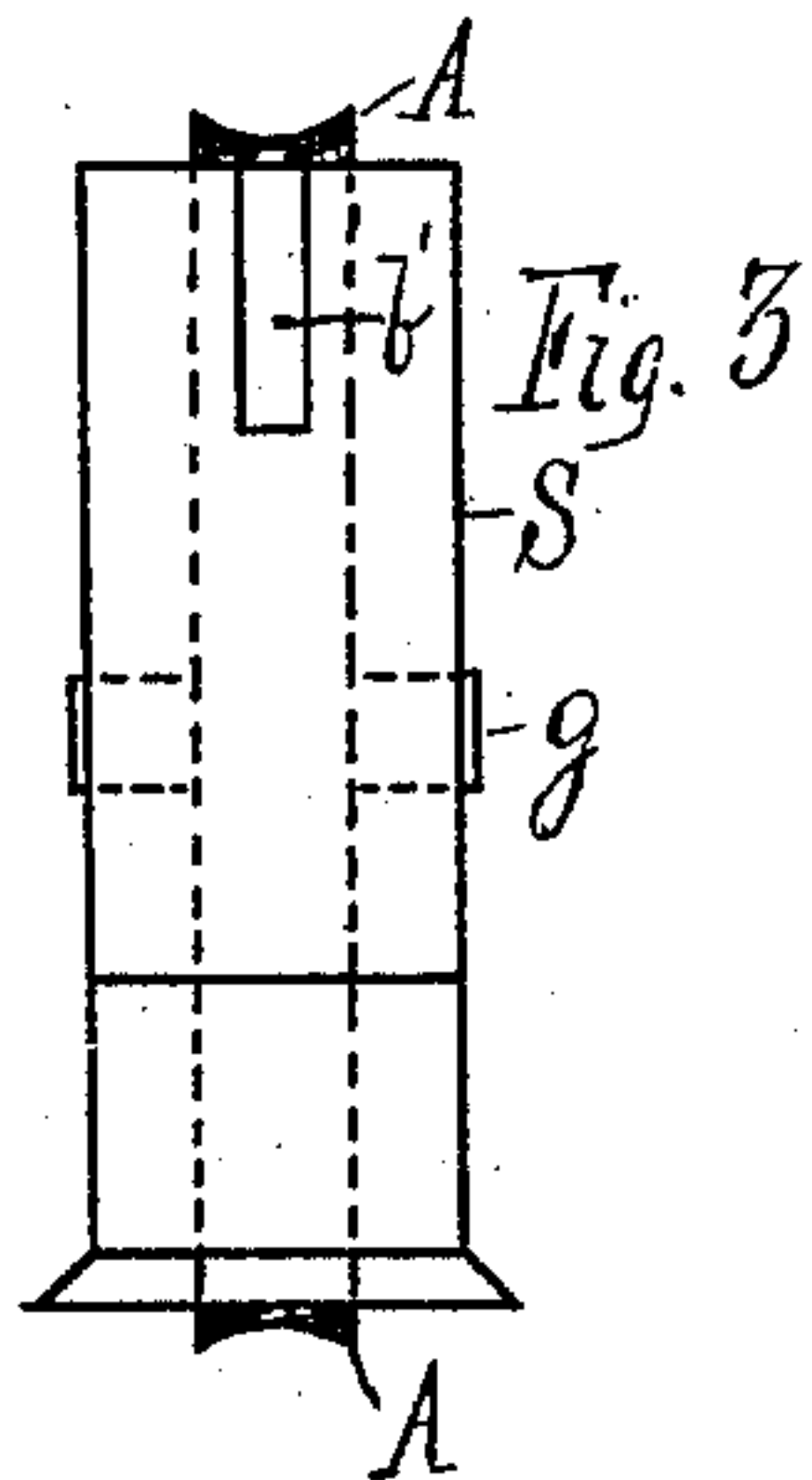
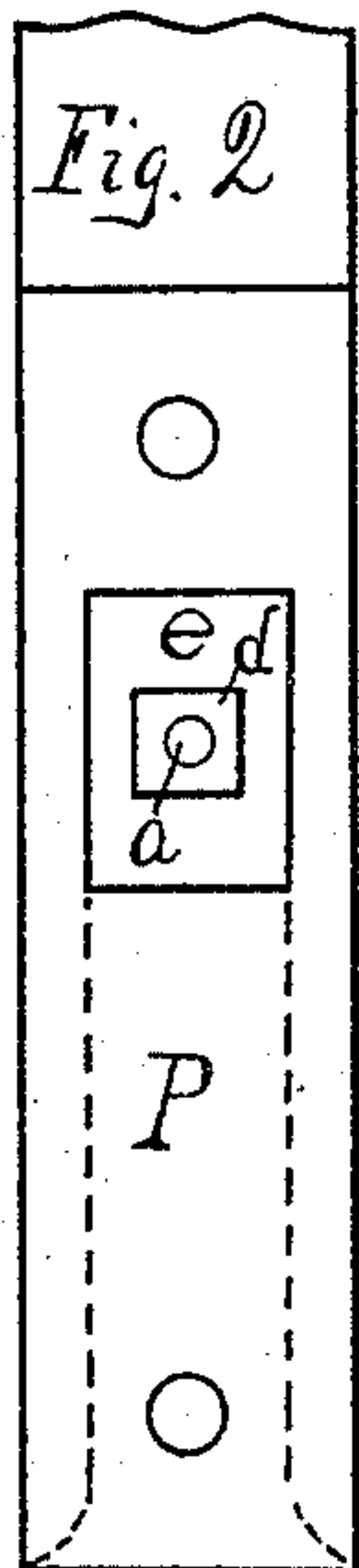
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

