

No. 672,373.

Patented Apr. 16, 1901.

J. JACOBS.

MEANS FOR COOLING ORES FROM ROASTING FURNACES.

(Application filed Oct. 17, 1900.)

(No Model.)

Fig. 1.

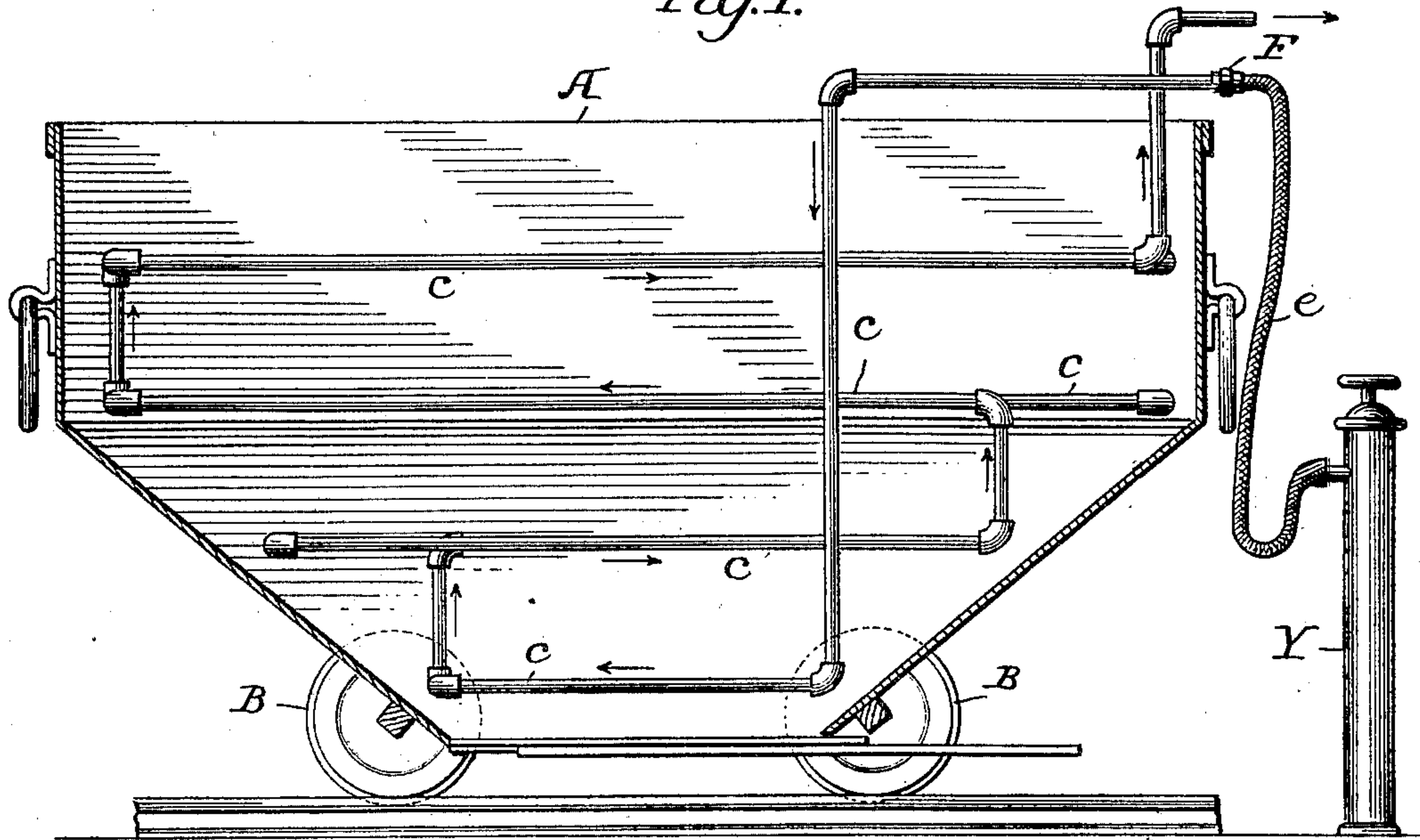
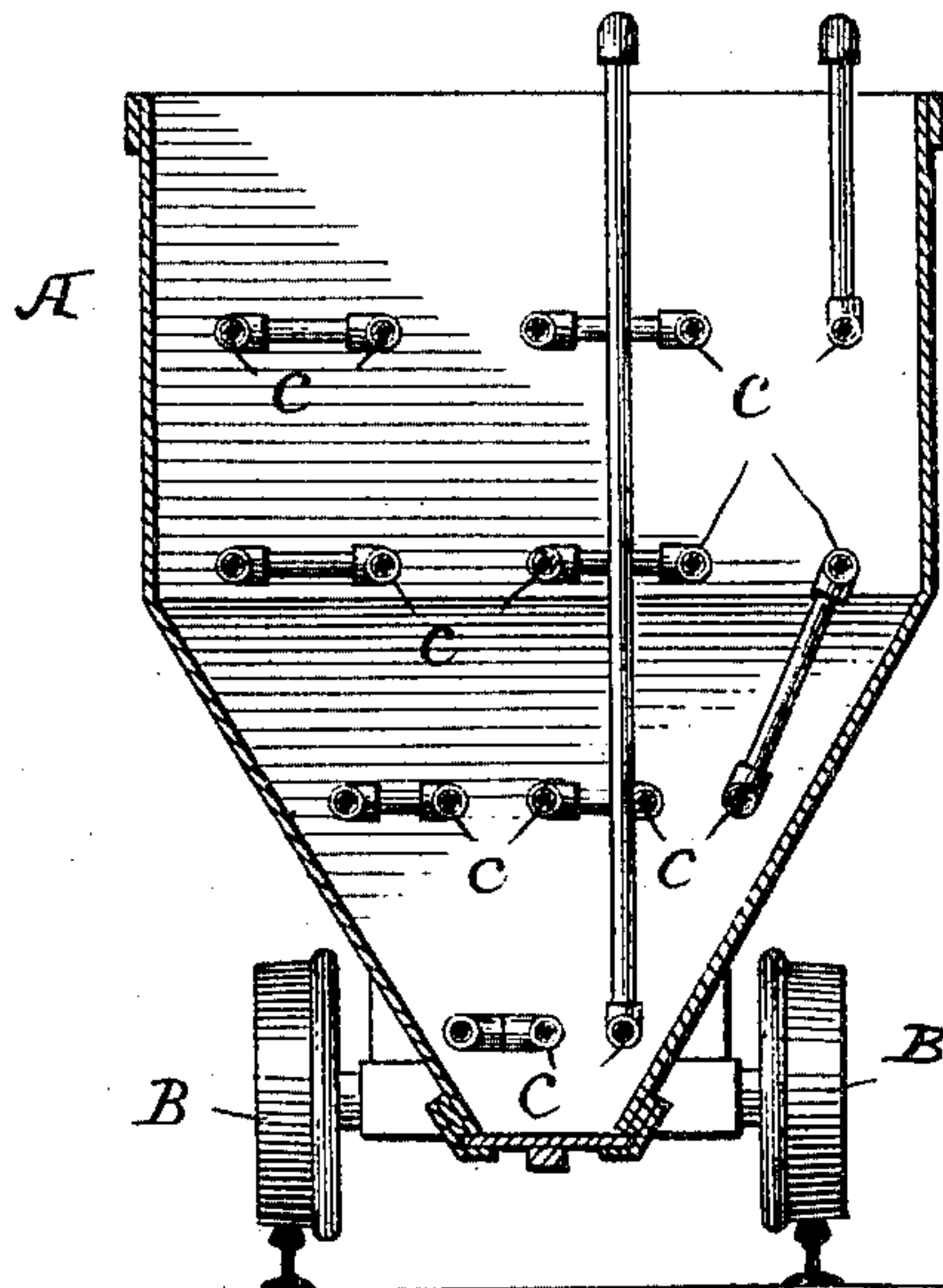


Fig. 2.



