No. 838,049. PATENTED DEC. 11, 1906.

W. M. NIXON.

MEANS FOR DRAWING AND LOADING COKE.

APPLICATION FILED AUG. 22, 1906.

5 SHEETS—SHEET 1.

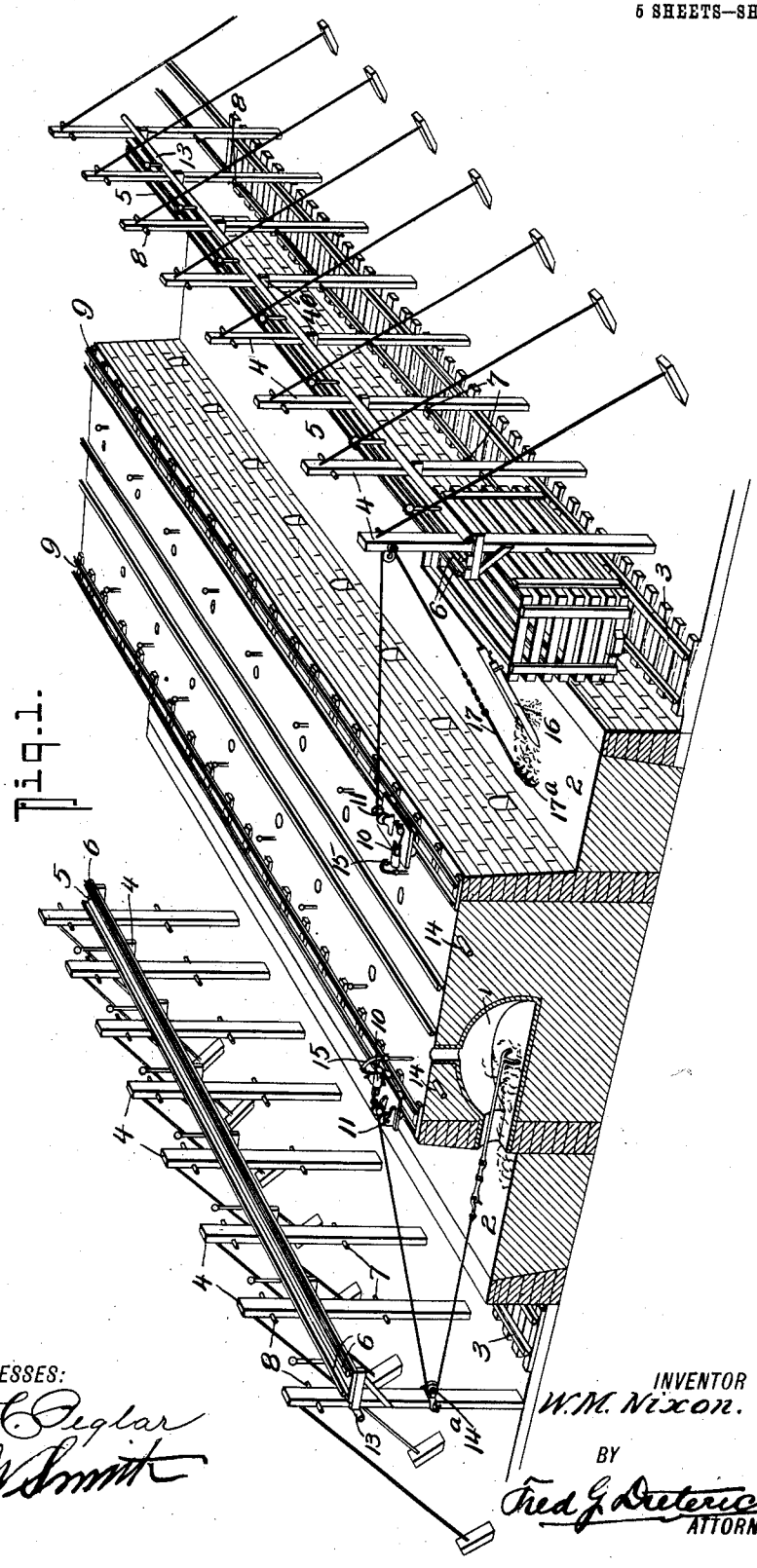


Fig. 1.

