No. 715,868.

Patented Dec. 16, 1902.

C. H. RHOOD.

SLAG CASTING MACHINE.

(Application filed June 14, 1902.)

(No Model.)

2 Sheets—Sheet 1.

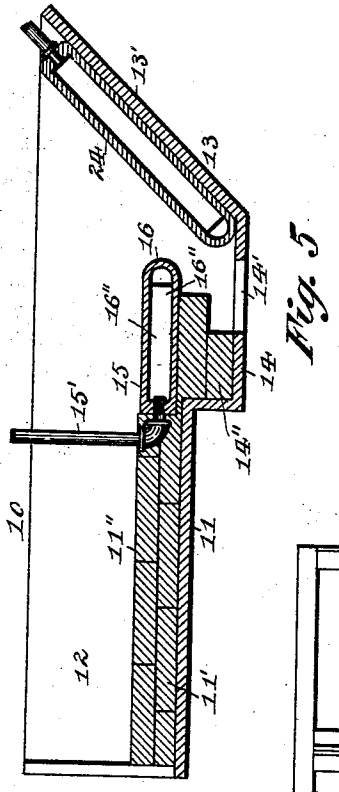


Fig. 5

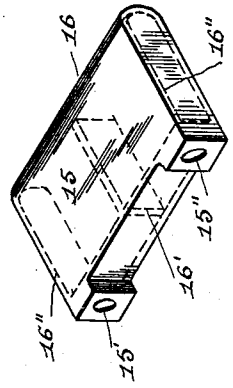


Fig. 6

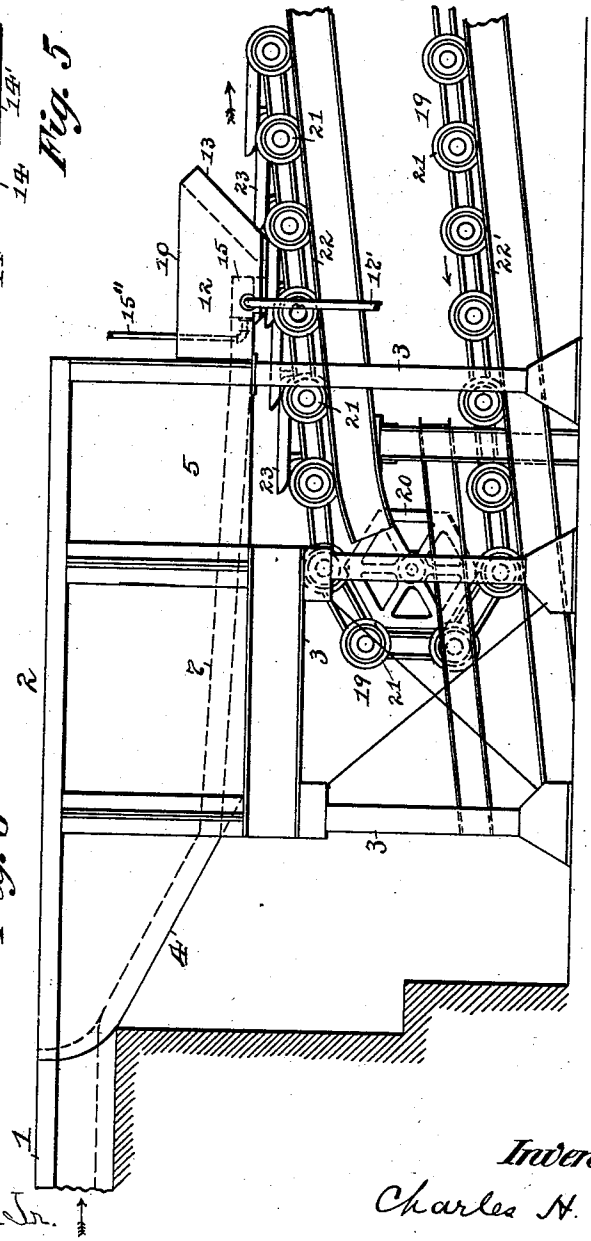


Fig. 1

Witnesses:

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Inventor:

