

(No Model.)

2 Sheets—Sheet 1.

W. H. TAYLOR.
LOCK.

No. 474,783.

Patented May 10, 1892.

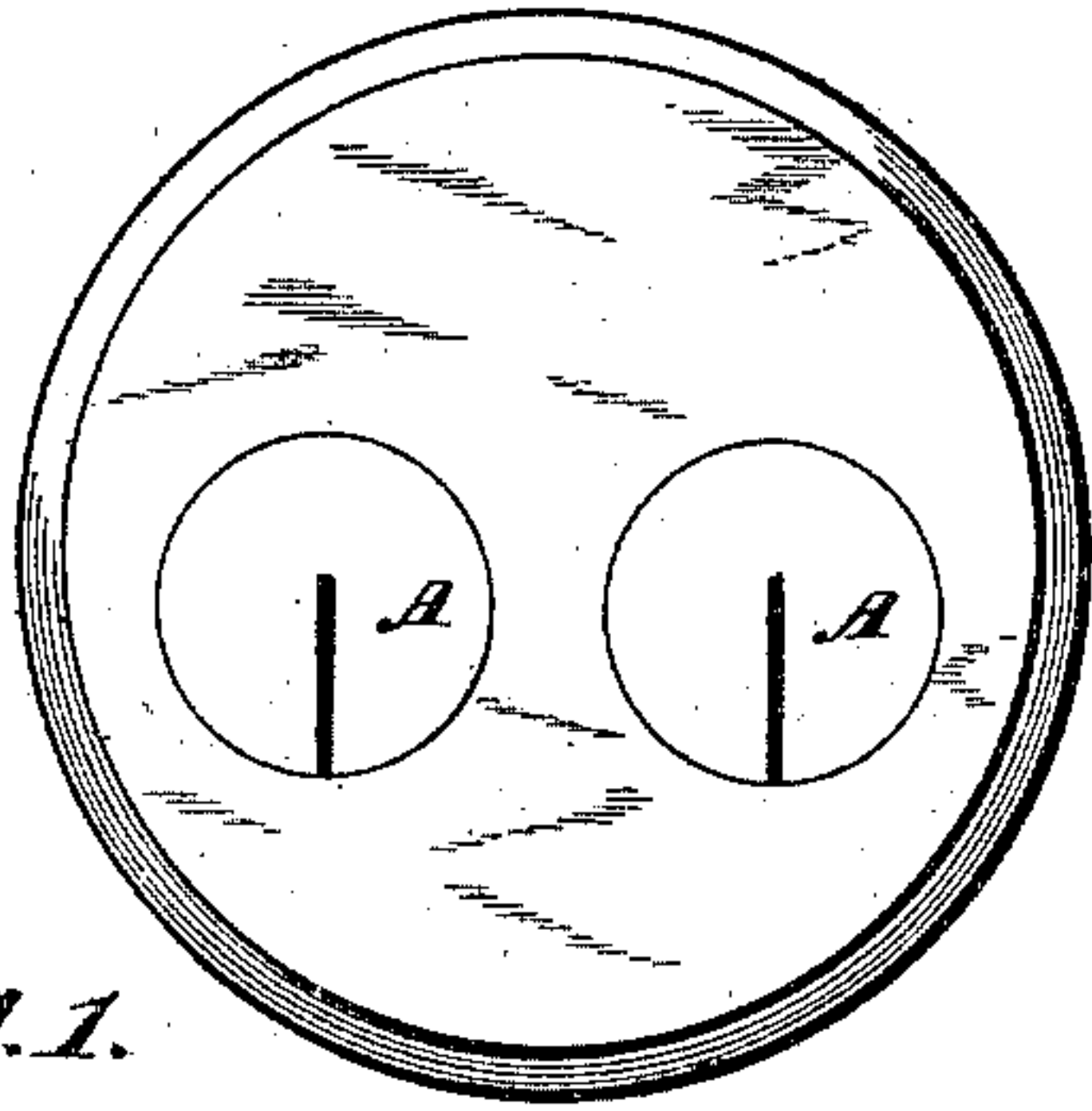


Fig. 1.

