No. 621,663. Patented Mar. 21, 1899.

J. A. HEBB.

COKE DRAWER.

(Application filed Aug. 12, 1897.)

(No Model.) 4 Sheets—Sheet 1.

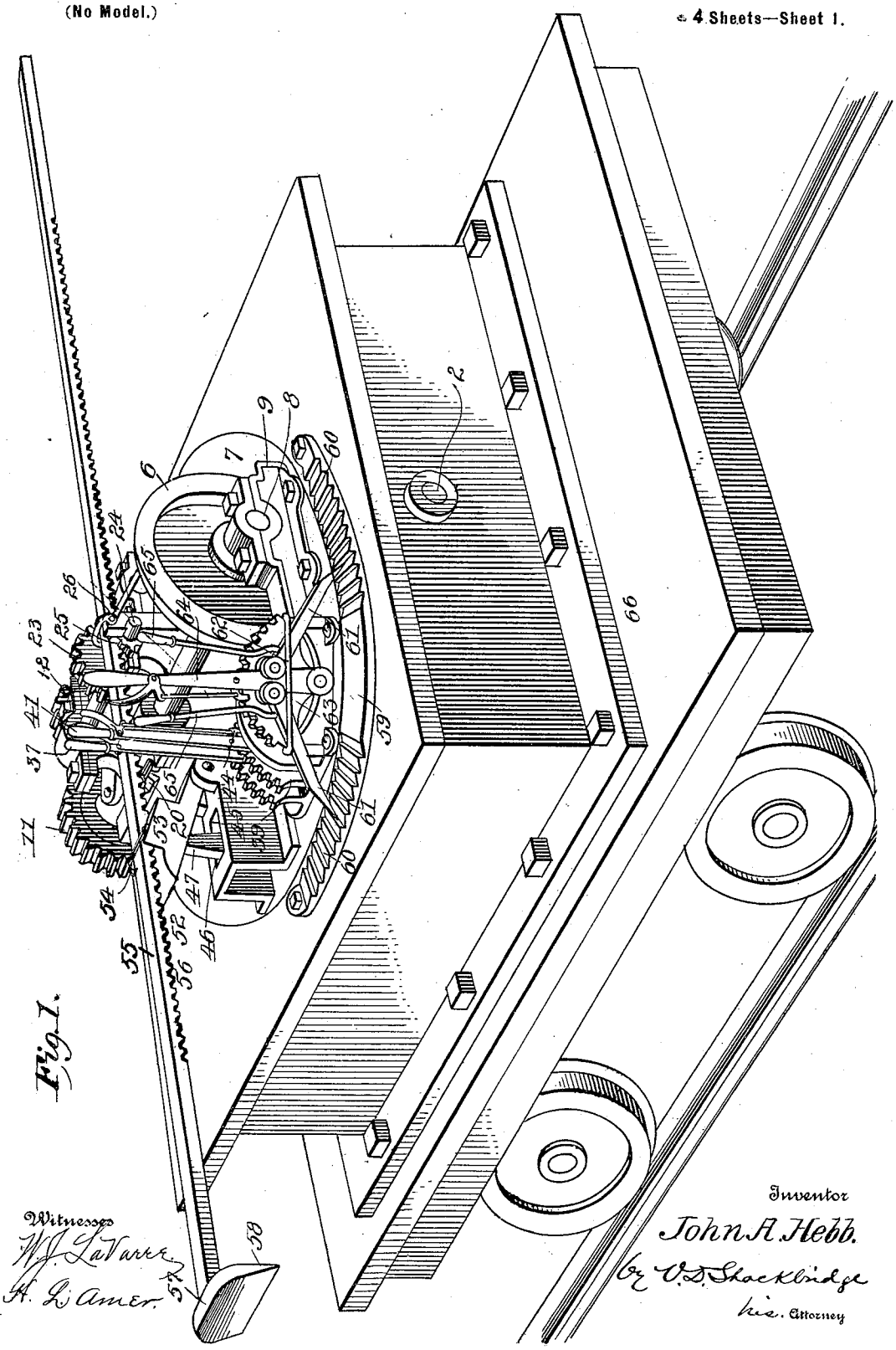

Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

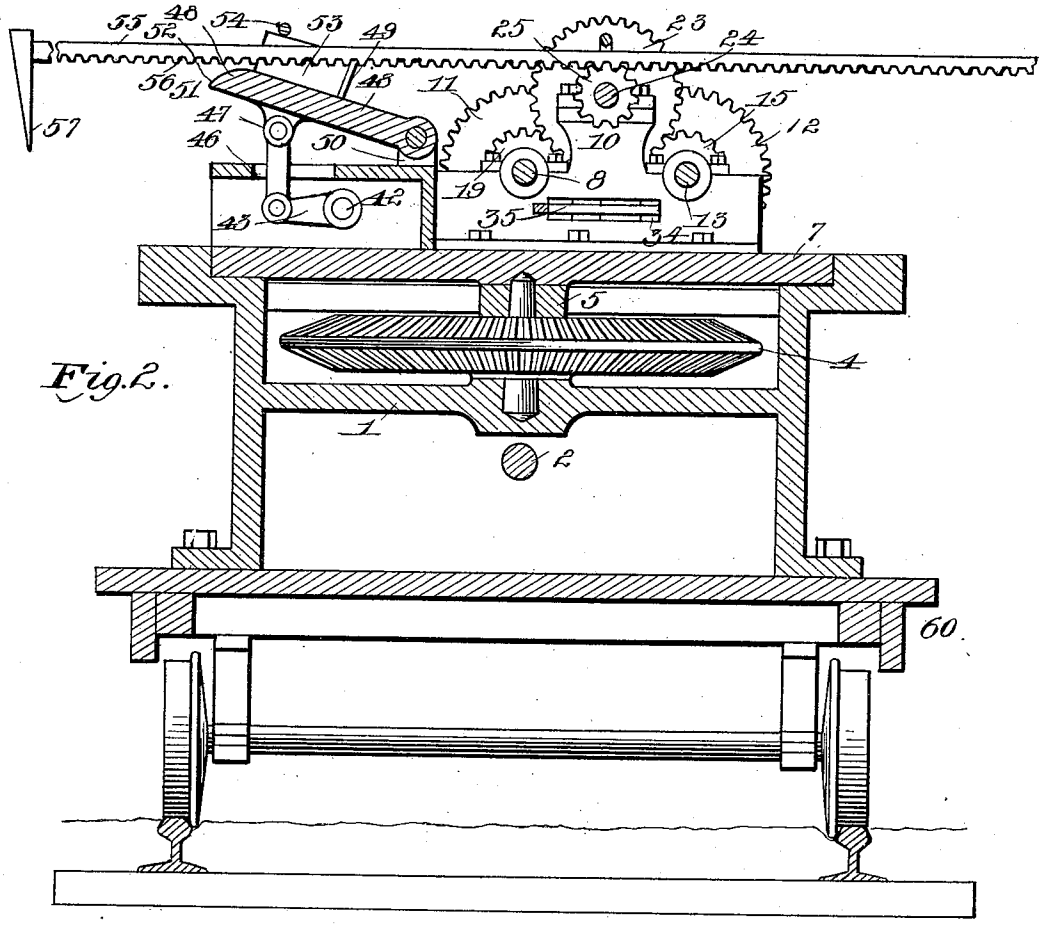
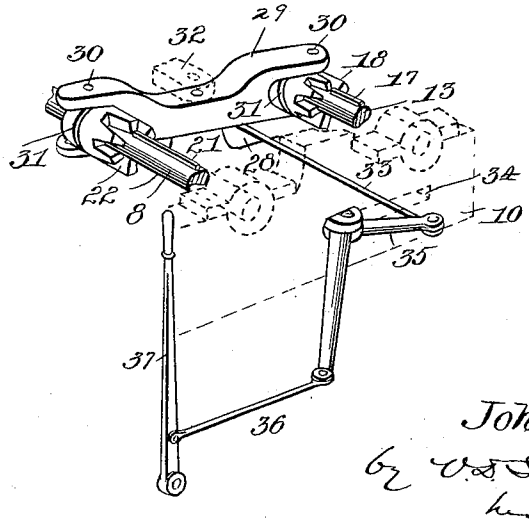


Fig. 2.

Fig. 4.



WITNESSES

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No. 621,663. Patented Mar. 21, 1899.

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COKE DRAWER.

(Application filed Aug. 12, 1897.)

(No Model.) 4 Sheets—Sheet 3.

