

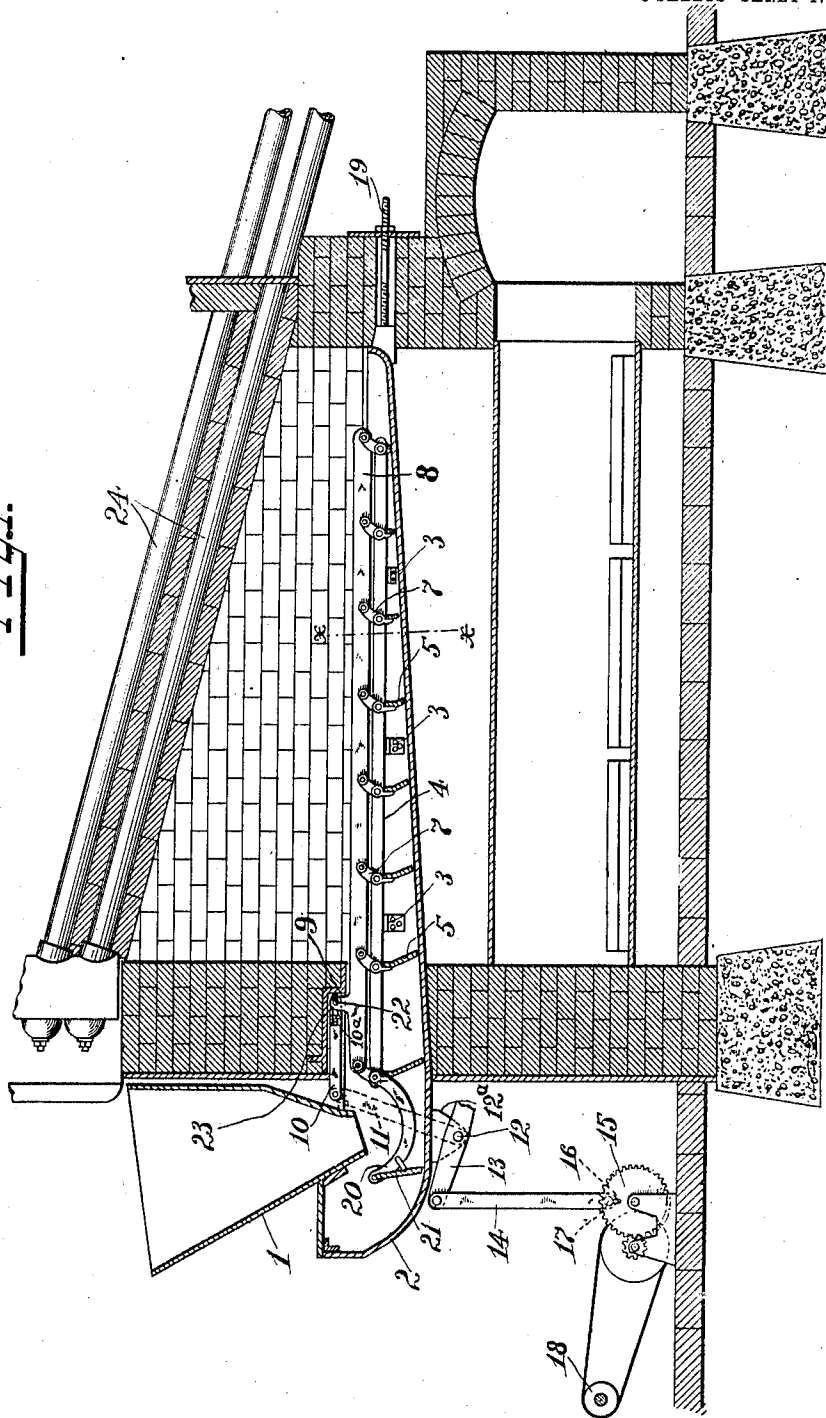
945,322.

H. J. C. GIESEKE.
MECHANICAL STOKER.
APPLICATION FILED SEPT. 22, 1909.

Patented Jan. 4, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



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Fig. 2.

