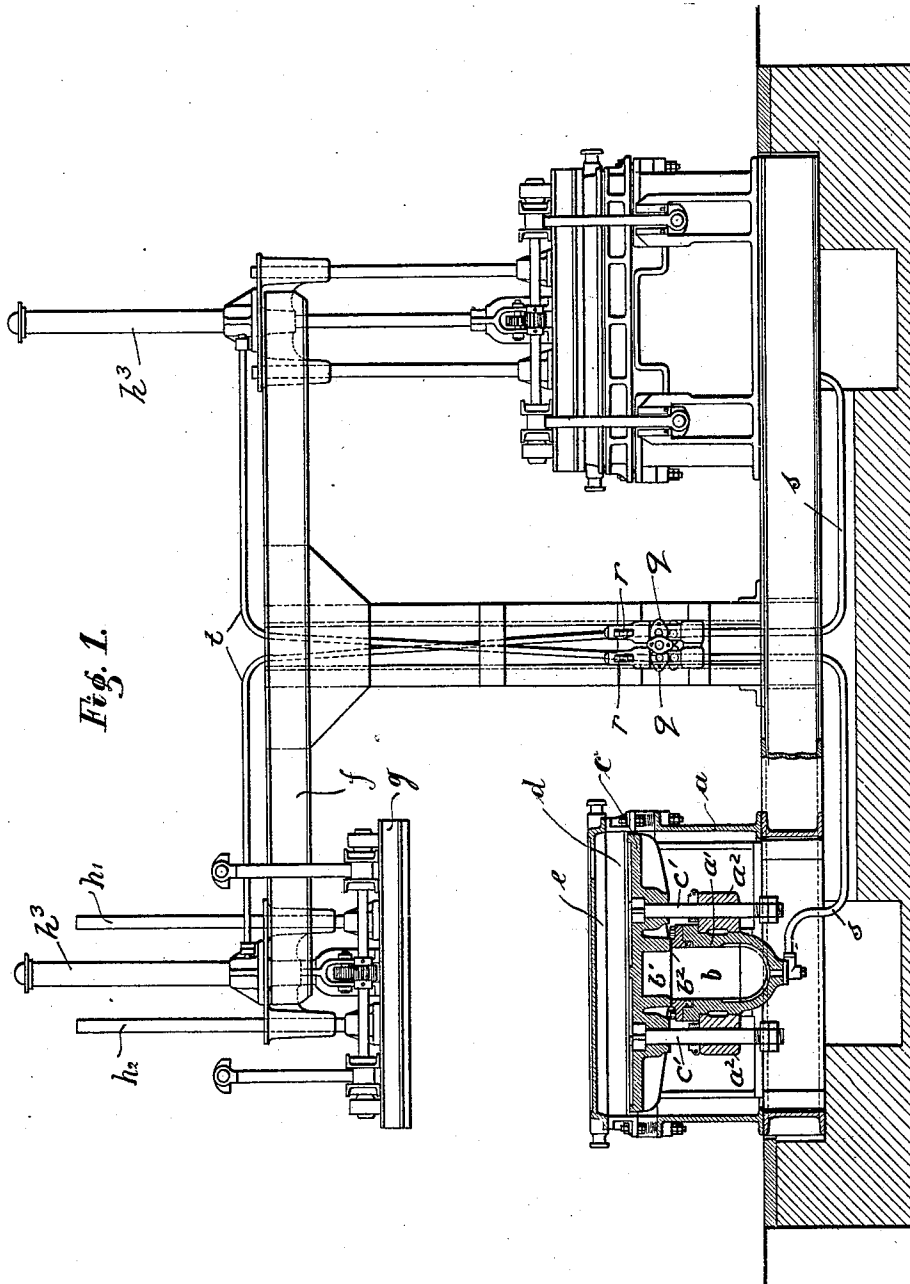


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G. A. OERTZEN.
HYDRAULIC MOLDING MACHINE.
APPLICATION FILED JAN. 20, 1910.

Patented May 16, 1911.

2 SHEETS—SHEET 1.



Witnesses:
H. R. Schuch.
Edw. Dehor.

