(No Model.)

J. C. TAPPEINER.

ASSAY FURNACE.

No. 272,599. Patented Feb. 20, 1883.

Fig. 1.

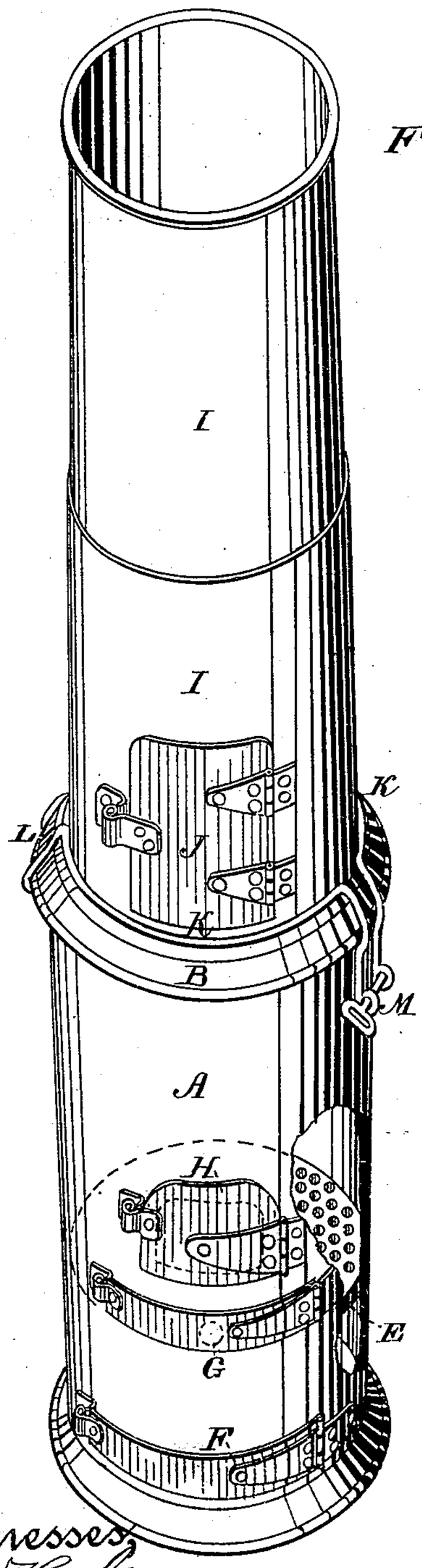


Fig. 4.

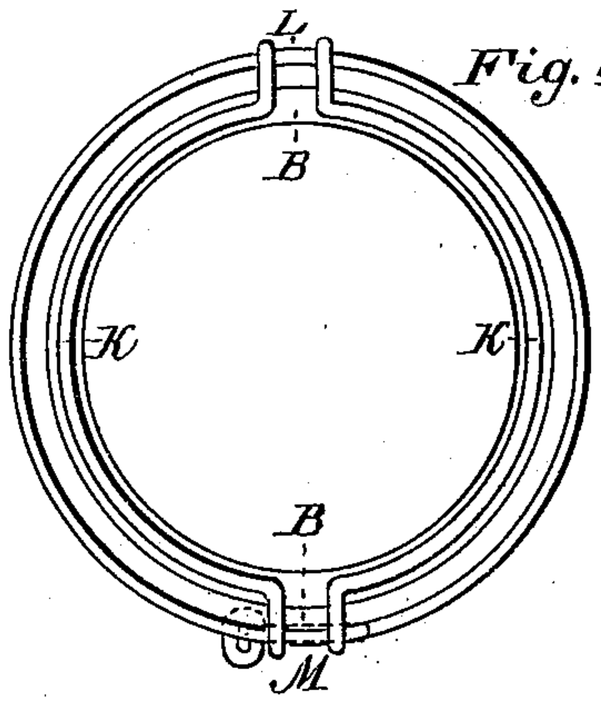


Fig. 3.

