(No Model.) 2 Sheets—Sheet 1.

R. P. DOLAN.

APPARATUS FOR TRANSFERRING BLOOMS.

No. 379,507. Patented Mar. 13, 1888.

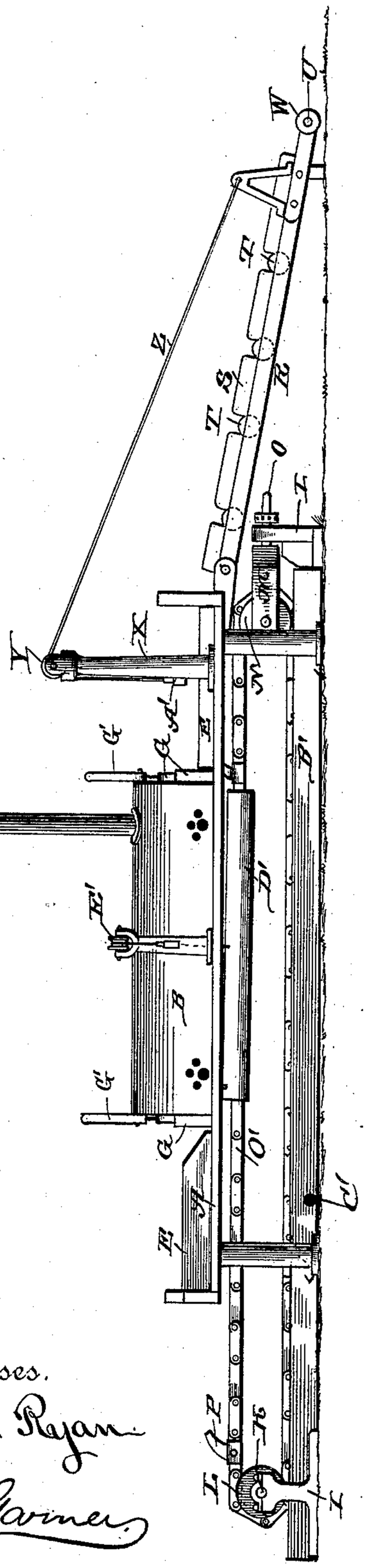

Fig. 1.

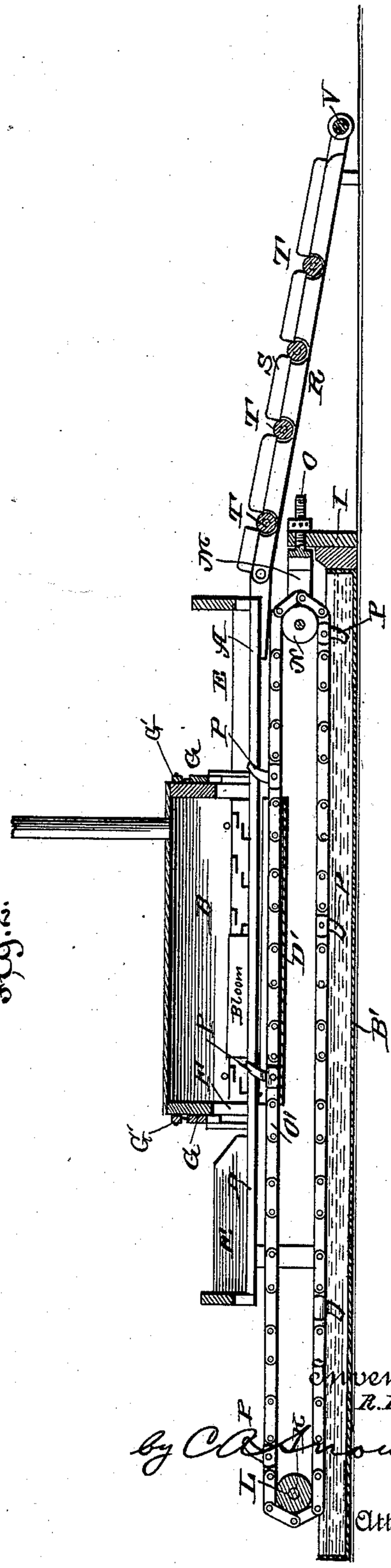

Fig. 2.

