W. A. MILES.

Improvement in Apparatus for Charging Blast-Furnaces.

No. 132,974. Patented Nov. 12, 1872.

Fig. 1.

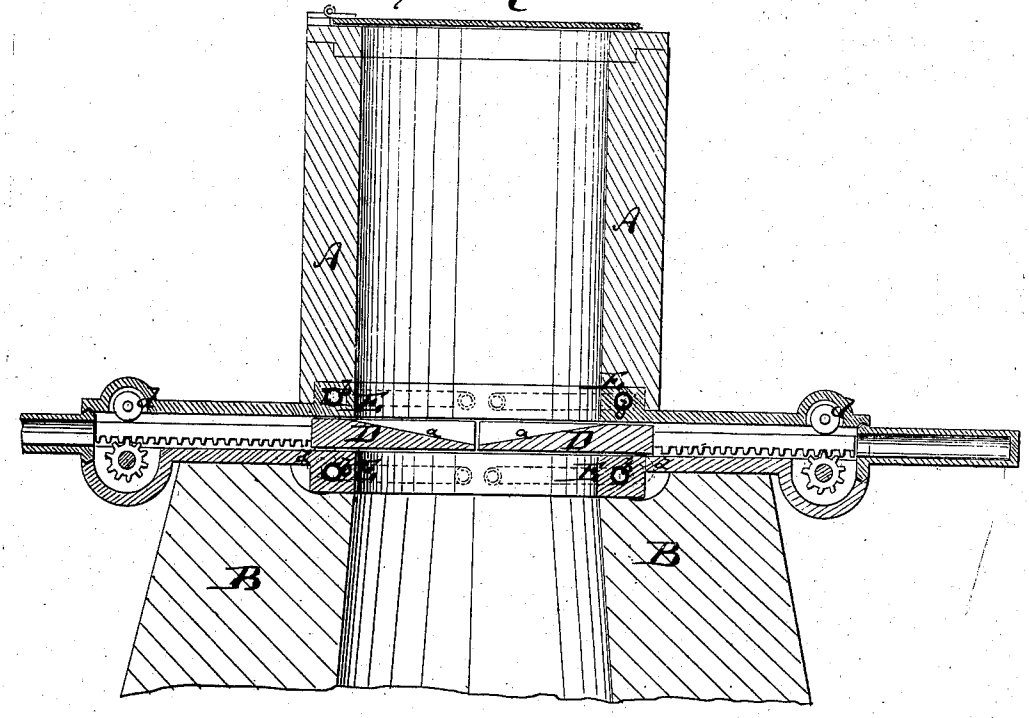
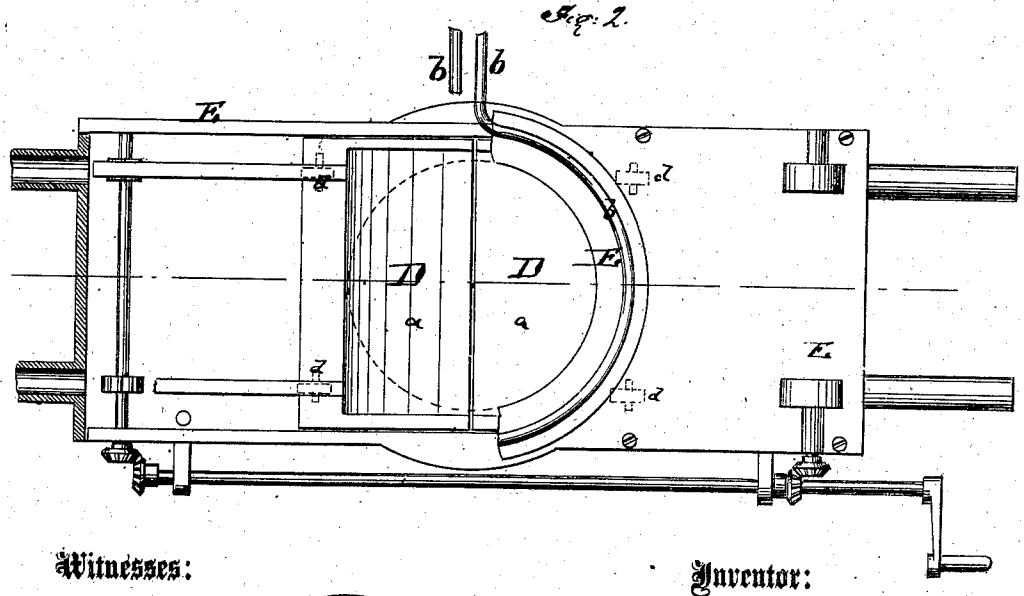


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM A. MILES, OF SALISBURY, CONNECTICUT.

IMPROVEMENT IN APPARATUS FOR CHARGING BLAST-FURNACES.

Specification forming part of Letters Patent No. **132,974**, dated November 12, 1872.

To all whom it may concern:

Be it known that I, WILLIAM A. MILES, of Salisbury, in the county of Litchfield and State of Connecticut, have invented a new and Improved Top for Blast-Furnaces, of which the following is a specification:

Figure 1 represents a vertical central section of my invention; Fig. 2, a top view, partly in section, of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to improvements in the mechanism for charging blast-furnaces, and more particularly to the charger for which the United States Letters Patent No. 130,652 were granted to me the 20th day of August, 1872. My present invention consists, principally, in making the sliding-bottom plates of the charger inclined on their upper faces, and also in making the stationary upper and lower guides of these plates, or either of them, hollow to admit water or air circulation, and prevent the heat of the furnace from burning them. Finally, the invention consists in the use of friction-rollers above and below the sliding plates to facilitate their movement.

A, in the drawing, represents the charger or upper part of a blast-furnace of suitable style and size. This charger or hopper is of cylindrical, truncated, conical, or other form, and constructed of suitable material. B is the blast-furnace directly under the charger A. C is the lid of the charger, hinged or otherwise applied. The bottom of the charger is formed by two sliding plates, D D, which can be moved together or apart, substantially as described in my above-mentioned Letters Patent of August 20, 1872. These plates are in the present case, however, made with inclined upper faces *a a*, as shown in Fig. 1. These inclinations are for facilitating the separation of the plates D while they are weighted by the charge, for the charge will have the tendency to slide downward toward the opening in the middle as soon as the plates are started apart. Instead of beveling the plates D on the upper faces, they may be bodily inclined, and moved in and out accordingly, with substantially the same effect upon the charge. The plates D D move and are held between cast plates E E, which are built rigidly into the furnace and charger above and below the plates D, as shown. Within these castings are contained pipes *b b*, each of which has both ends projecting from the castings. These pipes *b b* serve to conduct a constant stream of cold water or air through the castings, and thereby to keep the same cooled. Such circulating-pipe *b* is especially needed for the casting E below the plates D, and may be dispensed with in the upper casting. *d d* are friction-rollers fitted into the castings to bear against opposite sides of the plates D D, or hung to the plates D, for the purpose of reducing the friction of moving these plates. There may be one or more sets of plates D and appendages to each furnace. The slides D can, if desired, also be made hollow to receive cold water or air circulation, and thereby be prevented from warping.

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

1. The plates D made with inclined upper faces, and arranged within the charger A, substantially as herein shown and described.

2. The casting E under the plates D, made to contain the circulating-pipe *b*, as set forth.

3. The combination of the plates D and castings E with the friction-rollers *d*, as specified.

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