No. 892,942. PATENTED JULY 7, 1908.

T. W. DRAINE & T. F. SHINGLEDECKER.

GARBAGE PLANT.

APPLICATION FILED APR. 11, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

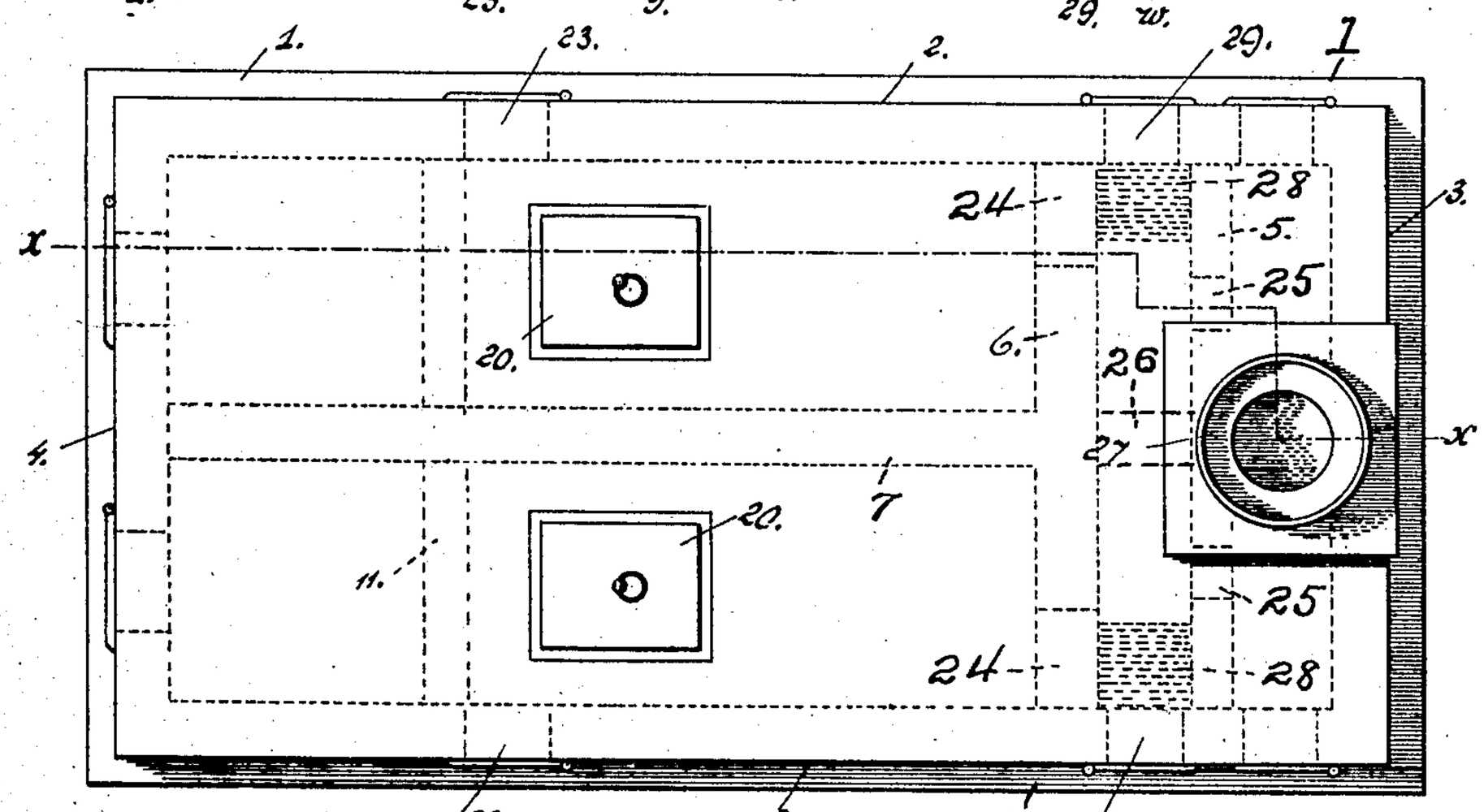

Fig. 2.

