J. H. Gould,

Blacksmiths' Forge,

No. 46,792, Patented Mar. 14, 1865.

Fig. 3

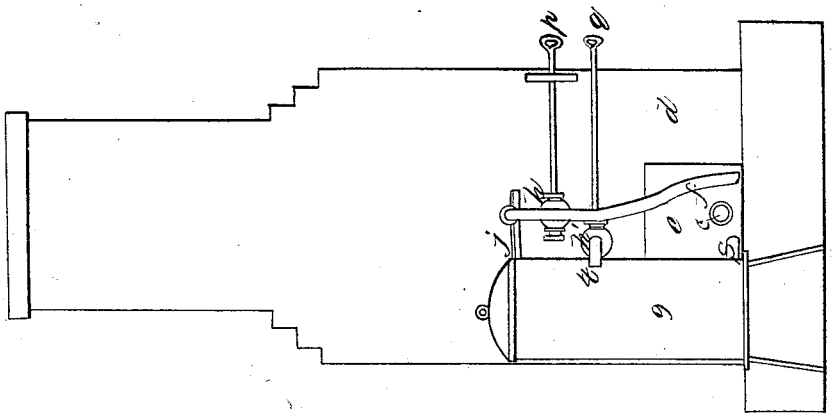

Fig. 2

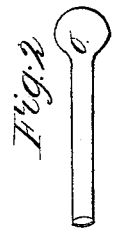

Fig. 1

Witnesses:
Wm. Evans
Theo. Lusch

Inventor:
J. H. Gould
per Munn & Co
attorneys.

UNITED STATES PATENT OFFICE.

J. H. GOULD, OF CINCINNATI, OHIO.

IMPROVED BLACKSMITH'S FORGE.

Specification forming part of Letters Patent No. **46,792**, dated March 14, 1865.

To all whom it may concern:

Be it known that I, J. H. GOULD, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Blacksmith's Forges; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents an elevation of a forge to which my improvement has been applied, a portion of the back wall being shown in section. Fig. 2 is a separate view of the sprinkler and pipe, hereinafter referred to. Fig. 3 is an elevation of the forge as seen from behind.

Similar letters of reference indicate corresponding parts.

This invention consists in certain devices whereby water can be sprinkled at pleasure upon the forge-fire for the purpose of economizing fuel, of keeping the fire in good condition, and of making it easier for the workmen to handle the irons.

The hearth of the forge is designated by the letter *a*, the letter *d* designating the back wall of the chimney, and the letter *m* the hood which leads to the throat of the chimney. *b* is the fire place, the concavity of which (not shown) receives the tuyere-pipe *c*, which passes through a water-back, *e*, set in the back wall, the bellows which supplies the blast being shown in red. *g* is a water-tank set behind the forge near the water-back and at an equal height above the ground, and connected to the water-back by means of a pipe, *s*, set near the bottom of each. A water-escape pipe, *f*, extends from the water-back near its bottom upward to about the level of the top of the tank, where it is bent over at K, so as to empty itself into a pan, *j*, which is connected with the tank, so that whatever water falls therein runs into the tank. A pipe, *t*, leads directly from the tank a little above the middle of its height toward a hole, 1, made through the back wall, which it approaches very nearly. This pipe is fitted with a stop-cock, *h'*, which is turned by means of a rod, *q*, extending to the side of the forge so as to be within reach of the smith.

i is a pipe leading off from the escape-pipe *f*, at a higher elevation than the pipe *t*, and also approaching the back wall of the chimney, presenting itself at the hole 2 therein. This pipe also has a stop-cock, *h*, which is governed by a rod, *p*, extending in the same direction as the rod *q*. An opening, 3, is made in the back wall at the point opposite to the discharge end *k* of the escape-pipe *f*. A sprinkler, O, composed of a pipe with an enlarged perforated head, like that shown in Fig. 2, is attached to the pipe *t*, as seen in Fig. 1. It is to be of sufficient length to reach through the back wall and extend over the forge-fire.

By placing a valve opening inward at the place where the trough or pipe *j* enters the tank, and by fitting the cover of the tank so as to be tight and able to resist considerable pressure, the smith can reduce the fire through the agency of the steam generated in the water-back, care being taken at the time that the cock *h'* be shut off. I have not shown such a valve nor fitted the cover of the tank to resist steam-pressure, because I do not claim anything in those devices, and any skillful mechanic is competent to construct them without particular explanations, or the same result can be produced by placing a valve in the connecting-pipe S. The apparatus may be fitted in either of these ways, or it may be used simply as a water apparatus at the pleasure of the operator, it being my object simply to show how it can be adapted for the use of steam-pressure. If so adapted, whenever it is desirable to reduce the fire or to cool the irons which require to be handled, or to check the blaze and enable the smith to stand near enough to see the progress of the heat that is to be taken on the work in the fire, the smith turns the cock *h'* by means of the rod *q*, when water from the tank will be forced into the pipe *t* and through the perforated nozzle upon the fire beneath it. The same result is obtained by attaching the nozzle or spinkler to the pipe *i* and opening the stop-cock *h*, when the pressure of the steam generated in the water-back *e* will force water up through the pipe *f* and its connecting-pipe *i*, and the sprinkler O, into the fire beneath; or if there is a great pressure of steam in the water-back the sprinkler may be attached to the end K of the pipe *f*, when water driven to that height will be delivered into the fire.

In order to attain these last results the workman must have regard to the position of any stop cock which may be placed in the pipe S.

Instead of using the same sprinkler for the pipes *t* and *i*, each may have its distinct sprinkler. It is sometimes desirable to sprinkle the fire before steam is generated in the water-back, and, therefore, it is necessary to have the pipe *t* leading from the tank to the forge as described, so that the sprinkler may be used at will.

My invention can be applied to forges which have no water-back or water-tuyere, by placing a small tank behind the forge and connecting it with a sprinkler in the manner here shown.

Where a water-tuyere or water-back is employed, the sprinkler becomes automatic in its action, the steam forcing a jet of water at intervals through the pipe *i* when the cock *h* is open. When the cock *h* is closed, the water forced up runs back into the tank by way of the pan *j*.

I do not claim operating a sprinkling apparatus for forges by the use of steam; but, having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The combination, with a forge, of the sprinkling apparatus O, connected with a water-tank, *g*, or its equivalent, arranged and operated substantially as and for purpose described.

2. The combination of the sprinkling apparatus O with the escape-pipe of a water-back or water-tuyere of a forge, arranged and operated substantially as and for the purpose above set forth.

J. H. GOULD.

Witnesses:
JNO. S. POWERS,
H. P. HINDLEY.