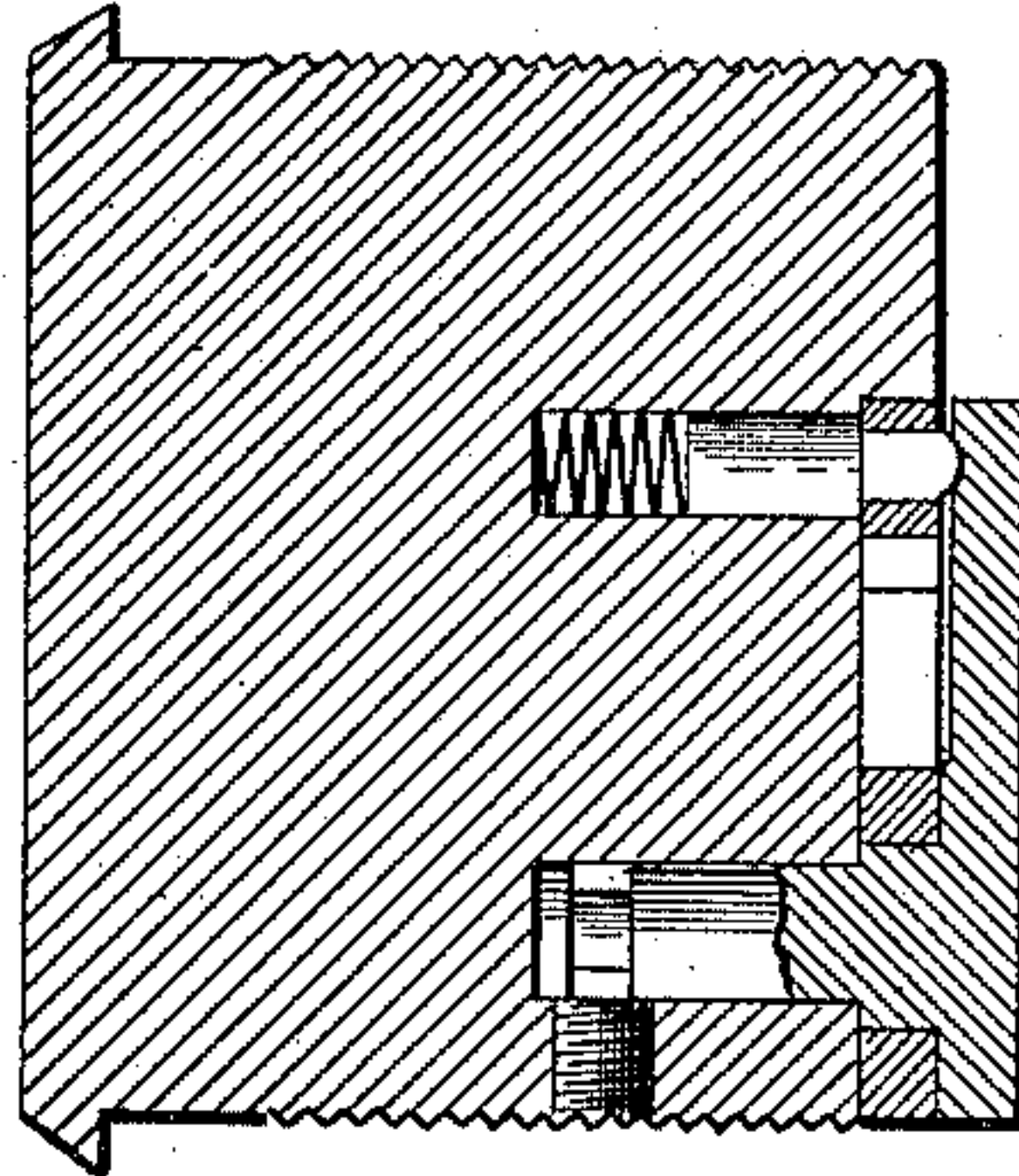


Fig. 2.

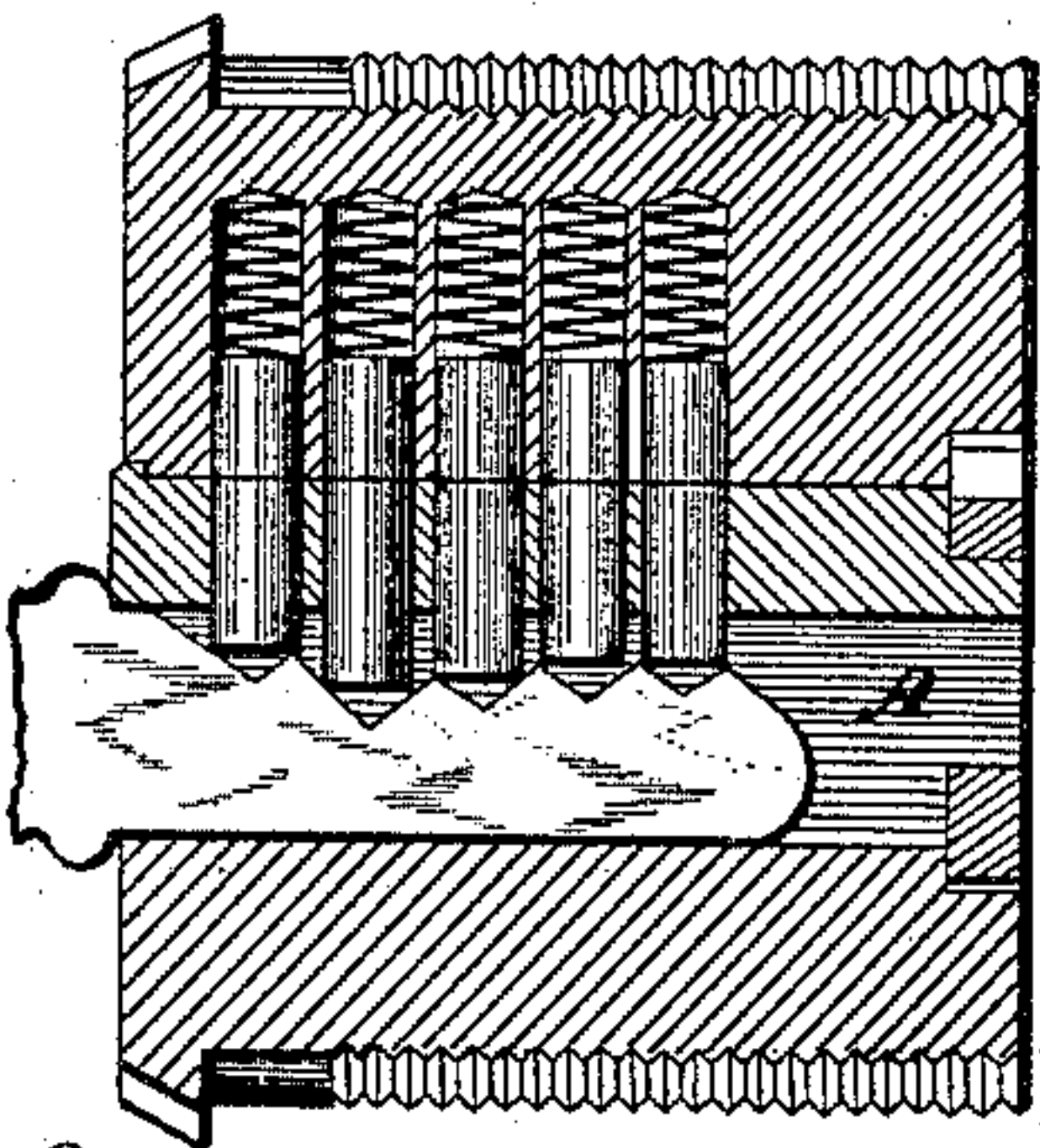


Fig. 3.

