Feb. 18, 1936. R. W. GRIFFITH 2,031,159

ASSEMBLY TOOL FOR LOCK CYLINDERS

Filed April 8, 1935

Fig. 1.

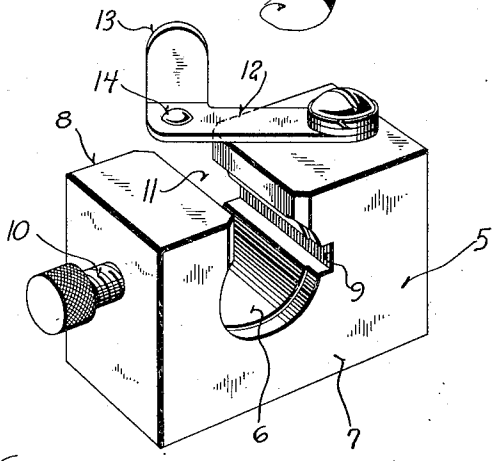


Fig. 2.

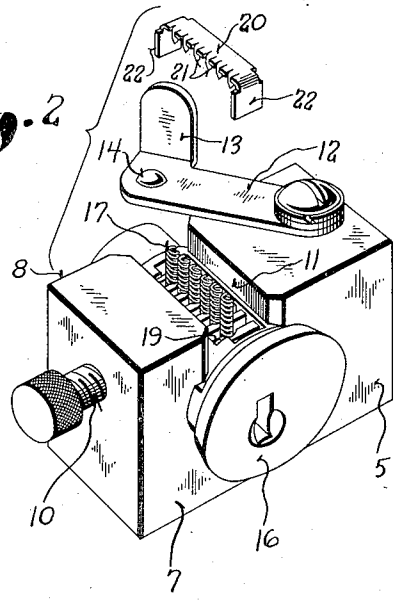


Fig. 3.

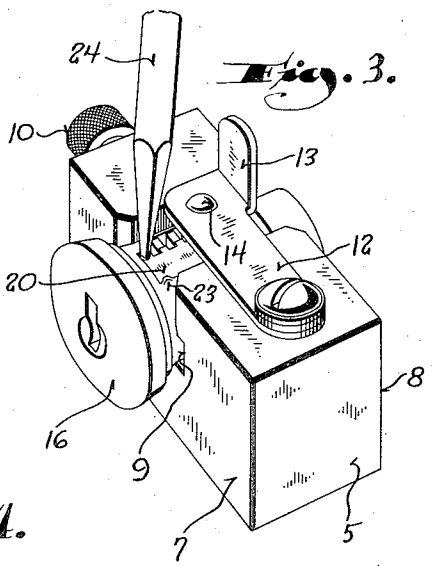
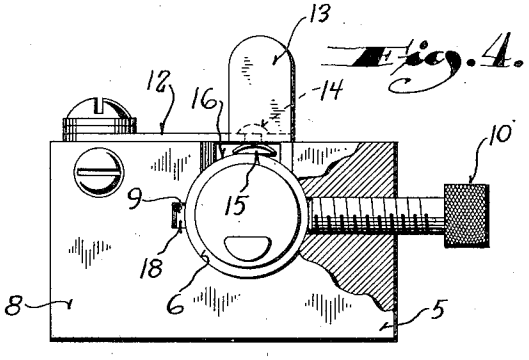


Fig. 4.



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ASSEMBLY TOOL FOR LOCK CYLINDERS

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5 Claims. (Cl. 29—89)

This invention relates to the manufacture and assembly of locks and refers more particularly to the assembly of lock cylinders.

It is an object of this invention to provide a simple tool to facilitate the assembling of tumblers in the cylinder to fit any given key change.

Another object of this invention is to provide a device for holding the cylinder during the assembling of the tumblers therewith and also checking the correctness of the combination of tumblers.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawing illustrates one complete example of the physical embodiment of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of the device;

Figure 2 is a perspective view of the device showing a partially assembled lock cylinder in place therein;

Figure 3 is a perspective view showing the cylinder properly assembled and the manner in which the tumblers are secured in position; and

Figure 4 is an end view with parts broken away and in section to show how the cylinder is held in place in the tool.

Referring now more particularly to the accompanying drawing in which like numerals indicate like parts throughout the several views, the numeral 5 designates the body of the tool which comprises substantially a solid rectangular block preferably formed of metal and having a bore 6 extending therethrough from its front face 7 to its rear face 8. A longitudinal groove 9 is formed in one side of the bore, and diametrically opposite the groove 9 is a set screw 10 threaded in the block with its inner end projectible into the bore 6.

The top of the block has a slot 11 breaking through the upper portion of the bore 6 to provide access to the bore from the top of the tool. Pivotally mounted on the top face of the block is an arm 12, the free end of which is positionable over the slot 11, and to facilitate swinging the arm to and from its position disposed over the slot 11, its outer extremity is bent up to form a handle portion 13.

The free end of the arm 12 also has a rivet 14 fixed thereto, the head of which is lowermost and shaped to form a shoe 15 curved transversely with respect to the arm for a purpose to be hereinafter more fully described.

The bore 6 is of such size as to snugly receive a lock cylinder 16 which is inserted therein from its front end after the required tumblers (not shown) and tumbler springs 17 are assembled with the cylinder. The lock for which this tool is designed is of the type shown in Patent No. 1,965,336 issued to John W. Fitzgerald on July 3rd, 1934. In this lock the key operable tumblers do not project from the cylinder, but control a locking bar 18 which is projectible from the side of the cylinder.

