

No. 721,627.

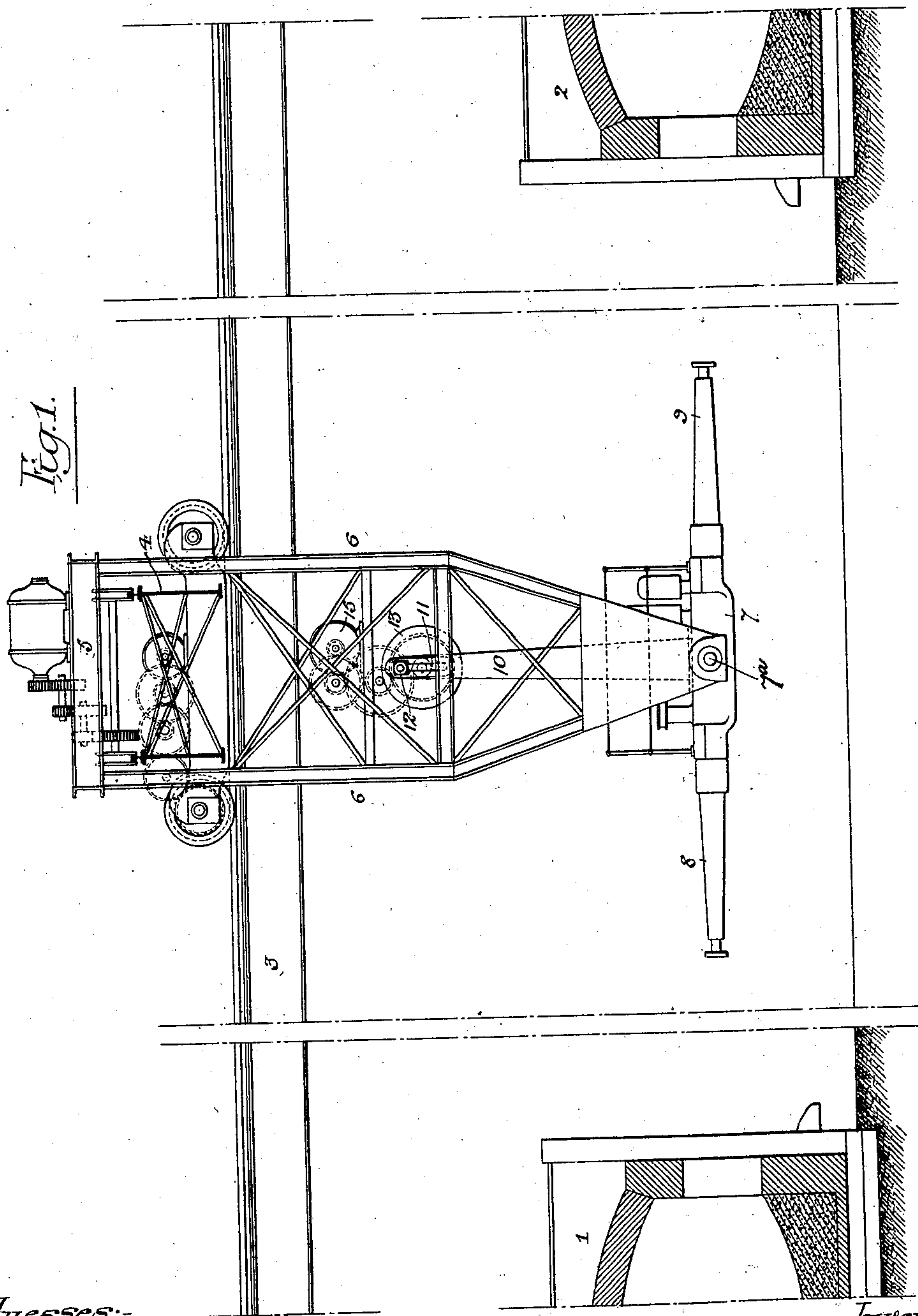
PATENTED FEB. 24, 1903.

