No. 702,585. Patented June 17, 1902.

H. E. PARSON.

GRATE BAR.

(Application filed Sept. 29, 1899.)

(No Model.)

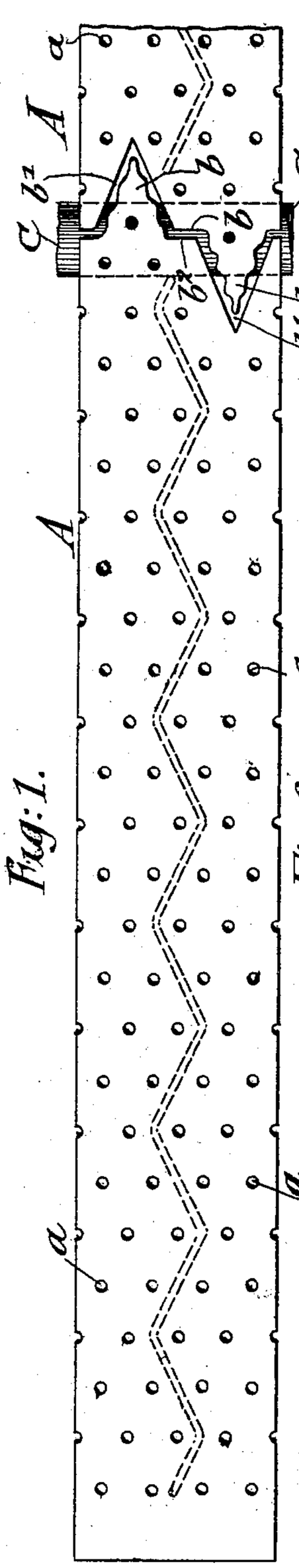

Fig. 1.

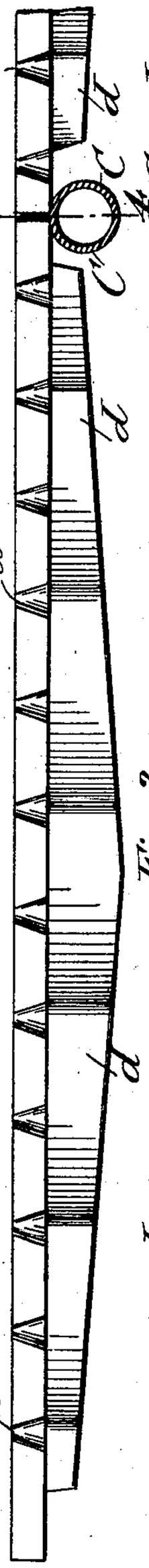

Fig. 2.

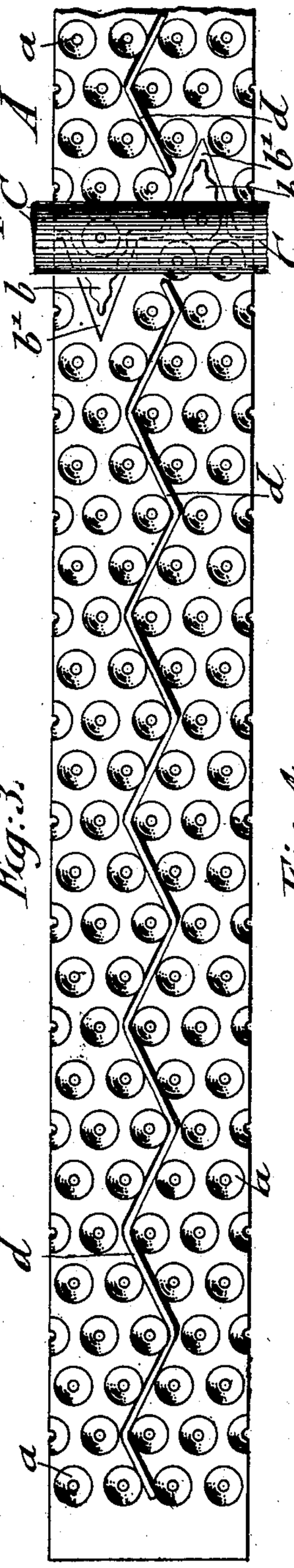

Fig. 3.

