J. MICHITSCH.

RATTLING MACHINE.

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1,085,928. Patented Feb. 3, 1914.

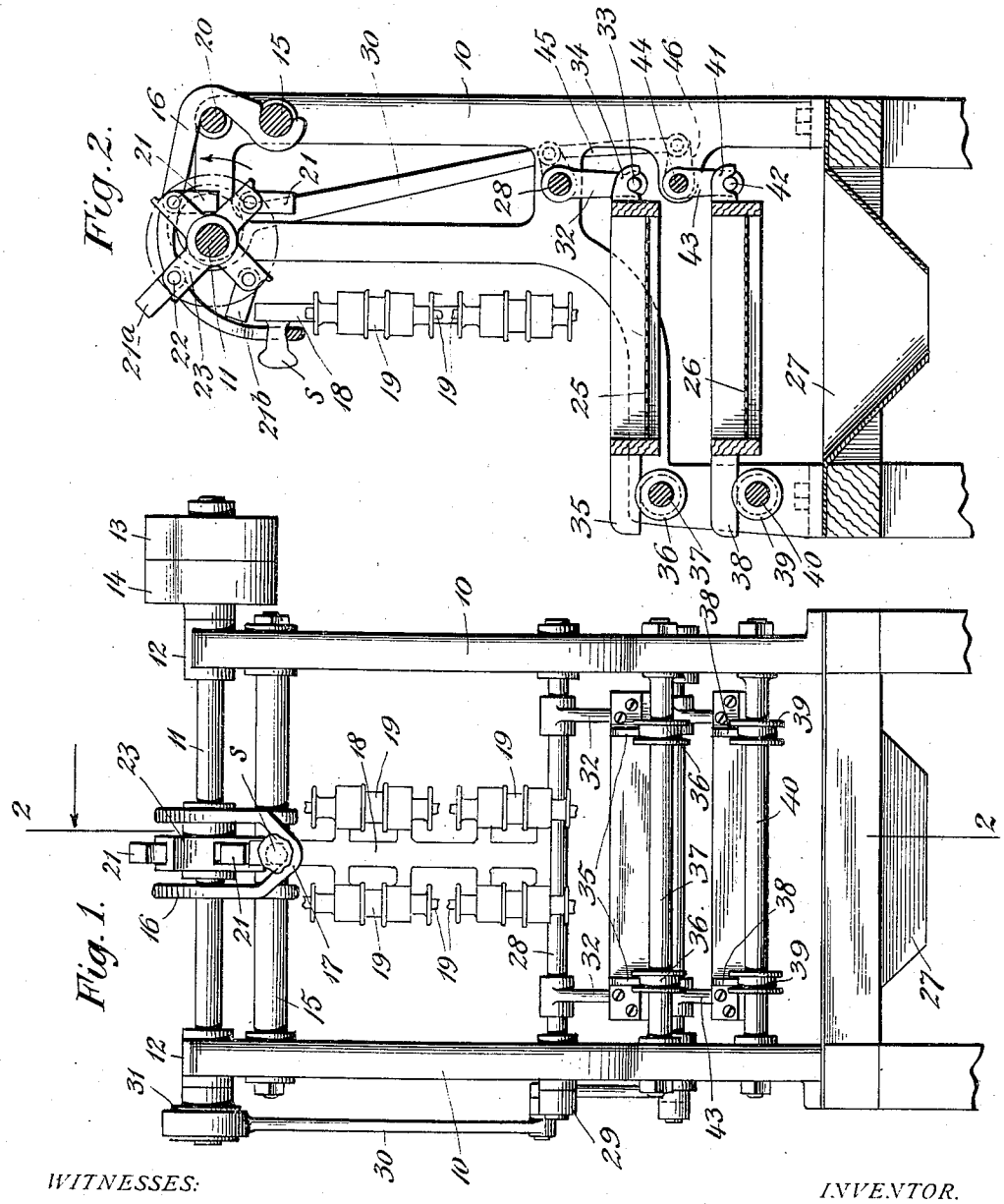


Fig. 2.

