No. 641,236.

Patented Jan. 9, 1900.

J. W. RUMPF.

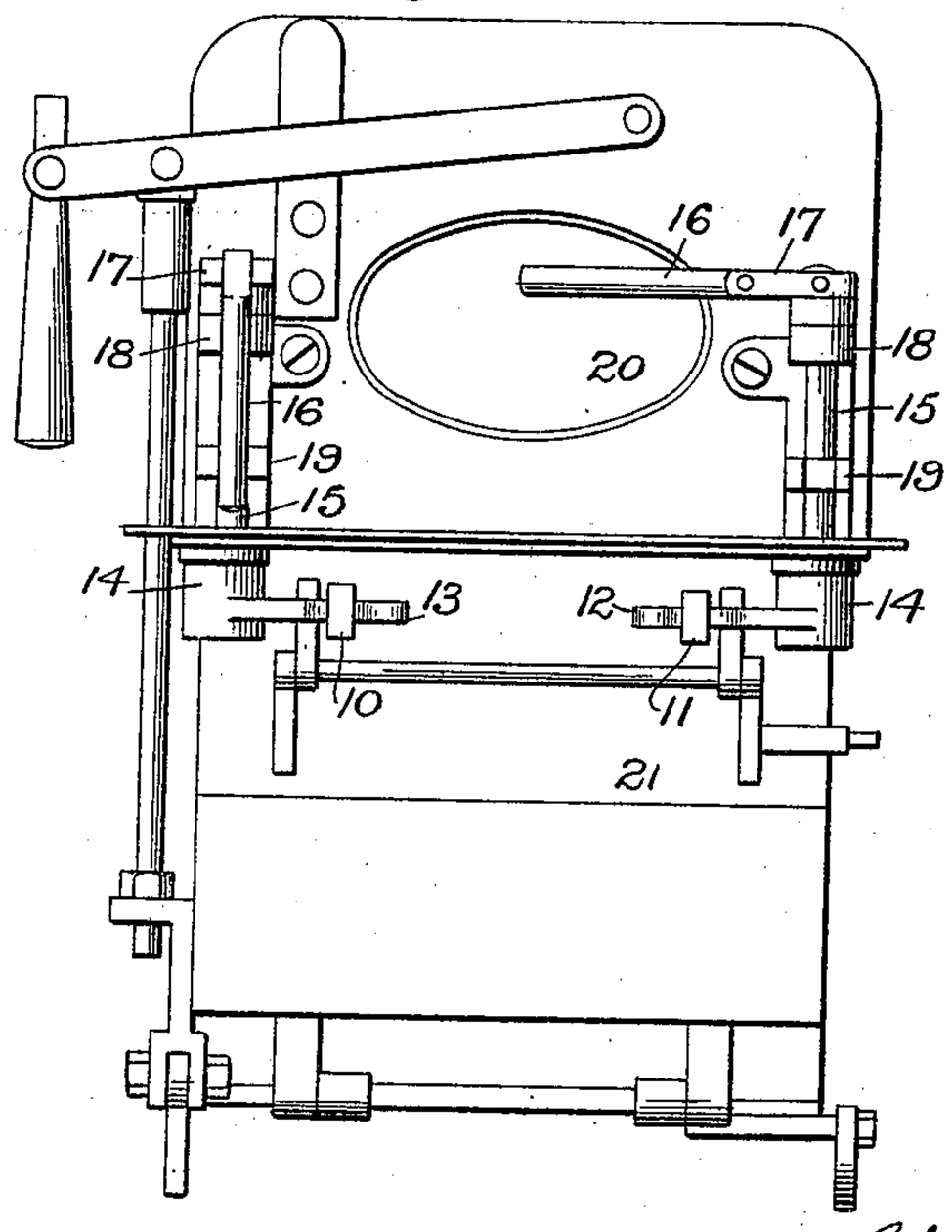
FURNACE GRATE.

(Application filed Dec. 30, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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2 Sheets—Sheet 2.

Fig. 2.