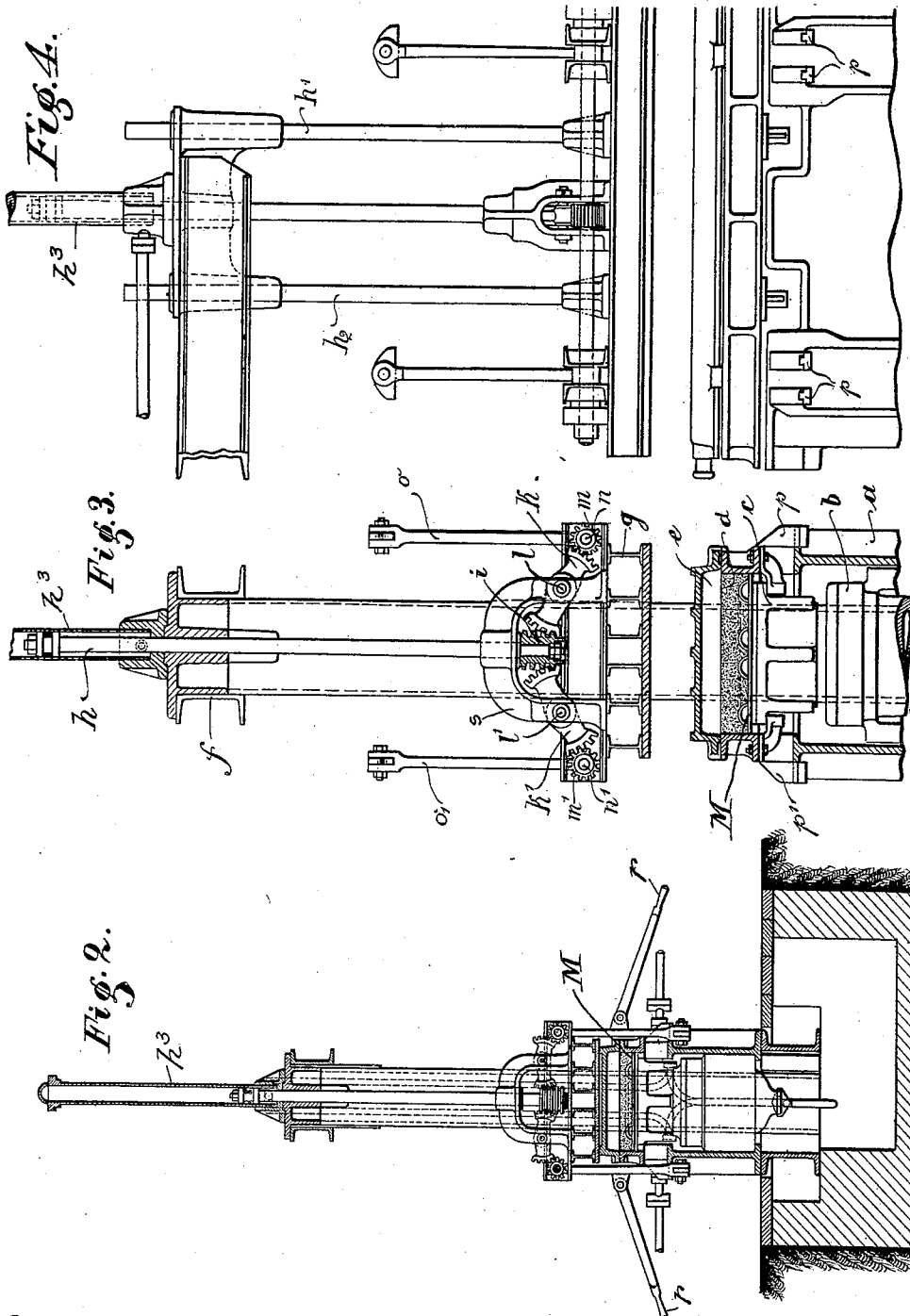
Inventor:
Gustav Adolf Oertzen
by his attorney
Frank W. Friesen

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Gustav Adolf Oertzen
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Hankel & Briesen

UNITED STATES PATENT OFFICE.

GUSTAV ADOLF OERTZEN, OF DUSSELDORF-OBERCASSEL, GERMANY.

HYDRAULIC MOLDING-MACHINE.

992,379.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed January 20, 1910. Serial No. 538,991.

To all whom it may concern:

Be it known that I, GUSTAV ADOLF OERTZEN, a citizen of the German Empire, residing at Dusseldorf-Obercassel, Germany, have invented an Improved Hydraulic Molding-Machine, of which the following is a specification.

