

parts inside the furnace, substantially as described. 41st. In a furnace, the combination of a suitable feed hopper, an inclined grate composed of rocking grate bars, mechanical means for automatically rocking the bars slightly forward and backward to feed the fuel down the incline, said means being capable of being adjusted to give the grate bars a greater movement in an upward and backward direction from the general plane of the feed movement for the purpose of cutting out clinkers and ashes or entirely dumping the fire, the grate bars, when rocked, in an opposite direction, returning to the general plane of the feed movement, substantially as described. 42nd. In a furnace, the combination of a suitable hopper, an inclined grate composed of rocking grate bars, means for automatically rocking the bars slightly forward and backward to feed the fuel down the incline, and means for varying the feed of the fuel, and means comprising a yoke or link attached to the power shaft, a slide adjustable upon the yoke and connected with the connecting rod or rods which operate the grate bars, and means for holding and clamping the slides in any adjusted position, substantially as described. 43rd. In a furnace, the combination of a suitable hopper, an inclined grate, having rocking grate bars, means for automatically rocking the bars slightly forward and backward to feed the fuel down the incline, and means for varying the feed of the fuel, said means comprising a yoke or link attached to a power shaft, a slide adjustable upon the yoke and connected with the connecting rod or rods which operate the grate bars, and a right and left screw for clamping the slides in an adjusted position, substantially as described. 44th. In a furnace, the combination of a suitable hopper, an inclined grate composed principally of moving grate bars, a cut out located at the lower end of the grate, a moving mechanical element for moving the said grate bars, and means for transmitting motion continuously from the said mechanical element to the said grate bars and intermittently from said element to the cut out, substantially as described. 45th. In a furnace, the combination of a suitable hopper, an inclined grate composed principally of rocking grate bars, a rocking cut out located at the lower end of the grate, a moving mechanical element for rocking the said grate bars and the cut out, and means for transmitting a rocking motion continuously from said mechanical element to the said grate bars and intermittently from said element to the cut out, substantially as described. 46th. In a furnace, the combination of a suitable feed hopper, an inclined grate composed of movable bars, power rock shaft, means connected with the power rock shaft and the grate bars for rocking the latter, a rocking cut out located at the lower end of the grate, and means connecting the cut out with the power rock shaft which means are independent of the means connecting the power rock shaft with the rocking grate bars, substantially as described. 47th. In a furnace, the combination of a suitable feed hopper, an inclined grate, a rocking cut out located at the lower end of the grate, means for automatically operating the said cut out, the cut out being capable of being operated preferably intermittently, substantially as described. 48th. In a furnace, the combination of a suitable, feed hopper, an inclined grate composed of rocking grate bars, mechanical means for automatically rocking the bars slightly forward and backward to feed the fuel down the incline, said means being capable of being adjusted to give the grate bars a greater movement in an upward and backward direction from the general plane of the feed movement for the purpose of cutting out clinkers and ashes or entirely dumping the fire, the grate bars, when rocked, in an opposite direction, returning to the general plane of the feed movement, a rocking cut out located at the lower end of the grate, and means for operating the cut out independent of the means for feeding the fuel down the grate, substantially as described. 49th. In a furnace, the combination of a suitable feed hopper, an inclined grate composed of rocking grate bars, mechanical means for automatically rocking the bars slightly forward and backward to feed the fuel down the incline, said means being capable of being adjusted to give the grate bars a greater movement in an upward and backward direction from the general plane of the feed movement for the purpose of cutting out clinkers and ashes or entirely dumping the fire, the grate bars, when rocked, in an opposite direction, returning to the general plane of the feed movement, a rocking cut out located at the lower end of the grate, and means for automatically and intermittently operating the cut out independent of the means for feeding the fuel down the grate, substantially as described. 50th. In a furnace, the combination of a suitable hopper, an inclined grate, a rocking cut out, and means for automatically rocking said cut out at the desired time, said means comprising a rod connected at its lower end to said cut out, and so constructed at its upper end as to be operated by a power shaft at the proper time to rock the cut out, a ratchet wheel, a pawl connected to the power shaft and engaging the ratchet wheel, a cam on one face of the ratchet wheel which is formed with a depression, a pivoted arm carrying a roller at its outer end which latter bears and travels on the cam, an arm connected to the pivoted arm and provided with a trolley wheel at its outer end, which latter bears upon the underside of the rod which is connected to the cut out, the construction and arrangement being such that the ratchet wheel will be slowly revolved by the power shaft through the pawl, and the cut out operating rod will be kept out of connection with the power shaft until the roller on the pivoted arm enters the depression in the cam, at which moment the cut out operating rod will be operated by the power shaft and the cut out thereby rocked back and forth