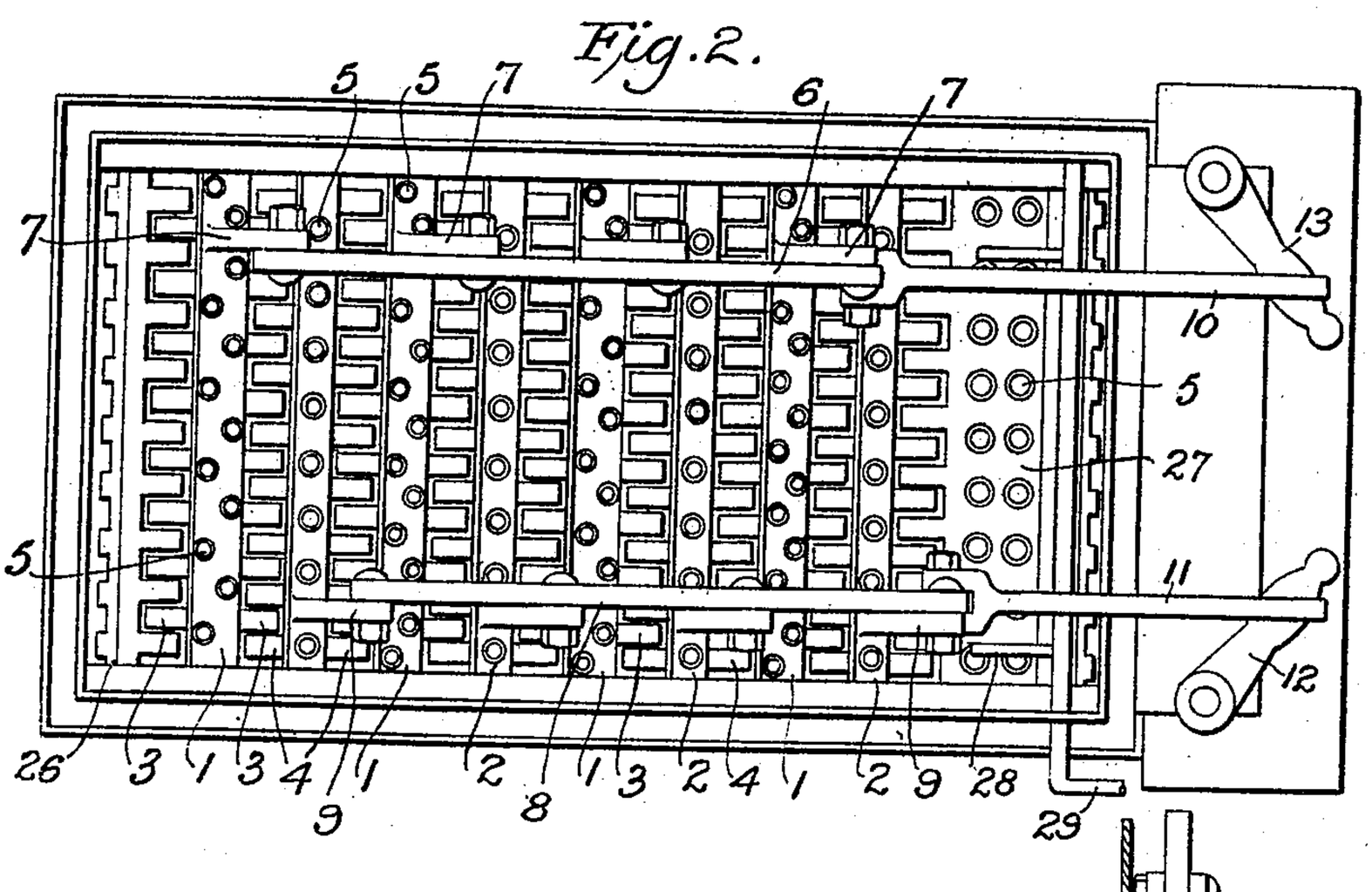
