

No. 702,084.

Patented June 10, 1902.

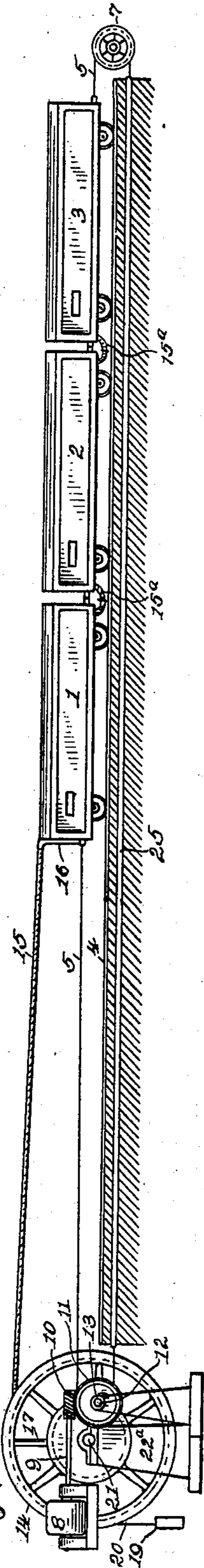
T. V. ALLIS.

SYSTEM FOR CONTINUOUS HEATING AND METAL ROLLING.

(Application filed Feb. 1, 1901. Renewed Apr. 30, 1902.)

(No Model.)

Fig. 1.



WITNESSES.

H. A. Lamb

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Fig. 2.

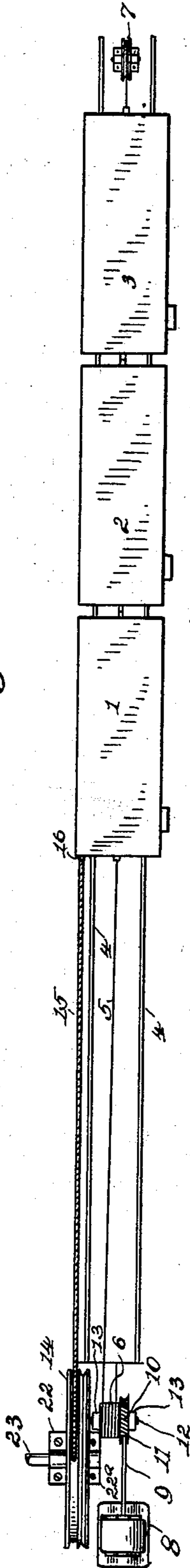


Fig. 3.

