

No. 633,332.

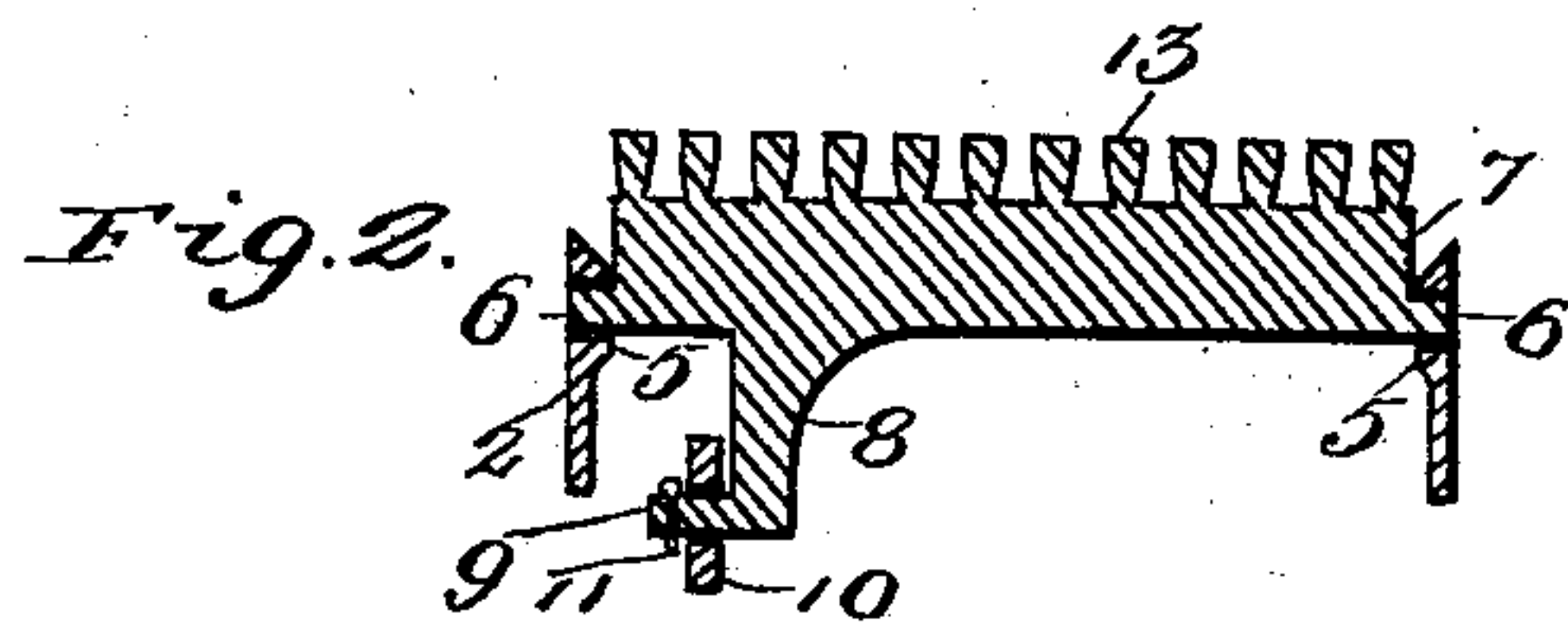
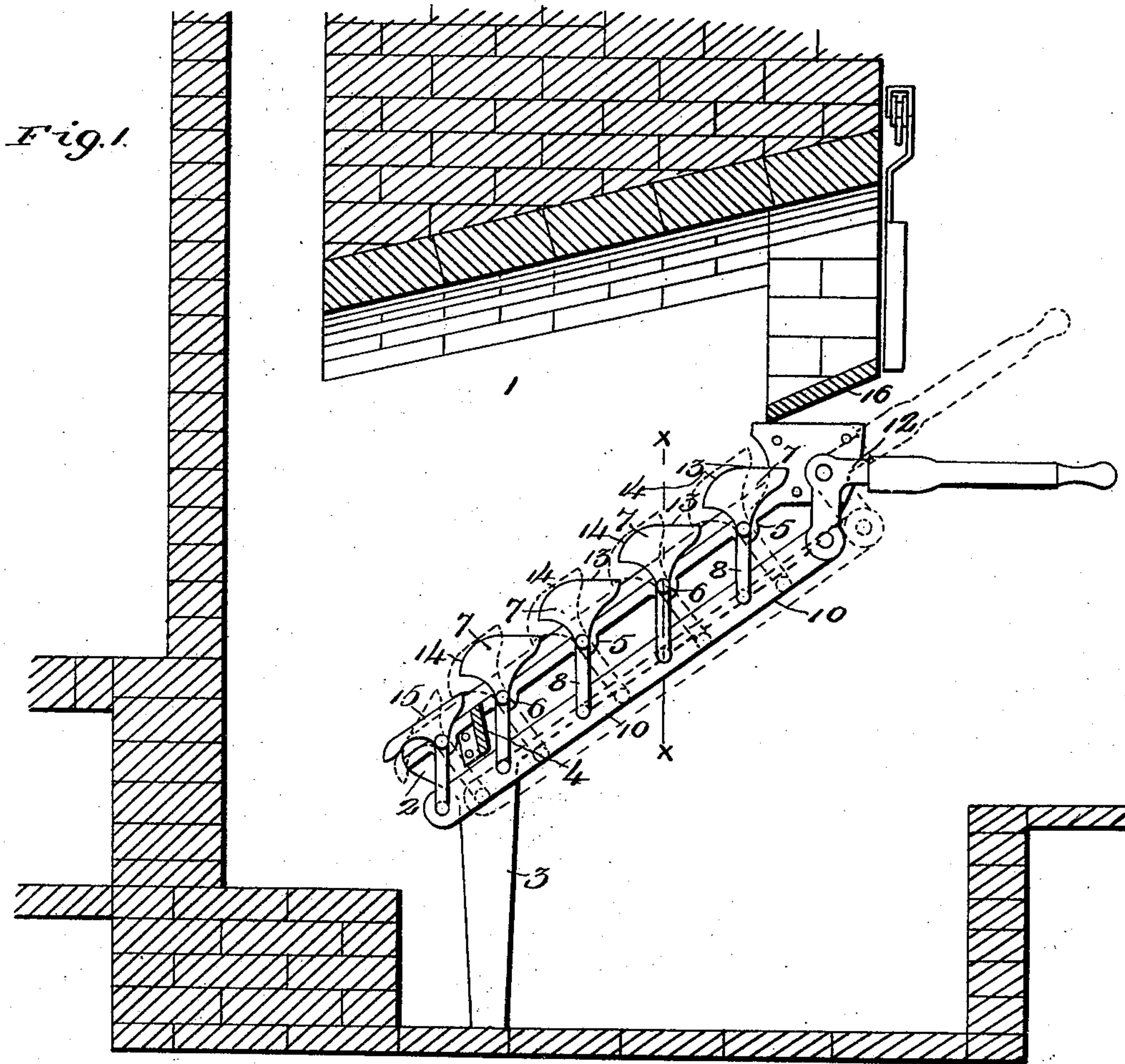
Patented Sept. 19, 1899.

