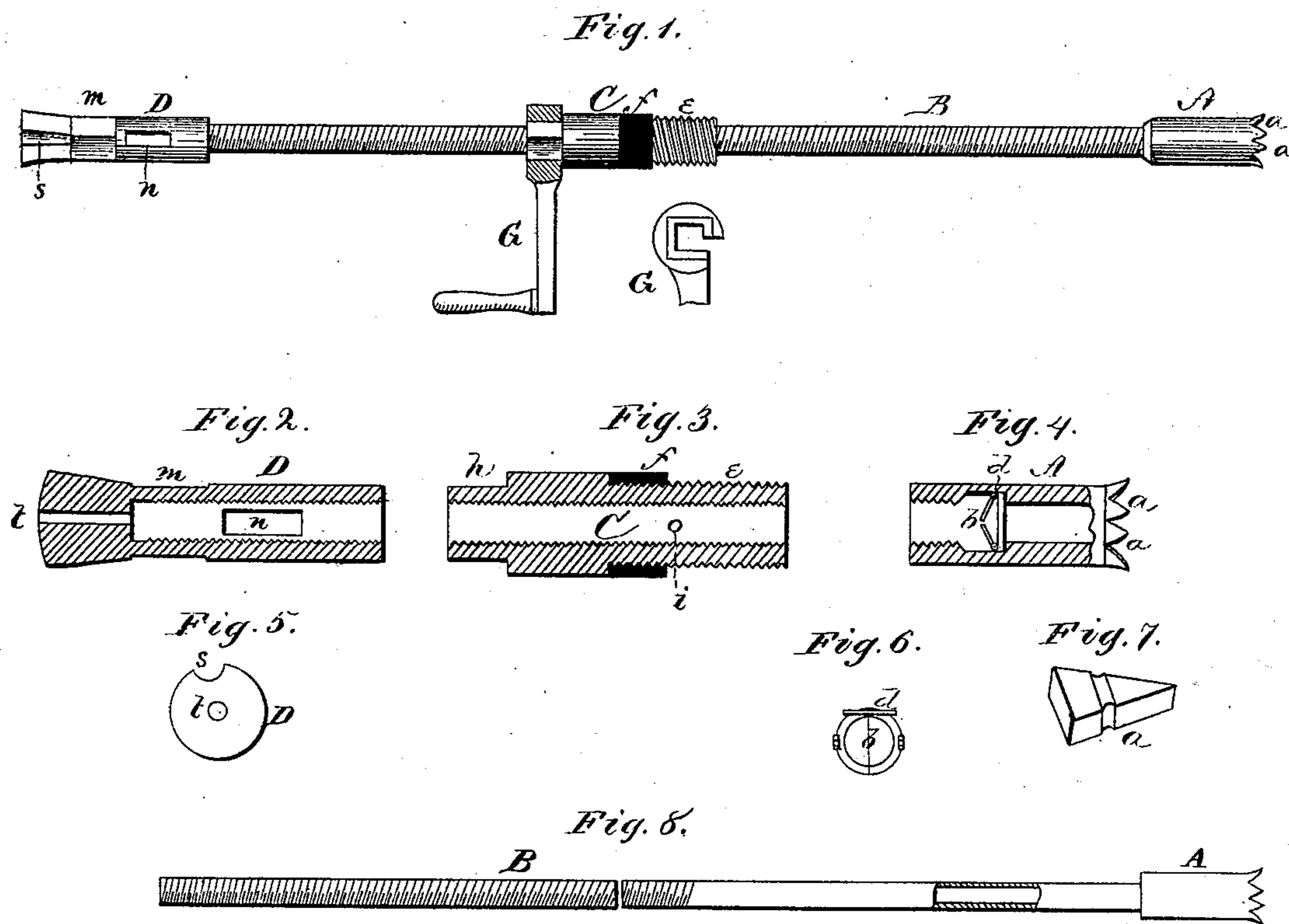


S. H. DADDOW.
Coal-Drills.

No. 151,654.

Patented June 2, 1874.



Witnesses:

Henry N. Miller
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UNITED STATES PATENT OFFICE.

SAMUEL H. DADDOW, OF ST. CLAIR, PENNSYLVANIA.

IMPROVEMENT IN COAL-DRILLS.

Specification forming part of Letters Patent No. 151,651, dated June 2, 1874; application filed May 14, 1874.

To all whom it may concern:

Be it known that I, SAMUEL HARRIES DADDOW, of St. Clair, county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Drills for Stone and Coal, of which the following is a specification:

The nature of my invention consists in the construction and arrangement of a drill for drilling holes in coal, rock, &c., for the purpose of blasting in mines, quarries, &c., as will be hereinafter more fully set forth.

