

A. F. HAVENS.

Apparatus for Charging Gas Retorts.

No. 134,056.

Patented Dec. 17, 1872.

Fig. 1.

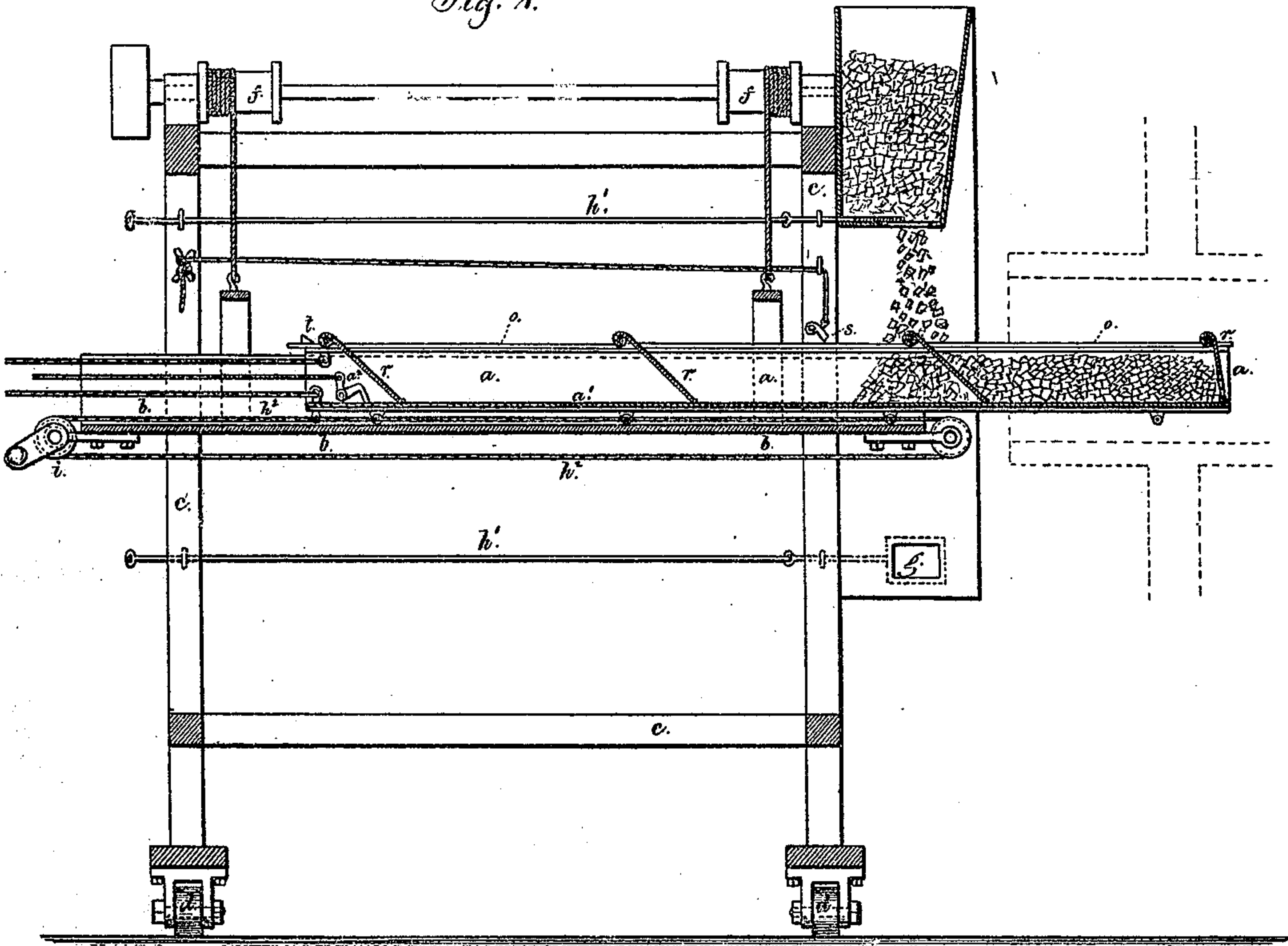


Fig. 2.

