# TRANSACTIONS

OF THE

# SOCIETY,

Instituted at London,

FOR THE

# ENCOURAGEMENT

OF

# ARTS, MANUFACTURES, AND COMMERCE;

WITH THE

*PREMIUMS OFFERED IN THE YEAR* 1818.

## VOL. XXXVI.

*LONDON:*

SOLD BY THE HOUSEKEEPER, AT THE SOCIETY'S HOUSE IN THE ADELPHI;

AND BY ALL BOOKSELLERS.

[*Price Ten Shillings and Sixpence.*]

MDCCCXIX.

rope breaking, no counteraction is opposed to the springs, these, acting on the arms *e*, throw them out so as to cause them to catch on the nearest cog of the upright slider *h h* and thus prevent the descent of the frame, as represented in fig. 2.

Fig. 4, shows the two clicks bolted loosely together by their short arms, and perforated at their angles by a small hole through which the bolts pass, which are their respective centres of motion; and which bolts are secured in the piece *d*, figs. 2, 5.

Fig. 8, shows the frame with the corve, suspended in the middle of the shaft by the action of the clicks, the rope having broken.

---

## N° V.

## PERCUSSION GUN LOCK.

*The* SILVER MEDAL *was this Session voted to Mr.* COLLINSON HALL, *of High Street, Mary-le-bonne, for a* PERCUSSION GUN LOCK. *The following account contains the substance of the communications received on the subject.*

THE cock, or hammer, and the touch-hole are the only parts in which Mr. Hall's gun differs from those in ordinary use; and these parts are so simple that a common lock may be converted into a percussion lock on Mr. Hall's plan, at a very small expense.

The detonating powder which is used for the priming is made into the form of a pellet, and is fixed in the centre of a small round piece of paper covered with wax. In

this state it is applied to a cavity countersunk in the head of the hammer, to which it adheres by means of the wax, and is thus preserved from the effect of wet. The touch-hole consists of a cylindrical plug screwed into the side of the barrel, and having a pin or nipple projecting from it at right angles: this pin is perforated in the direction of its axis, and thus forms a communication with the powder in the cavity of the plug. When, by the release of the tumbler, the hammer is let go, the countersunk cavity, containing the patch of detonating paste, strikes on the top of the pin of the touch-hole, the paste explodes, and communicating its percussion through the perforation of the pin, fires the powder in the cavity of the plug, and thus discharges the gun. The corrosive and deliquescent salt resulting from the decomposition of the detonating paste can act only on the hollow of the hammer, where it does no material injury, instead of soiling and occasioning damp in the touch-hole itself. Hence a lock on this construction hardly ever misses fire, and the discharge is remarkably rapid; both of them circumstances which very materially influence the success, and consequently the satisfaction of the sportsman.

The detonation is so powerful, that if a card be laid over the pin, or even if its perforation be stopped with tallow, the gun will, notwithstanding, be discharged. If the hammer is let down gently after priming, the spring presses the pellet close into the cavity, and thus considerably increases the effect.

The paste is made of the several ingredients in the following proportions, viz.

| | *Grains.* |
|---|---|
| Oximuriate of potash . . . . . | 196 |
| Flour of Sulphur . . . . . | 68 |
| Fine powdered charcoal . . . . . | 34 |
| Gum Arabic . . . . . | 12 |

Dissolve the gum in as little water as possible; then grind the oximuriate of potash fine, in a Wedgewood's mortar, by itself, and also the flour of sulphur and charcoal together, with a pestle of the same material. The mixture of all with the gum must then be effected, either in a wooden mortar with a wooden pestle, or, at any rate, in a Wedgewood's mortar with a wooden pestle, taking care to keep it moist during that operation, lest it should explode.

The paste, being of the consistence of soft clay, is then to be formed into pellets, by means of a mould, made of a plate of brass or copper, one-sixteenth of an inch thick, and filled with holes of one-eighth of an inch in diameter: this plate being placed upon a table, or other flat surface, over which a sheet of paper is first to be laid, the paste is to be spread evenly over its surface, and then pressed into the holes, either by passing a roller over it, or by beating upon it with a wooden mallet: the paste is then to be removed from the upper face of the mould, with a thin spatula or palette knife; and the mould is next to be slided, for the length of an inch, along the paper, to separate the paste from it; and it may then be lifted up, and the pellets carefully driven out of the holes in it, by striking upon it with a soft brush; they are then to be dried. The round paper patches being cut by a proper punch are covered on one side with bees wax mixed with a little tallow, and coloured red to distinguish the adhesive side from the other: the pellet is then gently pressed on the centre of the waxed side of the patch, to which it adheres, and the priming patch is thus completed.

When used, the patch is to be pressed firmly into the countersunk cavity of the head of the hammer, to which it easily adheres in consequence of its waxed surface being in contact with the metal.

The following recipe for the composition of the pellets has been communicated from another quarter.

Take oximuriate of potash 49 grains, flour of sulphur 17 grains, pulverized charcoal 8½ grains. Mix the three ingredients in a wooden mortar, with a tea-spoon full of weak gum water, making it about the consistence of bookbinders paste. Have ready a piece of copper or brass plate, pierced with circular holes of one eighth of an inch diameter, lay it on a board, and spread the composition over it, so as to fill up all the holes. Allow twenty minutes for the paste to harden, push the pellets out with a wooden punch that fits the holes, and spread them to dry more completely, after which they may be fixed with any adhesive composition upon small circular pieces of thin paper for use.

