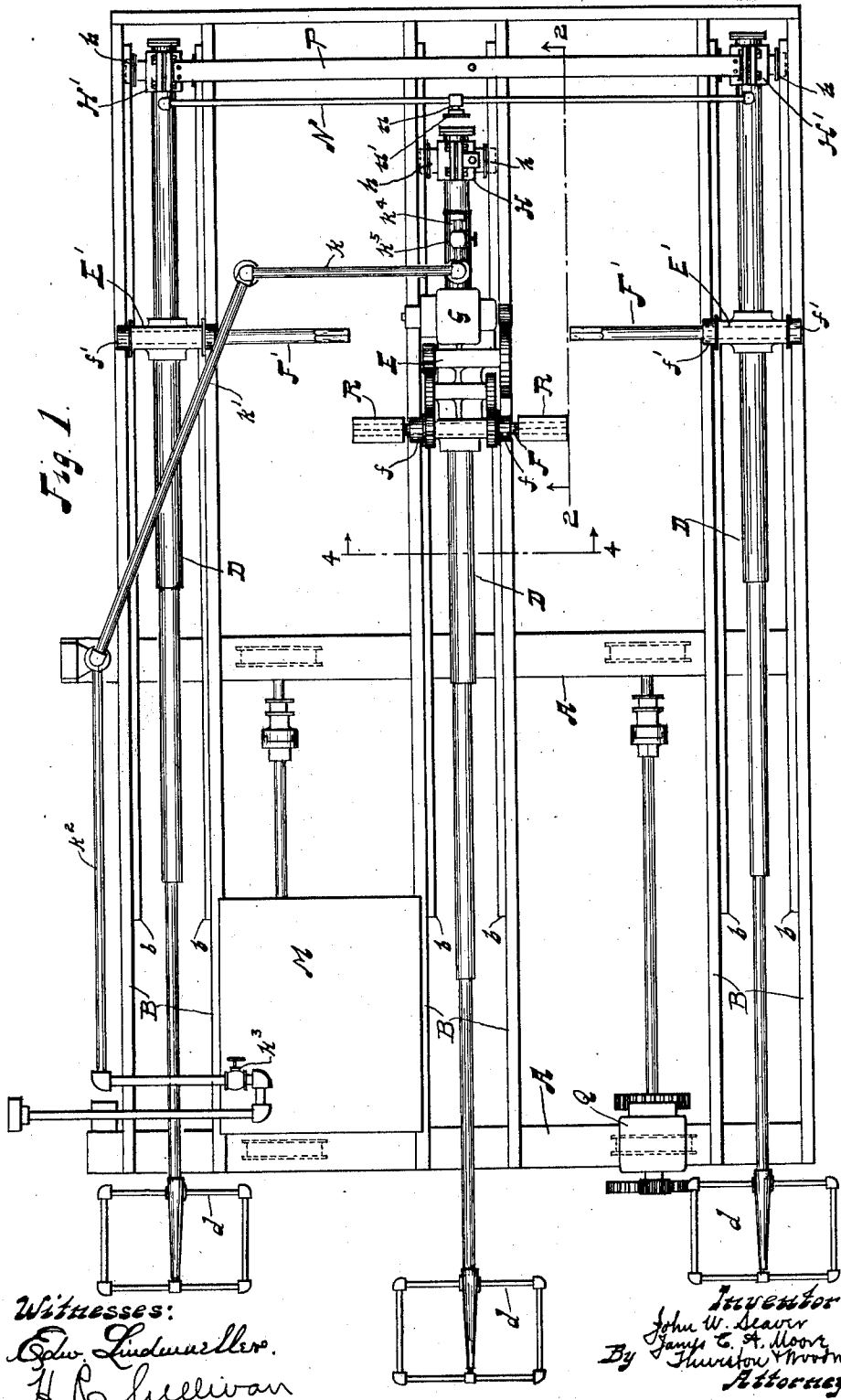
J. W. SEAVER & J. E. A. MOORE.
M. T. P. SEAVER, EXECUTRIX OF J. W. SEAVER, DEC'D.
COKE QUENCHING MACHINE.
APPLICATION FILED FEB. 27, 1909. RENEWED MAY 22, 1911.

998,556. Patented July 18, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



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COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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Fig. 2.