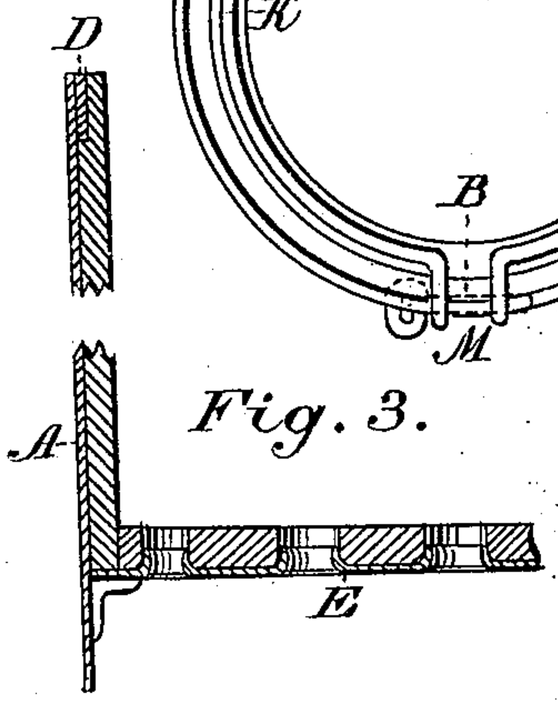
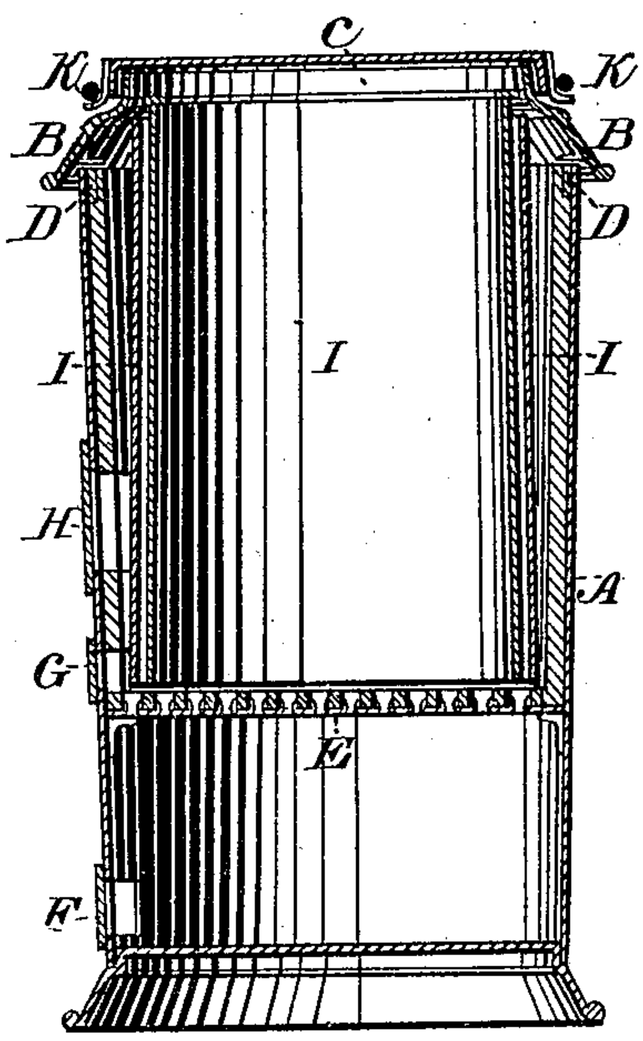


Fig. 2.



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ASSAY-FURNACE.

SPECIFICATION forming part of Letters Patent No. 272,599, dated February 20, 1883.

Application filed September 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. TAPPEINER, of Bisbee, county of Cochise, Territory of Arizona, have invented an Improved Portable Assay-Furnace; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an assay-furnace which is intended for the use of miners and prospectors, and to be easily packed up and carried from place to place, as needed; and it consists in the combination of devices hereinafter explained and claimed. At the top it is decreased in size, and has a collar, upon which the lower section of the pipe is made to fit. The pipe is made tapering, decreasing in size toward the top, and in sections which may be telescoped together, so that the whole can be reversed and placed in the furnace above the grate. A cap then closes the whole and is retained in place by a hinge-clamp and lock, which also serve to retain the pipe in place when in use.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of my furnace set up ready for work. Fig. 2 is a section showing it packed. Fig. 3 is a detail. Fig. 4 is a plan of cover.

