

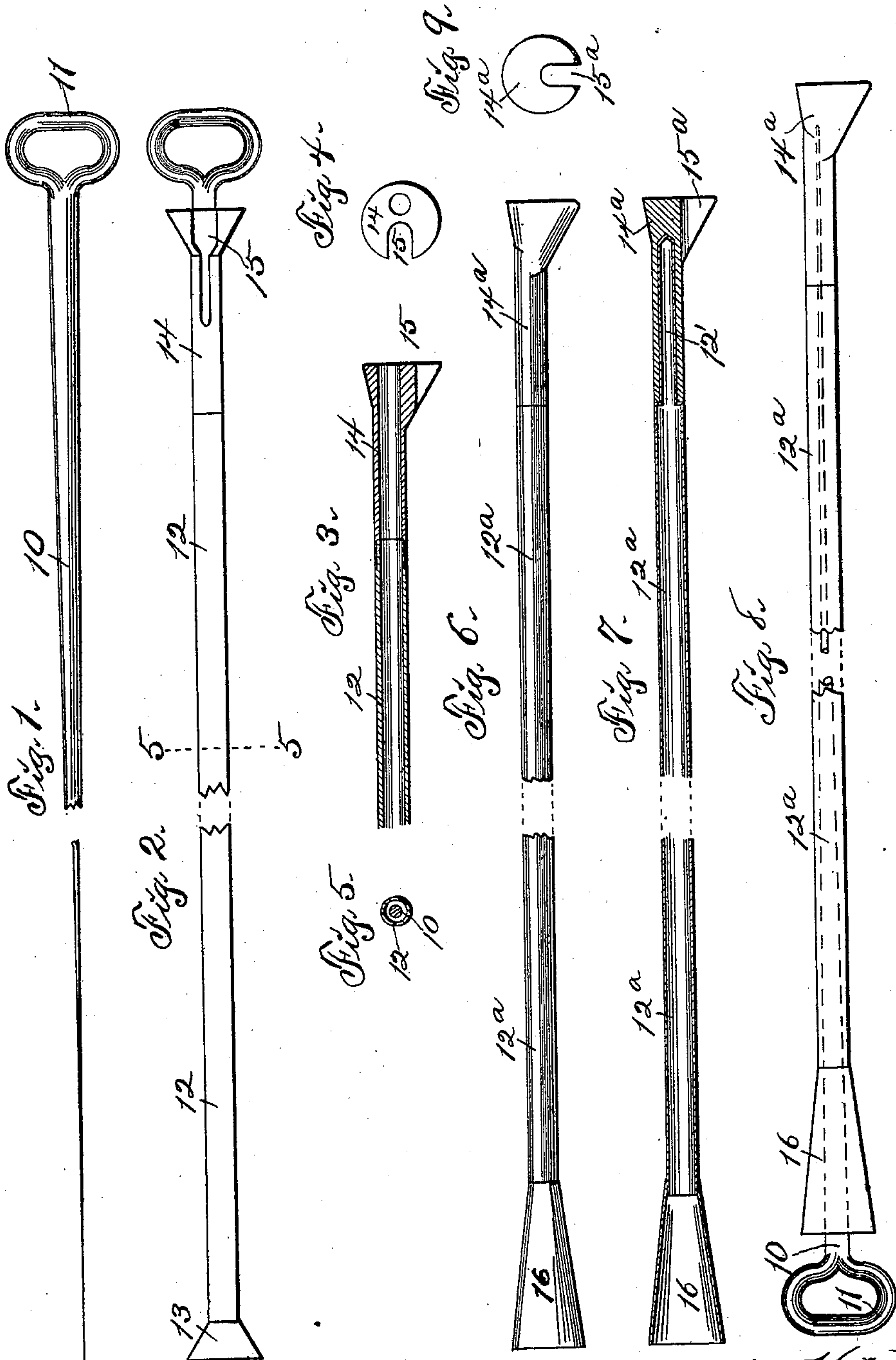
No. 705,997.

