No. 828,769. PATENTED AUG. 14, 1906.

J. E. PARKISON.

GRATE.

APPLICATION FILED DEC. 29, 1905.

2 SHEETS—SHEET 1.

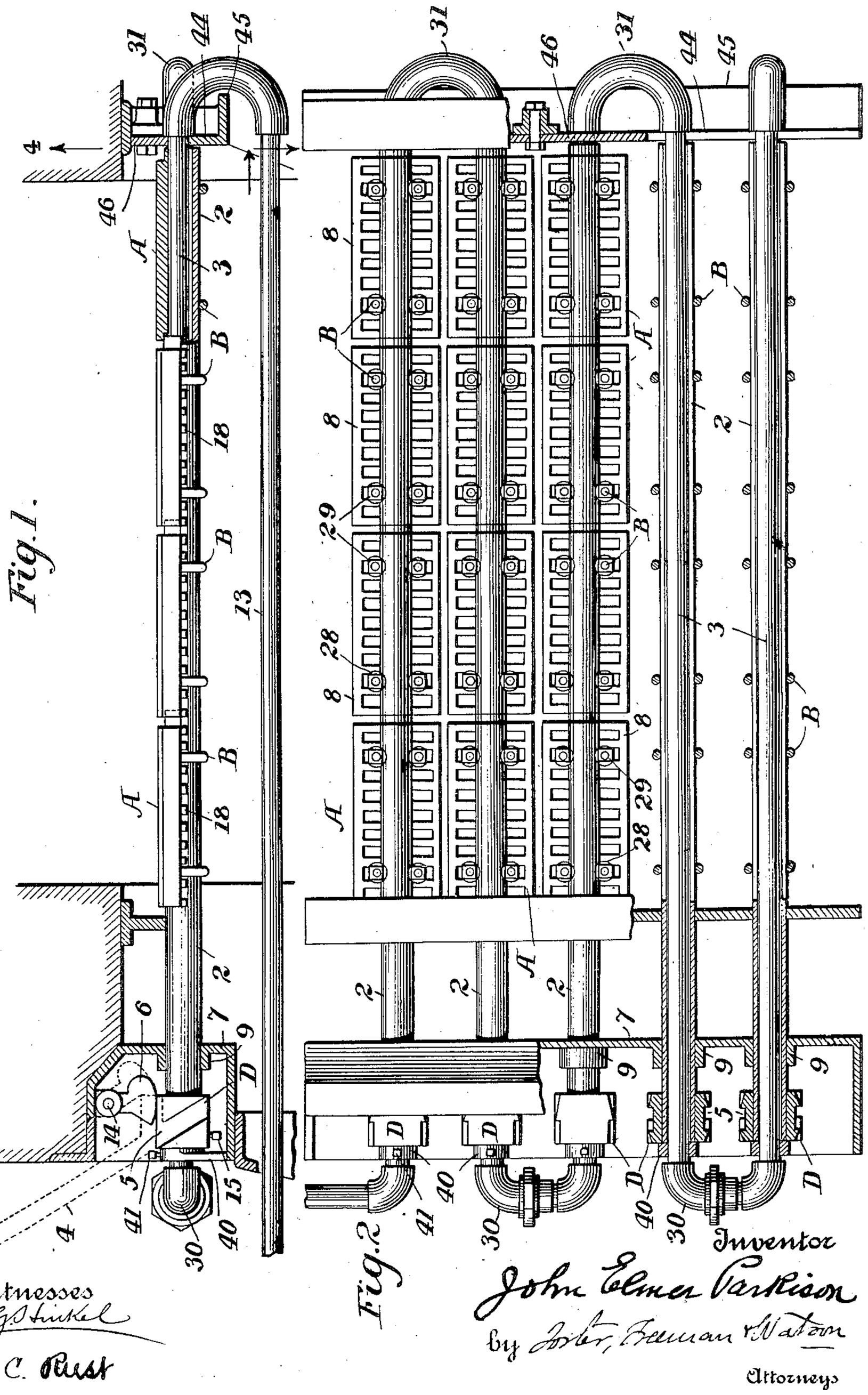

Fig. 1.

Fig. 2.

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Fig. 3.