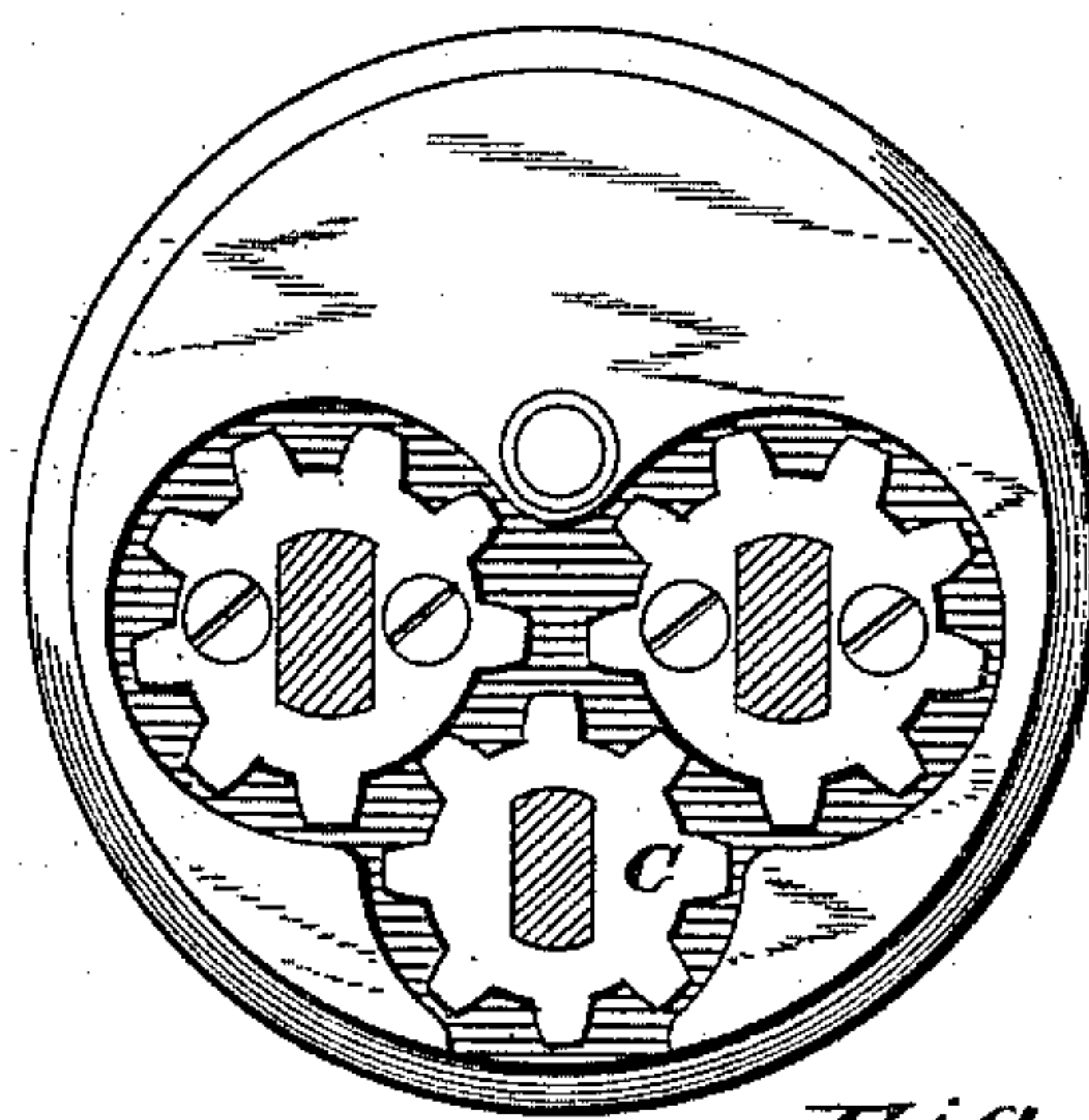


Fig. 4.

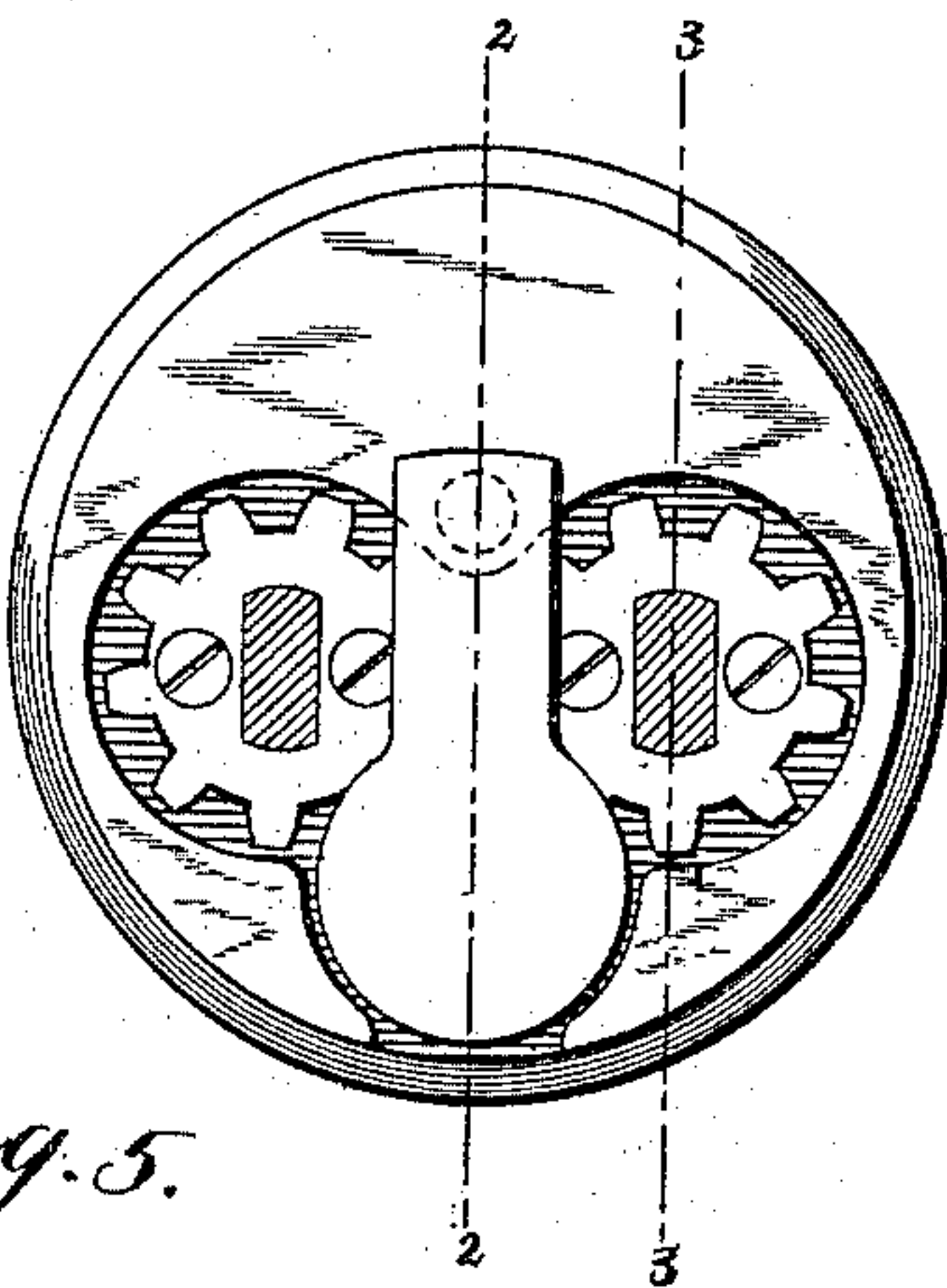


Fig. 5.