Patented July 29, 1902.

M. HARDOCG.  
COMBINATION MINER'S TOOL.

(Application filed May 21, 1901.)

(No Model.)



Attest:  
weclis  
M. H. Winter

Inventor:  
Martin Hardocg,  
By *[Signature]* Att'y



# UNITED STATES PATENT OFFICE.

MARTIN HARDSOCC, OF OTTUMWA, IOWA, ASSIGNOR OF ONE-HALF TO  
LESTER C. HARDSOCC, OF OTTUMWA, IOWA.

## COMBINATION MINER'S TOOL.

SPECIFICATION forming part of Letters Patent No. 705,997, dated July 29, 1902.

Application filed May 21, 1901. Serial No. 61,261. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN HARDSOCC, a citizen of the United States of America, and a resident of Ottumwa, Wapello county, Iowa, have invented a new and useful Combination Miner's Tool, of which the following is a specification.

The object of this invention is to provide a tool or instrument combining several tools and having several distinct uses in connection with the operation of drilling and blasting in the occupation of mining.

A further object of this invention is to provide means for containing and protecting a miner's needle, the containing means also serving a useful function extraneous to the needle.

A further object of my invention is to provide improved means for combining a drill, a tamping-head, or cleaner with the miner's needle in such a manner that the drill, tamping-head, or cleaner will contain and protect the needle when said needle is not in use.

My invention consists of a tool hereinafter described, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a view of a miner's needle, a portion thereof being broken away to economize space on the drawings. Fig. 2 is a side view of a combined churn-drill and tamping-bar in which is mounted for protection and convenience a miner's needle. Fig. 3 is a longitudinal section of one end portion of the device shown in Fig. 2, the needle being removed. Fig. 4 is an end view of the tamping-bar illustrated in Fig. 2. Fig. 5 is a cross-section of the device shown in Fig. 2. Fig. 6 is a side view of a combined tamping-bar and cleaner. Fig. 7 is a longitudinal section of the device shown in Fig. 6. Fig. 8 is a side view of the device shown in Figs. 6 and 7 with a miner's needle mounted therein. Fig. 9 is an end view of the tamping-bar shown in Fig. 6.

In the construction, combination, and use of my invention the numeral 10 designates a miner's needle having a loop or handle 11 at one end and tapering throughout its length from the handle to an attenuated and slender

point at its other extremity. The needle 10 preferably is made of copper to prevent a premature and inopportune explosion that otherwise might occur through the contact of said needle with a flinty substance in a drill-hole.

The numeral 12 designates a tubular stem, on one end of which is formed or mounted a churn-drill 13, by the use of which an excavation, hole, or bore may be made in earth, stone, coal, or other mineral substances to be encountered in mining. A tamping-head 14 is provided and mounted on the end portion of the stem 12, opposite to the drill 13. The tamping-head 14 is tubular in alignment with the bore of the stem 12 and is fixed thereto by means of an overlapping joint brazed or otherwise rigidly secured. The tamping-head 14 has a diameter approximating to the length of the cutting edge of the drill 13 at its outer end; but the circumference of the outer end of the tamping-head is eccentric to the circumference of the stem 12 and is notched or grooved at 15 in its larger projecting portion. The tamping-head 14 and stem 12 are made tubular to receive the needle 10 and contain said needle to the end that the needle may be protected against bending, bruising, or other accidental damage when not in use. Furthermore, by mounting the needle in the bores of the tamping-head and stem its presence is assured at the moment it is desired for use, as hereinafter will appear.