This invention relates to a hydraulic molding machine for radiators and similar articles, which is freely accessible from all sides and in which the molding box is effectively locked against pressure during the molding operation.

In the accompanying drawing: Figure 1 is a side elevation partly in section of a duplex molding machine embodying my invention, Fig. 2 a cross section of part thereof showing the counter pressure plate lowered, Fig. 3 a similar section with the plate raised, and Fig. 4 a side elevation of part of the machine.

The molding press proper comprises a lower frame *a* supporting a cylinder *a'* within which plays a hydraulic plunger *b*. The latter is provided with an upper reduced section *b'* received within a corresponding socket of a follower *c* that is seated on the annular shoulder *b²* formed between plunger *b* and section *b'*. Follower *c* is guided by depending rods *c'* engaging perforated lugs *a²* of frame *a*. Follower *c* supports the model or mold board *M* (Figs. 2 and 3) which is reciprocable in a stationary sand receiving frame *d* which is surmounted by the flask *e*. Frame *d* is adapted to receive the necessary charge of sand prior to the application of flask *e* to said frame and to hold said charge before it is forced into the flask by the rise of plunger *b*, as hereinafter described.

In order to hold flask *e* in position during the molding operation, I provide a plate or abutment *g* adapted to be lowered upon flask *e* and to be raised off the same, by hydraulic means. Plate *g* is secured to a yoke *s*, which normally rests upon the toothed foot or rack *i* of a piston *h*. This piston is guided by rods *h'*, *h²* and plays within a cylinder *h³* mounted on an outrigger arm of an upper frame *f* which arm overhangs lower frame *a*. For actuating plungers *b* and *h*, pumps *q* operated by handles *r* are provided, which

pumps may be coupled to cylinders *a'*, *h³* by conduits *s*, *t* respectively.

Piston *h* is movable independently from yoke *s* and plate *g*, and its rack *i* engages the inner toothed ends of a pair of two arm levers *k*, *k'* pivoted at *l*, *l'* to plate *g*. The outer toothed ends of these levers are by wheels *m*, *m'*, intergeared with the spindles *n*, *n'*, of a pair of locking bars or claws *o*, *o'*. These claws are adapted to engage a pair of projections or keepers *p*, *p'* formed on frame *a*.

After frame *d* has been filled, and box *e* superposed, piston *h* is lowered, to lower plate *g* upon flask *e*. By the further independent descent of piston *h*, within the upper chambered section of plate *g*, rack *i* will by levers *k*, *k'* and wheels *m*, *m'* swing bars *o*, *o'* downward and into engagement with keepers *p*, *p'*. In this way the upper mold-section will become securely interlocked with the lower section, so that plunger *b*, may be advanced to effect the molding operation. The pressure water is then withdrawn from the cylinder of plunger *b*, and piston *h* is raised to first uncouple bars *o*, *o'* from keepers *p*, *p'*, and then raise plate *g* off flask *e*. The flask may now be readily removed from either side of the machine, all of which is freely accessible to the operator.

I claim:

1. In a molding machine, a lower machine frame, a sand frame and a superposed molding flask mounted thereon, and a plunger reciprocable within said frame, combined with an upper machine frame having a stationary outrigger arm that overhangs the lower frame, a piston movable in said outrigger arm, an abutment on said piston and adapted to be lowered upon the molding flask, and means actuated by the piston for locking said abutment to the lower machine frame.

2. In a molding machine, a lower machine frame, a plunger and a molding flask carried thereby, combined with an upper machine frame, a piston carried thereby, a yoke loosely supported by the piston, a pressure plate carried by the yoke, a pair of locking bars pivoted to the plate and operable by the piston, and keepers on the lower machine frame adapted to be engaged by said bars.

3. In a molding machine, a lower machine frame, a plunger and a molding flask carried thereby, combined with an upper machine frame, a piston carried thereby and
5 having a rack, a yoke loosely supported by the piston, a presser plate carried by the yoke, toothed levers engaged by the rack, locking bars intergeared with the levers, and

keepers on the lower machine frame adapted to be engaged by said bars. 10

Signed by me at Barmen, Germany, this 3rd day of January 1910.

GUSTAV ADOLF OERTZEN. [L. s.]

Witnesses:

OTTO KÖNIG,

CHAS. J. WRIGHT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