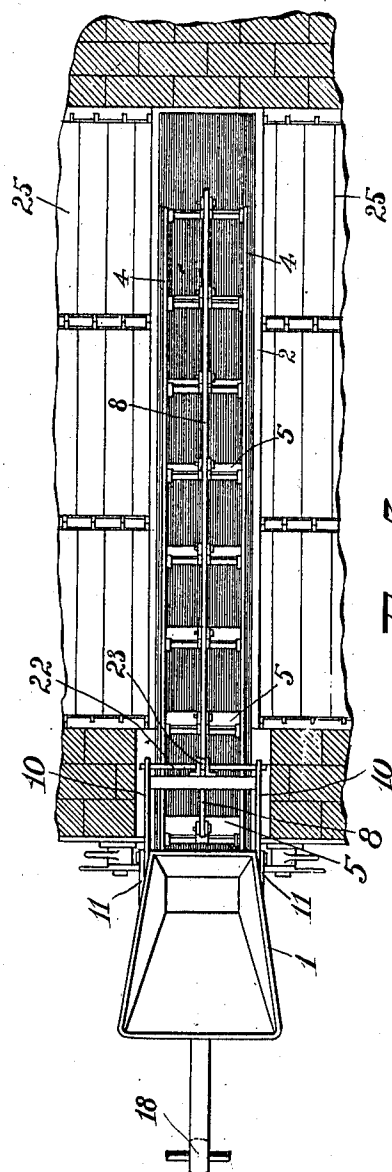
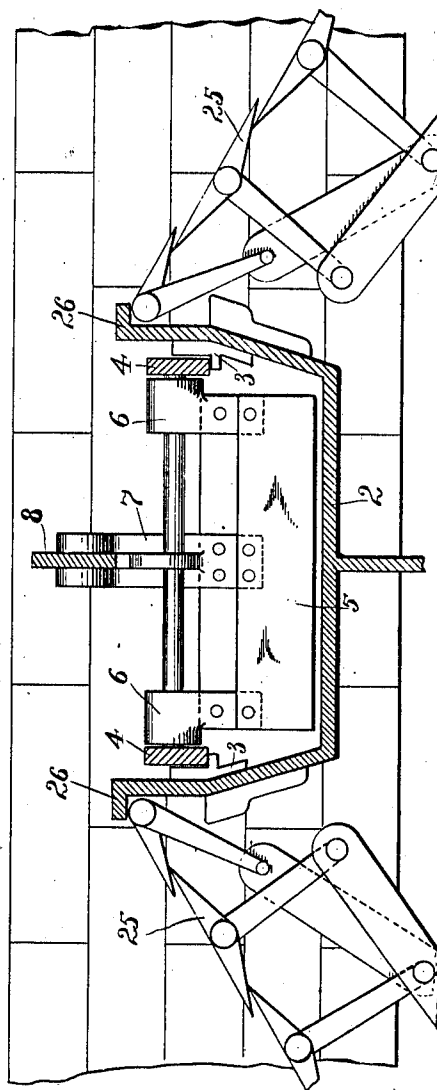


Fig. 3.



