

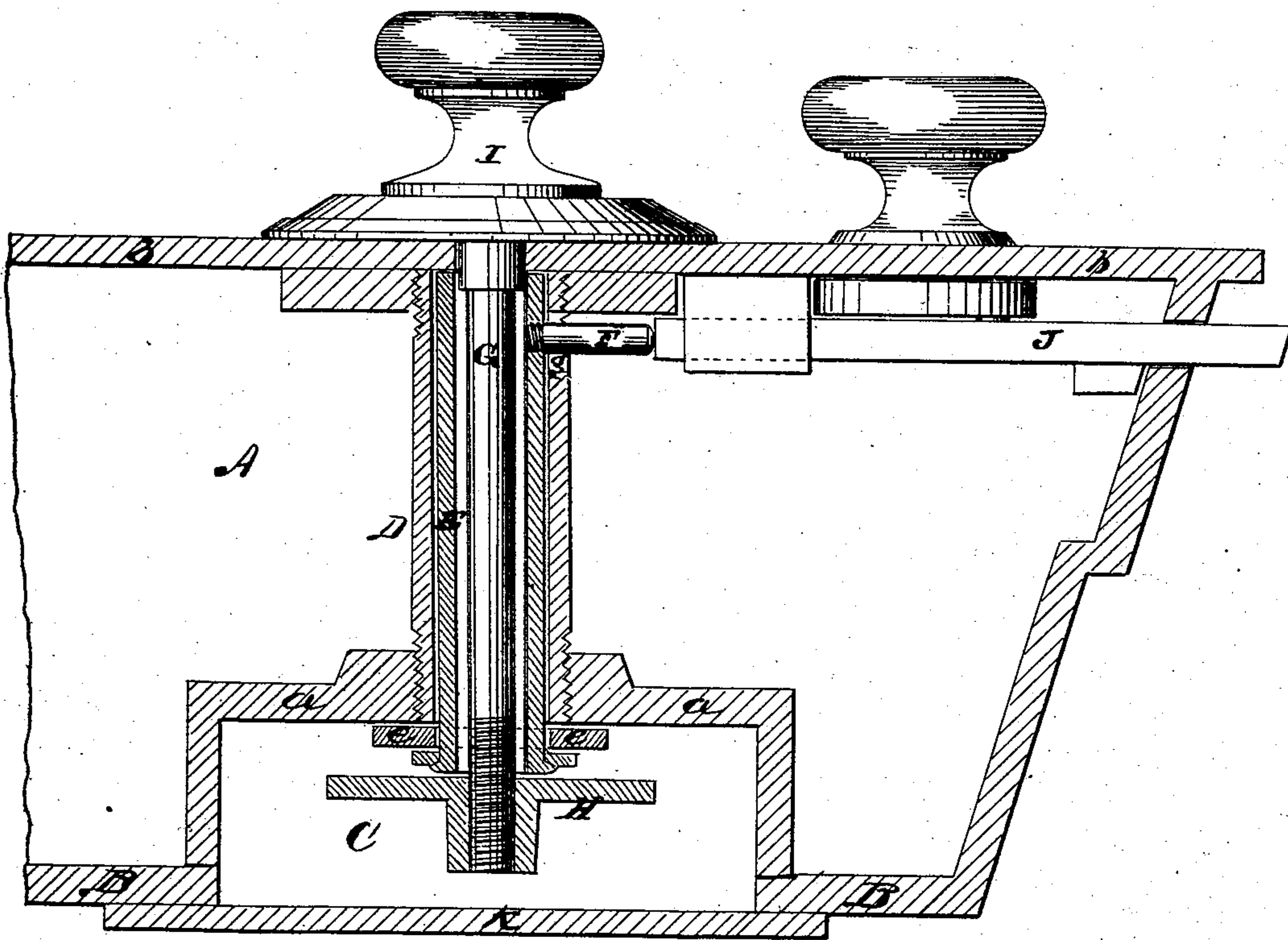
F. C. BARGER & F. S. POWNALL.

Combination-Locks.