S. T. & C. H. WELLMAN.
FURNACE CHARGING MACHINE.

APPLICATION FILED JUNE 10, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

Louis M. Whitehead.

Herman E. Metcalf.

Inventors:

Samuel T. Wellman,

Charles H. Wellman,

by their Attorneys Howson & Howson

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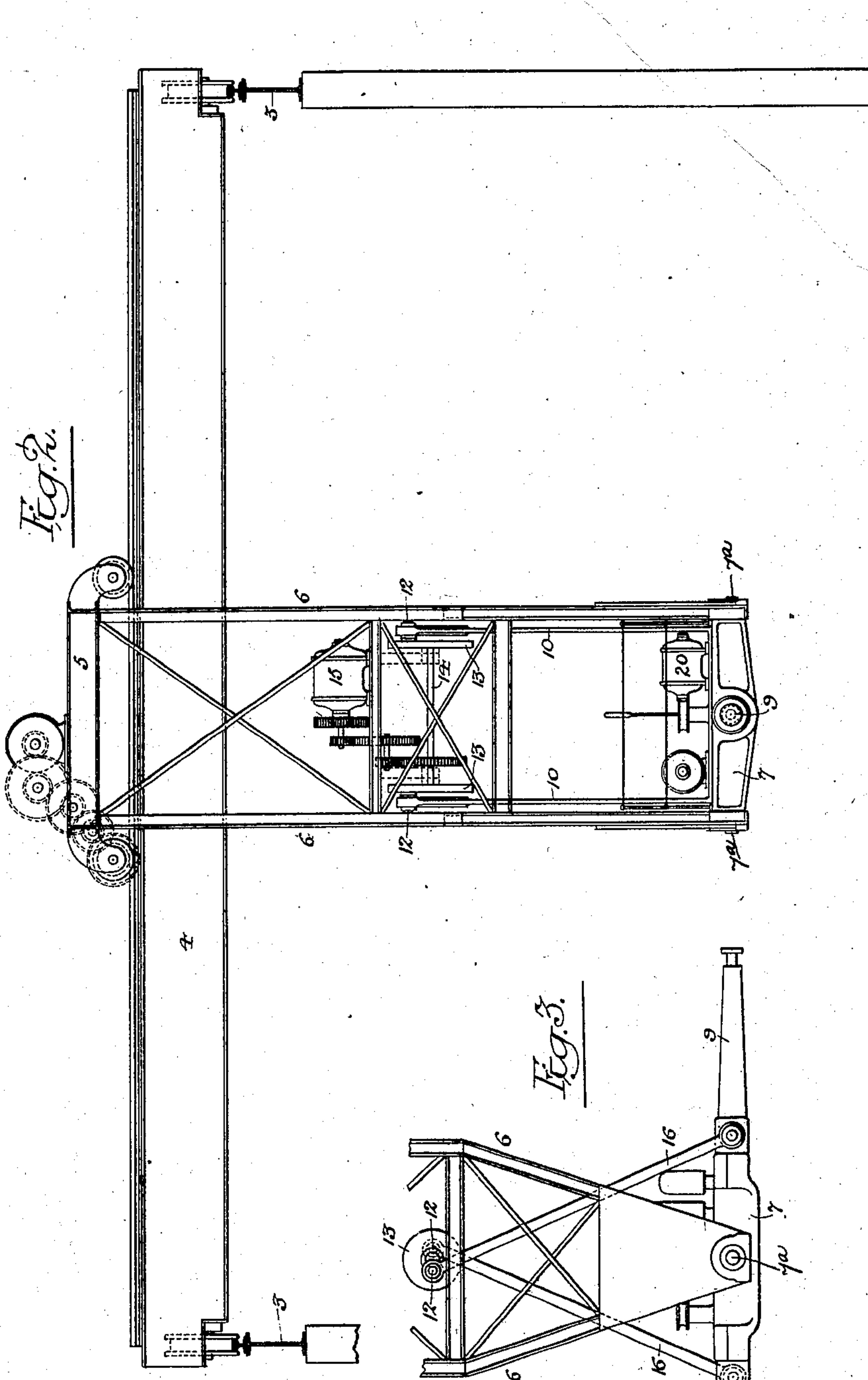
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Witnesses:-

