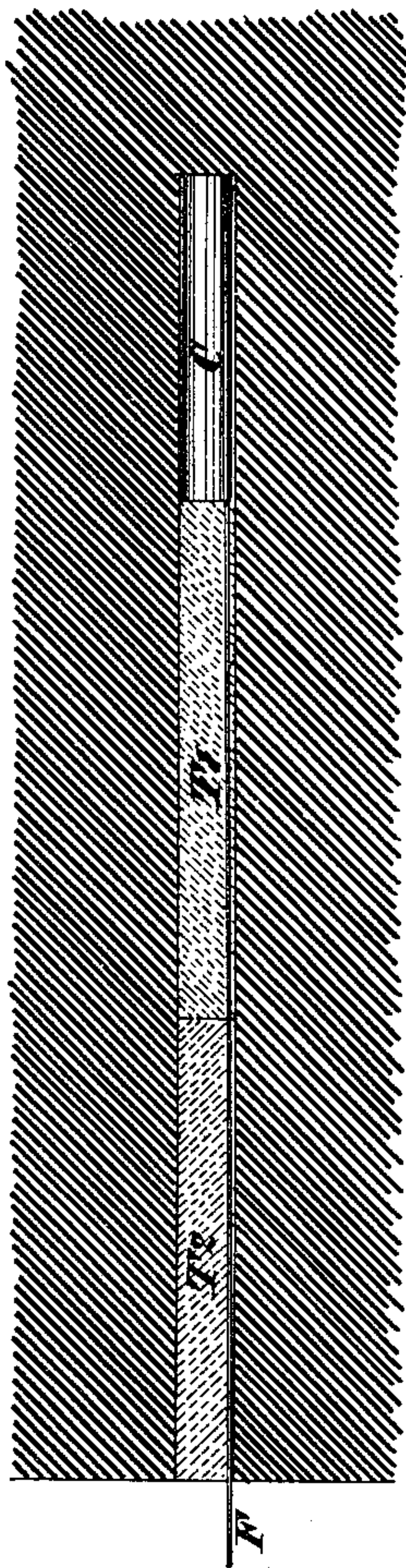


(No Model.)

W. GALLOWAY.  
TAMP FOR BLASTING.

No. 353,488.

Patented Nov. 30, 1886.



Witnesses:  
William D. Connor  
William F. Davis

Inventor:  
William Galloway  
by his Attorneys  
*Howson and Co.*



# UNITED STATES PATENT OFFICE.

WILLIAM GALLOWAY, OF CARDIFF, COUNTY OF GLAMORGAN, ENGLAND.

## TAMP FOR BLASTING.

SPECIFICATION forming part of Letters Patent No. 353,488, dated November 30, 1886.

Application filed March 9, 1886. Serial No. 194,580. (No model.) Patented in England November 17, 1885, No. 14,005; in France March 2, 1886, No. 174,505, and in Belgium March 2, 1886, No. 72,201.

*To all whom it may concern:*

Be it known that I, WILLIAM GALLOWAY, a subject of the Queen of Great Britain and Ireland, and a resident of Cardiff, county of Glamorgan, Wales, England, have invented certain Improvements in Tamping Shot-Holes in Blasting Operations, (for which I have obtained French patent, dated March 2, 1886, No. 174,505, and Belgian patent, dated March 2, 1886, No. 72,201, and have applied for a British patent, dated November 17, 1885, No. 14,005,) of which the following is a specification.

This invention has for its object to render blasting operations safe in the presence of fire-damp and coal-dust by tamping the shot-holes in an improved manner, and so as to prevent or very much diminish the risk of communicating flame to the fire-damp or coal-dust from the explosion of the blasting-charge.

The invention consists in using as a tamping material a fibrous or spongy substance saturated or impregnated with water or with a solution of a salt or salts or other liquid, which on the explosion will be dispersed in the form of spray. When the tamping is driven out on the firing of the shot, the liquid is, by the compression due to the explosion, forced out as spray from the tamping material, and the spray prevents the communication of flame to any fire-damp or coal-dust that may be present. The tamping may either partially or wholly surround the cartridge of explosive material, or it may be placed only in front of the cartridge.

The figure in the accompanying explanatory drawing represents a longitudinal section of a shot-hole for a blast as tamped according to my invention.

The cartridge C having been placed in the bottom of the hole, with the fuse F extending out from it in the ordinary way, my improved tamping material T', saturated with liquid, is placed immediately in front of the cartridge, and then the hole is filled up with ordinary tamping material, T<sup>2</sup>. The relative proportions of the two tamping materials T' and T<sup>2</sup> may be varied in different cases, according to the depth or length of the hole, and as may be found desirable in practice.

The fuse F must be protected from the moisture, any suitable water-proof coating being used for that purpose.

I am aware that bodies of water have been used in connection with blasting-cartridges to prevent flame from being communicated to the fire-damp or coal-dust when the blasting takes place; but in practice the water is apt to be thrown in splashes, and will not always prevent explosion. In my invention, however, the presence of the fibrous or other disintegrating material in the water insures the thorough breaking up or pulverizing of the liquid when acted on by the pressure of the explosion, the liquid being projected in a spray and the communication of flame to the fire-damp or coal-dust being effectually prevented.

I am also aware that in Burgoyne's book on "Blasting and Quarrying," published in London in 1874, broken brick in small pieces and dust is mentioned as a suitable tamping material for blasting rock, and that it "is improved by slightly moistening with water during the ramming." In such case, however, the moistening of the brick-dust is nothing more than a dampening to hold it together, and there is not water sufficient to perform the function of preventing explosions. In other words, there would be no projection of water in spray to prevent the communication of flame to fire-damp or coal-dust if the slightly-moistened brick-dust were used in mine-blasting. In my invention, on the other hand, the fibrous or other disintegrating material is completely saturated with liquid, and moss or sponge, for instance, when "saturated," will hold from four to six times its weight of water. This material is present in the water for the purpose of insuring the disintegration of the water, or, in other words, causing it to be thrown out in the form of spray under the force of the explosion.

I claim as my invention—

A safety-tamping for shot-holes in blasting, having more or less of its material fibrous or spongy and saturated with a liquid, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM GALLOWAY.

Witnesses:

WERNER C. MERVALL,  
B. DAVIES.