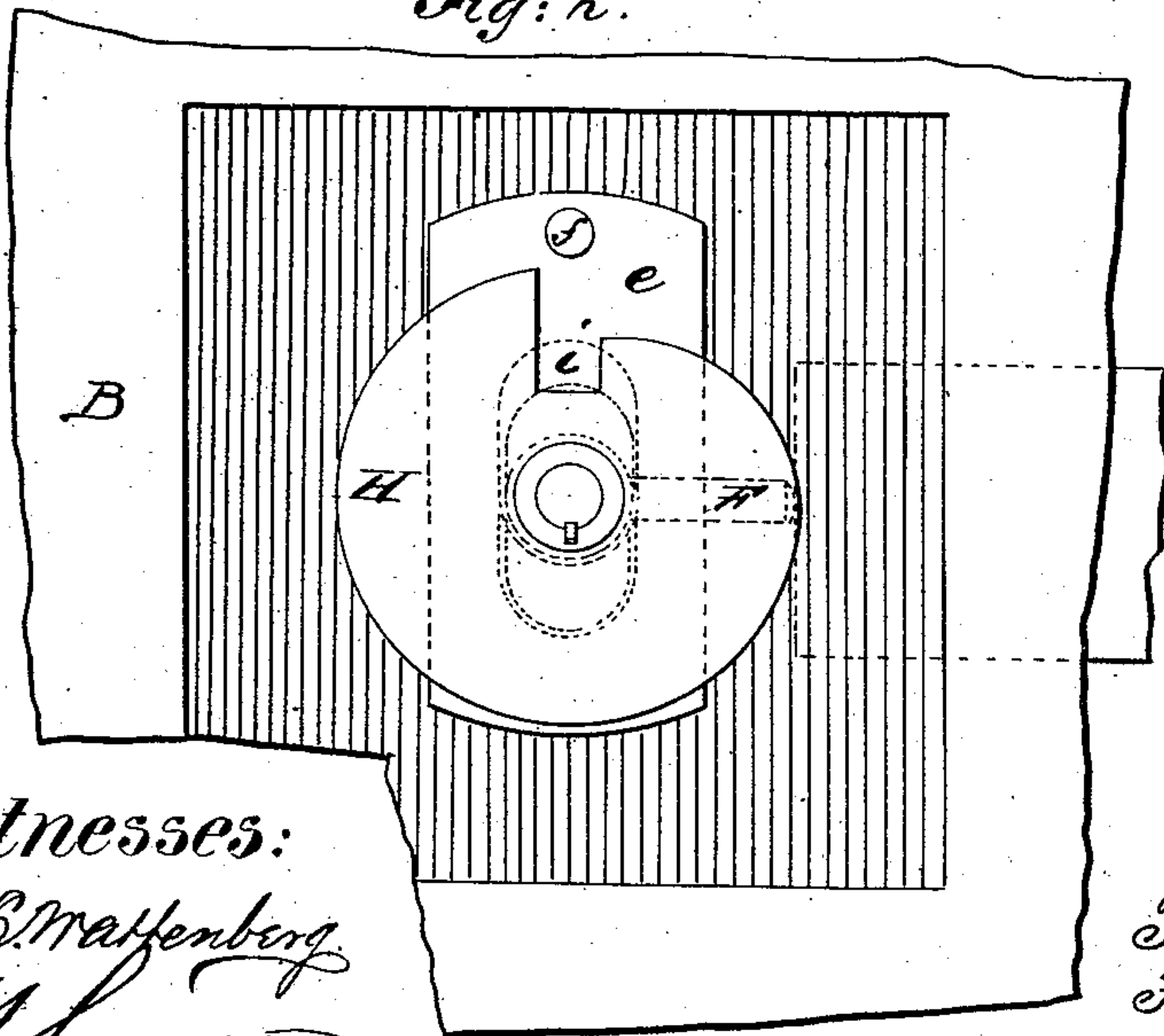
No. 155,405.

Patented Sept. 29, 1874.

