

H. W. GRANGER.

Furnace-Grates.

No. 169,259.

Patented Oct. 26, 1875.

Fig. 1.

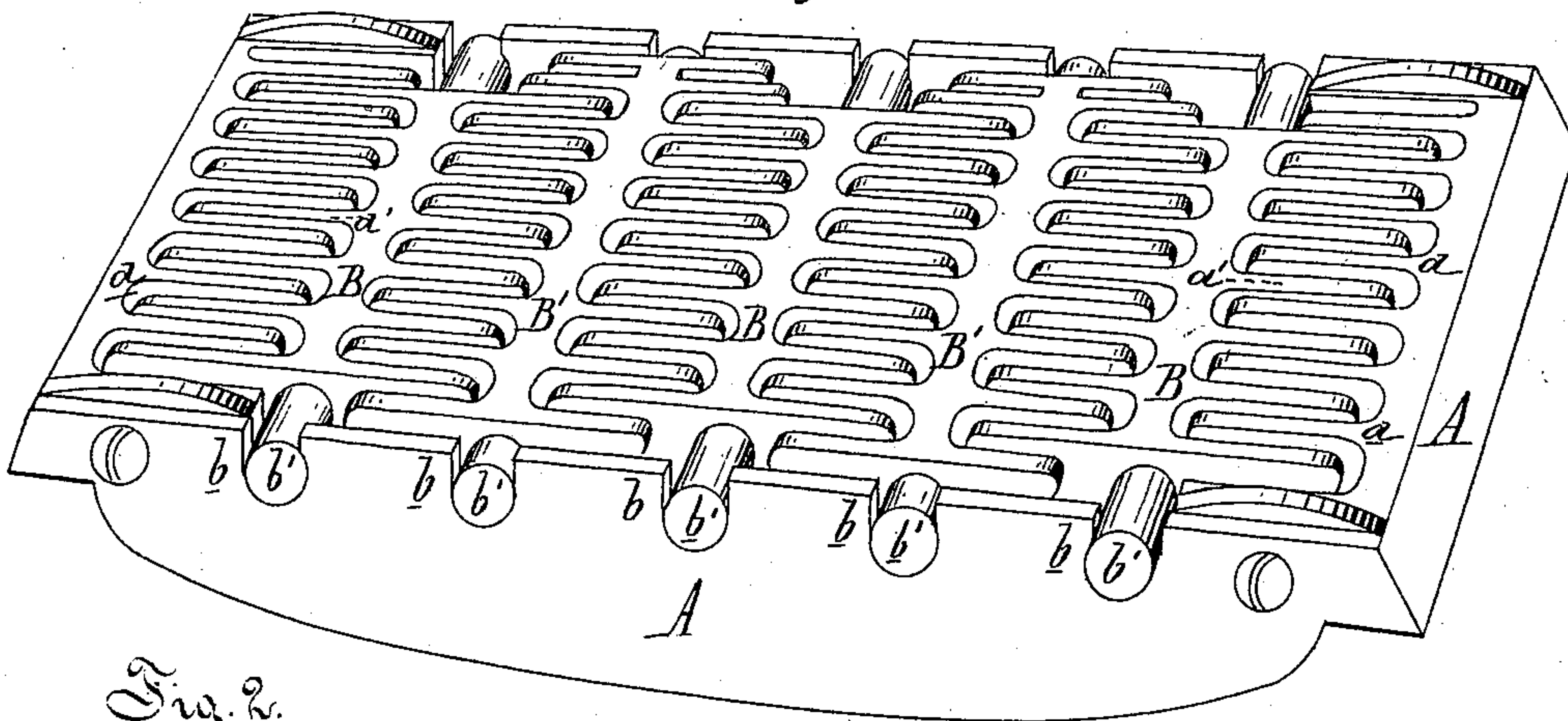


Fig. 2.