S. H. ALSIP.

GRATE.

(Application filed Feb. 8, 1899.)

(No Model.)



WITNESSES:

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GRATE.

SPECIFICATION forming part of Letters Patent No. 633,332, dated September 19, 1899.

Application filed February 8, 1899. Serial No. 704,917. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. ALSIP, a citizen of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in 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.

My invention relates to improvements in grates; and it consists in the novel combination and arrangement of parts, as will be hereinafter more particularly described and claimed.

In the drawings, Figure 1 is a vertical longitudinal sectional view of an ordinary fire-box, showing my invention properly arranged therein; and Fig. 2 is a vertical longitudinal section taken on the line *xx* of Fig. 1, showing one of the grate-bars and its accompanying parts.

The object of my invention is to construct a grate in such a manner that the coal or other fuel when placed upon the same will not only be equally distributed and fed along the entire grate, but will arrange the fuel in such a manner that all the products of combustion will be completely consumed, and, further, automatically fed from the mouth of the fire-box along the entire grate.

Briefly stated, the invention principally consists of grate-bars of suitable construction, frames or supports located and secured to the opposite sides of the fire-box and provided with bearings which are arranged at an incline from the mouth of said fire-box and adapted to movably receive the opposite ends of the shafts comprising a part of the grate-bars, a bell-crank lever pivoted to one of said supports adjacent to the front of the fire-box and adapted to be operated by hand, a bar to which the lower extensions of the grate-bars are movably secured, the upper end of which is pivotally attached to said bell-crank lever, whereby the grate-bars are simultaneously tilted or operated by the movement of said lever, and in other details in the construction, as will hereinafter be more fully described.

