

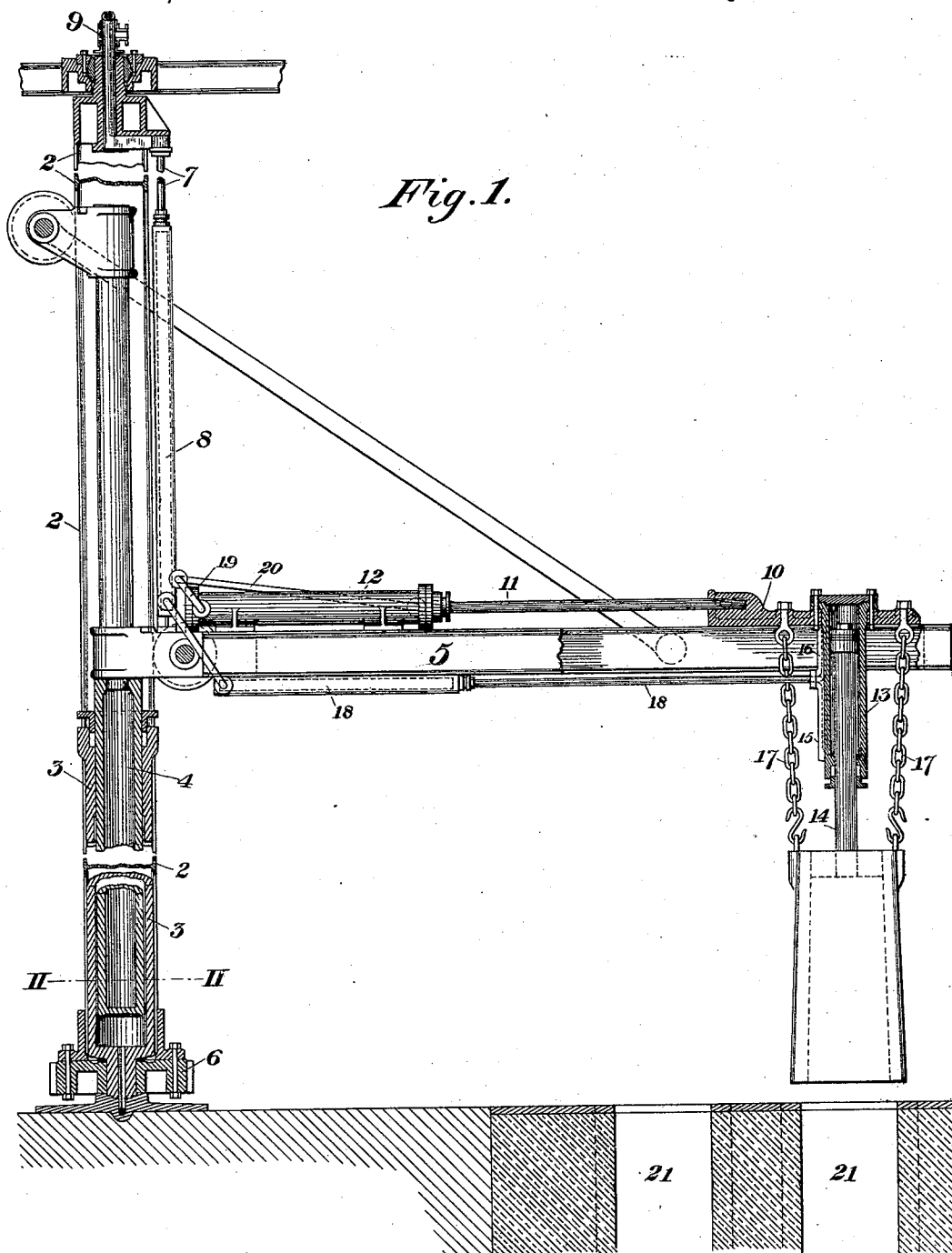
(No Model.)

2 Sheets—Sheet 1.

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APPARATUS FOR EXTRACTING INGOTS.

No. 475,027.

Patented May 17, 1892.