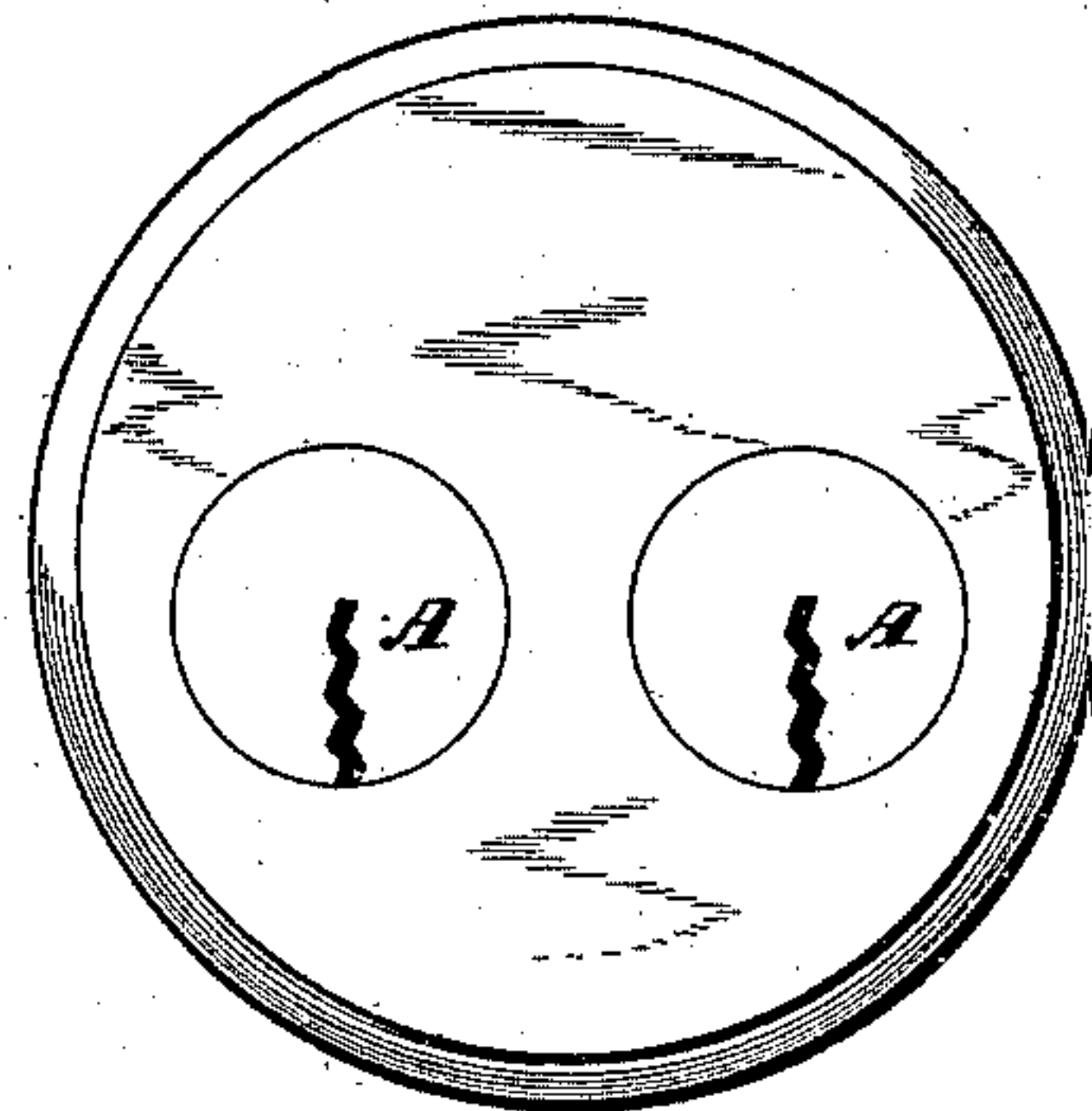


Fig. 6.

Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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No. 474,783.

Patented May 10, 1892.

