

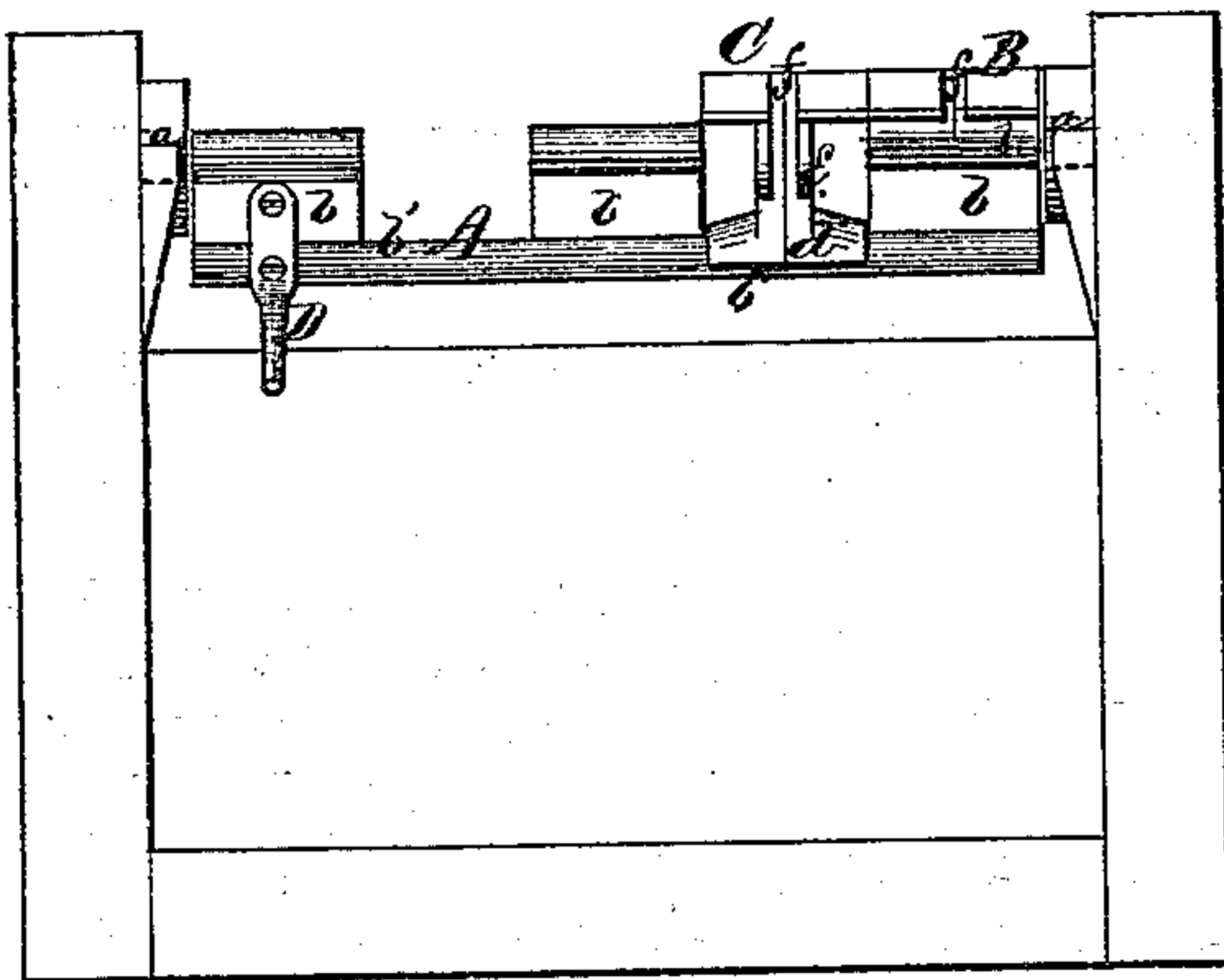
CHARLES KUGLER.

Improvement in Furnace-Grates.