Fig. 1.

WITNESSES:

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RATTLING-MACHINE.

1,085,928. Specification of Letters Patent. Patented Feb. 3, 1914.

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To all whom it may concern:

Be it known that I, JOHN MICHITSCH, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Rattling-Machines, of which the following is a specification.

This invention relates to rattling machines, and more especially to that class thereof which are adapted for use in foundries for the purpose of divesting castings from molding or core sand, or both, and it has for one of its objects the provision of a machine in which the casting to be cleaned may be suspended during the operation of cleaning, which latter function is performed by imparting to the casting a series of blows or raps tending to loosen all matter which does not constitute an integral part of the casting.

The invention has, furthermore, for its object the provision of a series of hammers or tappets, preferably of the revoluble type, which become successively effective upon some part of the casting, such as a gate, or any other part which is to be cut off later.

The invention has also for its object the provision of one or more interchangeable hangers which will permit a yielding action so that the blows imparted by the tappets to the casting can become effective in establishing vibrations tending to loosen the particles of sand adhering thereto.

The invention has also for its object the combination with the rapping mechanism, of one or more screens disposed below the casting and into which the sand dislodged from the latter will drop, these screens being successive, that is to say, that the uppermost screen will have a coarser mesh than the succeeding ones, all residue, such as slag, core nails or wires and the like being retained in that screen, while the finer sand will fall through upon the succeeding screen so that ultimately a mass of sand will be obtained which can be used again for molding purposes.

Other objects of the invention will hereinafter appear and be particularly defined in the claims.

The invention has been clearly illustrated in the accompanying drawings, in which similar characters denote similar parts, and in which—

Figure 1 is a front view of the machine embodying my invention and Fig. 2 is a vertical cross-section on line 2, 2 of Fig. 1.

Referring to drawings 10, 10, denote a pair of side frames upon which the several devices are mounted for operation. These devices comprise a main shaft 11 journaled in bearings 12 and having secured at one end thereof a pulley 13 and a loose pulley 14, power being supplied thereto from any convenient source. A tie-rod 15 connects the two frames and serves as a brace member for one or more casting-hangers 16, preferably bent in the manner shown in Fig. 2 and comprising a pair of arms which are united at their front ends by a crotch 17 adapted to receive the sprue of a casting which comprises a series of members gated together by the main gate 18. In the present instance I have shown a series of cups, in which cores 19 are set to provide the desired recesses in the cup casting, the several cores being set in the usual manner. The arms of the hanger rest against the rear face of a second tie-rod 20 arranged above the first rod 15, and the lower end of said arms are formed hook-shaped so that in this manner each hanger may be readily removed from the machine, it being desirable that castings of different weights should have hangers of different yielding qualities. The casting is suspended in the hanger by the sprue S entering the crotch of the hanger from the rear side thereof, so that the top of the gate 18 will be in the path of a series of hammers or tappets 21 which are pivoted as at 22, on a spider 23 secured upon the shaft 11, the construction being such that during the rapid rotation of the shaft 11, the several tappets 21 will be thrown outward into the position shown at 21^a in Fig. 2 by centrifugal force, while at the same time they may pass-by the upper end of the gate 18 in a manner shown at 21^b.

Disposed below the casting are a series of screens, 25 and 26, the screen 25 being of coarse mesh adapted to retain core-nails, slag, the finer residue dropping onto the screen 26, which is a finer mesh and from which only the fine sand, such as may again be used for molding purposes, issues and drops through a hopper 27 into a box provided for that purpose or onto the floor.

