A. HAWKINS-MASTERS.

REVOLVING GRATE FOR STOVES, RANGES, AND FURNACES.

APPLICATION FILED APR. 1, 1909.

953,141. **Patented Mar. 29, 1910.**

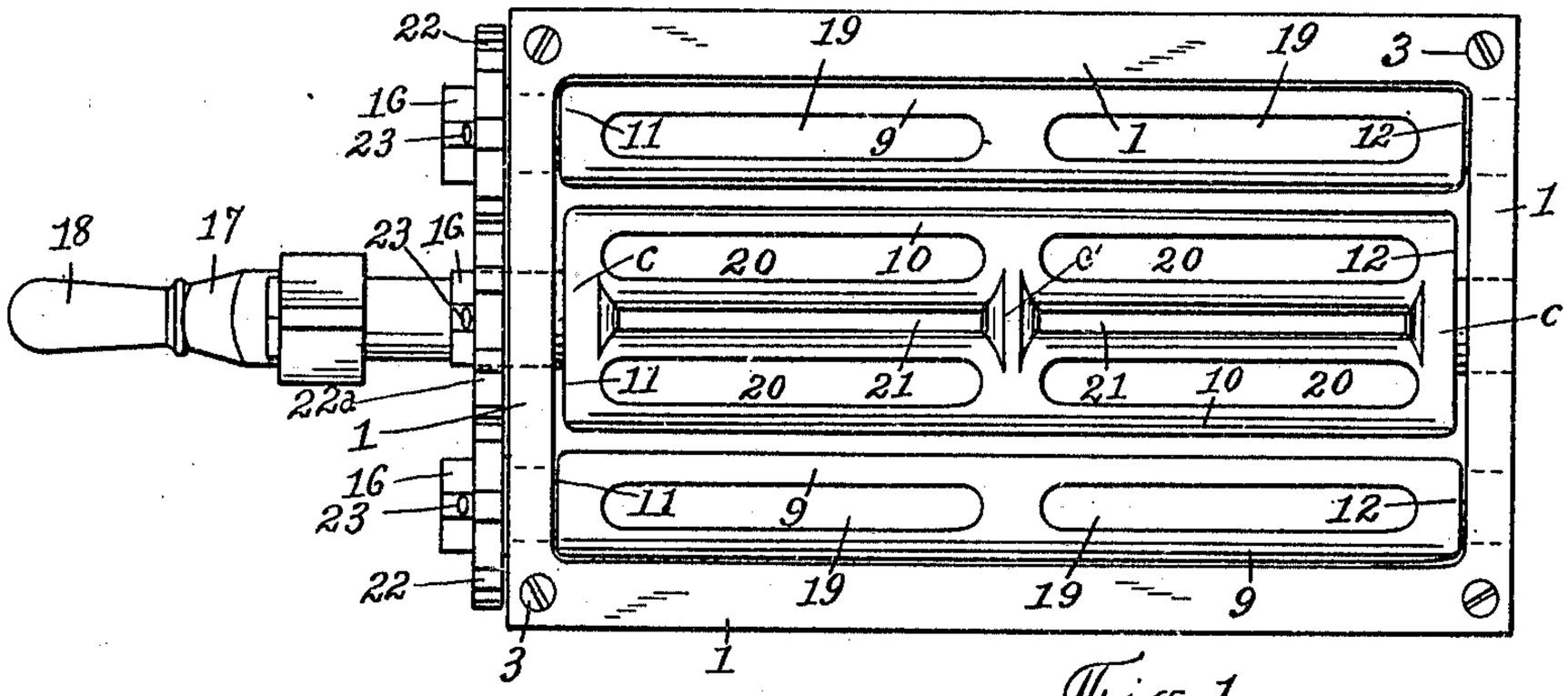

Fig. 1.

