

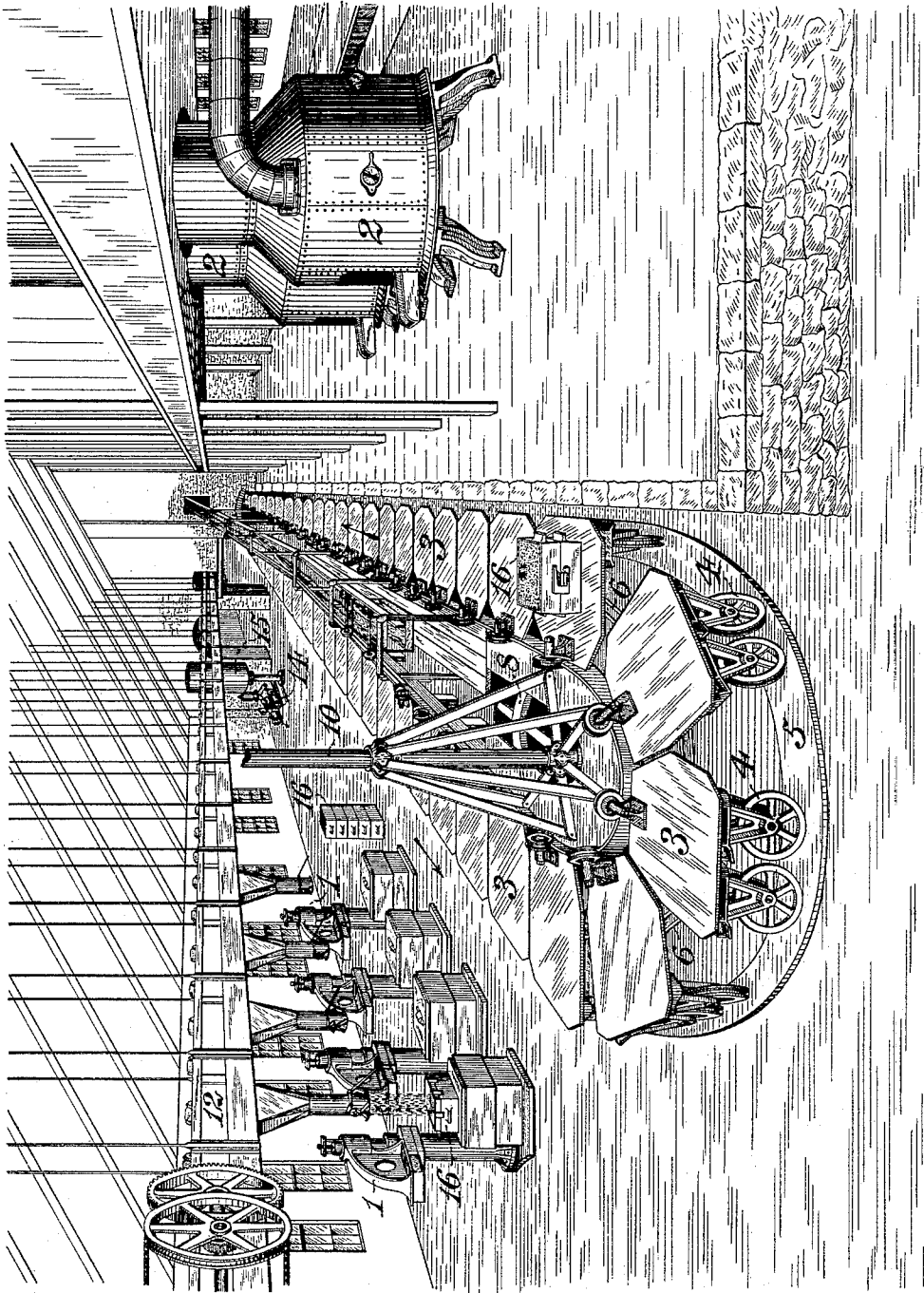
(No Model.)

2 Sheets—Sheet 1.

T. W. WELSH.
CASTING PLANT.

No. 453,056.

Patented May 26, 1891.



WITNESSES:

R. H. Whitlesey
F. C. Gaither.

FIG. 1.