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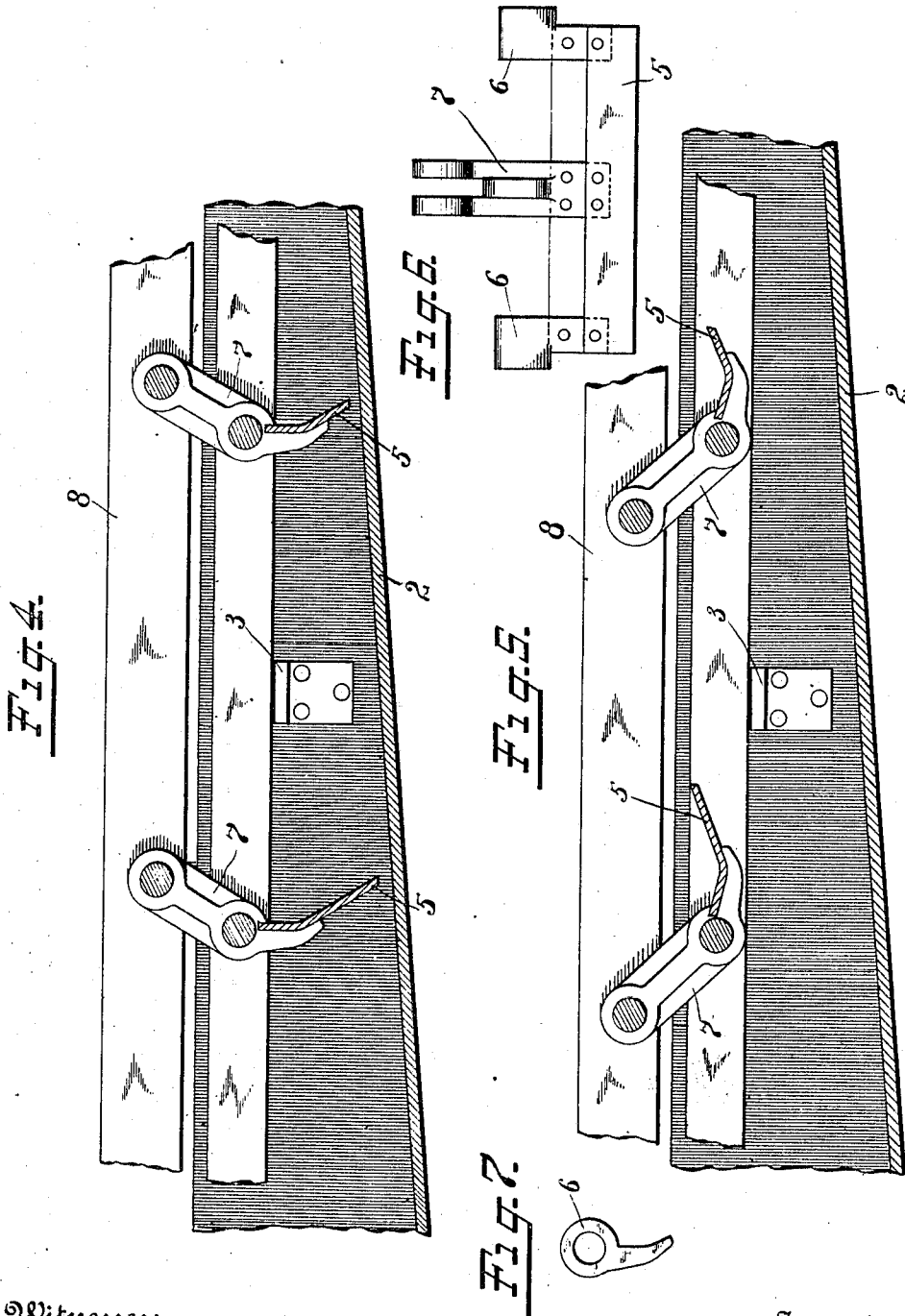
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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MECHANICAL STOKER.

945,322.

Specification of Letters Patent.

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Application filed September 22, 1909. Serial No. 519,042.

To all whom it may concern:

Be it known that I, HENRY J. C. GIESEKE, a citizen of the United States, residing at Jersey City, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Mechanical Stokers, of which the following is a full, clear, and exact description.

My invention relates to mechanical stokers, and has for its object to produce a mechanical stoker which will feed coal uniformly to the grate or grates of a furnace.

It has for its object to produce a uniform and accurate feed by a construction which is simple and effective in operation.

The following is a description of an embodiment of my invention, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of a furnace embodying my invention. Fig. 2 is a plan view of the stoker, the walls of the furnace being shown in section. Fig. 3 is an enlarged cross sectional view of the stoker on the line $x-x$ Fig. 1. Fig. 4 is an enlarged view of portions of the stoker showing the operating bars and shovels in one position. Fig. 5 is an enlarged view of the same parts in another position. Fig. 6 is a front view of one of the blades. Fig. 7 is a detail view of the end pieces of the blade of Fig. 6.

Referring more particularly to the drawings, 1 is a hopper in which the fuel is fed. 2 is a trough having on its sides brackets 3—3—3, on which rest sliding bars 4. To these bars are pivoted a series of blades 5, by means of bearings 6. At the center of these blades are levers 7, to which is pivoted a bar 8. This bar 8 has an upwardly projecting lug 9, to which are connected two links 10 which are connected together by an angle iron 10^a. To these links 10 are pivoted two rocking arms 11 securely fastened to a rock shaft 12 which is supported in brackets 12^a. To this rock shaft is rigidly connected a lever 13. To the lever 13 is connected a link 14, which is connected to a driving gear 15. This driving gear is provided with a slot 16, through which a bolt 17 passes, securing the link 14 thereto. This constitutes an adjustable connection of the link, and therefore permits its throw, together with the throw of the lever 11 and bar 8, to be adjusted. The gear 15 is driven from any convenient source of power 18.