John H. F. Whitehead

Herman E. Metcalf

Inventors:-

Samuel T. Wellman,

Charles H. Wellman,

by their Attorneys,

Howson & Pusey,

UNITED STATES PATENT OFFICE.

SAMUEL T. WELLMAN AND CHARLES H. WELLMAN, OF CLEVELAND, OHIO,
ASSIGNORS TO THE WELLMAN-SEEVER-MORGAN ENGINEERING COM-
PANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

FURNACE-CHARGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 721,627, dated February 24, 1903.

Application filed June 10, 1902. Serial No. 111,066. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL T. WELLMAN and CHARLES H. WELLMAN, citizens of the United States, and residents of Cleveland, Ohio, have invented certain Improvements in Furnace-Charging Machines, of which the following is a specification.

Our invention consists of certain improvements in the furnace-charging machine for which we obtained certain Letters Patent of the United States numbered 569,075, dated October 6, 1896, the object of our present invention being to so construct the machine that without any material increase in the cost of the same it is adapted for serving two furnaces or two rows of furnaces facing each other.

In the accompanying drawings, Figure 1 is a longitudinal section of a furnace-charging apparatus illustrating our present invention. Fig. 2 is a transverse section of the same; and Fig. 3 is a view similar to part of Fig. 1, but illustrating certain changes in some of the operating mechanism of the machine.

In Fig. 1 of the drawings, 1 and 2 represent opposite furnaces, each of which may be one of a row of furnaces to be charged by the machine. Extending across the furnace-room from one furnace or row of furnaces to the other are girders 3, which in the case of a single pair of furnaces may be fixed, but when used in connection with two rows of furnaces may be properly secured together and mounted, so as to travel throughout the length of the furnace-room. Upon the girders 3 is mounted the traveling bridge of a crane 4, which may be moved back and forth on the said girders 3 by means of mechanism operated by an electric or other suitable motor. On the crane 4 is mounted a trolley 5, which can be traversed thereon by gearing similar to that used for operating the crane, and from this trolley depends a structure carrying the charging-bar for the furnaces. Hence said structure can be moved to any point in the space intervening between the two furnaces or rows of furnaces. The pendent structure is in the present instance in the form of a suitably-braced rectangular frame

6, to the lower end of which is centrally pivoted a structure 7, provided with oppositely-projecting charging-bars 8 and 9, which may be similar to those of the machine of our former patent—that is to say, each may be constructed at the outer end for the reception of a suitable charging-box and may, as set forth in said patent, be rotatably mounted in the structure 7, rotation being effected by suitable gearing from an electric or other motor 20, mounted on the structure 7. Such rotation of the bars 8 and 9 or the mechanism for effecting the same constitutes, however, no part of the present invention.

The pivoting of the structure 7 to the depending framework 6 may be effected in various ways—as, for instance, by providing said framework with a transverse shaft 7^a, upon which the structure 7 is mounted, or with inwardly-projecting trunnions adapted to sockets on said structure 7, or the latter may have projecting trunnions adapted to sockets at the lower end of the frame 6, the method of pivoting the structure 7 to the frame 6 being immaterial.

The structure 7 may carry the motors for imparting turning or partial-turning movement to the charging-bars, also the mechanism for operating the locking-bolts with which said charging-bars are provided, and it may also carry the operator's cage or platform, or the latter may be mounted upon the frame 6 independently of the structure 7, this also being immaterial.