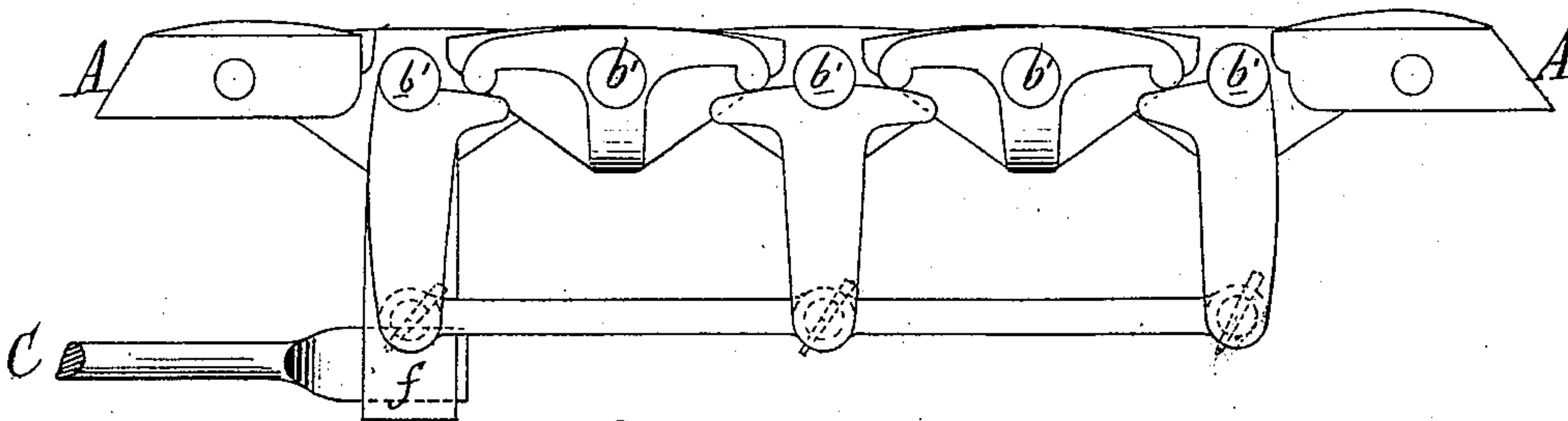


Fig. 4.

