

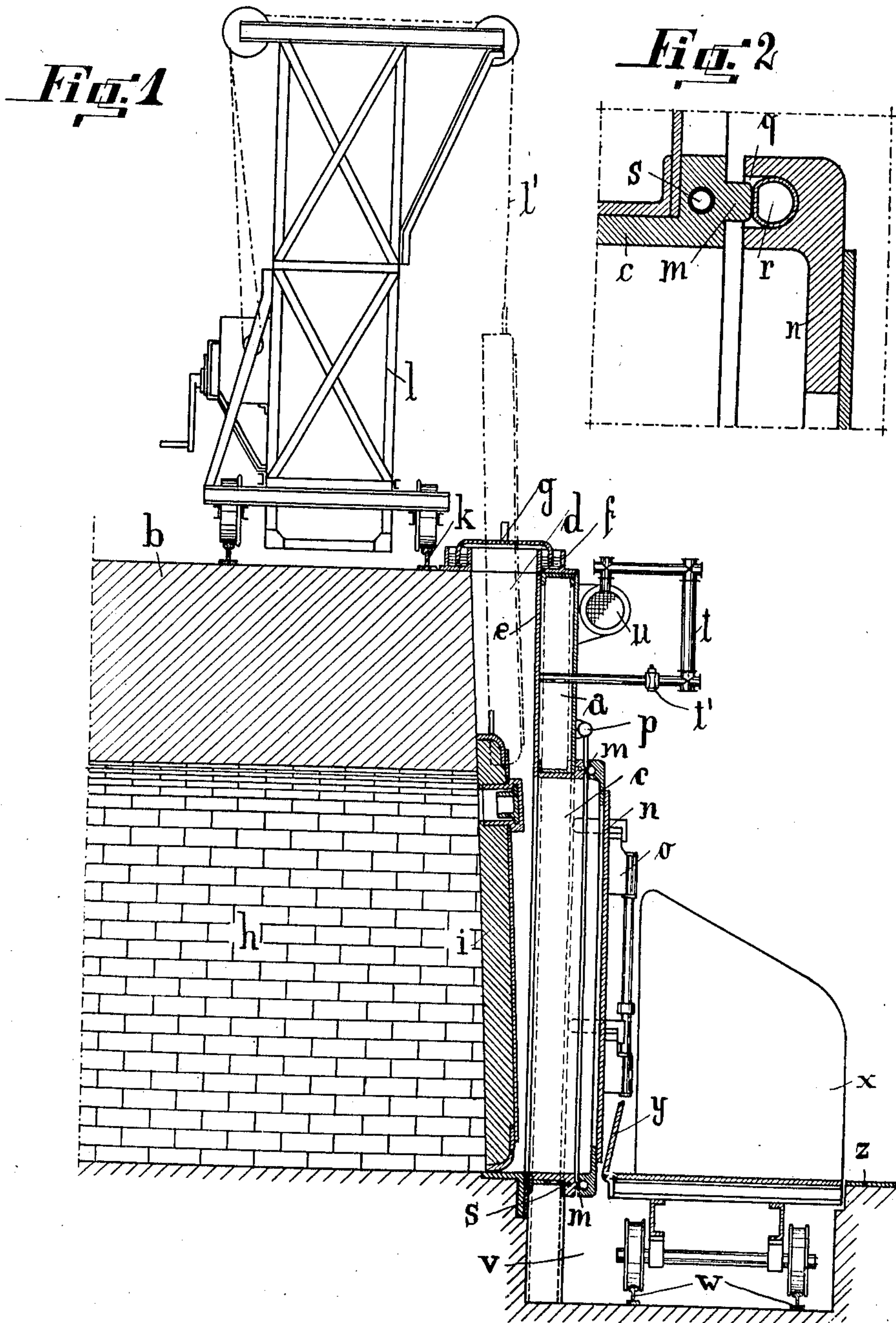
No. 871,421.

PATENTED NOV. 19, 1907.

H. KOPPERS.
COKE OVEN DOOR.

APPLICATION FILED NOV. 10, 1906.

2 SHEETS—SHEET 1.



Witnesses:
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William Scholz.

