

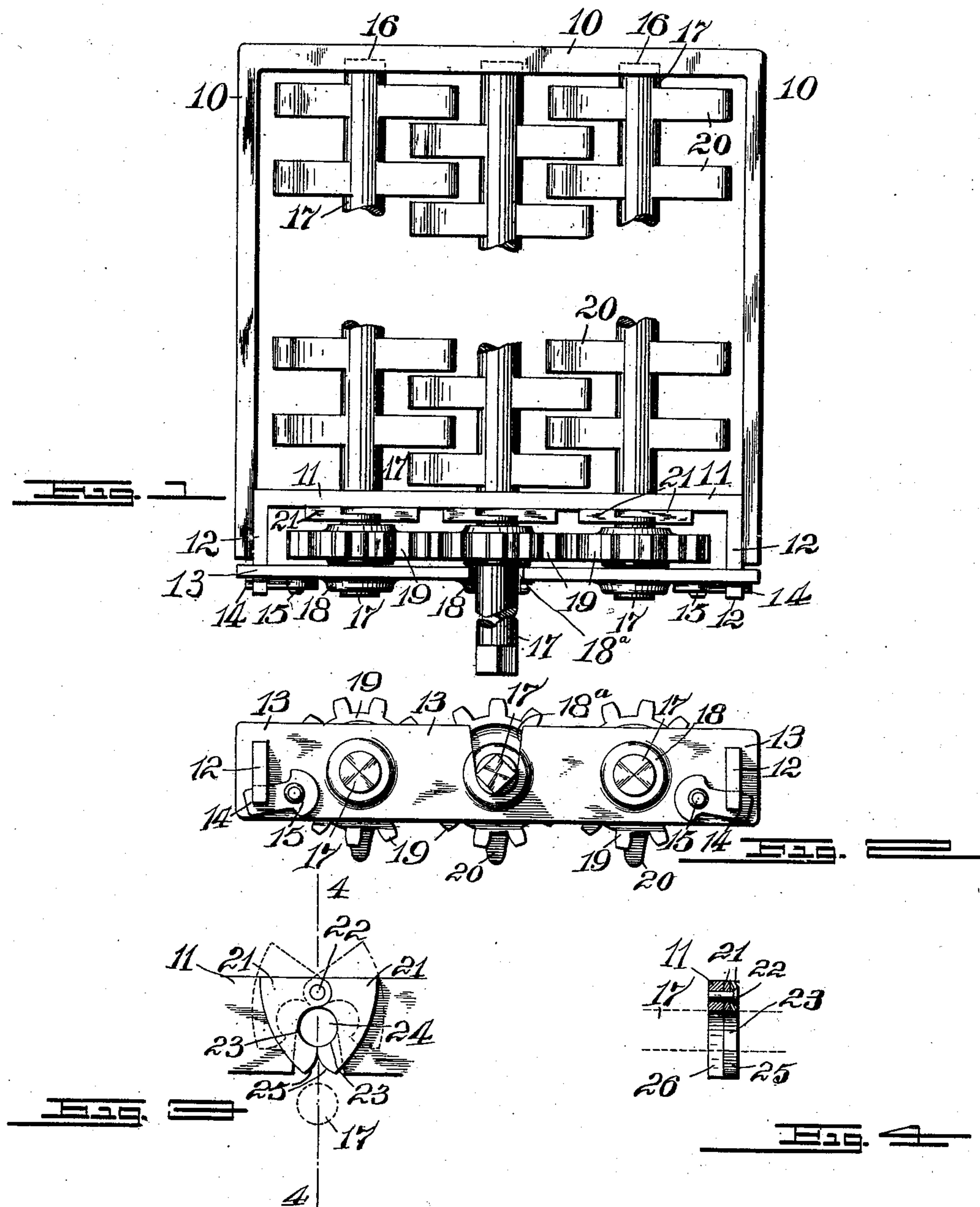
No. 756,118.

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G. G. KNIFFIN.
GRATE.

APPLICATION FILED SEPT. 1, 1903.

NO MODEL.



WITNESSES:

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GRATE.

SPECIFICATION forming part of Letters Patent No. 756,118, dated March 29, 1904.

Application filed September 1, 1903. Serial No. 171,472. (No model.)

To all whom it may concern:

Be it known that I, GEORGE G. KNIFFIN, of Bayonne, Hudson county, New Jersey, have invented certain new and useful Improve-
5 ments in Grates, of which the following is a full, clear, and exact description.