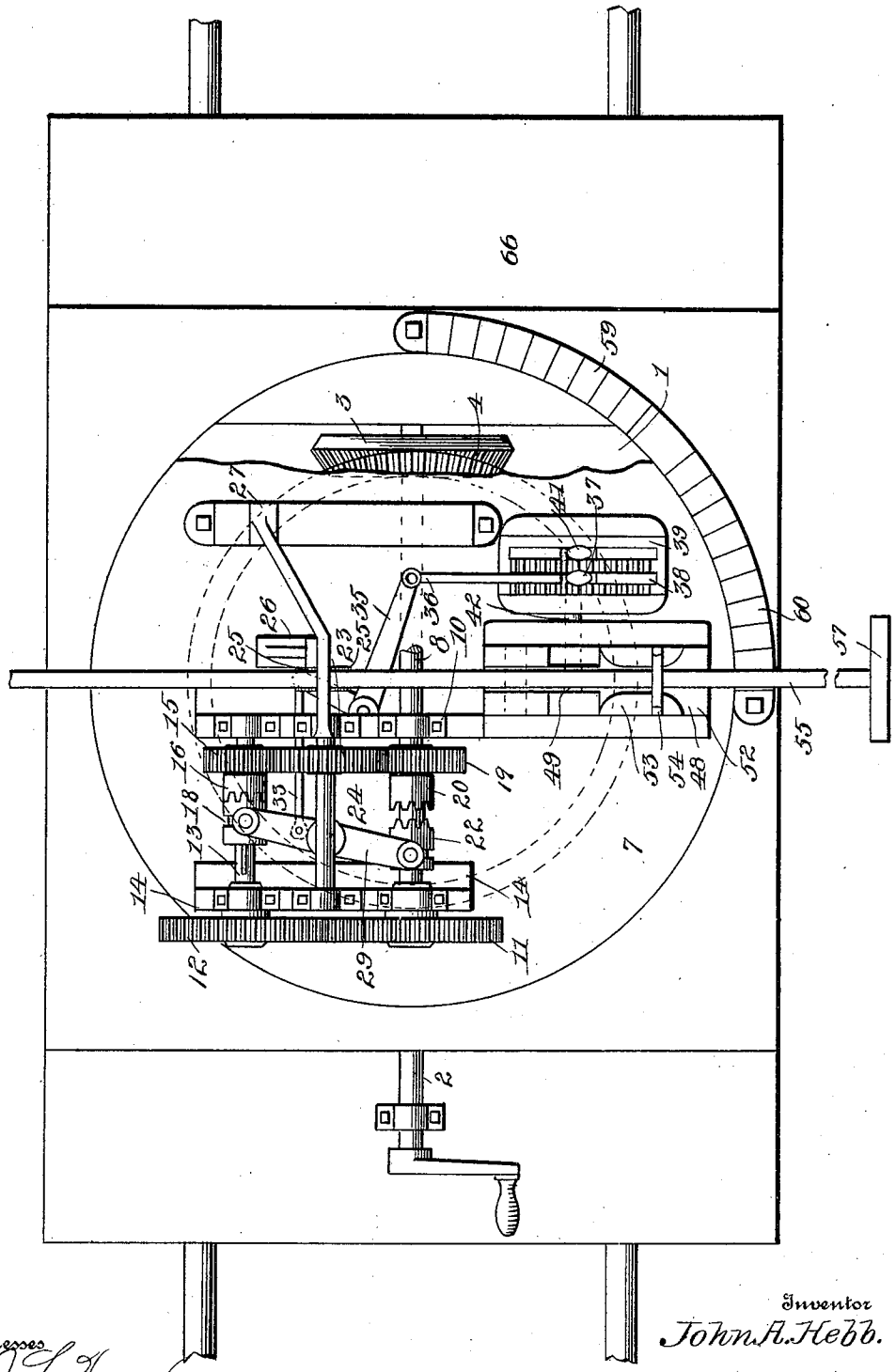

Fig. 3.

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COKE DRAWER.

(Application filed Aug. 12, 1897.)

(No Model.) 4 Sheets—Sheet 4.