Inventor:
Heinrich Koppers,
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Fig. 3

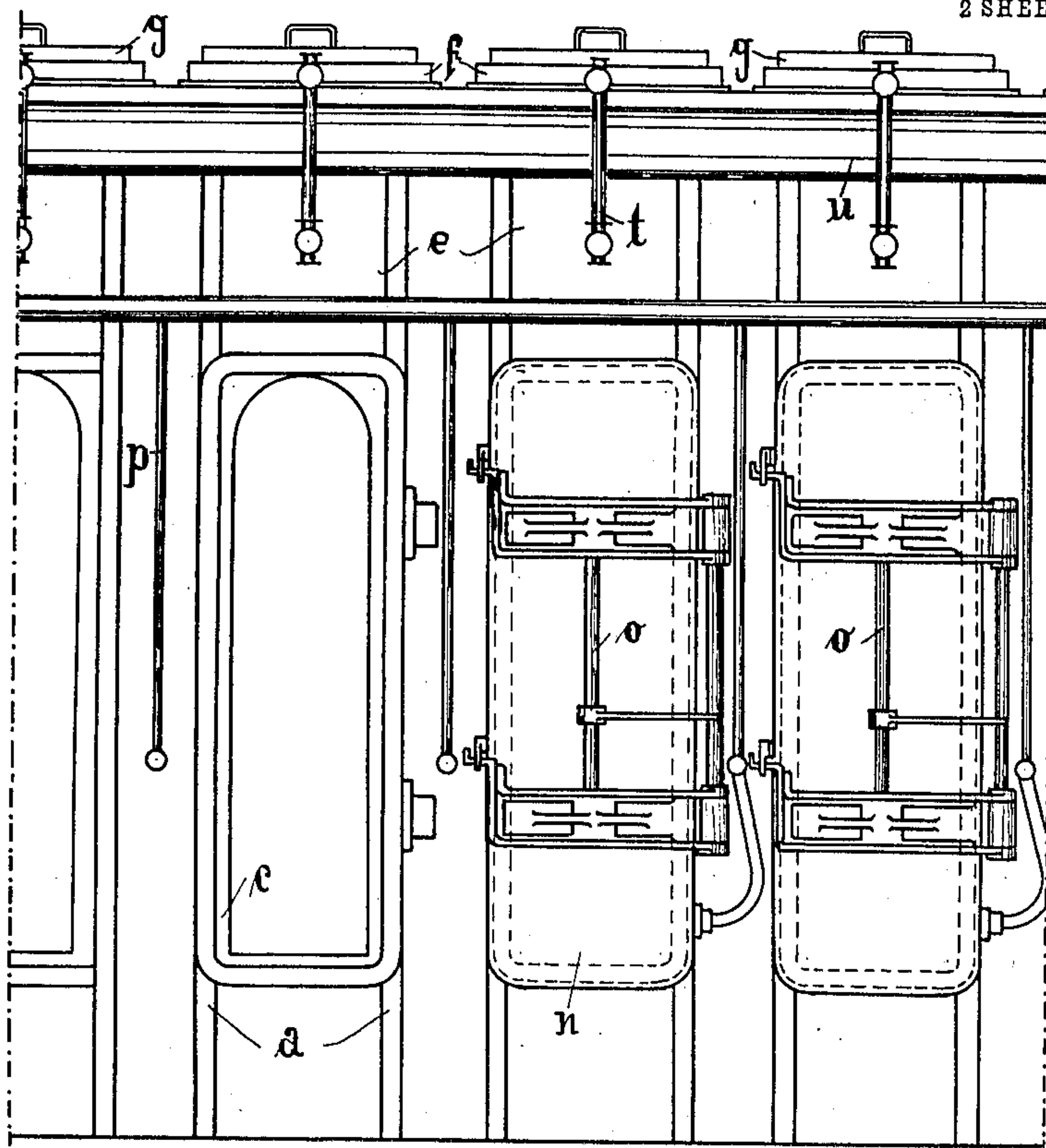
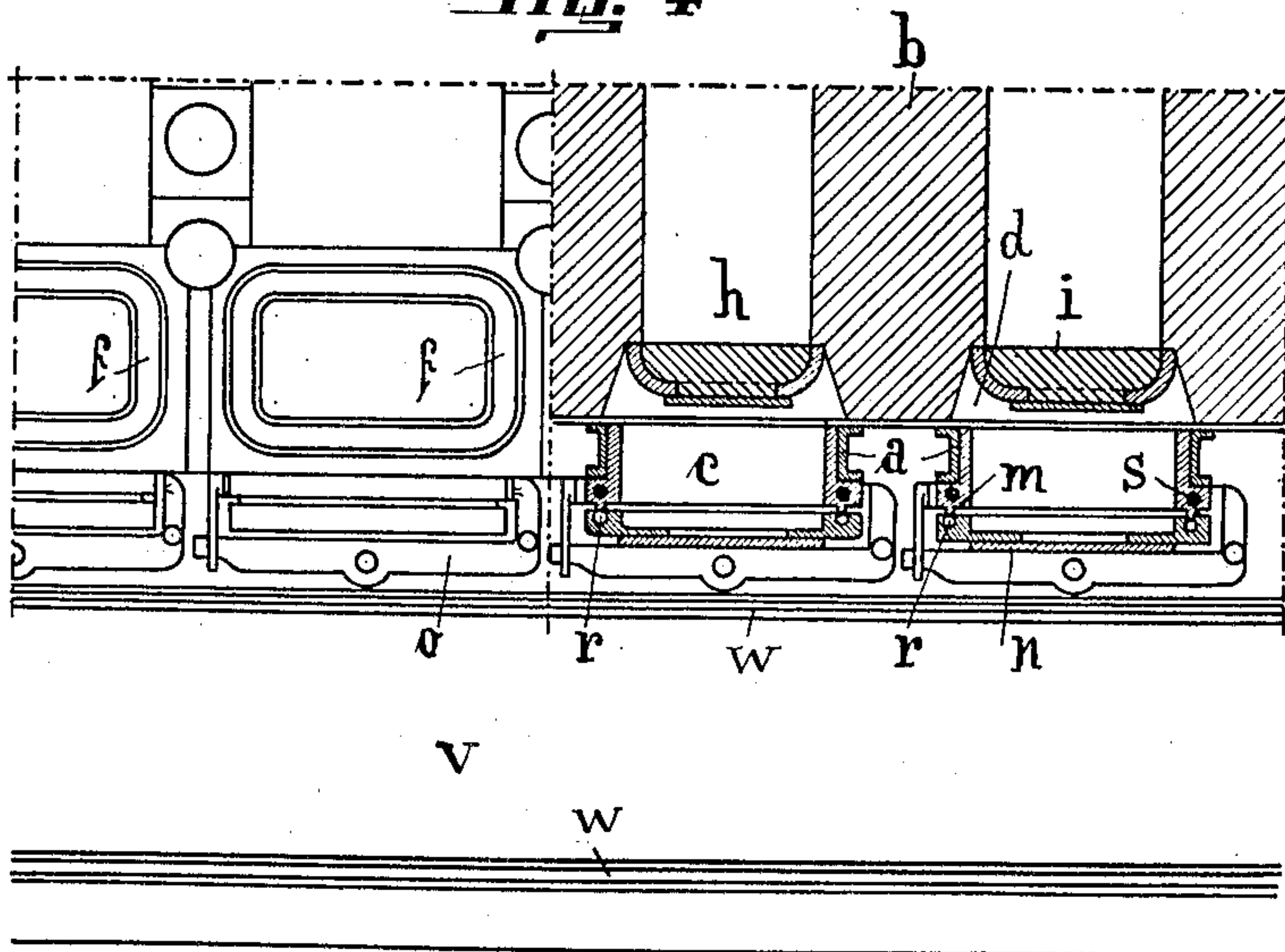