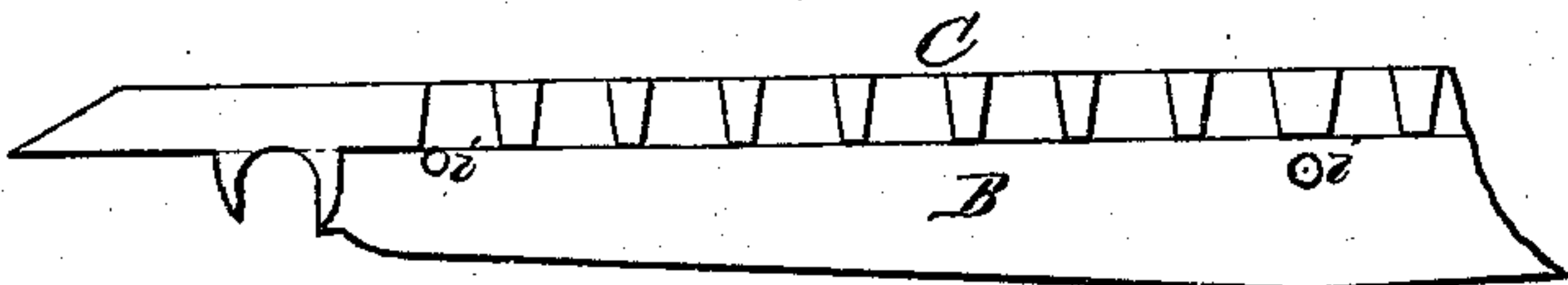
No. 126,060.

Patented April 23, 1872.