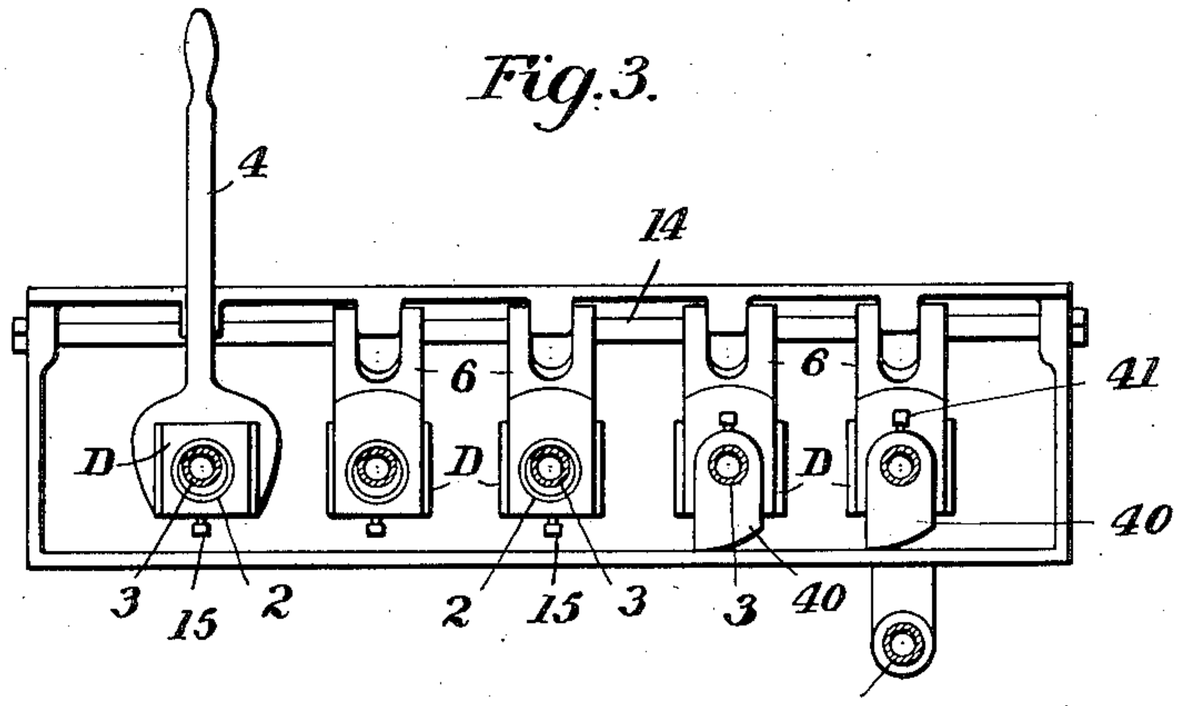

Fig. 4.

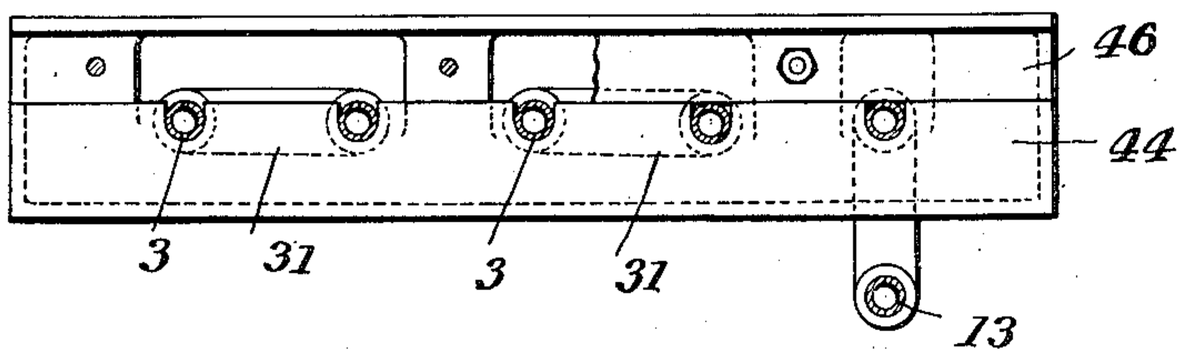

Fig. 5.