WITNESSES:

A. H. Rabsag,

K. S. Cutler

INVENTORS.

T. W. Draine and T. F. Shingledecker,

BY H. C. Evert & Co.

Attorneys

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2 SHEETS—SHEET 2.

Fig. 3.

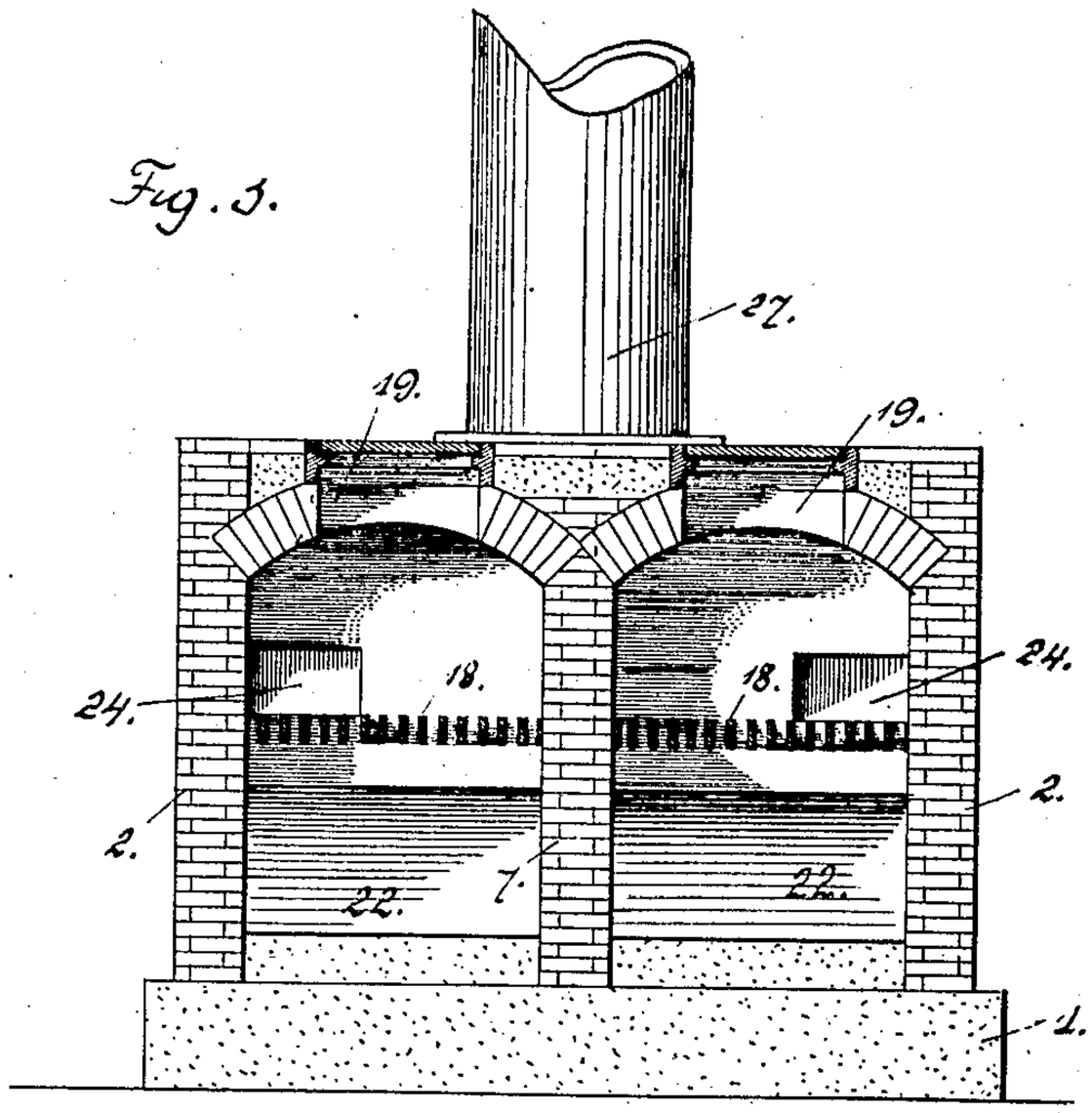
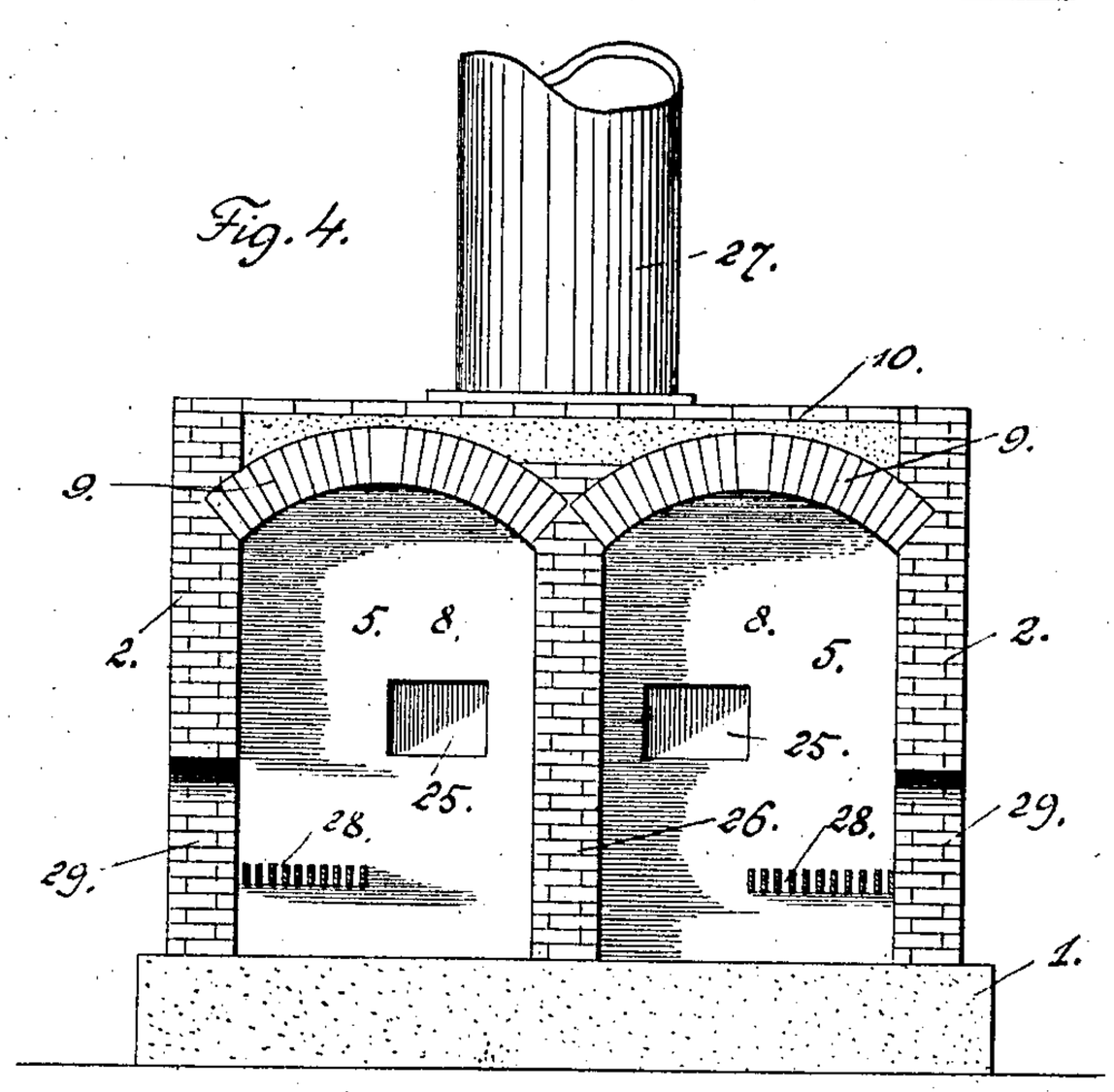


