(No Model.) 3 Sheets—Sheet 1.

W. H. TAYLOR.

LOCK HUB.

No. 568,502. Patented Sept. 29, 1896.

Fig. 2.

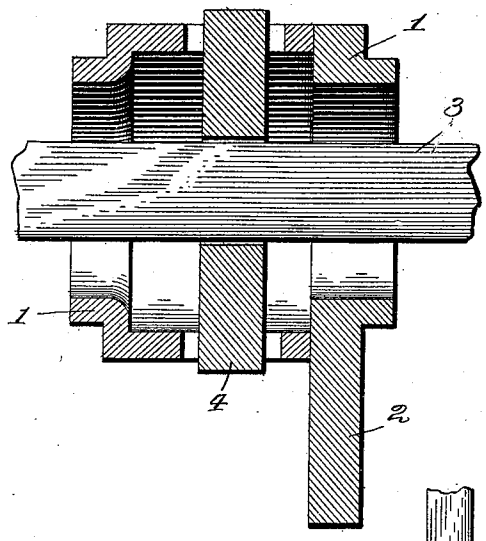


Fig. 1.

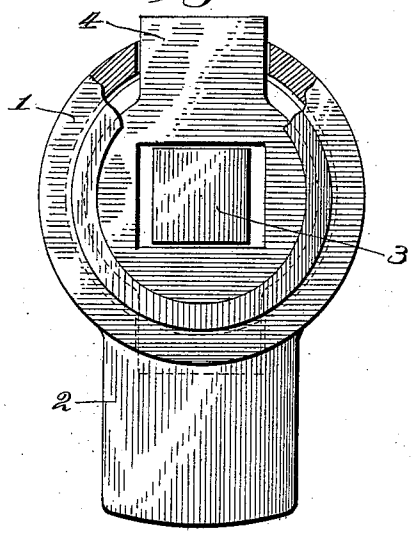


Fig. 3.

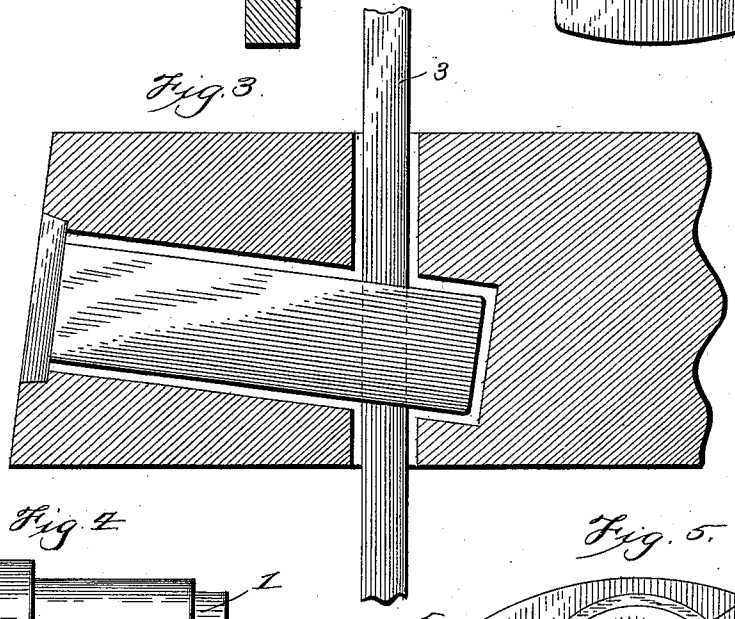


Fig. 4.

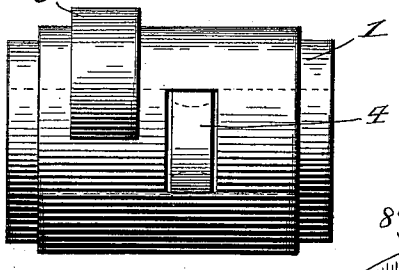


Fig. 5.

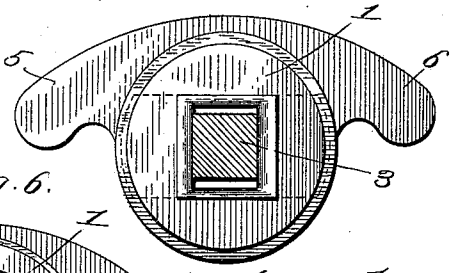
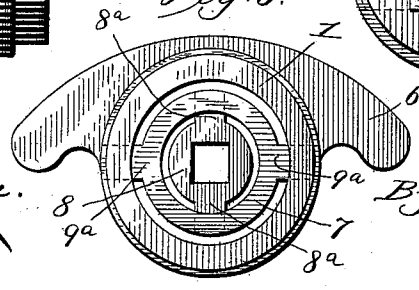


Fig. 6.



