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H. KING.

COKE PULLER.

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NO MODEL.

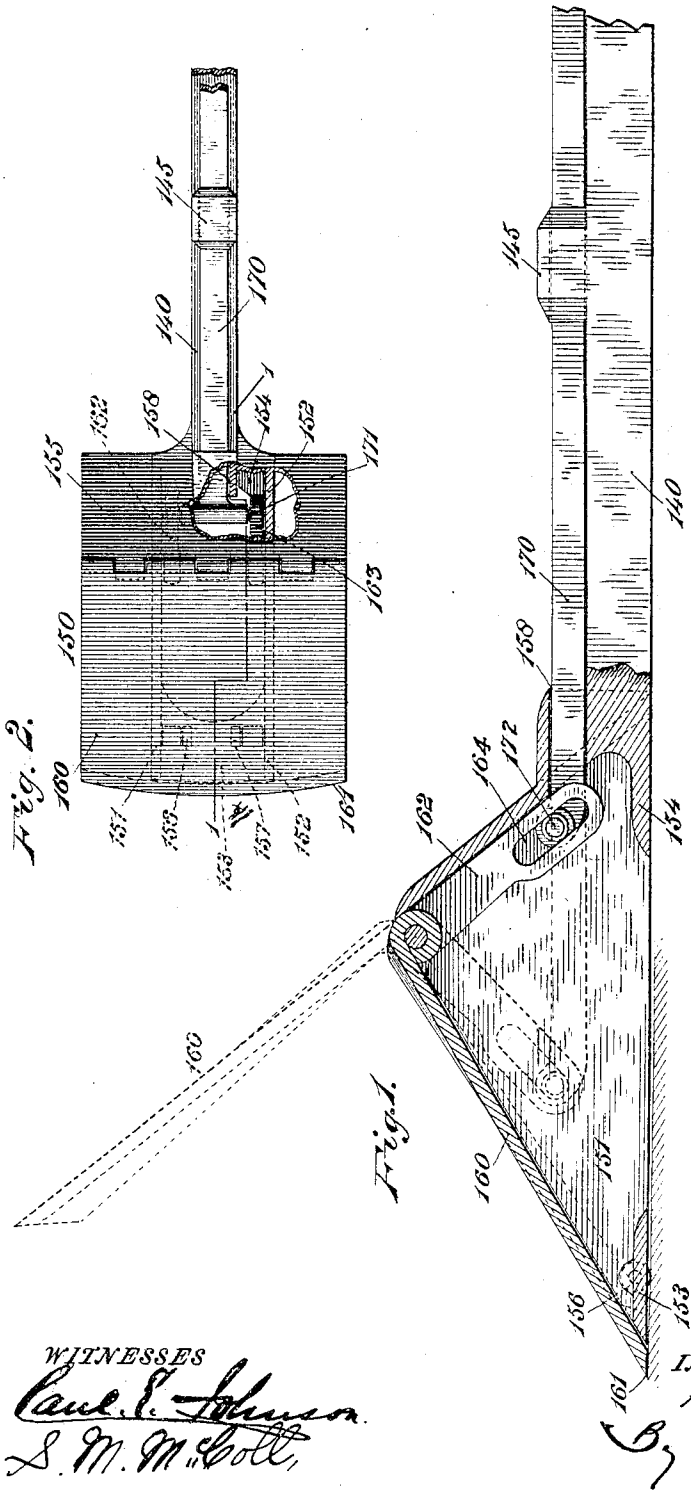


Fig. 2.

Fig. 1.

WITNESSES

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UNITED STATES PATENT OFFICE.

HARRY KING, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO JAMES ELLWOOD JONES, OF SWITCHBACK, WEST VIRGINIA.

COKE-PULLER.

SPECIFICATION forming part of Letters Patent No. 775,221, dated November 15, 1904.

Application filed April 19, 1904. Serial No. 203,928. (No model.)

To all whom it may concern:

Be it known that I, HARRY KING, a citizen of the United States of America, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Coke-Pullers, of which the following is a specification.

This invention relates to that class of coke-pullers designed to be operated by machine for pulling coke from coke-ovens, which includes an underworking scraper operative on the instroke to loosen the caked coke for withdrawal and a swinging coke-grasper adjustable into position to grasp and hold the loosened coke over and above the scraper on the outstroke.

The object of the invention is to provide simple means for operating the swinging plate.

Figure 1 of the accompanying drawings represents a vertical longitudinal section of this coke-puller on line 1 1 of Fig. 2. Fig. 2 represents a plan view thereof with a part broken out.