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5 SHEETS—SHEET 2.

Fig. 2.

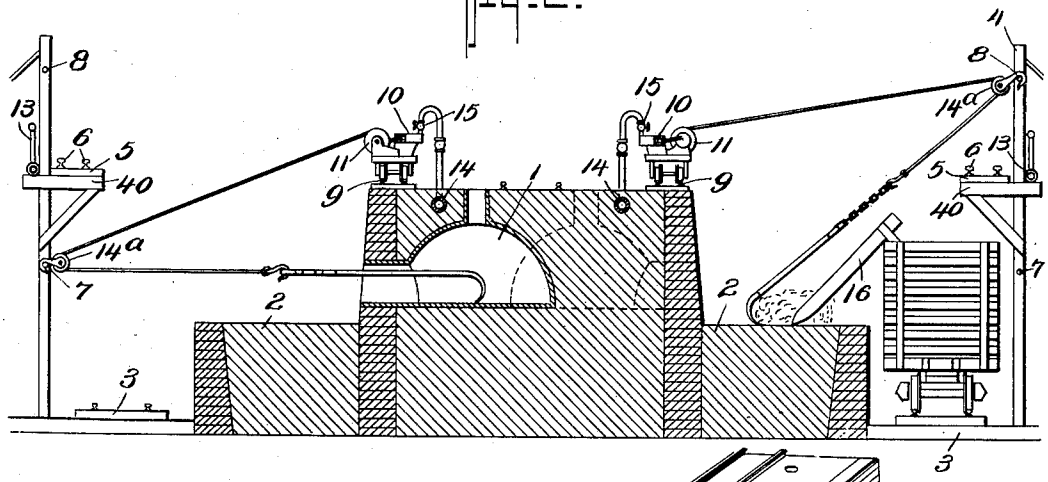
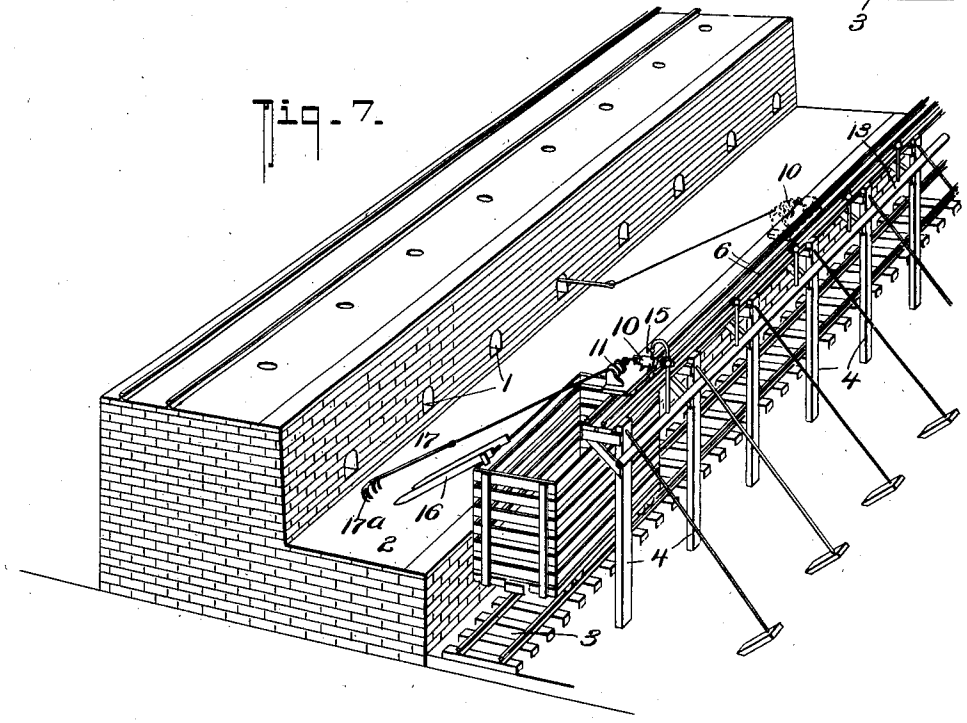


Fig. 7.



