

(No Model.)

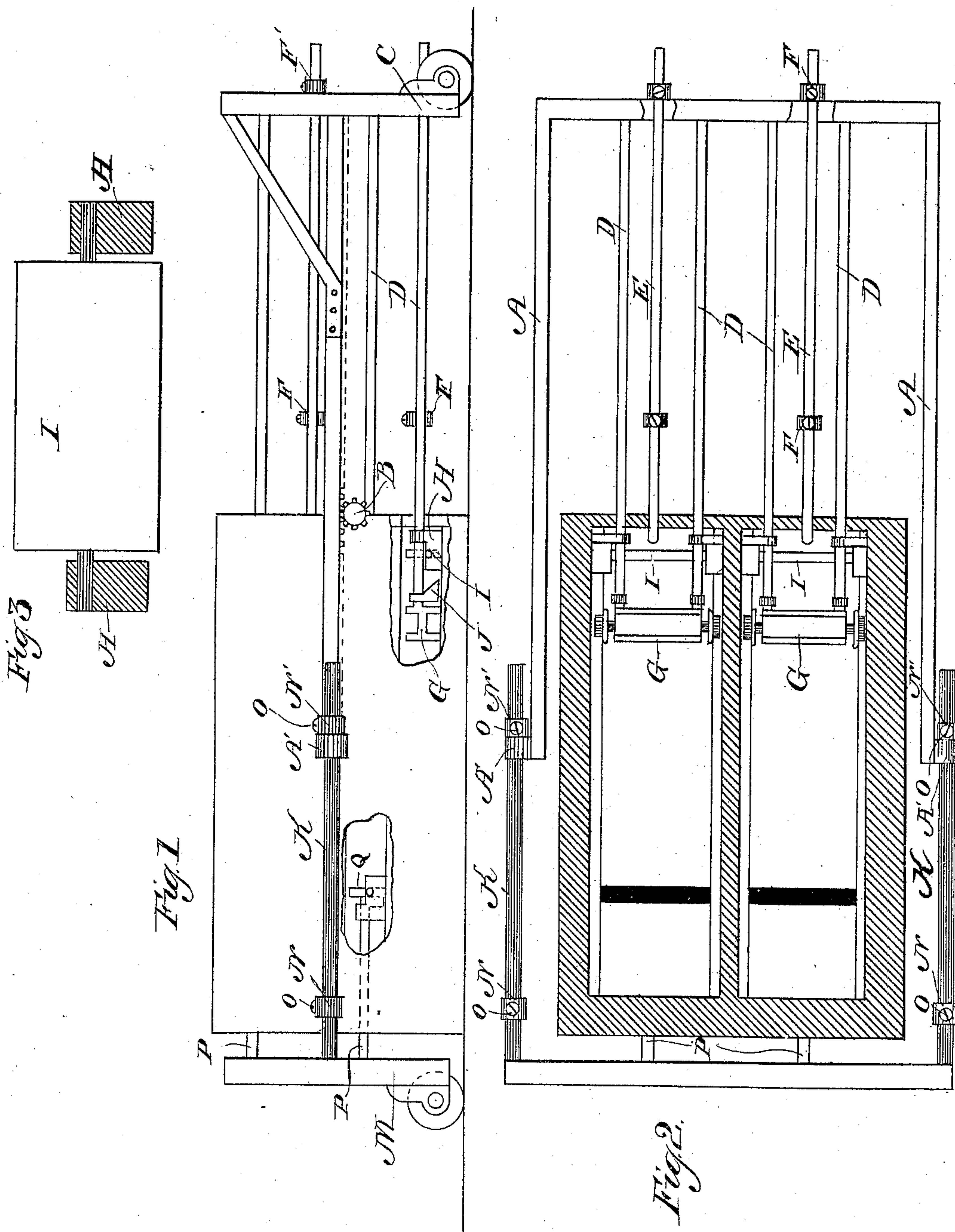
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C. A. BARTSCH.

