No. 707,525. Patented Aug. 19, 1902.

J. W. SEAVER.

PROCESS OF MANUFACTURING COKE.

(Application filed June 9, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. I.

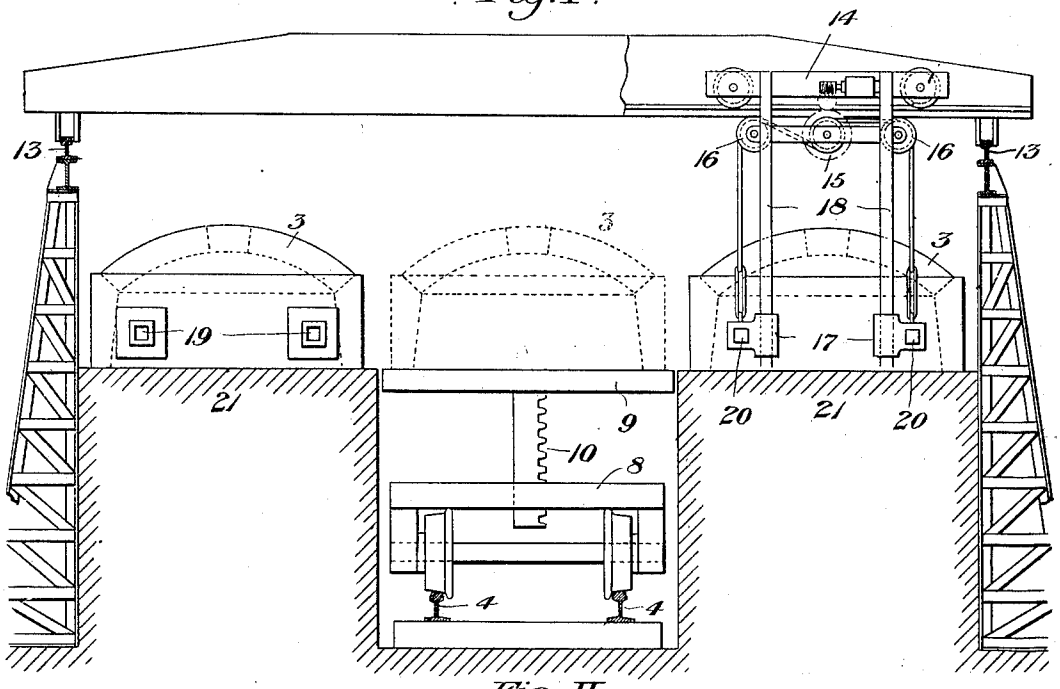
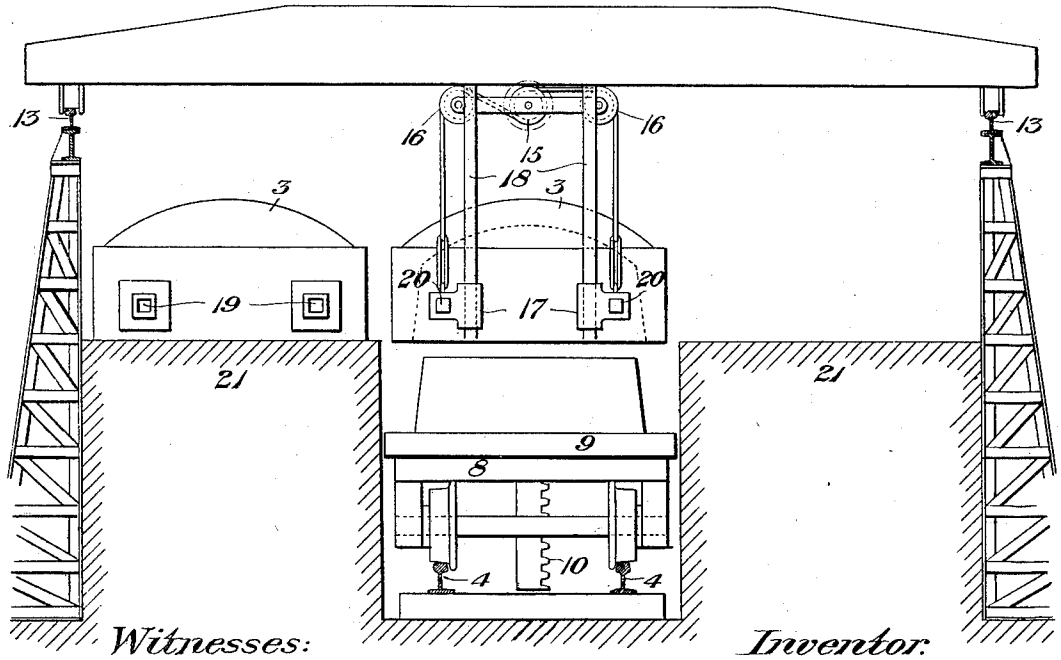