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5 SHEETS—SHEET 3.

Fig. 3.

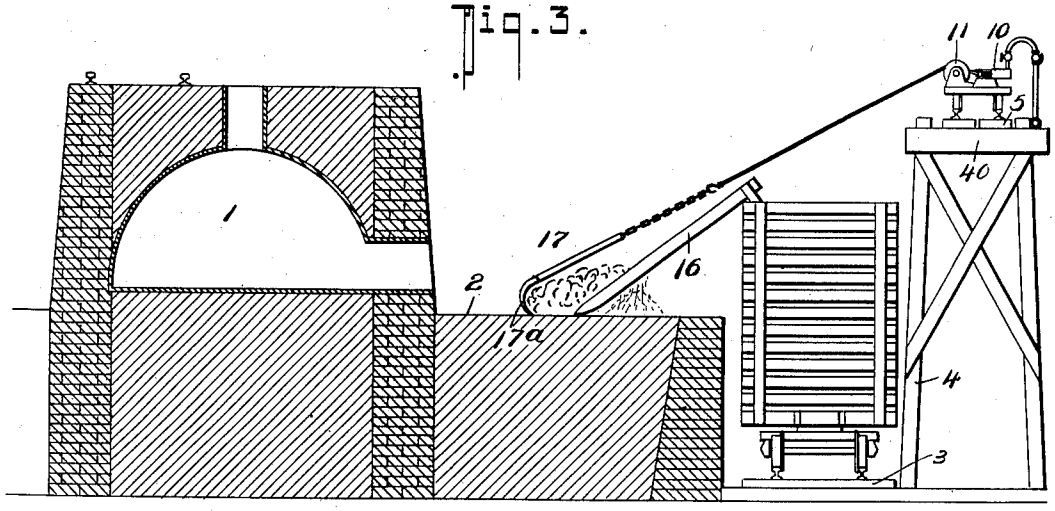


Fig. 4.

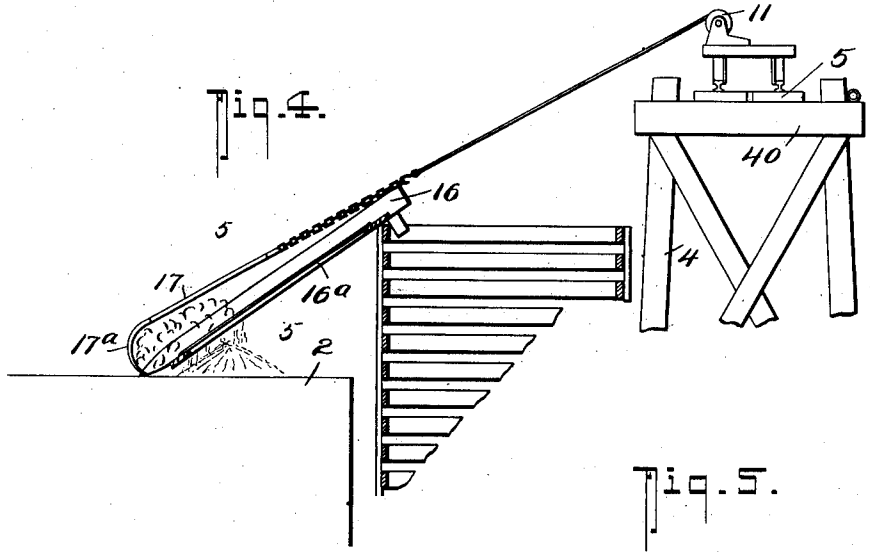
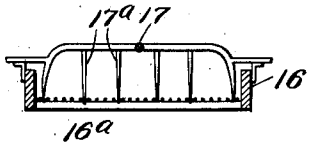


Fig. 5.