Many testimonials in favour of Mr. C. Hall's invention from persons who had used it for some months, accompanied the original communication, but which it is not thought necessary to insert here. They remain, however, in possession of the Society, as also does a model of the lock.

*Explanation of the Figures.—Plate VIII.*

*a*, fig. 1, the lock-plate of a common gun, with the hammer and feather spring removed, and the screw holes plugged up; the pan also being filed off level with the lock plate and bevelled to drain the rain off.

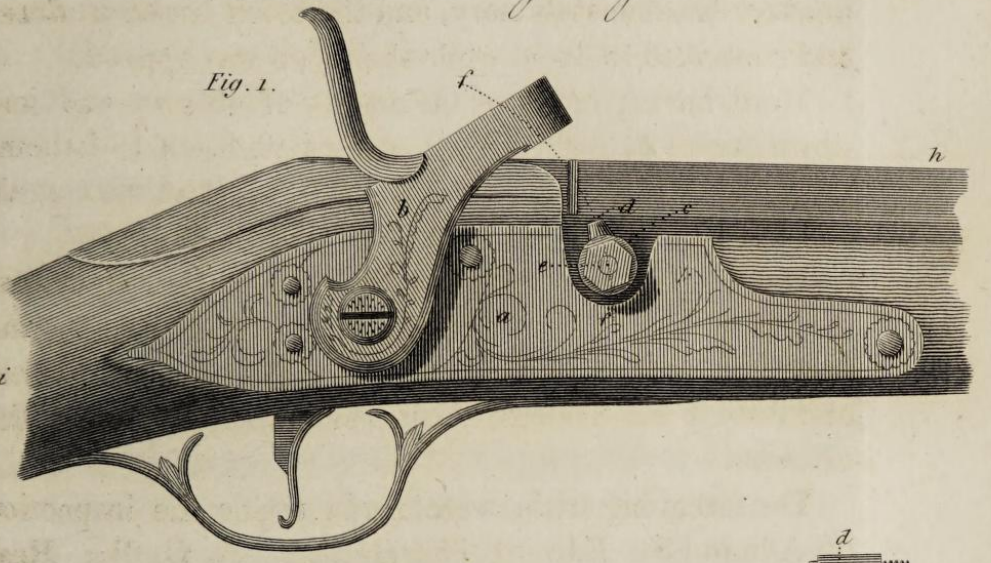
*b*, the hammer placed on the axis of the tumbler in place of the cock.

*c*, a plug screwed into the breech where the touch-hole formerly was; which plug is perforated through its whole length at right angles to the axis of the barrel.

*d*, a small pin or nipple left on the plug, through which a hole is bored at right angles to the axis of the plug. The top of the pin is so placed as to strike directly on the centre of the priming patch in the head of the hammer, when the hammer is released, as shown by the dotted arc, *f f*.

# Mr. C. Halls, Percussion Gun Lock. Pl. 8.

Fig. 1.



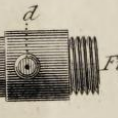




Fig. 3.

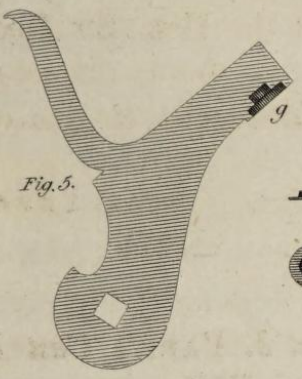



Fig. 5.

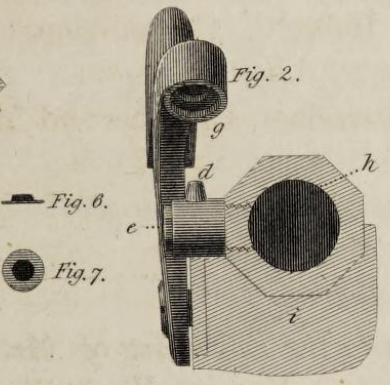



Fig. 2.



Fig. 6.



Fig. 7.

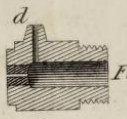
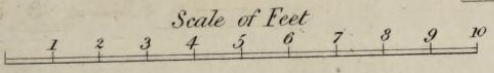



Fig. 4.

# Mr. I. Parks, Cast Iron Mooring Blocks.

Fig. 9.

Front View



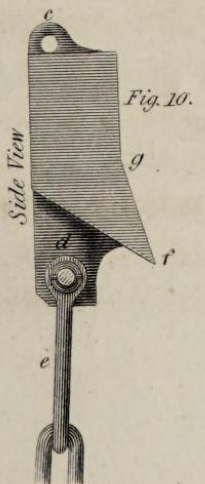




Fig. 10.

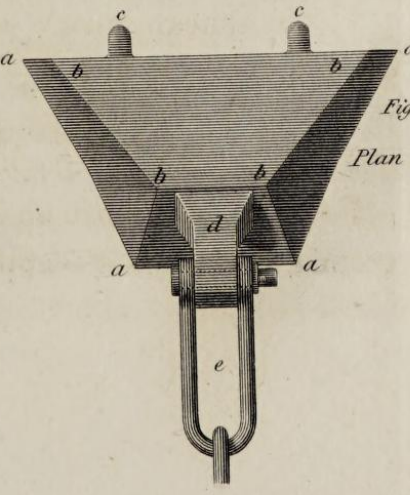



Fig. 8.

Plan

Drawn by W. Newton.

Engraved by G. Gladwin.