

No. 707,686

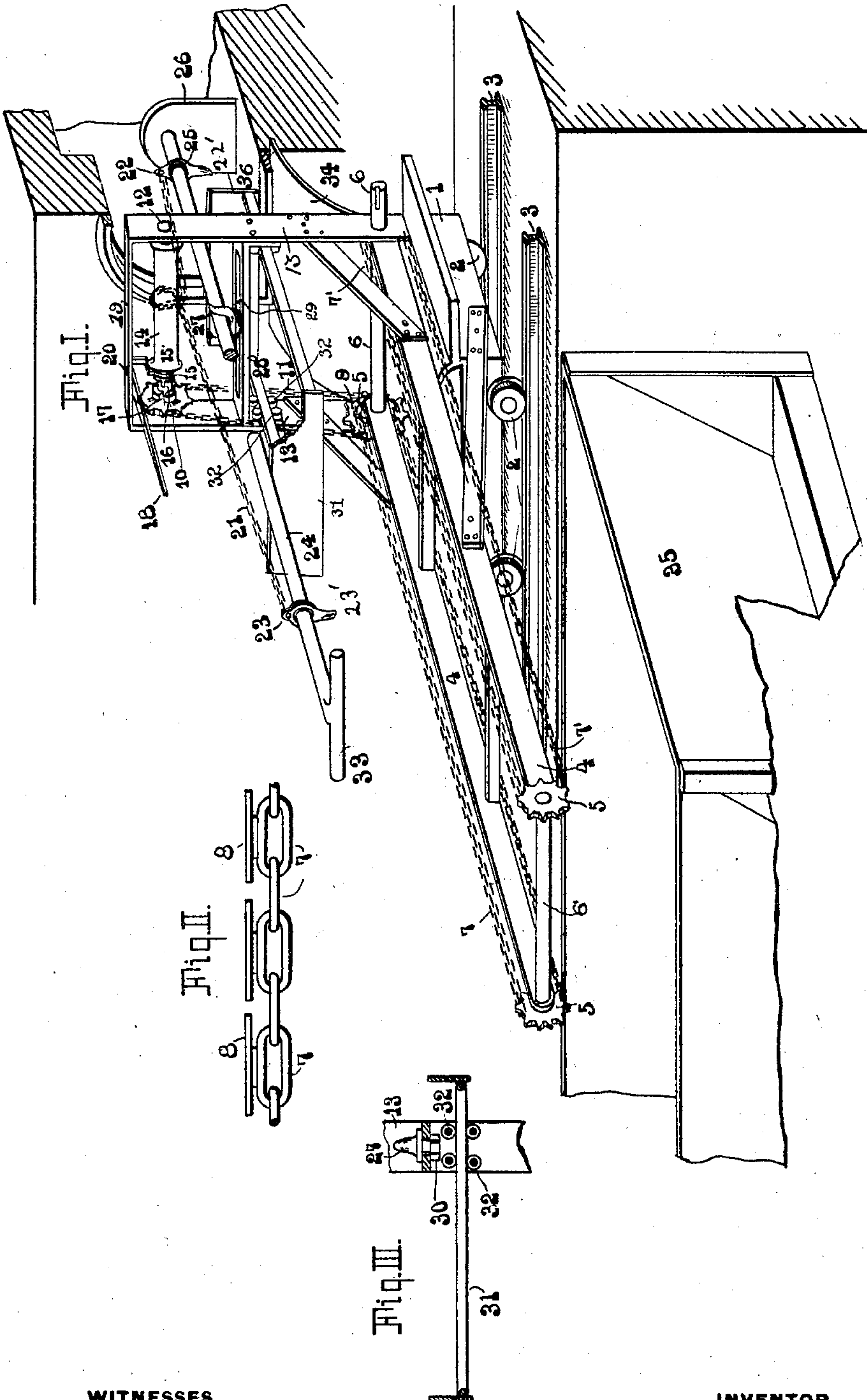
Patented Aug. 26, 1902.

D. FERGUSON.
COKE DRAWER.

(Application filed Apr. 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

Geo. H. Harvey.
M. W. Carkey.