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No. 838,049. PATENTED DEC. 11, 1906.

W. M. NIXON.

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5 SHEETS—SHEET 4.

Fig. 6.

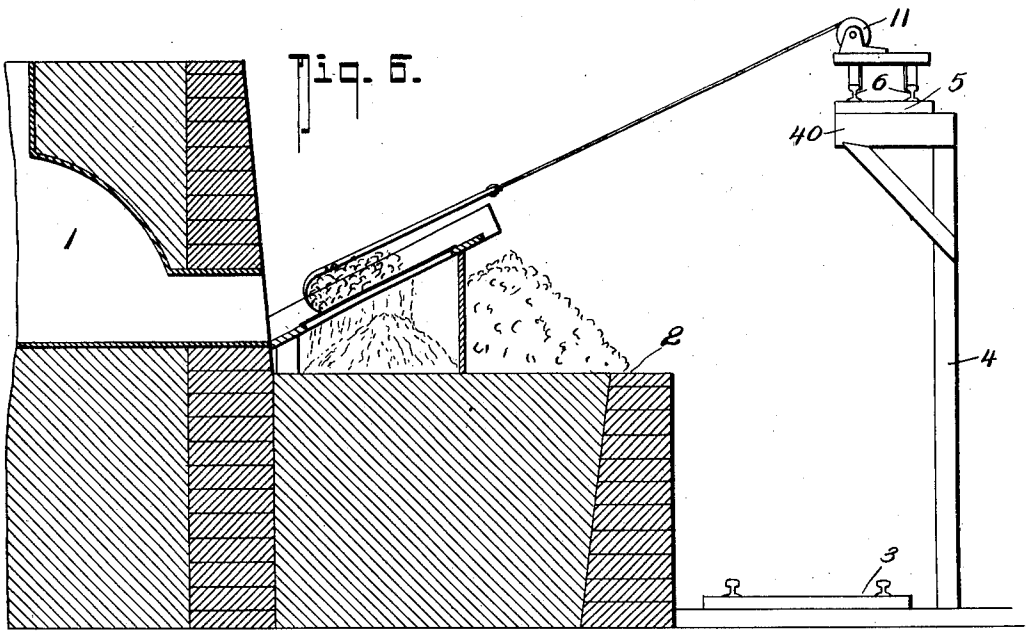


Fig. 10.

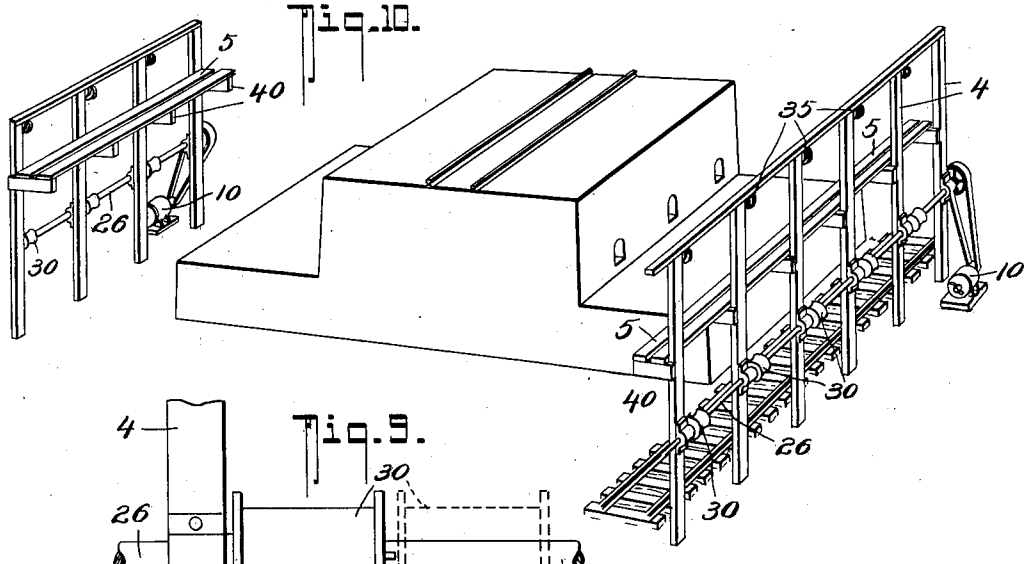


Fig. 9.

