

(No Model.)

2 Sheets—Sheet 1.

E. W. WOLFE.

MECHANISM FOR INTRODUCING TUBES INTO FURNACES.

No. 291,454.

Patented Jan. 1, 1884.

FIG. 1.

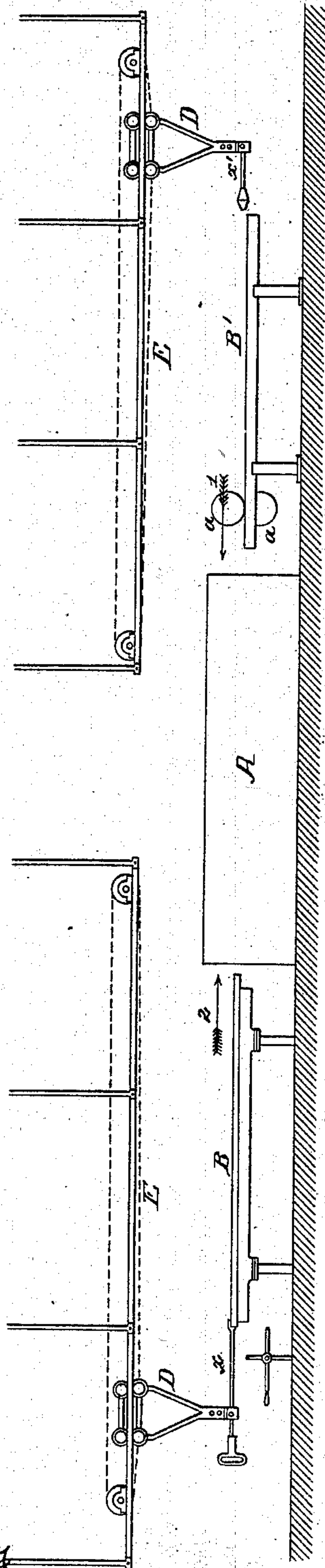


FIG. 2.