STEPHEN PALMER, OF LANSINGBURG, NEW YORK.

SLIDING DOOR.

SPECIFICATION forming part of Letters Patent No. 354,576, dated December 21, 1886.

Application filed March 1, 1886. Serial No. 193,636. (Model.)

To all whom it may concern:

Be it known that I, STEPHEN PALMER, a resident of Lansingburg, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Sliding Doors; and I do hereby declare that the following is a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

My invention relates to improvements in sliding doors having mortise-sheaves projecting from their bottom edges and adapted to run on a floor-track.

It is well known to builders that great difficulty is experienced in adjusting sliding doors to a vertical position upon a floor-track. It frequently happens, also, that if properly adjusted in the first instance they will not remain so.

As the height of the door is usually greatly in excess of its width, a slight disturbance of the track, due to the settling of the floor or shrinkage of the various parts, will cause the doors to tip toward each other, so that their upper ends will strike each other before the lower ends can be closed, or if they tip in the opposite direction the lower ends will meet before the upper ends are closed.

When the adjustment of the doors depends wholly upon the relative depth of the mortises in the bottom edges of the doors which receive the sheaves, it necessitates repeated trials and changes to secure perfect adjustment in the first instance, as well as readjustment in case of variations, due to the settling of floors or other causes.

As the doors must be set up for trial and taken down for alteration, much time and labor are consumed in the operation; and one of the objects of my invention is to provide a means of easy and ready adjustment of the doors upon their sheaves.

Another object is to strengthen the doors by causing their weight to exert a tendency to draw the stile up to the lower rail. As is well known to builders, the doors are sup-

ported by two sheaves located in the bottom edge or rail of the door as near the vertical edges or stiles as possible, to afford the longest possible base of support for the door. In cutting the sheave-mortises in the lower rail of the door and near the ends its tenons which enter the stiles are necessarily weakened if the sheaves are located near the vertical edges of the door.

By causing the weight of the door to draw the stile up to the rail, I am able to locate the sheaves nearer the vertical edge of the door, and lengthen the base of support afforded the door by the sheaves and without increasing the width of the sheave and mortise, which would otherwise weaken the door.

My invention consists of the novel construction and combination of parts hereinafter more fully described, and pointed out in the claims.

Figure 1 of the drawings is a side elevation of the lower portion of a door, partly broken away at one corner to show the inclosed sheave. Fig. 2 is an elevation of the vertical edge of the door with covering-plate removed. Fig. 3 is a front end elevation of a sheave detached. Fig. 4 is a rear end elevation of same. Fig. 5 is a view in perspective of an inclined slideway. Fig. 6 is a side elevation of sheave removed from its mortise in the door.