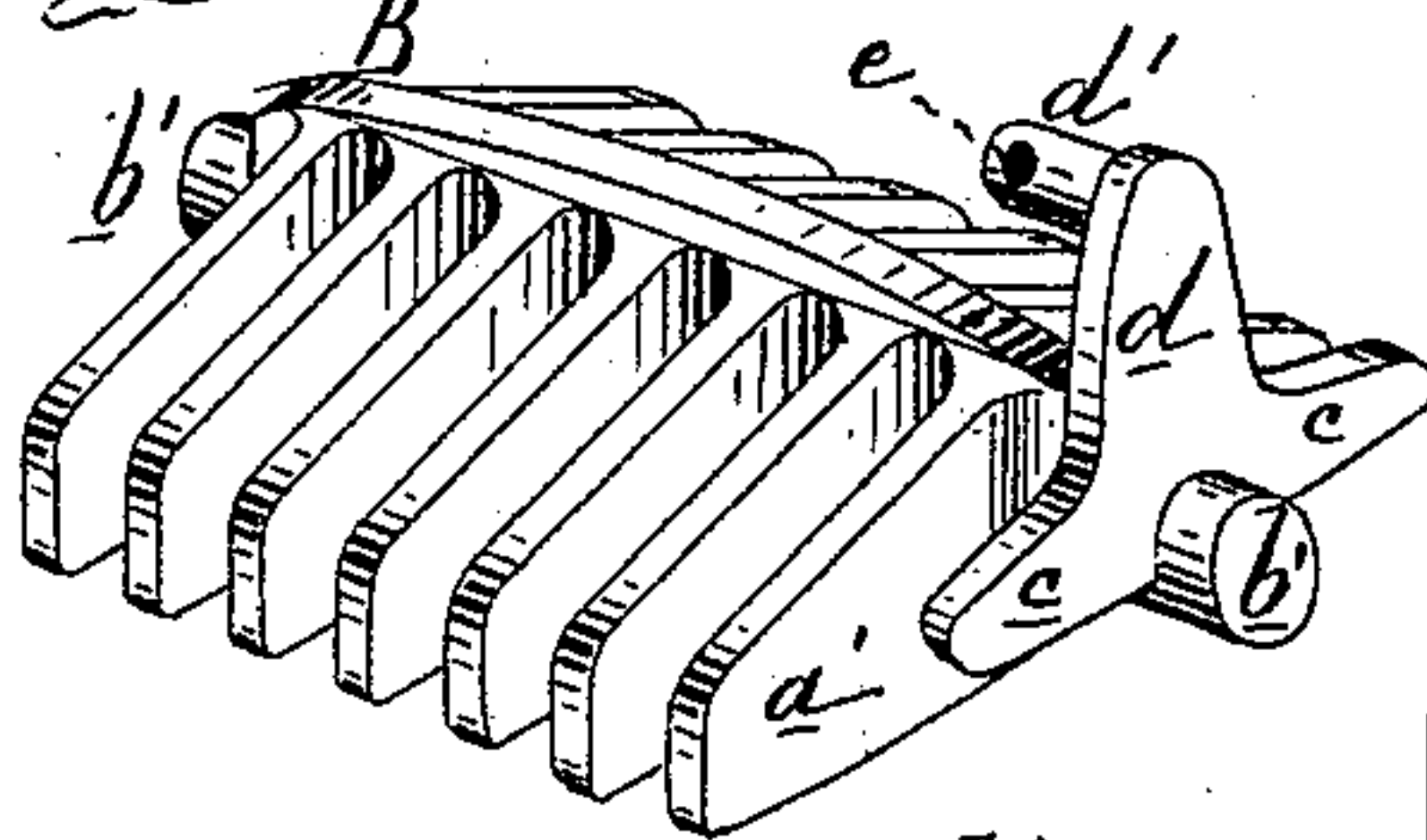


Fig. 3.

