

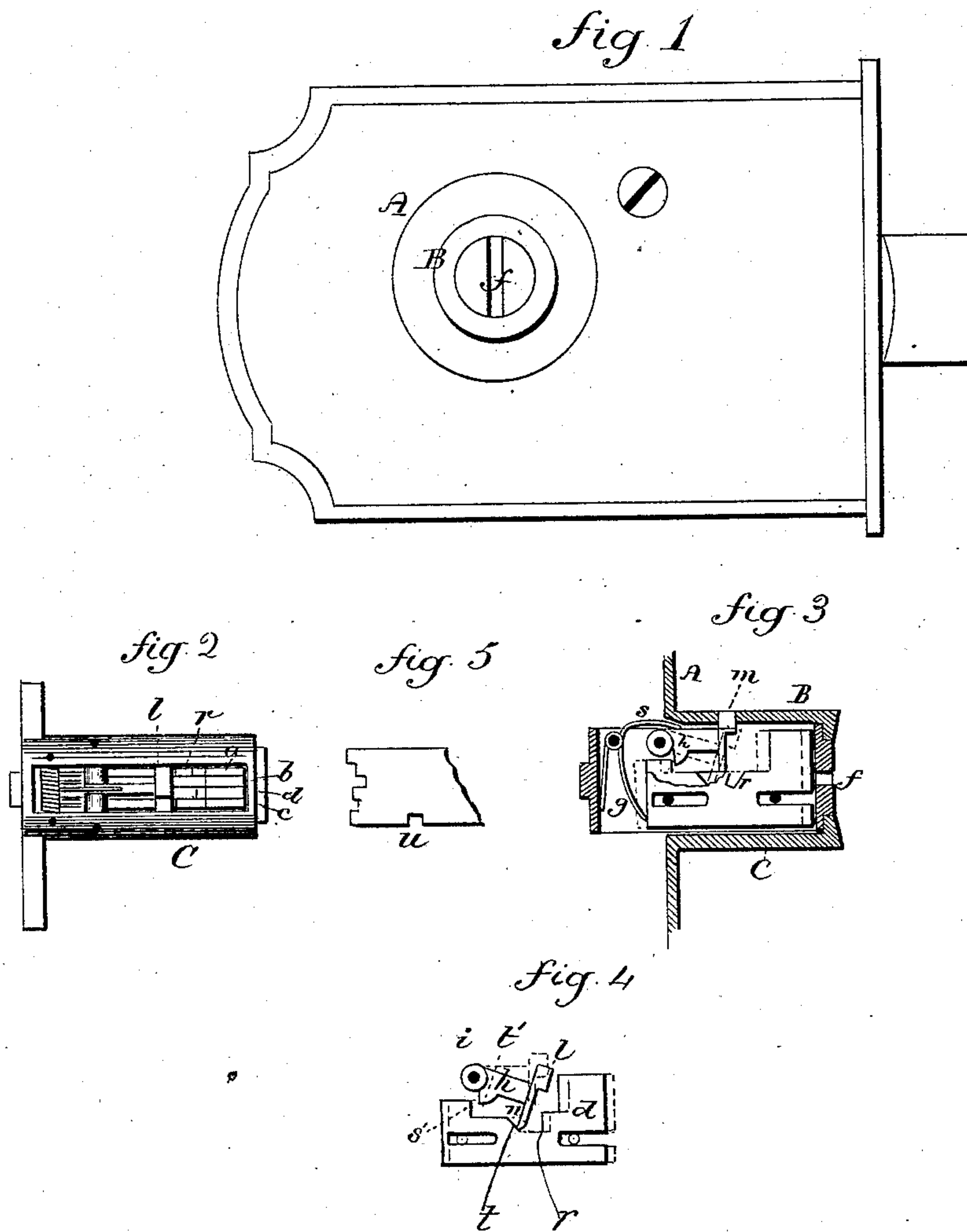
(Model.)

J. H. BARNES.

CYLINDER LOCK.

No. 285,207.

Patented Sept. 18, 1883.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## CYLINDER-LOCK.

SPECIFICATION forming part of Letters Patent No. 285,207, dated September 18, 1883.

Application filed June 30, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, JOHN H. BARNES, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Cylinder-Locks; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a face view of the lock, showing the key-hole end of the cylinder; Fig. 2, a top view of the cylinder removed from its shell; Fig. 3, a longitudinal section through the cylinder and shell; Fig. 4, a side view of the dog and tumbler which operates to throw the dog into its locked position; Fig. 5, the bit end of the key.

This invention relates to an improvement in that class of locks in which the tumblers are arranged longitudinally in a cylinder, and so as to move in planes parallel with the axis of the cylinder, and which are operated by a flat key having the bit at the end of the key, the key introduced in a plane with the axis of the cylinder and transversely across the tumblers, the shoulder of the bit striking the ends of the respective tumblers, so that said tumblers will be forced inward to a certain predetermined point where the locking engagement will be released and permit the tumblers and cylinder to be turned to operate the lock mechanism, and commonly called "cylinder-locks," the object of the invention being to cause one of the tumblers to operate automatically to force the locking device in the cylinder outward and into engagement with the case which contains the cylinder; and it consists in the construction as hereinafter described, and more particularly recited in the claims.