The door D is provided with a mortise, *m*, opening out at the lower edge of the door, as shown in Fig. 1 and by dotted lines in Fig. 2, adapted to receive the sheave S. The sheave made in the usual manner, with a supporting track-wheel, A, is provided at its ends with the slides B B', and at one end with a slot, *b'*, adapted to receive the bolt *a*, as will be hereinafter more fully explained.

The mortise *m* is provided with ledges adapted to receive and seat the inclined slideways W W', which may be secured thereon by screws, as shown.

It will be seen in Fig. 1 that the mortise is somewhat longer than the sheave, which permits the sheave to slide longitudinally therein. An opening is also provided in the vertical edge of the door, extending through the stile into the mortise. The mouth of this opening *e* is somewhat enlarged, to afford room for operating the nut *d* upon the threaded end of bolt *a*, extending through the smaller open-

ing, *f*, and terminating in a head, *b*. The bolt is adapted to rest within the slot *b'* in the sheave-case, the bolt-head bearing upon the inner side of the slot-shoulders. The opening *f* being somewhat smaller in diameter than opening *e*, shoulders are formed at their junction, adapted to support the washer *n*, rounded on the nut side to permit of a vertical movement of the bolt-head.

10 The operation of the device is as follows: If it is found upon trial that one corner of the door is too high—for example, the left-hand corner, as viewed in Fig. 1, wherein the device is shown at its highest limit of adjustment—
15 it is only necessary to remove plate *P* and through opening *e* unscrew nut *d*, whereupon the weight of the door, acting through the slideways *W W'*, causes the sheave-case to slide toward the lower corner of the door,
20 traveling longitudinally of the elongated mortise, whereby the slideways *W W'*, which support the door, find a bearing in a lower plane upon the slides *B B'*, the lowest adjustment being limited only by the length of the bolt
25 and slideways and the elongation of the mortise. To raise the door-corner from a lower to a higher plane, it is only necessary to remove the plate and reverse the operation by turning the nut onto the bolt and drawing the
30 slides against and along the slideways, which lifts them and the supported door-corner to a higher plane. I am thus able to quickly set up and properly adjust a new door, and to re-adjust the same when required without re-
35 moving the door or the sheave from the supporting-track *T*.

By employing my improved device much less skill and care are required in attaching sheaves to doors, as it is not necessary to make
40 the mortise of any exact depth. An elongated mortise being necessary for the adjusting

movements of the sheave-case and the degree of elongation being unimportant, provided sufficient room is afforded for the longitudinal movement of the case, the labor and skill re- 45 quired in fitting doors with sheaves are materially reduced. It will be observed, also, that the weight of the door, acting through the slides and slideways, one of which is secured to the rail *F*, induces a continuous tension 50 upon the bolt *a*, and through the bolt and its nut upon the stile *E*, which tends to draw and keep the stile and rail in their proper positions. The slides may, one or both, have a longitudinal slot, *C*, to receive the projecting 55 screws *i*, as shown in Fig. 4, whereby the screw-head supports the sheave in its mortise should the door be lifted from the floor, and prevents the sheave from falling out.

What I claim as new, and desire to secure 60 by Letters Patent, is—

1. A door provided with a longitudinally-elongated mortise having a slideway at each end, in combination with an adjustable mortise-sheave provided at each end with an in- 65 clined end slide movable longitudinally on said slideways, and means, substantially as described, for adjusting said sheave, as and for the purposes set forth.

2. The door *D*, provided with a sheave-mor- 70 tise, *m*, and slideways *W W'*, in combination with sheave *S*, provided with inclined slotted slides *B B'*, screws *i*, and threaded bolt *a* and nut *d*, substantially as described, and for the purposes set forth. 75

In testimony whereof I have hereunto set my hand this 27th day of February, 1886.

STEPHEN PALMER.

Witnesses:

GEO. A. MOSHER,
W. H. HOLLISTER, Jr.