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ALLEN H. BAUMAN.

Apparatus for Drying Sand and Gravel.

No. 121,746.

Patented Dec. 12, 1871.

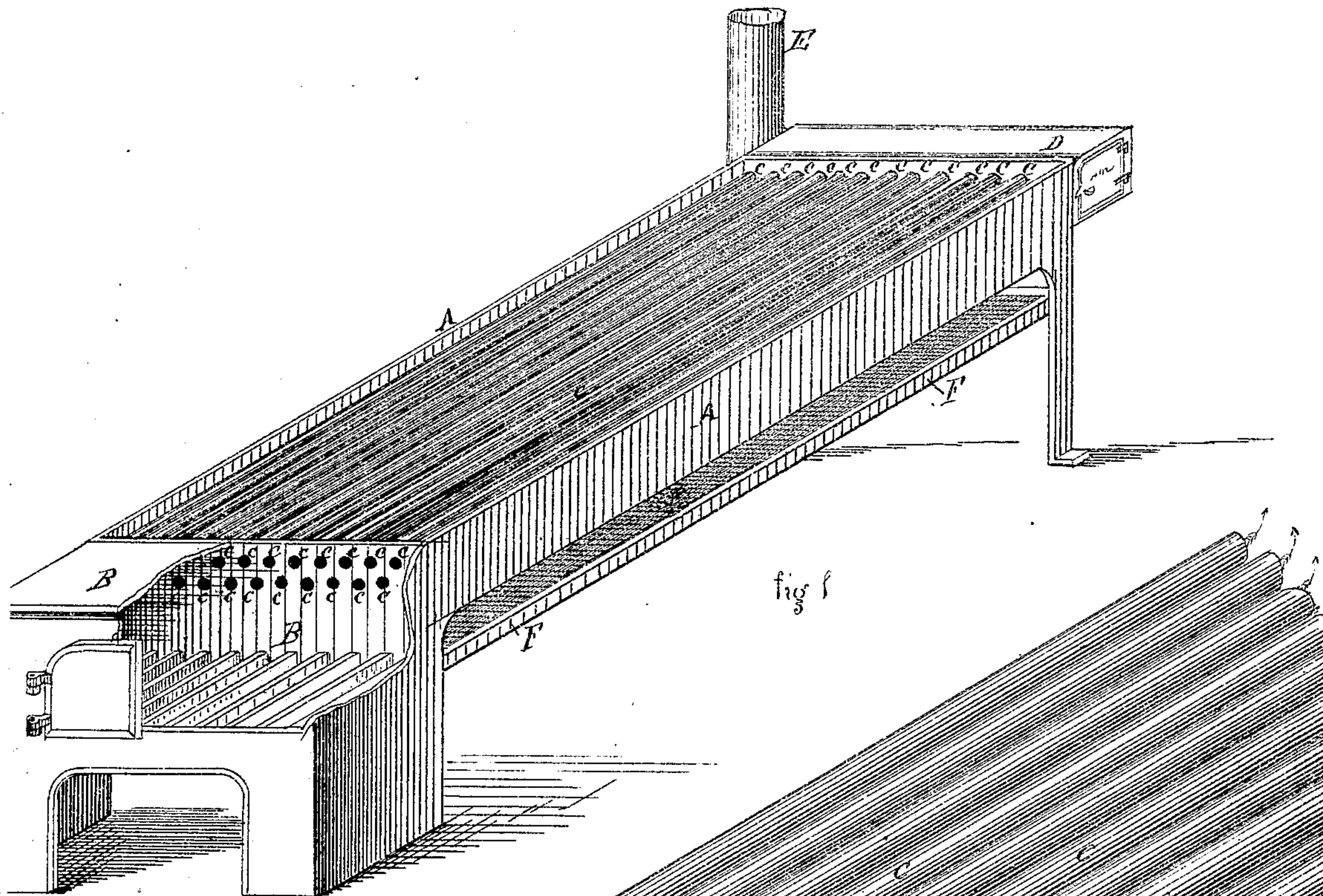


fig. 1

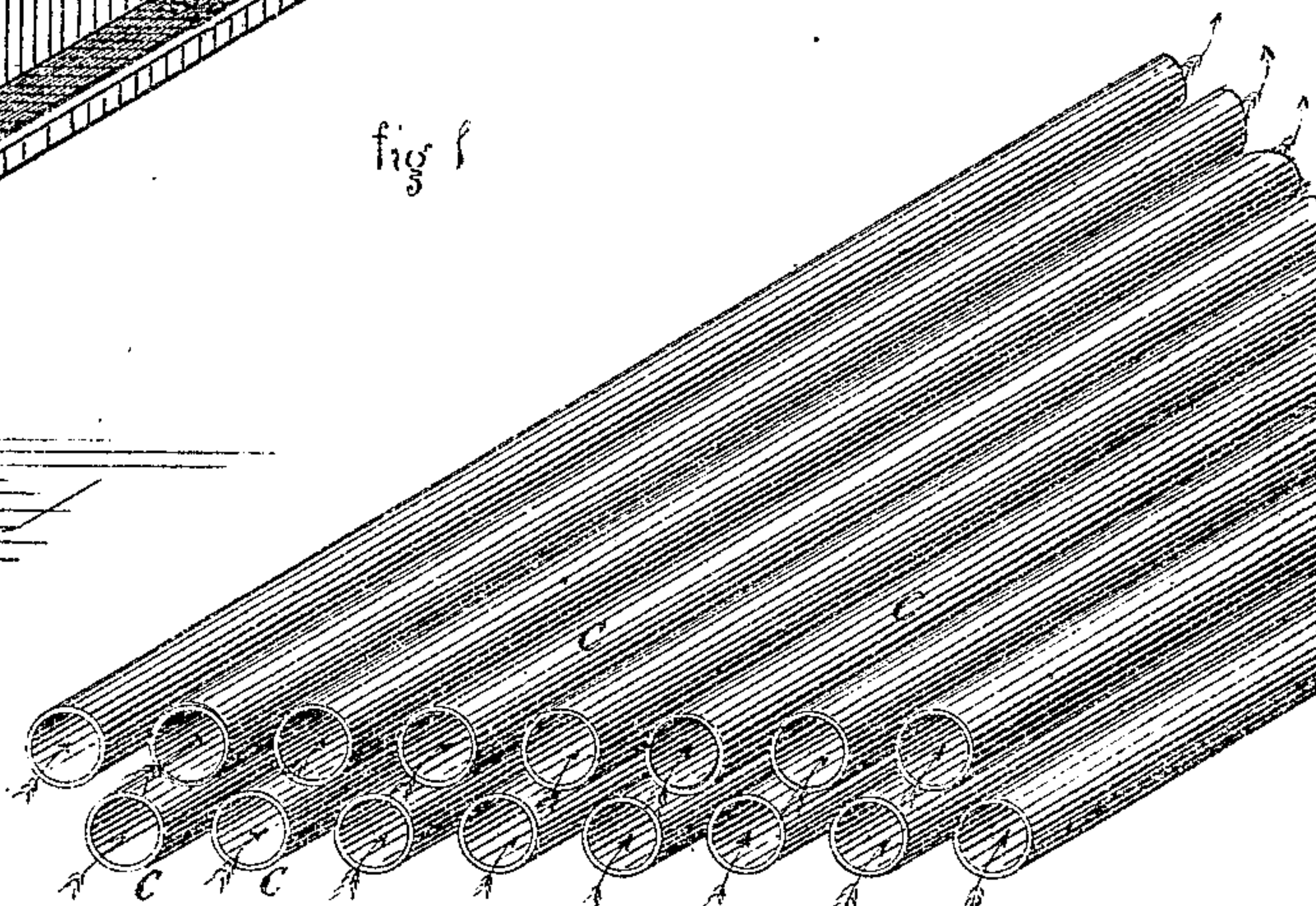


fig. 2

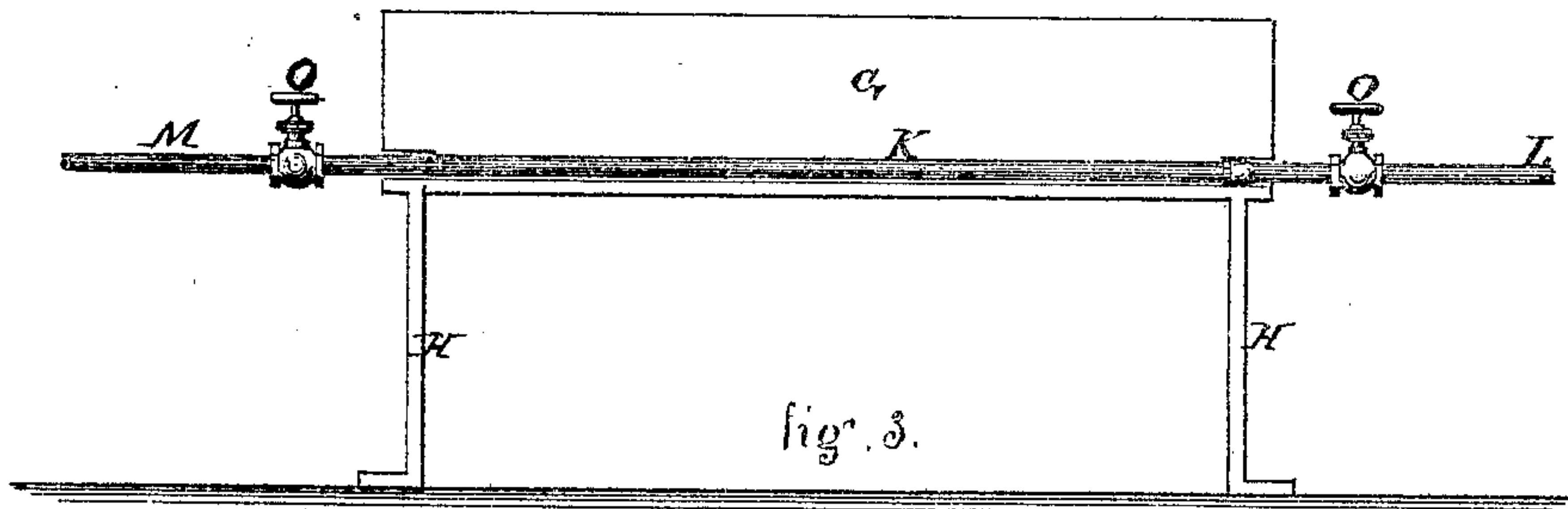


fig. 3.