Fig. II.



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Fig. III.

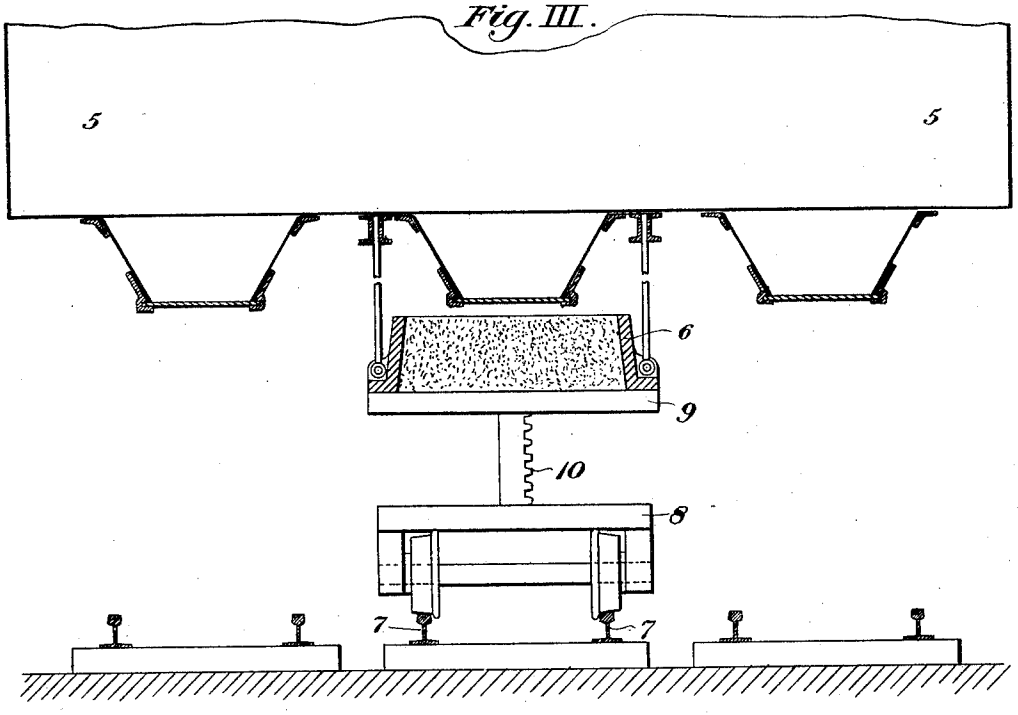
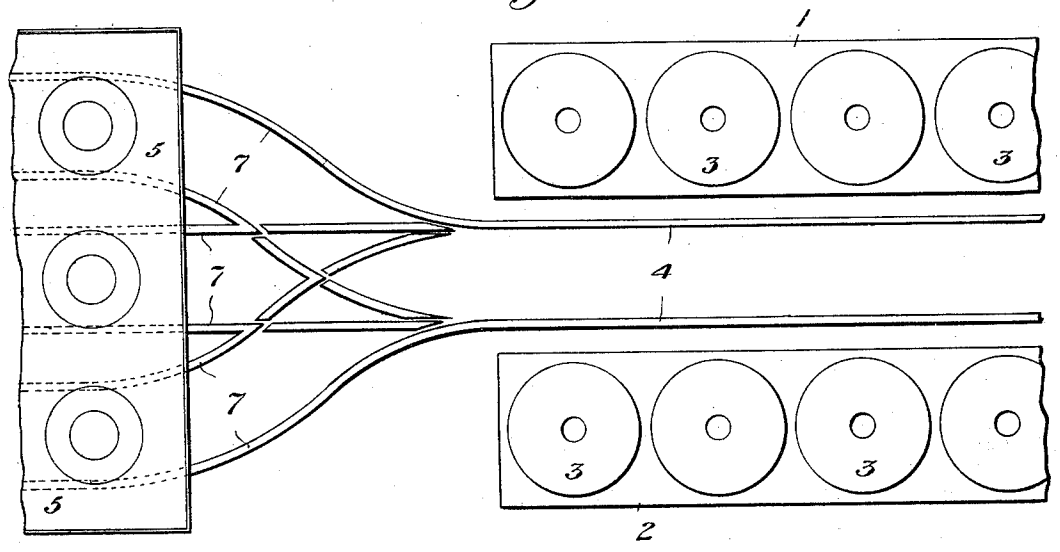