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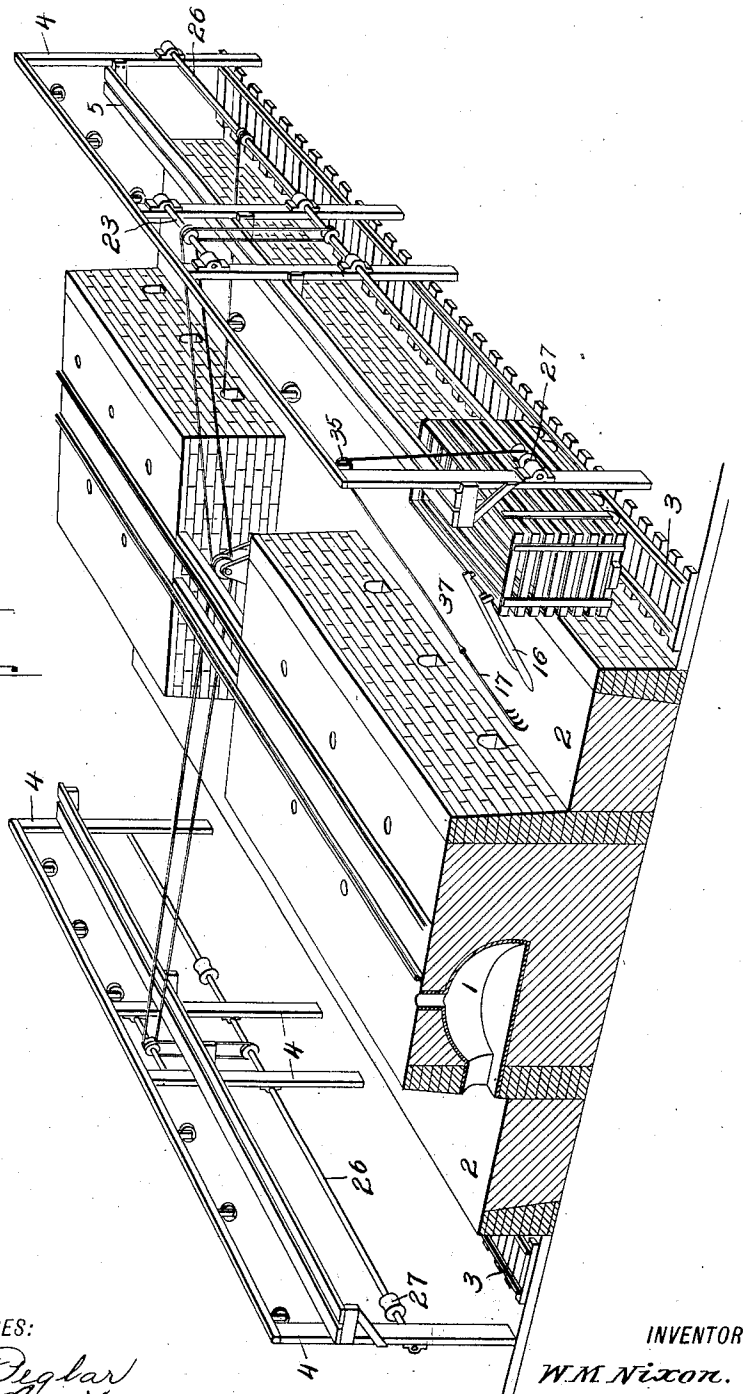
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6 SHEETS—SHEET 5.

Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM M. NIXON, OF CHATTANOOGA, TENNESSEE.

MEANS FOR DRAWING AND LOADING COKE.

No. 838,049. Specification of Letters Patent. Patented Dec. 11, 1906.

