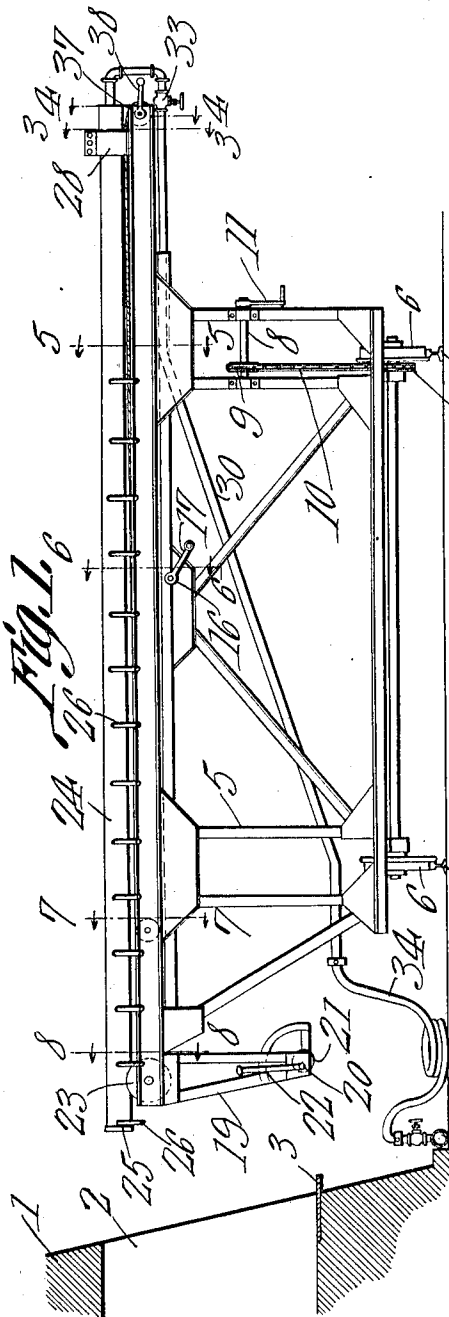


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COKE SPRINKLING APPARATUS.
APPLICATION FILED JAN. 13, 1911.

1,020,979.

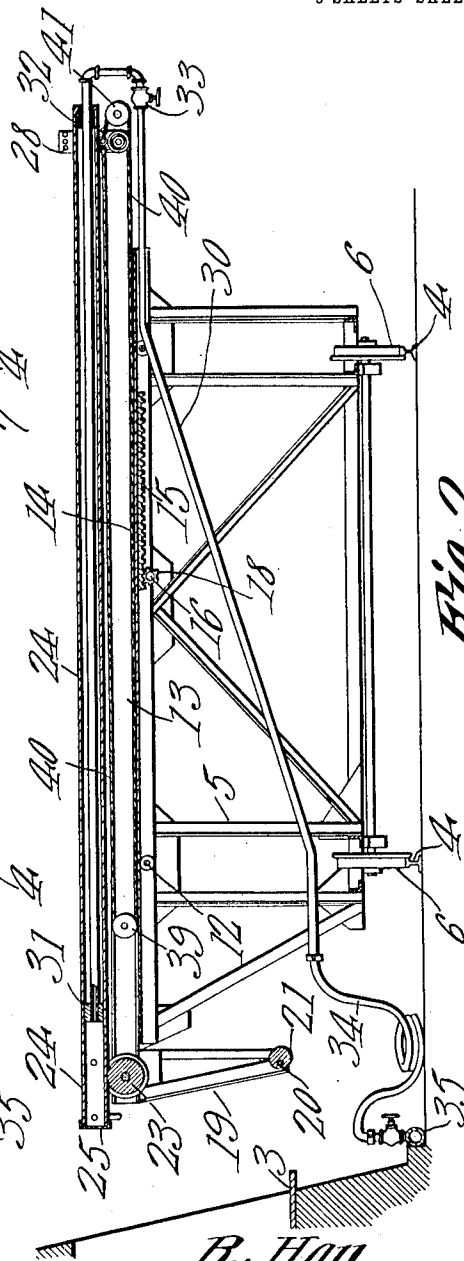
Patented Mar. 26, 1912.