Fig. 4.



WITNESSES:
A. H. Rabsag,
K. S. Butler.

INVENTORS:
T. W. Draine and T. F. Shingledecker,
BY H. C. Evert & Co
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS W. DRAINE AND THOMAS F. SHINGLEDECKER, OF McKEES ROCKS, PENNSYLVANIA;
SAID DRAINE ASSIGNOR TO SAID SHINGLEDECKER.

GARBAGE PLANT.

No. 892,942. Specification of Letters Patent. Patented July 7, 1908.

Application filed April 11, 1907. Serial No. 367,555.

To all whom it may concern:

Be it known that we, THOMAS W. DRAINE and THOMAS F. SHINGLEDECKER, citizens of the United States of America, residing at McKees Rocks, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Garbage Plants, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to garbage plants, and the invention has for its primary object to provide a novel furnace for expeditiously and economically consuming garbage of various kinds, the furnace being constructed to insure a positive consumption of garbage with a minimum amount of residue and with a small expenditure of fuel.

Our invention also aims to provide an odorless furnace of a construction which permits of a plurality of incinerating chambers being arranged in a group whereby one exhaust flue will serve for a plurality of said chambers. In this connection, our improved garbage plant is particularly designed for small towns, boroughs, and cities, and so constructed that should the quantity of garbage increase, the capacity of the plant can be increased, without any material changes in the original plant.

To this end, we have devised a furnace wherein a sufficient draft is created to insure a rapid and perfect incineration of the garbage placed in the furnace, the fumes and gases thrown off by the furnace being subjected to an auxiliary incinerating compartment or heating medium adapted to consume and ignite all particles that would otherwise create an odor if allowed to escape to the atmosphere.

The furnace is of a double construction, whereby one part of the furnace can be used while its adjoining part is cooling, or one part of the furnace can be used while the other is being repaired, if necessary.

With the above and other objects in view, which will more readily appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts to be hereinafter more fully described and then specifically pointed out in the appended claims.

Referring to the drawing forming part of this application, like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a longitudinal sectional view of the improved furnace, on the line x—x of Fig. 2. Fig. 2 is a plan of the same. Fig. 3 is a cross sectional view taken on the line y—y of Fig. 1, Fig. 4 is a similar view taken on the line w—w of Fig. 1.

To put our invention into practice, we construct our improved furnace upon a suitable foundation 1, the furnace consisting of two side walls 2, a rear wall 3 and a front wall 4. The furnace near the rear wall 3 is provided with two transverse partition walls 5 and 6 and with a longitudinally disposed partition 7 extending from the partition wall 6 to the front wall 4, said partition 7 dividing the furnace into two incinerating chambers, each of which is provided with an arched roof 9 suitably covered as at 10, whereby it will sustain considerable weight.

In each of the incinerating chambers we construct a bridge wall 11 spaced from the front wall 4, and between said bridge wall and the front wall 4, are arranged gratings 12, upon which fires are built for thoroughly heating the interior of the chambers and consuming garbage placed therein. Easy access is had to the combustion chambers 14 above the gratings 12 and the ash pits 15 beneath the gratings 12 by door ways 16 formed in the front wall 4.

Arranged transversely between the partition 7 and the side walls 2 of the chambers are tee bars 17 for supporting grate bars 18, said grate bars constituting gratings located above the bridge wall 11 for supporting the garbage, the garbage being dumped upon the gratings through openings 19 formed in the top of each chamber 8, said openings being normally closed by doors 20.

