

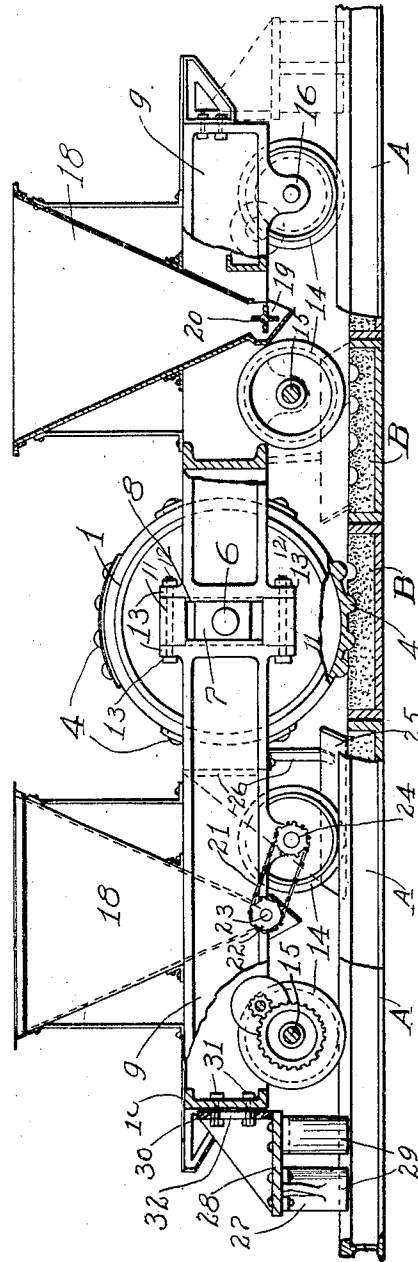
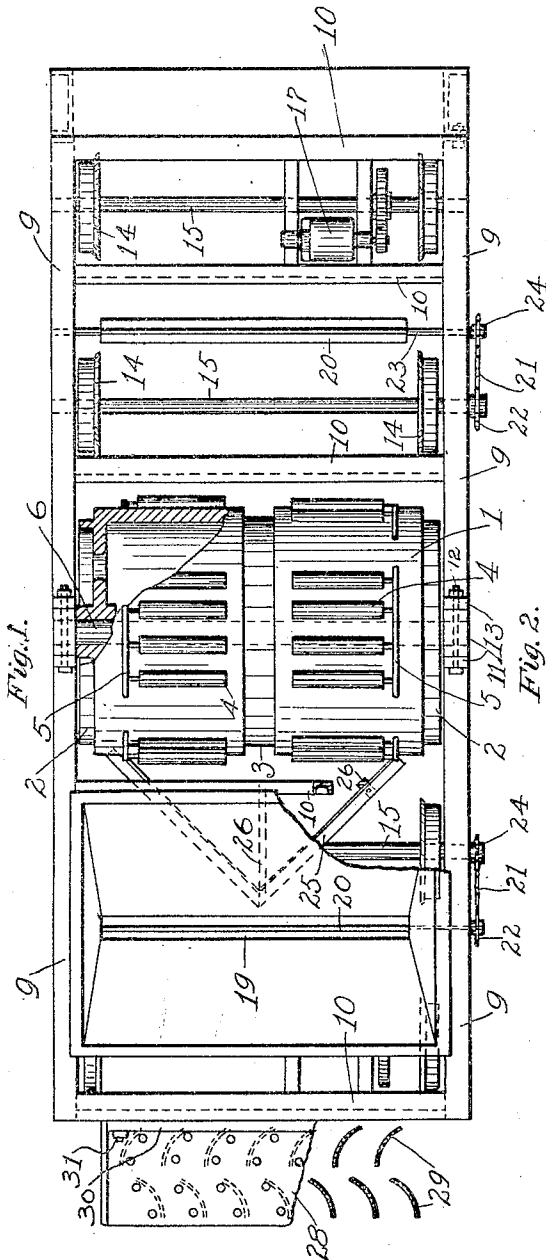
No. 865,511.

PATENTED SEPT. 10, 1907.

G. P. MEHAFFEY.
MACHINE FOR MAKING FOUNDRY MOLDS.

APPLICATION FILED SEPT. 19, 1906.

2 SHEETS—SHEET 1.



WITNESSES
Carrie A. Ivy
William Whaley.