3 SHEETS-SHEET 1.



Witnesses

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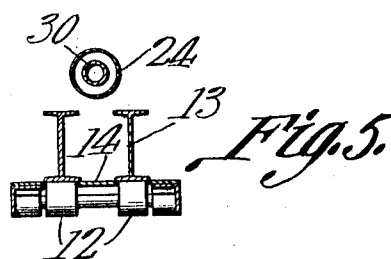
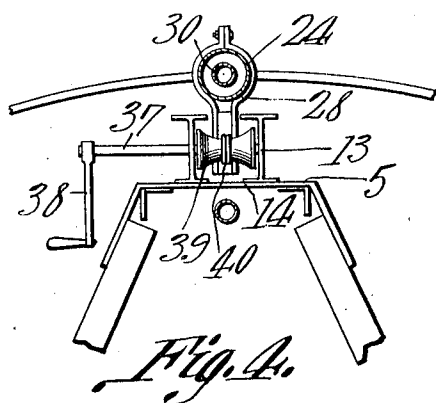
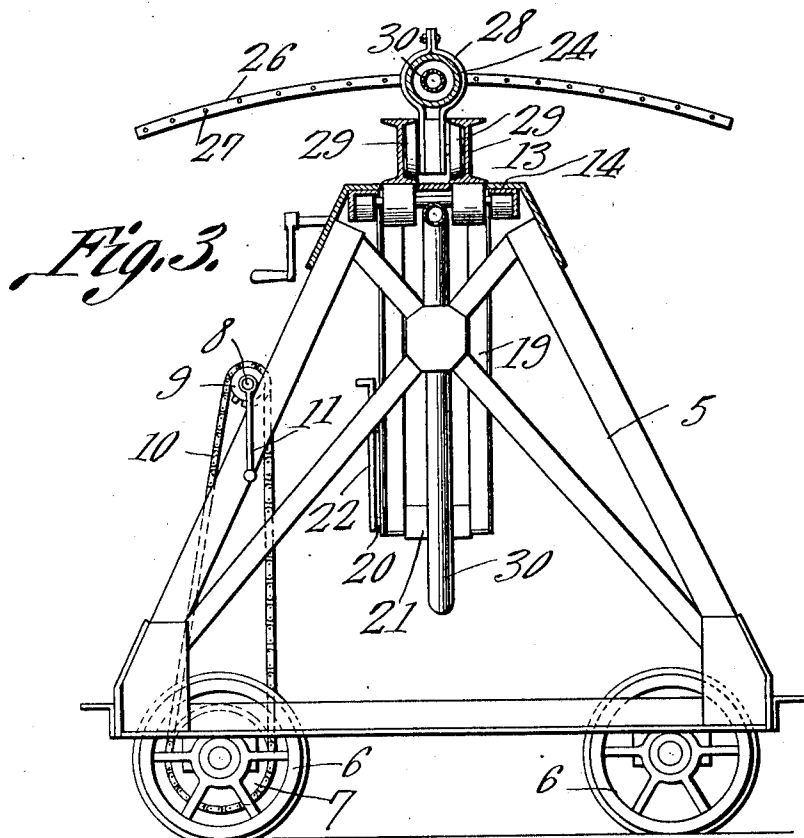
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3 SHEETS—SHEET 2.



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3 SHEETS-SHEET 3.

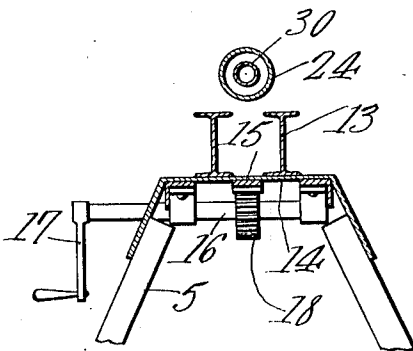
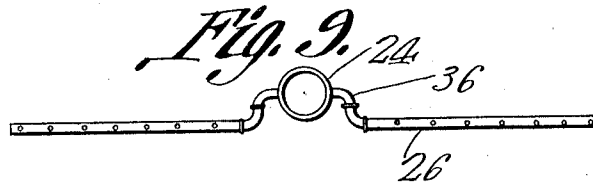


Fig. 6.