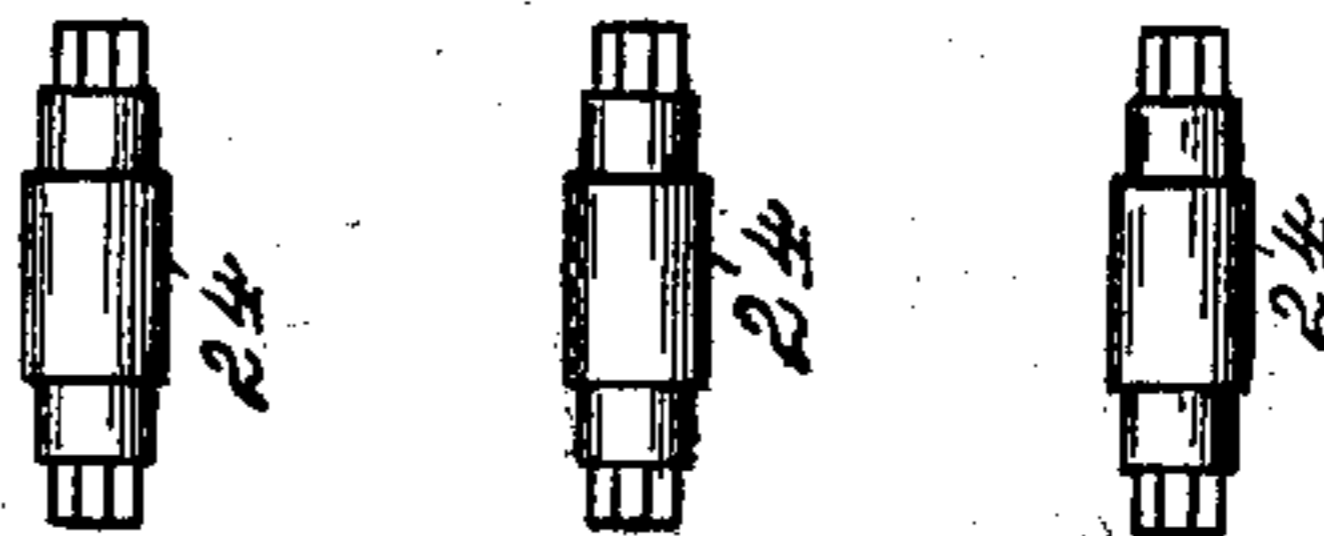
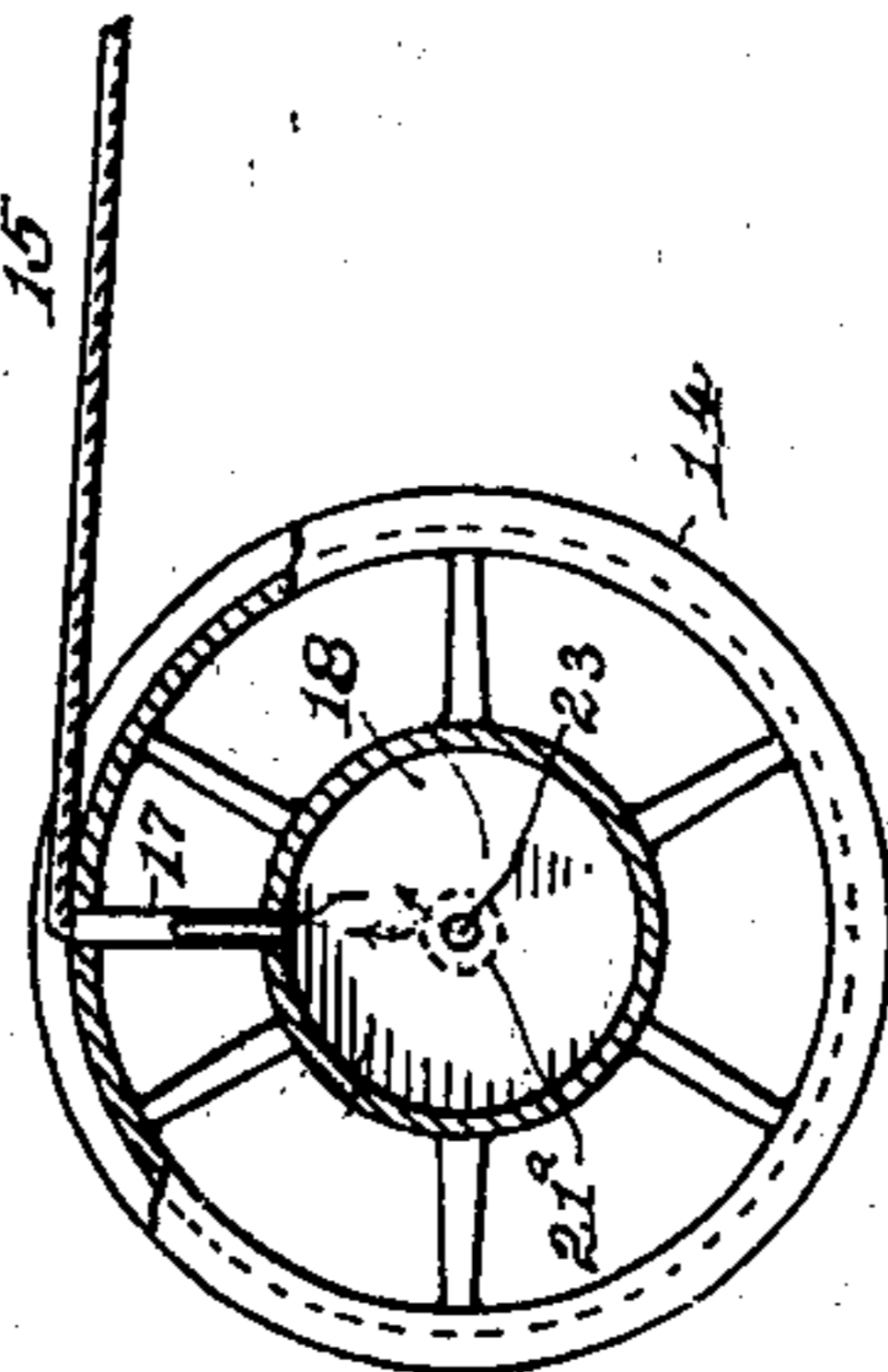