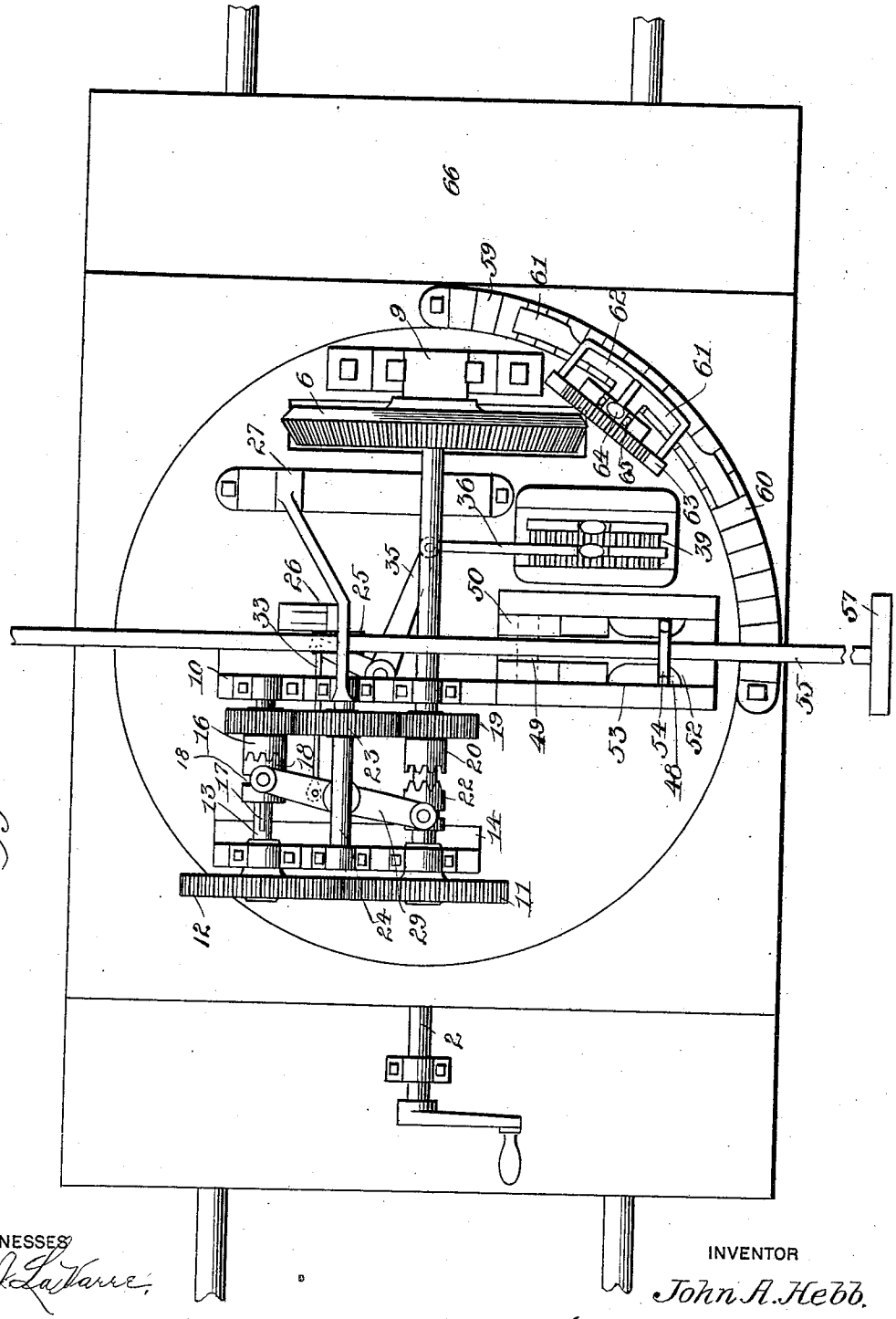

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN A. HEBB, OF BROWNSFIELD, PENNSYLVANIA.

COKE-DRAWER.

SPECIFICATION forming part of Letters Patent No. 621,663, dated March 21, 1899.

Application filed August 12, 1897. Serial No. 648,064. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. HEBB, of Brownsfield, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Coke-Drawers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to coke-drawers for use in connection with beehive and other ovens; and it consists, essentially, of a rotatable table-supporting operating mechanism including a reciprocating scraper that is positively actuated to engage and draw or drag the coke from one point to another.

The invention further consists of the details of construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

The object of the invention is to provide a drawer that may be operated in connection with or by steam, compressed air, or electricity and one that will work over the top of the coke in the same manner that it is worked by hand, the parts being simple and effective in their construction and operation, strong and durable, easily and readily applied in operative position, and comparatively inexpensive in the cost of manufacture.

In the accompanying drawings, Figure 1 is a perspective view of a coke-drawer embodying the invention. Fig. 2 is a transverse vertical section taken through the center of the device. Fig. 3 is a top plan view, partially broken away, showing the mechanism for operating the clutches. Fig. 4 is a detail perspective view of the clutch-operating mechanism and a portion of the shafts on which the clutch-sleeves are mounted. Fig. 5 is a top plan view of the entire device.