INVENTOR

David Ferguson
by Wm. L. Pierce,
his Attorney.

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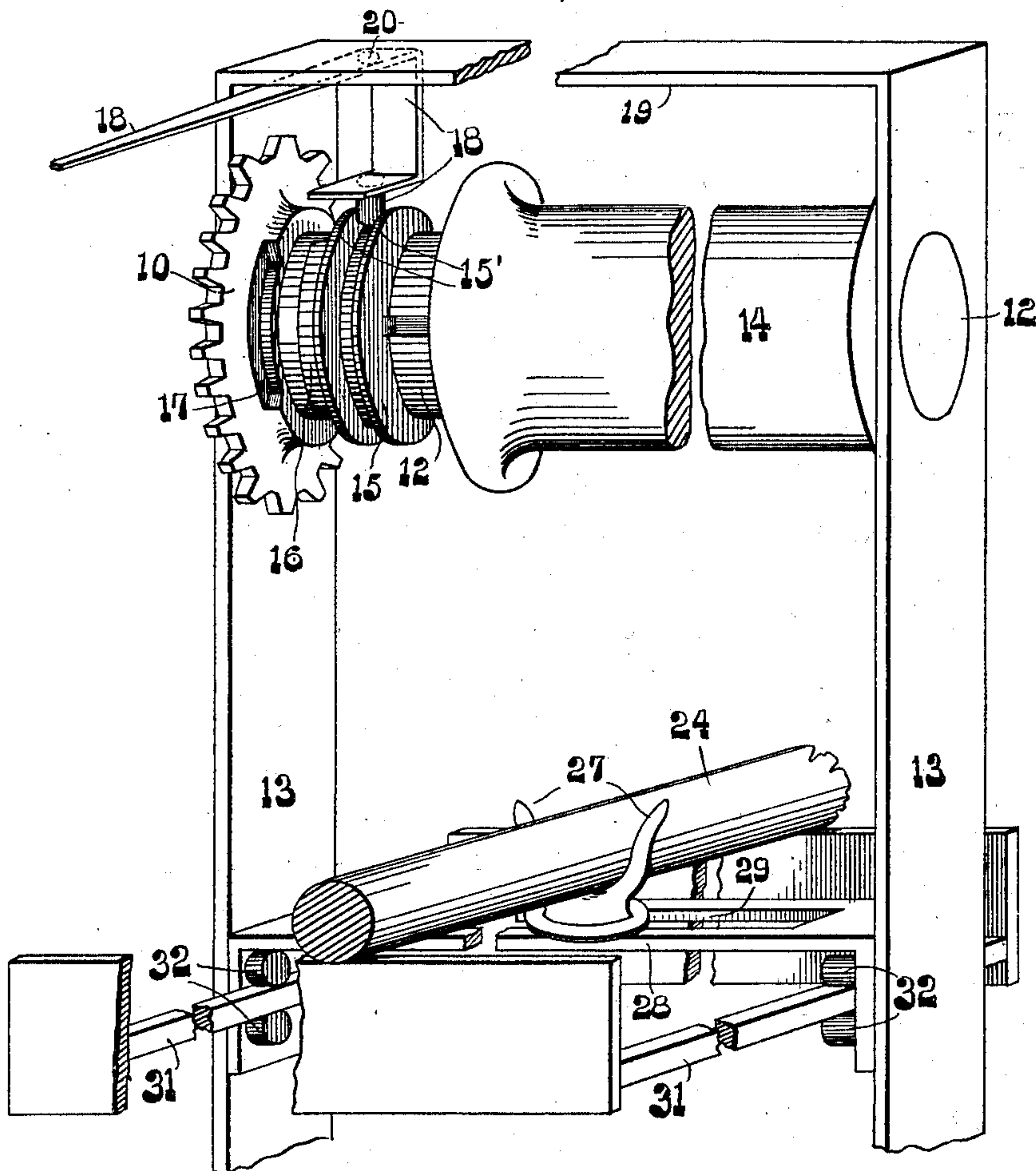
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Fig. IV.