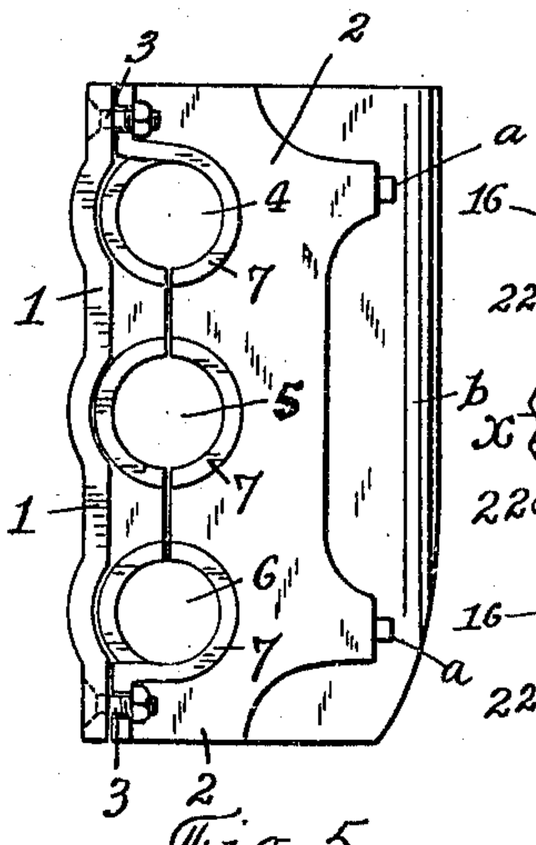

Fig. 5.

