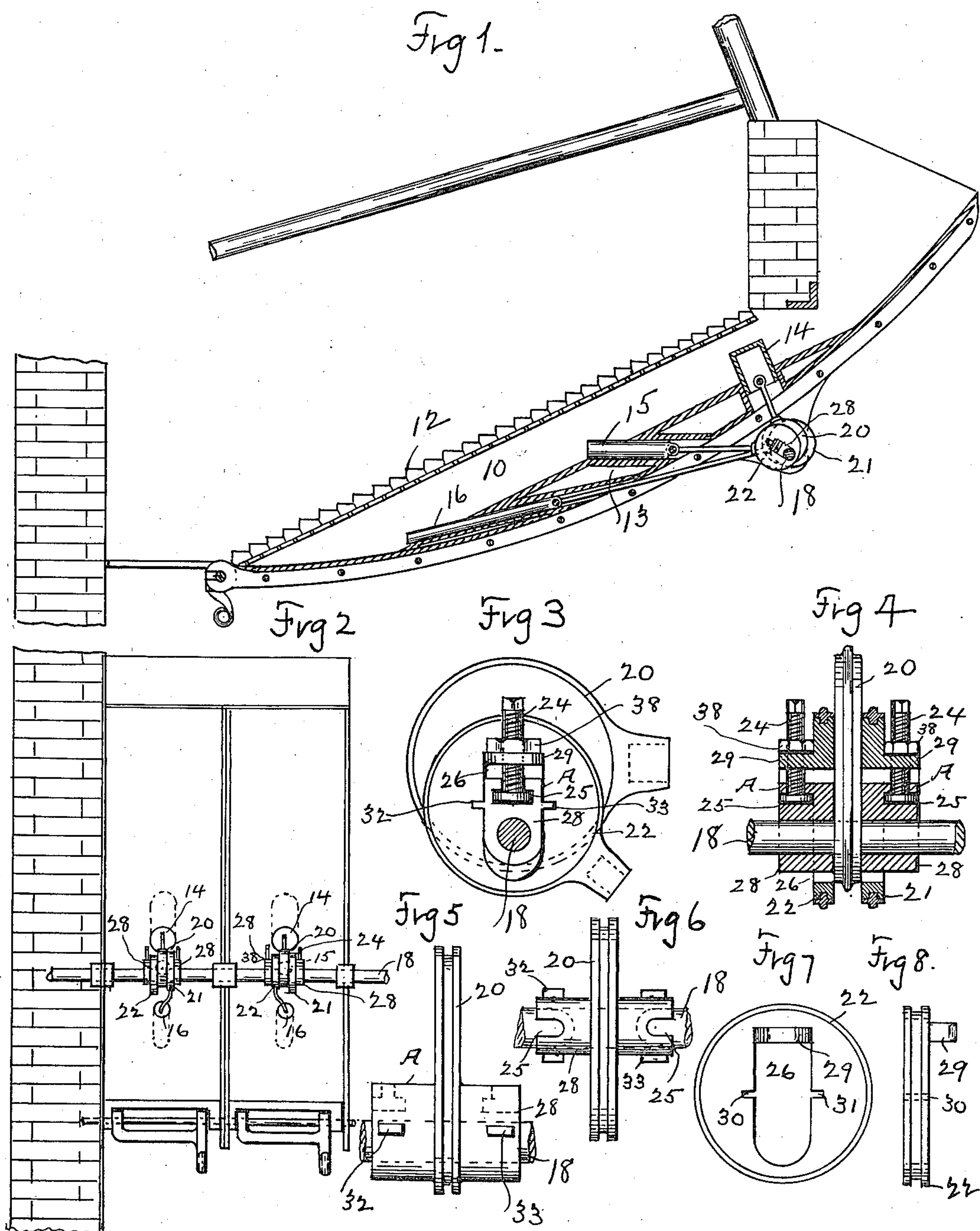


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 UNDERFEED STOKER.
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976,048.

Patented Nov. 15, 1910.



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UNITED STATES PATENT OFFICE.

PAUL L. CROWE, OF JERSEY CITY, NEW JERSEY.

UNDERFEED STOKER.

976,048.

Specification of Letters Patent.

Patented Nov. 15, 1910.

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To all whom it may concern:

Be it known that I, PAUL L. CROWE, citizen of the United States, and resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Underfeed Stokers, of which the following is a specification.

This invention relates to underfeed stokers.

The object of the invention is to provide the same with a plurality of differently directed plungers and also to provide means for adjusting their travel with relation to each other.

Referring to the drawings: Figure 1 is a sectional elevation of a fuel chute, upon which is mounted a series of twyer blocks, and also showing the plunger pushers mounted in the said chute. Fig. 2 is a front elevation of two fuel chutes showing means for operating the plungers. Fig. 3 is a side view of the eccentrics detached. Fig. 4 is a cross sectional view of the eccentrics, taking through the center of Fig. 3 the central eccentric and shaft shown in full lines. Fig. 5 is an elevation of the central or large eccentric detached. Fig. 6 is a view of Fig. 5 looking on the top of the large or central eccentric. Fig. 7 is a side view of one of the adjustable eccentrics detached. Fig. 8 is an edge view of the adjustable eccentric as shown in Fig. 7.

