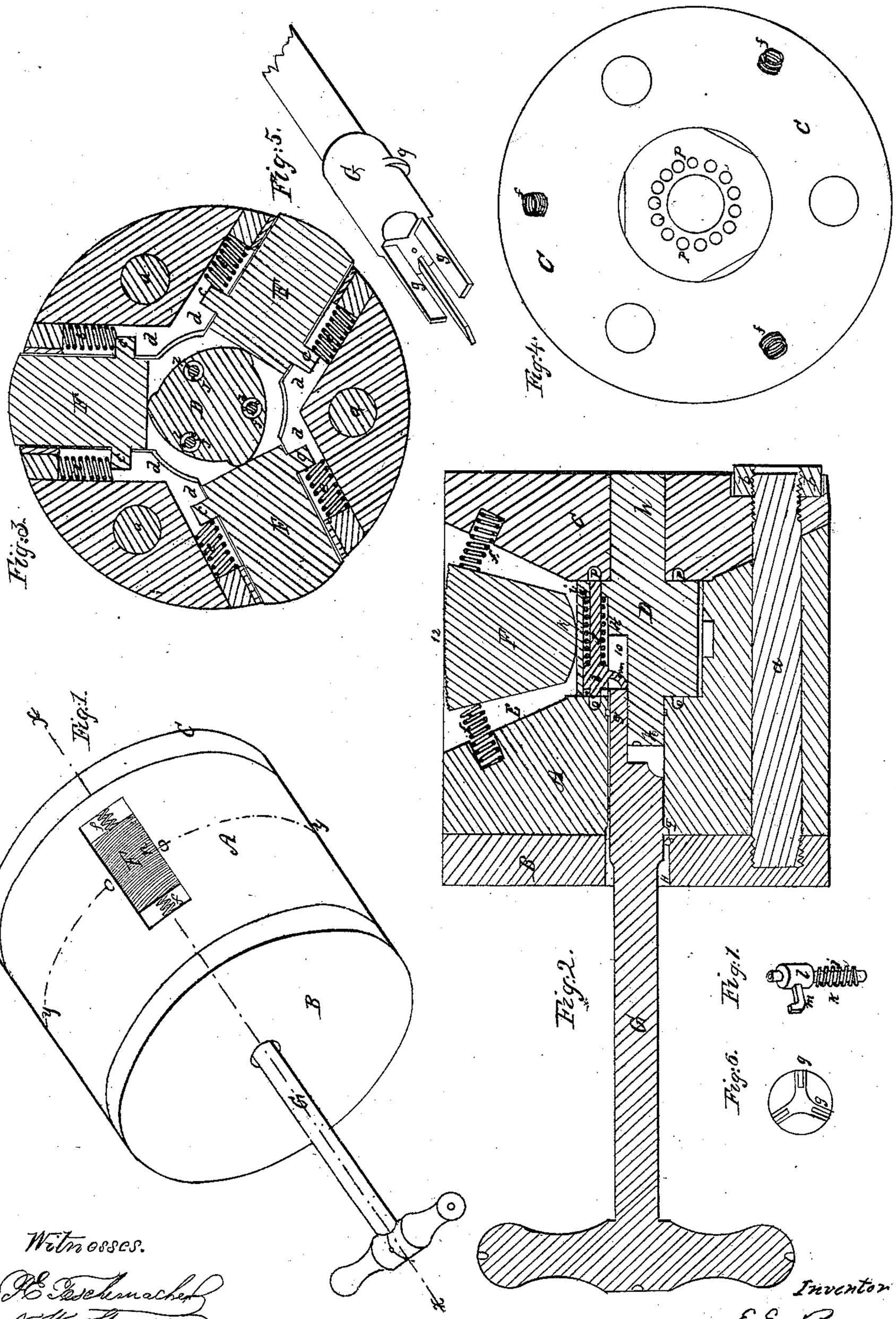
E. E. BEAN.

Disabling Cannon.

No. 41,115.

Patented Jan. 5, 1864.



Witnesses.

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EDWARD E. BEAN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, L. H. STRAW, J. A. LOCKE, AND E. LELAND.

IMPLEMENT FOR DISABLING ORDNANCE.

Specification forming part of Letters Patent No. 41,115, dated January 5, 1864.

To all whom it may concern:

Be it known that I, EDWARD E. BEAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a Plug for Temporarily Disabling Cannon, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of the instrument ready for use; Fig. 2, a longitudinal section through the same on the line *x x* of Fig. 1; Fig. 3, a transverse section on the line *y y* of Fig. 1; Fig. 4, a plan of the inside of the lower head, C; Fig. 5, a view of the lower portion of the key; Fig. 6, an end view of the same; Fig. 7, a view of one of the pins *j* detached and the spring that surrounds it.

The ordinary method of disabling cannon or rendering them temporarily useless is to drive a "rat-tail" file or steel spike into the vent, which cannot be withdrawn without the aid of a drill or other appliance not usually at hand on the field; and in some cases a shot or shell is driven firmly a short distance into the gun, and it is thus rendered temporarily useless when captured by the enemy; but either of these methods are objectionable, as, on the other hand, if the gun is recaptured it is still unfit for use, and also in drilling out the spike the vent is liable to be enlarged and the gun thereby injured.