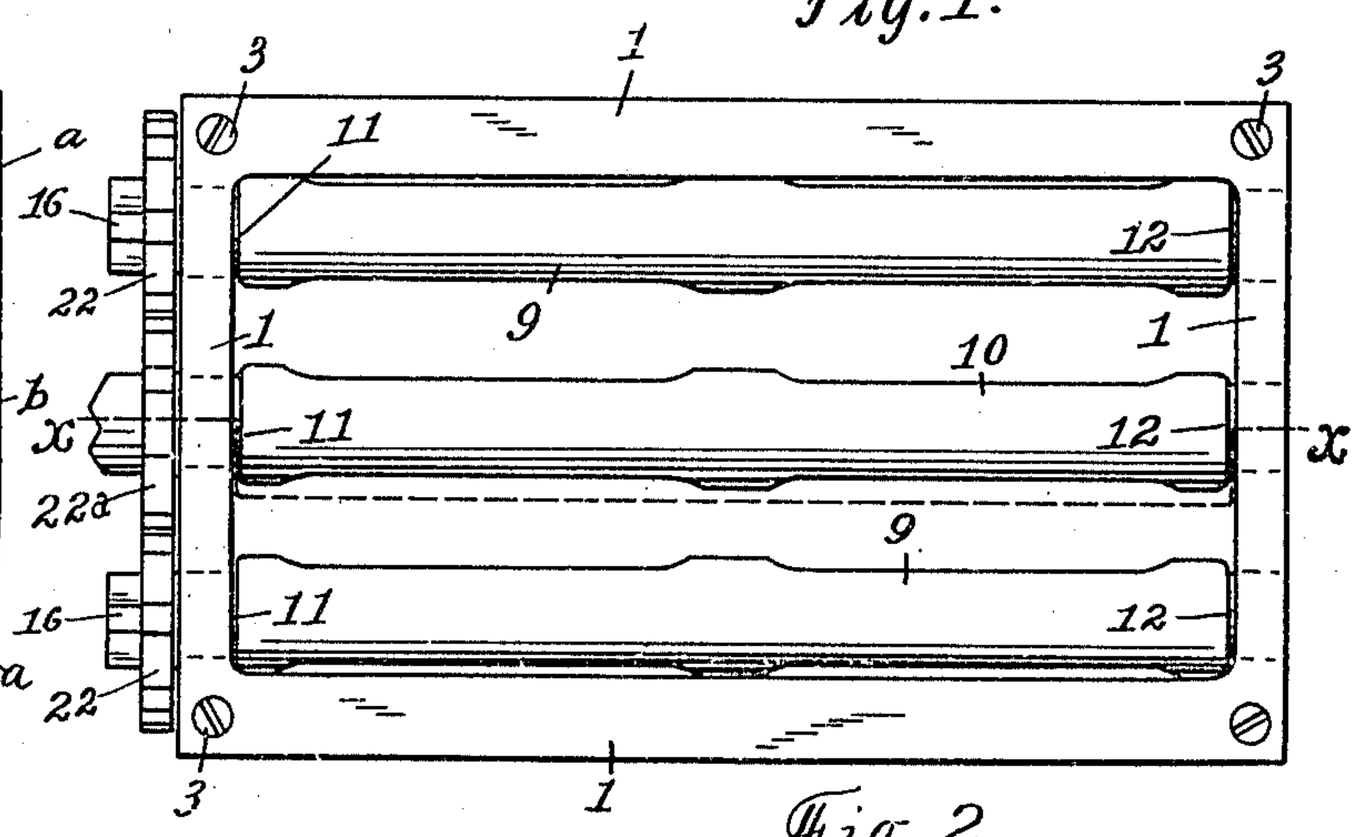

Fig. 2.

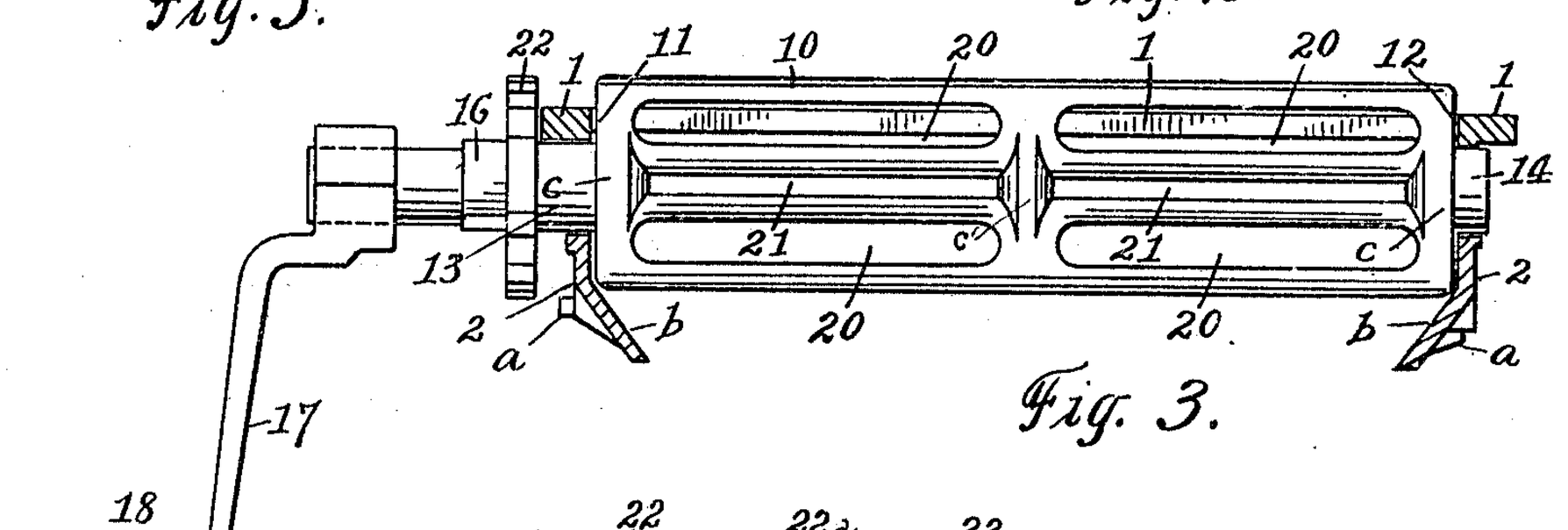

Fig. 3.