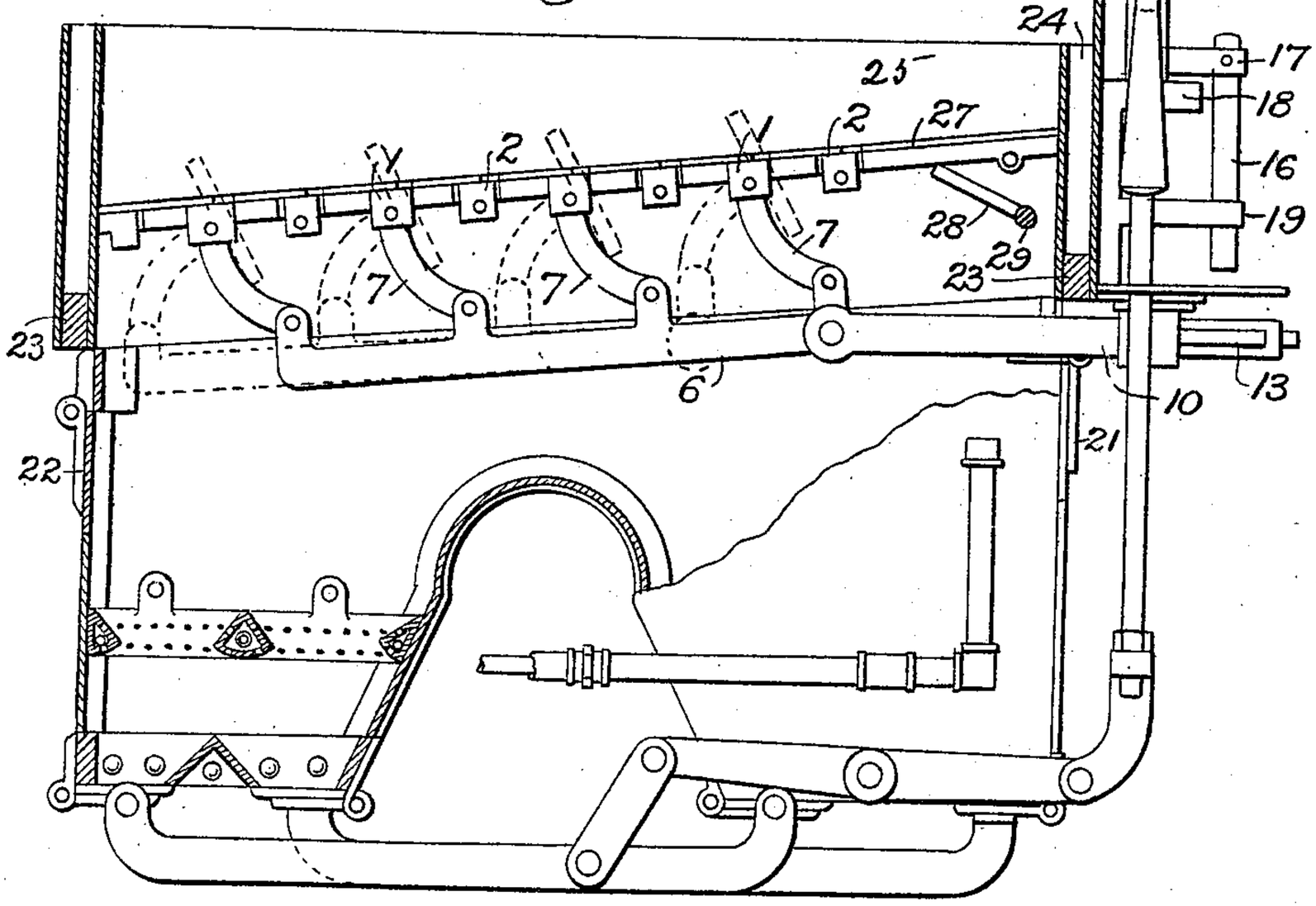


