

No. 733,163.

PATENTED JULY 7, 1903.

N. W. CRANDALL
LOCK.

APPLICATION FILED APR. 16, 1903.

NO MODEL.

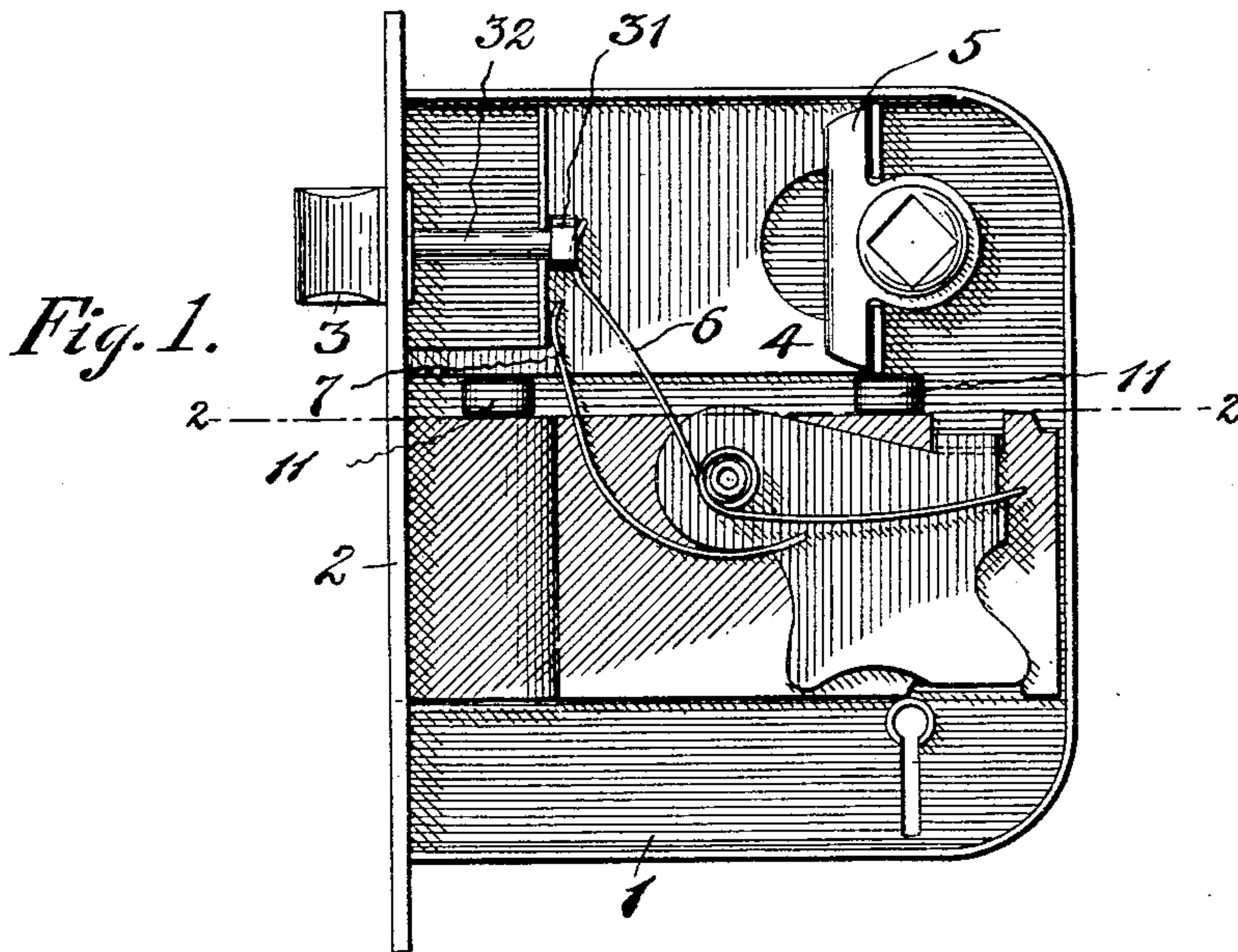


Fig. 2.

