S. J. La RUE.

Furnace-Grate.

No. 165,740. Patented July 20, 1875.

Fig. 1

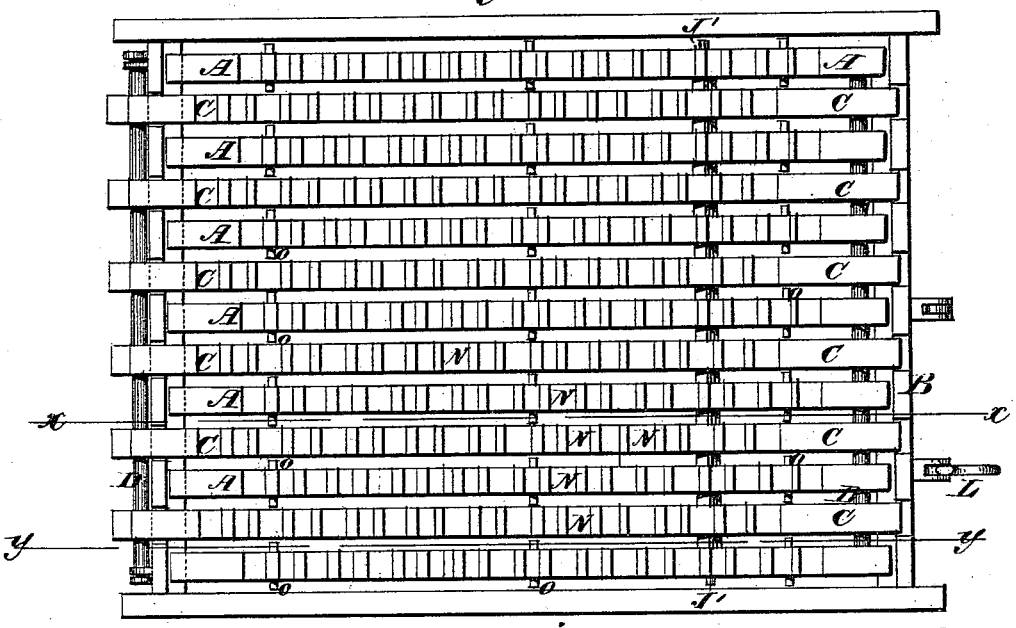


Fig. 2.

Fig. 3

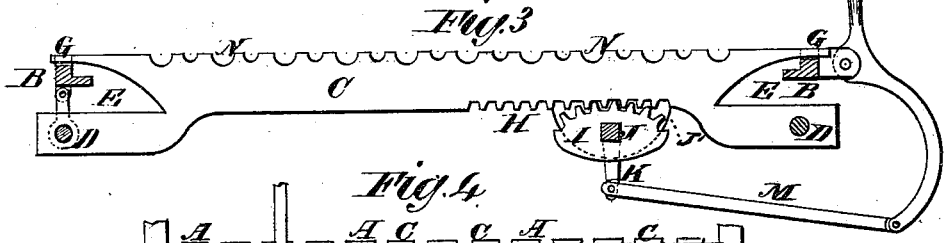
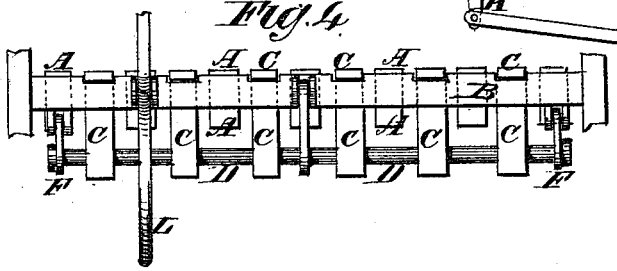


Fig. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL J. LA RUE, OF RUSSELL, MISSOURI.

IMPROVEMENT IN FURNACE-GRATES.

Specification forming part of Letters Patent No. **165,740**, dated July 20, 1875; application filed March 6, 1875.

To all whom it may concern:

Be it known that I, SAMUEL J. LA RUE, of Russell, in the county of Howard and State of Missouri, have invented a new and useful Improvement in Furnace-Grates, of which the following is a specification:

The invention relates to an improvement in the class of grates whose alternate bars are adapted for endwise reciprocation; and it consists in the construction and arrangement of parts, as hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a top view of the grate. Fig. 2 is a side view of one of the stationary bars, showing cross-sections of the supporting-bars at the ends of the grate, it being a section on the line *x x* of Fig. 1. Fig. 3 is a vertical section of Fig. 1, taken on the line *y y*, showing one of the swing grate-bars and the manner in which it is operated. Fig. 4 is an end view of the entire grate.

Similar letters of reference indicate corresponding parts.

A A are the stationary grate-bars, which are supported on the transverse bars B B. These transverse bars are rabbeted and the ends of the grate-bars are slotted and fitted to the rabbets, as seen in Fig. 2. These stationary grate-bars form one-half the grate, there being spaces between them to receive the swinging bars, and thus complete the grate. C represents the swinging grate-bars. These bars are connected together by the rods D D. E are openings made in the ends of these bars, the upper limbs G of which rest on the transverse bars B, as seen in Fig. 3. F are links attached to the transverse bars B B, which receive the ends of the rods D D. These links allow the swinging bars a longitudinal motion, and also a slight upward motion.

It will be observed that the upper side of the opening E is the arc of a circle, and that as the limb G is made to slide on the transverse bar, the ends of the grate-bar will be slightly raised alternately. H represents cogs on the two outside swinging bars, which engage with the sector-pinions I. These pinions are connected together by means of a transverse shaft, J, which is supported by journals on hangers J′, (seen in dotted lines, Fig. 3,) from the two outside stationary bars. This shaft has one or more arms, K, which are connected with one or more operating-levers, L, which may be in any convenient form, by the rod or rods *m*. (See Fig. 3.) The lever L has its fulcrum on the transverse bar B. By vibrating the lever or levers the shaft J is rocked, and the grate-bars C are made to receive a swinging and slightly upward motion, which has the effect of clearing the coal or other fuel from ashes, and renovating the fire. This shaft J may be operated at the sides as well as at the front by applying levers to one or both ends. N represents air cells or cavities in the tops of all the grate-bars. These cells allow the air to circulate over the bars transversely and increase the combustion. The grate-bars are kept the proper distance from each other by lugs O on the sides of the stationary bars.

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

The combination, with the grate-bars having teeth H, of the pinions I, rock-shaft J, the rods M, and lever L, as shown and described, for the purpose specified.

SAMUEL J. LA RUE.

Witnesses:

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CHAS. H. GENTRY.