

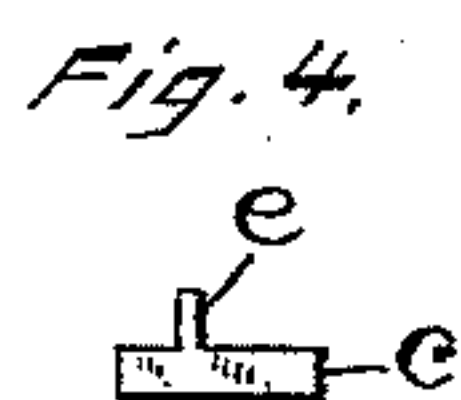
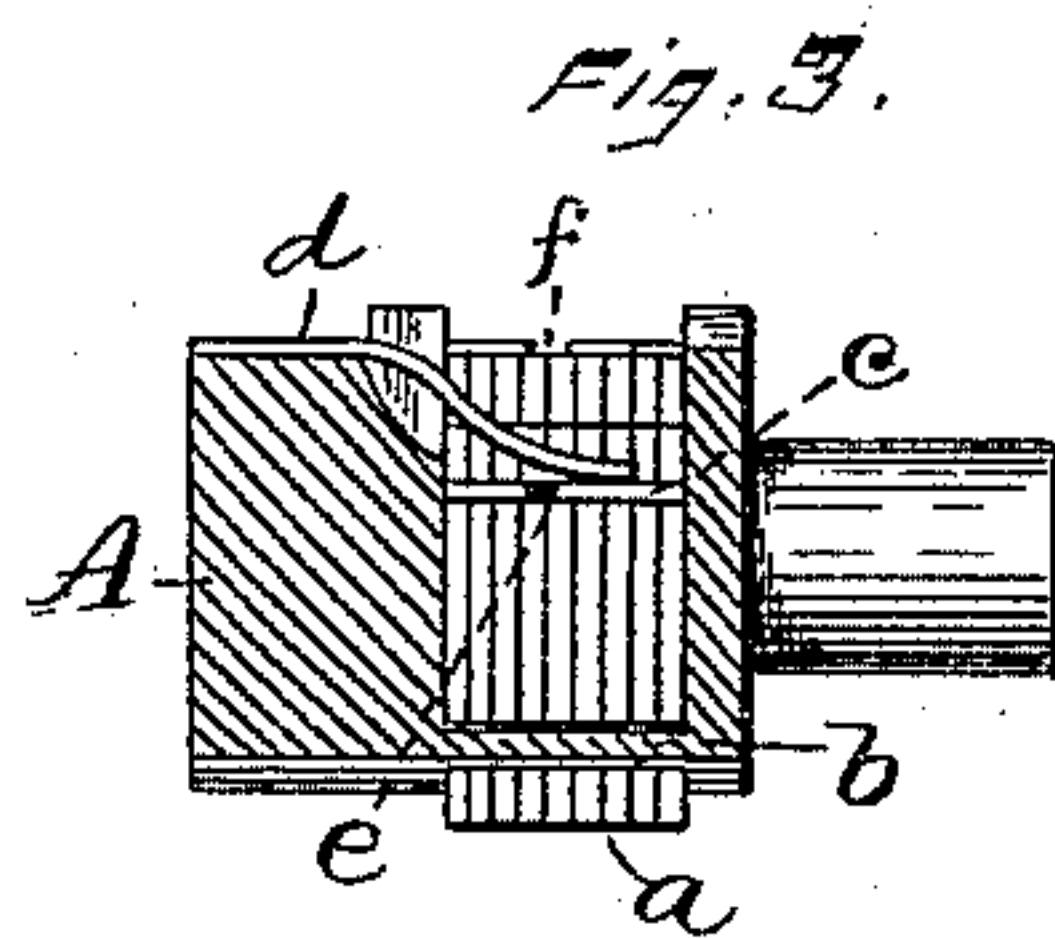