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Fig. 3.

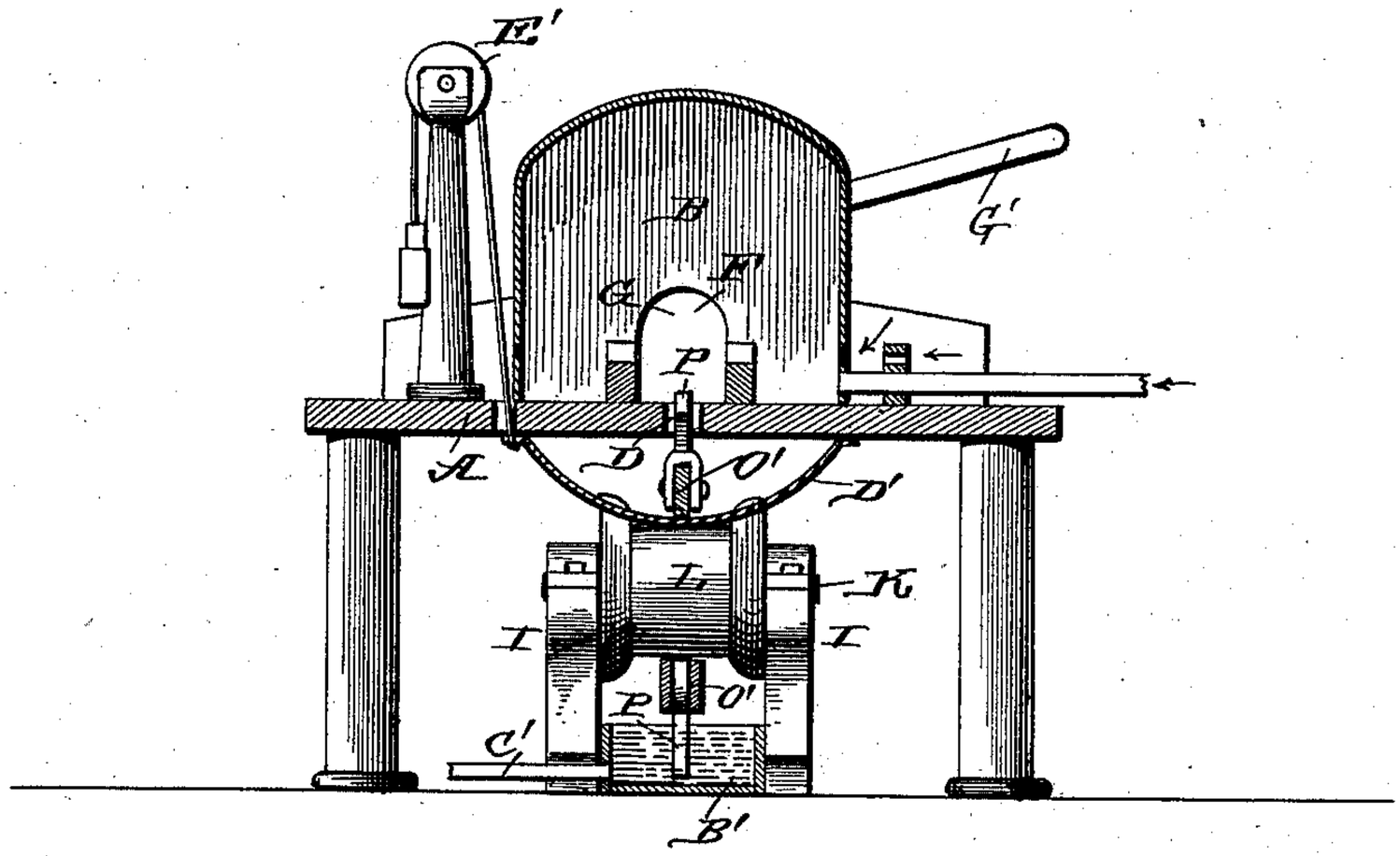


Fig. 4.