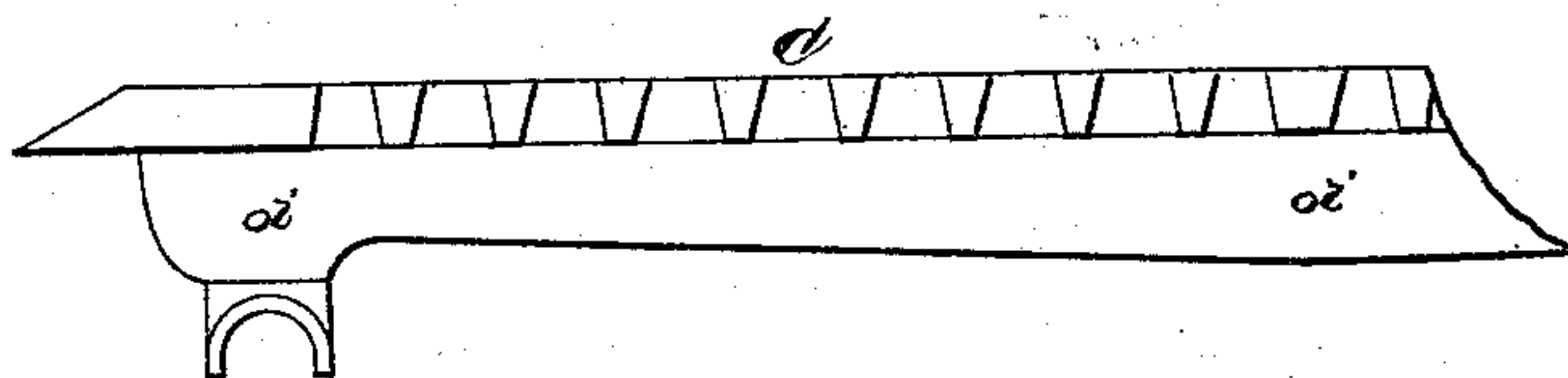
*Fig. 1.*



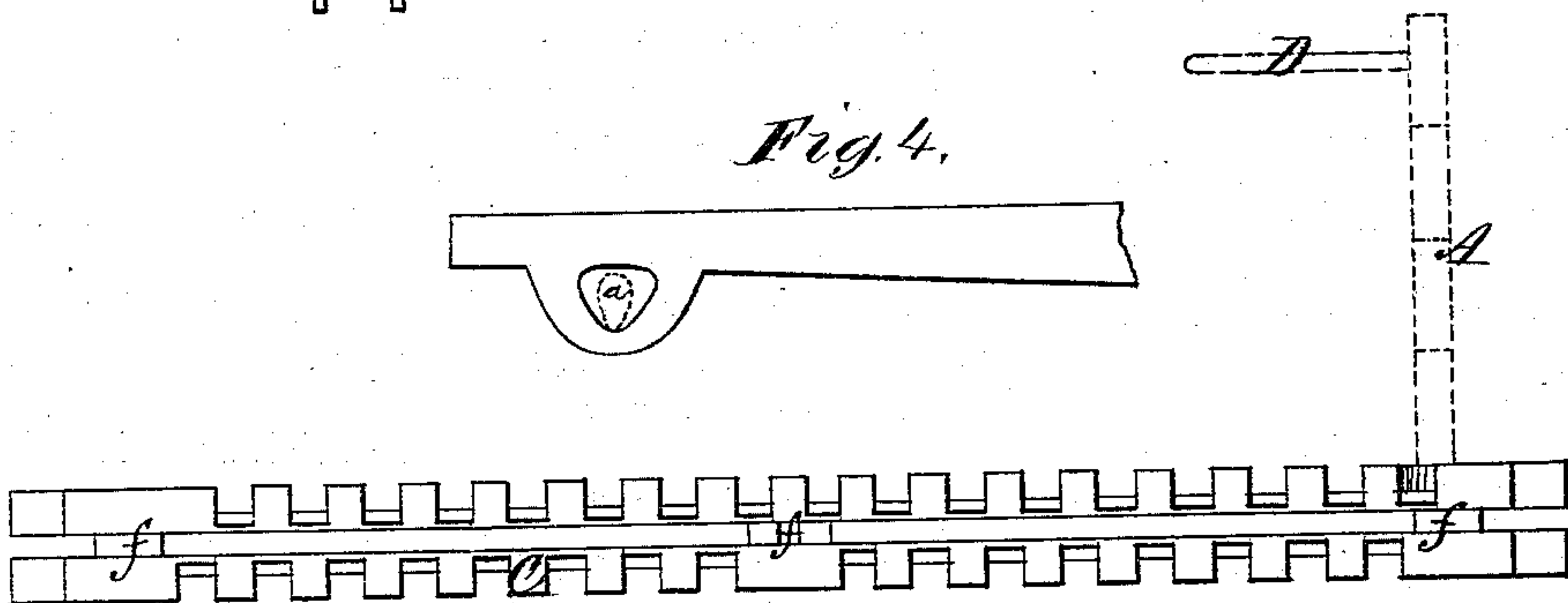
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses  
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126,060

# UNITED STATES PATENT OFFICE.

CHARLES KUGLER, OF BARNESVILLE, OHIO, ASSIGNOR TO JOHN W. STANTON AND HENRY KERSTINE, OF SAME PLACE.

## IMPROVEMENT IN FURNACE-GRATES.

Specification forming part of Letters Patent No. 126,060, dated April 23, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, CHARLES KUGLER, of Barnesville, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Grate-Bars and Attachments thereto; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, which form a part of this specification.

My invention is intended as an improvement upon the grate-bar for which John W. Stanton has made application for Letters Patent; and it consists, first, in the construction of the bearing-bar, and, second, in the construction of the separate grate-bars, all of which will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 represents a front view. Figs. 2 and 3 represent the different forms of grate-bars. Fig. 4 is a side view of the pieces in which the bearing-bars have their support; and Fig. 5 a plan of the grate-bar in couples.

A represents the bearing-bar, provided with V-shaped pivots *a a*, placed in suitable bearings so as to allow it to oscillate freely. This oscillating bearing-bar is constructed so as to form a series of cranks, *b b'*, the object of which is to support the grate-bars B and C. Each end of the grate-bar B has a semicircular box, *d*, to rest upon the cranks *b*, while the grate-bars C have at their ends downward-

projecting arms *e*, with similar boxes *d'* at their ends to rest upon the cranks *b'* of the oscillating bearing-bar, and so on alternating until said bearing-bar is filled with grate-bars forming a complete set of furnace grate-bars, which will all be on a level when the bearing-bars hang in their normal positions.

The object of the oscillating bearing-bar is to produce compound movement of the grate-bars in a vertical and longitudinal direction by means of the lever D attached to the same, and to relieve the grate-bars from friction, which necessarily occurs when the ends rest upon a stationary bed-plate.

The grate-bars B and C are each formed by uniting two parallel sections secured together by rivets or bolts at *i i*. On the inside of each of such sections are projections *f f*, for the purpose of forming a central air-course parallel with the bar. The objects of forming each bar into two parallel sections are for convenience of molding the bars and for giving considerable more air-courses and surface without additional weight.

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

The grate-bars fastened or secured together in couples, combined with the bearing-bars, and arranged to operate substantially as herein described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES KUGLER.

Witnesses:

SAML. LEEKE,  
R. C. GRAVES.