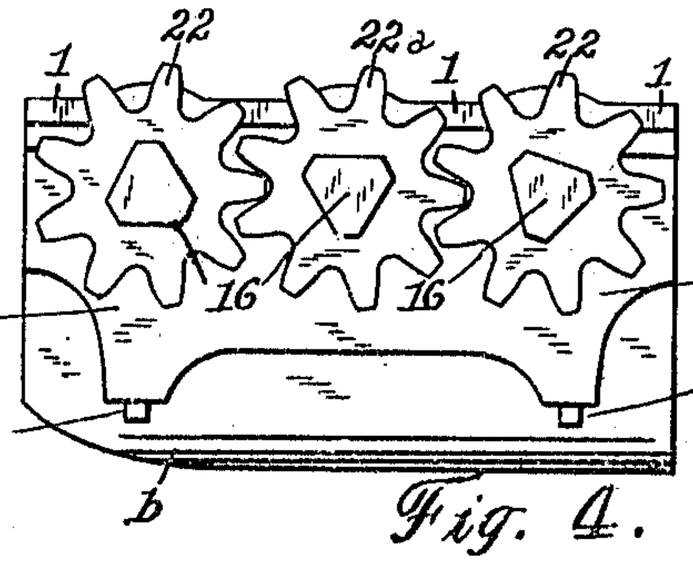

Fig. 4.

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UNITED STATES PATENT OFFICE.

ARTHUR HAWKINS-MASTERS, OF LONDON, ONTARIO, CANADA.

REVOLVING GRATE FOR STOVES, RANGES, AND FURNACES.

953,141. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed April 1, 1909. Serial No. 487,341.

To all whom it may concern:

Be it known that I, ARTHUR HAWKINS-MASTERS, a subject of the King of Great Britain, and a resident of the city of London, in the county of Middlesex, in the Province of Ontario, Canada, have invented a new and useful Revolving Grate for Stoves, Ranges, and Furnaces, of which the following is a specification.

This invention relates to revolving grates and the object thereof is to provide a grate of such class in a manner as hereinafter set forth that is equally well adapted to stoves, ranges, furnaces, fire places, and wherever a grate can be advantageously used.

Further objects of the invention are to provide a revolving grate which shall be comparatively simple in its construction, strong, durable, efficient in its use, conveniently operated, readily set up in operative position, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote the corresponding parts throughout the several views, Figure 1 is a top plan of the revolving grate in accordance with this invention, Fig. 2 is a plan with the grate bars shifted to a position at right angles with respect to the position of the bars shown in Fig. 1, Fig. 3 is a longitudinal sectional view on line X—X, Fig. 2, with the addition of a toothed gear wheel and the operating means for the grate bars, Fig. 4 is a detail illustrating the gears for revolving the grate bars simultaneously, and Fig. 5 is a detail illustrating one of the end plates.

Referring to the drawings in detail 1 indicates the body portion of the grate and which is in the form of a rectangular frame and 2 indicates a pair of depending end pieces which are secured to the frame 1 by the hold fast devices 3. Each of the end pieces is provided with cylindrical bearing sockets 4, 5 and 6 and further with bosses 7. Each of the end pieces 2 is furthermore provided with an extension *a* which constitutes a supporting means for the grate when the latter is mounted within the fire place. Each of the end pieces 2 has its lower end inclined inwardly and toward each other as at *b* so as to guide the ashes into the ash pit.