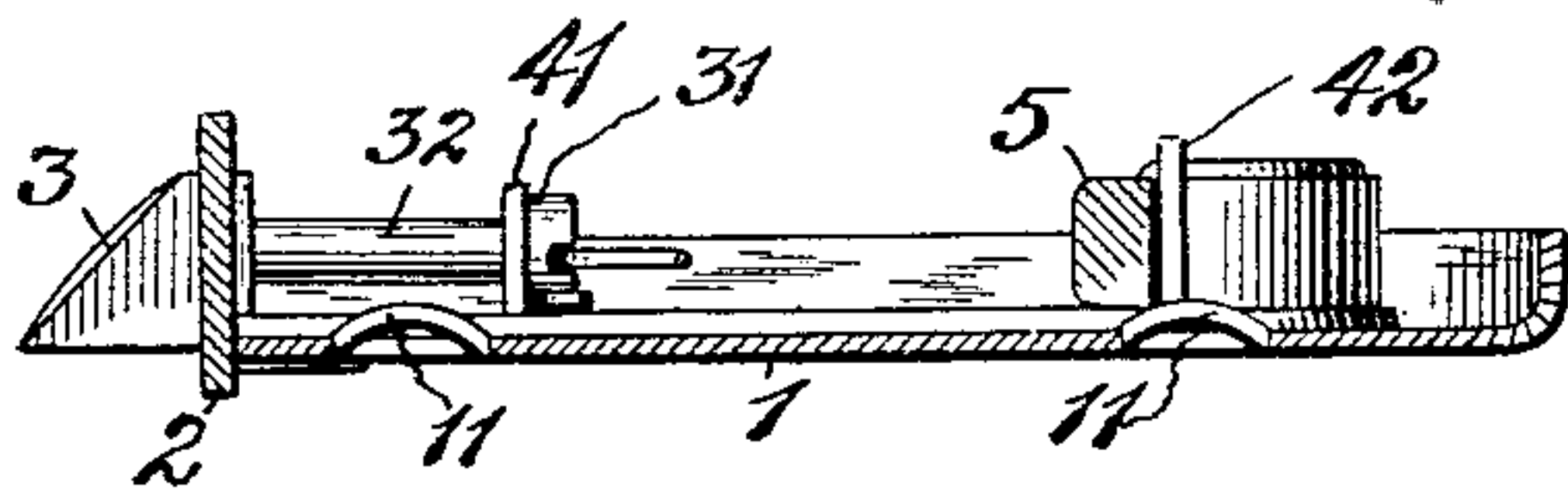


Fig. 3.

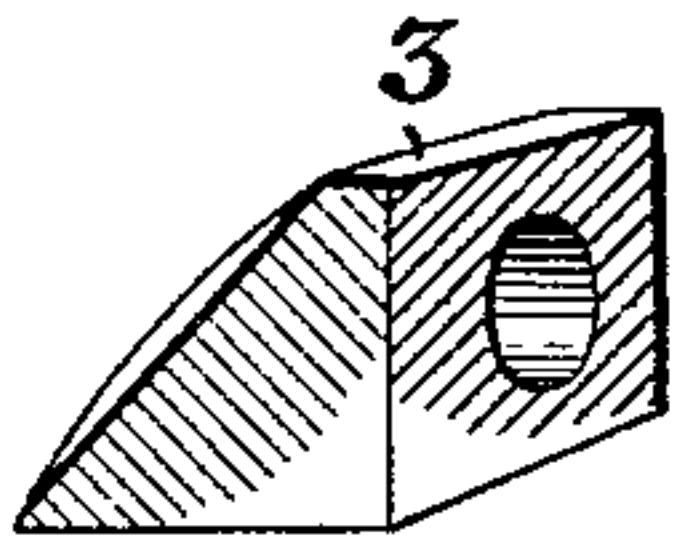


Fig. 4.