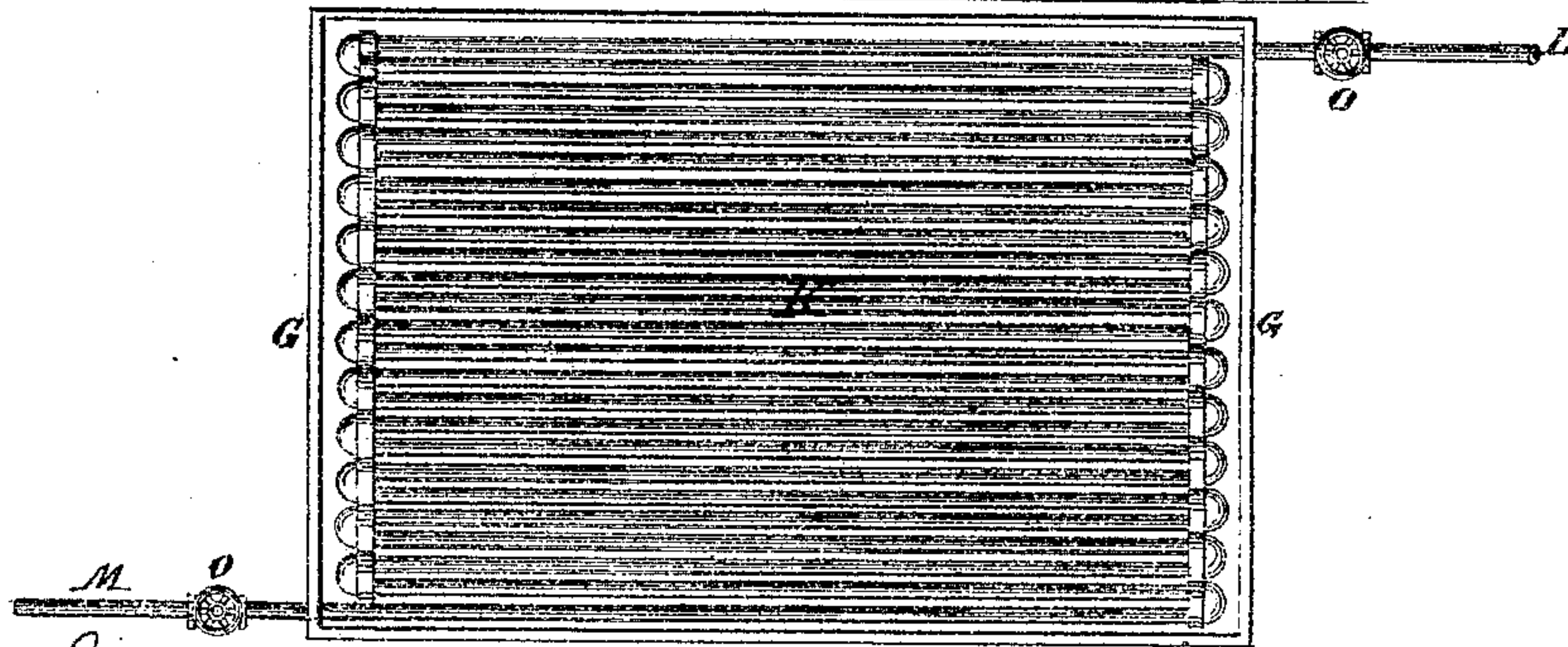


fig. 4

Witnesses { Jacob Davis
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UNITED STATES PATENT OFFICE.