In order that the garbage placed upon the grate bars 18 can be stirred and agitated from time to time, we provide the front wall 4 of the chambers with a door way 21 for each one of the chambers.

In each of the chambers beneath the gratings 18 and between the bridge wall 11 and the partitions 6 is formed an inclined structure 22 adapted to convey the residue that is precipitated through the grate bars 18, to the foundation 1 in the rear of the bridge wall 11,

whereby the residue can be removed through the door ways 23 formed in the side walls 2 of the chambers.

The transverse partitions 6 are provided with openings 24 directly above the grate bars 18 and adjacent to the side walls 2 of the chambers, while the partitions 5 are provided with openings 25 adjacent to a partition 26 constructed between the partitions 5 and 6, the partition 26 being practically a continuation of the partition 7.

Erected upon the furnace above the rear wall 3 and the partition 5 is a stack or chimney 27 preferably lined with fire brick or the like communicating with the compartment between the rear wall 3 and the partitions 5.

Between the partitions 5 and 6 adjacent to the side walls 2 of the chambers are constructed grate bars 28, upon which fires are built to consume any solid matter and gases that may escape into the compartment formed between said partitions. Easy access is had to the grate bars 28, for building fires thereon, through the medium of door ways 29 formed in the side walls 2 of the furnace.

By arrows in Fig. 1 of the drawing, we have designated the course of currents that are created in the chambers for consuming the garbage placed upon the grate bars 18. In actual practice, we construct the furnace either in a suitable building or so arranged that wagons of garbage can be conveyed to the top of the furnace and their contents dumped into the incinerating chambers through the openings 19, the garbage being precipitated upon the grate bars 18, where it can be spread by an attendant, using suitable implements projected through the door way 21. Any residue that will not be consumed by the fire built upon the gratings 12 will be precipitated through the grate bars 18 upon the inclined structure 22, and can be readily removed through the door ways 23. The fires built upon the grate bars 28 are adapted to prevent odors and any unconsumed solid matter from escaping through the stack 27, and the compartment formed between the partitions 5 and 6 can be readily cleaned at any desired time.

It will be apparent from the illustration of our invention that we have devised a simple and inexpensive furnace, that has been designed particularly for the disposal of garbage, the furnace being constructed upon lines that will permit of its continuous use, the incinerating chambers being separate whereby one chamber can be operated independently of the other. The novel design of our improved garbage plant permits the same to be readily used by small towns, and boroughs, and in locating the stack 27 at one end of the chambers, it is obvious that the furnace can be provided with any number of incinerating chambers which can be arranged to feed or exhaust into one common stack.

Throughout the construction of our improved plant we preferably employ non-fusible material, such as concrete, vitrified brick, and structural steel, the side walls and top of the furnace being suitably braced and strengthened to withstand the weight of wagons moving upon the same. It is possible, however, to construct a building to house the furnace, whereby it will not be necessary to convey the garbage direct to the top of the furnace, as the same can be fed into the openings 19 from chutes or a floorway located above the furnace.

We have aimed to provide a sanitary furnace which will not be detrimental to any neighborhood or property in the vicinity of the same.

Such changes in the size, proportion and minor details of construction, as are permissible by the appended claims, may be resorted to without departing from the spirit and scope of the invention.