Numeral 10 represents the fuel chute, and 12, are conventional twyer blocks suitably located on the upper edge of the chute 10, said twyer blocks 12, being adapted to distribute the air into the fuel bed in its progress of combustion.

Numerals 14, 15 and 16 are plungers. These plungers are adapted to travel within suitable guide ways formed in the bottom of the inclined fuel chute or trough 10, and leading into the interior of said chute. As will be observed, the plungers each have a different travel, and in order to give them their respective travel their guide ways are set at different angles. Plunger 14 will therefore travel upwardly; plunger 15 horizontally, and plunger 16 downwardly. Three results are therefore accomplished by the travel of the plungers. The plunger 14 lifts the fuel up, the plunger 15 breaks the crust, and the plunger 16 removes the refuse from off the bottom of the inside of the chute. The shape and size of the plungers

is not material to this invention, nor is the size and conditions of the fuel chute. If the chute is provided with a bottom air space then the guide ways for the plungers will pass through same as shown in Fig. 1.

As the plungers have independent travels, a group or series of eccentrics are employed to operate them, said group mounted on the shaft 18 supported on the bottom of the fuel chute. This group of eccentrics comprises a large eccentric 20 and two adjustable eccentrics 21 and 22. The large eccentric 20 operates the plunger 14; and the adjustable eccentrics 21 and 22 operate the plungers 15 and 16 respectively. The plungers are placed on a line above each other on the chute; this position will require some of the eccentric rods to be off-setted in order to bring those rods on a line with their respective plunger.

In the arrangement of the eccentrics, the central eccentric 20 is mounted on the shaft 18. This eccentric 20 is provided with outwardly extending hubs 28. The portion A of each hub is extended in width, and provided with projections 32—33. Each hub is also provided with a socket 25. Each hub 28 has mounted on it the adjustable eccentrics 21 and 22. In order to allow for this, each of the adjustable eccentrics is provided with an elongated aperture 26 (see Fig. 7) conforming to the shape of the hubs 28 of the central eccentric, but longer, in order to permit the said eccentrics 21 and 22 to be adjusted on the said hubs when required.

Each of the adjustable eccentrics has formed thereon a lug 29 having a threaded hole. This lug 29 is placed above the aperture 26 in each adjustable eccentric.

The side walls of the elongated aperture are provided with notches 30 and 31.

24 is the adjustable screws, connected detachably, to each of the hubs 28 of the central eccentric by the socket 25, but permitted to turn freely therein. The lateral openings of these sockets permit each screw to be easily mounted and removed.

In assembling, the adjustable screws are first mounted on their respective lugs 29 of the adjustable eccentrics, then the said eccentrics are passed over the hubs 28 of the central eccentric, which is done by passing the notches 30 and 31 over projections 32 and 33 and the head of each screw 24 passing into its respective socket 25. Now, by

turning the said adjustable screw the eccentric to which it is connected will be adjusted on the hub of the large eccentric. The projections 32 and 33 will prevent the
 5 said adjustable eccentric from removing itself from the said hub.

The adjustable screws are each locked in position after adjusting its eccentric by a lock nut 38. Each chute will have three
 10 plungers, and there may be any number of chutes assembled together in which case a single shaft can be used to operate the plungers of the series of chutes.

What I claim is:

15 1. A stoker comprising a plurality of similarly disposed inclined fuel troughs, twyer blocks mounted on said troughs, the bottom of each of said troughs being provided with a plurality of openings, a plu-
 20 rality of reciprocating fuel pushers adapted to operate through said openings, the angle between the path of reciprocation of each pusher and the bottom portion below said pusher decreasing from the upper to the
 25 lower end of said trough.

2. A stoker comprising an inclined fuel trough having an air chamber formed in the bottom portion of said trough, the bot-
 30 tom of said trough being provided with a plurality of openings, a plurality of reciprocating fuel pushers adapted to operate

through said openings, the angle between the path of reciprocation of each pusher and the bottom portion below said pusher decreasing from the upper to the lower end
 35 of said trough.

3. A stoker comprising a plurality of similarly disposed inclined fuel troughs, said troughs each provided with bottom
 40 walls, said bottom walls provided with a plurality of openings, a plurality of reciprocating pushers adapted to operate through said openings, the angle between the path of reciprocation of each pusher and the bot-
 45 tom portion below said pusher decreasing from the upper to the lower end of the said trough, operating eccentrics, said eccentrics connected to said pushers, a shaft on which
 50 said eccentrics are mounted, said shaft mounted on the said troughs, said eccentrics grouped on said shaft opposite said pushers, two of said eccentrics being adjustable, said
 eccentrics adapted to regulate the throw of the said pushers.

Signed at Jersey City in the county of
 55 Hudson and State of New Jersey this 12th day of October A. D. 1907.

PAUL L. CROWE.

Witnesses:

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