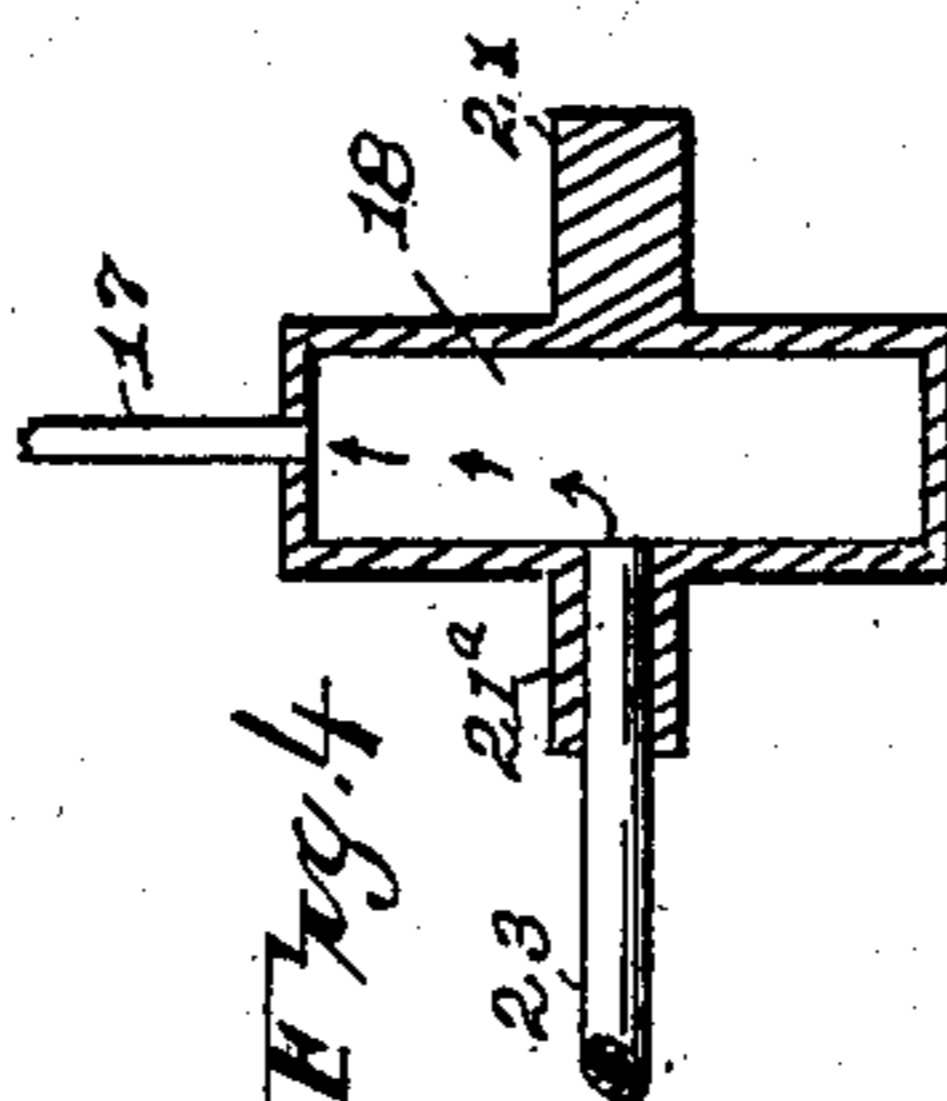


