J. A. PRICE.

Stove-Grate.

No. 211,929. Patented Feb. 4, 1879.

Fig. 1.

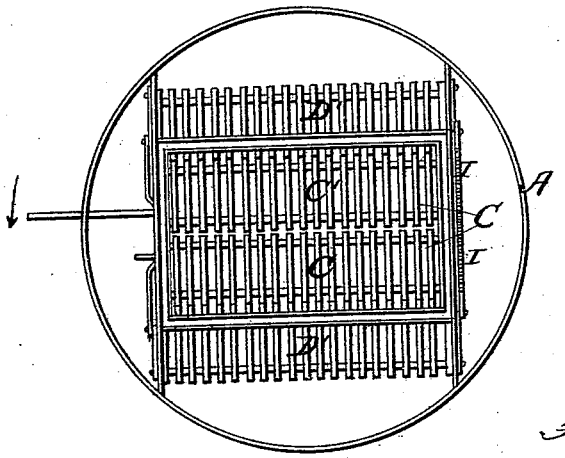


Fig. 2.

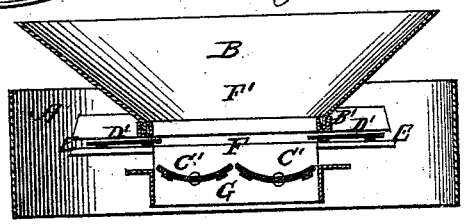


Fig. 3.

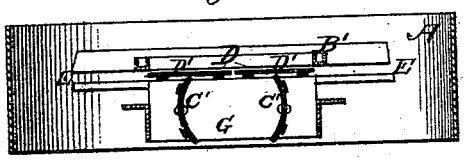


Fig. 4.

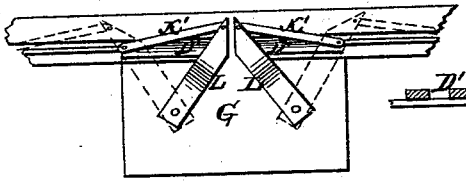
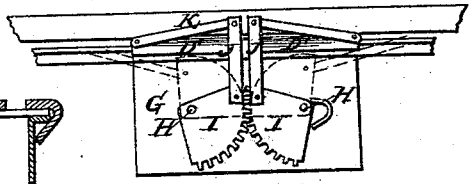


Fig. 5.



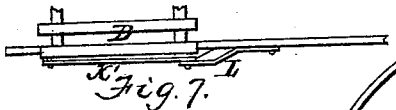
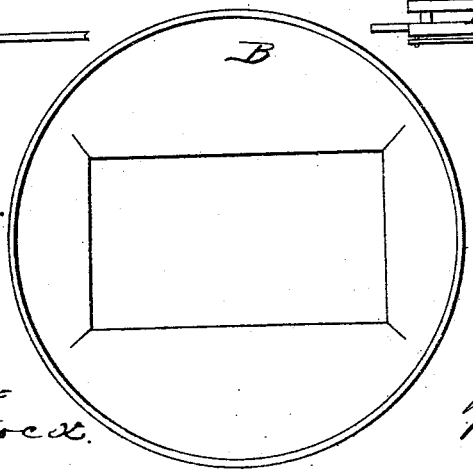


Fig. 7.

Fig. 8.

Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN A. PRICE, OF SCRANTON, PENNSYLVANIA.

IMPROVEMENT IN STOVE-GRATES.

Specification forming part of Letters Patent No. **211,929**, dated February 4, 1879; application filed May 28, 1878.

To all whom it may concern:

Be it known that I, JOHN A. PRICE, of Scranton, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Stove-Grates; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top-plan view with the fire-pot removed. Fig. 2 is a vertical transverse section, showing the lower grates in position for supporting the fire, and the upper or cut-off grates slid back out of the way. Fig. 3 is a similar view, showing the upper or cut-off grates projected to form a bottom for the fire-chamber, and the lower ones in their position after dumping. Figs. 4, 5, 7, and 8 are views of the devices for opening and closing the grates. Fig. 6 is a plan view of the fire-pot.

Similar letters of reference indicate the same parts in the several figures.

This invention has for its object the improvement of stoves and furnaces in respect to rendering them more economical in the consumption of fuel, and enabling them to be more easily cleared of cinders and other obstructions than those heretofore in use; and it consists in a peculiar organization of devices for effecting these results, which I will now proceed to describe.

In the drawings, A represents the casing of a stove to which my improvements are applied. B is the fire-pot, C the dumping-grate, and D the cut-off. The latter, in this example of my invention, is composed of two grate-sections, D′ D′, adapted to be moved back and forth in guides or ways E E toward and from each other, and to cut off or divide the lower part, F, of the fire-chamber from the part F′ above.