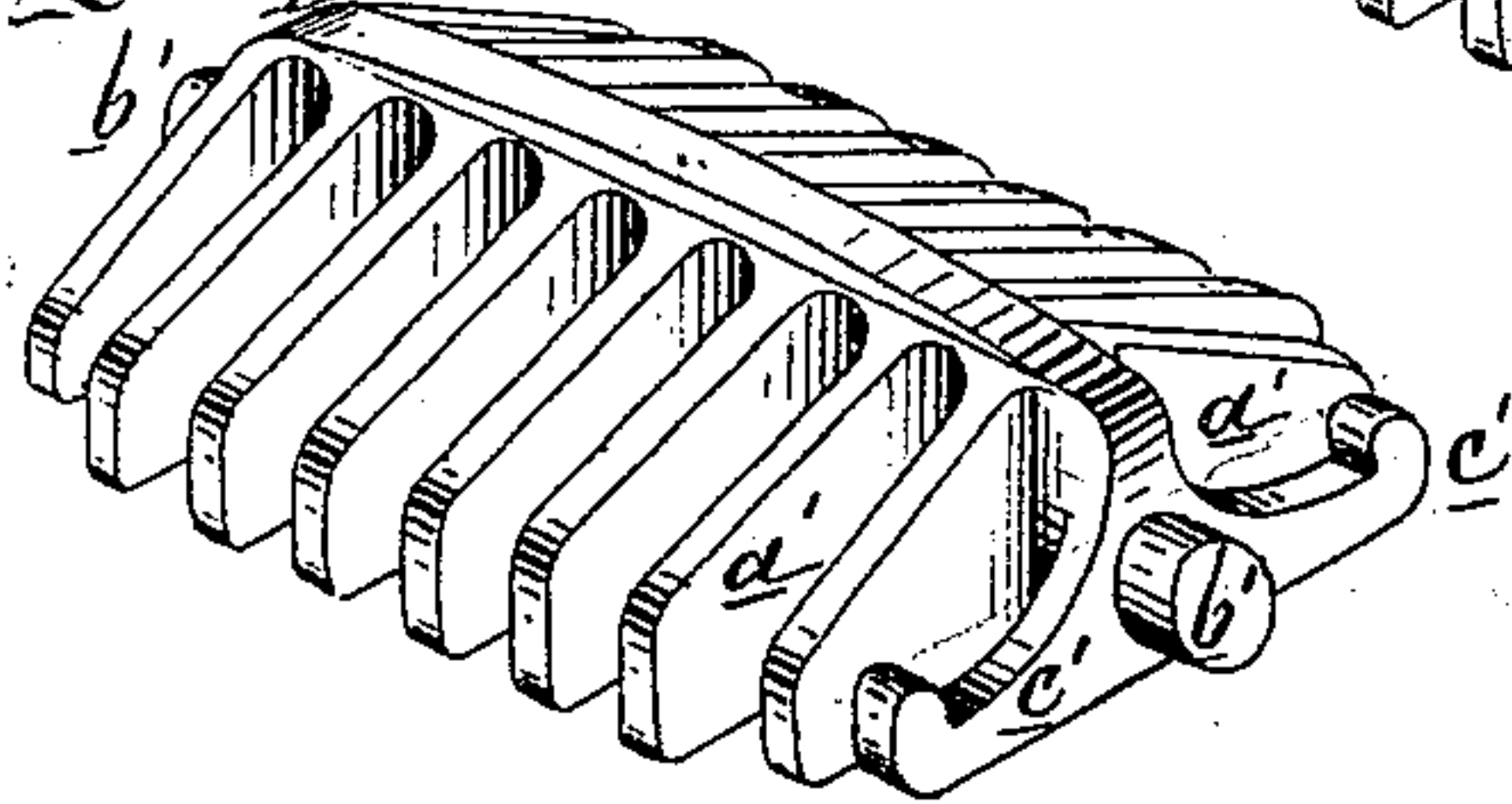
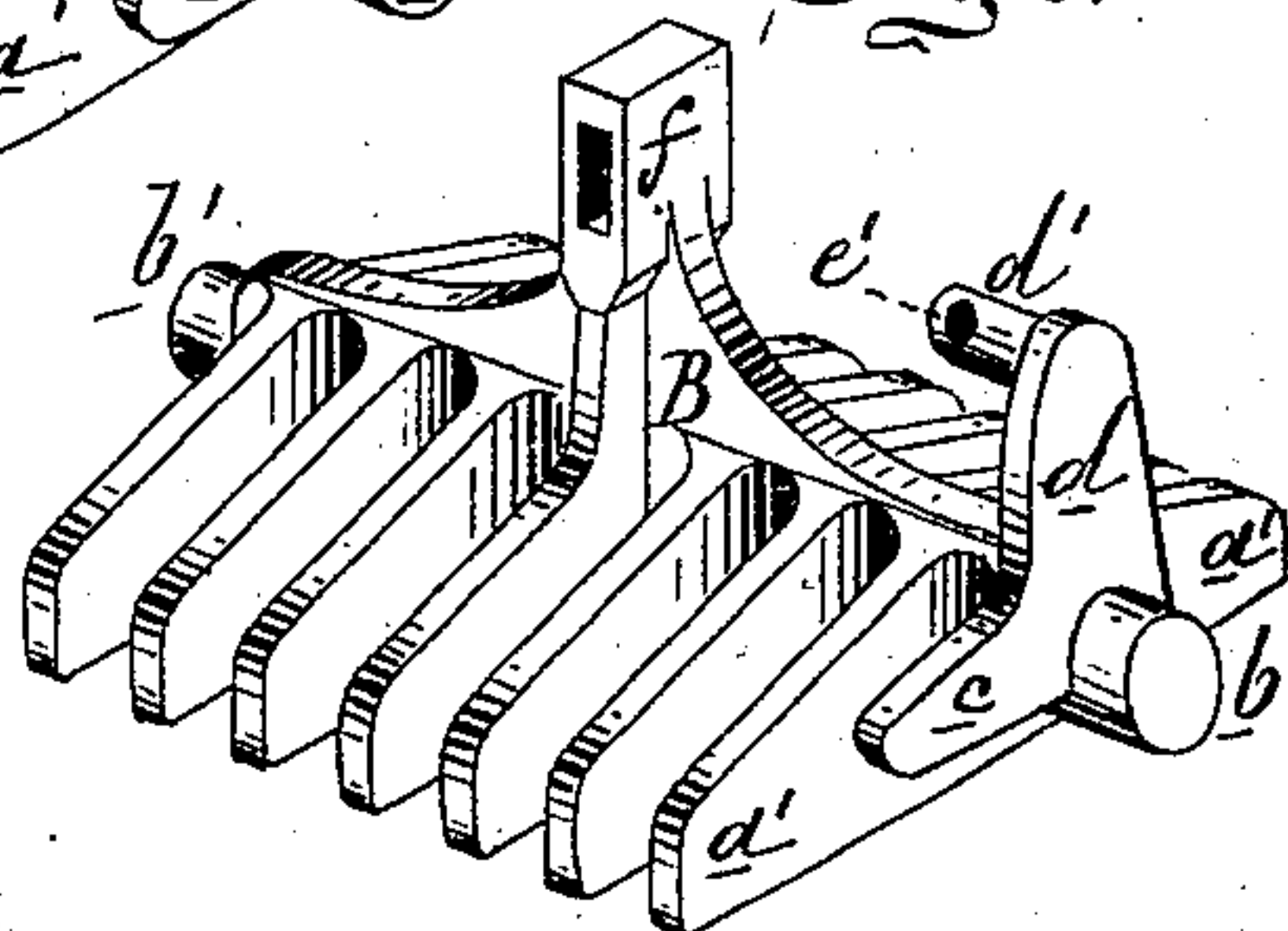