INVENTOR
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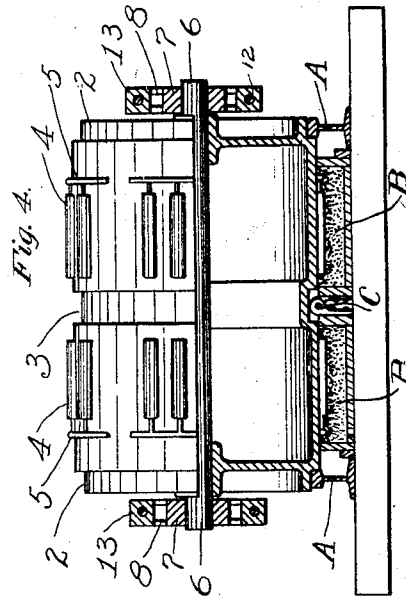
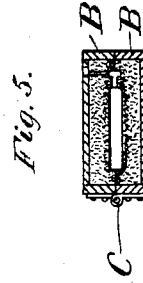
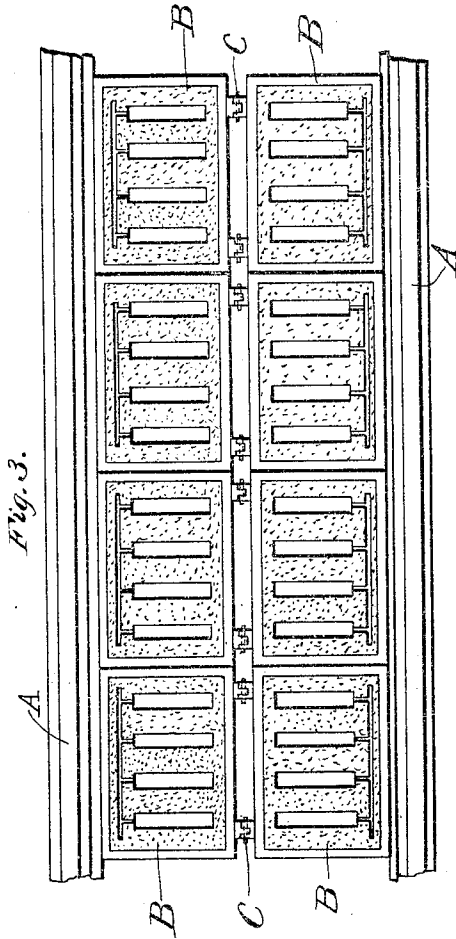
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UNITED STATES PATENT OFFICE.

GEORGE P. MEHAFFEY, OF KNOXVILLE, TENNESSEE.

MACHINE FOR MAKING FOUNDRY-MOLDS.

No. 885,511.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed September 19, 1906. Serial No. 335,226.

To all whom it may concern:

Be it known that I, GEORGE P. MEHAFFEY, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Improvement in Machines for Making Foundry-Molds, of which the following is a specification, reference being had to the accompanying drawing.

My improvement relates particularly to machines or apparatus adapted to pass over beds or flasks containing sand and automatically forming the molds in such sand.

The apparatus comprises wheels adapted to run upon a track, the rails of the track being separated far enough to make room for the bed of sand or the flasks between the rails.

The apparatus also comprises a large pattern roller resting upon and guided by said rails and having upon its periphery the patterns which are to be molded.

The apparatus also comprises a hopper at each side of said roller adapted to hold sand and discharge the same into the path of said roller, either hopper being available at will, according to the direction of movement of the apparatus. Between each hopper and said roller is means for striking or wiping the sand to a level and uniform surface.

The apparatus also comprises mechanism for "tempering" the sand prior to the forming of the molds.

The object of the invention is to provide such a mold-forming apparatus in efficient, convenient, and durable form and adapted to accomplish a large amount of work in limited time.

In the accompanying drawings, Figure 1 is a sectional plan of the apparatus; Fig. 2 is a sectional side elevation; Fig. 3 is a plan of a portion of the track with flasks occupying the space within said track; Fig. 4 is a transverse, upright section along the axle of the pattern roller; Fig. 5 is a transverse section through one of the flasks when the latter is closed.

A, A are parallel track rails.

B, B are halves or sections of flasks, the sections being preferably arranged in pairs transversely to the length of the track and the sections of each pair being joined to each other by hinges, C.

The pattern roller, 1, is of relatively large diameter and is long enough to rest upon the rails, A, A. Each end of said roller is preferably provided with an annular shoulder, 2, engaging the rails, so that the roller is held against endwise movement. If two halves or sections of the flask are to occupy the space between the rails, the surface of the roller is to have a groove, 3, midway between its ends to receive the hinges of the flasks.

Patterns, 4, are placed upon the periphery of the roller in proper positions to press into the sand in the halves or sections of the flasks. The patterns for each flask section may be connected with gate patterns, 5.

In the form shown in the drawings, the patterns are for cylindrical castings similar to sash weights, and the patterns at opposite sides of the groove, 3, are duplicates and so placed as to allow the impression made by each to register with the impression made by the other when the flask is closed.

The roller, 1, has an axle, 6, the ends of which extend into bearing blocks, 7, and said bearing blocks are confined on upright ways, 8, in the frame of the apparatus, so that said roller may rest by its full weight upon the rails and edges of the flask walls and the sand within the flasks, independently of up and down movements of the frame of the apparatus. The frame comprises two rectangular, duplicate, horizontal sections which meet and are joined to each other at the bearing block, 7. Each such frame section has side pieces, 9, parallel to the track rails, A, A, and said side pieces are joined by intervening transverse, horizontal pieces, 10.