Fig. IV.



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UNITED STATES PATENT OFFICE.

JOHN WRIGHT SEAVER, OF CLEVELAND, OHIO, ASSIGNOR TO THE WELLMAN-SEAVER-MORGAN ENGINEERING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PROCESS OF MANUFACTURING COKE.

SPECIFICATION forming part of Letters Patent No. 707,525, dated August 19, 1902.

Application filed June 9, 1902. Serial No. 110,751. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN WRIGHT SEAVER, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented or discovered new and useful Improvements in Coke Manufacture, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure I is an end elevation of the ovens and crane, showing the latter in position to elevate an oven and showing a car with its bottom elevated so as to enter its charge into an oven, (indicated in dotted lines.) Fig. II shows a similar view with the crane supporting an oven over a car which is about to deliver a charge thereinto, the normal position of the oven being shown by dotted lines. Fig. III shows in vertical section a ramming-box and a bin and in elevation a car coöperating with the ramming-box. Fig. IV shows a general plan of a coking plant with the crane omitted for the sake of clearness.

My invention relates to the manufacture of coke and has special reference to the manufacture thereof in ovens of the movable type. It has been the practice to charge such ovens through a central hole in the top and to spread out the charge by tools introduced through poke-holes located in the top below the charging-hole. This is obviously a very slow and expensive way of charging. After the charges so made have become coked the ovens are conveyed from over the stationary base to a position over a transfer-car, onto which the coke is placed and removed. The oven is after discharge returned to its base and again charged as before.

1 and 2 represent two benches of ovens of the beehive type. The domes of the ovens are each designated by the numeral 3. Between the benches of ovens is a track 4, upon which travel cars from which the domes are charged and onto which they discharge. A coal-bin 5, Fig. III, discharges into circular ramming-boxes 6, in which the already crushed coal or other product to be coked is rammed to form a compact briquet. From under each box 6 a track 7 leads to the main track 4. There will preferably be as many cars for carrying briquets to the domes as there are ramming-boxes. Each car 8 has a vertically-movable bottom 9, operated by the rack-post 10, secured thereto, and suitable gearing. (Not shown.) The cars are run under the stationary bottomless boxes 6 and the bottoms 9 raised, so as to form bottoms to the boxes, as shown in Fig. III. The coal is then fed into the boxes and spread evenly and rammed compactly by any suitable means.