Fig. 4.



INVENTOR.

Thomas V. Allis.

By his Atty.

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UNITED STATES PATENT OFFICE.

THOMAS V. ALLIS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE INTERNATIONAL TIN PLATE CORPORATION, A CORPORATION OF NEW JERSEY.

SYSTEM FOR CONTINUOUS HEATING AND METAL-ROLLING.

SPECIFICATION forming part of Letters Patent No. 702,084, dated June 10, 1902.

Application filed February 1, 1901. Renewed April 30, 1902. Serial No. 105,297. (No model.)

To all whom it may concern:

Be it known that I, THOMAS V. ALLIS, a citizen of the United, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improved System for Continuous Heating and Metal-Rolling, of which the following is a specification.

My invention is an improved system for continuous heating and metal-rolling, to be fully set forth in the following specification.

To enable others to understand my invention, reference is had to the accompanying drawings, in which—

Figure 1 represents a side elevation of three furnaces mounted upon a section of longitudinal track, also reciprocating mechanism for operating said furnaces back and forth on said track to consecutively deliver their contents of heated metal to a rolling-mill, not shown. Fig. 2 is an upper plan view of the system represented at Fig. 1. Fig. 3 is a detail side elevation, partly in section, of the gas-drum and broken view of the flexible gas-tube leading from the drum to the furnaces. Fig. 4 is an enlarged central sectional view of the gas-chamber and journals of the gas-drum and broken view of the gas-supply pipe leading into such chamber and the delivery-pipe leading therefrom.

The construction and operation are as follows:

1, 2, and 3 are furnaces mounted on the track 4.

5 is an endless cable passing over the small drum 6 and the rear pulley 7. One end of this is connected to the front end of the forward furnace and the other end to the rear end of the last furnace. This drum is shown as being operated by the electric motor 8 and the intermediate transmitting mechanism consisting of the shaft 9, worm 10, and worm-gear 11, said drum and worm-gear being mounted on the short shaft 12, journaled in the bearings 13. Any other equivalent means may be employed for furnishing the necessary power to operate the cable or to transmit power to the drum 6.

14 is the large drum, having a grooved pe-

riphery for the flexible gas-tube 15. One end of this tube is connected to the upper end of the pipe 16 on the front end of the forward furnace 1, and from thence the gas is conveyed to the other furnaces by the pipes 15^a, while the other end of said pipe is connected (see also Fig. 3) to the drum by coupling to the short radial pipe 17, leading into the gas-chamber 18 of said drum.

19 is a weight and connected with cable 20, presently to be more fully described, the cable being wound about the periphery of the drum 14. The journals 21 and 21^a of the drum 14 are supported in the standards 22 and 22^a.

23 is a gas-supply pipe which tightly fits the hollow journal 21^a. The gas passes through this supply-pipe into the chamber 18 and from thence (see arrows) into the short radial pipe 17, communicating, as before mentioned, with the flexible pipe 15. A swivel-joint (not shown) may be connected to the supply-pipe 23, outside of the journal 21^a, to prevent the twisting of said pipe when the drum rotates.

The operation is as follows: The charged contents of the furnaces being fully heated for rolling and furnace 1 being in feeding alignment with the rolls 24, its contents are transferred thereto. When transferred, furnace 2 is brought into position by the mechanism above described for also transferring its contents to the rolling-mill while furnace 1 is being recharged. After furnace 2 is discharged furnace 3 is brought forward to the rolls, and furnace 2 is being recharged while furnace 3 is discharging. Thus the cycle of operation of heating, charging, and rolling is constant. When these furnaces are moved forward, the flexible gas-tube will be wound about the large drum 14, through the medium of the weight 19 and cable 20. The tube is wound with wire, so as to prevent compression, which would interrupt the flow of gas when the tube is wound upon the drum. When the furnaces are drawn back, the reverse movement of the drum, through the medium of the gas-tube 15 and its connection with said furnaces, will rewind the weight-carrying cable 20.

25 is a grounded tube through which the cable passes; but this is not a necessary feature of the system.

In the practice of my invention I do not wish to be confined to any number of furnaces employed, as they may be increased or decreased, as required for varying thicknesses of metal to be heated, thicker metal requiring a greater number of furnaces. The only delay in rolling will occur during the short time consumed in returning all of the furnaces to the starting-point and the time necessary to bring a charged furnace up to the rolls after the one preceding it has been discharged.

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

1. The herein-described system for continuous heating and metal-rolling, which consists of one or more furnaces mounted on a section of track running at right angles to the feeding-line of a rolling-mill situated in close proximity to said furnaces, means for reciprocally propelling said furnaces; a flexible tube for conveying fuel-gas to said furnaces

connected therewith and to a winding-drum and communicating with an interior gas-chamber in said drum, and a gas-supply pipe communicating with said chamber, for the purpose set forth.

2. The combination, with the system herein shown and described, of a rotating drum, a gas-chamber in said drum, means whereby gas is supplied to said chamber, a flexible gas-delivery tube communicating with said chamber and the furnaces, and an operating-cable connected to said drum, with means adapted to rotate the drum and wind up the flexible gas-delivery tube when the furnaces are moving in one direction, and to unwind said flexible tube when the furnaces are moving in the opposite direction, for the purpose set forth.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 30th day of January, A. D. 1901.

THOMAS V. ALLIS.

Witnesses:

JOHN B. CLAPP,
GEO. E. HEBBARD.