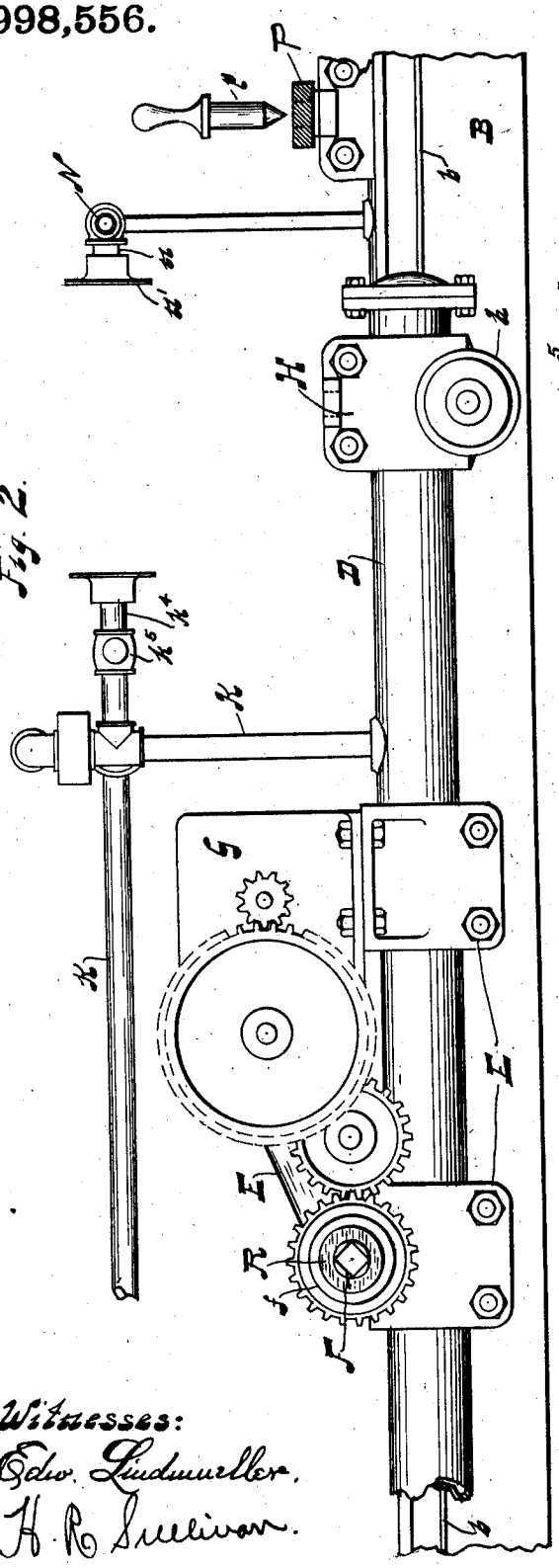
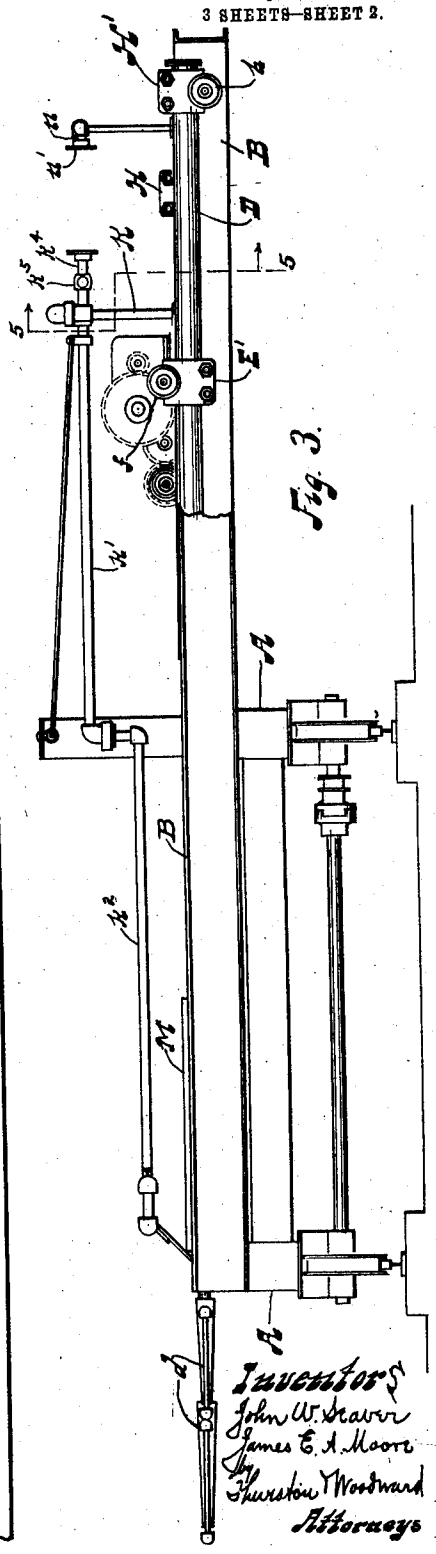