Application filed August 22, 1906. Serial No. 331,592.

To all whom it may concern:

Be it known that I, WILLIAM M. NIXON, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and Improved Means for Drawing and Loading Coke, of which the following is a specification.

In the manufacture of coke it is usual to employ manual labor for drawing off the coke and then after cooling load the same to cars or receivers, the drawing off being accompanied by means of a long rake, hook, or drag.

My invention primarily seeks to provide a new and improved means for actuating the drawing rakes or hooks, whereby to pull the coke out upon a yard or platform for cooling, and then utilizing the same means for actuating the lifting and loading mechanism in a manner to conveniently and expeditiously convey the coke into the car.

In its generic nature my invention comprehends a simple, light, and economical installation of parts more particularly adapted for use with a series of batteries of ordinary type of "beehive-ovens," which when not in operative action will not interfere with the usual method of handling the coke and which includes power mechanisms and connections for joining the same with the manually-guided drawing and loading devices, whereby one or more of the ovens may be drawn while the drawn coke from the other oven or ovens is being loaded.

In its more complete nature my invention comprehends, in connection with a battery or series of coke-ovens and a platform therefor, a plurality of parallel trackways that extend in the longitudinal plane of the battery of ovens, one of which is mounted over the ovens and the other is mounted upon a series of supports of which there is one for each oven, as shown in Figure 1, or a less number, as shown in Fig. 8, a motor having a winding-drum adapted to travel upon either of the trackways, a draft rope and pulley that coöperate with the winding-drum, a means for each of the supports for detachably sustaining the draft rope or pulley to adapt the same for operative connection with either the coke-drawing hook or the loading-rake devices.

My invention also embodies, in connection with the battery of coke-ovens, a special arrangement of platform, trackways for loading the cars, and mechanically-controlled means for drawing coke on the platforms to be cooled on yards, as well as on or under the platform or grilled duct or chute, and adapted for such adjustment whereby to load the cooled coke in the cars, the said means including a single drive-motor and a series of rope-drives for actuating the coke drawing and loading ovens; and in its more subordinate features my invention consists in certain details of construction and peculiar combination of parts, all of which will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings, in which—

Fig. 1 is a perspective view of a battery of beehive coke-ovens with my improvements applied and illustrating the preferred arrangement thereof. Fig. 2 is a transverse section of the same. Fig. 3 is a detail view, on an enlarged scale and illustrating one oven and one set of motor-controlled mechanical devices for actuating the hand-guided loading means. Fig. 4 is a section illustrating the loading-duct, the loading-rake, and the draft member for actuating the said rake. Fig. 5 is a cross-section thereof on the line 5 5 on Fig. 4. Fig. 6 is a view which illustrates the loading-duct arranged for coöperating with the drawing-hook for removing the ashes and braize or small coke and depositing it on the platform. Fig. 7 is a perspective view that illustrates a modified construction of my invention hereinafter explained. Fig. 8 is a similar view illustrating the manner of utilizing a single power engine or motor for actuating a manually-actuating loading and drawing device at the opposite sides of a double tier of ovens. Fig. 9 is a detail view that illustrates one of the shiftable drums and the hanger-sheave of one of the supports that coöperate with the drum. Fig. 10 is a view of a further modification of my invention hereinafter referred to.

In the drawings I have illustrated several similar arrangement of parts for mechanically actuating the manually-guided drawing and loading hooks and which come under the general scope of my invention and the appended claims; but I desire it understood that further modifications of the construction shown to suit the particular arrangement and structure of the coke-ovens for

which my invention may be made applicable may be made without departing from my invention.

In the arrangement shown in Figs. 1 and 2 it will be noticed I have illustrated two sets of batteries of beehive coke-ovens, and as the mechanical structure for each set of batteries at each side are alike a detailed description of one set of my mechanical devices for actuating the coke drawing and loading hooks will be sufficient. In Fig. 1 a set of ovens 1 1 are arranged and are combined with the platform 2 in the ordinary manner, and at the end of each platform is shown a depressed trackway 3 for receiving the loading-cars. At a point just outside of the trackway 3 is located a standard or post 4, there being one of such posts for each oven, and each post is suitably braced—for example, as shown in the drawings.