WITNESSES

Thomas W. Baxedell
H. L. Hill

INVENTOR

Henry Aiken

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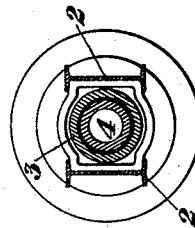
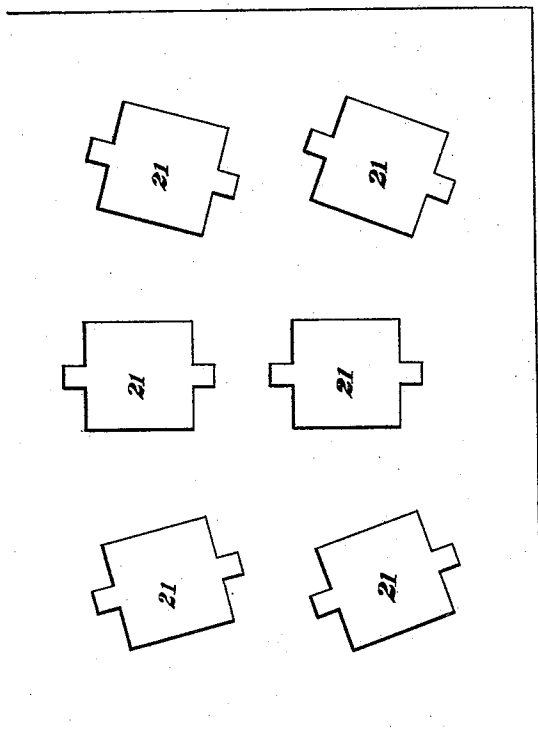
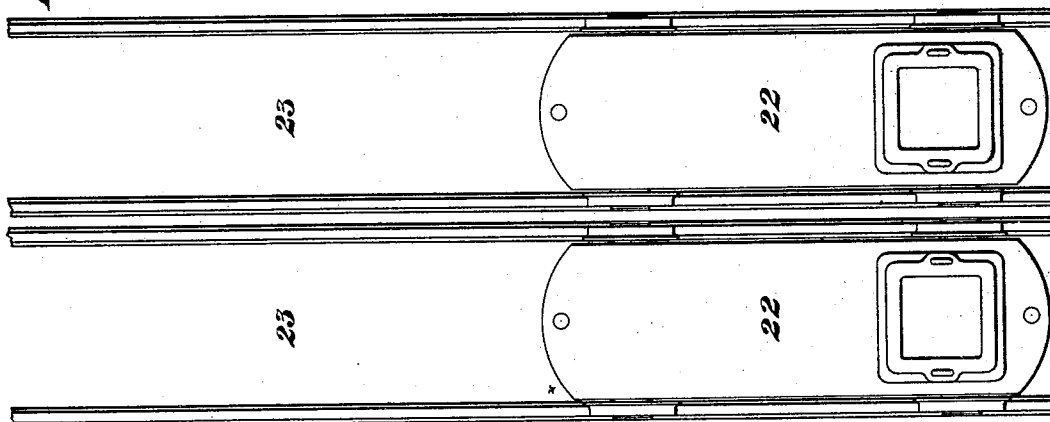


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY AIKEN, OF PITTSBURG, PENNSYLVANIA.

APPARATUS FOR EXTRACTING INGOTS.

SPECIFICATION forming part of Letters Patent No. 475,027, dated May 17, 1892.

Application filed October 1, 1890. Serial No. 366,717. (No model.)

To all whom it may concern:

Be it known that I, HENRY AIKEN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Extracting Ingots, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a side elevation, partly in vertical central section, showing a crane to which my improved ingot-extractor is attached. Fig. 2 is a plan view showing the crane in section on the line II II of Fig. 1.

15 Like symbols of reference indicate like parts in both figures.

In the drawings, 2 represents the mast of a crane, by which my improved ingot-extracting device may be carried.

20 3 is the upright lifting-cylinder.

4 is the plunger, and 5 is the horizontal jib or carrier, which projects from the plunger and is adapted to be lifted thereby.

The mast of the crane may be rotated in 25 the usual way by a rack in gear with a pinion 6, fixed to the lower part of the mast.