What we claim and desire to secure by Letters Patent, is:—

1. A furnace of the character described comprising side walls, an end wall, a cover, a stack, a transversely-extending partition arranged at the rear of the furnace and at a point removed from the end wall and forming a chamber with which the stack communicates, a transversely-extending partition arranged forwardly of the first mentioned transverse partition, a short longitudinal partition interposed approximately centrally of and between said transverse partitions and forming in connection therewith a pair of compartments, said side walls formed with outlets for said compartments, said first mentioned transverse partition having a pair of openings forming thereby means for establishing communication between said compartments and chamber, a longitudinal partition extending from said forward transverse partition to and flush with the forward end of the side walls thereby forming a pair of elongated longitudinally-extending chambers, a front wall for the longitudinal chambers, said front having openings provided with closures, a bridge wall arranged forwardly of each of the longitudinal chambers and of less height than the front wall, grate bars supported by the bridge and front wall, a plurality of transversely-extending supporting members positioned in each of the longitudinal chambers at a point approximately centrally of the top and bottom thereof, grate bars mounted upon said members, means for establishing communication between each of the longitudinal chambers and one of said compartments, said means out of alinement with the openings in the rearward transverse partition, said side walls having outlets for

said longitudinal chambers, and said cover provided with a closeable inlet opening for each of said longitudinal chambers.

2. A furnace of the character described comprising side walls, an end wall, a cover, a stack, a transversely-extending partition arranged at the rear of the furnace and at a point removed from the end wall and forming a chamber with which the stack communicates, a transversely-extending partition arranged forwardly of the first mentioned transverse partition, a short longitudinal partition interposed approximately centrally of and between said transverse partitions and forming in connection therewith a pair of compartments, said side walls formed with outlets for said compartments, said first mentioned transverse partition having a pair of openings forming thereby means for establishing communication between said compartments and chamber, a longitudinal partition extending from said forward transverse partition to and flush with the forward end of the side walls thereby forming a pair of elongated longitudinally-extending chambers, a front wall for the longitudinal chambers, said front wall having openings provided with closures, a bridge wall arranged forwardly of each of the longitudinal chambers and of less height than the front wall, grate bars supported by the bridge and front wall, a plurality of transversely-extending supporting members positioned in each of the longitudinal chambers at a point approximately centrally of the top and bottom thereof, grate bars mounted upon said members, means for establishing communication between each of the longitudinal chambers and one of said compartments, said means out of alinement with the openings in the rearward transverse partition, said side walls having outlets for said longitudinal chambers, said cover provided with a closeable inlet opening for each of said longitudinal chambers, and grate bars supported in each of said compartments in close proximity to the outlet of the compartment.

3. A furnace of the character described comprising side walls, an end wall, a cover, a stack, a transversely-extending partition arranged at the rear of the furnace and at a point removed from the end wall and forming a chamber with which the stack communicates, a transversely-extending partition arranged forwardly of the first mentioned transverse partition, a short longitudinal partition interposed approximately centrally of and between said transverse partitions and forming in connection therewith a pair of compartments, said side walls formed with outlets for said compartments, said first mentioned transverse partition having a pair of openings forming thereby means for establishing communication between said compartments and chamber, a longitudinal partition extending from said forward transverse partition to and flush with the forward end of the side walls thereby forming a pair of elongated longitudinally-extending chambers, a front wall for the longitudinal chambers, said front having openings provided with closures, a bridge wall arranged forwardly of each of the longitudinal chambers and of less height than the front wall, grate bars supported by the bridge and front wall, a plurality of transversely-extending supporting members positioned in each of the longitudinal chambers at a point approximately centrally of the top and bottom thereof, grate bars mounted upon said members, means for establishing communication between each of the longitudinal chambers and one of said compartments, said means out of alinement with the openings in the rearward transverse partition, said side walls having outlets for said longitudinal chambers, said cover provided with a closeable inlet opening for each of said longitudinal chambers, each of said longitudinal chambers at the rear of its bridge wall having the bottom thereof inclining downwardly from the forward transverse partition to the outlet for the chamber, and grate bars supported in each of said compartments in close proximity to the outlet of the compartment.

In testimony whereof we affix our signatures in the presence of two witnesses.

THOMAS W. DRAINE.
THOMAS F. SHINGLEDECKER.

Witnesses:
H. C. EVERT,
MAX H. SROLOVITZ.