FURNACE FOR ROASTING COPPER AND OTHER ORES.

No. 316,723.

Patented Apr. 28, 1885.



Witnesses
S. Williamson
Charles E. Stanton

Inventor
Charles A. Bartsch
By Smith & Hubbard
Atty.

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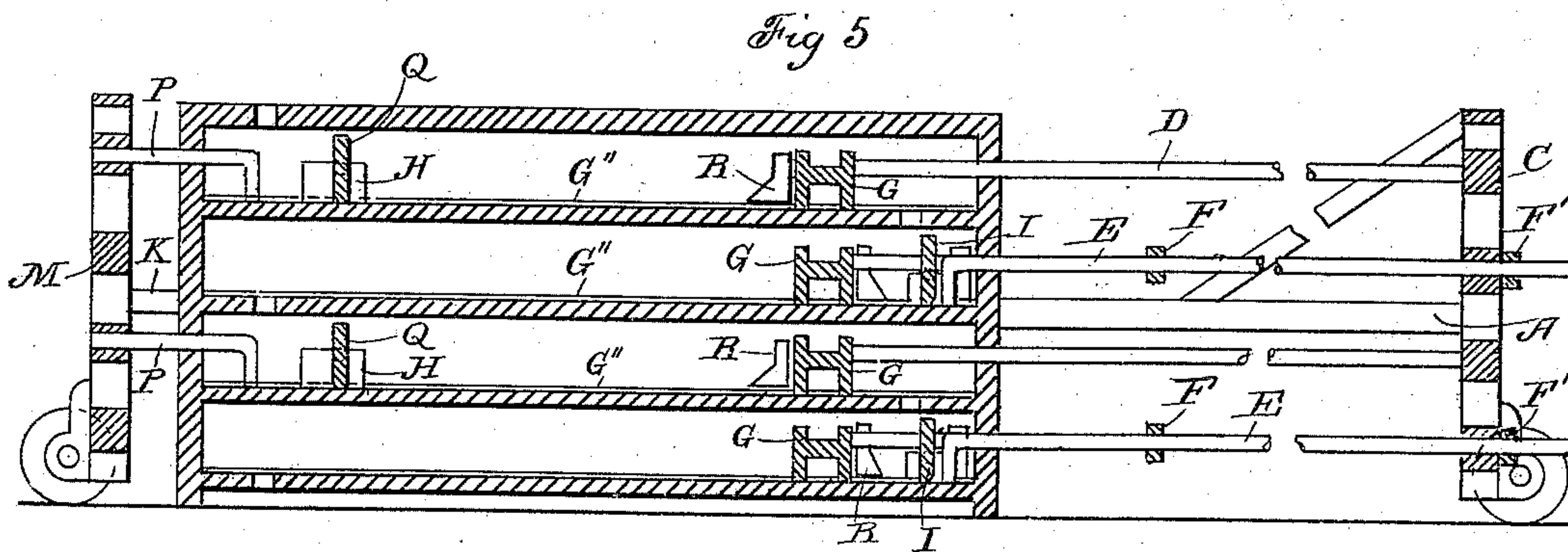
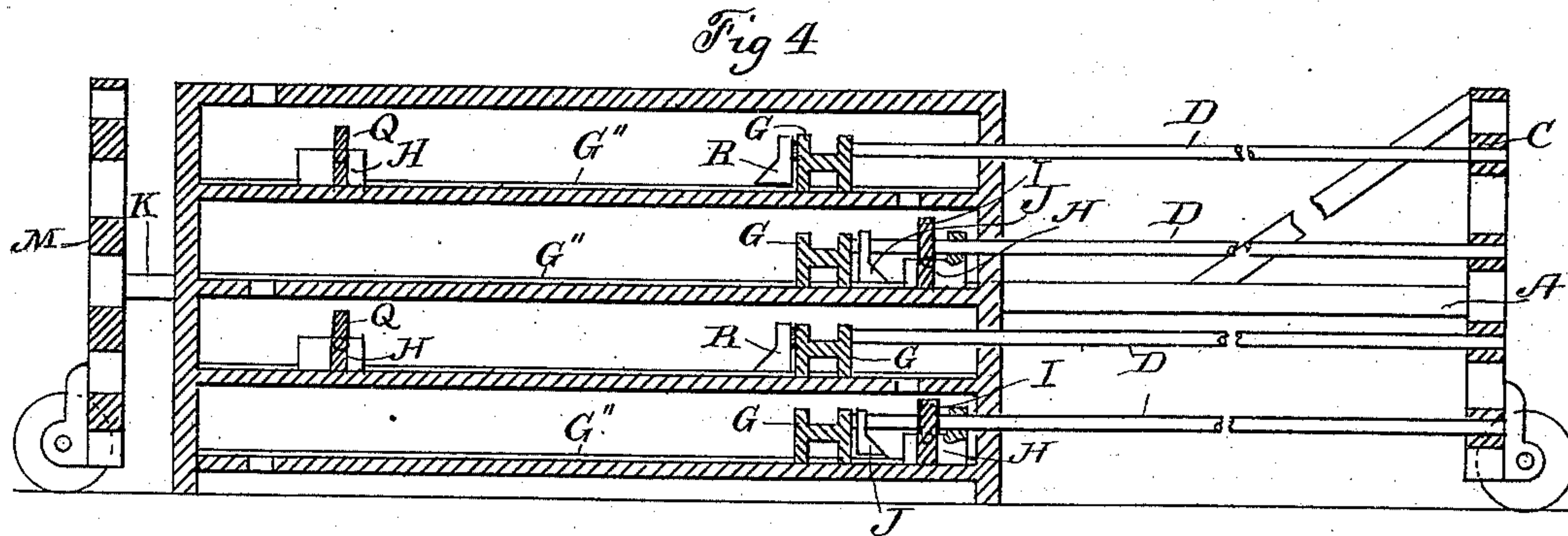
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UNITED STATES PATENT OFFICE.