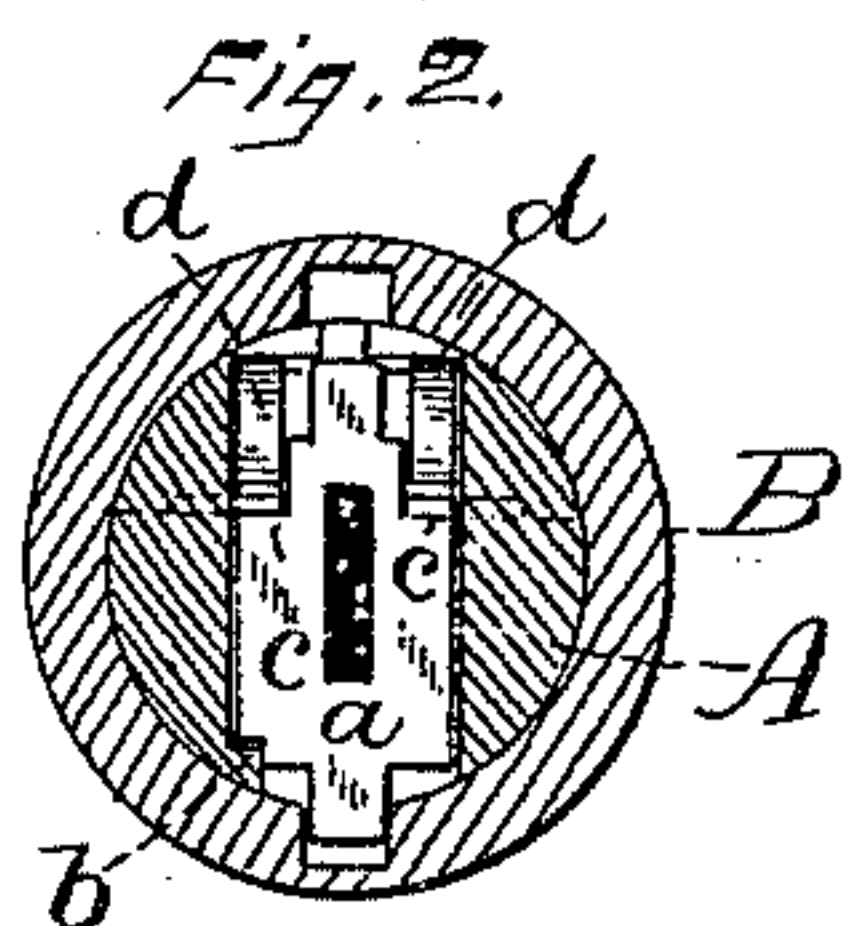
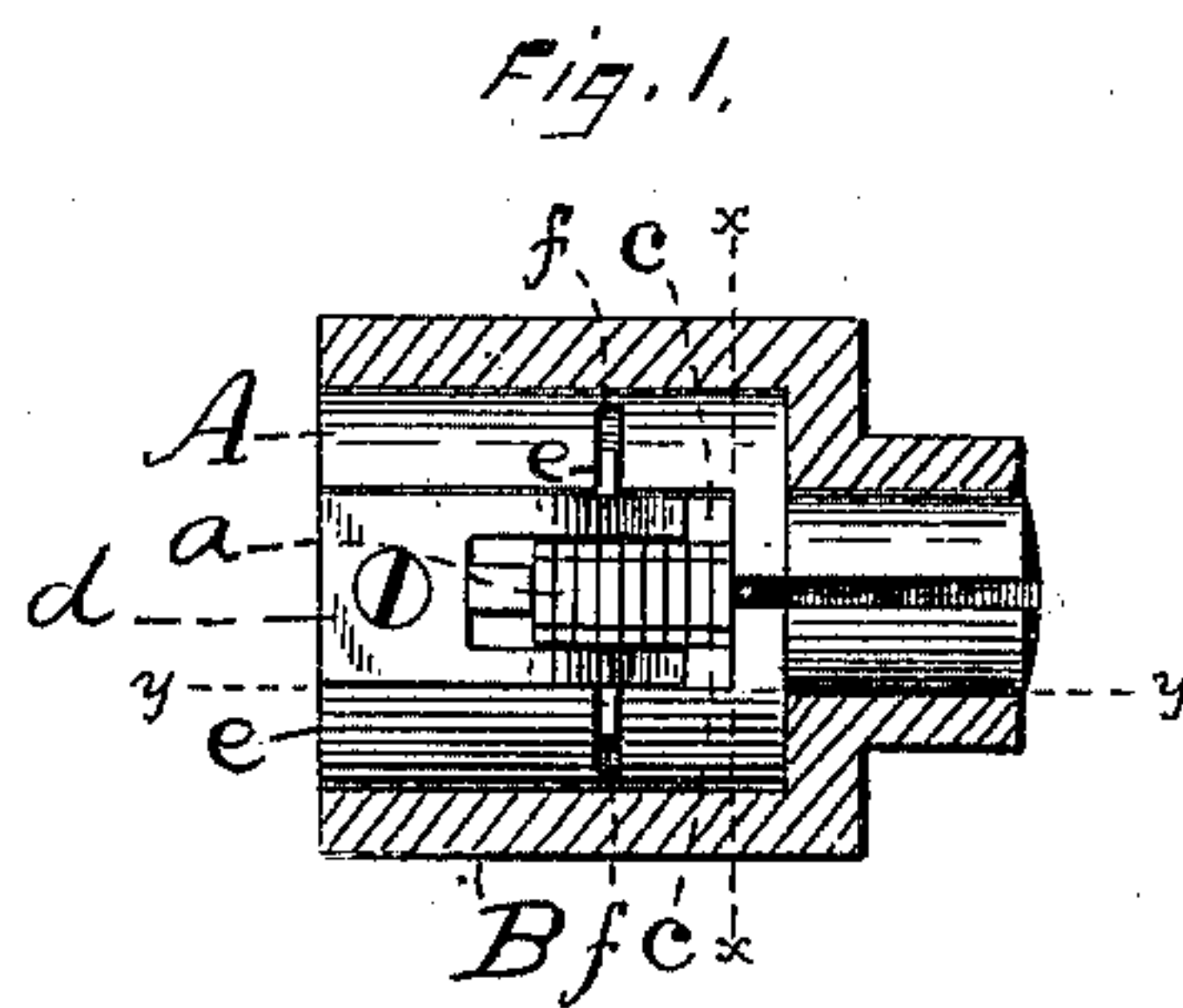
(No Model.)

