

No. 631,214.

Patented Aug. 15, 1899.

O. HOWL.

APPARATUS FOR DRYING BRICKS, &c.

(Application filed June 20, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 2.

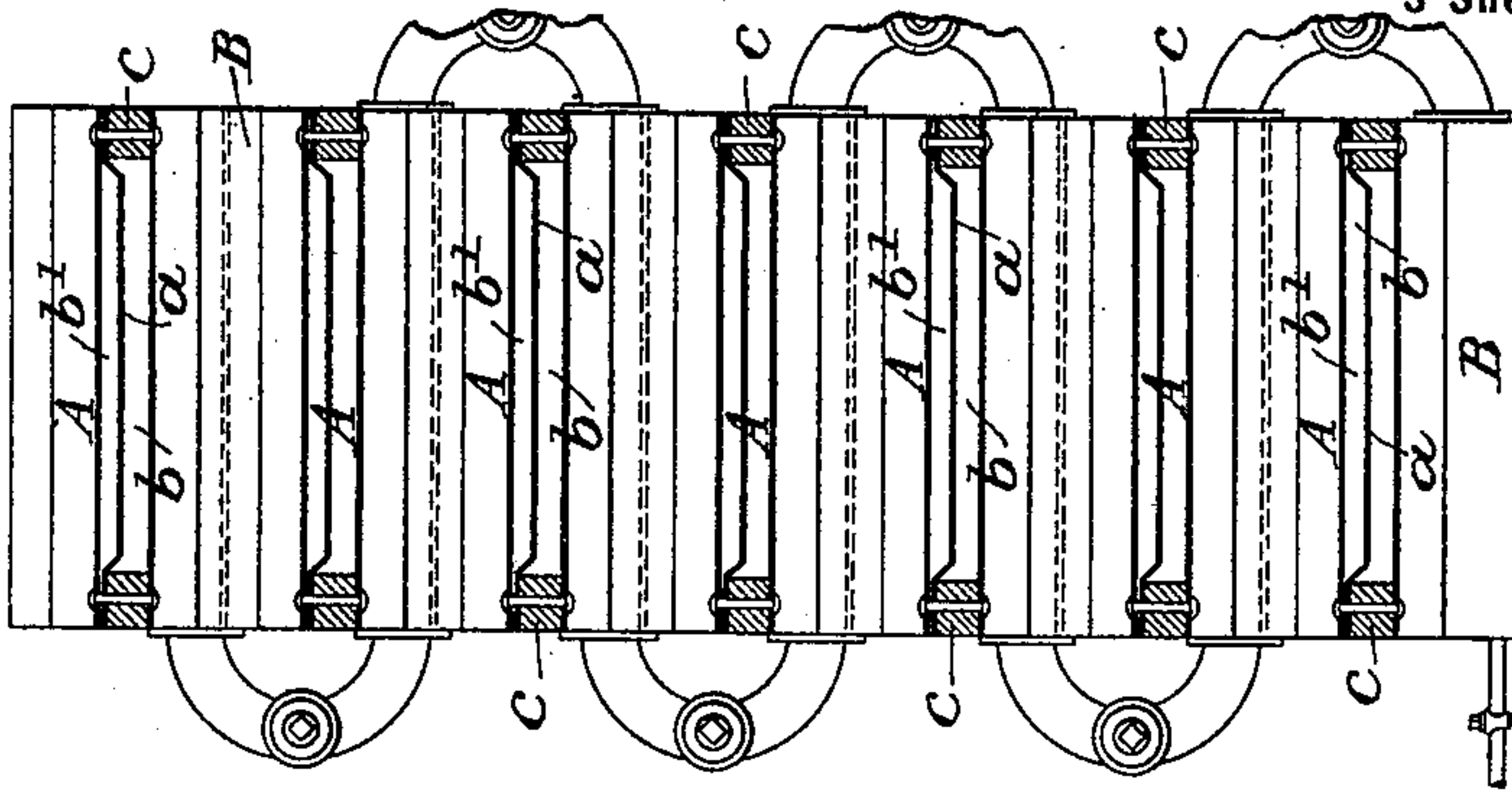
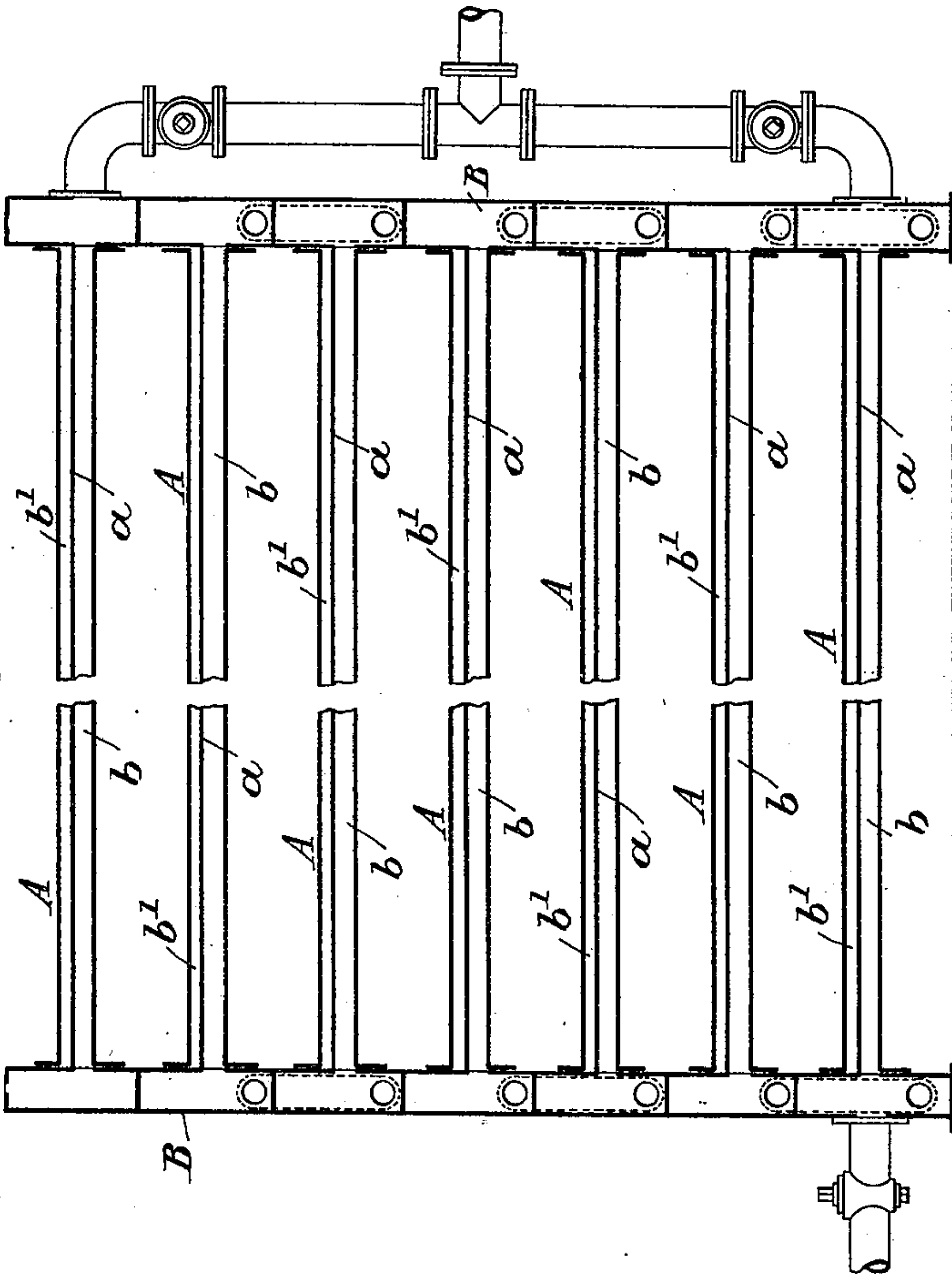


Fig. 1.