CHARLES A. BARTSCH, OF BRIDGEPORT, CONNECTICUT.

FURNACE FOR ROASTING COPPER AND OTHER ORES.

SPECIFICATION forming part of Letters Patent No. 316,723, dated April 23, 1885.

Application filed January 5, 1885. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BARTSCH, a citizen of the Empire of Germany, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Furnaces for Roasting Copper and other Ores; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to furnaces for roasting copper and other ores, but is more especially intended as an improvement upon the construction shown in Letters Patent granted to Peter Spence, No. 248,521, October 18, 1882, and has for its object to provide a device for use in this and similar furnaces, whereby the whole body of ore may be exposed to the action of the rakes used for stirring and distributing the same upon the furnace-beds, or, in other words, to do away with the dead-point at the end of the bed where the ore becomes piled out of reach of the rakes; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully explained, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand its construction and operation, I will proceed to describe the same in detail, referring by letter to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of a furnace with a portion of the side broken away to show my improvement, and Fig. 2 a plan view also showing my invention; Fig. 3, an enlarged view of a journaled scraper; Fig. 4, a vertical section taken through a tier of rake-rods, and Fig. 5 a central vertical section through a tier of scraper-rods.

Similar letters denote like parts in all figures of the drawings.

A are rack-bars which receive motion from the cog-wheels B (but one being shown in the drawings) and impart it to the truck C. To this truck are secured the rake-rods D, which extend inside the furnace and operate the rakes. Between each alternate set of rake-rods I place two other rods, E, which also extend inside the furnace, but are not rigidly

attached to the truck-frame. Their inner ends are bent downward at right angles. On these rods E, I secure two tappets, F F, by means of set-screws.

