J. S. HALL.

Breech-Loading Ordnance.

No. 35,095. Patented Apr. 29, 1862.

Fig. 2

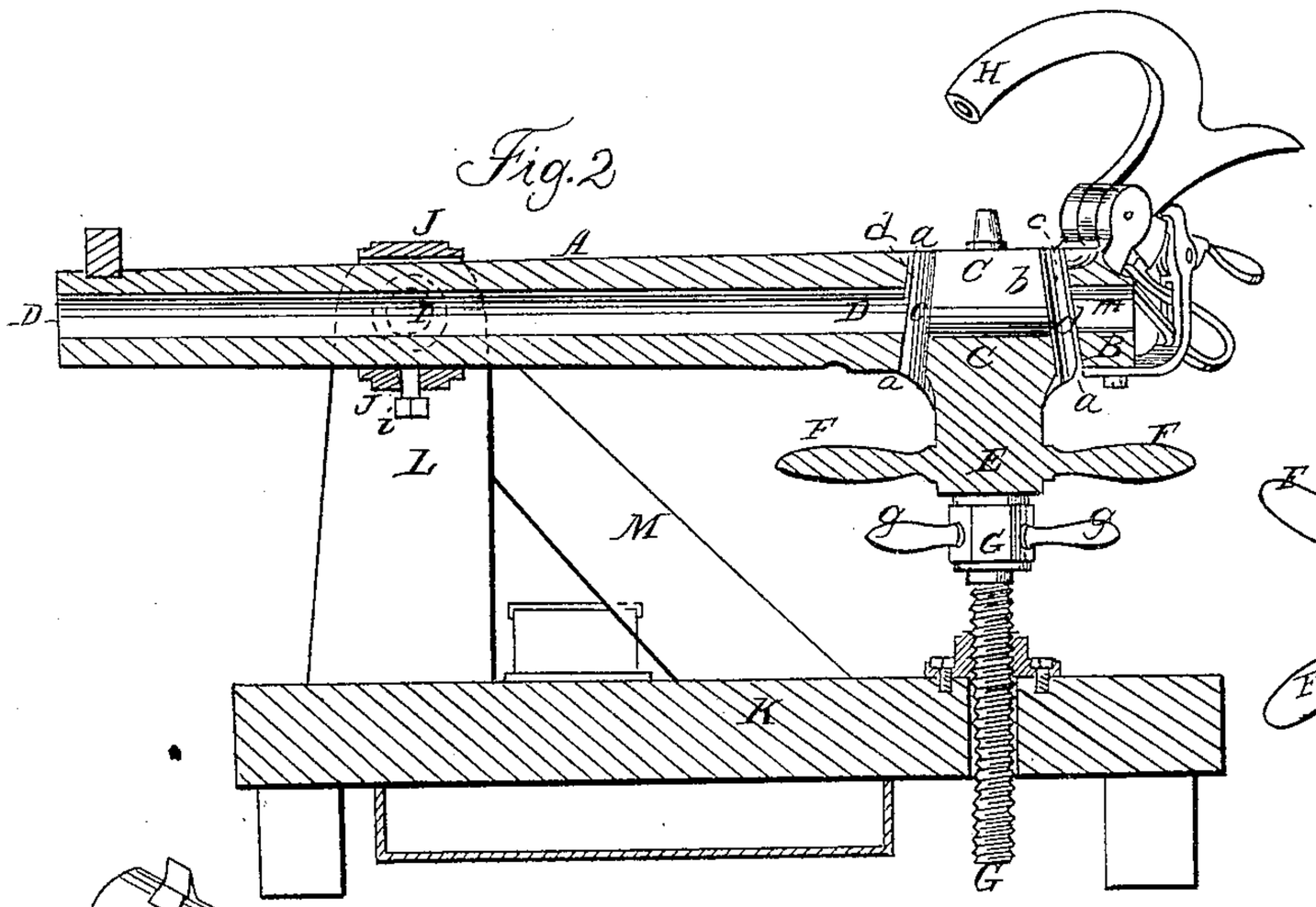

Fig. 3

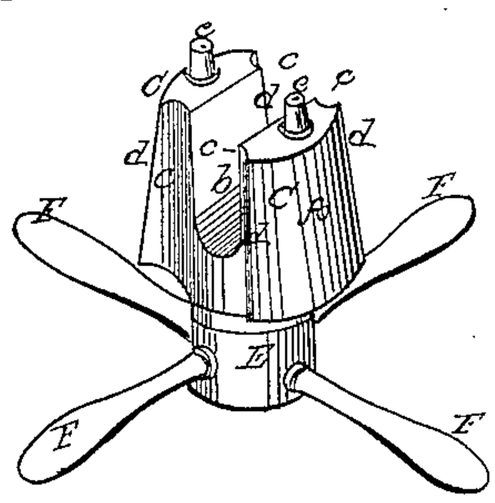

Fig. 1

Witnesses..
Henry W Price
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UNITED STATES PATENT OFFICE.

JOHN S. HALL, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. **35,095**, dated April 29, 1862.