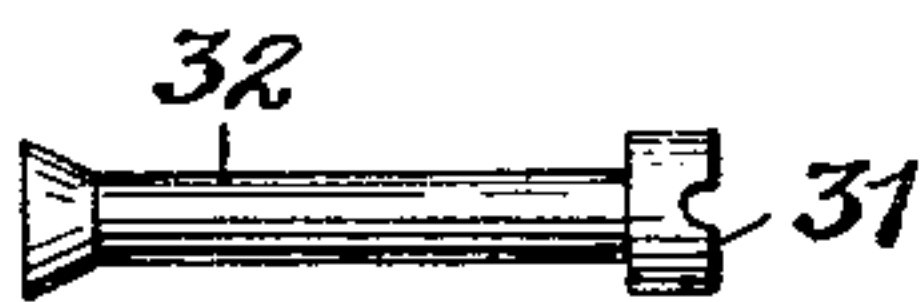
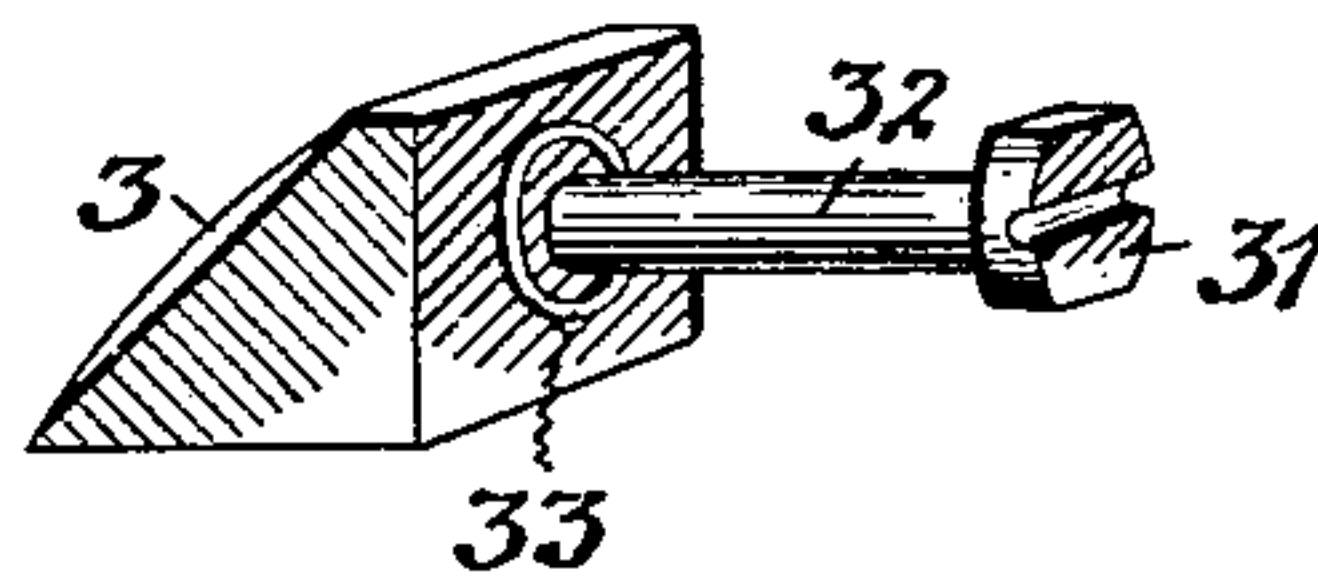


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

NATHAN W. CRANDALL, OF MERIDEN, CONNECTICUT, ASSIGNOR TO
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LOCK.

SPECIFICATION forming part of Letters Patent No. 733,163, dated July 7, 1903.

Application filed April 16, 1903. Serial No. 152,833. (No model.)