The depth of the trough 2 gradually decreases from front to rear so that the cross section of its interior gradually decreases, and the respective blades 5 from front to rear are correspondingly reduced in depth, so that successive blades decrease in area. The trough is held in position by a bolt 19. To the front ends of the bars 4 are connected two links 20, to which is rigidly connected a blade 21. This blade by gravity tends to ride along the bottom of the trough 2 when it is moved from front to rear. The links 10 are connected to the bar 8 by ears on the angle iron 10^a; a rod 22 passing through their ends and also the ears and the lug 9 at 23, as shown in Fig. 2.

24 are the boiler tubes with which the flames and products of combustion come in contact, heating the same.

On one or both sides of the trough are moving grates 25 inclined at an angle so that when the fuel is fed thereon at their upper positions it is fed downwardly in a manner well understood.

The operation of the apparatus is as follows: The gear 15 being revolving the blades 5 and 21 are moved to and fro, being depressed on the rearward stroke and raised on the return stroke. Coal is fed into the hopper 1, falling into the forward end of the trough 2. The blade 21 moves with the bar 4. As the blade 21 moves forward, it shoves its coal toward the rear of the trough and on its return movement lifts so as to ride over the coal and be in a position to shove more coal toward the rear on its next rearward movement. The bar 8 is moved toward the front by the forward movement of the rock arm 11. The first effect of this movement on the blades 5 is to lift them from the position shown in Fig. 1 into the position shown in Fig. 5, in which position they ride over the coal or are easily retracted through it. When they have reached their extreme front position, the bar 8 is caused to move toward the rear, and the first effect of this is to tip the blades downward toward the position shown in Figs. 1 and 4. The next effect is to cause the bar 8, together with the bar 4 and the blades 5, to move toward the rear, carrying the coal toward the rear. This series of steps is continually repeated, with the effect that the coal moves from the front toward the rear. As the coal moves from the front toward the rear, it piles up in the trough until it over-

flows; its edges 26 onto the grate 25. The overflow on account of the varying depth of the trough takes place at all points along the trough so that a uniform fall of coal takes place throughout both edges of the trough onto the grates 25. The rate of fall of coal can be adjusted by adjusting the throw of the bar 4 by means of the adjustable connection at the slot 16.

10 The apparatus is simple and accurate in its action, and feeds and distributes the coal evenly upon the grate or grates in the manner desired.

What I claim is:

15 1. In a mechanical stoker, the combination of a trough having a gradually decreasing depth from front to rear, sliding side bars, blades pivoted to said sliding side bars, a connecting rod pivoted to said blades, and means for reciprocating said connecting rod.

20 2. In a mechanical stoker, the combination of a trough having a gradually decreasing depth from front to rear, sliding side bars, blades pivoted to said sliding side bars, a connecting rod pivoted to said blades, and means for reciprocating said connecting rod, said blades gradually decreasing in depth from front to rear.

30 3. In a mechanical stoker, the combination of a trough having a gradually decreasing depth from front to rear, sliding side bars, blades pivoted to said sliding side bars, a connecting rod pivoted to said blades, means for reciprocating said connecting rod, said blades gradually decreasing in depth from front to rear, and means for adjusting the throw of the connecting rod.

40 4. In a mechanical stoker, the combination of a trough having its interior gradually decreasing in cross section from front to rear, movable side bars, a series of blades pivoted to said side bars, said blades from front to rear decreasing in area, levers connected to

said blades and extending above the same, a connecting rod pivoted to the upper ends 45 of said levers and movable independently of said side bars, and means for oscillating said blades and reciprocating said side bars, connecting rod and blades.

5. In a mechanical stoker, the combination 50 of a trough, a series of blades therein, movable side bars to which said blades are pivoted, levers connected to said blades and extending above the same, a connecting rod pivoted to the upper ends of said levers and movable independently of said side bars, and means for reciprocating said connecting rod and thereby reciprocating and oscillating said blades.

6. In a mechanical stoker, the combination 60 of a trough, a series of blades therein, movable side bars to which said blades are pivoted, levers connected to said blades and extending above the same, a connecting rod pivoted to the upper ends of said levers movable independently of said side bars, means for reciprocating said connecting rod, and means for adjusting the throw of said connecting rod.

7. In a mechanical stoker, the combination 70 of a trough, a series of blades therein, movable side bars to which said blades are pivoted, levers connected to said blades and extending above the same, a connecting rod pivoted to the upper ends of said levers and movable independently of said side bars, means for reciprocating said connecting rod, and means for adjusting the throw of said connecting rod, said trough having a depth decreasing from front to rear and said blades 80 decreasing in depth from front to rear throughout said trough.

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