The dumping-grate C consists of two sections, C′ C′, preferably curved, as shown, and journaled in the casings G of the fire-chamber. The journals H H at one end of the sections are provided with cogged segments I I, meshed with each other, so that power applied to the journals of either will cause both sections to move simultaneously. Arms J J project from the segments I I, and to these arms are jointed connecting-rods K K, articulated to one end of the sliding cut-off sections D′ D′. On the opposite journals of the grate-sections I attach lever-arms L L, and these arms are likewise connected to the opposite end of the sliding cut-off section by rods K′ K′, as shown. By this means the oscillations of the grate-sections will impart a positive back-and-forth movement to the sliding cut-off sections, as will be readily understood.

One of the journals of the grate is extended through the outer casing of the stove, and is intended to be provided with a suitable operating-handle.

Fig. 2 shows the position of the apparatus under ordinary circumstances. Now, when it is desired to remove ashes, clinkers, &c., from the lower portion of the fire-chamber, the handle on the outside of the stove is turned in the direction indicated by the arrow, causing the cut-off sections D′ D′ to cut through the fire-chamber until they meet, and at the same time turning the grate-sections C′ C′ into a vertical position, as shown in Fig. 3, and allowing the clinkers, &c., to pass into the ash-pit below.

It will be seen that this operation does not disturb the fire above, and the same may still be employed in the reduced chamber thus formed, or the handle again operated and the fire dropped into the grate-sections C′ C′ and additional fuel supplied from above.

The use of the cut-off as a grate will be found of great advantage, especially in cooking-stoves in the summer season, where it is desirable to build just enough fire for cooking purposes, but not one sufficiently large to generate much heat.

The cut-off sections may be constructed in the form of slotted grates, as shown; or, where it is desired to burn wood, they may consist of plates provided with perforations just large enough to admit of a supply of air to support proper combustion.

When the sliding cut-off sections are retracted, they are so far removed from the fire as to offer no obstruction to combustion, nor liability of injury to themselves. In large stoves and furnaces it may be necessary to mount them upon rollers, in order to reduce the friction and enable them to be more easily operated; but ordinarily such devices can be dispensed with.

The fire-pot B is supported upon a flanged

frame, B′, and is made with a wide circular top, and is gradually contracted at the bottom to form an opening corresponding to the outline of the grate. It is applicable to any cylindrical stove in which a rectangular grate is employed.

I am aware that it is not new to employ a cut-off for the purpose of holding the contents of the upper portion of the fire-pot of a stove while the grate is being dumped to clear out the lower portion of said chamber, as seen in patent to J. R. Barbour, dated July 13, 1869, No. 92,562, and in other patents; but in such inventions the cut-off is entirely disconnected from the grate, and consequently is not operated automatically when the grate is dumped. I am also aware that it is not new to combine a dumping-grate and cut-off in one structure, such construction being shown, for instance, in the patent to S. Smyth, dated January 29, 1878, No. 199,752. I therefore lay no claim to either of these arrangements. Neither do I claim a series of lifting-fingers arranged above a dumping-grate and operated therefrom, as shown in the patent of D. E. Paris, August 14, 1877, No. 194,107.

I do not wish to be understood as limiting myself to the particular form of grate and cut-off sections herein described, regarding my invention as covering, broadly, the combination of any kind of cut-off that is adapted to be entirely retracted from the fire-chamber with any form of movable grate separate and distinct therefrom, the two being so connected that the opening of the grate shall cause the cut-off to be simultaneously projected through the lower part of the fire-chamber, and vice versa.

I claim as my invention—

1. An automatic cut-off for stoves, operated from a dumping-grate, but constructed separate and distinct from and not a part of said grate, adapted to be entirely retracted from the fire-chamber when not in use, to prevent injury to it by fire, and to leave the said chamber entirely unobstructed, substantially as described.

2. The combination of an automatic sliding cut-off with a grate constructed in pivoted sections, substantially as described.

3. The cut-off sections D′ D′, adapted to slide in ways or guides E E, in combination with the pivoted grate-sections C′ C′ and suitable connecting mechanism, whereby the tilting of the grate-sections shall cause the cut-off sections to cut off the contents of the lower portion of the fire-chamber and drop the same into the ash-pit below, substantially as described.

4. The combination of the grate-sections C′ C′, journaled in the casing G G, with the segments I, arms J J, lever-arms L L, and connecting-rods K K′, arranged outside said casing, with the sliding cut-off sections D′ D′, substantially as described, for the purpose specified.

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