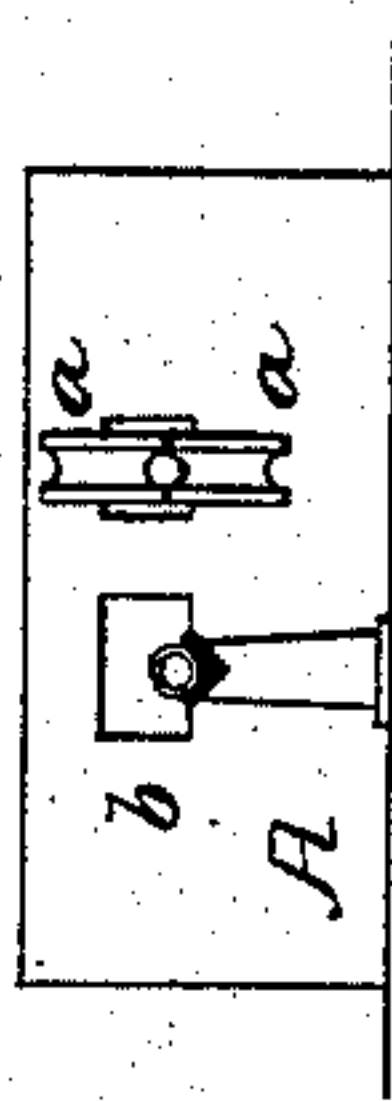
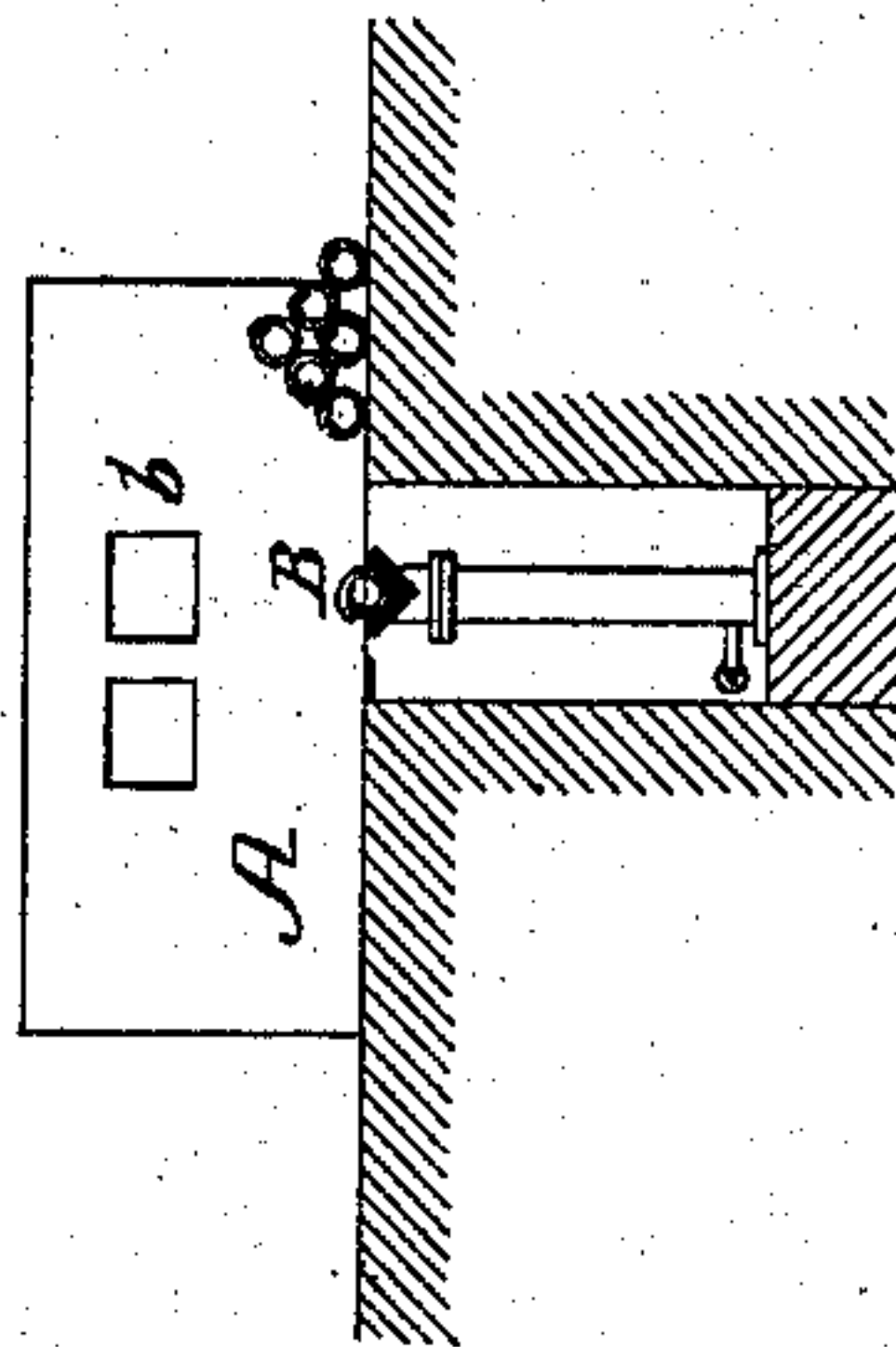


FIG. 3.



Witnesses:
Harry Drury
Harry Smith

Inventor
Edward W. Wolfe
by his Attorneys
Howson and Sons

(No Model.)