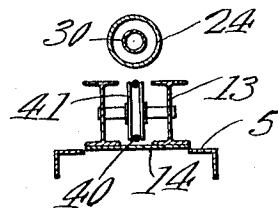


Fig. 7.

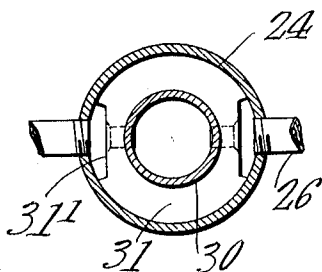


Fig. 10.

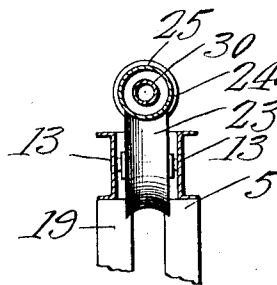


Fig. 8.

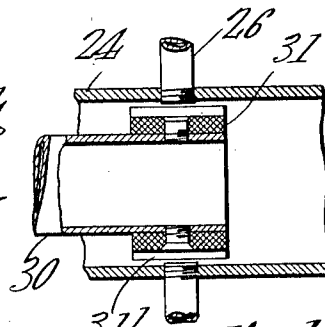


Fig. 11.

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UNITED STATES PATENT OFFICE.

ROBERT HAY, PERCY B. RULE, AND DAVID HAY, OF MOUNT PLEASANT TOWNSHIP,
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COKE-SPRINKLING APPARATUS.

1,020,979.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed January 13, 1911. Serial No. 602,454.

To all whom it may concern:

Be it known that we, ROBERT HAY, PERCY B. RULE, and DAVID HAY, citizens of the United States, residing at Mount Pleasant township, in the county of Westmoreland, State of Pennsylvania, have invented a new and useful Coke-Sprinkling Apparatus, of which the following is a specification.

This invention relates to coke sprinkling apparatus and consists in the novel construction and arrangement of its parts herein-after described and claimed.

The object of the invention is to provide an apparatus especially adapted to be used in combination with coke ovens which are rectangular in plan for the purpose of sprinkling water upon a bed of coke as it lies upon the floor of the oven for the purpose of quenching the fire from the same in order that it may be drawn from the oven.

With the above objects in view, the apparatus includes a wheel supported frame mounted upon a track way located in front of the oven with a carriage lying transversely across the said frame and means for moving the said carriage longitudinally toward and away from the oven. A pipe is located upon the said carriage and is mounted for movement longitudinally thereof and the said pipe is provided at intervals along its length with spray or nozzle pipes which extend laterally therefrom and which are provided with numerous perforations. A water supply pipe is located within the first mentioned pipe and is spaced at its outer side from the inner side of the first mentioned pipe. The water supply pipe is provided at its end with a piston which normally closes the transverse sectional area of the first mentioned pipe but which uncovers the inner ends of the spray pipes as the first mentioned pipe is moved longitudinally with relation to the water supply pipe. The said water supply pipe is fixed with relation to the carriage and means are provided for connecting the same with the water service system of the plant.

In the accompanying drawings—Figure 1 is a side elevation of the coke sprinkling apparatus. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a transverse sectional view of the same cut on the line 3—3 of Fig. 1. Fig. 4 is a transverse sectional view of a portion of the apparatus cut on the line 4—4 of Fig. 1. Fig.

5 is a transverse sectional view of a portion of the apparatus cut on the line 5—5 of Fig. 1. Fig. 6 is a transverse sectional view of a portion of the apparatus cut on the line 6—6 of Fig. 1. Fig. 7 is a transverse sectional view of a portion of the apparatus cut on the line 7—7 of Fig. 1. Fig. 8 is a transverse sectional view of a portion of the apparatus cut on the line 8—8, of Fig. 1. Fig. 9 is a view showing a modified form of arrangement of sprinkling pipes that may be used upon the apparatus. Figs. 10 and 11 are detail views of a modified form of piston which may be used in the apparatus.