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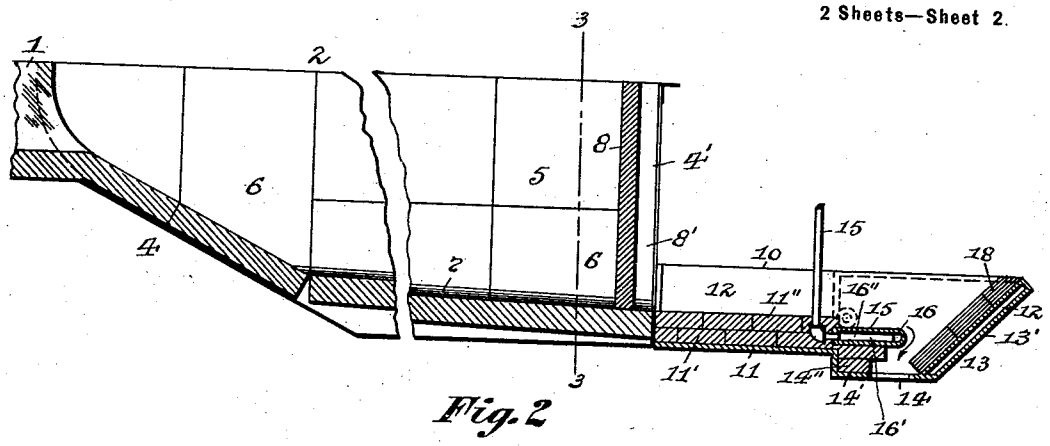


Fig. 2

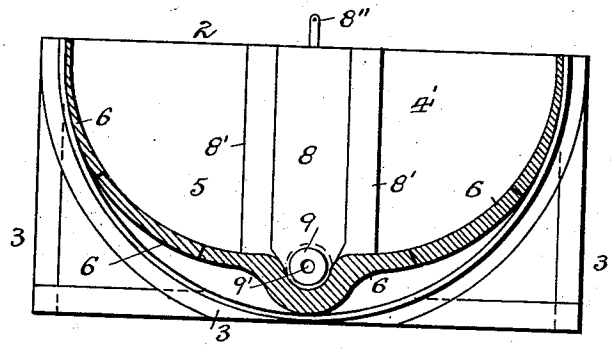


Fig. 3

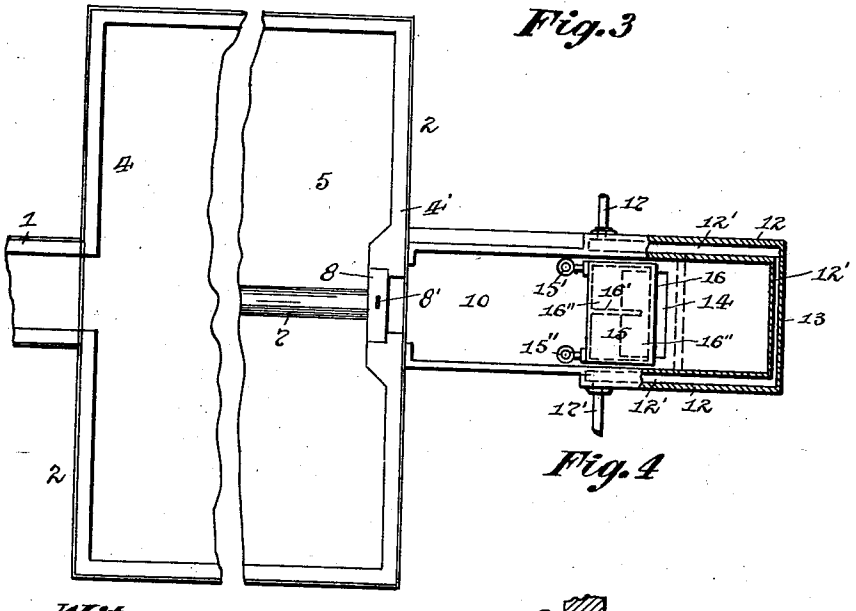


Fig. 4

Witnesses:

J. L. Snyder, Jr.

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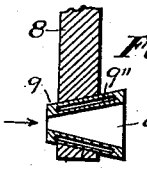


Fig 7

Inventor.

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UNITED STATES PATENT OFFICE.

CHARLES H. RHOOD, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HEYL AND PATTERSON, OF PITTSBURG, PENNSYLVANIA, A FIRM.

SLAG-CASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 715,868, dated December 16, 1902.