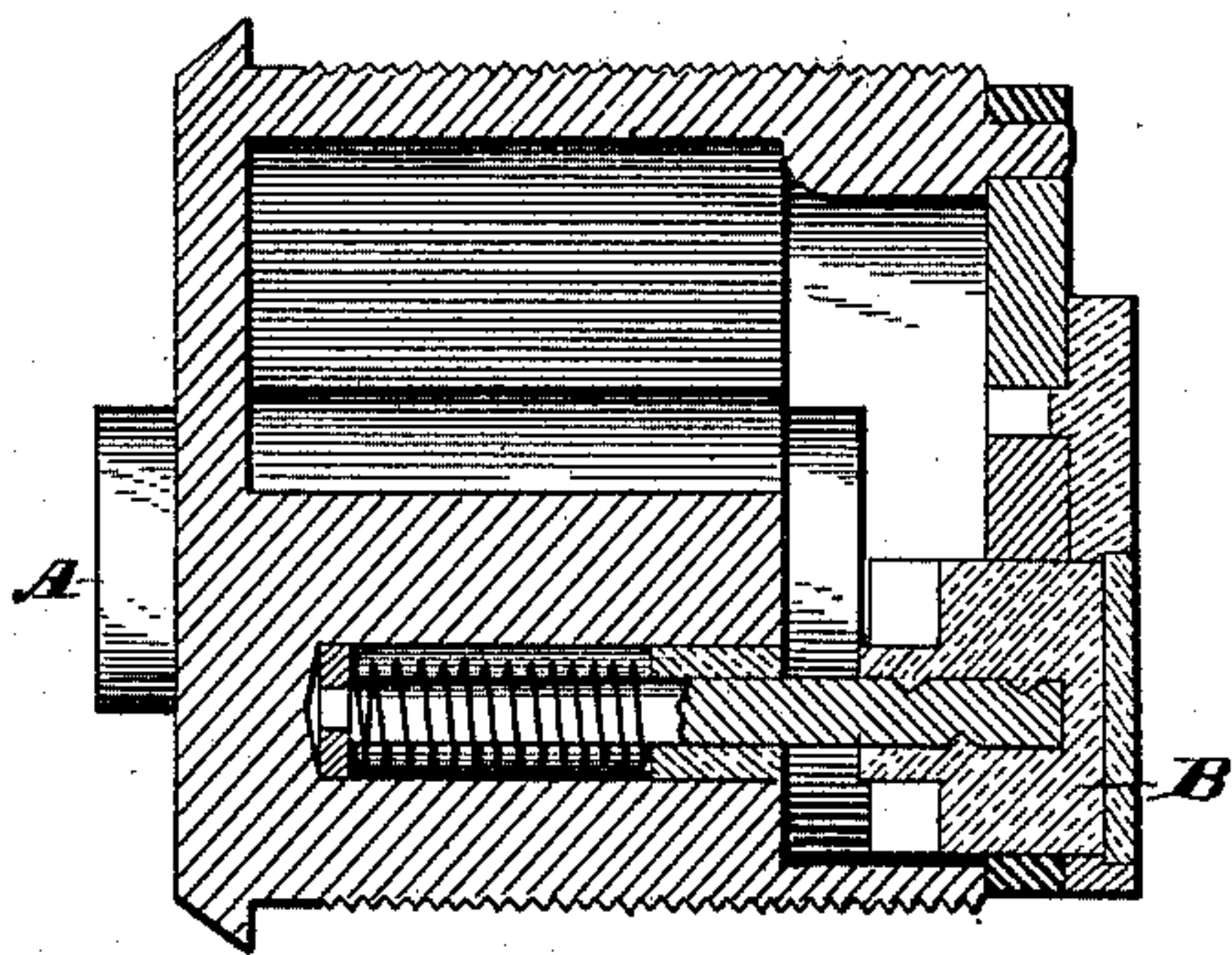


Fig. 7.

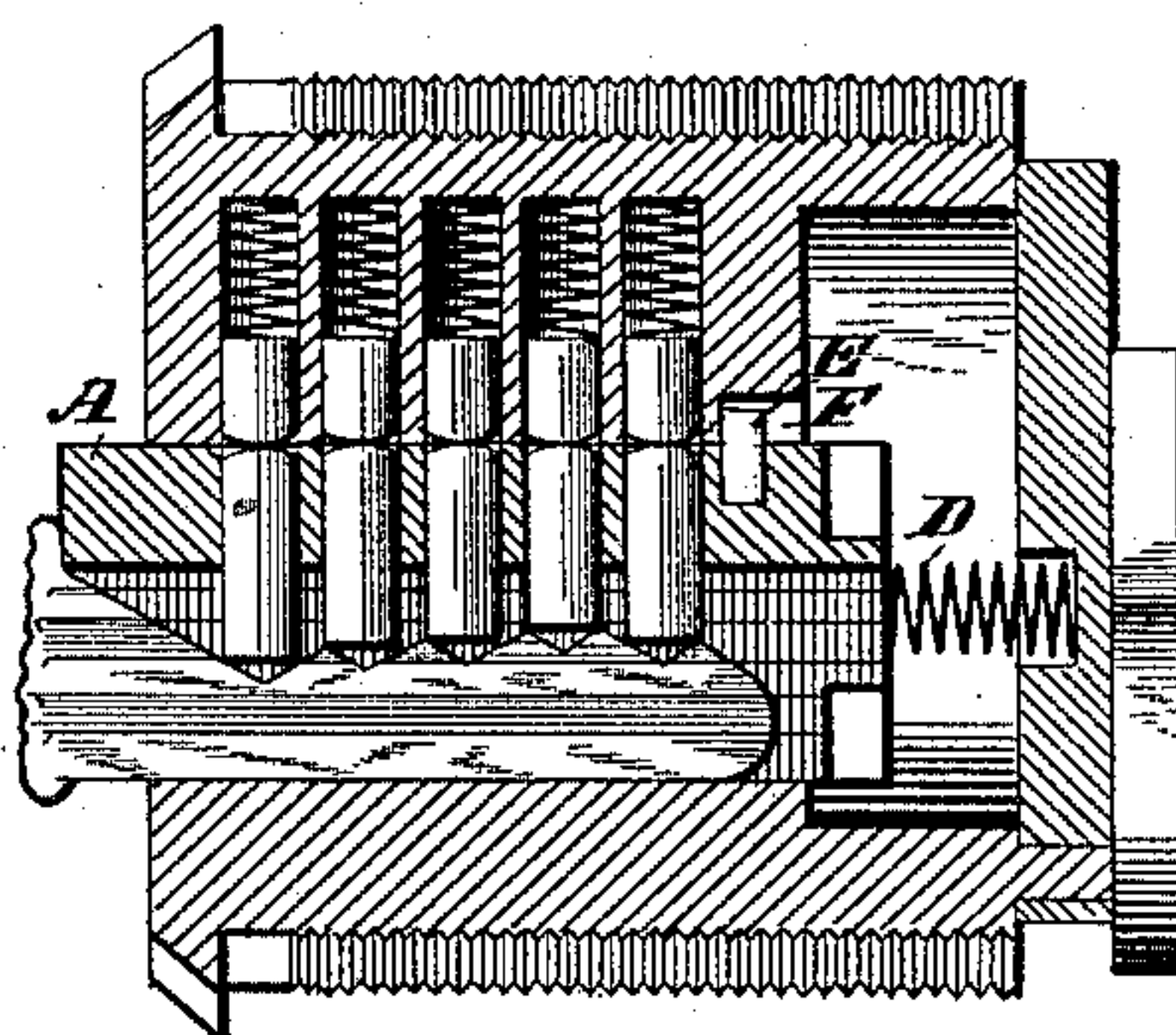


Fig. 8.