My invention has for its object to remove these objections; and it consists in a plug which can be inserted into the bore of the gun, and by turning a key be locked or held immovably in place, so that it can neither be withdrawn from nor forced farther into the bore without the peculiar key with which it was locked, by which means a gun can be instantly "locked up" and rendered useless to the enemy, and in the event of its recapture the plug can be quickly withdrawn by the use of the key, without the gun having been in the least injured thereby.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the accompanying drawings, A is a shell or plug of cast-iron or other suitable metal, which is made of a little less diameter than the bore of the gun. To this shell is fitted a face-plate or head, B, of hardened steel, and at the opposite end a head, C, (of the form shown in Figs. 2 and 4,) which are held in place by bolts *a* projecting from the head B and passing through the shell A and head C, where they are secured by screw-nuts *b*, thus holding the parts firmly together. The shell A is turned out concave at its lower end, and has its center bored out, as seen in Fig. 2, to receive the central cam, D, the shaft *h* of which has its bearings in the head C and shell A. Three mortises, E, of the form of a segment, are cut from the periphery of the shell to its center at equal distances apart, into which are fitted segments F, of hardened steel, the outer faces, 12, of which are roughened in a manner similar to a file, and their lower ends rest against the central cam, D. These segments are provided with pins *c*, Fig. 3, on which they rock as centers, and these pins slide up and down in slots *d* in the shell A, being pressed toward the center by spiral springs *e*.

f, Fig. 2, are spiral springs, placed one on each side of the segments F, which serve to keep them in a central position. The central cam, D, is constructed with three inclines, Fig. 3, one for each segment F, by which means, as it is turned, the segments will be forced outward and their roughened surfaces 12 brought firmly into contact with the interior of the bore of the gun; and it will be seen that any pressure applied to either head of the plug to move it longitudinally will rock the segments F against the resistance of the springs *f*, and tend to force their roughened surfaces 12 still harder against the surface of the bore, thus wedging the plug tightly in place, and the greater the pressure applied the greater will be the force with which it will be wedged into the bore, thus rendering it impossible to withdraw it until the cam D is turned so as to allow the springs *e* to press the segments F in toward the center, when it will be free to be drawn out of the gun. The cam D is turned to operate the segments F by means of a key, G, having three prongs, *g*, Figs. 5 and 6, of different lengths, which fit into corresponding grooves cut longitudinally in the shaft *h*. The cam D, however, is held from being revolved,

except with the proper key, by the following device: Holes 9, of the form shown in Fig. 2, are drilled longitudinally through the cam D, leaving shoulders *i*. In these holes are placed pins *j*, each of which has at one end a collar, *l*, having a lug, *m*, which projects into and slides in a groove, 10, in the cam D, each pin having its lug set at a different distance from its end. Spiral springs *k* surround these pins, and are confined between the shoulders *i* and the collars *l*, and serve to press the ends of the pins into a series of holes, *o*, in the shell A, and thus prevent the cam from being revolved. When, however, the key G is inserted, the prongs *g*, being of the exact length and combination required, strike against the lugs *m* and force back the pins *j* until they are clear of the holes *o*, when the cam D can be revolved by turning the key G. If, however, a key should be used having a different combination or length of prongs *g*, the pins *j* would either be forced too far back, causing their opposite ends to project through the cam and into a series of holes, *p*, in the lower head, C, Figs. 2 and 4, or else they would not be pressed back sufficiently far to clear their ends from the holes *o*, thus rendering it impossible for any one not possessing a key with the exact combinations required to withdraw the plug from the gun.

q is a projection upon the shaft of the key, which catches under a lip, 8, projecting from one side of the hole 11 in the head B, so as to permit the plug to be drawn out by the key. This projection catches under the lip 8, however, only when the upper surfaces of the segments F are flush with the periphery of the plug. At other times the key is free to be drawn out, so as to leave the plug in the bore of the gun. The projection *q* also acts as a stop to prevent the key from being pushed in too far. The head B, being of hardened steel, will resist any attempt to pick the lock and prevent the attempt to drill through and destroy the interior works.

This plug can be carried in a suitable box on the gun-carriage, so as to be always at hand in case of a surprise.

I do not wish to confine myself to the precise details here shown, as it is evident that the construction of the combination lock and key by which the cam D is operated may be varied without departing from the spirit of my invention.

Operation: The key being turned so as to bring the outer faces, 12, of the segments F flush with the periphery of the plug, it is inserted into the bore of the gun as far as the length of the key G will permit, and the key is turned with sufficient force to bring the roughened surfaces 12 of the segments F firmly into contact with the interior of the bore. The key is now withdrawn (the projection *q* having passed the lip 8) and the gun is completely disabled, it being impossible to move the plug longitudinally in either direction, as the greater the force applied the tighter it will be wedged into the bore by the rocking of the segments F, and any attempt to blow it out by inserting powder at the vent would be likely to result in the bursting of the gun. It will thus be seen that in case of a surprise the gun can be instantly locked up and rendered useless to the enemy, while in the event of its recapture the plug can be immediately withdrawn and the gun used without its having received the least injury, which is not the case where the gun has been disabled in the usual manner.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A plug for temporarily disabling a cannon, which can be inserted in its bore and locked in place, and can be again removed without injury to the gun by a suitable key, substantially as described.

2. The segments F, operated by the central cam, D, in the manner and for the purpose substantially as described.

3. Operating the cam D by a combination key and lock, in the manner substantially as described, for the purpose set forth.

4. The projection *q* on the key G, and lip 8 on the head B, by which the key may be employed for introducing or removing the plug, substantially as set forth.

E. E. BEAN.

Witnesses:
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