A is the body of my furnace, the exterior casing of which is made of metal or suitable material and the interior lined with fire-brick, clay, or any non-conducting heat-resisting material. The body is made tapering, from four to ten inches in diameter, and about three times as high, increasing in size from the bottom to the shoulders at the top, so that it has the greatest diameter where the greatest amount of room is required. This also gives a better draft. The shoulders B of the cover are curved inward from the point of greatest diameter, and a collar, C, is formed at the top to receive the pipe. Within the furnace and around the upper edge is an iron ring, D, about one inch wide and one-fourth of an inch thick. This ring resists external pressure and prevents the furnace being crushed when it is packed upon an animal for transportation.

E is the fire-grate, which is preferably made of sheet-iron, coated also with fire-clay, and with round holes punched in it. The burrs formed by punching the holes are turned up, and they assist in holding the coating of fire-clay in place, the holes passing through the clay also. Below the grate is a draft regulating door, F, and G is a door about three-fourths of an inch above the grate, for the introduction of picks, drills, &c., to heat them for tempering when desired. Above this in another door, H, of the proper shape to receive a muffle, which fits it, and may be introduced whenever needed.

I I are sections of pipe made tapering so that the lower end of the lower section will fit over the collar C at the top of the furnace, and the lower end of each succeeding joint or section fits tightly into the top of the next lower one, as shown, when they are all drawn out, thus making a pipe of any desired height.

J is a door made in the side of the lowest section, through which fuel is supplied to the furnace from time to time, as needed, and through which the crucibles may be introduced.

In order to hold the cover B in place and steady it and the pipe, I employ a clamp, K, which surrounds the collar. One end extends down upon the side of the furnace and has a hinge-joint at L, and the other end extends down upon the opposite side of the furnace, and has a lock of any suitable description at M.

When the furnace is to be transported or is not in use the pipe is taken off, and by reversing it and pressing its small end upon the ground the joints will be loosened where the end of one section binds within the next, and the sections may all be telescoped one within the other. The top of the upper section is flanged or beaded, so as to prevent its being bent or broken when it is pressed upon the ground. When the pipes have been telescoped they are placed in the furnace small end down, and occupy the space between the grate and the top.

Three pairs of assay-tongs will fit between the pipe and the inside of the furnace.

The flux-boxes are made round, about two inches high, with central partitions and hinges, so that each will form two boxes, and they will fit loosely inside the pipe. The iron muffle will also fit inside the pipe, and will be in no no danger of breakage during transportation.

When the whole is in place the cover is shut

down upon the top and is secured by the clamp, the whole being then ready for transportation.

This apparatus is designed for the use of assayers, miners, or prospectors, and is compact and portable. It can be packed upon an animal over any trail, and into districts where it can be made available in determining the value of the ores upon the spot. It is also useful for sharpening and tempering picks, drills, and other tools.

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

1. A portable furnace consisting of the upright body A, with its doors F, G, and H, grate E, and cover B, with collar, as shown, in combination with the pipe made in tapering sections I, so as to be extended or closed telescopically or reversed into the furnace, and having the charging-door J in the lower section, substantially as herein described.

2. The upright body A, with its cover B and sectional telescopic pipe I I, constructed as described, whereby it may be packed in the main body A, as shown, in combination with the clamp K, hinged to the body of the furnace, and locking devices, as described.

3. A mining and assay furnace consisting of the tapering body A, with its fire-resisting grate E, doors F, G, and H, cover B, and clamp K, in combination with the tapering telescopic sectional pipe I I, constructed as described, whereby it may be packed in the main body A, substantially as specified.

In witness whereof I hereunto set my hand.

JOHN C. TAPPEINER.

Witnesses:
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