G are rakes which are secured to the ends of the rake-rods, and are provided with rollers G', which latter travel on tracks G'', as will be clearly seen at Fig. 2. Back of the rakes, and journaled in slide-blocks H, which also run on tracks G'', are scrapers I, consisting of a metal plate, as shown at Fig. 3.

Attached to the rake-rods D near the rake are trips J, the use of which will be presently explained.

Secured to or formed integral with the rack-bars A, at their outer ends, are collars or rings A', through which pass rods K, the outer ends of which are secured to the truck M, similar in construction to the truck C. On these rods are secured tappets N N' by means of set-screws O.

To the truck M are secured rods P, which enter the furnace on every other floor or the floors which the rods E do not occupy. The inner ends of these rods are bent down at right angles in the same manner and for the same purpose as the said rods E.

Q is a scraper constructed in the same manner as the scraper I, and journaled in like blocks, and to the rake-rods on the floors on which these scrapers are are secured trips similar to the trips J, but pointing in the opposite direction, for the purpose of upsetting and backing the scraper.

From the foregoing description the operation of my improvement will be obviously as follows: The wheels B being revolved will impart longitudinal motion to the rack-bars A, which will cause the truck C to travel backward or forward, as the case may be, carrying with it the rake-rods D, but not the scraper-rods E. When the truck is traveling inward, and has nearly finished its stroke, it will come in contact with the tappet F on the rods E, and from that point to the completion of its inward stroke will carry the said scraper-rods with it. The bent ends of the scraper-rods when moved inward will come in contact with the scraper I and advance it along the floor, pushing before it any accumulation of ore to within reach of the rakes on their backward stroke, which is accomplished by

a reversing of the wheels B. As the rakes travel backward the trip J comes in contact with the lower edge of the scraper I and turns the latter on its journals about one-eighth of a turn, and then carries it back to its original position, the rods E having been previously returned by the truck-frame C striking against and moving the tappets F'. The dead-point on each floor of the furnace—that is to say, the point where the ore accumulates out of reach of the rake—is the end at which the ore enters the said floor from the floor above, and as this takes place at the opposite ends of the alternate floors it is necessary to place scrapers at the opposite end of the furnace on the floors not occupied by the scraper I, and to operate them just reverse of the latter, which is accomplished as follows: When the truck C has advanced inward, the ore on some of the floors will have been pushed into the openings, while on others the ore is pushed away from the openings, whence it is returned within the field of action of the rakes by the scrapers, which are operated by the inward movement of the truck M. In this manner the ore is thoroughly raked back and forth, while it will be readily understood that there can be no dead-point, since the ore can never get back of the scrapers.

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

1. In an ore-roasting furnace, the combination, with the reciprocating rakes, of independent scrapers journaled in sliding blocks, and

scraper-rods adapted to push said scrapers forward, whereby the accumulated ore is placed within the field of operation of the rakes, substantially as set forth.

2. In an ore-roasting furnace, independent scrapers journaled in sliding blocks arranged on the floors of the furnace at the so-called "dead-points" thereof, beyond the field of the rakes, in combination with means for operating said scrapers, substantially as shown and described.

3. In combination with the rakes of an ore-roasting furnace, the sliding blocks having scrapers journaled therein, trips secured to the rakes and adapted to upset the scrapers, the scraper-rods provided with tappets, as described, the trucks, and means for imparting motion thereto, substantially as set forth.

4. The combination of the rakes G, trips J, scrapers I Q, journaled in sliding blocks H, trucks C, carrying rake-rods D and scraper-rods E, tappets F and F', secured on the scraper-rods, truck M, carrying rods P, rods A, extending inward from the sides of the truck C, rods K, extending inward from the truck M and passing through collars A' on the rods A, and tappets N N', secured on rods K, substantially as and for the purposes set forth and specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. BARTSCH.

Witnesses:

S. S. WILLIAMSON,
WALLACE A. SMITH.