In the accompanying drawing, Figure 1 is a side view of my entire drill. Fig. 2 is a longitudinal section of the tamping-head. Fig. 3 is a similar view of an elongated nut used in connecting the sections of the drill-shaft. Fig. 4 is a similar section of the drill-head. Figs. 5, 6, and 7 are detached views of certain parts of the drill; and Fig. 8 is a side view of the drill, with the tamping-head and nut removed.

A represents the steel head or bit, provided with teeth *a a*, like a hollow saw, which teeth may be either permanent in the head or be inserted, as represented by the tooth shown in Fig. 7. In the interior of the drill-head A is a valve, *b*, held in place by a pin, *d*, as shown in Fig. 6. This valve is dropped into place through the upper or outer end of the drill-head before the tube B is inserted. The object of the valve *b* is to bring up the core or cuttings in steep holes. It may be taken out at pleasure when not needed. C represents a long hollow nut, of any suitable dimensions. All or part of the drill-bar or hollow tube B is provided with screw-threads to fit the nut C, and it may be made in two sections, as shown in Fig. 8, the part nearest the drill-head being made smooth. The two sections then screw into the nut from opposite ends and meet at or near the center thereof. This arrangement is to admit of different cutting-tools, which may be of any form or style desired when thus in two separate pieces; and also that the more elaborate work on the outer part of the tube, the nut, and the tamping-head may not interfere with the cost of building or making the drill, in order to secure greater variety in the size, length, and weight of the drill. The head A may also be changed at pleasure, in order to get a large or small

hole with the same tool. The nut C is provided with steel tap at *e*, the threads on which are formed with cutting edges or teeth, in order to cut and clear a corresponding thread in whatever substance it may be fixed, in order to hold it firmly against the drill when in operation. On this nut is placed a friction or pressure jam-nut, *f*, which may be of rubber, or any other elastic substance, which is forced outward, increasing its diameter and shortening its length when the nut C is secured firmly into the drill-hole. The nut C may be held by, or attached to, a post when the drilling is conducted in a coal-bed, the post being held between the top and bottom slats.

A hole is first drilled by the jumping or percussive action to the depth of about twelve inches, more or less. Into this hole the nut C is forced by turning it by a crank, G, which is fastened on a square projection, *h*, at the outer end of the nut, the crank being slipped over the drill-bar through a slot in the crank. The cuttings made in the coal or rock by the teeth *e* are forced into the drill-bar through a hole, *i*, between the teeth, or cleared by any other device. When the nut C is firmly secured into the mouth of the drill-hole the nut *f* is forced out against the sides of the hole, while the teeth *e* are firmly set in corresponding grooves or threads. Thus the nut is fixed ready for the operation of rotating the drill. The crank G is then slid back on the square part of the tamping-head D at *m*. The core or cutting from the bit A is forced through the hollow drill-bar B and falls out at a slot, *n*, in the tamping-head D. The operation, however, of drilling may be conducted by any operation of jumping or percussion, the core and cutting falling out in the same manner through the slot *n*. The nut C, in that case, is held firmly in one hand, or it may be gradually turned as the hole progresses. The tamping-head D is used for tamping the hole and pushing in the cartridge or powder. The slot or hole *s* in the side of the head is to admit the use of the miner's-needle or the blasting-barrel now in common use. The hole *t* in the end of the head D is designed to admit the use of a fuse in the center of the hole instead of the sides, as now practiced, to obviate the danger of igniting it by striking fire

against the sides of the hole, which is a very frequent occurrence, and also to attach the fuse in the center of the cartridge instead of the side, as is now attempted, whereby the cartridge is frequently torn, because the fuse is generally nearer the center than the side, and when the tamp is forced against the end of the cartridge the fuse is forced to the side, and the danger of tearing it is great, which, in a wet hole, always causes failure. The hole *t*, however, may be used in any hollow drill, and may be used or not, as desired. By a small set-screw in the hole it may be opened or closed at pleasure.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The elongated nut C, provided with cut-

ting-threads *e* on the outside, the elastic jam-nut *f*, and square or round end *h*, substantially as and for the purposes herein set forth.

2. The tamping-head D, provided with the slot *n*, slot or hole *s*, and hole *t*, substantially as and for the purposes herein set forth.

3. The combination of the drill-head A, hollow drill-bar B, elongated nut C, and tamping-head D, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my invention I hereunto affix my signature this 23d day of April, 1874.

SAMUEL HARRIES DADDOW.

Witnesses:

SAML. HINER,
MEREDITH L. JONES.