The same reference-numerals indicate corresponding parts in both the figures.

This coke-puller is designed to be mounted on a suitable machine traveling on a track located in front of the coke-ovens and preferably outside the track on which the coke-receiving cars travel. This machine-car will carry suitable mechanism for thrusting the coke-puller into the oven and retracting it therefrom and for swinging it laterally to gather the coke from opposite sides of the oven—such, for instance, as that shown in United States Patent No. 731,911 to James Ellwood Jones, dated June 23, 1903.

The coke-puller comprises a coke loosening and discharging scraper 150, disposed at the outer end of a shank-bar 140, which is reciprocated and oscillated from the machine-car, as aforesaid. The body of the scraper is in the form of a wedge having a gradually-inclined or beveled front face adapted to act as a coke-loosening surface on the instroke and an abrupt rear face adapted to act as a coke scraping or pulling surface on the outstroke. When made hollow, the scraper-body may comprise longitudinal webs, as 151 and 152, a bottom web 153, connecting the front ends of said longitudinal webs, a bottom web 154, connecting the rear ends of said bottom webs, and a back plate 155, constituting the scraper-surface. Puller-lugs, as 156 and 157, may be attached to the bottom—as, for instance, to the bottom plate 153—to facilitate the movement of the coke-puller along the bottom of the coke-oven.

The coke-grasper is shown in this instance in the form of a swinging plate 160, hinged to the upper angle of the scraper 150 and extending in a transverse direction to the bar 140. The front edge 161 of this plate is preferably beveled to adapt it to the bottom of the oven and is preferably arc-shaped to conform to the curvature of the oven-wall. A rigid arm 162 is integral with or attached to the under side of the swinging plate near its rear edge and extends downward therefrom, preferably at right angles thereto and within the body of the scraper, and in the preferable construction two such arms are provided, in which case the arm 162 is located on one side of the center of the scraper and the arm 163 on the other side. An actuating slide-bar 170, also adapted to be reciprocated from the machine-car, has a pin-and-slot connection with the arm or arms 162 and 163 of the swinging plate 160, the slots, as 164, being preferably in the arms and the pins, as 172, at the outer ends of a T-head 171 at the front end of said bar. This slide-bar 170 passes through a slot 158 in the back plate of the scraper and through a guideway 145, mounted on the bar 140. When the slide-bar 170 is drawn backward, the swinging plate 160 is closed over the front of the wedge-shaped body of the scraper and constitutes the active lifting-surface thereof, and when the bar 170 is thrust forward said plate is swung into upright or approximately upright position, as shown in Fig. 1, where it is adapted to grasp and hold the mass of coke above the scraper.

In the use of this invention when the oven is ready to be discharged the coke-puller is thrust into the oven along the bottom thereof a sufficient distance to make a proper drawing of the coke. On this instroke the plate 160, constituting the beveled front face of the scraper, is in lowered position and operates as a wedge to lift the coke under which it passes and to loosen such coke from the caked mass of coke within the oven. As the scraper moves inward the main portion of the loosened coke falls behind the back plate 155, and at the inner end of the stroke a small portion is disposed directly over the front of the scraper. To secure the withdrawal of the latter portion, the rod 170 is thrust forward after the instroke of the coke-puller is completed, and the plate 160 is thereby swung upward and held in open position, whereby the coke immediately above the scraper is held during the outstroke and withdrawn from the oven, together with the coke behind the scraper. This operation of the coke-puller is especially advantageous when the instroke terminates near the farther wall of the oven, as it cleans up and withdraws the coke adjacent thereto.

I claim as my invention—

1. A coke-puller comprising an underworking scraper adapted to operate on its instroke to loosen coke for withdrawal and on its outstroke to withdraw loosened coke, a swinging coke-grasper hinged to said scraper and provided with a rigid arm extending downward within said scraper from the pivot of said coke-grasper, and a slide-rod having a pin-and-slot connection with said rigid arm for swinging it into open and closed position.

2. A coke-puller comprising an underworking scraper adapted to operate on its instroke to loosen coke for withdrawal and on its outstroke to withdraw loosened coke, a swinging coke-grasper hinged to said scraper and provided with a rigid arm extending downward within said scraper from the pivot of said grasper, and provided with a slot at its lower end, and a slide-rod provided with a pin adapted to engage the slot of said arm for swinging said coke-grasper into open or closed position.

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Witnesses:
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