The grate bars are indicated by the reference characters 9 and 10, the bars 9 are termed the side bars of the grate and the bar 10 the intermediate bar. Each of the bars 9 is cylindrical in cross section and is furthermore provided with a pair of longitudinally-extending slots 19 which extend in the same plane and each has its inner wall positioned at a point to one side of the center of its respective bar and its outer end wall positioned at a point in proximity to the end of its respective bar. Each of the bars 9 is provided with journals 13 and 14, which are mounted in the bearing sockets 4 and 6, the journals 13 and 14 are of less diameter than the diameter of the bar whereby each end of the bar is provided with a shoulder, the shoulders for each bar being indicated by the reference characters 11 and 12 and which when in engagement with the side bars of the frame 1 prevent longitudinal movement of the grate bars with respect to the frame 1. Each of the journals 13 has projecting therefrom an angular portion 16 to which is fixed a toothed wheel 22, the function of which will be hereinafter referred to. The intermediate grate bar is formed of two cylindrical members extending in parallelism with respect to each other and connected together at their ends by the bridge pieces *c* and at their center by the web *c'*. The members of the intermediate grate bar 10 are spaced from each other so as to provide between the web *c'* and the bridge pieces *c* a pair of longitudinally extending passages 21 which extend in the same direction. Each of the members of the grate bar 10 is provided with a pair of longitudinally-extending openings 20, the openings of the pair of each member extend in the same plane and the openings 20 terminate at a point removed from the center of the members and at a point removed from the ends of the members. Each of the bridge pieces *c* is provided with the journals, the journals are indicated by the reference characters 13 and 14 and are mounted in the bearing sockets 5. The journal 13 which projects from the bridge pieces *c* is formed with the angular extension 16 upon

which is mounted a toothed wheel 22ª meshing with the gear wheel 22. Attached to the extension 16 which projects from the journal 13 carried by one of the bridge pieces *c* is a crank 17 provided with a handle 18.

The reference character 23 indicates the cotter pins for retaining the toothed wheels or gears 22 and 22ª upon the extension 16.

From the foregoing arrangement of toothed wheels it is evident that when the handle 18 is grasped and turned that motion will be imparted through the intermediate grate bar and owing to the intermeshing with the toothed wheels 22 and the toothed wheel 22ª the grate bars 9 will be also revolved, but the grate bars 9 will revolve in opposite directions with respect to the grate bar 10. As the grate bar is wider than either of the grate bars 9, such grate bar when revolving will raise and break the live coal, clinkers or ashes and will furthermore form a large space between it and the grate bars 9 so as to allow the clinkers, ashes and dust to readily discharge.

The body portion 1 is detachably connected to the end pieces 2 by the hold fast devices 3 and by such arrangement the grate bars can be readily mounted in position in the end pieces.

What I claim is:

1. A revolving grate comprising a pair of longitudinally-extending outer grate bars each provided with a pair of longitudinally-extending openings, an intermediate revolving grate bar formed of two cylindrical members connected together at each end and spaced from each other and each provided with a pair of longitudinally-extending openings, each of said members of the same diameter as an outer bar, and means for revolving the grate bars simultaneously and the outer bars in an opposite direction with respect to the intermediate bar.

2. A revolving grate comprising a pair of longitudinally-extending outer grate bars each provided with a pair of longitudinally-extending openings, an intermediate revolving grate bar formed of two cylindrical members connected together at each end and spaced from each other and each provided with a pair of longitudinally-extending openings, each of said members of the same diameter as an outer bar, means for revolving the grate bars simultaneously and the outer bars in an opposite direction with respect to the intermediate bar, and a frame provided with side pieces in which said bars are journaled, said side pieces having the lower portions thereof extending inwardly at an inclination.

3. A revolving grate comprising a pair of longitudinally-extending outer grate bars, an intermediate grate bar formed of two members extending in parallelism with respect to each other, connected together at their ends and spaced from each other, said members furthermore connected together at their centers, and means for simultaneously revolving said grate bars with the outer bars revolving in an opposite direction with respect to the intermediate bar, and each of said members of a diameter equal to the diameter of an outer bar.

4. A revolving grate comprising a pair of longitudinally-extending outer grate bars, an intermediate grate bar formed of two members extending in parallelism with respect to each other, connected together at their ends and spaced from each other, said members furthermore connected together at their centers, means for simultaneously revolving said grate bars with the outer bars revolving in an opposite direction with respect to the intermediate bar, and each of said members of a diameter equal to the diameter of an outer bar, and a frame having depending side pieces in which said bars are journaled, said side pieces having the lower portions thereof extending inwardly, at an inclination.

In testimony whereof, I have signed in the presence of the two undersigned witnesses.

ARTHUR HAWKINS-MASTERS.

Witnesses:

P. J. EDMUNDS,

I. S. EDMUNDS.