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Fig. 3.

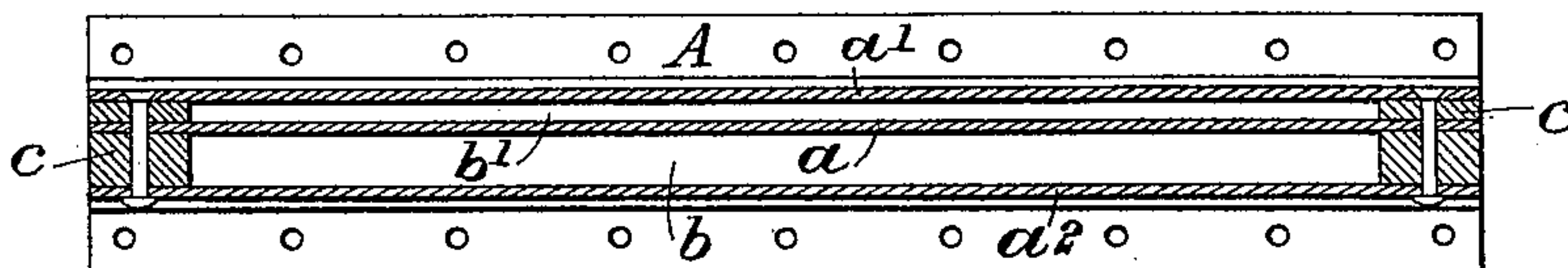


Fig. 4.

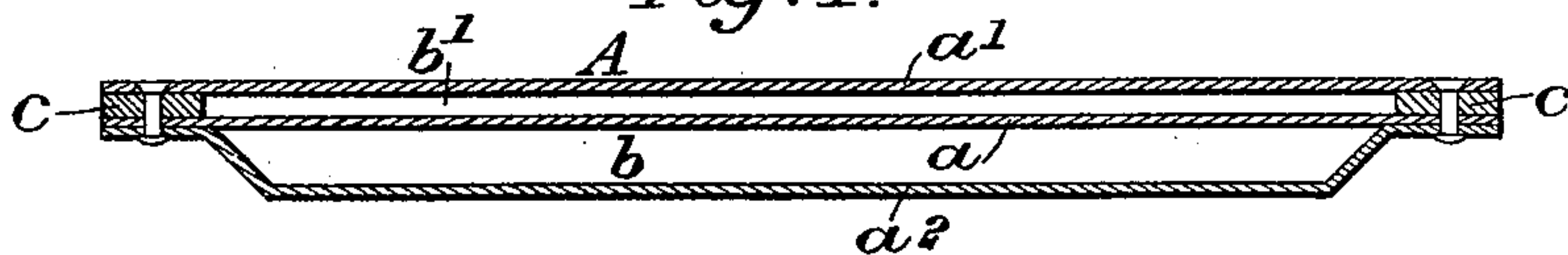


Fig. 5.