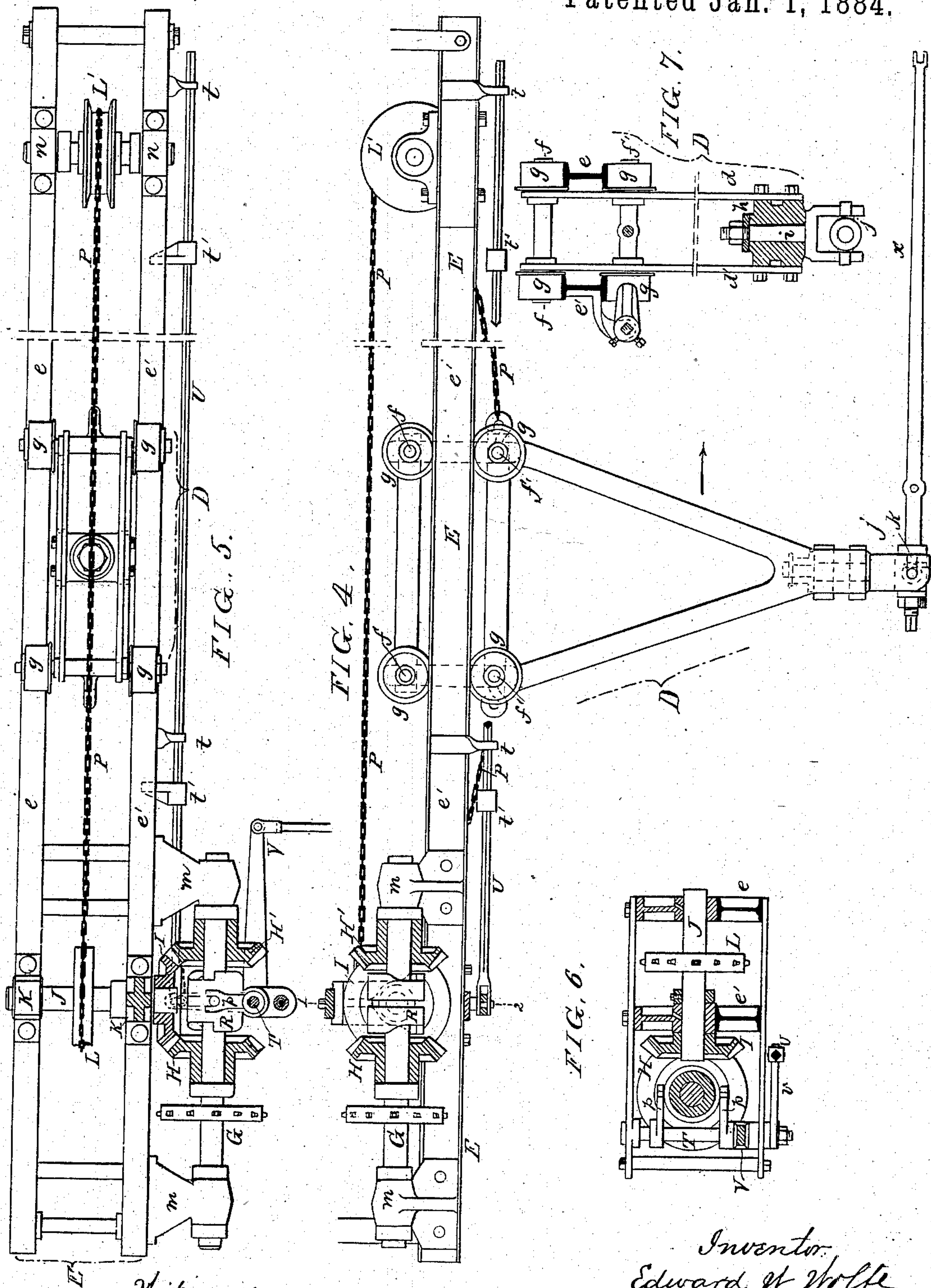
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

EDWARD W. WOLFE, OF READING, PENNSYLVANIA, ASSIGNOR TO THE
READING IRON WORKS, OF SAME PLACE.

MECHANISM FOR INTRODUCING TUBES INTO FURNACES.

SPECIFICATION forming part of Letters Patent No. 291,454, dated January 1, 1884.

Application filed June 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. WOLFE, a citizen of the United States, and a resident of Reading, Pennsylvania, have invented certain Improvements in Mechanism for Introducing Tubes into Furnaces, of which the following is a specification.

The object of my invention, which is fully described hereinafter, is to afford facilities for introducing skelps into the furnaces of tube-mills, and for returning tubes after they have passed through the rolls to the furnace to be reheated prior to rerolling, the mechanism being such as to enable me to dispense with a number of the operatives heretofore required for performing these duties.

In the accompanying drawings, Figure 1, Sheet 1, is a general outline view, showing the character and purport of my invention; Fig. 2, a view of one end of the tube-furnace, looking in the direction of the arrow 1, Fig. 1; Fig. 3, a view of the opposite end of the furnace looking in the direction of the arrow 2; Fig. 4, Sheet 2, a side view of the traversing carriage and gearing for operating the same; Fig. 5, a plan view of Fig. 4; Fig. 6, a transverse section on the line 1 2, and Fig. 7 vertical sections of the upper and lower portions of the traversing carriage.

On Sheet 1, A is an ordinary tube-heating furnace; *a a*, the rolls; B, a trough for receiving a tube, this trough being preferably combined with raising and lowering mechanism, so that a tube or skelp can be rolled from the floor into the trough when the latter is lowered, and raised with the trough to a position which will permit the pushing of the tube into the furnace through the opening *b* in the end of the same. This combination of the furnace with a trough and raising and lowering mechanism forms the subject of a separate application which I am about to make for a patent. At the opposite end of the furnace are the rolls and a fixed trough or receiver, B', into which the newly-rolled tube is deposited, so as to be immediately returned to the furnace prior to being rerolled, as described in another separate application which I have made for a patent. A carriage, D, constructed at its lower end for attachment to the push-rod *x*, has wheels adapted to a suspended track, E, and

at the opposite end of the furnace there is a similar carriage, D, adapted to a similar track, and constructed for attachment to a push-rod, *x'*. This combination, with a tube-heating furnace, and with a trough or receiver at each end of the same, of suspended or overhead tracks and two carriages, each provided with a push-rod, constitutes the subject of a separate application for a patent.