In assembling the lock, the tumblers are inserted in the usual pockets 19 formed in the cylinder and springs 17 are disposed over the tumblers. To hold the tumblers and springs in the cylinder, a retainer bar 20 is secured to the cylinder. This retainer, as shown in Figure 2, has a plurality of prongs or tines 21 which engage in the outer ends of the springs and its ends 22 are turned downwardly to be received in suitable pockets or recesses formed in the cylinder. Staking over a portion of the cylinder, as at 23 (see Figure 3) holds the retainer bar in place.

As is well known, tumbler locks are arranged in accordance with code numbers which represent different combinations or key changes. In the lock to which this invention is directed, the codes consist of numerals representing the tumbler positions, that is, the positions of the tumblers in the cylinder, and letters representing the tumbler depths. Each letter indicates a tumbler cut to a definite depth, and to identify the different tumblers they are furnished in different colors, a color being provided for each depth. The colors used are copper, black, nickel and yellow, and the letters C, B, N and Y are used in the code designations to represent these respective tumbler depths.

To adapt a lock cylinder to a particular key change, the different colored tumblers are selected in accordance with the combination as represented by the code designations and are dropped into the tumbler receiving pockets or recesses 19 of the cylinder in proper sequnce as determined by reference to the code designation. After all the tumblers are properly assembled with the cylinder, one tumbler spring is positioned above each tumbler. Then with the tum-

blers and their springs in position, the retainer bar **20** is applied, care being taken that its six prongs or tines **21** each slip into one of the springs.

The retainer bar is then pressed down and held in position while the cylinder is inserted into the bore **6**.

After being placed in the tool with the retainer **20** uppermost and the locking bar **18** in line with the groove **9**, the lever **12** is swung over the open slot **11** which causes the shoe **15** on its outer extremity to ride up onto the retainer **20** and hold the same in place. With the lock cylinder thus disposed in the bore **6**, the correctness of the combination is checked by inserting the proper key into the cylinder and rotating the cylinder. If the cylinder is properly set up, it will turn, otherwise the bar **18** will not be released and the cylinder cannot be rotated in which case the cylinder must be removed and the tumblers reset in their proper sequence. If the cylinder rotates during the checking it is returned to its original position and the key withdrawn.

The set screw **10** is then tightened to securely hold the cylinder in place and with the cylinder thus secured in the bore, the retainer is secured in place by staking over the portions **23** of the cylinder through the medium of a staking tool **24** in the manner shown in Figure 3. With the retainer **20** properly secured in position in this manner, the set screw is released and the cylinder removed from the bore **6**.

From the foregoing description taken in connection with the accompanying drawing, it will be readily apparent to those skilled in the art to which this invention appertains, that the tool of this invention greatly facilitates the correct assembling of tumblers in lock cylinders and that it has the advantage of not only holding the cylinder while the tumblers are secured in place, but also affords means for checking the combination.

What I claim as my invention is:

1. A tool of the character described comprising a block having a bore adapted to receive a lock cylinder and having a slot opening into the bore from one face of the block, means for holding a cylinder inserted into the bore in a position with its tumblers accessible through said open slot, and means carried by the block and movable to a position disposed over the open slot to hold the tumblers of the cylinder in place.

2. A tool for use in assembling lock cylinders having tumblers insertable into open pockets in the cylinder and held in place by a retainer securable to the cylinder, comprising a block having a bore to receive the cylinder and having an open slot communicating with the bore to align with the open pockets and tumbler retainer of a cylinder in place in the bore, and means carried by the block and positionable over the open slot to hold the retainer in place while said retainer is being secured to the cylinder.

3. A tool to facilitate the proper assembling of lock cylinders of the type in which a locking bar is projectable from the side of the cylinder by the tumblers and in which the tumblers are inserted into open pockets in the cylinder and held in place by a retainer bar carried by the cylinder, comprising a block having a bore to snugly receive the cylinder and having a groove communicating with the bore to receive the locking bar of the cylinder and an open slot communicating with the cylinder at a point to align with the open ends of the tumbler pockets in the cylinder and the tumbler retainer when the cylinder is in position in the bore with its locking bar aligned with the groove, and means carried by the block and positionable over the open slot to hold the retainer bar in place so as to permit checking the lock by insertion of a proper key into the cylinder and turning the same and to facilitate securing the retainer bar to the cylinder.

4. A tool of the character described comprising a block of metal having a bore transversely therethrough and having an open slot breaking into the top of the bore, a lever pivoted to the top of the block with its outer extremity positionable across the open slot, and a shoe carried by the extremity of the lever and adapted to be disposed in the slot to substantially bridge the slot at one point with the lower surface of the shoe substantially in line with the circumference of the bore when the lever is swung to its position having its free end disposed across the slot.

5. A tool of the character described comprising a block having a bore transversely therethrough and having an open slot breaking into the the top of the bore from the top face of the block and also having a groove opening to the bore and disposed substantially at right angles to the open slot, a set screw threaded in the block with its end projectable into the bore to hold an article in the bore, and an arm pivoted to the top face of the block and swingable to a position with its free end across the open slot to partially close the slot.

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