WITNESSES

Geo. T. Hawley.
F. N. Barber.

INVENTOR

David Ferguson.
by Wm. L. Pierce,
his Attorney.

UNITED STATES PATENT OFFICE.

DAVID FERGUSON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO OLIVER G. FERGUSON.

COKE-DRAWER.

SPECIFICATION forming part of Letters Patent No. 707,686, dated August 26, 1902.

Application filed April 1, 1901. Serial No. 53,773. (No model.)

To all whom it may concern:

Be it known that I, DAVID FERGUSON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Coke-Drawers, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure I shows in perspective and partly in section the general arrangement of a coke-oven coke-drawer, the coke-conveyer plates being omitted and car below the horizontal plane of said conveyer.

Fig. II is a detail side elevation of endless-chain conveyer, showing plates attached to said chain. Fig. III is a detail vertical section showing the movable rest for the reach-rod of the coke-drawer. Fig. IV is an enlarged broken perspective showing the drum with its clutch and the reach-rod with its rest.

The general object of my invention is to provide means for the expeditious removal and handling of coke from the oven to its depository.

Heretofore in the withdrawal of coke by hand-power from the oven the reach-bar was inserted, the end blade worked down behind a small section of the coke, thereby loosening that portion and then withdrawing it, and the operation repeated until the contents were withdrawn.

I have devised in this invention means that are applicable to all styles of ovens. Besides, the operator has perfect control in the oven over the insertion, locating, affixing, and withdrawal of the coke-drawer.

In the accompanying sheet of drawings, 1 represents a truck mounted on wheels 2 2, said wheels being mounted on rails 3 3.

4 4 are extension-supports for sprocket-wheels 5 5, said wheels being secured to shafts 6 and 6', which revolve in bearings in supports 4 4. Shaft 6 is the driving-shaft and can get its power from any suitable source.

7 7 are endless chains. Mounted on and secured to said chains are plates 8 8.

9 is a sprocket-wheel secured to shaft 6.

10 is an idler sprocket-wheel connected by endless chain 11 to wheel 9.

12 is a shaft secured to standards 13 13.

Secured on shaft 12 is winding-drum 14.

15 is a lateral movable collar keyed on shaft 12 and having projection 16, which engages the slot 17 of the sprocket-wheel 10.

18 is a shifting-bar loosely secured between flanges 15' 15' on the collar 15 and secured to the cross-head 19 by means of a loose pin 20, whereby the shifter-handle when moved laterally will through its fulcrum-pin 20 move the collar along the shaft until the projection 16 enters the slot 17.

21 is a chain or flexible device wound around the drum 14 and its ends secured to loosely-mounted lugs 22 and 23 on reach-rod 24. Collars 25 25, only one of which is shown, are rigidly secured to the reach-rod 24.

26 represents the end blade of the reach-rod.

27 is a forked bearing and capable of a movement along horizontal support 28, lying beneath the drum 14 and secured to standards 13 13. The forked bearing is secured to support 28 through slot 29 by means of nut 30. (Shown in Fig. III.)

The reach-rod 24 has secured thereto the cross-handle 33, by which it is pushed or driven toward the oven.

In Fig. III, I have shown a movable rest 31, supported between rolls 32 32, carried on the inner sides of the standards 13 13. The downward projections 22' and 23' on lugs 22 and 23 act as means to push the rest either forward or backward.

In the initial operation of my invention and after the truck 1 is in alinement with the oven-opening 36 reach-rod 24 would be revolved until the blade pointed upward. The operator would then push the reach-rod into the oven over the coke to the desired point. He would then by means of the leverage gained by the handle-bar and the rod's fulcrum in forked bearing 27 turn the blade in the heated coke and force it by lateral pulls on the handle-bar into position behind the coke. It is then ready to be withdrawn. Shifting-bar 18 is pushed over until projection 16 of collar 15, sliding on a horizontal key, engages slot 17 of loose sprocket-wheel 10. The engagement causes shaft 12 and winding-drum 14 to revolve, winding the