The oven 1 is provided with the usual door opening 2 and its forward side with a seat plate 3. The said oven 1 is preferably rectangular in plan which is a common expedient but which feature is not illustrated in the drawings. Track rails 4 are located in front of the oven and extend along abreast of the said oven in the usual manner. A frame 5 is supported upon wheels 6 which in turn are mounted upon the track rails 4. One of the said wheels is provided at its side with a sprocket wheel 7 and a stub shaft 8 is journaled upon the frame 5 above the wheel 7. A sprocket wheel 9 is fixed to the shaft 8 and a sprocket chain 10 is trained around the sprocket wheels 7 and 9. A crank handle 11 is fixed to the end of the shaft 8. By this arrangement it will be seen that when the shaft 8 is rotated, rotary movement is transmitted by means of the sprocket wheel 9 and the chain 10 to the wheel 7 and its adjacent wheel 6 and consequently means are provided for manually propelling the frame 5 along the track rails 4. Rollers 12 are journaled at the upper portion of the frame 5 and I-beams 13 rest at their lower flanges upon the upper portions of the said rollers 12. The said I-beams are spaced from each other but are connected together by a plate 14 which is provided upon its under side with a rack bar 15. A shaft 16 is journaled in the frame 5 and is provided at one end with a crank handle 17. At an intermediate point the said shaft 16 is provided with a gear wheel 18 which meshes with the rack bar 15. The beams 13 form component parts of a carriage which is adapted to be shifted transversely of the frame 5 by turning the shaft 16 whereby the rack bar 15 is drawn along by the gear wheel 18. A bracket 19

depends from one end of the beams 13 and is provided at its lower end with a shaft 20 upon which is mounted an eccentric 21. A handle 22 is also connected to the shaft 20 and when the beams 13 are shifted toward the front of the oven 1, the lower end of the bracket 19 will be over the seat plate 13 and the operator then turns the shaft 20 so that the deep part of the eccentric 21 comes in contact with the upper surface of the said plate 3 whereby means is provided for temporarily holding the beams 13 in their adjusted position with relation to the front of the oven. A grooved roller 23 is journaled between the ends of the beams 13 and is located vertically above the bracket 19. A pipe 24 rests at one end portion upon the upper part of the periphery of the roller 23 and the said pipe is closed at one end by means of a cap 25. The pipe 24 is provided at intervals along its legs with laterally disposed sprinkling or nozzle pipes 26 each of which is provided with a number of comparatively small perforations or outlet openings 27. A bracket 28 is clamped in position upon the outer portion of the pipe 24 and extends down between the I-beams 13 as illustrated in Fig. 3. Rollers 29 are journaled at the opposite sides of the bracket 28 and are adapted to travel along the upper surfaces of the inner portions of the base flanges of the said beams 13. Thus the outer end portion of the pipe 24 is supported upon the I-beams 13. The pipes 26 generally extend at right angles through the long dimension of the pipe 24 but as illustrated in Fig. 3 of the drawings, the said pipes 26 are preferably bent in downward directions toward their outer end. A water supply pipe 30 is fixed with relation to the carriage of which the beams 13 form component parts and the said pipe 30 is provided with a section which is concentrically positioned within the pipe 24 and which normally traverses a majority of the length thereof. The said pipe section is provided at its inner end with a piston 31 which closes the pipe 24 transversely. The pipe 24 is provided at its outer end with packing 32 which snugly and slidably receives the outer portion of that section of the pipe 30 which is located therein. The supply pipe 30 is provided with a valve 33 located in the vicinity of the outer ends of the beams 13. The supply pipe 30 may be connected by a flexible hose 34 with a water service 35 in any suitable or appropriate manner.

In the form of the arrangement of sprinkling pipes 26 as shown in Fig. 9 of the drawing, the said pipes are straight throughout their length but are located at lower levels than the pipe 24 and are connected with the same by suitable L-connections 36.