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

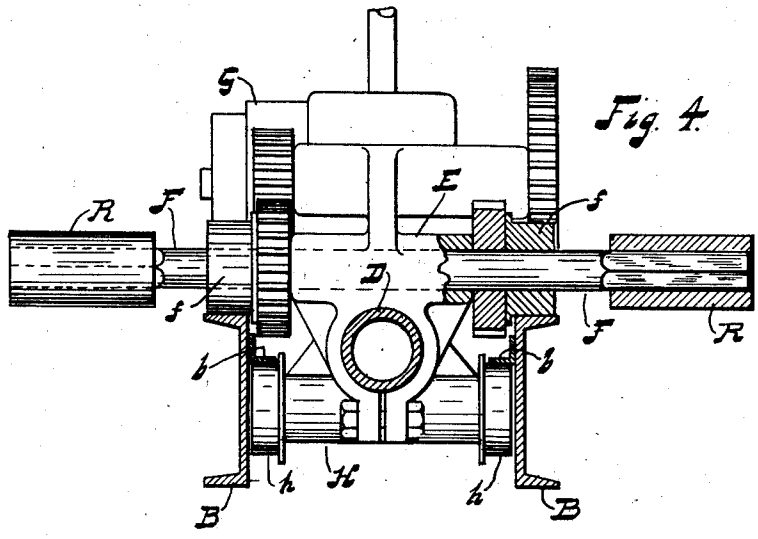
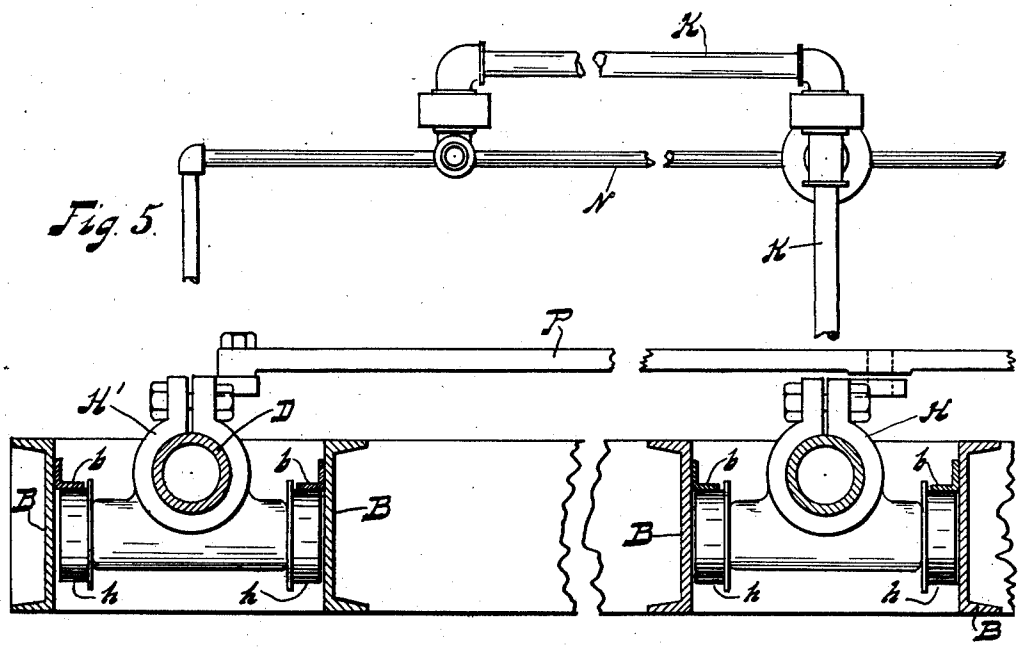


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN W. SEAVER, OF CLEVELAND HEIGHTS, AND JAMES E. A. MOORE, OF EAST CLEVELAND, OHIO; SAID MOORE ASSIGNOR TO SAID SEAVER; MARY T. P. SEAVER EXECUTRIX OF SAID JOHN W. SEAVER, DECEASED.

COKE-QUENCHING MACHINE.

