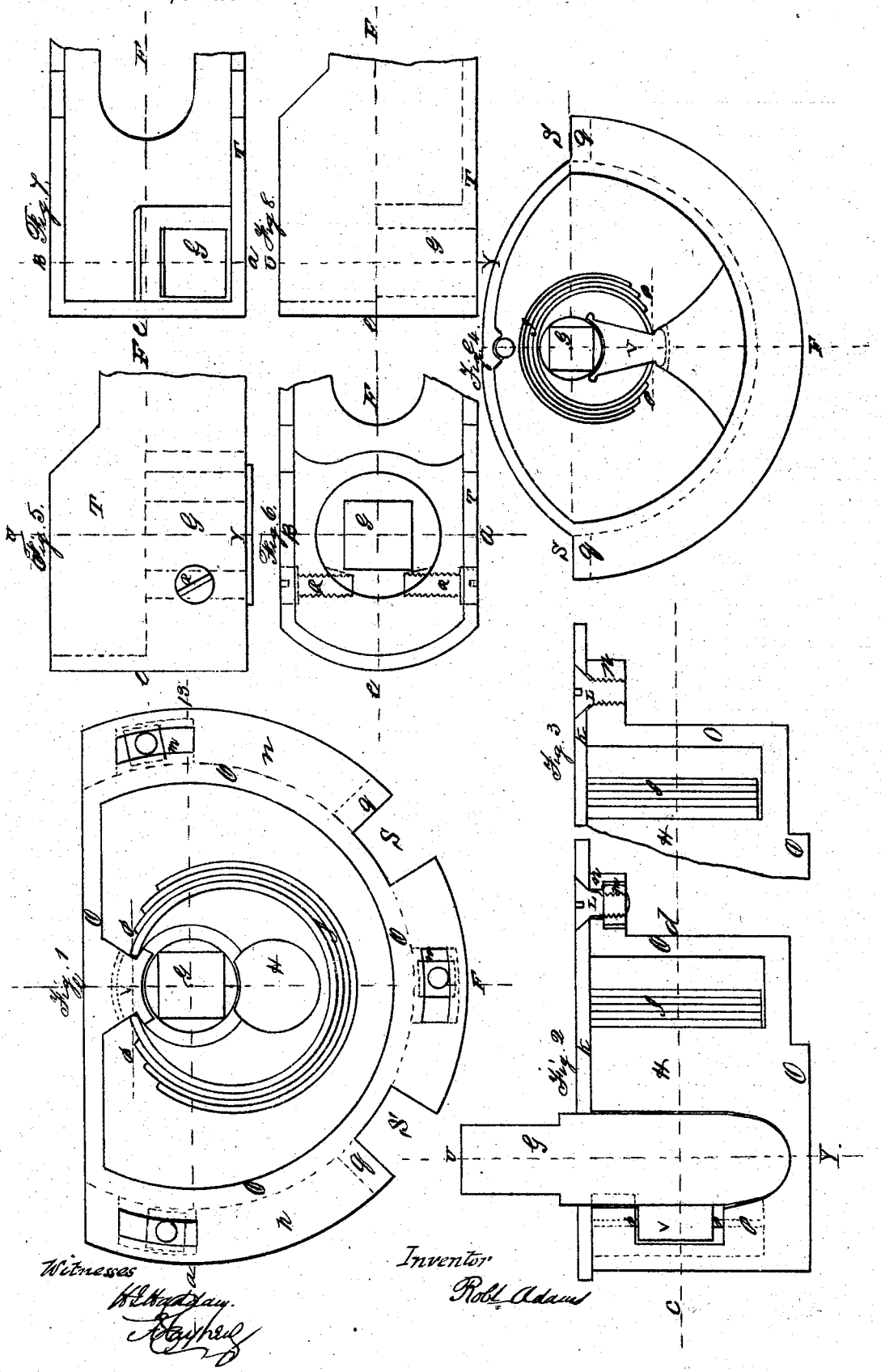
R. ADAMS.

Spring Hinges.

No. 116,002. Patented June 20, 1871.



UNITED STATES PATENT OFFICE.

ROBERT ADAMS, OF BOROUGH OF SOUTHWARK, GREAT BRITAIN.