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# UNITED STATES PATENT OFFICE.

JOHN JACOBS, OF FLORENCE, COLORADO.

## MEANS FOR COOLING ORES FROM ROASTING-FURNACES.

SPECIFICATION forming part of Letters Patent No. 672,373, dated April 16, 1901.

Application filed October 17, 1900. Serial No. 33,368. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JACOBS, a citizen of the United States, residing at Florence, Fremont county, State of Colorado, have invented certain new and useful Improvements in Means for Cooling Ores from Roasting-Furnaces, of which the following is a specification.

My invention relates to improved means for cooling ores—such, for instance, as are delivered from ore-roasting furnaces—and has for its object to provide a simple, cheap, and effective means whereby ores may be quickly and effectively cooled; and to this end it consists in the construction, arrangement, and operating means, substantially as hereinafter more particularly set forth.

In the accompanying drawings I have shown the preferred arrangement of such means, in which—

Figure 1 is a longitudinal section of a car, showing the arrangement of pipes, with means for connecting the pipes to a source of supply; and Fig. 2 is a transverse section of the same.

Various means have heretofore been employed to effect the cooling of ores, as the hot ores from roasting-furnaces; but so far as I am aware these devices have been more or less objectionable for reasons which need not be stated, and it is the object of my invention to provide means which will avoid these objections and at the same time furnish a cheap and effective means for accomplishing the desired result.

As shown in the drawings, there is a car-body A, mounted upon wheels B in any usual manner, and on the car-body are arranged the cooling-pipes c, extending side by side at such distances apart that practically all portions of the ore delivered to the car will come within their cooling effect.

As shown in Fig. 1, there is a source of supply of cooling fluid—as, for instance, the hydrant Y—provided with a flexible pipe e, and having a coupling F, whereby it may be connected to the inlet end of the cooling-pipe c, so that when the cooling fluid is turned on it will flow through the pipes and the ore in the car which is in contact with the pipes and arranged between the pipes will be cooled.

After the ore in the car is sufficiently cooled the pipe is disconnected and another car is placed in position for connection with the hydrant, or a series of cars may be connected together and each car of the series may be connected directly or indirectly with the hydrant.

I preferably arrange the pipes so that the cooling fluid as it is admitted into the pipes will first flow through the pipes arranged in the bottom of the car and thence upward and be delivered from the pipes near the top of the car, as in this way the cooling fluid first acts upon the mass of ore near the bottom of the car before it becomes heated and when it exerts its greatest cooling effect.

The car-bodies are made of metal, so as not to be affected by the heated ores, and the cooling-pipes are arranged in the car-body, so that the cooling fluid will have the desired effect. The hot ore is placed in the car directly from the furnace and the car put in connection with the source of supply of cooling fluid, so that the air or water is passed through the pipes or channels in the car, which is preferably left standing during this process and which results in the extraction of the heat from the ore by the cooling fluid flowing through the pipes. In this way the ore in the car can be sufficiently cooled in a very short time, and the car being disconnected from the fluid-supply may be transferred bodily to the desired point, where the ore can be subjected to the next step in the process. It will be apparent that in this way the handling of the ore for the purpose of cooling it is very much simplified, as it is only necessary to dump or deliver it into the car, where it remains until it is sufficiently cooled, and there is no loss resulting from the repeated handling or stirring of the ore, and all hand labor in connection with the cooling of the ore is avoided.

The means above described are very simple, cheap, and have been found to be very effective, and the use of them has resulted in a great saving of time and labor and loss of ore.

It is evident that my invention is not limited to any particular construction of car or precise arrangement of cooling-pipes therein,

as they may be differently constructed and arranged to meet the exigencies of any particular case.

What I claim is—

- 5 The combination with a car adapted for the reception of ore, of a series of cooling-pipes located within the body of the car and so arranged that the cooling medium passes first through the bottom pipes and thence upward  
10 to the top of the car, and means for tempo-

rarily connecting the pipes with a source of fluid-supply, substantially as described.

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

JOHN JACOBS.

Witnesses:

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