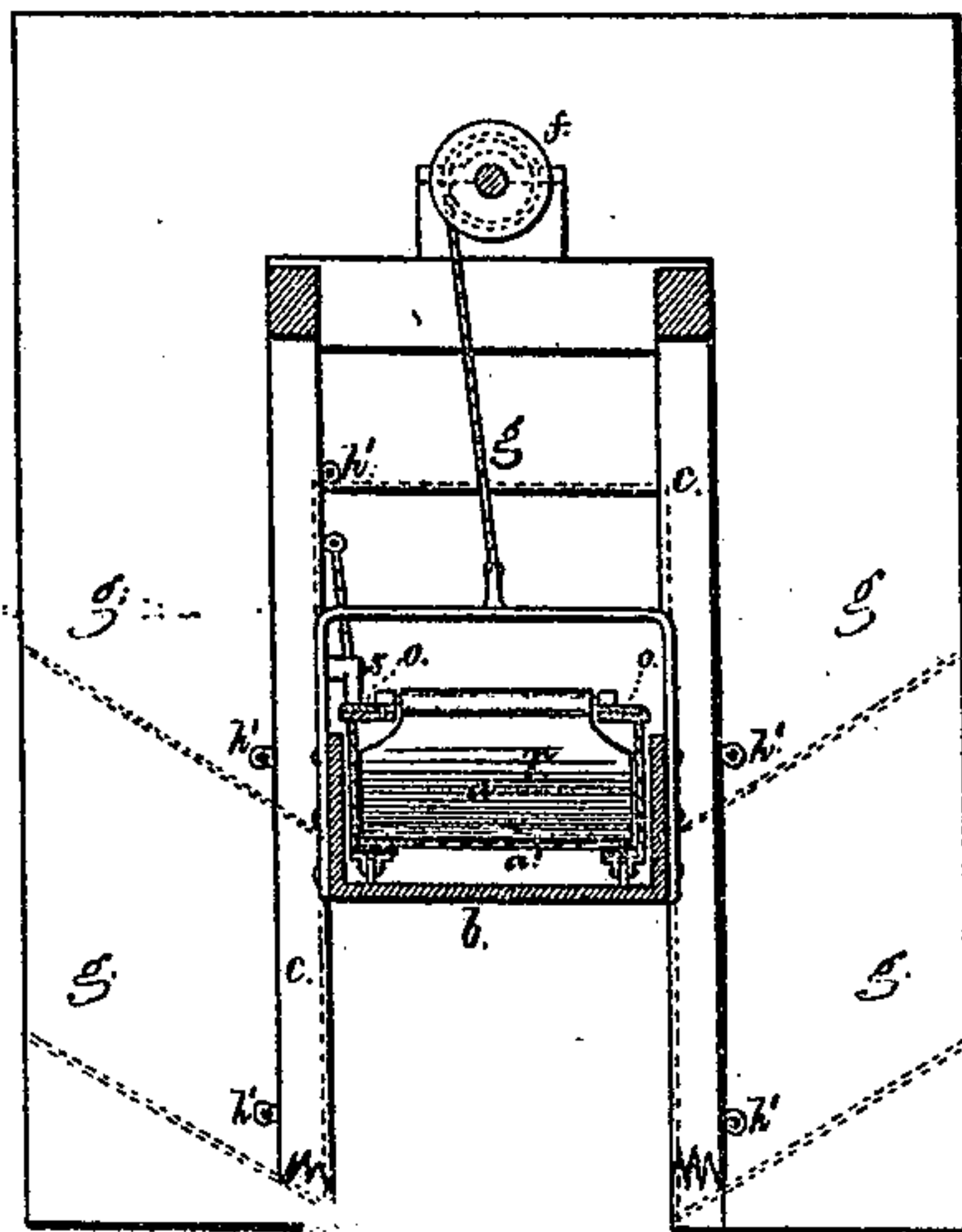
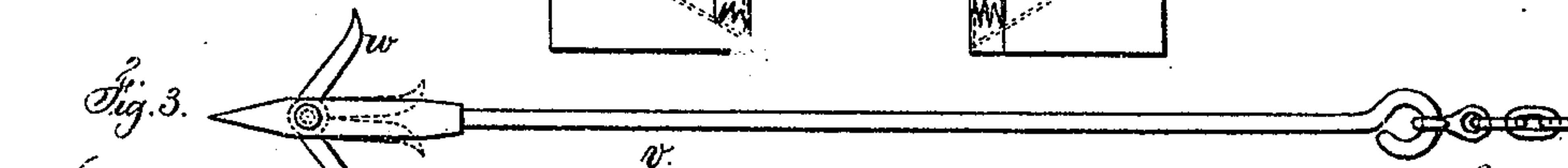


Fig. 3.



Witnesses,

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Inventor

Alonzo F. Havens  
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# UNITED STATES PATENT OFFICE.

ALONZO F. HAVENS, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN APPARATUS FOR CHARGING GAS-RETORTS.

Specification forming part of Letters Patent No. 134,056, dated December 17, 1872.