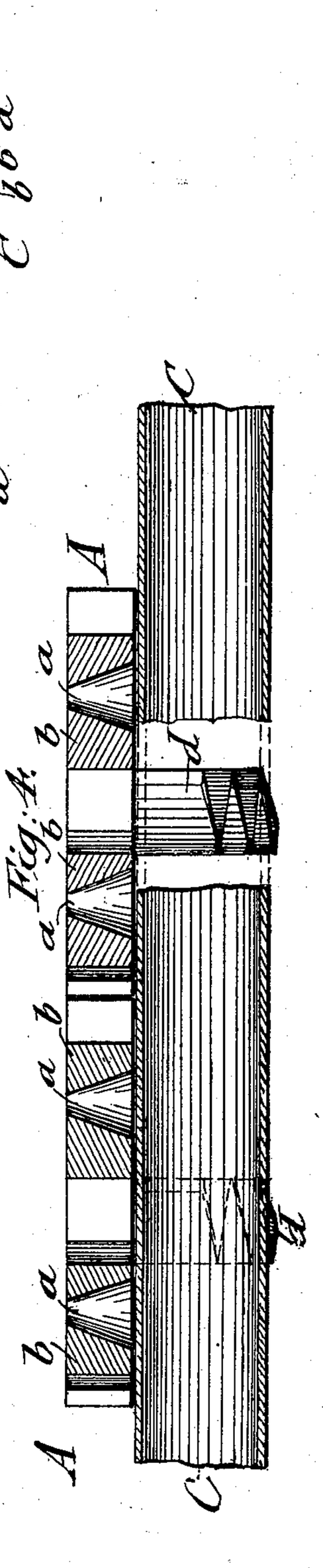

Fig. 4.

WITNESSES:

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GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 702,585, dated June 17, 1902.

Application filed September 29, 1899. Serial No. 732,090. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. PARSON, a citizen of the United States, residing at New York, in the borough of Brooklyn and State of New York, have invented certain new and useful Improvements in Grate-Bars, of which the following is a specification.

This invention relates to an improved grate-bar of that type which is provided with conical perforations extending through the bar and which are used for burning coal-dust or small-size fuel with artificial draft, the grate-bar being so improved that increased strength is imparted to the same, warping prevented, and a more reliable support for and interlocking of the grate-bars obtained; and the invention consists of a grate-bar provided with longitudinal rows of tapering perforations arranged in staggered position relatively to one another and a longitudinal rib of serpentine shape integral with said bar at its under side, the undulations of said rib extending in the spaces between and tangentially to the perforations of the central group of longitudinal rows of perforations of the bar; and the invention consists, further, in the combination of two adjacent grate-bars provided with alternate interlocking tongues and recesses and intermediate straight connecting portions between said tongues and recesses, said tongues being provided with corrugations at their edges and a tubular transverse supporting-bar for the adjacent ends of the grate-bars.

In the accompanying drawings, Figure 1 represents a top view of my improved grate-bar. Fig. 2 is a side view of the same. Fig. 3 is a bottom view; and Fig. 4 is a vertical transverse section on line 4 4, Fig. 2, drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates a grate-bar, which is preferably made of cast-iron of suitable thickness and provided with a number of conical perforations *a*, that are arranged in rows in staggered position relatively to one another, the perforations tapering from the under side to the upper side of the bar. In the bar illustrated seven such rows are shown in addition to the rows of incomplete perforations at the two vertical sides of the bar. Each grate-bar is provided at its under side with a reinforcing-rib *d* of serpentine shape, as shown clearly in Fig. 2, said rib extending longitudinally through the entire length of the bar and being arranged tangentially, or nearly so, to the lower edges of the perforations *a*, as shown in Fig. 2. In the grate-bar shown the inner or middle five longitudinal rows of perforations may be termed the "central group" of rows. The undulations of the rib extend in the spaces between and tangentially to the perforations of these rows. The rib imparts to the grate-bar increased strength and effectually prevents the warping of the same. It is preferably cast integral with the grate-bar. The ends of two adjacent grate-bars are interlocked by means of tongues *b* and recesses *b'*, the tongues and recesses being made tapering in shape and the tongues, furthermore, provided with corrugated edges, so as to produce narrow open spaces between the interlocking ends. The tongue of one grate-bar extends into the recess of the adjacent bar, as shown in Fig. 2. The tongue and recess of each grate-bar are connected by a short straight portion b^2. The ends of the bars are supported by a tubular transverse supporting-bar C, on which the projecting tongues of the bars rest, the tubular shape permitting the free passage of the draft to the straight portions b^2 and to the spaces between the interlocking tongues and recesses, so that the ends are kept cool while they are uniformly supported on the tubular bar. The recess *b'* is located at the end of the grate-bar and extended inwardly between the perforations of the same, each grate-bar being preferably provided with one recess, one projecting tongue, and an intermediate straight portion between the recess and the tongue.

My improved grate-bar has the advantage of great durability, owing to the arrangement of the serpentine reinforcing-rib, which imparts great strength to the bar, while at the same time permitting the expansion and contraction of the bar under different degrees of heat without warping or twisting. The bars are supported in a very reliable manner at their ends, and by the arrangement of the locking tongues and recesses non-per-

forated dead portions at the ends of the bars are avoided and a uniform supply of air over the entire length of the grate-bars obtained.

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

1. A grate-bar provided with longitudinal rows of tapering perforations arranged in staggered position relatively to one another, and a longitudinal rib of serpentine shape integral with said bar at its under side, the undulations of said rib extending in the spaces between and tangentially to the perforations of the central group of longitudinal rows of perforations of the bar, substantially as set forth.

2. The combination of two adjacent grate-bars provided with alternate interlocking tongues and recesses, and intermediate straight connecting portions between said tongues and recesses, said tongues being provided with corrugations at their edges, and a tubular transverse supporting-bar for the adjacent ends of the grate-bars, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HENRY E. PARSON.

Witnesses:

PAUL GOEPEL,

M. H. WURTZEL.