998,556. Specification of Letters Patent. **Patented July 18, 1911.**

Application filed February 27, 1909, Serial No. 480,407. Renewed May 22, 1911. Serial No. 628,881.

To all whom it may concern:

Be it known that we, JOHN W. SEAVER, a citizen of the United States, residing at Cleveland Heights, in the county of Cuyahoga and State of Ohio, and JAMES E. A. MOORE, a citizen of the United States, residing at East Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Coke-Quenching Machines, of which the following is a full, clear, and exact description.

The object of this invention is to provide an efficient machine adapted for use in quenching or watering coke while the same is still in the coke oven or ovens, and which can be built, maintained and operated at a cost which renders it of practical and commercial value in the art in comparison with the use of the hand quenching apparatus heretofore generally used.

The invention consists in the combination of parts hereinafter described and pointed out definitely in the claims.

In the drawing, Figure 1 is a plan view of said machine. Fig. 2 is a side elevation of the rear end of the middle ram. Fig. 3 is a side elevation of the machine. Fig. 4 is a sectional end view of said ram in the plane indicated by line 4—4 of Fig. 2. Fig. 5 is a sectional end view in the plane indicated by line 5—5 of Fig. 3.

Referring to the parts by letters, A represents a portable support for the quenching mechanism. It is in the form of a wheel truck of any ordinary or suitable construction; and it is adapted to run on tracks laid in front of a row of coke ovens. Suitably supported thereon are a plurality of longitudinally movable rams, the supporting and guiding means shown consisting of two parallel channel bars B B associated with each ram. In the construction shown three rams are employed and therefore three sets of bars B B are likewise employed.

Each ram D consists of a long pipe or tube closed at its rear end and having secured to its front end, and in communication with the pipe, a quencher head *d* of any suitable or ordinary construction. At a short distance from the rear of the middle ram a truck frame E is rigidly fixed. Mounted on this truck frame is an axle F having secured to it the two wheels *f* which are adapted to ride upon the associated bars B B. An electric motor G is also secured upon this truck frame, and is connected by suitable gearing with the said axle F. Close to the rear end of the ram a bracket frame H is also fixed, and upon this frame are mounted two wheels *h* adapted to engage the under sides of flanges *b* fixed to the bars B B. Because of the described arrangement of wheels, namely, supporting wheels *f f* riding on the bars B B, and the wheels *h* engaging the under surfaces of parts rigid with said bars, viz. the flanges *b*, the ram will be maintained in the substantially horizontal position at all times, and may be moved by the motor endwise along said tracks into and out of a coke oven as required.

The water is delivered directly into the tubular ram through a vertical pipe K secured to the ram. To the upper end of this pipe, the pipe *k* is swiveled on a vertical axis. Another pipe *k'* is swiveled on a vertical axis to the pipe *k* at one end, and with a main supply pipe k^2 at its other end, the latter pipe being fixed to the support A. This pipe k^2 may be connected with a suitable water supply by means of any sort of flexible hose.

Preferably, at a selected point, which will generally be near the front end of the truck, is a platform M on which the operator may stand to control the various operations of the device; and at this point, preferably, a valve k^3 is formed in the supply pipe k^2 by which the water may be admitted to or shut off from the train of pipes leading to the ram. It will be at this point also that the circuit wires (which are not shown) for the motors, will be provided with suitable controlling switches.

The described water supply connections are with the middle ram only, which ram may or may not be connected with the two side rams by means to be presently explained. If not so connected the operator may by turning the current on to the motor cause the middle ram to move forward through the door of a coke oven and into said oven; and water which may be admitted through the train of pipes described, will flow through the ram and out of the quencher head onto the coke. The two swiveled pipes *k*, *k'* will swing upon their swiveling connections and

maintain an operative connection between the fixed water supply pipe k^2 and said ram.

The two outside rams are each provided with a frame E′ in which is mounted an axle F′ to which wheels f' are secured, and these wheels run on the associated bars B B; and at the rear end of each ram is a bracket frame H′ on which wheels h are mounted and adapted to engage the under side of flanges b. A pipe N extends from one of these side rams to the other, being connected at its ends with both. Near its middle it is provided with a forwardly extended pipe n adapted to be coupled by any suitable detachable coupling (indicated at n') with a pipe k^4 extending rearwardly from the pipe K on the middle ram and containing a valve k^5. When this coupling has been made then water coming through the train of pipes K, k, k', k^2 and k^3 will not only flow into the middle ram but will also flow through the pipes n, n' into the two side rams.