*To all whom it may concern:*

Be it known that I, ALONZO F. HAVENS, of Brooklyn, Kings county and State of New York, have invented an Improvement in Apparatus for Charging Gas-Retorts, of which the following is a specification:

This invention is to lessen the hand-labor required in charging gas-retorts and withdrawing the charge, thereby cheapening the production of gas and preventing the waste that arises from the retort remaining open during the slow process of charging by hand. My apparatus can be introduced in the space usually provided between the ranges of retorts instead of requiring the retorts to be specially constructed with reference to the charging mechanism, as has heretofore been the case. I employ a railway or slide carrying a chute and capable of being raised or lowered, and the chute is moved endwise into the retort, and the coal is filled into the chute as it is moved along, and then discharged into the retort and the chute withdrawn.

In the drawing, Figure 1 is a vertical section of the apparatus. Fig. 2 is a cross-section of the chute and its slide, and Fig. 3 is a plan of the withdrawing-bar.

I provide a long chute or container, *a*, of a size to enter the retort freely. This is mounted upon a railway or slide, *b*, and this slide is within a frame, *c*, that is mounted upon wheels *d* and run upon a railway or platform in front of the ranges of retorts or benches. The chute *a* and its railway *b* can be raised or lowered in the frame *c* by means of a windlass, *f*, and chains or other convenient devices, so that the chute can be placed at the elevation necessary for being run into the open retort, and by rolling the entire apparatus along the chute is positioned with facility opposite the retort. The coal is contained in the hopper or hoppers *g* that are above the chute, and the coal runs from an opening in the same into the chute *a*. As said chute is moved forward into the retort a slide or valve, operated by the rod *h*<sup>1</sup>, is provided to regulate the delivery of the coal into the chute. It is generally preferable to employ a  $\cap$ -shaped hopper with side openings, as indicated in Fig. 2, with slides or valves at the proper points to suit the different heights at which the retorts are located. The chute *a* is carried forward into the retort by any

suitable means. I have shown wire ropes *h*<sup>2</sup> passing over a pulley and around the drum *i* that is to be revolved by hand or power, so as to run the chute *a* forward into the retort and then draw it out, leaving the coal behind evenly spread upon the bottom of the retort. It will be apparent that if only the chute *a* were employed the coal would be again brought out of the retort as the chute is withdrawn. To prevent this a frame, *o*, is made to slide upon the edges of the retort and carry hinged scrapers or detainers *r*. The frame *o* and scrapers *r* go into the retort along with the chute *a*, and the frame *o* passes beyond a latch or holder, *s*; hence the frame *o* and scrapers *r* are held stationary while the chute is withdrawn, and the scrapers or detainers *r* prevent the coal being drawn back with the chute *a*, causing its delivery into the retort, and by disconnecting the latch *s* from the stop *t* and drawing the frame *o* back the scrapers slide over the coal in consequence of being hinged. The scrapers may be drawn back by a chain to a pulley, or in any convenient manner. In some instances I prefer and use a false bottom, *a*<sup>1</sup>, to the chute *a*, and lock the same in place by a catch, *a*<sup>2</sup>, or otherwise, so that the chute and its bottom pass into the retort together, carrying the coal, after which the false bottom can be withdrawn to drop the coal, and then the chute can be drawn out. This is especially available in cases where the coal becomes clogged or obstructed by the scrapers or retort.

This apparatus can be controlled and operated by one or two men with great rapidity and with but little manual labor, because the operations can most of them be effected by the use of steam-power and connections of belts or chains that can easily be arranged according to the location of the prime mover and the positions of the retorts.

After the gas has been driven off from the coal and the cover of the retort removed, the coke-drawing bar *v*, Fig. 3, is thrust into the retort and pushed back to the rear end. This bar is provided with hinged scrapers *w* that are inclined or curved at the projecting ends so as to open out in the form shown by full lines, Fig. 3, in the act of pulling upon the bar *v*; thereby the scrapers assume a position to withdraw the entire charge at once. A



... or rope is attached to the end of the bar *u* extended to a pulley driven by competent power, and under the control of the attendants, so as to draw the bar *v*, scrapers *w*, and coke out of the retort; thereby the tedious and laborious operation of withdrawing the charge, heretofore performed by manual labor, can be done rapidly and with great facility by mechanical power.

I claim as my invention—

1. The chute *a*, in combination with the coal-hopper and mechanism for sliding in and withdrawing the chute so as to receive its supply of coal while being moved into the retort, substantially as specified.

2. The scrapers or retainers *r* combined with

the chute for causing the delivery of the coal into the retort.

3. The chute *a* mounted upon a railway or slide and provided with a movable bottom, in combination with mechanism, substantially as specified, for projecting the chute into the retort and withdrawing the bottom.

4. The coke-drawing bar *v* provided with self-acting hinged scrapers *w* opening horizontally, and operated substantially as set forth.

Signed by me this 3d day of October, A. D. 1872.

ALONZO F. HAVENS.

Witnesses:

GEO. T. PINCKNEY,  
CHAS. H. SMITH.