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(No Model.) 3 Sheets—Sheet 2.

W. H. TAYLOR.

LOCK HUB.

No. 568,502. Patented Sept. 29, 1896.

Fig. 1.

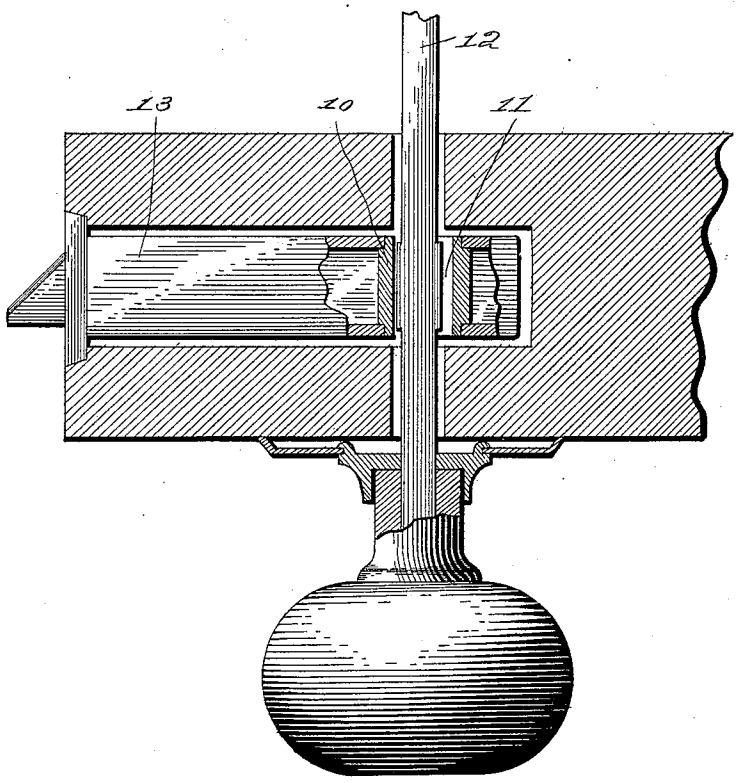
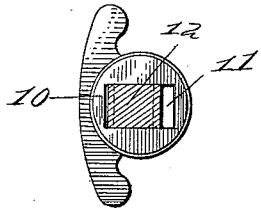


Fig. 8.



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(No Model.) 3 Sheets—Sheet 3.

W. H. TAYLOR.

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Fig. 9.

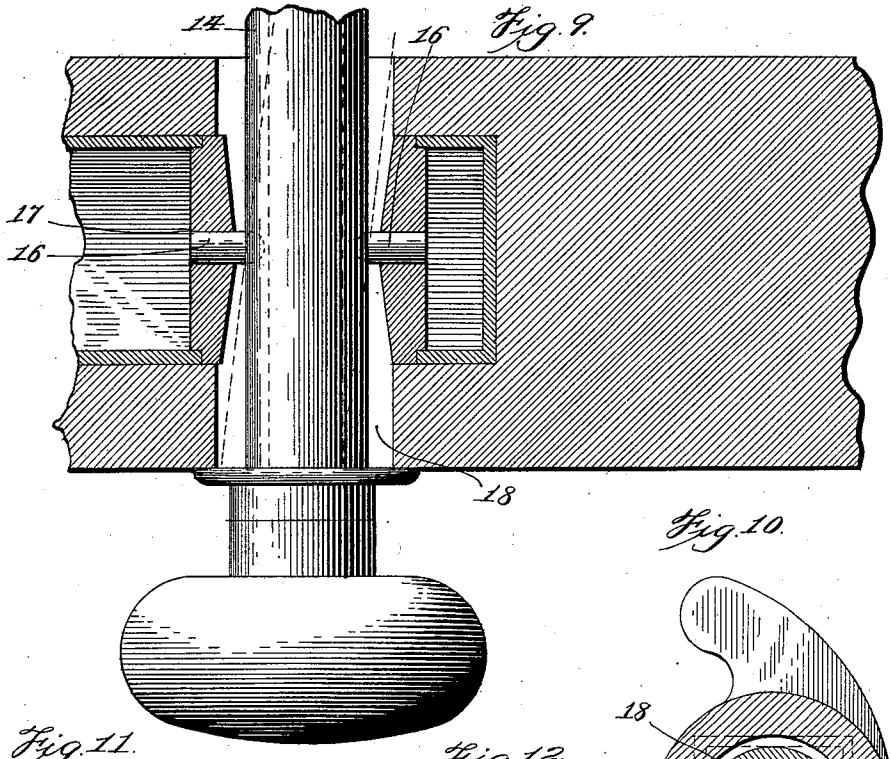


Fig. 10.