A represents the one plate of the lock, from which a tubular shell, B, projects, and within which tubular shell the cylinder C is arranged, and so as to be rotated within the shell B in the usual manner of tubular locks. In a longitudinal recess in the cylinder the several tumblers (here represented as four, *a b d e*) are arranged, so that in their normal condition they stand forward, their front ends in the

same plane, and across the key-hole *f*. This key-hole is a flat slot diametrically across the end of the cylinder. Each of the tumblers is provided with a spring, *g*, the tendency of which is to force the tumblers toward the key-hole, but so as to yield when the key is inserted and permit the tumblers to be forced inward. In the cylinder over the tumblers a dog, *h*, is hung upon a pivot, *i*. The nose of the dog *h* stands in the annular line of a notch or hole, *m*, in the shell, and so that when the nose of the dog is thrown outward, as in Fig. 3, at the proper time it enters the hole *m* in the shell, and serves as a bolt to prevent the turning of the cylinder which carries the tumblers. Upon the under side of the dog is an arm, *n*, which rides upon the upper surface of the tumblers, and when the tumblers are pushed inward so as to bring the several notches *r* into line beneath the arm *n*, the dog will be forced downward by the action of a spring, *s*, the arm *n* entering the notches in the several tumblers, and so as to drop entirely within the cylinder and disengage it from the shell B, so that the cylinder may be turned to operate the lock-work which is in the usual connection therewith. One of the tumblers—say *d*, (see Fig. 4)—has the rear side of its notch inclined backward, as at *t*. The spring which operates this tumbler is of greater power than that of the spring *s*, which forces the dog downward.

In Fig. 4 the tumbler *d* is represented as forced inward with the dog dropped, the arm *n* resting in the notch and against the incline *t*. Then when the key is withdrawn the power of the spring on the tumbler *d* will force it forward, and its shoulder *t* will raise the dog, as seen in broken lines, Fig. 4, into its locking position in the hole *m* in the shell. Then the other tumblers are free to move forward under the power of their own springs, and as the tumblers pass forward the upper surface in rear of the respective notches comes beneath the arm *n* and holds the dog in its locked position, from which it cannot be removed until the tumblers are all pressed inward to bring their notches again into line with the arm *n*. By this construction the cylinder is locked whenever the key is removed, it being under-



stood that the key is held within the lock by a notch, *u*, in the edge of the key, as seen in Fig. 5, in the usual manner of this class of latches, until the cylinder has been turned to  
 5 a certain predetermined position, and which is that of being locked, and as soon as the key is withdrawn the one tumbler forces the bolt into its locked position, and permits the other tumblers to move freely forward.

10 While I prefer to employ the springs to operate upon the dog to throw it into its unlocked position, that may be dispensed with, and the dog permitted to fall of its own gravity, in which case it will be necessary that the  
 15 locking position of the dog be when the said dog stands in a vertical plane and at the top of the cylinder.

I have represented the dog as raised by an incline on the tumbler; but instead of this in-  
 20 cline it may be a shoulder, *s'*, with a corresponding shoulder, *t'*, on the dog near the hub, so that as the tumbler advances the shoulder *s'* will strike the shoulder *t'* and turn up the dog.

25 I claim—

1. The herein-described improvement in cylinder-locks, consisting of the several tumblers arranged longitudinally in the cylinder, each provided with its independent spring op-  
 30 erating to force the tumblers forward into their horizontal position, the dog *h*, hung in the cylinder, constructed with its nose *l* to enter a corresponding hole, *m*, in the shell, and with the arm *n* on its back to ride upon

the tumblers and fall into the notches of the 35 tumblers when said tumblers are by the insertion of the key brought to the proper position, one of said tumblers constructed with a shoulder, and the dog with a corresponding pro-  
 40 jection, whereby the forward movement of the said one tumbler will force the dog into its locking position, substantially as described.

2. The herein-described improvement in cylinder-locks, consisting of the several tumblers arranged longitudinally in the cylinder, 45 each provided with its independent spring operating to force the tumblers forward into their horizontal position, the dog *h* hung in the cylinder, constructed with its nose *l* to enter a corresponding hole, *m*, in the shell, 50 and with the arm *n* on its back to ride upon the tumblers and fall into the notches of the tumblers when said tumblers are by the insertion of the key brought to the proper position, one of said tumblers constructed with a 55 shoulder, and the dog with a corresponding projection, whereby the forward movement of the said tumbler will force the dog into its locking position, with a spring, *s*, acting upon  
 60 said dog to turn it to its unlocked position, the power of said spring being less than the spring which actuates the tumbler, substantially as described.

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Witnesses:

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