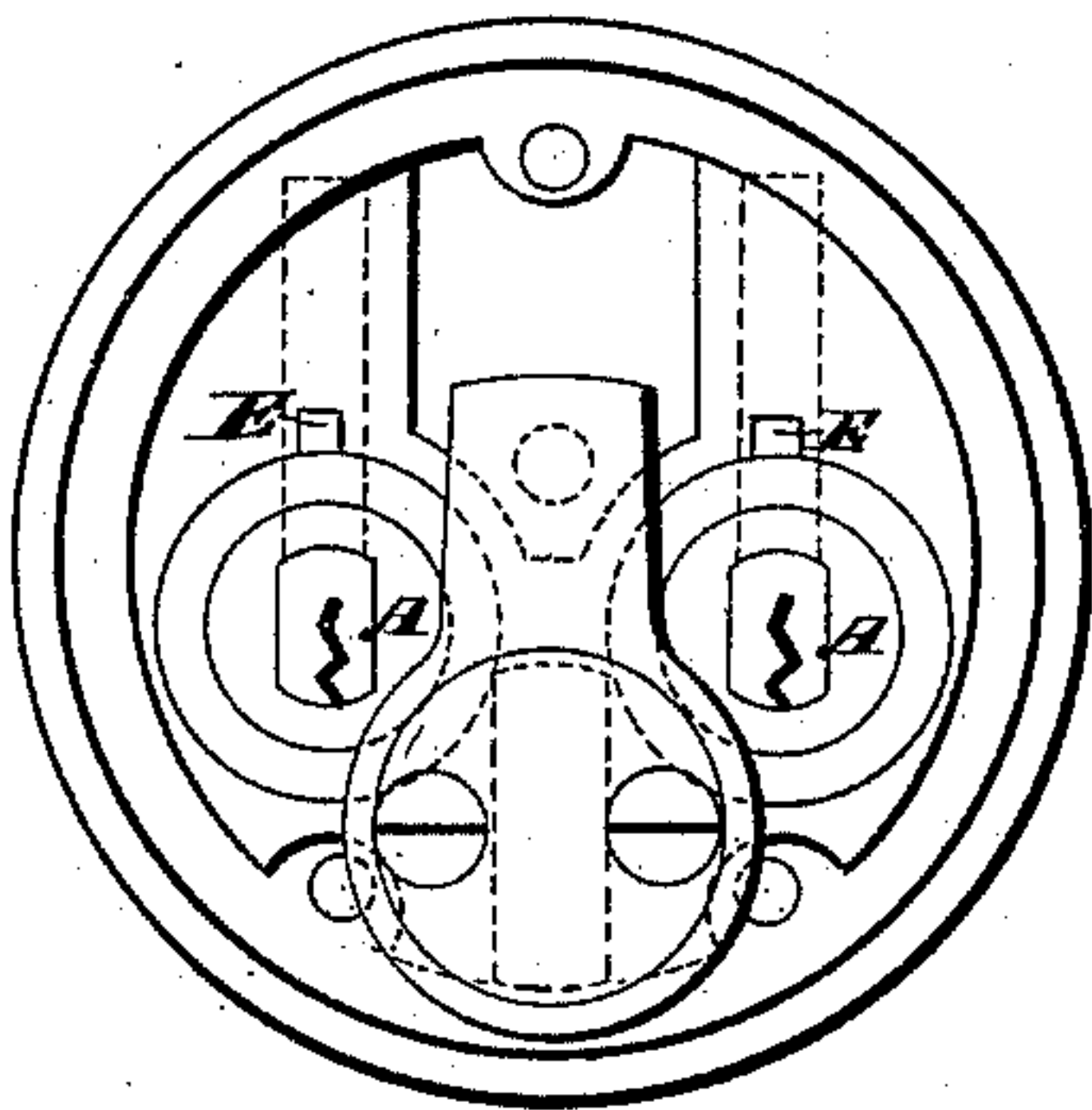


Fig. 9.