In operation, the frame 5 is moved along the track rails 4 until the carriage of which

the beams 13 form component parts is in front of the door opening 2 of the oven about to be sprinkled. The hose 34 is then connected up with the supply pipe 30 and the water service 35 and the shaft 16 is rotated so that the inner ends of the beams 13 are moved toward the door opening 2 of the oven. When the beams 13 have been properly positioned and secured by means of the eccentric 21 as above described, a shaft 37 which is journaled in the outer ends of the beams 13 is rotated by means of a crank handle 38. A pulley 39 is journaled between the inner ends of the said beams 13 and a cable 40 is trained around the pulley 39 and a pulley 41 is mounted upon the shaft 37. The ends of the said cable 40 are attached to their bracket 28 and extend away from the same in opposite direction. Thus the rotation of the shaft 37 will move the cable 40 longitudinally about the pulleys 39 and 41 and the pipe 24 will be moved along the beams 13 and its inner end will be projected through the door opening 2 into the interior of the oven 1. In the meantime the valve 33 has been opened and water passes from the service 35 to the hose 34 and pipes 30 into the interior of the pipe 24. As the said pipe 24 moves longitudinally and the piston 31 uncovers the inner ends of the sprinkling pipes 26, the water passes from the pipe 24 along the said pipes 26 and out through the openings 27 thereof and sprinkles upon the bed of coke upon the bottom of the oven 1. Thus as the inner ends of the pipes 26 are successively uncovered, they become active as means for transmitting the water from the pipe 24 to the interior of the oven and as the pipe 24 is withdrawn from the interior of the oven 1, the piston 31 closes the inner ends of the pipes 26 and the water supply to the said pipes 26 is thus cut off. Thus it will be seen that a simple and an effective apparatus is provided for sprinkling the coke upon the floor of an oven and the parts are so assembled that they may be made from angle or ordinary commercial iron thus avoiding the necessity of providing especially designed parts to assemble the features of the apparatus.

In the form of piston 31, as shown in Figs. 10 and 11, the piston is cut away at its opposite sides as at 31' to provide clearance for the inner ends of the pipes 26 should they project beyond the inner surface of the pipe 24.

Having described the invention, what we claim as new and desire to secure by Letters Patent is:

1. A sprinkling apparatus for coke ovens comprising a wheel mounted frame, a carriage located upon the frame and adapted to be shifted transversely thereof, a pipe slidably mounted on the carriage and carrying

a series of sprinkling pipes, a supply pipe entering the first mentioned pipe, a piston located upon the supply pipe and closing the transverse sectional area of the first mentioned pipe, and means for connecting the supply pipe with a water supply.

2. A sprinkling apparatus comprising a wheel mounted frame, a carriage located upon the frame and adapted to be shifted transversely thereof, a pipe slidably mounted upon the carriage, a series of pipes connected at intervals with the first mentioned pipe, each of the sprinkling pipes being provided with outlet openings, a supply pipe fixed with relation to the carriage and having a section concentrically located within the first mentioned pipe, a piston mounted upon the supply pipe and located within the first mentioned pipe and closing the same, and means for connecting the supply pipe with a water service.

3. A sprinkling apparatus comprising a wheel mounted frame, a carriage mounted for transverse movement on said frame, said carriage including spaced I beams, a grooved roller journaled between the inner ends of the I beams, a pipe resting at its inner end portion upon the said groove roller and carrying a series of spaced sprinkling pipes, a bracket secured to the first mentioned pipe, rollers journaled to said bracket and arranged to travel upon the inner portions of the base flanges of the I beams, a supply pipe attached to the carriage and having a section concentrically positioned within the first mentioned pipe, a piston attached to the supply pipe and

located within the first mentioned pipe and closing the same transversely, means for shifting the first mentioned pipe transversely of the carriage, and means for connecting the supply pipe with a water service.

4. A sprinkling apparatus comprising a wheel mounted frame, a carriage mounted for transverse movement upon said frame, a bracket depending from the inner end of said carriage, a shaft journaled at the lower end of said bracket, and extending fixed to said shaft, said shaft being adapted to rest upon the floor of an oven, means for turning the shaft whereby the eccentric may be brought into engagement with the said floor, a pipe slidably mounted upon said carriage, sprinkling pipes carried by the first mentioned pipe, a water supply pipe fixed with relation to the carriage and having a section concentrically positioned within the first mentioned pipe, a piston carried by the said water supply pipe and located within the first mentioned pipe and closing the same transversely, and means for connecting the first mentioned water supply pipe with a water service.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

ROBERT HAY.
PERCY B. RULE.
DAVID HAY.

Witnesses:

GEO. L. SHIREY,
B. F. HARKCOM.