In the structure referred to in Fig. 1 the posts 4 extend up some distance above the platform and at a point high enough to be above the highest coke-receiving cars. As shown, the several posts have inwardly or outwardly projected brackets 40, upon which is mounted a longitudinal runway 5, carrying tracks 6, the purpose of which will presently appear. At a point below the runway 5 each of the posts has a pair of laterally-projected studs 7 located in the horizontal plane of the oven, as clearly shown in Fig. 2, and at a point above the runway 5 the posts have similar lateral studs 8. Upon the top of the kiln and extending in a plane parallel with the track 6 is mounted a similar track 9, and the said two tracks are provided for receiving a motor or engine 10, which may be of any approved construction, but must include a winding-drum 11, as shown. Adjacent the trackway 6 and mounted on supports 4 is a steam-pipe 13, having a series of laterals, one for each oven, or a less number adapted to be connected by an air-hose with the engine to remain or be moved without making a new connection each time, and a similar steam-pipe 14 is mounted on the top of the battery or ovens adjacent the trackway 9, which is also provided with a series of valved laterals, as clearly shown in the drawings.

The object in providing two trackways is that the motor or engine may be used on either of the said trackways as the conditions may make desirable. For instance, in the summer when the heat is so excessive as to make it impossible for the operator to work on the oven-top the motor is used upon the trackway 6, whereas in the winter when the heat is not excessive the said engine is preferably used upon the trackway 9.

So far as described when the engine is used as shown in Fig. 1 the draft-rope, when it is desired to draw the coke, is passed over a pulley-block 14^a, which is then detachably mounted on the projected studs 7 on the support 4 in line with the coke-oven, so as to provide for a straightway pull when the engine is set in operation, which is readily done by drawing the valve 15, that controls the inflow of steam from the feed-pipe.

When it is desired to load the cooled coke onto a car that extends above the platform, as shown in Fig. 1, I employ a loading duct or chute 16, having a grilled or slotted bottom 16^a and with which coöperates the loading member 17, having a series of rake-teeth 17^a, adapted to carry the coke up the duct and at the same time that it is being sifted of the ashes and small coke.

The loading member includes a long shank to which the draft-rope is detachably connected, the pulley-block that coöperates with the said rope being now detachably connected with the lateral projections at the upper end of the support 4, whereby to provide for a proper line of draft for lifting the cooled coke up the duct and discharging same into the car.

It will be noticed that in the use of my mechanical means for drawing and loading the coke the loading device and the drawing-hook may be and preferably are manually guided or placed as the operator is required to apply the draft for connecting the draft-hook to the drawing-hook or loading device, as may be desired, and it will also be readily understood that by reason of the manner in which the parts are arranged after one oven has been drawn the engine or motor can be moved to the next oven or the second or any other oven ready and all draft connections be made with the next support 4, and so on.

When the engine is used on the runway mounted on the support 4, the draft-rope can be passed down over the sheave or pulley-block, which is then located, as shown, at the left of Fig. 1, and when utilized for loading the coke the draft-rope passes from the engine-drum to the pulley-block located on the upper end of the support 4.

So far as described it will be readily apparent that the operation of drawing the coke and loading same can be quickly and economically effected, and by reason of loading the coke in the manner stated the necessity of forking over the drawn coke after it has been deposited on the platform or yard for removing the ashes and braize or small coke is avoided, thus reducing the cost of handling the coke.