Projecting upwardly from the structure 7 are one or more arms 10, two of these arms being shown in the present instance. Each of the arms 10 is slotted at the upper end, as shown at 11, for the reception of a crank-pin 12, which projects from a disk 13 on a shaft 14, the latter being mounted in suitable bearings on the frame 6 and being driven by appropriate gearing from an electric or other motor 15, also mounted on said frame, whereby as said shaft is rotated or partially rotated rocking movement will be imparted to the arms 10 and thence to the structure 7 and to the charging-bars 8 and 9 carried thereby. Hence the outer end of either charging-bar

can be raised or lowered, so as to properly direct the charging-box carried thereby through the door of the furnace and raise or lower said box after it has been introduced into the working chamber of the furnace, the double-headed charging-bar providing for the service of either furnace or row of furnaces without any increase in the cost of the apparatus other than that involved in the provision of the extra charging-bar and its appurtenances.

Instead of using a slotted bar and crank-pin as a means of imparting rocking movement to the charging-bar structure the latter may be connected by a rod—such, for instance, as that shown at 16 in Fig. 3—to the crank-pin, or there may be two rods 16 connected to the structure 7 on opposite sides of its pivot, these rods being connected to oppositely-set crank-pins, so as to distribute the strain.

While an overhead crane best lends itself to the required movements of the structure carrying the double charging-bar and is therefore preferred, our invention is also applicable to a charging-machine having a crane running upon rails on the floor of the furnace-room.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination, in a furnace-charging machine, of oppositely-projecting charging-bars, a structure carrying the same, and a traveling crane upon which said structure is pivotally mounted whereby swinging of said structure on its pivot will cause the raising or lowering of the outer end of either charging-bar, substantially as specified.

2. The combination, in a furnace-charging machine, of oppositely-projecting charging-bars, a structure carrying the same, a traveling crane upon which said structure is pivotally mounted, and means for effecting rocking movement of said structure upon its pivot so as to effect raising or lowering of the end of either charging-bar, substantially as specified.

3. The combination, in a furnace-charging machine, of oppositely-projecting charging-bars, a structure carrying the same, a traveling crane upon which said structure is pivotally mounted, a power-actuated shaft on said crane having one or more cranks thereon, and connections between said crank mechanism

and an arm or arms on the pivoted structure which carries the charging-bars, substantially as specified.

4. The combination, in a furnace-charging machine, of oppositely-projecting charging-bars, a structure carrying the same, a traveling crane upon which said structure is pivotally mounted, a power-actuated shaft on said crane having thereon oppositely-set cranks, and connections between said cranks and the pivoted charging-bar structure on opposite sides of the pivot of the same, substantially as specified.

5. The combination, in a furnace-charging machine, of oppositely-projecting charging-bars, a structure carrying the same, a traveling crane upon which said structure is pivotally mounted, one or more slotted arms projecting upwardly from said pivoted structure, and a power-actuated shaft mounted on the crane and having one or more disks each with a crank-pin engaging the slotted portion of one of said upwardly-projecting arms of the pivoted charging-bar structure, substantially as specified.

6. The combination, in a furnace-charging machine, of oppositely-projecting charging-bars, a structure carrying the same, an overhead traveling crane, and a traveling trolley thereon having a depending frame in which the structure carrying the charging-bars is pivotally mounted, whereby swinging of said structure on its pivot will cause raising or lowering of the outer end of either charging-bar, substantially as specified.

7. The combination, in furnace-charging apparatus, of oppositely-projecting charging-bars, a structure carrying the same, an overhead traveling crane, a traveling trolley thereon having a depending frame upon which the structure carrying the charging-bars is pivotally mounted, and power-actuating mechanism also mounted on said frame and serving to impart rocking movement to the pivoted structure which carries the charging-bars, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL T. WELLMAN.
CHARLES H. WELLMAN.

Witnesses:

C. W. COMSTOCK,
C. H. ALTENHOF.