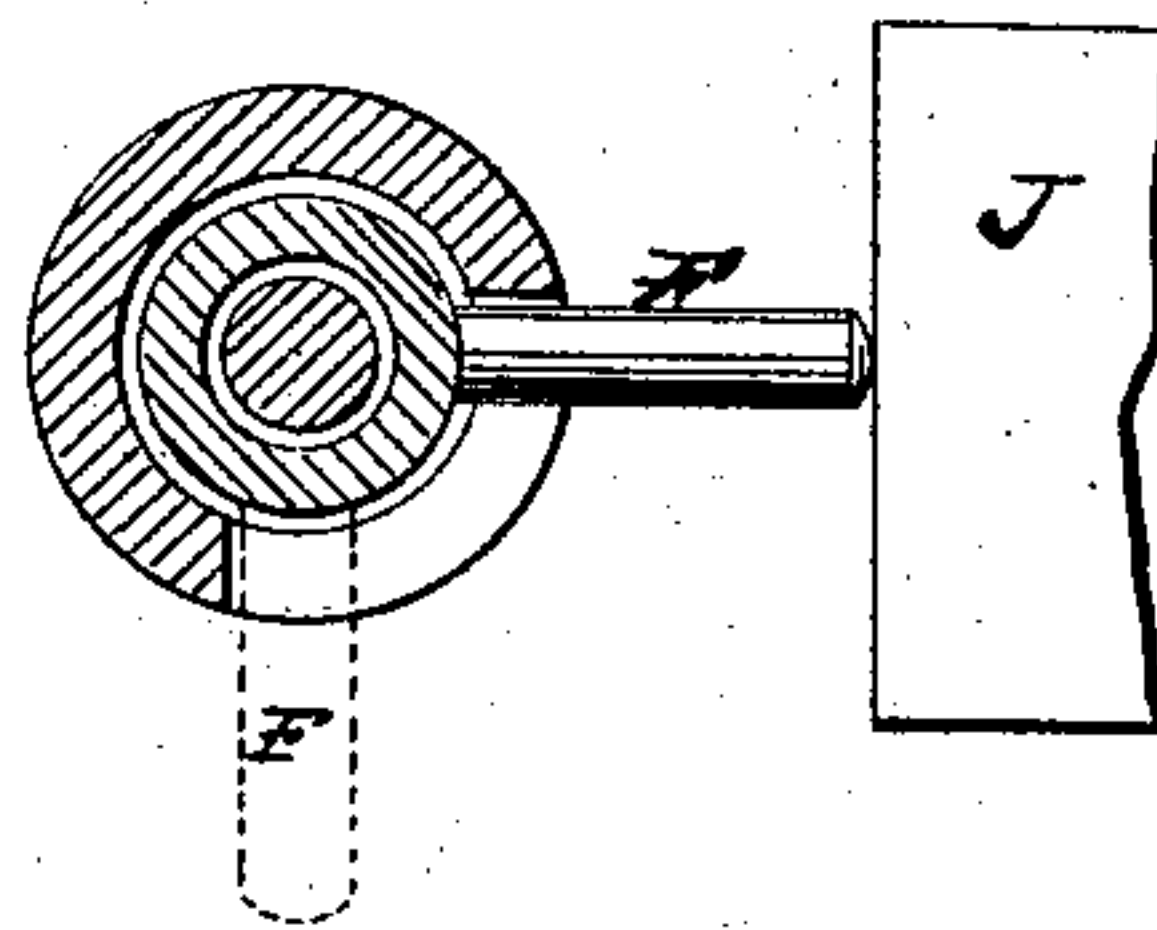
*Fig: 1.*



*Fig: 2.*



*Fig: 3.*



Witnesses:  
*H. C. Maffenberg*  
*W. Lovell*

Inventors:  
*Fred C. Barger and*  
*Frank S. Pownall*  
*per C. M. Hampton*

*Atty*



# UNITED STATES PATENT OFFICE.

FRED C. BARGER AND FRANK S. POWNALL, OF NEW YORK, N. Y.; SAID POWNALL ASSIGNOR TO SAID BARGER.

## IMPROVEMENT IN COMBINATION-LOCKS.

Specification forming part of Letters Patent No. **155,405**, dated September 29, 1874; application filed April 28, 1874.

*To all whom it may concern:*

Be it known that we, FRED C. BARGER and FRANK S. POWNALL, of the city, county, and State of New York, have invented a new and useful Improvement in Lock Attachments to Safe-Doors, &c.; and that the following is a full, clear, and exact description of the same, reference being had to accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention is in the nature of an improvement in attaching locks to safe-doors, &c.; and the invention consists in securing a lock to a door by means of a tubular bolt, within which is fitted a tubular cylinder, through which the spindle passes, and to which is secured a dog.