W. D. SPENCER.

LOCK.

No. 335,648.

Patented Feb. 9, 1886.



Witnesses.

John Edwards Jr.
William Killam

Inventor,

William D. Spencer.

By James Shepard Atty.

UNITED STATES PATENT OFFICE.

WILLIAM D. SPENCER, OF MIDDLETOWN, ASSIGNOR TO THE RUSSELL & ERWIN MANUFACTURING COMPANY, OF NEW BRITAIN, CONNECTICUT.

LOCK.

SPECIFICATION forming part of Letters Patent No. 335,648, dated February 9, 1886.

Application filed June 27, 1885. Serial No. 169,942. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. SPENCER, of Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to improvements in that class of locks which contain a series or set of transverse tumblers arranged in a revolving cylinder, and adapted to lock said cylinder by engagement of the ends of the tumblers with the surrounding case of said cylinder, the same being generally known under the name of "cylinder-locks."

In the accompanying drawings, Figure 1 is a plan view of the main parts of my lock, with a horizontal section of the case which incloses the cylinder. Fig. 2 is a transverse section of the same on line *xx* of Fig. 1. Fig. 3 is a longitudinal section of the same without the case, the plane of section being indicated by line *yy* of Fig. 1; and Fig. 4 is a plan view of the tumbler-shoe.

This class of locks is so well known that I consider it unnecessary to represent the bolt-work of the lock and its connection with the tumbler-cylinder A and its case B. The cylinder A has the ordinary longitudinal slot for the reception of a flat key. It is also slotted through transversely to its axis, and a series or set of flat tumblers, *a*, is placed within said slot. These tumblers, as in other locks of this class, are of a length corresponding to the diameter of the cylinder, so that they may be held with their ends flush with the periphery of the cylinder; but when not so held one of their ends will project into one of the notches in the case B and lock the cylinder against rotation.

The general form of the tumblers is shown in Fig. 2. The lower left-hand corner engages a shoulder or rib, *b*, within the slot in the cylinder, and limits the downward movement of the tumblers. Said tumblers are also provided with a key-hole, so that they may be lifted by the edge of a properly-bitted key, as in other locks of this class. At the upper end of the tumblers shoulders are formed on both sides, and plates (which I term the "tumbler-shoes") *c* are placed over said shoulders, said plates being long enough to

extend over the entire set of tumblers. A spring, *d*, is secured to the cylinder, with its ends resting upon the respective tumbler-shoes, with a constant tendency to press said shoes against the shoulders of the tumblers, and thereby properly press the tumblers in the opposite direction from that in which they are moved by the key, the one double spring serving to thus press all of the tumblers.

In order to prevent the tumbler-shoes from working endwise so far as to bind either end against either wall of the slot within which they work, I provide each shoe with a side lug, *e*, and let said lug into a slot, *f*, Figs. 1 and 2, in the cylinder. This allows the shoe free play to rock or move up and down as the tumblers are successively moved by the key, and at the same time prevents the shoe from moving endwise.

I prefer to employ a double spring, two shoes, and shoulders upon both sides of the tumblers; but the shoe and spring may, if desired, be applied to tumblers having only one set of shoulders or bearing-surface for a single shoe to act upon.

The terms "lower," "downward," "upward," and "lifted," as herein used, refer to the lock when it is in the position illustrated in Figs. 2 and 3.

I am aware that sheet-metal tumblers have been heretofore employed in "pin tumbler locks," and that they are pressed in one direction by springs when so used, and I hereby disclaim the same.

I am also aware that the patent to Winn, No. 151,461, May 26, 1874, shows a lock having tumblers which move longitudinally in a lengthwise direction of the cylinder, a block or follower arranged in guides so as to prevent rocking, and a single spring, common to all the tumblers, bearing upon said block, and I hereby disclaim the same.

By my invention I am enabled to make the shoe rock and press against all of the tumblers, so that the spring (whether it is double or single) serves as a common spring for a whole set of tumblers, and I am also enabled to place the tumblers side by side in direct contact with each other, there being no necessity for any intervening portion, and thereby I can make a lock with a given number of

tumblers in a shorter cylinder than can be employed in prior locks having a separate spring for each tumbler.

I claim as my invention—

5 1. In a lock of the class described, the combination of the tumbler-shoe having the side projection, the set of tumblers upon which said shoe rests, a spring bearing upon the shoe, and the cylinder having a slot to receive said
10 side projection, substantially as described, and for the purpose specified.

2. In a lock of the class described, the combination of the cylinder having a transverse slot, a set of tumblers lying side by side within said slot, a rocking shoe bearing upon all 15 of said tumblers, and a spring bearing upon said shoe, substantially as described, and for the purpose specified.

WM. D. SPENCER.

Witnesses:

THOS. S. BISHOP,
M. S. WIARD.