Shaking motion may be imparted to both of the screens simultaneously, in any desired manner, and I have shown in the drawings a rock-shaft 28 having at its outer end an arm 29 which is connected by a rod 30 with an eccentric 31 secured upon the shaft 11 above mentioned. The shaft 28 has also a

pair of arms 32 each of which is provided at its lower end with a pin 33 adapted to serve as a support for a bracket 34 attached to the rear side of the screen frame 25. The front side of the screen has a pair of brackets 35 resting on anti-friction wheels 36 which are journaled on the cross shaft 37 held on the frames 10. In this manner it will be seen that the screen 25 can be readily removed from its supports. Likewise the screen 26 has at its front side forwardly-extending brackets 38 riding on wheels 39 on the shaft 40 in juxtaposition to the shaft 37, and the rear side of the screen 26 is provided with brackets 41 resting on pins 42 carried by arms 43 which are secured upon a rock-shaft 44 journaled in the side frames of the machine. Both rock-shafts 28 and 44 are connected for simultaneous movement by a link 45 extending from the arm 29 of the upper rock-shaft to an arm 46 secured upon the lower rock shaft 44. This construction will permit the removal of either screen without affecting the other.

It will be understood that when the rotary motion is imparted to the power shaft 11, the several tappets 21 will strike a series of quick blows upon the exposed end of the gate 18, the hangers 16 having a certain resiliency to permit vibration of the suspended casting, and therefore loosening all matter which is not integral with the casting itself. By this process a great amount of time and labor will be saved over the present method which, as a rule, requires hand operation in digging out the sand from the cores as well as brushing the outside, and the present machine need be operated only as long as required to produce the desired results. A series of hangers may be installed in the machine instead of the one shown in the drawing, such multiplicity of hangers entailing a corresponding number of tappet spiders, as may be readily understood.

Changes may be made in the general organization as well as in the particular construction of the component elements of my improved mechanism, without departing from the spirit of the invention, especially in the tappet spider, and in the hangers for the casting.

I claim:—

1. The combination with a frame, of means for supporting a casting and a plurality of pivoted and revoluble tappets thrown out by centrifugal force to strike the casting and passing by the casting by reason of their swinging upon their pivotal mounting, substantially as described.

2. The combination with a frame, of a hanger carried thereby and adapted to receive a casting, of a spider having a series of tappets, and means for rotating said spider.

3. The combination with a frame, of a hanger carried thereby and comprising a long arm supported at one end to allow of a certain amount of vibratory movement, a plurality of pivoted members arranged to revolve and be thrown out by centrifugal force and thereby strike the casting supported upon the hanger.

4. The combination with a frame, of a hanger carried thereby and adapted to receive a casting, means for imparting a series of blows to said casting, and one or more screens disposed below the casting.

5. The combination with a frame, of a hanger carried thereby and adapted to receive a casting, means for imparting a series of blows to said casting, one or more screens disposed below the casting, and means for imparting a shaking motion to said screens.

6. The combination with a frame, of a hanger carried thereby and adapted to receive a casting, means for imparting a series of blows to said casting, a plurality of screens supported below the casting and a rotatable member carried by said frame for simultaneously shaking all of said screens.

7. The combination of a pair of upright members, a pair of tie rods connecting said upright members, a hanger comprising an arm hooked to the lower tie rod and bent over the rear of the upper tie rod, thence continuing forward for some distance to give a certain amount of freedom for vibratory movement, a rotatable spider supported adjacent the end of the hanger, a tappet pivoted at the end of each spider arm, and means for rotating the spider, substantially as described.

8. The combination of a pair of uprights, a hanger supported thereby to hold a casting, a shaft journaled in the uprights, means for rotating said shaft, a spider fastened to the said shaft, a plurality of pivoted tappets carried on the ends of the spider, the said tappets being adapted to rap the casting and divest it of the sand, an eccentric upon said shaft, a screen supported below said casting, and linkage between the screen and the eccentric to cause a shaking action of the screen upon the rotation of said shaft, whereby the sand shaken from the casting by the rapping of the tappets is screened by being shaken through the screen, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MICHITSCH.

Witnesses:
H. D. MacDonald,
C. F. Schmelz.