To all whom it may concern:

Be it known that I, JOHN S. HALL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Breech-Loading Cannon; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the gun mounted and ready for use. Fig. 2 represents a longitudinal vertical section taken through the gun and its mountings. Fig. 3 represents a perspective view of the breech-block detached from the gun.

Similar letters of reference, where they occur in the separate figures, denote like parts in all of them.

My invention consists in the use of a conical breech-block in connection with breech-loading cannon, which block is so formed as not to become clogged or bound in the breech, and also to admit of its being cooled by allowing free passages of air between the breech-block and the breech, as will be explained.

For lightness, strength, and facility of transportation, I propose to make my cannon of steel by any of the known processes of making or working that metal.

A represents the barrel of the cannon, and B the breech thereof. The breech B is of a ring form, with a conical opening, *a a*, made vertically through it, so as to receive the conical plug or breech-block C in it. The breech-block or plug C has an opening, *b*, made centrally through it, and two portions, *c c*, diametrically opposite each other, so cut or hollowed out as to form sharp cutting or scraping edges *d d d d*, to cut off the ends of the cartridges after they are placed in the bore D of the gun, and to scrape off any foul matter that might adhere to the breech. The cut-away portions *c c* not only afford the means of making these scraping or cutting edges, but also make an opening through which the cut-off ends of the cartridges and the scrapings may drop through and escape; and, further, these cut-away portions admit of a free circulation of air through them, and thus prevent to a great extent the plug or breech-piece, as well as the breech, from becoming hot by firing the cannon.

Upon the top of the cone-plug or breech-block C there are nipples *e e* for receiving percussion-caps, (any other known primer may, however, be used,) from which nipples openings *f*, Fig. 3, are made, so as to conduct the fire to the charge in the bore of the gun.

There is a neck, E, on the under side of the cone-plug C, which has levers F inserted, so that the plug can be readily turned.

G is an elevating and depressing screw, upon the head of which the lower end of the plug C rests, so that by levers *g* the heel or breech of the gun can be elevated or depressed at pleasure.

In the breech B there is a hand-lever, *h*, by which the heel or breech of the cannon may be raised up, and when this is done the cone-plug C can be removed for washing, cleansing, or oiling, it being entirely free from the breech of the gun; or, if it be necessary to render the gun useless, the cone-plug can be carried off, and this would make the cannon entirely useless.

H is a hammer connected with and operated by mechanism of any of the known kinds for exploding the cap or primer, such as a main-spring, sear, dog, and trigger, as represented, or their equivalents.

The trunnions I may be wrought upon a collar, J, which fits over the barrel of the cannon, said collar being held to the gun at its proper position by a set-screw, *i*, or otherwise. This making of the gun in separate pieces easily connected and disconnected makes it capable of being transported over any rough ground, where a heavy burden could not readily be taken.

K L M represent a carriage or frame-work upon which the cannon is mounted; but of course any other mounting can be used as well, depending upon the place or circumstances under which the cannon is to be used.

The loading of the gun and its discharge are as follows: The opening *b* of the cone-plug being placed in line with the bore of the gun, the cartridge may be dropped into said opening, and by means of a rammer inserted in the hole *m* the cartridge may be rammed home. The operator then, by means of the lever or levers F, turns the cone-plug C until the nipple and cap or primer come opposite or in line with the bore of the gun, when the trigger is pressed, and the hammer, coming down, explodes the charge.

It will be seen that by continuing the turning of the cone-plug always in one direction the part of the plug against which the charge explodes is being constantly changed, and thus does not become so much heated by rapid firing. There is no danger of an accidental discharge while loading, because to insert the cartridge the nipples are removed from the line of motion of the hammer.

It is not actually necessary, though very convenient to do so, to drop the cartridge into the slot or opening *b*, for it may be put into the hole *m*, and from thence rammed home through said slot or opening.

The edges *d* are constantly scraping off any foul matter that may cling to the bore of the breech; and the cone-plug being free in the breech, any expansion of the metal in firing, instead of cramping or binding the plug and breech, will only slightly separate them, and thus leave them free to act under any circumstances. If the breech expands, it will sink down farther on the block, and if the plug expands the breech would rise, still preserving, however, the same uniformity of shape and closeness of fit, and thus the plug and breech would not get fast in case of the expansion of the metal in firing.

I have said that for lightness, strength, and facility of transportation, &c., the gun may be made of steel. I do not of course confine myself to this metal, but can use any other known metal. I also propose to apply this invention to fire-arms generally, it being susceptible of use on muskets, rifles, and pistols.

Having thus fully described my invention, I would state that I do not claim a vertical conical plug nor an open-faucet plug; but what I do claim is—

1. In combination with the conical opening in the breech of a cannon, the vertical conical plug or breech-block operating therein, substantially as described.

2. In combination with the conical breech and plug or breech-block, the hole *m* in the former and the opening *b* in the latter for inserting and ramming home the cartridge, substantially as described.

JOHN S. HALL.

Witnesses:

LEONARD S. JOHNS,

A. J. MARKS.