

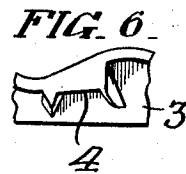
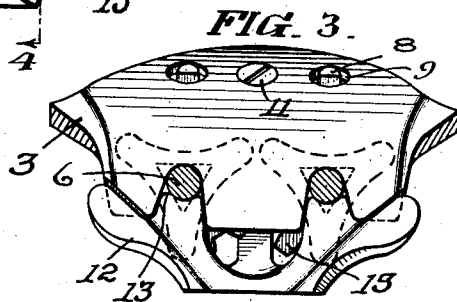
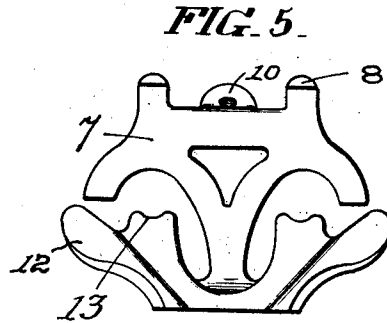
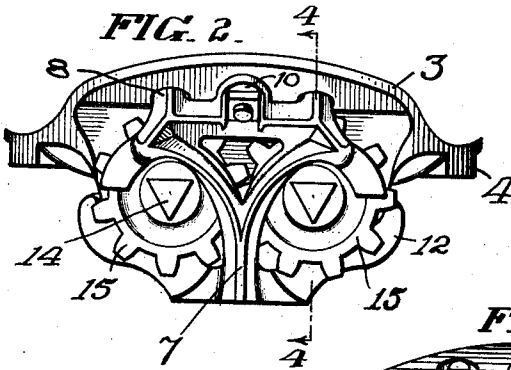
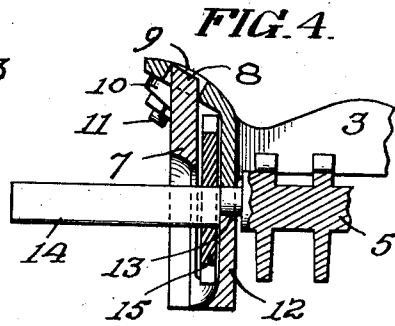
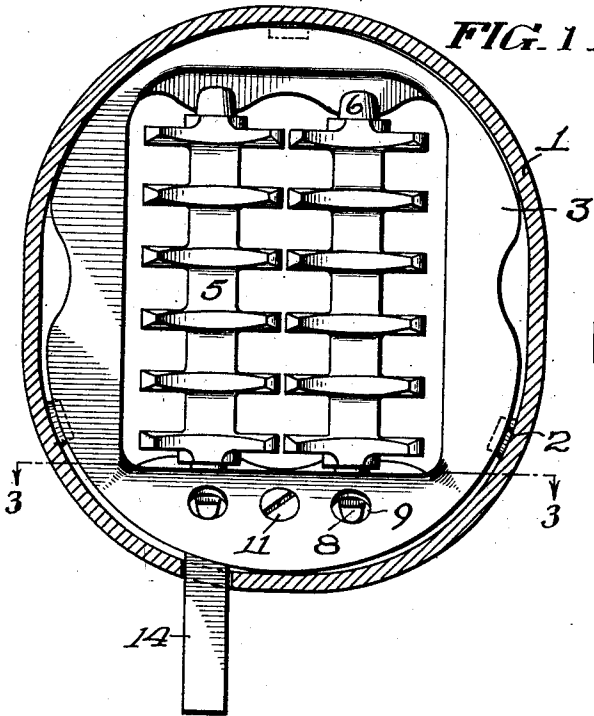
B. F. HARPEL.

GRATE.

APPLICATION FILED JUNE 3, 1912.

1,055,906.

Patented Mar. 11, 1913.



Inventor

Witnesses

Daniel Webster Jr.
J. O. Kelly

BENJAMIN FRANKLIN HARPEL,

By *Ed. A. Kelly*, Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN HARPEL, OF TOPTON, PENNSYLVANIA, ASSIGNOR TO TOPTON FOUNDRY COMPANY, OF TOPTON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GRATE.