Referring to the drawings, 1 represents a fire-box of the well-known construction, with-

in which my invention is located, and secured to the opposite sides of the same are two supports 2, which are arranged at an incline from the mouth or feeding end of the fire-box, the upper ends of which are secured to the opposite sides of the said fire-box and having their opposite ends provided with legs 3, which are adapted to rest upon the bottom of the fire-box or ash-pit. Located between the said supports adjacent to the lower ends of the same is secured a connecting-brace 4, which operates to hold that portion of the supports in their proper position in respect to one another.

The supports 2 are provided with bearings 5, which are arranged along the length of said supports, and consequently at an angle also, which are adapted to receive the opposite projecting ends 6 of the grate-bars 7, whereby the latter are not only arranged at an incline, but are pivotally secured within the fire-box. Depending from each of the grate-bars 7 is an arm 8, having a right-angular extension 9, the latter being adapted to be received loosely by openings formed along the bar 10, which operates to movably connect all of the grate-bars, and passing through each of the extensions 9 is a pin 11, which holds the bar 10 in its proper position.

Pivotally secured to the side of one of the supports 2 adjacent to the feeding end of the fire-box is a bell-crank lever 12, the short arm of which is movably connected to the upper end of the bar 10 and having its long arm extending a suitable distance outside of the fire-box and operating as a hand-lever for manipulating the grate-bars when it is desired to feed the coal or other fuel from the feeding end of the fire-box along or throughout the entire length of the grate.

In order to properly carry out my invention and cause the fuel to remain a proper length of time upon the grate-bars at an incline, the upper surfaces of said bars are flat, as shown at 13, whereby the fuel is held in a stationary position for a certain length of time in order to properly consume all of the products of combustion, and forming a continuation of the flat upper surfaces of the grate-bars are curved surfaces 14, which permit the fuel that has previously rested upon the flat surfaces

13 to readily pass off the grate-bar to its adjacent lower one when the hand-lever 12 is raised in the position shown in dotted lines, Fig. 1, whereby all of the flat surfaces 13 will
5 be on a line with one another, but at an incline, causing the fuel to be properly fed or moved toward the delivery end of the grate, in which instance the said fuel will have been completely consumed, the ashes being depos-
10 ited in the ash-pit located below the grate.

In carrying out my invention any form of grate may be employed and, if found desirable, may be made up in sections, whereby
15 should any portion of the bar become destroyed it may be easily replaced without removing the entire grate-bar; but in any event the upper surfaces of said bars must be of such a nature as to properly support the fuel
20 when the grate-bars are in their normal position.

By referring to Fig. 1 it will be seen that the lower grate-bar is somewhat differently constructed from the upper or remaining ones and is provided with a flat surface 15, which
25 is arranged at an incline when said upper or remaining bars are in their normal position, which operates to allow the ashes to readily slide off of the same into the ash-pit below, and, further, when the said upper bars are
30 tilted the said lower grate-bar will assume a perpendicular position, which more effectually operates to throw off the ashes into the ash-pit, as the said ashes pass from the remaining grate-bars in the operation of shak-

ing the grate for feeding the fuel to the rear 35 of the fire-box.

In feeding the grate the fuel is deposited upon the plate 16 only, which is located at the mouth of the fire-box, and from said plate the said fuel will properly drop upon the grate 40 and the fuel fed along the entire length of the same, as may be desired, by operating the hand-lever in the manner previously described.

Having fully described my invention, what 45 I claim is—

In combination with a fire-box, of an inclined support located therein, grate-bars pivotally mounted upon said support, having upper flat surfaces upon which the fuel is adapt- 50 ed to rest, and curved surfaces forming a continuation of said flat surfaces, whereby when the said bars are tilted, the said flat surfaces will be inclined and on a plane with one another, a lower grate-bar having an upper flat 55 surface, which is in an inclined position when the upper bars are in their normal position, and caused to assume a perpendicular position when the bars are tilted for properly directing the ashes to the pit below, and means 60 for operating said bars simultaneously, as and for the purpose described.

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

SAMUEL H. ALSIP.

Witnesses:

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