Referring to the drawings, wherein similar numerals of reference are employed to indicate corresponding parts in the several views, the numeral 1 designates an under platform, where the power is attached, and extending therethrough is an operating-shaft 2, mounted in suitable bearings and adapted to be actuated by any preferred form of motive power. The said shaft 2 has a pinion 3 secured adjacent to one end thereof, which passes through a slot in the said platform and meshes with the under side of a double gear 4, Fig. 2, horizontally disposed and resting upon the upper side of said platform. The said gear 4 is supplied with stub-shafts having bearing in the platform 1 and also in a horizontally-disposed bearing-bracket 5, and meshing with the upper side thereof is a vertically-disposed bevel gear-wheel 6, Fig. 1, extending through a slot in a rotatable table 7 and mounted upon a shaft 8, having bearing at its opposite ends in journal-supports 9 and 10. On the end of the shaft 8 opposite to that on which the gear 6 is mounted a pinion 11 is secured and meshes with a second pinion 12, keyed to the outer end of a counter-shaft 13, Figs. 2 and 3, also having bearing in the journal-support 10 and in an inner similar support 14. On the said counter-shaft 13 a smaller pinion 15 is loosely mounted and has a clutch-collar 16 attached thereto. The shaft 13 is also supplied with oppositely-disposed feathers 17, which are engaged by grooves in a clutch-sleeve 18, Fig. 4. In like manner the shaft 8, Fig. 3, has a loosely-mounted pinion 19 thereon, supplied with a clutch-collar 20, and adjacent to said pinion 19 the said shaft is also supplied with feathers 21, Fig. 4, which relatively coact with the grooves of a clutch-sleeve 22, and by means of the said clutch-collars and sleeves the motion of the shafts 8 and 13 may be transmitted to the pinions 15 and 19 when the said clutch-sleeves are operated to engage the clutch-collars in a manner which will be readily understood. The said clutch collars and sleeves are to be constructed to interlock in any of the well-known forms of such devices, and meshing with the said pinions 15 and 19 is a gear 23, Figs. 1 and 3, keyed to a shaft 24, also having bearing in the journal-supports 10 and 14 above the level of the shafts 8 and 13, Fig. 2, and in a plane intermediate of the same. The end of the shaft 24, Fig. 2, extends beyond the journal-support 14, and thereon is also keyed a pinion 25, and extending from the rotatable table 7 is a guard-standard 26, Figs. 1 and 3, which is suitably braced and stands adjacent to the outer face of the pinion 25 for a purpose, being held in this position, as stated, by braces,

which are connected to the journal-support 14 and also to a support 27, extending across a portion of the said table.

Near the journal-support 10 a bolster 28, Fig. 4, is mounted, and thereto is pivotally connected a double yoke 29, having its opposite ends bifurcated and supplied with inwardly-projecting pins 30, which engage grooves 31 in the clutch-sleeves 18 and 22. To assist in the pivotal attachment of the said yoke 29, and also to sustain it in proper position relatively to the operating-tension brought to bear thereupon, an arm 32 extends inwardly in a horizontal plane from the journal-support 10 and over the upper part of a depressed portion of the said yoke, and said arm has seated thereon a pivot-pin, which passes into the said yoke. To the bottom of the said yoke, nearer one end thereof, a link-rod 33 is secured, and at its opposite end passes through a slot 34, Fig. 2, in the journal-support 14 and is attached to the short arm of a bell-crank lever 35, also mounted in said slot, and to the longer arm of the said bell-crank lever a second link-rod 36, Fig. 3, is connected at its rear end and at the forward end attached to an operating-lever 37, mounted in one of the slots 38 of a standard 39, having upper segmental toothed edges, and in connection with the said lever 37 is a spring-actuated gripping-dog 44, Figs. 1 and 3, adapted to take into the adjacent teeth of one of the said segmental edges to sustain the adjustment of the said lever. In the said standard 39 a second lever 41 is also mounted and operates a shaft 42, which has a crank-arm 43 thereon, situated to one side of the said standard. The lever 41 is also supplied with a spring-actuated dog 44, Fig. 1, adapted to engage one of the adjacent segmental toothed edges of the standard to hold the said lever and the parts which it controls in the position desired. Adjacent to the standard is a bed 45, having a slot 46, Fig. 2, therein, and through the said slot movably extends a connecting-link 47, pivotally attached at its upper end to the under side of a forward portion of an adjusting-seat 48. The said adjusting-seat comprises a shank 49, which extends rearwardly and is pivotally supported between two lugs 50, disposed at the rear of the bed 45. The front portion of the said seat is in the form of an extended bed 51, Fig. 2, having a front downwardly-curved edge 52, and in rear of said edge are upwardly-projecting guides 53, having front and rear inner beveled ends, and across the top of the front portions of the said guides extends a keeper 54. The said seat 48 supports and controls the elevation of a scraper 55, consisting of an elongated bar with serrations or teeth 56 on the lower edge thereof. The said teeth 56 engage the teeth of the pinion 25, and by the operation of the said pinion the scraper is drawn inwardly or moved outwardly through its seat, and by operating the lever 41 the said seat may be raised or lowered in accordance with the elevation of the coke to be engaged by the outer end of the scraper. Secured on the outer end of the said scraper is a head 57, simulating a hoe or drag and having a front lower beveled portion 58 to offer as little resistance as possible in the forward movement of the scraper and the head against the coke, and also to reduce the lower edge of the said head in order that a proper penetration between the pieces of coke may be accomplished.