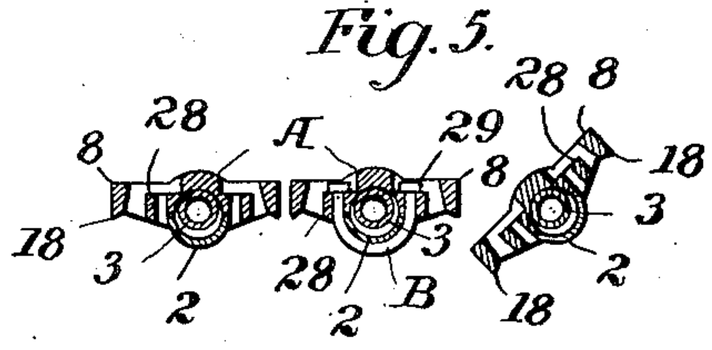

Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN ELMER PARKISON, OF DENVER, COLORADO.

GRATE.

No. 828,769. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed December 29, 1905. Serial No. 293,810.

To all whom it may concern:

Be it known that I, JOHN ELMER PARKISON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Grates, of which the following is a specification.

My invention relates to grates, and has for its object to prevent the burning out of the latter and to facilitate their construction and operation, to which end I provide a series of grate-sections arranged in respect to parallel water-tubes so as to rock in relation thereto, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a grate with my improvement; Fig. 2, a plan view; Fig. 3, a front elevation; Fig. 4, a section on the line 4 4, Fig. 1; Fig. 5, a section through three of the grate-sections; Fig. 6, a detached view of one of the sleeves.

The grate is provided with a series of parallel grate-sections A A, which may each be a continuous piece or may consist of a plurality of members each having side bars 8 terminating at their lower edges in sharpened ribs 18, so that when one section is rocked in respect to another the sharp edge of the rocking section will engage the ashes or clinkers and shear them against the upper edge of the side bar 8 of the adjacent section.

To prevent the grate-sections from burning out, I support them in such close proximity to parallel water-tubes 3 that the water in the latter will absorb the heat to such an extent as to preserve the integrity of the said sections. These water-tubes 3 may be supported in any suitable manner and may communicate with water supply and discharge pipes in any suitable way; but, as shown, they are connected so as to constitute a continuous conduit, and where the number of grate-sections is uneven the water-tube of the last section may communicate with the discharge at the rear end directly downward or through a return-pipe 13, as best shown in Fig. 1. While the grate-sections may be supported in any suitable manner so as to rock upon or in respect to the water-tubes, I prefer the construction shown in the drawings, where a sleeve 2 turns upon each water-tube and supports the grate-sections thereon. As shown, each sleeve may be cut away at the top to such an extent that the grate-section may rest upon the tube 3, so as to be in as intimate contact with the latter as possible, and the grate-sections are connected with the sleeves through the medium of U-shaped clips or connections B, the arms of which extend upward through lugs 28 and are provided with nuts 29, the upper faces of the lugs being so far below the upper faces of the grate-sections that the nuts will not be exposed above the latter and will be nearer to the water-tubes, so that they will be prevented from being burned out or from being worn by the dumping of coal upon the grate. As shown, each pair of water-tubes is connected at the front end by coupled fittings 30, and the second of these tubes is connected with the first of the next pair at the rear by a curved fitting 31.

It is possible to rock each grate-section independently of the others, and I therefore provide the front end of each sleeve with a head D, secured to the sleeve by a set-screw 15 and having side and top recesses 5, adapted to receive the fork and lug of an operating-handle 4, by swinging which the sleeve may be rocked.

In order to hold each grate-section horizontal when not rocking the same, I provide above each head D a detent 6, supported by a cross-pivot 14, so as to swing into position to prevent any rocking of the head until the handle 4 is put in place, when its lug will push back the detent to the position shown in dotted lines, Fig. 1, thus unlocking the sleeve.

The hollow cross-bar 7 at the front of the grate is a chambered bar with recessed hubs 9 for the passage of the sleeves 2, as shown, and a securing-piece 40, recessed to receive the pipe 3, is provided with a set-screw 41, by means of which it is secured to the pipe so as to bear against the end of the head of the sleeve 2 and hold it in position. This piece bears against the lower flange of the hollow cross-bar 7 and holds the pipe 3 up so as to be close against the under side of the sleeve 2, where the latter is continuous, bringing the water-cooled pipe 3 as close as possible to the grate-sections. The pipes at the rear enter recesses in the flange 44 of the rear cross-bar and are secured in place by a detachable plate 46, bolted to the cross-bar.