Application filed June 14, 1902. Serial No. 111,601. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. RHOOD, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Slag-Casting Machines; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to slag-casting machines, and has special reference to the feeding of the slag from the furnace to the conveyer containing the molds.

The main object of my invention is to provide a simple and efficient means of feeding the slag to the molds of the conveyer, so as to prevent the liability of the slag dropping down between the molds or the overflowing of the same; and a still further object is to provide means for preventing the rapid burning or cutting out of the reservoir and spout by the hot slag, as well as further objects hereinafter specified.

My invention consists, generally stated, in the novel arrangement, construction, and combination of parts, as hereinafter more specifically set forth and described, and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved slag-casting machine, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 shows a side view showing a portion of my improved slag-casting machine at the receiving end. Fig. 2 is an enlarged longitudinal central section of the reservoir and spout employed. Fig. 3 is a cross-section of the reservoir on the line 3 3, Fig. 2, looking toward the gate. Fig. 4 is a plan or top view of the reservoir and spout. Fig. 5 is an enlarged view showing another form of the spout. Fig. 6 is a perspective view of the water pad or box employed, and Fig. 7 is an enlarged detail section of the gate employed.

Like symbols of reference herein indicate like parts in each of the figures of the drawings.

As illustrated in said drawings, 1 designates the spout or runner which leads from a furnace to conduct the molten slag therefrom to the reservoir 2, located adjacent to the furnace and supported by the framework 3, stationed upon the ground. The reservoir 2 is of semicircular form and is provided with the downwardly-inclined receiving end 4, connecting the runner 1 and the main portion 5 of said reservoir 2, and such reservoir 2 is preferably formed of a series of sectional metal castings 6, which are connected together in any suitable manner, and within the center of such castings forming the main portion 5 of such reservoir 2 is the depression 7. A gate 8 fits within guides 8′ on the discharge end 4′ of said reservoir 2 and is provided with a bar 8″ thereon, to which is connected any suitable handle or lever for lifting the same when desired. Near the lower end of the gate 8 is the box 9, which is provided with the opening 9′ through the same, which box can be provided with hollow spaces 9″ therein for the circulation of air or water, if desired. Beyond this end 4′ of the reservoir 2 is the spout 10, which is connected to such end 4′ of said reservoir and is formed of the bottom wall 11, side walls 12, and front end wall 13. The bottom wall 11 of the spout 10 is provided with the brick or refractory lining 11′ thereon, the upper or top face 11″ of which connects with the lower end of the depression 7 in the main portion 5 of the reservoir 2, and such bottom wall is provided with the depression 14′ therein, within which is located the discharge-opening 14. Supported above and over the opening 14 by the brick or refractory work 14″ is the water pad or box 15, which has the curved forward end 16 and has supply and discharge pipes 15′ 15″, respectively leading to and from the same for permitting a circulation of the water therein, while within such box 15 is the bridge-wall 16′ for directing the course of the water in said box and acting to form the compartments 16″ therein. The front end wall 13 of the spout 10 is inclined upwardly and outwardly, as at 13′, from the depression 14′ in the bottom wall 14, and such front wall 13, as well as the side walls 12, adjacent to the depression 14′ and discharge-opening 14, are provided with the hollow spaces 12′ therein, which communicate with each other and have the supply and discharge pipes 17 17′, respectively, leading to and from the same

through the side walls 12 for permitting a circulation of water therein, while within the spout 10 and supported on the front end wall 13 is the inclined brick or refractory lining 18.

Extending under the main portion 5 of the reservoir 2 and under the spout 10 is the conveyer 19, which is power-driven, of the ordinary approved construction and is adapted to travel around wheels 20, located at each end and in the direction of the arrow shown in Fig. 1. This conveyer 19 preferably travels at an incline upwardly from said reservoir 2 and spout 10 by means of wheels 21 thereon engaging with the upper and lower tracks 22 22', respectively, in its movements and is provided with pans or molds 23, connected thereto, each of which is of such length as to overlap the one in its rear and of such height from their connecting-points as to be approximately level when the conveyer 19 is traveling upon an incline and the molds 23 are passing under the discharge-opening 14 in the spout 10.