As is well known, when locks are secured to the doors of fire-proof safes it is customary to secure them by four or more bolts to the inner side of the face-plate of the door, so that when the door is to be filled with the necessary non-conducting substance or material the lock has to be covered with some kind of tight-fitting protection, so that the plaster, &c., will not flow in and around the lock, causing injury, and as will be seen, a lock in this position is necessarily covered with a mass of plaster, &c., which must be dug out in order to reach the lock for the purpose of repairing it. By our invention this difficulty, as well as others, is overcome, as will be seen from the following description and accompanying drawings, wherein—

Figure 1 is a transverse section of our invention; Fig. 2, a plan or top view of same; and Fig. 3, detail of bolt, sleeve, spindle and dog.

Similar letters of reference indicate like parts in the several figures.

A represents the door of a fire-proof safe, constructed in the ordinary manner. The interior surface or plate B has secured to it in any desirable manner the lock C. This lock may be of any of the well-known combination or permutation locks. Screwed or otherwise secured to the back-plate *a* of this lock is a tubular bolt, D, the end of which has formed upon it screw-threads, so that it may be screwed into and through the face-plate *b* of

the door. Within the bolt D is fitted a tubular cylinder, E, so that it may turn freely within said bolt. The upper end of said cylinder may be secured to a plate, *e*, having a fence, *f*, attached to it, or it may be secured to any description of fence-lever, in such manner as will enable said plate or lever to revolve with the cylinder. And at or near the other end of the cylinder E is secured a dog, F. This dog passes through a slot, *g*, in the tubular bolt D, and moves alternately from a horizontal to a perpendicular position, as the cylinder E is revolved within said bolt. Through the cylinder E passes the spindle G, the inner end of this spindle being secured to the ordinary cam H of the permutation-lock, having a gating, *i*, formed therein.

Our lock, being constructed as above described, is secured to a safe-door by screwing the tubular bolt D into the inner surface of the face-plate *b* of the door. The necessary fire-proof composition, plaster, &c., is then poured into the door without coming in contact in any way with the lock on the door, and without interfering with the operation of the spindle or roll-back, since they are protected by being within the bolt D, as before described. The spindle G is passed through the cylinder E and secured to the cam H. The lock is next fitted to the plate B, and covered by the lock-plate *k*. The dog, when the lock is affixed as just described, is immediately behind the inner end of the bolt J, or the string-bar of the same. As the spindle G is revolved by means of the dial-knob I, the cam H is freely turned, as are also the tumblers, in the usual manner, and when the tumblers are set to the proper combination for operating the lock the fence *f* is allowed to drop into the gating *i* of the cam H, the plate *e* having a motion which admits of this, and when the fence has so entered the gatings it will cause the plate *e* (to which is secured one end of the cylinder E, as before stated) to move to the right or left, as the spindle G is so turned, and as this cylinder is revolved the dog F is moved up and down at the rear of the bolt J, so that as said dog is moved away from the end of the bolt, the bolt may be withdrawn within the door in any desirable way, and



when the bolt is shot out the dog is turned so as to oppose its end against the rear of the bolt, and in this way prevent it from being forced in when the combination of the lock is thrown off. The tumblers and cam H turn freely and independently of the fence *f*, so that there is no connection between the cylinder, and consequently the dog F, and the operating parts of the lock.

From the foregoing description it is obvious that a lock attached to a safe-door, as above described, will not only be always accessible from the inside of the door when necessary to repair the same, but it cannot receive any injury from the fire-proof substance with which the door is filled, and it is applied to the door without the expense of fitting to it the usual covers or shields, and the dog is so remote from the lock proper that it will be impossible to feel the position of the gatings in the tumblers by means of the spindle, and the tum-

blers and other parts of the lock would be preserved from injury in the event of violence being applied to the bolt.

It is obvious that the tubular bolt D may be allowed to project through the face-plate *b*, so that the dial-ring may be screwed thereon, as a means of securing the ring to the door, instead of bolting it as at present.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

A lock secured to a door by means of a tubular bolt, combined with a spindle and cylinder, E, which is provided with a dog, F, and plate *e*, arranged and operating as specified.

FRED C. BARGER.

FRANK S. POWNALL.

Witnesses:

H. L. WATTENBERG,

G. M. PLYMPTON.