To all whom it may concern:

Be it known that I, NATHAN W. CRANDALL, a citizen of the United States, residing at New Haven, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Door-Locks, of which the following is a full, clear, and exact description.

My invention relates to improvements in sheet-metal-lock cases, the objects being to cheapen the construction and improve the efficiency thereof.

The invention has particular reference to the economical production of a lock; and it consists in providing therein the features of construction hereinafter set forth.

In the accompanying drawings, Figure 1 is an elevation of a door lock and latch, the cover-plate being removed. Fig. 2 is a section on the line 2 2, Fig. 1, looking upward. Figs. 3 and 4 are relatively enlarged details of construction. Fig. 5 is a perspective view of the details shown in Figs. 3 and 4 assembled.

1 is a section of a lock-case. The cover-plate therefor corresponds in outline substantially thereto, but in the drawings is removed to illustrate the internal mechanism.

2 is the end plate.

3 is the latch.

4 is the latch-slide, having a slotted shoulder 41 arranged to receive the head 31 of the latch extension 32.

5 is the hub roll-back, engaging with shoulders 42 on the latch-slide.

11 11 are bosses or bearings formed integrally with the lock-case 1 and forced inwardly, as best seen in Fig. 2, adjacent to the lower edge of the slide 4. The slide 4 is guided at its upper edge by the upper wall of the lock-case 1 and at its lower edge by the integral bearings 11 11. When the knob-spindle is inserted in the hub, it is apparent that by rotating the same the roll-back withdraws the slide 4 and retracts the latch 3. When the knob-spindle is released, a spring 6, which may be conveniently arranged within the case, returns the latch 3 to its normal operative position.

In locks of this character it is usual to provide a supplementary spring—for example, the spring 7.

It is unnecessary to describe the other details of the lock shown in the drawings, since they constitute no part of this invention.

The latch 3 is specially formed with reference to the extension 32 in that said latch 3 may be made of wrought metal and provided with a hole or cavity sufficiently large to receive the enlarged or upset end of the extension 32. This is best seen in Figs. 3 and 4. To assemble these parts, the enlarged or upset end of the extension 32 is inserted in the hole in the latch, and then by means of a suitable tool the metal of the latch adjacent to said opening is indented and forced in around the shank of the extension 32, so as to overstand the upset end. This is best seen in Fig. 5. In the preferred form a tool is used adapted to form an annular groove 33. This tool should have an opening sufficiently large to slide over the head 31 of the extension 32, after which it is brought into contact with the metal of the latch 3, forming the annular cut or incision, displacing the metal and forcing the same in around the shank 32 and over the upset end thereof. In this way great economies are attained and I am permitted to employ wrought metal throughout the durability of which is vastly superior to the cast metal usually employed for this purpose.

The integral bearing-pieces for the latch-slide, which are struck up from the latch-case, may be provided in any desired number and substantially cheapen the construction and improve the efficiency of the article. By this method the expensive process of specially forming the bearings of separate pieces of metal and riveting them by a separate operation to the lock-case are entirely avoided. In the form where separate pieces are employed it will be seen that not only is it necessary to employ more metal than is actually necessary and to shape the same properly, but it also requires the special handling of rivets at added cost of material and labor in producing an efficient device.

What I claim is—

1. The herein-described sheet-metal lock-case having latch-slide bearings swaged or

struck up from one of the plates of said case to form inwardly-projecting integral bosses, said bosses being connected at each end to said case-plate, substantially as described
5 and for the purpose specified.

2. The herein-described improvement in locks and latches comprising a latch formed of wrought metal, an extension therefrom formed of a separate piece of wrought metal,
10 the end of said extension being upset and ex-

tending into an opening in said latch, the metal of said latch adjacent to said opening being displaced and forced into contact with said extension around the upset end thereof.

Signed at New Britain, Connecticut, this 15
14th day of April, 1903.

NATHAN W. CRANDALL.

Witnesses:

M. S. WIARD,

W. E. WIGHTMAN.