As the mechanism for operating both carriages is the same, I will confine my description to the figures shown in Sheet 2.

The suspended track E, previously referred to, consists of two beams or rails, *e e'*, preferably of iron, these beams being suspended by rods from the roof of the building and properly stayed.

The frame of the carriage D consists of two wrought-iron plates or hangers, *d d'*, to which are secured the two upper axles, *f f*, and two lower axles, *f' f'*, each axle being provided with two flanged wheels, *g*, so that there are four wheels above and four below the track—a plan which insures the maintenance of the wheels on the said track, no matter what strains may be imparted to the carriage in operating the push-rod, which may be attached to the carriage in the following manner:

To the lower end of the hangers *d d'* of the carriage D is secured a block, *h*, Fig. 7, to which is swiveled the forked rod *i*. A sleeve, *j*, is confined to the push-rod *x* by and between a collar and nut on the same, and trunnions on the sleeve have their bearings in slots *k* in the forked portion of the swiveled rod, as shown in Fig. 4, so that when the carriage moves in the direction of the arrow in that figure the rod *x* will be pushed before it. A detachable vertical pin (shown in Fig. 4) confines the trunnions of the sleeve *j* within the slots of the forked portion of the swiveled rod, which, together with the pivoted sleeve, forms a universal-joint connection, which is always to be preferred, as it permits the rod to be tilted vertically, and to be moved laterally independently of the carriage. A driving-shaft, G, has its bearings in brackets *m m*, secured to one of the beams of the suspended track, and two bevel-wheels, H H', are loose on this shaft, the teeth of both wheels being adapted to those of a similar bevel-wheel, I,

on a shaft, J, adapted to bearings K K, secured to the beams of the track. A chain-pulley, L, is secured to the shaft J, and near the opposite end of the track is a plain flanged pulley, L', the shaft of which is adapted to bearings *n n*, and a driving-chain, P, is secured at one end to one end of the carriage, passes over the driving-pulley L, then from above the same to the pulley L', and round the latter to the opposite end of the carriage, where the opposite end of the chain is secured.

On the shaft G is a clutch, R, arranged to turn with but slide freely on the said shaft, one end of the clutch being constructed to engage in the hub of the bevel-wheel H, and the other to engage in the hub of the other bevel-wheel. The clutch is controlled by two arms, *p p*, on a vertical shaft, T, Fig. 6, which has its bearings in a frame attached to the beams of the track.

To guides *t* on one of the beams is adapted a sliding rod, U, provided with toes *t'*, which are so situated that when the carriage approaches the limit of the movement by which a tube is pushed into the furnace a wheel of the carriage will strike one of the toes and move the rod U, which is connected to an arm, *v*, on the clutch-shaft T, thereby throwing the clutch out of gear and arresting the carriage, and when the latter is completing its movement in the contrary direction, so as to withdraw the push-rod from the furnace, a wheel of the carriage will strike another toe on the rod U, and again throw the clutch out of gear. It will thus be seen that the carriage is auto-

matically arrested as it reaches the limit of its movement in either direction, the throwing of the clutch into gear with one or other of the bevel-wheels H or H' being effected by a hand-lever situated at any convenient point, and connected by suitable rods to the lever V, secured to the shaft T.

I claim as my invention—

1. The combination of the suspended track E, the carriage D, adapted thereto, the swiveling sleeve *j* and pusher-bar *x*, the chain P, connected at both ends to the carriage, the pulley L', the shafts G J, bevel-wheels H H' I, clutch R, and chain-pulley L on the shaft J, all substantially as set forth.

2. The combination of the suspended track, the carriage adapted thereto, the driving-shaft G, the bevel-wheels and clutch thereon, the shaft J, its chain-pulley L and bevel-wheel I, the sliding rod U, and mechanism whereby the said sliding rod, actuated by the carriage, is caused to operate the clutch and throw the said shaft J out of gear, all substantially as set forth.

3. The combination of the carriage, the forked rod *i*, swiveled thereto, the sleeve *j*, and the push-rod *x*, adapted to the sleeve and connected thereto, substantially as set forth.

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

ED W. WOLFE.

Witnesses:

HARRY DRURY,
HARRY SMITH.