ALLEN H. BAUMAN, OF MAPLETON, PENNSYLVANIA.

IMPROVEMENT IN APPARATUS FOR DRYING SAND AND GRAVEL.

Specification forming part of Letters Patent No. 121,746, dated December 12, 1871.

To all whom it may concern:

Be it known that I, ALLEN H. BAUMAN, of Mapleton, in the county of Huntingdon and State of Pennsylvania, have invented a Machine for Drying Sand and Gravel. The following is a specification of my invention:

My invention relates to the combination of iron or metal pipe or pipes, so constructed and arranged in parallel and longitudinal lines as to form a surface upon which the wet sand or gravel is placed to be dried by the application of fire or steam. The surface formed by the pipe or pipes forms the bottom of a box or frame which contains the wet sand or gravel. The pipe or pipes throughout the whole surface are heated by fire or steam passing through them, so as to dry the sand or gravel, which, when dried, slips and passes through the openings or spaces between the lines of pipe, the wet sand or gravel in the box or frame above drying gradually and passing through ready for shipment and use.

Figure 1 is a side and surface view of the machine, representing it in practical use and operation, and how heated by the application of fire. Fig. 2 shows the sets of pipes as placed and arranged when fire is used for heating them. Fig. 3 represents a side view of the machine as used when steam is applied for drying. Fig. 4 is a plan showing the pipe adapted to the use of steam, so bent, constructed, and arranged as to form the surface K, and representing the vents or orifices where the steam enters and escapes.

A A is the box or frame in which the wet sand or gravel is placed preparatory to being dried. The bottom of this box or frame is formed by the sets of pipes shown by c c, &c. On the surface formed by these pipes the wet sand or gravel rests and adheres until it becomes dried, when it passes through the openings or spaces between the pipes. These openings or spaces are shown by the dark lines of shading on Figs. 1 and 2. The pipes c c, &c., are heated by and from the furnace, at one end of the same. This furnace is represented by B B. The fire, heat, and smoke of the furnace enters at the orifices c c, &c., and passes through the pipes and into the flue or smoke-stack D at the other ends of said pipes, and thence into the smoke-stack E. Immediate-

ly underneath the whole of the surface formed by the pipes is placed a wire sieve, F F, to prevent the sand or gravel from passing too rapidly through the spaces or openings between the pipes, and before the same is sufficiently dried, the sieve so used to be coarse or fine according as the sand or gravel is coarse or fine.

In case fire is applied for drying the sand or gravel, one or more sets may be used. If more than one set is used they are to be so placed that the pipes of the set below will be directly under the spaces or openings of the one above, and as shown in Fig. 2.

In Fig. 3, L and M represent the orifices or vents at the ends of the pipe where the steam enters and escapes. These ends are shown in Fig. 4 by the same letters. Either end of the pipe may be used to admit the steam or allow it to pass out and escape. K represents a side view of the surface of pipe. H H is simply a hopper into which the sand or gravel passes after being dried. O O shows the steam-valves used to admit or shut off the steam. These are also shown by the same letters in Fig. 4. In Fig. 4, K shows the surface formed by a continuation of pipe bent and arranged in parallel lines. This is adapted to the use and application of steam in drying the sand or gravel. This surface is heated by steam passing into the pipe at one end and out at the other. In this figure G G represent the box or frame, in which the wet sand or gravel is placed to be dried. Underneath the set or sets of pipe used in drying by steam the wire sieve F F, shown in Fig. 1, is placed in the same manner and for the same purposes as when fire is used for drying.

The pipe or pipes used in my invention are to be of iron or some other strong and durable metal.

I claim as my invention—

The apparatus herein described for drying gravel or sand, consisting of the fire-chamber, flues, heating-pipes, and case, all constructed and arranged substantially as set forth.

ALLEN H. BAUMAN.

Witnesses:

JACOB DAVIS,

JAMES S. RICHARDSON.

(126)