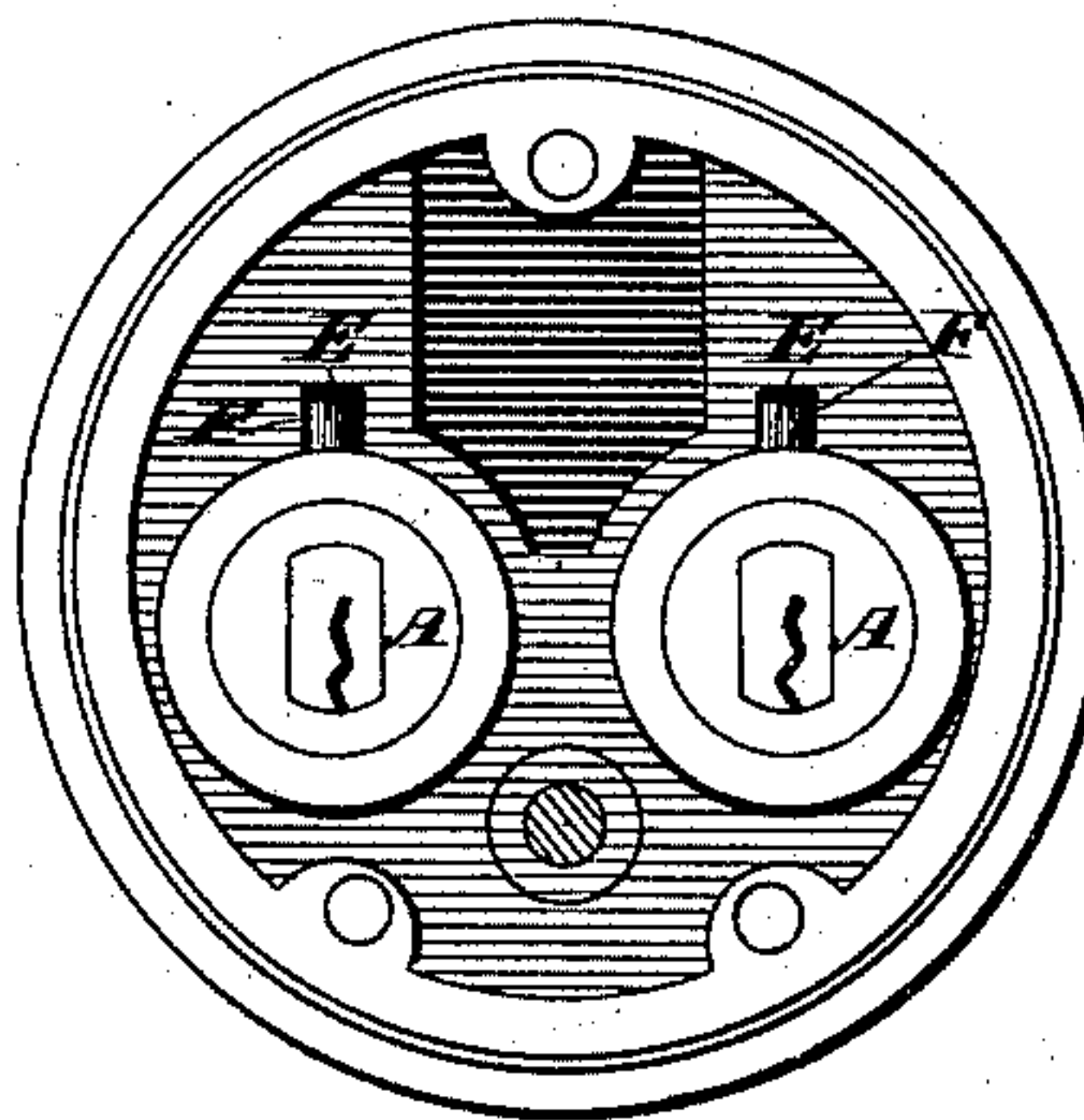


Fig. 10.

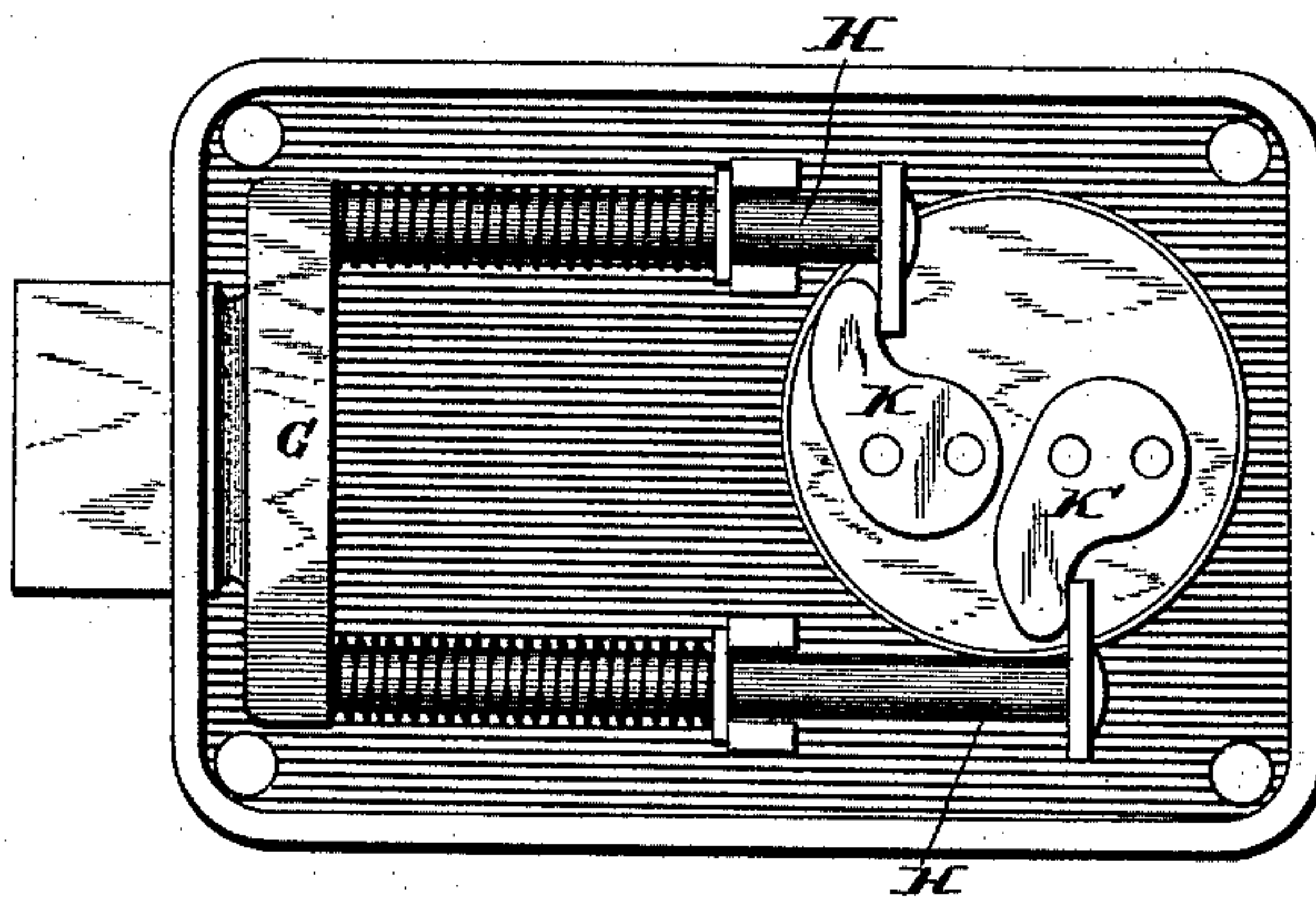


Fig. 11.

Witnesses
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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.

SPECIFICATION forming part of Letters Patent No. 474,783, dated May 10, 1892.

Application filed May 7, 1891. Serial No. 391,903. (No model.)

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, of Stamford, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to master-key locks—that is, that class of locks which may be set up or arranged in series so that each lock may be operated by two keys, one of which, the change-key, will unlock only one lock and another, the master-key, will unlock the entire series.

My invention relates to that type of locks in which the key-plug or roll-back is by its tumbler mechanism locked, either directly or indirectly, to its surrounding case. A difficulty with this class of locks has been that where the same set of tumblers of a lock has been arranged to be operated both by a change-key and a master-key the security of the lock has thereby been lessened. However, in the construction patented by Henry R. Towne July 30, 1878, No. 206,646, this difficulty was entirely done away with by absolutely separating the master-key mechanism from the change-key mechanism; but the Towne invention had the difficulty that it required two separate escutcheons or tumbler-cases, which increased the cost of making the lock, made the lock somewhat larger than would otherwise be required, and also to some extent increased the difficulty of attaching to a door.

My present invention while absolutely retaining the independence of the master-key and change-key mechanism avoids the difficulties incident to the Towne patent by connecting the two mechanisms to a common bolt-actuating arm or cam, so that said mechanisms may be made in a very compact form and may be combined in the same escutcheon or tumbler-case, if desired. It is obvious that this tumbler-case can be attached to any of the well-known forms of locks, which need not be here shown, or the mechanism may be attached to cabinet-locks, padlocks, or any other of the well-known forms of locks without changing the spirit of my invention.