Fig. 3.



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FURNACE-GRATE.

SPECIFICATION forming part of Letters Patent No. 641,236, dated January 9, 1900.

Original application filed August 18, 1898, Serial No. 688,866. Divided and this application filed December 30, 1898. Serial No. 700,774. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILLIAM RUMPF, a citizen of the United States, residing at Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Furnace-Grates; 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.

This invention refers to an improvement in furnaces, and more particularly to the grates and grate-bars associated with the same, said grates being adapted for use with the furnace of a locomotive or any other kind of a fuel-burning means employing a combustion-chamber having fuel-supports in the nature of grate-bars, the object of the invention being to simplify and perfect a furnace of this character and to perform other creditable functions; and the invention therefore consists, essentially, in the construction, arrangement, and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a front elevation of the same. Fig. 2 is a plan view of the under side of the grate, showing the grate-bars. Fig. 3 is a longitudinal sectional elevation.

Similar numerals of reference designate corresponding parts throughout all the different figures of the drawings.

The grate consists, essentially, of two sizes of grate-bars—a larger size indicated by the numeral 1, which have longitudinal series of lateral projections 3 on each edge, and a smaller size 2, having a longitudinal series of similar lateral projections 4 on each edge, the projections 4 interlocking with the projections 3 and the bars 1 alternating with the bars 2, all of the said bars supported at their ends in the main frame of the furnace, so as to rock when the grate is shaken or dumped.

The grate-bars being independently operative, either the large or the small may be rotated, according to the degree of agitation required.

All of the grate-bars 1 and 2, both large and small, are perforated with conical holes 5, large at bottom and small at the top, their function being to create a strong draft.

Although nearly all of my grate-bars are of the kind indicated at 1 or that indicated at 2, yet at the extreme rear of the grate I may have one, 26, of a somewhat modified pattern and at the extreme front another, 27, of a still further modified form, this latter bar being upheld and also dumped by means of a vibrating leaf or series of arms 28, carried on an actuating rock-shaft 29.

The grate thus described is arranged in the fire-box 25, at the front of which is a fire-door 20.

24 indicates the water-space of the contiguous boiler, the numeral 23 denoting the mud-rim.

Below the fire-box and grate is the ash-pit, which has been made the subject of a separate application for Letters Patent, filed August 18, 1898, Serial No. 688,866, of which application the present one is a division.

Recurring to the grate-bars 1 and 2, I will now briefly explain the means for shaking and dumping them.

The bars 1 are all connected so as to operate jointly and independently of the bars 2, which are likewise connected together, so as to operate in unison. On each of the bars 1 is an integral downwardly-projecting arm 7, and the several arms 7 are all pivotally connected at their lower ends to the longitudinal rod 6, whose forward end is pivoted to a link 10, extending in front of the forward face of the furnace and having a slotted end, in which end vibrates the free end of a lever 13, whose opposite end has a sleeve 14 securely fastened on the lower end of a vertical rock-shaft 15, supported in bearings 18 on the front of the furnace. The upper end of shaft 15 is provided with a rigid arm 17, within whose cleft end is pivoted the drop-arm 16, which is adapted to drop into a vertical position parallel to shaft 15 and engage a socket 19 to keep it temporarily in such position, or to be raised into a horizontal position and oscillated by hand to and fro for the purpose of rocking shaft 15 and its connections, and thereby shaking or dumping the several grate-bars 1. The other grate-bars 2 are provided with integral downwardly-projecting arms or lugs 9, whose lower ends are pivoted to the longitudinal rod 8, whose forward end is piv-

otally connected with a link 11, extending in front of the furnace in like manner to link 10 and having a slotted end in which vibrates the free end of a lever 12, whose opposite end has a sleeve 14 on the lower end of a second vertical shaft 15. This shaft 15 is arranged in like manner with the shaft 15 already described and is provided with the same accompaniments, including a handle 16. Thus it will be seen that by vibrating one of the handles 16 the grate-bars 1 may be shaken, and by vibrating the other handle 16 the grate-bars 2 may be shaken.

What I claim is—

1. In a furnace, the combination with a series of smaller-sized grate-bars, of a second series of alternating larger-sized grate-bars, and means for independently operating the same.

2. In a device of the character described, the combination with a series of smaller-sized grate-bars and a second series of alternating larger-sized grate-bars, said bars having integral arms extending from the same, of horizontal bars pivotally connected with the integral arms, vertical bearings on the front of the furnace, rock-shafts journaled in said bearings, levers connected with the same, and links pivotally connecting the rock-shafts with the horizontal bars, by means of which the grates may be independently operated.

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

JOHN WILLIAM RUMPF.

Witnesses:
THOS. RARDIN,
JOSEPH HILL.