My invention relates to grates of furnaces and heaters or similar apparatus, and has for its primary object to provide a stable and se-
10 cure means for holding revolving grate-bars in position.

A further object is to provide a means for allowing the speedy withdrawal and replacing of a grate-bar and provides also for the sus-
15 taining of the remaining grate-bars when one has been withdrawn. This has been accomplished by the individual sustaining of the grate-bars when the permanent yoke has been removed.

20 With these ends in view my invention consists of certain features of construction and combinations of parts, which will be herein-
after described and claimed.

Reference is to be had to the accompanying
25 drawings, forming part of this specification, in which similar figures of reference refer to similar parts throughout the several views.

Figure 1 is a broken plan of my improved grate. Fig. 2 is a front view of the same.
30 Fig. 3 is a front view of one of the individual sustaining means, and Fig. 4 is a section on the line 4-4 in Fig. 3.

I employ any usual frame 10, across the front end of which is the supporting-bar 11,
35 which can be provided with the projecting-lugs 12, and fitting over these lugs is a yoke 13, that is provided with perforations to fit over the lugs 12, and with latches 14, pivoted at 15. The latches 14 are adapted to be forced
40 into engagement with slots in the ends of the lugs 12 to securely hold the yoke in place and prevent its accidental displacement.

In the rear end of the frame 10 are recesses 16, into which are fitted the ends of the grate-
45 bars 17, the other ends of the grate-bars being supported by the bearings 18 in the yoke 13, and the grate-bars that project to furnish the means for shaking are preferably let down

into a cut-away portion 18^a in the yoke 13. As usual in these constructions, the grate-bars are
50 provided with the gears 19, which engage one another and work in unison and turn the grate-bars 17 and their arms 20, as will be understood. Pivotal-
ly secured to the bar 11, in line with each grate-bar 17, is a pair of swinging arms
55 21. These arms are pivoted at a point 22 and are each provided with the semicircular opening 23, which, with the arms swinging down together, form the opening 24 for the reception
of the grate-bar. These arms 21 are prefer-
60 ably formed as shown to provide an excess of weight on the outside edge, so that they will normally swing together, and at their bottom they are cut away, as at 25, so that the grate-bar
when it is forced upward against the swing-
65 ing arms 21 will force them apart, and they will immediately swing together after the grate-bar is in place, so as to hold it up. These
arms are shown in dotted outline in their sepa-
70 rated position. It will thus be seen that when a grate is being assembled the yoke 13 is not
in place, and each grate-bar can have in turn its rear end inserted in a perforation 16 in the
back of the frame, and it can then be swung
75 into engagement with the arms 21 and held in place. Each individual grate-bar can be
handled the same way, and when they are all suspended the yoke can be slipped on and se-
cured and the grate is ready for use. When
80 it is desired to remove a grate-bar for repairs or displacement, the yoke can be removed, which does not disturb the grate-bars, and then any one grate-bar can be taken out with-
out disturbing the others.

It will be evident that this is an improve-
85 ment over the old system of sustaining a large number of grate-bars by hand and attempting to secure the yoke in place. The increased facility with which this can be accomplished by the new construction and its general utility
90 will be apparent.

The particular form of framework shown in the drawings is not essential, as any kind of frame can be used, and likewise the form of arms 21 can be modified; but they should
95 be arranged with the greater part of the weight

on the outside, so as to cause them to normally swing together.

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

1. A grate comprising a frame, grate-bars supported therein, means for permanently supporting the grate-bars, and individual means for supporting one end of each grate-bar when the permanent supporting means at said end is removed.

2. A grate comprising a supporting-frame, revolving grate-bars supported in the frame, means for permanently supporting the ends of the grate-bars, and means for individually supporting one end of each grate-bar when the permanent supporting means on that end is removed.

3. A grate comprising a set of revolving grate-bars, a frame for supporting the grate-bars, a yoke removably attached to the frame and forming one end thereof, the said yoke

forming a permanent supporting means for one end of each of the grate-bars, and individual supporting devices arranged to carry said end of each grate-bar when the aforesaid yoke is removed.

4. The combination of the main frame, the revolving grate-bars therein, the cross-bar near one end of the grate-bars, the removable yoke forming one end of the frame and adapted to permanently support one end of each grate-bar, and individual hangers carried by the cross-bar and adapted to engage and support the free ends of the grate-bars independently of the yoke.

In testimony whereof I have subscribed my name to this specification in the presence of two subscribing witnesses.

GEORGE G. KNIFFIN.

In presence of—

R. ROUSE, Jr.,

CHAS. M. BENEDICT.