I show in the drawings the well-known pin

or sliding tumbler mechanism of the Yale lock; but the style or type of mechanism is not material to my invention. Any form of sliding or pin tumblers might be used, or pivoted tumblers, which are attached in any convenient way to the key-plug and which either directly or indirectly lock the key-plug to its surrounding case, might be used.

The gist of my invention is to combine, in a single escutcheon or case, two key-plugs or roll-backs, each controlled by independent tumbler mechanism, and each detachably connected to the cam or any other bolt or latch actuating mechanism, so that either of said key-plugs or roll-backs can by its appropriate key be operated independently of the other to actuate the bolt or latch actuating mechanism.

Not only can different types of tumbler mechanism be used on the two different key-plugs or roll-backs, but the mechanisms might be so arranged that when in the locked position the key-holes might be in any desired relative position or the key-holes might be different to indicate which was the master and which the change key mechanism.

In the drawings, Figure 1 is a front end elevation of an ordinary escutcheon provided with two key-plugs. Fig. 2 is a diametrical section of the same on the line 2 2 of Fig. 5. Fig. 3 is a section taken through one of the key-plugs on the line 3 3 of Fig. 5. Fig. 4 is a rear end view of the escutcheon, showing one form of gearing for connecting the key-plugs with the cam for operating the bolt. Fig. 5 is a view similar to that shown in Fig. 4, but showing the cam. Fig. 6 is a view similar to that shown in Fig. 1, except that a sinuous key-slot is shown. Fig. 7 is a longitudinal diametrical section. Fig. 8 is a section through the keyway. Fig. 9 is a rear end view in mere diagrammatical outline, showing the general relations of the parts. Fig. 10 is a detail view showing the guide pin or stop which is fastened in the cylinder and projects into a longitudinal slot in the tumbler-case. Fig. 11 is a view of a formal modification in which the cams are attached directly to the key-plug in reverse position and operate upon the cross-head of a lock-bolt.

A A indicate two key-plugs or roll-backs,

each of which is revolved by a key, each plug being fitted at its rear with a gear or any of its equivalents. Back of these two plugs is fixed another cylinder B, to which a cam or bolt-actuating mechanism is attached. To this cylinder, also, at its end near the plugs, as shown in Fig. 4, is attached a gear-wheel C. The key-plugs are arranged so that when the tumblers are set the plugs will have endwise motion, and when pushed inward by the key the gears on their ends will mesh with the gear on the cam-cylinder, which through the key can then be revolved to actuate the lock. When the lock has been operated, the cylinder will by a spring D, Fig. 8, be automatically pushed out of engagement with the cam-cylinder, and the parts will then resume their normal condition, ready to be operated by either key, as desired.

To prevent derangement of the mechanism and to insure proper meshing of the gears on the key-plugs and on the cam-cylinder, I have arranged by means of a stop or pin E on each of the cylinders, so that it will not be possible to revolve the cylinder until it has been pushed inward and is in engagement through its gear with the gear on the cam-cylinder. These pins project from the cylinders into longitudinal slots F in the casing, and when the key-cylinder is pushed inward the proper distance the pin will have passed out of the slot in the casing, so that the cylinder can rotate to operate the latch-actuating mechanism and latch-bolt.

Even where the ends of the key-plugs engage with a gear on the cam-cylinder it is not essential that the plugs should have end motion; but they may be connected as indicated in Fig. 4. In this construction the gears on the ends of the key-plugs are cut away, so that when the key-plugs are in their normal locked condition there is no positive engagement between the key-plug and the cam-cylinder; but the gears are so arranged that when the key is inserted and the tumblers set and the key revolved a gear or its equivalent on the end of the key-plug will immediately engage with a corresponding gear on the cam-cylinder and cause it to revolve.

In Fig. 11 I show a still further modification of my invention, in which the common connection between the key-plugs and cam-cylinder is done away with. This shows my invention adapted to a lock the bolt of which is provided with a cross-head G, having two arms H H, one of which is actuated by the cam K of one key-plug and the other by the cam K' of the other key-plug directly without the intervention of any other mechanism. It is obvious that the particular construction of the cross-head and arms of the lock-bolt is not material, as the cams of the key-plugs could be independently connected

to the lock-bolt in a great variety of ways. The keys will of course in the devices shown turn in opposite directions.

I have thus produced a master-key mechanism which has all the advantages arising from the entire independence of the master-key mechanism and the change-key mechanism, and without which independence a perfect master-key lock is not possible, while at the same time I am able to construct these mechanisms in so compact a shape that the advantages of perfect security, both for the change-key and the master-key mechanism, are not interfered with by any inconvenience arising from the construction or attachment of the lock.

What I claim is—

1. The combination, in the same escutcheon or case, of two key-plugs or roll-backs, each controlled by independent tumbler mechanism and each independently operating a lock-bolt or latch, substantially as described.

2. The combination, in the same escutcheon or case, of two key-plugs or roll-backs, each controlled by independent tumbler mechanism and each detachably connected with the bolt or latch actuating mechanism, substantially as described.

3. In a lock, the combination of two key-plugs or roll-backs with a cam-cylinder, either one of which when revolved by the key will engage with said cam-cylinder independently of the other, substantially as described.

4. In a tumbler escutcheon or case, the combination of a plug or roll-back, a bolt or latch operating mechanism, and a guide or stop which prevents the rotation of said key-plug after it has been released by the insertion of a key until it is moved endwise sufficiently to engage with the bolt or latch actuating mechanism, substantially as set forth.

5. In a lock, the combination of a longitudinally movable and revoluble plug or roll-back, bolt or latch actuating mechanism, a gear upon the plug and latch actuating mechanism, respectively, and a pin upon the plug, whereby the rotation of the plug will cause the operation of the bolt or latch operating mechanism when the former by its longitudinal movement is brought into engagement therewith, substantially as set forth.

6. A tumbler case or escutcheon provided with a single bolt or latch operating arm or cam, and a series of plugs or roll-backs which may be brought into operative engagement with said arm or cam, substantially as described.

In testimony of all which I have hereunto subscribed my name.

WARREN H. TAYLOR.

Witnesses:

SCHUYLER MERRITT,
GEO. E. WHITE.