A rigid bar P extends between and is connected at its end with the two bracket frames H′ on these two outside rams; and this bar is adapted to be connected with the bracket frame H on the middle ram by any sort of suitable means as, for example, a pin p passing through a hole in the connecting member and into a hole in the bracket frame of the middle ram. When this connection is made then by the operation of the motor G all three rams will simultaneously move forward or backward; and all are supplied with water to be discharged from their respective quencher heads onto the coke into three adjacent ovens, it being understood that the distance between the several rams corresponds with the distance between adjacent coke ovens.

In order to increase the traction, the axles F F′ are prolonged toward each other. Their proximate ends may be squared; and the sleeves R normally carried on the ends of the axle F, may be slipped endwise thereon over the ends of the axle F′; and thereby the three axles and their wheels will be driven from the motor.

Under ordinary circumstances it will preferably be economical to utilize the three rams for simultaneously quenching the coke in three adjacent ovens; and if there were no circumstances under which this would not be a practical mode of operation, the three rams might be permanently connected together. In order, however, to be able to use under some conditions which may arise one ram, some means must be employed for permitting the independent movement of a ram. The means shown are merely typical but are suitable for the purpose.

A motor Q may be carried by the support A and suitably connected with wheels thereof, whereby said truck may be moved as desired.

Having thus described our invention, we claim:

1. In a coke quenching machine the combination of a movable support having a longitudinally extended guideway, a ram having wheels engaging the said guideway, a motor carried by the ram and operatively connected with said wheels, a quencher head on the outer end of the ram, and means for conducting water to said quencher head.

2. In a coke quenching machine the combination of a support, a longitudinal trackway thereon, a ram having two sets of wheels, one set engaging the top of said trackway and the other with an under face fixed thereto, means for moving said ram endwise, a quencher head on the outer end of the ram, and means for conducting water to said quencher head.

3. In a coke quenching machine the combination of a movable support having a trackway composed of two parallel bars each having an inwardly extended flange, a ram, a truck frame secured thereto, supporting wheels mounted on said truck frame engaging with the tops of said bars, a motor on said truck frame operatively connected with said wheels, a bracket also fixed to said ram, wheels mounted thereon engaging the under faces of said flanges, a quencher head on the outer end of said ram, and means for conducting water to said quencher head.

4. In a coke quenching machine the combination of a movable support carrying a trackway, a tubular ram having a quencher head on its outer end, a truck frame fixed to said ram, wheels mounted on said truck frame, a motor on said truck frame operatively connected with said wheels, a bracket fixed to said ram and carrying wheels which engage lower surfaces on said trackway, a supply pipe fixed to said support, and tubular connections between said supply pipe and said tubular ram.

5. In a coke quenching machine the combination of a movable support, an endwise movable tubular ram supported by and guided upon said support, a quencher head fixed to the outer end of said ram and communicating therewith, a supply pipe fixed to said support, two supplemental supply pipes swiveled to each other and respectively swiveled to said ram and to said main supply pipe, and a motor carried by said ram for moving it endwise.

6. In a coke quenching machine the combination of a movable support, a plurality of parallel longitudinally movable rams supported thereon, quencher heads on the outer ends of said rams, means conducting water to said quencher heads, and means for moving one of said rams independently of the others and for moving more than one ram at one time.

7. In a coke quenching machine the com-

bination of a movable support having a plurality of ram supporting guideways, a like number of endwise movable rams supported thereby, quencher heads severally secured to the outer ends of said rams, means for connecting and disconnecting said rams, means operating on one ram for moving it backward and forward, and means for conducting water to said quencher heads.

8. In a coke quenching machine the combination of a movable support having a plurality of ram supporting guideways, a like number of tubular endwise movable rams supported thereby, quencher heads severally secured to the outer ends of said rams, means for connecting and disconnecting said rams, a motor carried by one ram for moving it, a fixed supply pipe, two supplemental supply pipes which are swiveled to each other and are respectively swiveled to said supply pipe and one ram, a supply pipe connected to another ram, and a separable coupling device connecting the latter supply pipe with the first mentioned ram.

9. In a coke quenching machine the combination of a support, a plurality of longitudinally movable rams supported thereby and provided with moving wheels, quencher heads on the outer ends of said rams, means conducting water to said quencher heads, a motor supported on one ram and operatively connected with the driving wheels thereof, and means for making and breaking operative connections between said motor and the driving wheels of another ram.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses.

JOHN W. SEAVER.
JAMES E. A. MOORE.

Witnesses:
E. L. THURSTON,
H. R. SULLIVAN.

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