The use and operation of my improved slag-casting machine is as follows: The molten slag as it comes from the furnace passes along the runner 1 and down through the inclined end 4 of the reservoir 2 into the main portion 5 thereof, through the depression 7 therein, and against the gate 8, after which such slag passes through the opening 9' in the box 9, which opening is of sufficient size to deliver the amount of material suitable to the capacity of the machine, and any excess of this amount will be accumulated in the reservoir 2 until such time as the supply is shut off from the furnace. The slag in passing through the opening 9' will run or pass out of such reservoir 2 into the spout 10, along the bottom-lining 11' therein, and on to and along the water-box 15 at the end of said lining 11'. The slag in passing along and over the box 15 will pass over the curved end 16 thereon and strike against the inclined lining 18 on the front end wall 13 of the spout and will be directed down around the end 16, through the discharge-opening 14 in the direction of the arrow shown in Fig. 1, and into the molds 23 on the conveyer 19 as they pass under the said opening 14, after which such filled molds 23 are carried along said conveyer in the direction indicated by the arrow in Fig. 1 and discharged at the upper end into bins, cars, or other receptacles, as desired, the slag in said filled molds being cooled by water-sprays or in any other suitable manner while traveling along the conveyer or after discharged, as desired. When the slag in the reservoir 2 has been drained down to the level of the opening 9' in the box 9, the gate 8 is raised, so as to allow the reservoir to be completely drained of said molten slag.

In Fig. 5 the front end wall 13 of the spout 10 is shown solid, and instead of the lining 14' on the inner face thereof there is provided a water pad or box 24 for directing the slag through the opening 14 and of similar construction as the water pad or box 15 over the said discharge-opening 14 in said spout, said box 24 being provided with suitable supply and discharge pipes for the circulation of water therein.

It will be evident the molten slag can be dropped from the spout into any suitable molds or receptacles and that any particular form of molds or conveying apparatus for such molds can be used. It will also be evident that the conveying apparatus can be operated on any other plane than that of an incline, as shown, and that the device can be used in the handling of other materials, metal, &c., than that of slag. These and various other modifications and changes in the construction and operation of the device may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

The device is simple and effective in its construction and operation, and by its use the slag can be run from the furnace and fed to the pans or molds in a rapid and convenient manner without liability of the rapid burning out of the parts and so fed to the molds as to overcome the dropping of the slag between the molds where they overlap each other, as in the ordinary cases.

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

1. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, and a water pad or box within said spout and supported above said discharge-opening.

2. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, and a water pad or box within said spout and supported over said discharge-opening.

3. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, and a water pad or box within said spout supported above and over said discharge-opening.

4. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, and a water pad or box within said spout and supported above said discharge-opening, said pad or box having a curved forward end to direct the slag through the discharge-opening.

5. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, and a water pad or box within said spout and supported over said discharge-opening, said pad or box having a curved forward end to direct the slag through the discharge-opening.

6. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, and a water pad or box within said spout and supported above and over said discharge-opening, said pad or box having a curved forward end to direct the slag through the discharge-opening.

7. In a slag-casting machine, the combination of a receiving-reservoir, and a spout connected to said reservoir having a discharge-opening therein and provided with an outer inclined end wall, said spout having its side walls and outer inclined end wall provided with water-compartments around the same.

8. In a slag-casting machine, the combination of a receiving-reservoir, and a spout connected to said reservoir having a discharge-opening therein, said reservoir being provided with a central depression within the same.

9. In a slag-casting machine, the combination of a receiving-reservoir, and a spout connected to said reservoir having a discharge-opening therein, said reservoir being formed in sections and provided with a central depression within the same.

10. In a slag-casting machine, the combination of a receiving-reservoir, and a spout connected to said reservoir having a discharge-opening therein, said reservoir being formed in curved sections and provided with a central depression within the same.

11. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, a gate within said reservoir, and a box within said gate having a slag-opening through the same.

12. In a slag-casting machine, the combination with a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, a gate within said reservoir adapted to be raised and lowered in guides therein, and a box within said gate having a slag-opening through the same.

13. A slag-casting machine, the combination of a receiving-reservoir, of a spout connected to said reservoir having a discharge-opening therein, a gate within said reservoir adapted to be raised and lowered in guides therein, and a box within said gate having a slag-opening through the same, said box being provided with hollow spaces within the same and around the slag-opening therein.

In testimony whereof I, the said CHARLES H. RHOOD, have hereunto set my hand.

CHARLES H. RHOOD.

Witnesses:
J. N. COOKE,
L. T. MARKS.