In Fig. 8 I have shown a further modification of my invention. In this form I have shown a single engine or motor for actuating the mechanisms at both sides of the duplex kiln by means of rope-drives extended in opposite directions from the engines or counter-shafts 23, mounted on the supports at the opposite sides of the kiln and which are in turn connected by handle cables or belts with a single drive-shaft

26, mounted on the supports 4, upon which is mounted a series of slidable winding-pulleys 27, there being one for each oven. In this latter modification I have provided for operating in a plurality of coke-ovens at the same time. For instance, one or more of the said ovens may be drawn while the cooled coke from one or more of the other ovens is being loaded upon the car, this being provided for by reason of the slidable pulleys, since for drawing the coke it is only necessary to connect the draft-rope directly to the sliding drum, as indicated at 30 on Fig. 9, and moving the said drum in the position to rotate with the drive-shaft 26 and for leading the drum in line with the coke to be loaded as it is thrown into gear with the driving-shaft after the rope has been attached thereto and passed up over the sheaves 35 and the end thereof has been connected with the loading device, as indicated by 37 on Fig. 8.

A still further modification of my invention is illustrated in Fig. 10, by reference to which it will be noticed that the hook and rake pulling devices at each side may be independently actuated by means of a motor or engine for each side coupled with the drum-carrying shaft.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a coke-manipulating implement, of a draft device, a winding-drum, a plurality of hangers for the draft device arranged in different vertical planes, and means for disconnectedly joining the said draft devices with the tool and the drum, for the purposes described.

2. In combination with the battery of coke-ovens, a platform therefor, and a manually-guided coke-manipulating tool; of a series of frames, each frame having a plurality of supporting members in different vertical planes, a hanger-sheave adapted to be detachably connected to the different supporting members, a pull rope or cable engaging the sheave adapted to be detachably connected at one end with the coke-manipulating tool and means coöperating with the pull rope or cable for winding the same to actuate the tool, as set forth.

3. In combination with a battery of ovens, a platform for the ovens, a plurality of trackways, extended in the longitudinal plane of the platform and located one to each side of the platform, a motor-engine adapted to be interchangeably mounted on either of the trackways, means adjacent each trackway for applying a source of power to the engine, a draft rope or cable adapted to be detachably connected with the coke-manipulating tool, adjustable guide-sheaves for the said rope or cable, a winding-drum actuated by the engine power with which the pull rope or cable detachably connects, as set forth.

4. In combination with a plurality of coke-ovens, a platform therefor, a depressed trackway for the loading-cars and a series of uprights, located outside of the loading-car trackway, of a manually-guided coke-manipulating implement, a draft rope or cable connected therewith, a plurality of guides on each post with which the draft rope or cable may be adjustably connected, and a winding-drum and motor-engine for controlling the drum, as set forth.

5. In a means for drawing and loading coke, the combination with a plurality of ovens, a coke-manipulating implement, a draft member connected with the said implement, a motor-engine for pulling the draft-rope, a support for each of the ovens and a plurality of guides on each support over which the draft rope or cable may be adjustably and independently passed, whereby to apply a pull-draft on the coke-manipulating implement in different planes for the purposes described.

6. As an improvement in means for drawing and loading coke, a coke-drawing tool, a draft rope or cable connected thereto, a shiftable motor-engine for pulling the rope or cable, a vertical support in line with each oven, a trackway between the supports and the oven for receiving the coke-cars, a loading-chute for coöperating with the coke implement and the cars, a sheave for the cable or rope and means on the supports for detachably engaging with the said sheave, substantially as shown and described.

7. In a means for drawing and loading coke, the combination with one or more ovens; of a platform-sieve therefor and a coke-manipulating implement; of uprights, a draft-shaft mounted on the uprights, a motor connected to the shaft, a series of winding-drums on the shaft, to which one end of the draft rope or cable detachably connects, a guide-sheave for the draft rope or cable, and means on either of the said supports for sustaining the said guide-sheave above the drive-shaft, as set forth.

8. As an improvement in handling coke, in combination with a coke-manipulating manually-guided implement, mechanism including a motor-engine and draft devices, the latter being disconnectedly joined with the coke-manipulating implement, means for transferring said mechanical devices in line with either one of the battery of ovens, said means including a supporting-sheave for the draft rope or cable, and devices for sustaining the said sheave in different vertical planes with respect to either of the ovens for the purposes specified.

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Witnesses:
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G. W. SMITH.