Traveling on elevated tracks 13, extending longitudinally along the outer sides of the benches 1 and 2, is a crane carrying a trolley 14, which carries a winding-drum 15 and sheaves 16. Chains or cables pass from the drum over the sheaves and have their lower ends secured to sliding blocks 17, guided on the sides of the hanger 18 of the trolley. The domes are provided with holes 19 and the blocks with sliding pins 20, adapted to enter said holes.

The operation is as follows: A car 8 is run under a ramming-box 6, and its bottom 9 is raised so as to become a temporary bottom of the box. Coal from bin 5 is discharged into the box 6 and upon the car-bottom 9 and rammed, as stated. After the coal has been sufficiently rammed to form a compact adherent briquet or cake the bottom 9 is lowered upon the frame of the car 8. The crane is run along the tracks 13 until an empty oven is reached. Then the blocks 17 are lowered and the pins 20 entered into the holes 19 in the dome. The cables are then wound on the drum 15 and the dome raised slightly above the base 21. Then the trolley, with the dome, travels in a position over the main track 4. The car 8, with its briquet thereon, is then pushed to the track 4 and stopped with the briquet directly under the suspended dome. The bottom 9 of the car is then raised, the briquet entering the dome. The bottom 9 is stopped in its ascent with its top surface flush with the surface of the base 21, as shown in Fig. I. The trolley then conveys the dome, with its included briquet, from the bottom 9 to the base 21, the briquet sliding on said bottom and base. When the dome reaches the desired location, it is lowered

onto the base 21, which constitutes a fixed hearth, and the charge is coked after the manner of coking in beehive-ovens. It is to be understood that the dome is raised just enough to relieve it from friction with the base 21 and the bottom 9 of the car 8. When a dome is ready to be discharged, the crane is run along the tracks 13 until the dome is reached. Then the trolly is run so as to be centrally over the dome and the blocks 17 are lowered and the pins 20 entered into the holes 19 in the dome. The cables are then wound on the drum 15 and the dome raised slightly above its base 21, whereupon the trolley travels to a position over the main track 4 on which a car is standing ready to receive the coke. The car may be of any construction desired. For example, it may be a car such as already described, in which case the upper surface of the raised bottom of the car will stand on the plane of the base 21, so that as the oven charge is conveyed from the base 21 it will slide onto the bottom of the car. The bottom is next lowered so as to rest on the car-body, which is run out on the track 4 at the end of the benches opposite that from which the charges of coal are delivered.

I have not dwelt upon the details of the mechanism by which the briquet is made, the car-bottom operated, and the crane, trolley, and drum are driven. These are each of such a nature that upon the mere suggestion any ordinarily-skilled mechanic could make them. It is immaterial to this application what means are employed for performing the various steps. Even where particular forms or mechanisms have been described it is to be understood that other forms or mechanisms may be substituted.

With the crane I may lift the oven from the coking-base, place a charge of coal on the base, and then replace the dome on the base and over the charge. The charge may also be brought on a car with a fixed bottom at the level of the coking-base. The dome may then be lowered over the charge and the dome, with its included charge, moved over to the base.

By the use of the term "dome" in the description and claims I do not limit myself to a dome-shaped oven superstructure, but include all oven superstructures whatever the shape may be.

Having described my invention, I claim—

1. The process of manufacturing coke, consisting in assembling the charge to be coked, assembling the charge and the dome, moving the assembled charge and dome onto a fixed hearth, and coking the charge.

2. The process of manufacturing coke consisting in assembling the charge to be coked, introducing the said charge into a dome, moving said dome with its charge to a fixed hearth, and coking the charge.

3. The process of manufacturing coke, consisting in assembling the charge to be coked, introducing said charge into the bottom of the dome, moving said dome with its charge to a fixed hearth, and coking the charge.

4. The process of manufacturing coke consisting in assembling the charge to be coked, bringing the charge to a charging position, removing the dome from the coking-hearth to a position over said charge, placing the charge in the dome, replacing the dome on the hearth, and coking the charge.

Signed at Cleveland this 6th day of June, 1902.

JOHN WRIGHT SEAVER.

Witnesses:
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