chain 21, so that it pulls on the lug 22, which in turn pulls through the collar 25 on the inner end of the reach-bar, gradually drawing the bar and coke outward until the blade 5 pushes the coke upon the chute 34. Shifting-bar 18 is then reversed, stopping the revolutions of shaft 12. When the rod 24 has been pushed into the oven, the projection 23' has also pushed in the rest 31, so that the heavy 10 forward end of the rod may rest thereupon while the operator is moving it from side to side or turning it over or otherwise operating it. It will be seen that the handle 33 is very close to the fulcrum of the rod 24 when the 15 latter is shoved into the oven, making it very hard to hold up the inner end and at the same time properly operate it. When the rod is withdrawn, the projection 22' pushes the rest 31 back to its normal position out of the way 20 of the coke in front of the blade 26. The operation can be repeated if it is desirable to make more than one draw to an oven's charge. The coke slides down chute 34 and falls upon plates 8 8, which carry it forward and de- 25 posit it in the car 35. Since the plates 8 8 do not abut against each other, they afford means for screening or freeing the ashes and small pieces of coke from the general bulk of coke before reaching car 35.

30 Instead of one end of chain 21 being secured to the reach-bar at lug 23 it could be secured to the drum, thereby winding directly upon the drum from the end secured at lug 22.

35 Having described my invention, I claim—

1. In a coke-drawer, a frame, a drum mounted therein, a reach-rod, a flexible device operatively connecting the drum and the rod, a 40 conveyer, disconnectible driving connections between the conveyer and the drum, and means secured to the rod to which power may be applied for driving the rod and the drum when the rod is entering the coke-oven.

2. In a coke-drawer, a frame, a drum mounted therein, a support having a slot parallel to 45 the axis of the drum, a swiveled forked bearing adjustable in the slot, an axially-rotatable reach-rod in the forked bearing, a flexible device on the drum and secured to the reach- 50 rod, and means on the latter to which power may be applied for driving the rod and the drum when the rod is entering the coke-oven.

3. In a coke-drawer, a frame, a winding-drum therein, a support beneath the drum, a 55 swiveled bearing adjustable on the support

independently and longitudinally of the axis of the drum, a reach-rod seated in the bearing, a flexible device operatively connecting the drum and the rod, and means for operating the drum. 60

4. In a coke-drawer, a frame, a winding-drum, and a support independently mounted therein, a swiveled forked bearing adjustable along the support independently and longitudinally of the axis of the drum, an axially- 65 rotatable reach-rod seated in the forked bearing, a flexible device wound on the drum and having its ends fastened to the reach-rod, and means for moving the rod longitudinally.

5. In a coke-drawer, a frame, a drum and 70 a slotted support independently mounted therein, a swiveled forked bearing adjustable in the slot of the support independently and longitudinally of the axis of the drum, an axially-rotatable reach-rod seated in the 75 forked bearing, a flexible device wound on the drum, and having its ends fastened to the rod, and means for longitudinally moving the rod.

6. In a coke-drawer, a reach-rod, a fulcrum- 80 support therefor, and a slidable rod-rest below the same.

7. In a coke-drawer, a reach-rod, a fulcrum-support therefor, a slidable rod-rest below the rod, and means on the rod for sliding the rest. 85

8. In a coke-drawer, a reach-rod, a support therefor, a slidable rod-rest and projections on the rod for sliding the rest.

9. In a coke-drawer, the combination of a rotatable reach-rod, said rod having a down- 90 wardly-projecting end, a support for the rod, a movable rod-rest below said rod, a drum, a chain secured to said drum and to the forward end of said reach-rod, and means for withdrawing said rod. 95

10. In a coke-drawer, a power-driven endless conveyer, a winding-drum, a driving device loose thereon and geared to the conveyer, a collar slidably held thereon, means for interlocking and disconnecting said device and 100 collar, a reach-rod, a flexible device secured to said rod and wound on the drum, a blade on the rod, and a chute leading to the conveyer.

Signed at Pittsburg this 19th day of March, 1901.

DAVID FERGUSON.

Witnesses:

GUS H. HARVEY,

G. W. LERCH.