The table 7 is rotatable, as previously set forth, so that the position of the scraper may be changed relatively to the coke in the oven, and the said table is adapted to be turned by hand. On the upper platform or support, in which the said table is mounted, a curved holding-bar 59 is secured, which extends around the said table a suitable distance and has on the upper surface, near opposite ends thereof, ratchet-teeth 60, which are reversely arranged and engaged by elongated dogs 61, which are movable through a keeper 62, attached to a support 63, and which acts to hold the said dogs downwardly and in engaging position with the said teeth 60. The dogs 61 are pivotally attached to a lever 64, and the latter is movably connected to the said support 63 and may have a suitable locking device connected thereto for holding it in a desired adjustment, as well as other appurtenances to facilitate its operation. The dogs 61 also have connected thereto operating-arms 65, by means of which they may be disconnected from the teeth 60 when it is desired to materially shift the table 7. Under ordinary conditions, however, the said table 7 may be slightly moved by operating the lever 64 and changing the position of the scraper on the surface of the coke.

The clutch-sleeves 18 and 22 are actuated by the lever 37, through the bell-crank lever 35 and the yoke 29, to either start or stop the mechanism.

The device as an entirety will be mounted on a truck 66, movable upon a track of preferred gage.

The lower part of the machine is preferably constructed of wood, while the mechanism exposed above is of metal, and the several wheels and other devices can be varied in dimension to suit the work or application of the machine or for any other purpose. It will also be understood that the scraper may be elongated or shortened and the gear changed to suit the work and conditions of the coke-yard.

By the arrangement of the clutches as set forth means are provided for changing the stroke of the scraper from an outward to an inward direction, and to accomplish this end the lever 37 is operated to first throw one clutch in connection with its clutch-collar and the other outward from engagement with its clutch-collar without reversing the main driving mechanism.

It is obviously apparent that many minor changes in the details of construction and ar-

rangement of the several parts may be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

Having thus described the invention, what is claimed as new is—

1. In a coke-drawer, the combination of a rotatable table, an actuating-lever and dogs for operating said table and supported thereby, a segmental rack-bar engaged by said dogs, a vertically-adjustable reciprocating scraper supported by said table, and mechanism carried by said table for operating said scraper, substantially as described.

2. In a coke-drawer, the combination of a driving-shaft carrying a pinion, a double-gear wheel engaged by said pinion, a rotatable table above said double gear, operating-gear on said table controlled by and having a part thereof in mesh with said double gear, a reciprocating scraper carried by and moving with said table, clutch mechanisms intermediate said double gear and scraper, and means for vertically adjusting said scraper, substantially as described.

3. In a coke-drawer, the combination of a rotatable table, shafts carrying operating-gears, and pinions mounted on and movable with said table, clutch mechanisms for said gears and shafts, a reciprocating scraper operated by said gears, one of which is in direct mesh with said scraper, an adjustable seat supporting said scraper and adapting it to be adjusted vertically, mechanism carried by the rotatable table for adjusting it on its vertical pivot, and mechanism also carried by said table for controlling the seat and clutches, substantially as described.

4. In a coke-drawer, the combination of a rotatable table, supporting gears and pinions and the shafts on which the same are mounted journaled on said table, a plurality of said pinions having clutch-collars, adjustable clutch-sleeves for engaging said pinions with their shafts, a pivoted double yoke for operating said clutch-sleeves, a lever connected to said yoke, a scraper controlled in its movements by the change of position of the clutch-sleeves, and a double gear and its actuating-pinion for actuating the gearing carried by said table, all substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN A. HEBB.

Witnesses:
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W. H. KENNEDY.