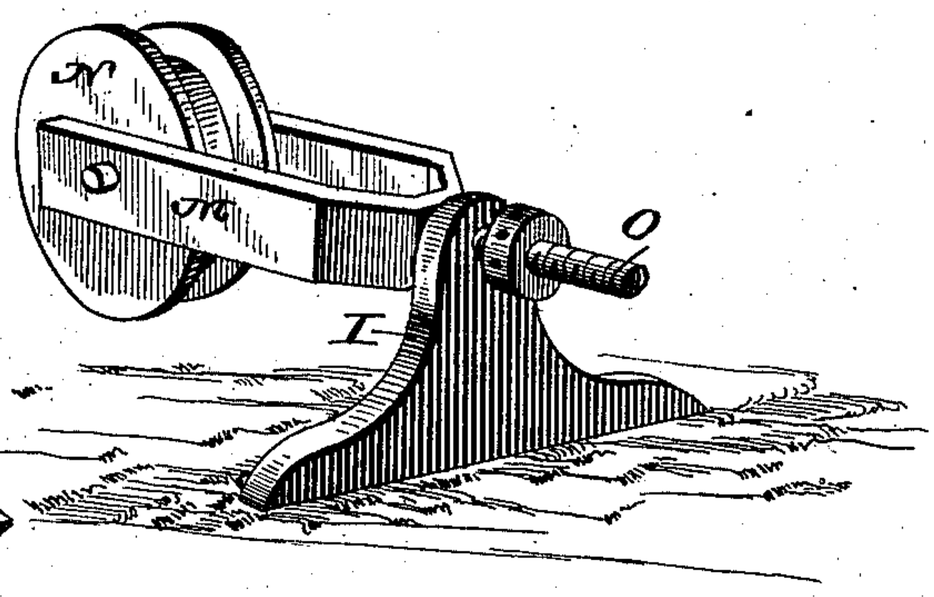
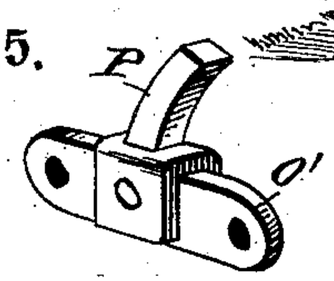


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT P. DOLAN, OF STEELTON, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO FREDERICK E. SMITH, OF SAME PLACE.

APPARATUS FOR TRANSFERRING BLOOMS.

SPECIFICATION forming part of Letters Patent No. 379,507, dated March 13, 1888.

Application filed August 20, 1887. Serial No. 247,475. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. DOLAN, a citizen of the United States, residing at Steelton, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Transferring Blooms, of which the following is a specification.

My invention relates to an improvement in apparatus for transferring blooms or ingots from one mill to another and for heating the blooms during the passage; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of an apparatus embodying my improvements. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical transverse section, taken on the line *x x* of Fig. 1. Fig. 4 is a detail view of the standard and support for pulley-block. Fig. 5 is a detail view of one of the chain-links.

A represents a platform which is elevated at a suitable distance from the ground and is arranged between the mills. (Not shown.) On the upper side of the platform, at the center thereof, is a gas-furnace, B, having ports in its side, through which air and gas are admitted in suitable quantities to promote combustion of the gas inside the furnace. A longitudinal opening, D, extends centrally throughout the entire length of the platform A and through the lower side of the furnace. On opposite sides of this opening, beyond the ends of the furnace, are vertical guide flanges or ways E. In the ends of the furnace and communicating with the guideways are openings F, which are adapted to be opened and closed by means of vertically-movable doors G. At a suitable distance from the opposite end of the platform is a pair of standards, I, in which is journaled a shaft, K, having a pulley, L.

M represents a block in which is journaled a pulley, N, which is similar to the pulley L. The said block has an outwardly-extending arm, O, which passes through the upper end of the standard I and is provided with a clamping-nut, by means of which the block may be adjusted longitudinally toward or from the standard.

O′ represents an endless chain which connects the pulleys L and N. The upper side of this chain extends under the platform A in line with the opening D therein. At suitable regular distances apart the links of the chain are provided with outwardly-extending lugs P, which lugs are adapted to travel through the opening D in the platform and in the bottom of the furnace when the chain is in motion.

