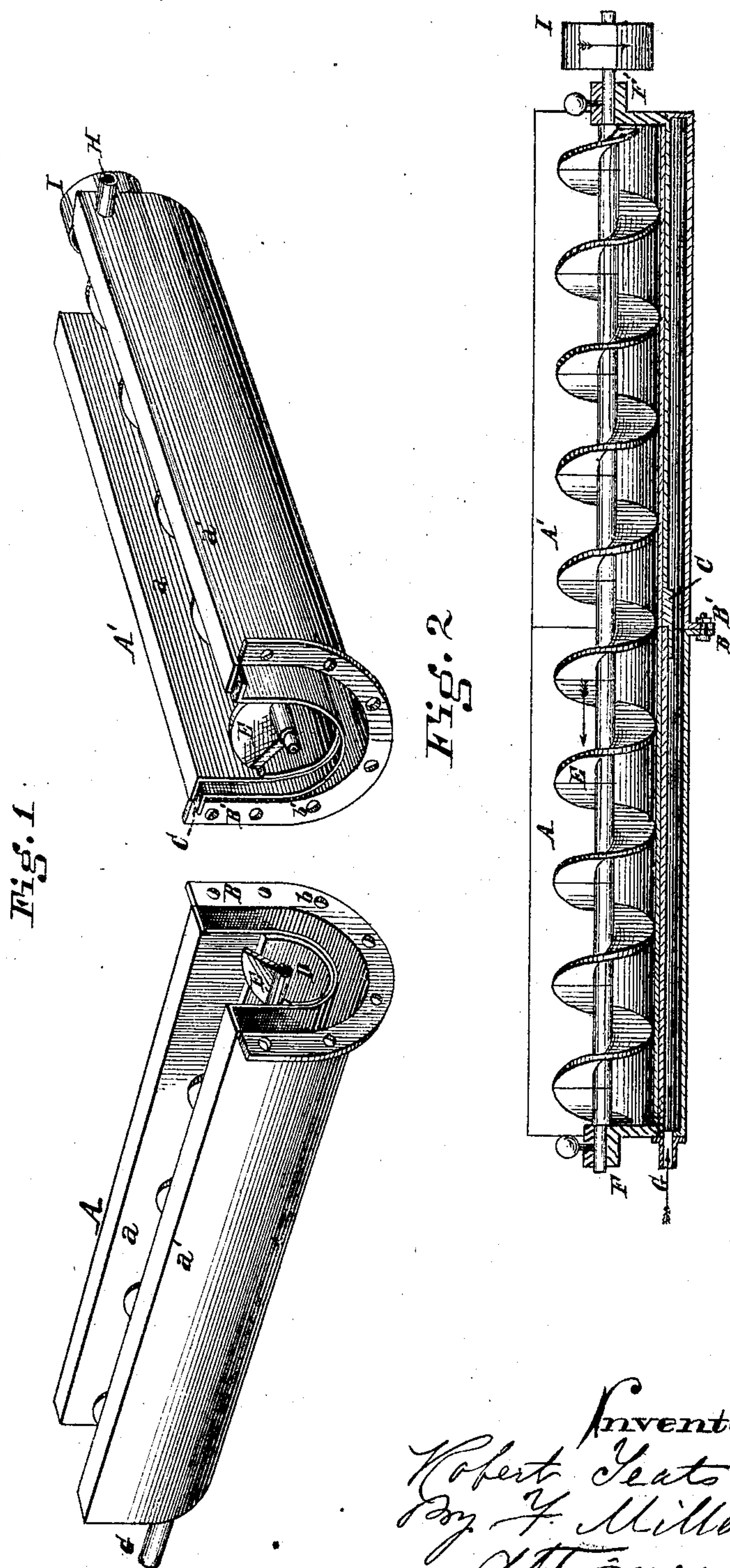


R. TESTS.

Apparatus for Conveying and Cooling Roasted Ores.

No. 152,532.

Patented June 30, 1874.



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IMPROVEMENT IN APPARATUS FOR CONVEYING AND COOLING ROASTED ORES.

Specification forming part of Letters Patent No. **152,532**, dated June 30, 1874; application filed June 9, 1874.

To all whom it may concern:

Be it known that I, ROBERT TEATS, of Central City, Gilpin county, Colorado Territory, have invented certain new and useful Improvements in Apparatus for Conveying and Cooling Roasted Ores, of which the following is a specification:

My invention relates to that class of conveyers which act by means of a screw or worm, the thread or flange of which revolves in close proximity to the inner surface of a semi-cylindrical trough, and thus presses the ore through said trough; and my invention consists, in connection with said screw-conveyer, of a cooler formed below the screw-conveyer, the bottom of the conveyer being a part of the same, into which, at one end, cold water under pressure is introduced through a pipe near the bottom, and gradually rises under said pressure around the inner plate of the trough until it is forced out at a pipe near the top of the other end, the object of this being twofold: First, owing to the cold water entering and surrounding the trough, the inclosed heated ore from the roasting-furnaces is deprived of heat; and, second, in the same action, this liberated heat gradually heats the water as it passes to the other end of the trough, which it reaches in a fit state for use in amalgamating the ore, thereby saving steam, which has been heretofore used for that purpose. This same heated water, as it comes from the trough, may also be used for boiler-feeding, if required, thus doing away with the customary heater.

Figure 1 is a perspective view, representing disconnected sections of a conveying-trough (with the inclosed screw broken apart) embodying my invention. Fig. 2 is a sectional elevation of trough, showing inclosed screw entire.

A A' are sections of a hollow semi-cylindrical cooling and conveying trough, with inner and outer shells *a a'*, respectively. The outer shells, *a'*, of the two sections have flanges B B', while one of the inner shells *a* has a projecting lip, C, thus making an impenetrable water-tight joint when joined together with gaskets and secured by bolts passing through apertures *b*. Inside of the inner shell *a*, and fitting snugly against it, I provide a false cast-

iron shell, D, to protect the trough from the wearing tendency of the passing ore. I prefer to use this cast-iron lining because it is cheaper and more convenient to replace (when worn out) than the shell proper, while it does not materially hinder the process of cooling. E is the worm, which is made of cast-iron and put together in sections. It rests upon bearing F F' at each end of the trough, secured to the bottom of the same, and I prefer to introduce a bearing also at the point of connection between the sections A A', which will relieve the inner false shell D of the weight of the screw, and also support the latter. G is the supply-pipe for cold water; and H is the escape-pipe for this water, which, while passing through the space between the shells in the opposite direction to the ore, becomes charged with the heat from the passing ore, and is adapted, while thus heated, to be used for amalgamating the ore or to feed the boiler. I is a pulley revolved by steam-power; or, if the trough is one of a series, I use bevel-gearing and a line of shafting.

The ore to be operated upon in my apparatus is that received from a roasting-furnace, and it has been customary heretofore to spread this ore on extensive floors, and by manual labor, subjected to the poisonous gases, it has been stirred up and slowly cooled.

With my apparatus the ore can be taken directly from the furnace and fed through a hopper into the end of the conveyer and cooler, and it is, in transit from one end to the other, thoroughly cooled, the water which cools it being heated in the manner before explained, the water and ore moving in opposite directions, as shown by arrows.

I claim—

In combination with the screw-conveyer E, the hollow cooling-trough A A', constructed to operate substantially in the manner and for the purpose specified.

In testimony of which invention I hereunto set my hand.

ROBERT TEATS.

Witnesses:

FRANK MILLWARD,
R. M. HUNTER.