

SOAKING PIT.  
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Patented Nov. 10, 1908.

A detailed cross-sectional diagram of a mechanical device. The main body is hatched. On the left, a chamber contains a piston-like component labeled 'v' and a valve mechanism labeled 'd²'. To the right, there are two vertical cylindrical chambers labeled 'c¹' and 'c²'. Above them is a curved duct or passage labeled 'e s f s¹'. At the bottom, there are three vertical rods or pins labeled 'i', 'h', and 'g'. A rectangular block labeled 'u' is positioned on the right side.

Fig. 3.

Witnesses  
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# UNITED STATES PATENT OFFICE.

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## SOAKING-PIT.

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*To all whom it may concern:*

Be it known that we, PAUL SCHMIDT, a subject of the Emperor of Germany, and ADOLPHE DESGRAZ, a citizen of Switzerland, residing at Hanover, Germany, have invented certain new and useful Improvements in Soaking-Pits, of which the following is a full, clear, and exact description.

Our invention relates to pits in which ingots are placed while the temperature throughout the same is equalized prior to passing them through the rolls and the object of the invention is to provide means whereby the temperature of the pits may be regulated to avoid chilling of the ingots and whereby the entire charge or cast of the molds may be accommodated without loss and without considering the capacity of the rolls. These objects are attained by an apparatus of the character illustrated in the accompanying drawings and the invention consists in certain novel features of the same, as will be hereinafter first fully described and then particularly pointed out in the claims.

In the drawings, Figure 1 is a transverse section taken on the line A—B of Fig. 3 while Fig. 2 is a longitudinal section taken on the line C—D of Fig. 3, Fig. 3 being a plan view.

Referring to the drawings by letter,  $a'$ ,  $a^2$ ,  $b'$ ,  $b^2$ ,  $c'$ ,  $c^2$ , denote the pits in which the ingots are placed, the pits being arranged in pairs and as many pairs being provided as may be desired. The pits of each pair communicate and in front of each pair is a heating chamber, each provided with a heating device. These heating chambers are designated by the letters  $a$ ,  $b$ ,  $c$ . At their rear ends, the pits communicate with a common flue  $u$  which carries the waste gases to a recuperator  $t$  from which they may escape through a discharge flue  $u'$  provided with a damper or valve  $w$ . The chambers are independently heated and are provided with separate air and gas supply pipes so that the heat may be regulated according to the requirements in each pair of pits and to facilitate the adjustment the actuating mechanism for the supply-controlling devices is located above ground out of the way of the cranes. Air is supplied to the recuperator  $t$  through a pipe  $x$  whence it passes in a highly heated condition to the collecting chamber or reservoir  $r$  which communicates through

flues  $g$   $h$   $i$  with the chambers  $a$   $c$   $b$  respectively, the flues being provided with dampers  $k$   $l$   $m$ , respectively, which are adjusted by controlling devices,  $l'$ , above the ground directly over the reservoir or collecting chamber  $r$ . The gas is supplied through the pipe  $v$  from which it passes to the heating chambers through separate branch pipes controlled by regulating valves  $d$   $d'$   $d^2$  arranged in an open space  $n$  underground. The valves are operated by actuating devices  $o$   $p$   $q$  which are connected with the respective valves by chains or cords and are arranged above ground over the reservoir  $r$ . The gas and air supply pipes or flues enter the collecting spaces or chambers  $e$   $f$ , respectively, the said collecting chambers being provided in their rear walls with nozzles or ports  $s$   $s'$  which are in alinement and through which the mingled air and gas pass to the respective heating chambers. The gas passes from the chamber  $e$  through the nozzle  $s$  under such pressure that it passes in a compact current through the air chamber  $f$  and the nozzle  $s'$  so as to carry the air with it and become intimately mixed therewith upon its entry into the pit.

By the arrangement described and shown the heating will be affected immediately by any variation in the supply of gas or air, the result being that the combustion process can be regulated, and adjusted within wide limits. The pits can, consequently, be divided into a number of small unit groups which can be separately heated and the whole plant can be managed in a manner most suitable to the material of the ingots. As the gas and air supply of each chamber can be separately adjusted and the controlling mechanism of all the chambers are arranged close together above ground and out of the way of the cranes, it follows that the heating of each chamber may be regulated from one point according to the requirements of the ingot therein. By uniting two pits in a single chamber, we are enabled to heat the ingots therein uniformly with a minimum consumption of fuel and a minimum waste of the ingots.

Having thus described our invention, what we claim and desire to secure by Letters-Patent is:—

1. The combination of a series of pits, a series of heating chambers therefor, an air,



supply flue, a recuperator through which the said flue passes, a reservoir into which said flue discharges, and a series of air passages leading from the reservoir to the several  
5 heating chambers.

2. The combination of a series of pits, an air reservoir, means for supplying said reservoir, separate air passages leading to the several pits, separate gas flues leading to the  
10 several pits, valves in the said air passages

and gas flues, and devices for controlling said valves all arranged over the reservoir.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

PAUL SCHMIDT.  
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Witnesses:

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