R represents an inclined chute which is pivoted to one end of the platform A. The said chute is provided with a guideway S, which extends longitudinally through the center of the same and communicates with one end of the guideway E. In the said guideway S is journaled a series of transverse rollers, T. At the lower end of the chute is journaled a transverse shaft, U, which is provided with a drum, V, in line with the lower end of the guideway S, and has a pulley, W, at one end.

X represents the standard or post which rises from one end of the platform A, and has a pulley, Y, journaled in its upper end. A rope or chain, Z, is attached to a standard at the outer end of the inclined chute, passes over the pulley Y, and is provided at its depending end with a weight, A′. By means of this rope or chain the outer end of the chute may be raised when necessary.

B′ represents a water-trough, which is arranged vertically under the platform A and in line with the opening D therein. The said water-trough is supplied with water by pipes C′.

Under the bottom of the furnace is arranged a semi-cylindrical support, D′, which is hinged at one side, and has an elevating-rope attached to its free opposite side, and passed over a suitable pulley, E′, arranged on a post beyond one side of the furnace. By means of this rope the support may be turned up under the bottom of the furnace, so as to cause the same to raise the upper side of the chain, and thereby raise its lugs to work in and extend through the opening D and project above the platform.

When the rope is lowered, the support is turned down, so as to lower the upper side of the endless chain, and thereby withdraw its lugs from above the platform, where they will not be subjected to the heat in the furnace.

The doors G are controlled by levers G', which are adapted to be operated by hand and open and close the doors, or suitable operating mechanism may be provided for the doors and adapted to be automatically operated by the lugs on the chain, so as to open the doors of the furnace and permit the passage of the blooms into and out of the same.

The operation of my invention is as follows: The ingot or bloom *a* is deposited in one end of the guideway E, after being operated upon by one of the mills, and the endless chain is set in motion, thereby causing one of its lugs to engage the outer end of the ingot or bloom and slide the same longitudinally toward the furnace. Just before it reaches the furnace the lug engages the operating mechanism connected to the furnace-door and trips the same, so as to cause the door to move vertically and thereby permit the bloom to enter the furnace. Under the lower edge of the door are anti-friction rollers *b*, over which the bloom passes. As the bloom passes through the furnace it is thoroughly heated, and just before it reaches the opposite end thereof the door at the said end is also automatically opened to permit the bloom to pass through. The bloom continues to travel along the guideway E until it reaches the chute, when it slides downward in the same through the guideway S over the rollers T. As the lugs return with the lower side of the chain, they pass through the water in the trough B' and are cooled thereby.

Having thus described my invention, I claim—

1. The combination of the endless operating-chain having the lugs, the platform having the longitudinal opening arranged in line with the lugs and through which the latter pass, the heating-furnace arranged on the said platform and having the doors at its ends, and mechanism adapted to be automatically operated by the lugs to open and close the said doors, substantially as described.

2. The combination of the endless operating-chain having the projecting lugs, the platform having the longitudinal opening through which the lugs pass, the furnace on the upper side of the platform and with which the opening D communicates, and the holder D' on the lower side of the furnace to raise the upper side of the endless chain and support the same, for the purpose set forth, substantially as described.

3. The combination of the endless operating-chain having the lugs, the platform having the furnace thereon and provided with longitudinal opening extending through the platform and through the bottom of the furnace, and through which the lugs operate, for the purpose set forth, and the inclined chute at one end of the platform and provided with the rollers T, substantially as described.

4. The combination of the endless operating-chain having the projecting lugs, the platform having the longitudinal opening through which the lugs operate, the furnace on the upper side of the platform, and the water trough B, arranged at a suitable distance under the platform, and through which the lugs travel in their reverse movement, substantially as described.

5. The combination of the platform having the guideway E, the chute R, hinged to one end of the platform, the guideway S, arranged in line with the guideway E, the rollers T, arranged transversely in the guideway S, and means to raise and lower the same, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ROBERT P. DOLAN.

Witnesses:
JOHN A. HERMAN,
R. S. CARE.