In the practical operation or use the drill is employed to penetrate and form a bore or excavation to the desired or convenient depth. The drill is withdrawn from the bore made by it. The bore is cleaned or scraped to remove therefrom the loose chippings or shavings of substance detached by the drilling. A charge of blasting-powder or other explosive material is then placed in the closed end portion of the bore made by the drill, and the needle is withdrawn from the stem and next employed by insertion, pointed end first, in the bore or excavation and with its point reaching to or entering the charge of explosive. Tamping material is then introduced to the bore or excavation and rammed and pounded against the charge of



explosive therein by means of the tamping-head 14. A plug of wood or other substance may be placed in the bore of the head 14, if desired, to prevent obstruction of said bore  
 5 by the tamping material. In the use of the tamping-head within the bore or excavation the notch or groove 15 of said head straddles and slides upon the needle, the remainder of the larger diameter of said head approxi-  
 10 mately filling the bore exterior to the needle. When the tamping material has been rammed or pounded sufficiently, the needle is withdrawn, the tamping material being held against the withdrawal of the needle by the  
 15 tamping-head, and a train or fuse is laid to the priming-hole formed by the needle and ignited in due course to the end that the explosive may effect its purpose.

In the above description of the use of my  
 20 invention I mentioned cleaning the bore or excavation made by the drill. For this purpose I prefer to employ a tapering tube, funnel, or cleaner 16, relatively thin and shaped as a truncated cone, with its smaller end  
 25 brazed or otherwise secured to one end of the stem 12<sup>a</sup> in lieu of the churn-drill 13. On the stem 12<sup>a</sup> opposite to the cleaner 16 I may employ a tamping-head 14<sup>a</sup>, having a notch 15<sup>a</sup>, but not tubular. I can omit the bore from  
 30 the head 14<sup>a</sup> and introduce the needle 10 to the stem 12<sup>a</sup> through the cleaner 16 for protection and convenience in transportation.

In the use of the device illustrated in Figs. 6, 7, and 8 for cleaning the bore or excava-  
 35 tion made by the drill the operator inserts the cleaner 16 in the bore and pushes it back as far as may be, receiving the chippings and shavings cut by the drill within the tapering shell of the cleaner. Carefully withdrawing  
 40 the cleaner and stem from the bore the operator may bring out a considerable portion of sediment, chippings, and shavings and deposit the same on the floor of the room in which he is working. A repetition of this  
 45 operation may be necessary to clean the hole

or bore thoroughly prior to the introduction of the charge of explosive.

The tamping-heads 14 14<sup>a</sup> preferably are made of copper to avoid premature and in-  
 opportune explosions, and I have illustrated 50 in Fig. 7 that the head 14<sup>a</sup> has a bore or socket in its smaller body portion in which is inserted a tongue 12' of the stem 12<sup>a</sup>, the tongue being brazed or otherwise rigidly secured in the socket. The tongue 12' preferably is 55  
 formed by rolling down or contracting one end of the tubular stem 12<sup>a</sup>, and when the needle is inserted through the cleaner 16 and stem the point thereof will seat and be protect-  
 60 ed in said tongue.

I claim as my invention—

1. A miner's combination-tool comprising a tubular stem, a tubular funnel-shaped cleaner on one end of said stem and a tamping-head  
 on the opposite end of said stem, said tamp- 65 ing-head mounted eccentrically on said stem and notched radially for straddling a miner's needle when in use.

2. A miner's combination-tool, comprising a stem, a tool member on one end of said stem, 70 a tamping-head on the opposite end of said stem, said tamping-head mounted eccentrically on said stem and bored in alinement with the bore of the stem for the reception of a miner's needle, said tamping-head being 75  
 notched for straddling the miner's needle when in use.

3. A combination miner's tool, comprising a tubular stem, a tool member on one end of said stem, the opposite end of said stem be- 80  
 ing reduced in cross-section, and a tamping-head mounted eccentrically on and formed with a socket arranged to receive and be fixed to the reduced portion of the stem.

Signed by me at Ottumwa, Iowa, this 30th 85 day of March, 1901.

MARTIN HARDSOCC.

Witnesses:

W. A. WORK,  
 EMUEL A. WORK.