Between the adjacent ends of the side pieces, 9, at the same side of the apparatus, a space block, 11, is placed above and below the bearing block, 7, and a bolt, 12, is extended horizontally through each space block and upright ears, 13, on the ends of said side pieces, 9, the space blocks being a little longer than the thickness of the bearing block in the direction parallel to the length of said side pieces. Thus said side pieces and the two sections of the frame are made rigid with each other, and the pattern roller, 1, is confined within said frame, but allowed free up and down movement, as above indicated.

Each of the frame sections is supported upon two pairs of carrying wheels, 14, resting upon the rails, C, and joined by ordinary car axles, 15, which axles rest in suitable bearings, 16, on the frame sections. Thus each frame section is supported upon four wheels even when the space-block bolts, 12, have been removed for the removal of the pattern roller.

Any suitable motive power may be applied to the apparatus. The drawings show an electric motor, 17, applied to one axle, 15, of each of the frame sections. On each frame section is mounted a hopper, 18, for holding sand to be delivered into the space between the track rails, such hopper extending preferably across the full width of the frame and having at its bottom an outlet, 19, extending from one side of the frame to the other. Into each such outlet may be placed a horizontal winged valve, 20, driven by means of a sprocket chain 21, applied to a sprocket wheel, 22, on the shaft, 23, of the valve and a sprocket wheel, 24, on one of the axles 15, so that the rotation of said axle will transmit rotation to said valve.

Between each outlet, 19, and the roller, 1, is placed a striker or wiper, 25, secured to the frame by three members, 26, at a proper height to strike or wipe the sand falling from the adjacent hopper to the desired height.

For the tempering of the sand, an agitating or mixing mechanism, 27, is applied to the frame. Said mixing mechanism comprises a horizontal plate, 28, from which oblique blades, 29, extend downward far enough to reach into the sand. The drawings show two transverse rows of said blades, the blades of one row facing obliquely toward one of the rails while the blades of the other row face obliquely toward the other rail, so that when the apparatus is moved along upon the track, the forward blades will cut the mass of sand and shift portions toward one side, while the rear blades again cut the sand and shift it in the opposite direction, said blades acting approximately like two gangs of plow shares. When the sand is to be tempered, the flasks are removed from between the rails and the sand placed between the rails in any suitable quantity and the mixing mechanism applied to the apparatus at the desired height. Then the apparatus is run back and forth upon the track.

For securing the tempering mechanism to the frame of the machine, a plate, 30, rises from the plate, 28, adjacent the transverse piece, 10, and bolts, 31, extend through said plate, 30, and said transverse piece. The plate, 30, (or the transverse piece, 10) may have upright slots, 32, for receiving said bolts, so that the tempering mechanism may be adjusted up and down and also removed.

When the apparatus is used for thus tempering the sand, the frame section to which the tempering mechanism is applied may be separated from the other frame section and only the first mentioned frame section propelled back and forth for the tempering; for, as already herein stated, each frame section has four wheels and can, therefore, be operated independently of the other section. Or the pattern roller may be removed from between the two frame sections, and the entire frame propelled back and forth for the tempering.

A tempering mechanism may be applied at each end of the frame, so as to double the working capacity for the tempering process. Fig. 2 of the drawings shows such a mechanism applied at the left hand end, and indi-

cates by dotted lines a similar mechanism at the right hand end of the apparatus.

It is to be observed also that the pattern roller may be at any time removed and the space upon the frame between and around the hoppers used for hauling castings out of the foundry and for other similar work. It is to be observed also that either frame section may be used in this manner.

I claim as my invention:

1. In a machine of the nature described, a frame comprising two separable, abutting frame sections, wheels supporting said sections, and a pattern roller located between said sections, substantially as described. 50
2. In a machine of the nature described, a frame comprising two separable, abutting frame sections, wheels supporting said sections, and a pattern roller located between said sections and adjustable up and down relative to said frame, substantially as described. 55
3. In a machine of the nature described, a frame comprising two separable, abutting frame sections, wheels supporting said sections, and a pattern roller located between said sections and automatically adjustable up and down relative to said frame, substantially as described. 60
4. In a machine of the nature described, a frame comprising two separable, abutting frame sections, wheels supporting said sections, a pattern roller located between said sections, and a propelling motor applied to one of said sections, substantially as described. 65
5. In a machine of the nature described, a frame comprising two separable, abutting frame sections, wheels supporting said sections, upright ways at the juncture of said sections, bearing blocks on said ways, and a pattern roller journaled in said bearing blocks, substantially as described. 70
6. In a machine of the nature described, a frame comprising two sections, wheels supporting each section, ears and ways on the meeting ends of said sections, space blocks between said ears, bolts extending through said ears and said blocks, bearing blocks on said ways, and a pattern roller journaled in said bearing blocks, substantially as described. 75

In testimony whereof I have signed my name, in presence of two witnesses, this 17th day of September, in the year one thousand nine hundred and six. 80

GEORGE P. MEHAFFEY.

Witnesses:

CYRUS KEHR,
WILLIAM WHALEY.