Fig. 4



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UNITED STATES PATENT OFFICE.

HEINRICH KOPPERS, OF ESSEN-ON-THE-RUHR, GERMANY.

COKE-OVEN DOOR.

No. 871,421.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed November 10, 1906. Serial No. 342,822.

To all whom it may concern:

Be it known that I, HEINRICH KOPPERS, a citizen of Germany, residing at Essen-on-the-Ruhr, Germany, have invented new and useful Improvements in Coke-Oven Doors, of which the following is a specification.

This invention relates to a door for coke-ovens, which is air-tight, may be readily removed and replaced, and is not liable to be warped under the influence of heat.

In the accompanying drawings: Figure 1 is a vertical section through part of a coke-oven provided with my improved door; Fig. 2 a detail showing the connection between door proper and casing; Fig. 3 a front view of part of the oven, and Fig. 4 a plan, partly in section thereof.

The oven *b*, is provided with a number of coking chambers *h*, arranged side by side. These chambers are closed during the coking process by outer doors *n*, engaging corresponding box-like casings or door frames *c*. The latter form a continuation of the coking chambers and are secured in front of the oven to vertical channel irons or uprights *a*, that flank the mouth of each chamber. In order to prevent the heat of the coking chambers from directly influencing casing *c*, and door *n*, shields or inner doors *i*, are interposed between the mouths of chambers *h*, and doors *n*. Each shield *i*, is received within a flaring antechamber of coking chamber *h*, said antechamber being formed by a recess *d*, in the front wall of the oven. This recess extends upwardly between uprights *a*, and is closed in front above casing *c*, by a plate *e*, fastened to the inner side of such uprights. In order to hold shield *i*, in contact with its seat, the rear wall of recess *d*, is slightly inclined, as shown in Fig. 1. At its top, recess *d*, is closed by a flanged lid *g*, dipping into a water trough *f*, to form a liquid seal.

Doors *n*, are normally held against the front of casing *c*, by a suitable locking device *o*. In order to form a tight joint between door and casing, the latter has a flange *m*, adapted to enter a corresponding groove or recess *q*, of door *n*. Within recess *q*, is seated an endless tube *r*, made of rubber, or other flexible material. Tube *r*, is by pipe *p*, connected to a suitable compressed air supply, (not shown). It will thus be seen that when door *n*, is locked against casing *c*, and compressed air is admitted into tube *r*, the latter will be expanded to form a tight

joint between door and casing. Casing *c*, may be cooled by ducts *s*, formed in its walls and connected to a cold water supply, (not shown).

In addition to shield *i*, which prevents the heat from directly influencing casing *c*, and door *n*, I provide means for admitting a cooling medium into the chamber formed by casing *c*, and recess *d*, (Fig. 1). For this purpose I prefer to use the cooled gases delivered under slight pressure from the gas coolers, (not shown), and passing into pipe *u*. The latter extends along the front wall of oven *b*, above casings *c*, and is connected by branches *t*, controlled by cocks *t'*, with recesses *d*. By opening one of the cocks *t'*, gas under pressure will enter through recess *d*, into casing *c*. But as shield *i*, does not close gas-tight against its seat, a small part of the gas contained in casing *c*, will pass into chamber *h*, so that cooled gas will constantly enter casing *c*, from tube *u*, through branch *t*, and recess *d*. The slight excess of pressure in casing *c*, over that in chamber *h*, prevents the hot gases in the latter from entering casing *c*, so that no deposits from such hot gases can be formed in casing *c*.

In front of oven *b*, extends a pit *v*, provided with rails *w*, supporting a car or movable platform *x*. If it is desired to remove the coke from a chamber *h*, platform *x*, is brought opposite said chamber, door *n*, is removed and a lid *y*, on platform *x*, is folded over the gap formed between casing *c*, and platform *x*. A crane *l*, traveling on rails *k*, on the top of oven *b*, is now moved above the chamber to be emptied. Lid *g*, is removed and the chain *l'*, of crane *l*, is secured to shield *i*. By operating the crane, shield *i*, is raised into the position shown in dotted lines in Fig. 1. The coke is now removed from chamber *h*, across platform *x*, to the coke storing floor *z*.

I claim:

1. A coke oven provided with a coking chamber, a door-frame, an intervening antechamber which is open at the top, a fire shield in the ante-chamber engaging the coking chamber, a door engaging the door-frame, and a movable lid adapted to close the top of the ante-chamber, substantially as specified.

2. A coke oven provided with a coking chamber, a door-frame, an intervening flaring ante-chamber which is open at the top, a fire shield in the ante-chamber engaging

the coking chamber, a door engaging the door-frame, and a movable lid adapted to close the top of the flaring ante-chamber, substantially as specified.

- 5 3. A coke-oven provided with a coking chamber having a flaring antechamber, a fire shield received thereby, a casing in front of the antechamber, a door engaging the casing, a lid adapted to close the top of the ante-

chamber, and a liquid seal for said lid, substantially as specified. 10

Signed by me at New York city, (Manhattan,) N. Y., this first day of November 1906.

HEINRICH KOPPEL S.

Witnesses:

FRANK V. BRIESEN,
WILLIAM SCHULZ.