Fig. 5.



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HARRY W. GRANGER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN FURNACE-GRATES.

Specification forming part of Letters Patent No. **169,259**, dated October 26, 1875; application filed June 29, 1875.

To all whom it may concern:

Be it known that I, HARRY W. GRANGER, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Furnace-Grates, of which the following is a specification:

The nature of my invention relates to an improvement in furnace-grates of that class in which the grate-sections are hung upon trunnions and oscillated thereon when it is desired to free the fire-bed from clinkers, ashes, and other refuse matter; and its object is to so construct, arrange, and combine the several grate-sections, as that they will be oscillated in alternating inclination by a single lever inserted in an arm pendent from that section which is nearest to the furnace-front, as more fully hereinafter set forth.

Figure 1 is a perspective view of my improved grate. Fig. 2 is a side elevation of the same with the side bar of the frame removed. Figs. 3, 4, and 5 are, respectively, inverted perspective views of an intermediate grate-section, a carrier grate-section, and the front carrier grate-section.

In the drawing, A represents a cast-iron rectangular frame, longitudinally disposed in the furnace. The frame may be cast in one piece for the smaller examples; but it is preferable to make the sides and ends separate and bolt them together. The ends are cast with inwardly-projecting grate-fingers *a*. In the sides are formed depressions *b*, at regular distances apart, to receive the trunnions *b'* at the ends of the grate-sections B B', transversely hung in the frame, and all of which have projecting fingers *a'* interlocking with

each other and with the fingers *a* at the ends of the frame. Every second or alternate grate-section in the frame is a carrier-section, similar to that shown in Figs. 4 and 5 at B. The intermediate sections are shown at B', Fig. 3. Each section B is cast with a wiper or carrier, *c*, from which there is pendent an arm, *d*, having a wrist, *d'*, at its lower end, all of which wrists are connected by a rod, C, secured by a key through a hole, *e*, in the extremity of each wrist. The front carrier-section, Fig. 5, is cast with a pendent arm, *f*, with a socket to receive the end of the lever D, which is vibrated in a vertical plane through the ash-pit opening, and, through the connecting-rod C, oscillates all the sections B. Each section B' has cast on end a horizontal jack, *c'*, with a rounded pendent bearing at each end, which rests upon the carrier *c* of the adjacent section B, which, when elevated, lifts that end of said jack, and thus tilts the section B' in the opposite direction to the inclination of said section B, thereby breaking up the clinkers and freeing the fire-bed from the refuse matter of combustion.

What I claim as my invention is—

In a sectional oscillating furnace-grate, substantially as described, the carrying and intermediate grate-sections, the latter provided with the bearing-jacks, and the former with the carriers and arms, all of which are connected by a single bar, substantially as shown, and for the purpose set forth.

HARRY W. GRANGER.

Witnesses:

H. S. SPRAGUE,
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