7 8 are telescopically-interfitted water-supply pipes for supplying the motors on the crane-jib, which pipes derive their water from 30 connections 9 at the top of the crane. These water connections are not claimed herein, since they form the subject-matter of a prior patent application, Serial No. 336,789, filed January 13, 1890. The jib is provided with a 35 sliding carriage 10, connected to the plunger of a hydraulic cylinder 12, so that by projecting and retracting the plunger the carriage may be caused to move longitudinally on the jib.

40 13 is an upright hydraulic cylinder supported by the carriage 10 and extending downwardly between the beams of the jib. The plunger 14 of the cylinder 13 projects from the lower end of the cylinder, and the cylinder 45 is provided with water-inlets 15 and 16, through which water may be admitted to move the plunger in either direction.

17 17 are suspending chains which depend from the carriage 10 and are provided with 50 hooks or other devices by which they may be attached to an ingot-mold, as shown in Fig. 1. The cylinder 13 derives its water-supply from

telescopically-fitted water connections 18, which communicate with the upright water connections 7 8, as shown. The cylinder 12 55 has also water-supply pipes 19 20, which enter its ends and render the cylinder double-acting.

In the drawings I show my improved ingot-extracting device arranged in a mill plant in connection with soaking-pits 21, in which the 60 ingots are deposited from the molds, and cars 22, by which the molds containing the ingots are carried on tracks 23 to the soaking-pits.

In order to extract an ingot from its mold 65 and to deposit it in one of the soaking-pits 21, I swing the jib of the crane, and, if necessary, move the carriage on the jib, so as to bring the carriage over the ingot-mold. I then engage the mold by means of chains 17, and by 70 raising the jib and swinging it the mold may be carried directly over the mouth of one of the soaking-pits 21, as shown in Fig. 1. The plunger is then caused to descend and to bear upon the middle of the ingot, and by applying 75 water-pressure to the upper end of the plunger it is forced down with sufficient pressure to eject the ingot from the mold and to cause it to drop therefrom into the soaking-pit. During this action of the plunger the mold 80 may be supported at its lower end by the top of the soaking-pit, if this be desired, or if the operator wishes not to deposit the ingot directly in the soaking-pit, but to deposit it on the mill-floor and afterward to place it in the 85 soaking-pit or reheating-furnace, the mold may be upheld by the crane above the floor or above a suitable receptacle and the ingot may be ejected by downward pressure of the plunger.

90 Other modes of use of my improved apparatus will suggest themselves to those skilled in the art. Its advantages are manifold. It affords a very efficient device for removing ingots, since it is operated with little labor 95 and does away with the arduous handling and the wear on the molds incident to the use of ingot-extracting machines in which the mold is placed horizontally and is held by a stop while a powerful ram is used to free the 100 ingot from the mold.

It will be understood that this part of my apparatus, consisting of a power-actuated pusher for the ingot and a support or sus-

pending device for upholding the mold in an upright position, may be applied in modified forms and to a crane or other apparatus of different construction from that illustrated in the drawings, and I intend to claim it broadly, and in addition thereto to make specific claim to the peculiar construction hereinbefore described.

I claim as my invention—

10 1. In an apparatus for removing ingots from their molds, the combination, with an overhanging support, of means for firmly suspending the mold thereto with its included ingot and a power ejector device carried on the support for applying force positively to the ingot, and thereby expelling the same from the mold, substantially as set forth.

20 2. In combination with a vertically-movable jib, a hydraulic cylinder, piston, and ejector carried thereon, and independent ap-

pliances for lifting and sustaining the mold and its contained ingot by means of the jib and supporting the same while the ingot is being expelled by the ejector, as set forth.

3. In combination with the vertically and laterally movable jib of a crane, a carriage movable longitudinally thereon carrying a hydraulic cylinder, piston, and ejector, and also provided with means for suspending and carrying the mold and included ingot and positively holding the same while power is applied through the ejector for expelling the ingot, substantially as set forth.

In testimony whereof I have hereunto set my hand this 29th day of September, A. D. 1890.

HENRY AIKEN.

Witnesses:

W. B. CORWIN,
H. M. CORWIN.