Without limiting myself to the construction shown, I claim—

1. The combination in a grate, of a series of grate-sections, a series of water-tubes supporting said sections to rock in respect to the water-tubes, and means for supplying the

latter with water, substantially as set forth.

2. The combination in a grate, of a series of grate-sections, a series of water-tubes connected to form a continuous conduit supporting said sections to rock in respect to the water-tubes, and means for supplying the latter with water, substantially as set forth.

3. The combination in a grate, of a series of grate-sections, a series of water-tubes supporting said sections to rock in respect to the water-tubes, means for supplying the latter with water, and means for rocking each grate-section on its tube, substantially as set forth.

4. The combination in a grate, of a series of grate-sections, a series of water-tubes supporting said sections to rock in respect to the water-tubes, means for supplying the latter with water, means for rocking each grate-section on its tube, and means for locking each section in its normal position, substantially as set forth.

5. The combination in a grate, of a series of water-tubes, and a grate-section supported to rock on each water-tube and provided with side bars with lower sharpened ribs, substantially as set forth.

6. The combination in a grate, of a series of water-tubes, a grate-section supported to rock on each water-tube and consisting of a plurality of members, and means for connecting said members and for rocking the same together, substantially as set forth.

7. The combination in a grate, of a series of parallel water-tubes, a sleeve turning on each tube, and a grate-section connected with said sleeve to rock therewith, substantially as set forth.

8. The combination in a grate, of a series of parallel water-tubes, a sleeve turning on each tube, and a grate-section consisting of a plurality of members connected with said sleeve to rock therewith, substantially as set forth.

9. The combination in a grate, of a series of parallel water-tubes, a sleeve turning on each tube, and a grate-section connected with said sleeve to rock therewith, the sleeves being cut away at the top to permit the grate-sections to rest on the tubes, substantially as set forth.

10. The combination with the water-tubes, of sleeves each cut away at the top for part of its length, a grate-section to each sleeve, and U-shaped connections engaging the sleeve with ends extending upward through the grate-section and provided with threads and nuts thereon, substantially as set forth.

11. The combination with the water-tubes, of sleeves each cut away at the top for part of its length, a grate-section to each sleeve having lugs below its upper surface, and a U-shaped connection, the arms of which are threaded and extend upward through the lugs and carry nuts below the surface of the section, substantially as set forth.

12. The combination in a grate, of the front and back cross-bars, sleeves rocking in openings of the front cross-bar, water-tubes extending through the sleeves and through the openings of the back cross-bar and connected with each other, and grate-sections connected with the sleeves to rock therewith, substantially as set forth.

13. The combination in a grate, of the front and back cross-bars, sleeves rocking in openings of the front cross-bar, water-tubes extending through the sleeves and through the openings of the back cross-bar and connected with each other, grate-sections connected with the sleeves to rock therewith, and heads on the sleeve shaped to permit the engagement therewith of an operating-lever, substantally as set forth.

14. The combination in a grate, of the front and back cross-bars, sleeves rocking in openings of the front cross-bar, water-tubes extending through the sleeves and through the openings of the back cross-bar and connected with each other, grate-sections connected with the sleeves to rock therewith, heads on the sleeve shaped to permit the engagement therewith of an operating-lever, and detents pivoted to swing over and engage the heads when the lever is not in position, substantially as set forth.

15. The combination with the water-tubes, sleeves turning thereon, and grate-sections connected with the sleeves, of a back bar having an upright flange with notches to receive the tubes, and a detachable retaining-strip extending across said notches, substantially as set forth.

16. The combination with the front bar having bearings the hollow sleeves mounted in said bearings and grate-sections connected with said sleeves, of water-pipes extending through the sleeves and of less diameter than the openings of the latter, and means for maintaining the said water-pipes in an elevated position within the sleeves, substantially as set forth.

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

JOHN ELMER PARKISON.

Witnesses:
J. G. CROSSKELL,
ED. H. PARKISON.