INVENTOR,

Thomas W. Welsh,
by J. Howard Bell,

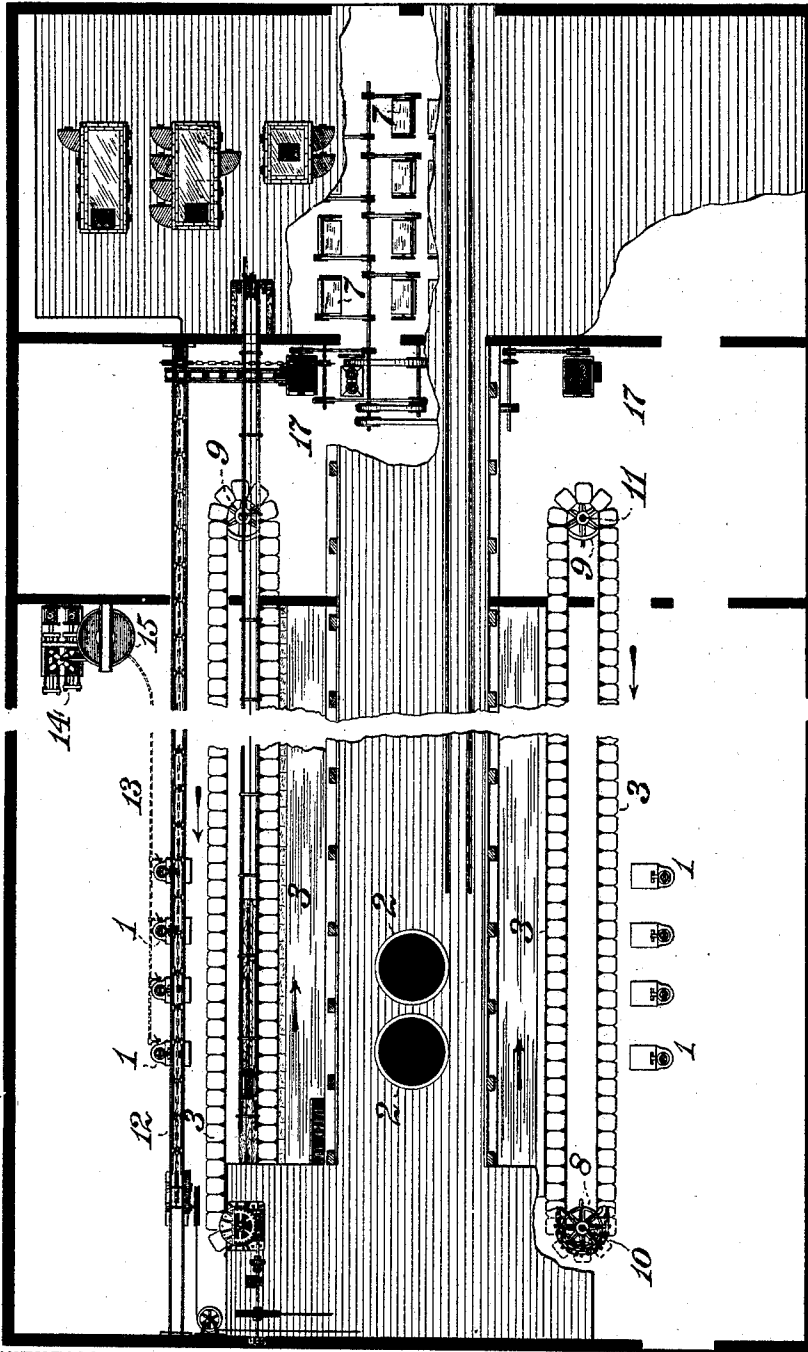
Att'y.

T. W. WELSH.
CASTING PLANT.

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Patented May 26, 1891.

FIG. 2.



WITNESSES:

R. H. Whittlesey
F. E. Gaither.

INVENTOR,

Thomas W. Welsh
by J. Snowden Bell,

Att'y.

UNITED STATES PATENT OFFICE.

THOMAS W. WELSH, OF WILMERDING, PENNSYLVANIA.

CASTING-PLANT.

SPECIFICATION forming part of Letters Patent No. 453,056, dated May 26, 1891.

Application filed November 13, 1890. Serial No. 371,290. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. WELSH, a citizen of the United States, residing at Wilmerding, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in the Manufacture of Castings, of which improvement the following is a specification.

The object of my invention is to enable the manufacture of castings to be conducted with materially greater expedition, and with a substantial reduction of labor and expense as compared with the system ordinarily practiced.

To this end my invention, generally stated, consists in the combination of a molding-machine, a cupola, and a series of carriers connected to an endless chain, which is located between the molding-machine and cupola, and is adapted to traverse longitudinally between the molding-machine and cupola and a cleaning-space.

The improvement claimed is hereinafter fully set forth.

In the ordinary foundry practice of mechanical molding, as is familiar to those skilled in the art, the flasks or mold-boxes, after being filled with sand and rammed, are carried by hand from the molding-machine to a location on the floor convenient for pouring, and after the mold-cavities have been filled with molten metal are allowed to remain until the metal has solidified, after which the castings are removed and carried to the cleaning-room, and the flasks are brought back to the molding-machine for the formation of new molds. These operations involve considerable time and labor, and require a large area of floor-space, particularly when a comparatively large number of molds is to be made daily.

My invention is specially designed for the production of a large daily output of castings, in which it has been found to reduce in a substantial degree the objections above mentioned.

In the accompanying drawings, Figure 1 is a view in perspective of a foundry-plant adapted to the practice of my invention, and Fig. 2 a plan or top view exemplifying the extended application of the same.