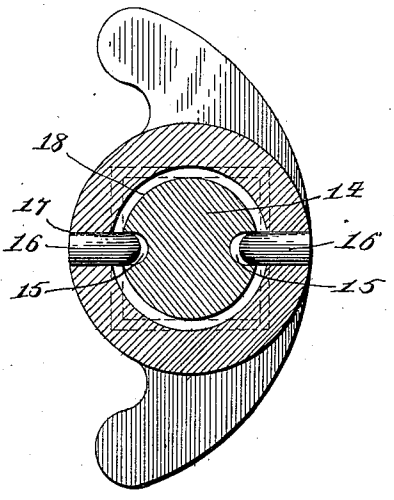


Fig. 11.

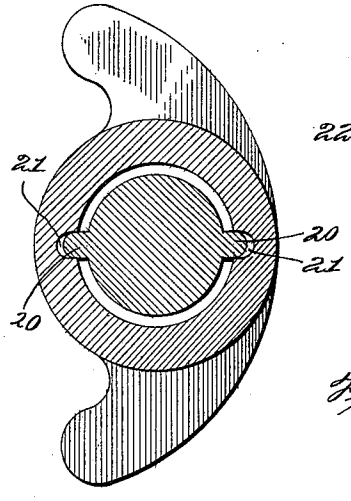


Fig. 12.

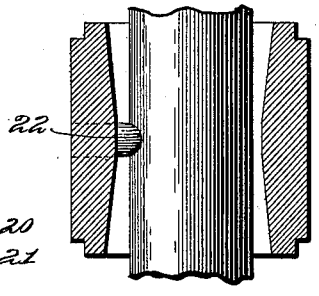
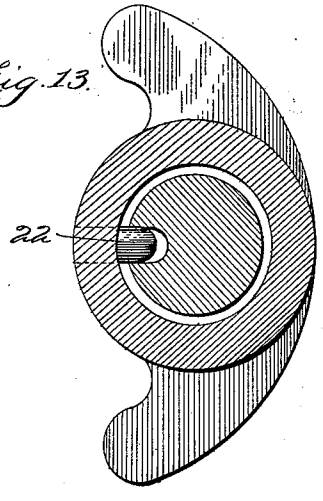


Fig. 13.



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UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE & TOWNE MANUFACTURING COMPANY, OF SAME PLACE.

LOCK-HUB.

SPECIFICATION forming part of Letters Patent No. 568,502, dated September 29, 1896.

Application filed April 14, 1896. Serial No. 587,498. (No model.)

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Lock-Hubs, of which the following is a specification.

The object of my invention is to provide a hub in which the spindle will work freely, even in case the lock is not put upon the door with absolute accuracy, or in case the relative position of the lock in the door should be changed by warping or shrinking of the wood. Ordinarily when the hub is rigid in the lock-case and the spindle engages with the hub in a manner which is practically rigid, any lack of accuracy, whether from the manner in which the lock is put on or from any subsequent change, will obviously cause a twisting either in the spindle itself or will cause the hub to bind against the lock-case, so that the operation of the spindle, and consequently the latch which it works, will be interfered with. In this improved hub it is possible to have a great variation in the horizontal and vertical angle which the spindle makes with the lock-case and yet have perfect freedom of motion.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a front view, partly in section, of a lock-hub showing the bearing-block for the spindle fitting therein; and Fig. 2 is a sectional view of the same. Fig. 3 is a sectional view of a portion of a door and showing a lock-case fitted inaccurately therein. Fig. 4 is a detail side view showing the improvement applied to another form of lock-hub. Fig. 5 is a front view of the same. Fig. 6 is a modification of the form shown in Figs. 4 and 5. Fig. 7 is still another modification; and Fig. 8 is a detail view in section, showing the lock-hub and spindle fitting therein. Fig. 9 is still another modification. Fig. 10 is a detail view, in vertical section, of the lock-hub and spindle fitting therein; and Figs. 11, 12, and 13 are detail views showing further modifications to be hereinafter referred to.