IMPROVEMENT IN SPRING-HINGES FOR DOORS.

Specification forming part of Letters Patent No. 116,002, dated June 20, 1871.

To all whom it may concern:

Be it known that I, ROBERT ADAMS, of No. 25 Falmouth Road, in the Borough of Southwark, in the county of Surrey and Kingdom of Great Britain, have invented certain Improvements in Spring-Hinges, of which the following is a specification:

This invention applies to the hinges employed for causing doors to close when opened in either direction, and which are generally known as spring-hinges. They are usually sunk or let into the sill of the door to which they are affixed, the spring-closing apparatus being contained in a box below the level of the sill or tread. Now, the object of these improvements is to construct the hinge so that the door, when closed or in its middle position, may be firmly held, notwithstanding wear.

The construction which I adopt is as follows: The pivot or vertical axis of the hinge works in bearings, so that it can freely turn more than a quarter of a revolution either way, and is squared at the upper part to receive a lever or shoe, which is affixed to the lower angle of the door, which thus turns on and with this pivot as an axis. The pivot or axis is mounted with a lever or levers, in which are two vertical grooves, one on either side of the said projecting lever or levers. These grooves receive the two ends of a spring or springs. These springs are contained in a box part of a circle in form. This box may also contain a vertical fixed pin, having vertical grooves corresponding to those in the projecting lever or levers of the pivot. I do not limit myself to any particular mode of fixing these grooves, or the position they may occupy in the box; but I prefer fixing them at the back of the box; in which case the spring encircles the pivot or axis, and the fixed stop placed to determine the distance. The door may open by the projecting lever coming in contact therewith. The bar or fastener holding the spring is furnished with a slot or slots, through which the projecting lever on the pivot may pass horizontally either way. The ends of the springs, facing each other and closing tightly together, are inserted in the grooves fixed in the box, or they may be fixed in any other suitable way, thus bringing all the fixed grooves and the grooves on the pivot in one position and at rest. Now, when the pivot or axis is made to turn either way by the door or lever, the springs will become expanded by the projecting lever of the pivot and leave the fixed groove of the box on one side or the other; and when the door or lever is let free the spring will bring it again into its original position and at rest. The working parts of hinges I cast in and on chills, thus making them very hard, precise, and durable. I also make the lower part of the pivot or vertical axis somewhat elliptical in form, rather V-shaped, and the chilled cup to correspond in shape, so that when in its middle or closed position extra effort is required to displace it. I prefer raising the cup and thus attaching the stop to the lower part of the vertical grooves.

Description of Drawing.

Figure 1 is a sectional plan of hinge taken on the line *c d*, Fig. 2. Fig. 2 is a longitudinal section of hinge taken on the line *e f*, Fig. 1. Fig. 3 is a sectional view of hinge without slots for nuts, as shown in Figs. 1 and 2. Fig. 4 is a sectional plan of hinge with long leverage, and showing the vertical grooves in front, with a friction-roller at the back. Fig. 5 is a longitudinal section of an adjustable shoe; Fig. 6, a sectional plan of the above Fig. 5; Fig. 7, a sectional plan of a rabbet-framed door-shoe; Fig. 8, a longitudinal section of the shoe, shown in Fig. 7.

O is the case or box, which is let into the sill of the door in the usual way, and covered by the plate K. H is a vertical stop, connecting by the cup and box the vertical grooves P, in which the ends of the spring I are placed. N is a flange, sometimes, with slots M, Fig. 1, for screws L, to secure the top plate K, allowing the box to be turned regardless of the cover K. S *q* are slots and vertical slips for the fixing and adjusting by screws or wedges. The vertical grooves on the lever V of the pivot G correspond with the vertical grooves P, shown in Fig. 2, thus bringing all the grooves on the pivot G and in the box O in line when the spring I is at rest, as shown in Figs. 1 and 4.

Figs. 5 and 6 show an adjustable shoe, by means of a movable boss, which has a hole

squared through to receive the axis G. This boss or bush is moved and fixed by operating on the screws *r*, and so altering the position of the door.

I claim—

The circular spring, resting at both ends against the lug on the box, and operated in either direction by the direct action of the pintle, furnished with lugs for that purpose.

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