In the practice of my invention one or more

molding-machines 1, of any suitable and preferred construction, are located in a foundry, preferably adjacent to one of its ends and at a convenient distance laterally from one or more cupolas or melting-furnaces 2. A cleaning space or room 17 is located at or near the opposite end of the foundry for the reception of the flasks 16, while the molds are opened and the castings removed, and for the cleaning of the castings, which latter operation is usually effected in rattlers or cleaning-barrels 7. A series of traversing carriers or tables 3 is provided for the conveyance of the flasks, each of which carriers is of size and strength proper to support flasks containing finished molds, and is mounted upon wheels 4, which move over a track 5, extending longitudinally along the foundry-floor between the molding-machines and the cupolas. Each of the carriers is connected to an endless chain 6, which at its ends passes around and engages the teeth of sprocket-wheels 8 and 9, which are fixed upon vertical shafts 10 and 11. One of said sprocket-wheels, as 8, is connected with and rotated by mechanism to which power is imparted from a suitable prime mover, and serves as a driver to impart longitudinal movement to the chain and connected carriers. The sprocket-wheel at the opposite extremity of the endless chain acts as an idler or guide wheel to maintain the parallelism of the sides of the endless chain and reverse the direction of movement of its links and the carriers connected thereto.

The molding-machines are supplied with sand by a conveyer 12, and are in the instance shown operated by fluid supplied by a pipe 13 and brought to the required degree of working pressure by a forcing-pump 14 and accumulator 15. The structural and operative details of the molding-machines and the specific details of construction of the carrier-chain and carriers do not, however, form any part of my present invention, and not being necessary to an understanding of its governing principle and operation will not be herein described.

Fig. 2 illustrates an extension of the system above described by the employment of an additional series of connected traversing carriers on the opposite side of the cupolas, said series operating in conjunction with the

cupolas and with another machine or machines located in relation to the additional series of carriers similarly to those of the series above described.

5 In the manufacture of castings in accordance with my invention the metal is melted in the usual manner in the cupolas and a flask is deposited on the table of each of the molding-machines, by which the flasks are
10 properly filled and rammed, forming the molds required for the castings. Each flask is then placed on one of the carriers or tables, to the connected series of which movement is imparted by the driving mechanism in the directions indicated by the arrows, and the
15 flasks are thereby conveyed, primarily, to points adjacent to the cupolas, where the mold-cavity of each is filled with molten metal. The flasks and filled molds are thereupon conveyed by the continued movement of the carriers to the cleaning-room, the molten metal being wholly or to a material degree solidified in the traverse of the molds thereto, so that the castings are ready for removal from the
25 molds upon or very shortly after their arrival at the cleaning-room, according to the greater or less length of the series of carriers and the speed at which the latter are moved. The flasks are then taken off the carriers, the castings and sand removed, and the castings are
30 put into the rattlers to be cleaned. After being emptied the flasks are again placed upon the carriers, by the continued movement of which they are returned to the molding-machines, and the several operations above described are repeated.

It will be seen that these several steps of forming the molds, conveying the completed molds to the cupolas, pouring the molten metal,
40 conveying the filled molds to the cleaning-room, and returning the empty flasks to the molding-machines, are performed continuously and in orderly sequence with each flask or set of flasks, accordingly as one or
45 more molding-machines are employed. These several operations are, further, simultaneously performed with different flasks or different sets of flasks, as the case may be, and as the solidification of the molten metal is effected,
50 or nearly so, at the period when the flasks

reach the point of removal from the carriers, a resultant saving of time, labor in handling, and floor-space for stowage is attained, thereby correspondingly facilitating and expediting the production of the castings, increasing
55 the output of a plant, and reducing the cost of manufacture.

I claim as my invention and desire to secure by Letters Patent—

1. In a plant for the manufacture of castings, the combination of a molding-machine, a cupola, an endless chain located wholly exterior to and between the molding-machine and cupola and adapted to traverse longitudinally between said molding-machine and
60 cupola and a cleaning-space located adjacent to the further extremity of the chain, a series of carriers or flask-supporting tables connected to said chain, and driving mechanism for effecting the longitudinal movement of
70 said chain, substantially as set forth.

2. In a plant for the manufacture of castings, the combination of a molding-machine, a cupola, an endless chain located between the molding-machine and cupola, sprocket-wheels engaging said chain adjacent to said
75 molding-machine and cupola and adjacent to a cleaning-space, respectively, driving mechanism by which power is imparted for the rotation of one of the sprocket-wheels, and a
80 series of wheeled carriers or flask-supporting tables connected to the endless chain, substantially as set forth.

3. In a plant for the manufacture of castings, the combination of one or more cupolas,
85 two sets of molding-machines located on opposite sides of the cupolas, respectively, two endless chains, each located between the cupolas and a set of molding-machines and adapted to traverse longitudinally between
90 the cupolas and molding-machines and a cleaning-space, and a series of carriers or flask-supporting tables connected to said chains, substantially as set forth.

In testimony whereof I have hereunto set
95 my hand.

THOMAS W. WELSH.

Witnesses:

L. E. LOVE,
JOHN F. MILLER.