to cut out the clinkers and ash, which operation will be continued until the roller has passed out of the depression in the cam, substantially as described. 51st. In a furnace, the combination of a suitable hopper, a rocking cut out, an inclined grate composed of rocking bars, a stationary tie bar attached to the journal bars of the grate at its lower end, the said bar being grated on its top and on the upper portion of its rear side, and slightly concave on said rear side to adapt it to the movement of the cut out, the said rocking cut out being arranged between the bridge wall and the stationary end bar of the grate, said cut out being formed with an upwardly curved bridging portion, which practically bridges the space between the bridge wall and the stationary end bar of the grate when the cut out is operated in one direction, and also formed with a lower portion extending forward of the upper portion, and which when the cut out is operated in the opposite direction will bridge the space between the stationary tie bar of the grate and the bridge wall and form a pocket, and means for operating the grate bars, and the cut out, substantially as described. 52nd. In a furnace, the combination of a suitable hopper, an inclined grate, a rocking cut out, and means for automatically rocking said cut out at the desired time, said means comprising a rod connected at its lower end to said cut out, and provided at its upper end with a depression, a rock shaft carrying an arm provided with a wrist pin which is adapted to engage the depression in the cut out operating rod, a ratchet wheel, a pawl connected to the rock shaft and engaging the ratchet wheel, a cam on one face of the ratchet wheel which is formed with a depression, a pivoted arm carrying a roller at its outer end, which latter bears and travels on the cam, an arm connected to the pivoted arm and provided with a trolley wheel at its outer end which latter bears upon the under side of the rod which is connected to the cut out, the construction and arrangement being such that the ratchet wheel will be slowly revolved by the rock shaft through the pawl, and the depression in the cut out operating rod will be kept out of engagement with the wrist pin on the arm connected to the rock shaft until the roller on the pivoted arm enters a depression in the cam, at which moment the cut out operating rod will be operated by the power shaft and the cut out thereby rocked back and forth to cut out clinkers and ash, which operation will be continued until the roller has passed out of the depression in the cam, substantially as described. 53rd. In a furnace, the combination of a suitable hopper, an inclined grate, a dead plate supporting frame interposing between the hopper and the grate, a portion of said frame being made up of broken or short lines of metal, and an inclined dead plate composed of comparatively short sections of metal with a space between each section, each section being provided with a centrally arranged apertured lug and pins which pass through the lugs for securing the sections to the frame, substantially as described. 54th. In a furnace, the combination of a hopper, an inclined grate, a frame for supporting a dead plate interposed between the hopper and the grate, a portion of said frame being made of short or broken lines of metal, an inclined dead plate composed of comparatively short sections of metal with spaces between their adjoining edges, and lugs on the under side of the said sections of the dead plate, which bear against the supporting frame for holding the dead plate in position on the frame, substantially as described. 55th. In a furnace, the combination with a suitable hopper, an inclined grate having rocking grate bars capable of having a feed movement and a cut off movement, means for automatically rocking the bars slightly forward and backward to feed the fuel down the incline, means for varying the feed of the fuel and effecting the cut off movement, said means comprising a member attached to a power rock shaft, and having actuating arm portions which extend upwardly and downwardly and are connected directly or indirectly by a rod or rods with the grate bars, and means for holding the adjustable member in any adjusted position, substantially as described. 56th. In a furnace, the combination of a suitable hopper, an inclined grate having rocking grate bars capable of having a feed movement and a cut off movement, means for automatically rocking the bars slightly and backward to feed the fuel down the incline, means for varying the feed of the fuel and effecting the cut off movement, said means comprising a member attached to the power shaft and having actuating arm portions which extend upwardly and downwardly from said shaft, a slide adjustable upon the said member and connected directly or indirectly with a connecting rod or rods which operate the grate bars, and means for clamping the slide in any adjusted position, substantially as described. 57th. In a furnace, the combination with an inclined grate having rocking grate bars and a hopper for feeding fuel to the said grate, of means for passing the fuel thus fed down the surface of the grate without permitting it to run through, comprising grate bars having pivoted tips or noses, the said noses occupying the space between the upper grate bar or bars and the dead plate, or between the grate bars, substantially as described. 58th. In a furnace, the combination with a rocking grate and a hopper for feeding fuel thereto, of grate bars having fingers provided with pivoted ends or noses for preventing fine fuel from running through, the said pivoted ends having bifurcated lower portions pivoted to the webs of the fingers and lugs upon the said fingers for limiting the movement of the pivoted ends, a sufficient space being left between the pivoted ends and the body portions of the fingers to permit of the expansion of the fingers, substantially as described. 59th. In a furnace, the combination of a hopper, an inclined grate, an ash pit beneath the