In the said drawings, and referring more particularly to Figs. 1 and 2, 1 represents the hub of a lock-case, 2 the arm carried by the hub for operating the lock mechanism within the case, and 3 the spindle. In the ordinary form of locks the spindle is made to fit accurately and tightly within the hub, and when the lock-case is put in the door, as shown in Fig. 3, or the lock-case becomes inaccurate from any cause, the spindle will bind within the hub and cause the operation of the lock mechanism to be interfered with. This objection is overcome by providing a bearing-block 4 within the hub, which is formed with an oblong opening through which the spindle passes, and the block is itself inserted in a slot in the hub much larger than the block 4. By this construction it will be seen that the spindle can move in the hub in one direction, and as the slot in the hub is much larger than the bearing-block the spindle and the bearing-block can move in a direction at right angles to the first-mentioned direction, so that even in the position of the lock-case as shown in Fig. 3, or any other that the case may assume, the spindle can assume a position in which it can work freely.

In Figs. 4 and 5 I have shown my improvement applied to a different form of lock from that shown in Figs. 1 to 3. This form of hub is provided with the arms 5 and 6 for operating the lock mechanism, and the block 4 is inserted at the side of the lock and the opening therein is provided with rounded ends. It will be seen from these figures that though the form of the bearing-block is different from that shown in Figs. 1 and 2 the movement of the spindle in the block and the block in the hub is allowed.

In Fig. 6 I have shown still another arrangement by which the above-noted objections are overcome. In this figure I employ two bearing-blocks 7 and 8 instead of one, fixed against relative rotation to each other and to the hub. The spindle 3 fits snugly in the opening provided for it in the smaller block 8, which has a vibratory movement on its pivot-pins 8^a in one direction in the larger block 7, while the block 7 has a similar movement on its pivot-pins 9^a, though in a different direction to the first movement in the hub 2.

In the modification shown in Figs. 7 and 8 I omit the bearing-block, but provide the lock-hub 10 with a suitable opening 11, such as will permit the spindle 12 to have an angular movement therein. This arrangement will also permit of a free movement of the spindle, as in the other devices, in case the lock-casing 13 should become inaccurate in its fitting in the door.

It will be understood that the bearing-block is prevented from relative rotary movement within the hub in any form that may be preferred, the movements of the block or blocks being substantially a vibratory one. It will therefore be seen from the above constructions that the spindle can be moved in one direction in a bearing-block and the bearing-block in another direction in the hub, or, if desired, the spindle can be carried by a bearing-block moving in one direction within a second bearing-block which is allowed to move within the hub in another direction, so that the lock-case may assume widely-varying positions with relation to the door and to the spindle, but by reason of this double movement above referred to the movement of the spindle in operating the lock mechanism will be absolutely free.

In the form shown in Figs. 9 and 10 I provide the spindle 14 with the grooves 15, in which the rounded ends of pins 16, passed through openings 17 in the hub, fit. It will be seen that the opening in the lock-hub 18 through which the spindle passes is much larger than the spindle, so that the spindle can move in one direction on the pins 16, and it will also be seen that the pins 16 do not fit snugly in the grooves in the spindle. This will allow a movement of the spindle in a direction at right angles to the first mentioned, so that by this arrangement also the spindle can adjust itself in case the lock-case should become inaccurate in its fitting. The dotted lines in Fig. 10 are designed to show the arrangement when the spindle and opening are rectangular in cross-section.

Fig. 11 shows the idea of forming ribs or pins 20 on the spindle, which are designed to fit in grooves 21, formed in the lock-hub. In this form, as in the form shown in Figs. 9 and 10, the opening in the lock-hub and the grooves are made sufficiently large to permit the diametrical movement of the spindle.

The form shown in Figs. 12 and 13 is substantially the same as the form given in Figs. 9 and 10, except that in the form in Figs. 12 and 13 a single pin 22 is used instead of two. The arrangement of this pin and its fitting is such as to allow of the requisite movements to accommodate itself to any inaccuracy in the lock.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In combination with a lock-hub, a spindle movable diametrically in said hub, and fixed against relative rotary movement therein, substantially as and for the purpose set forth.

2. In combination with a lock, a spindle movable in two directions at right angles to each other and diametrically to said hub, and fixed against relative rotary movement in said hub, substantially as and for the purpose set forth.

3. As a new article of manufacture, a lock-hub provided with a movable bearing-block for the spindle, substantially as described.

4. In combination with a lock-hub, a bearing-block having motion relative to the hub-axis and another block carried by the first having motion relative to the axis of said first block, substantially as described.

5. In combination with a lock-hub, a spindle bearing-block, having motion relative to the axis of the hub, and a spindle having a bearing in said block which permits an angular motion of said spindle in said block, substantially as described.

6. In combination with a lock and its spindle, a lock-hub having a bearing elongated in one direction to permit the angular adjustment of the spindle, but fitting the spindle in the other direction to prevent relative rotary movement between them, as and for the purpose explained.

WARREN H. TAYLOR.

Witnesses:
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GEO. E. WHITE.