1,055,906.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed June 3, 1912. Serial No. 701,128.

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN HARPEL, citizen of the United States, residing at Tipton, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Grates, of which the following is a specification.

This invention relates to improvements in grate bars for stoves and furnaces, and the object in the present invention is to provide a simple device that may be easily assembled or taken apart, and one that may be readily lifted bodily from its position in the fire pot.

The invention consists of a frame and a spider secured thereto by a single bolt by means of which all of the parts are securely held together, and a pair of meshing gear wheels on the grate bars so mounted that they will rotate with the grate bars, although they are not secured thereto, but which are incapable of becoming displaced thereon by reason of their location between the frame and the spider.

The invention is more fully described in the following specification and clearly illustrated in the accompanying drawing, in which:—

Figure 1 is a plan view of my grate in position in the fire pot, the latter being shown in section. Fig. 2 is an end elevation thereof, removed from the fire pot. Fig. 3 is a sectional view on line 3—3 of Fig. 1. Fig. 4 is a sectional view on line 4—4 of Fig. 2. Fig. 5 is a detail view of the inner side of the spider; and Fig. 6 shows one of the supporting pockets.

The numeral 1 designates the fire pot and 2 the substantially equidistant lugs for supporting the grate oval frame.

3 designates the frame which is formed with pockets 4 for engaging the lugs 2 and an upwardly curved perforated projection.

The numeral 5 designates the grate bars which are formed with bearings 6 for engagement with the frame at one end.

The numeral 7 designates a spider, formed with a pair of lugs 8 at its top for engagement with a pair of perforations 9 in the curved projection of the frame 3 and with a central tongue 10 by means of which it is secured to the frame through the medium of a bolt 11. The lower end of the spider is formed with an inwardly bent and up-

turned projection 12 in which are formed bearing surfaces 13 for the opposite ends of the grate bars 5. The shafts of the grate bars are cylindrical where they rest in the bearings, but beyond the bearing points they are shown as of triangular cross-section, 14.

The numeral 15 designates the gear wheels, one of each of which is located on each grate bar, and they are formed with central openings of the same shape as the cross-section of the grate bar shafts; the gears fit loosely on the shafts but are rotatable therewith, by reason of the angular openings therein, without being otherwise secured to the shafts. The gears lie in the space between the grate frame and the spider, and are thus prevented from moving laterally on the shafts.

It will be seen, therefore, that when the parts are assembled, as shown, the rocking of the grate bars will be easy, by means of the usual crank handle applied to an extension on one of the grate bar shafts. That the entire device when assembled may be placed in the stove and withdrawn therefrom as a whole, and that the entire construction is securely held together with a single bolt.

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

1. The combination of a fire pot formed with supporting lugs; a frame formed with pockets for engaging said lugs and having grate bar bearings at one end for engaging one end of the grate bars, and a perforated projection at the other end; a pair of grate bars; a spider formed with bearings for the opposite ends of the grate bars, a pair of lugs for engagement with the said projection, and a central tongue; a pair of gear wheels adapted to mesh with each other and loosely mounted on the grate bars for rotation therewith but incapable of lateral movement thereon; and a single bolt engaging the said tongue and the spider for securely holding the said parts together.

2. The combination of a fire pot formed with three substantially equidistant frame supporting lugs; an oval grate frame formed with lug engaging pockets, a pair of grate bar bearings at one end and an upwardly curved perforated projection at the other end; a spider formed with a central tongue for engagement with the frame, a pair of lugs for engagement with the per-

forations in the frame and an inwardly bent and upturned projection having a pair of grate bar bearing surfaces; with a pair of grate bars adapted to rest at one end in the
5 frame bearings and at the other end in the spider bearings, said grate bars being cylindrical at their bearing points and triangular in cross-section beyond said bearing points; a pair of gear wheels, meshing
10 with each other, loosely mounted on the triangular portions of the grate bars between the frame and the spider and adapted for

rotation with the grate bars; and a single bolt, engaging the tongue on the spider and the curved projection on the frame, whereby 15 all of the parts are securely held together in operative position.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN FRANKLIN HARPEL.

Witnesses:

ED. A. KELLY,
CLARA E. YOUNG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