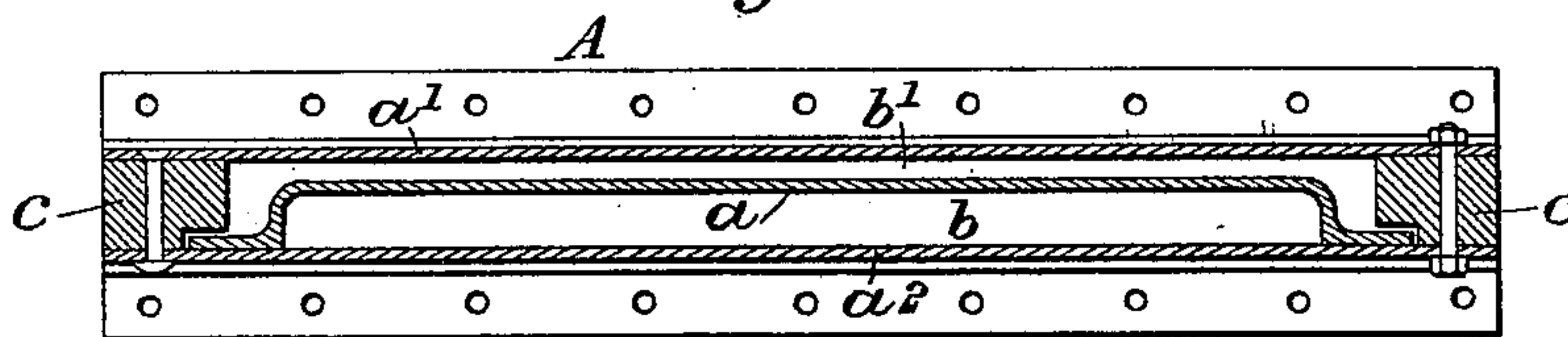


Fig. 6.

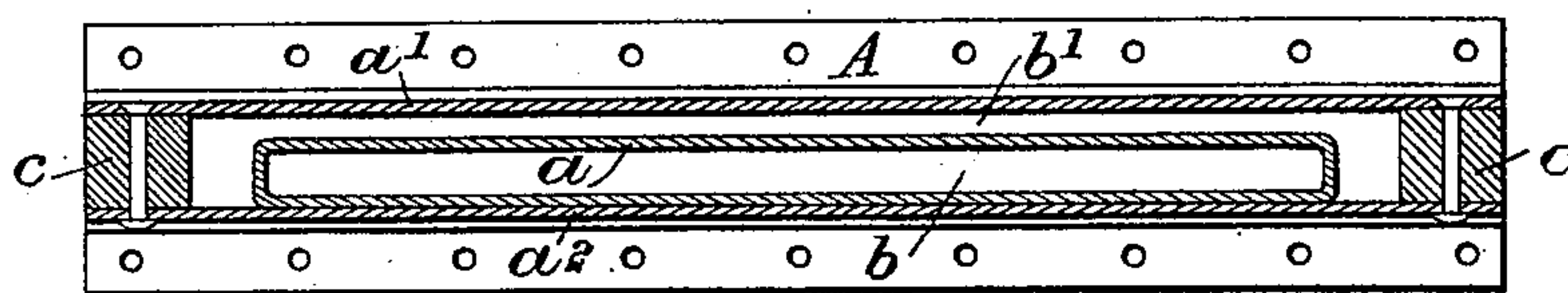
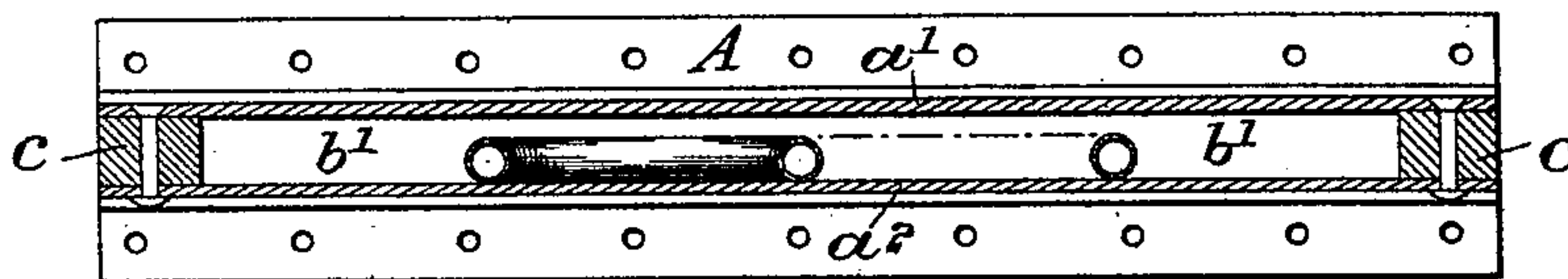


Fig. 7.



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(No Model.)

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Fig. 8.

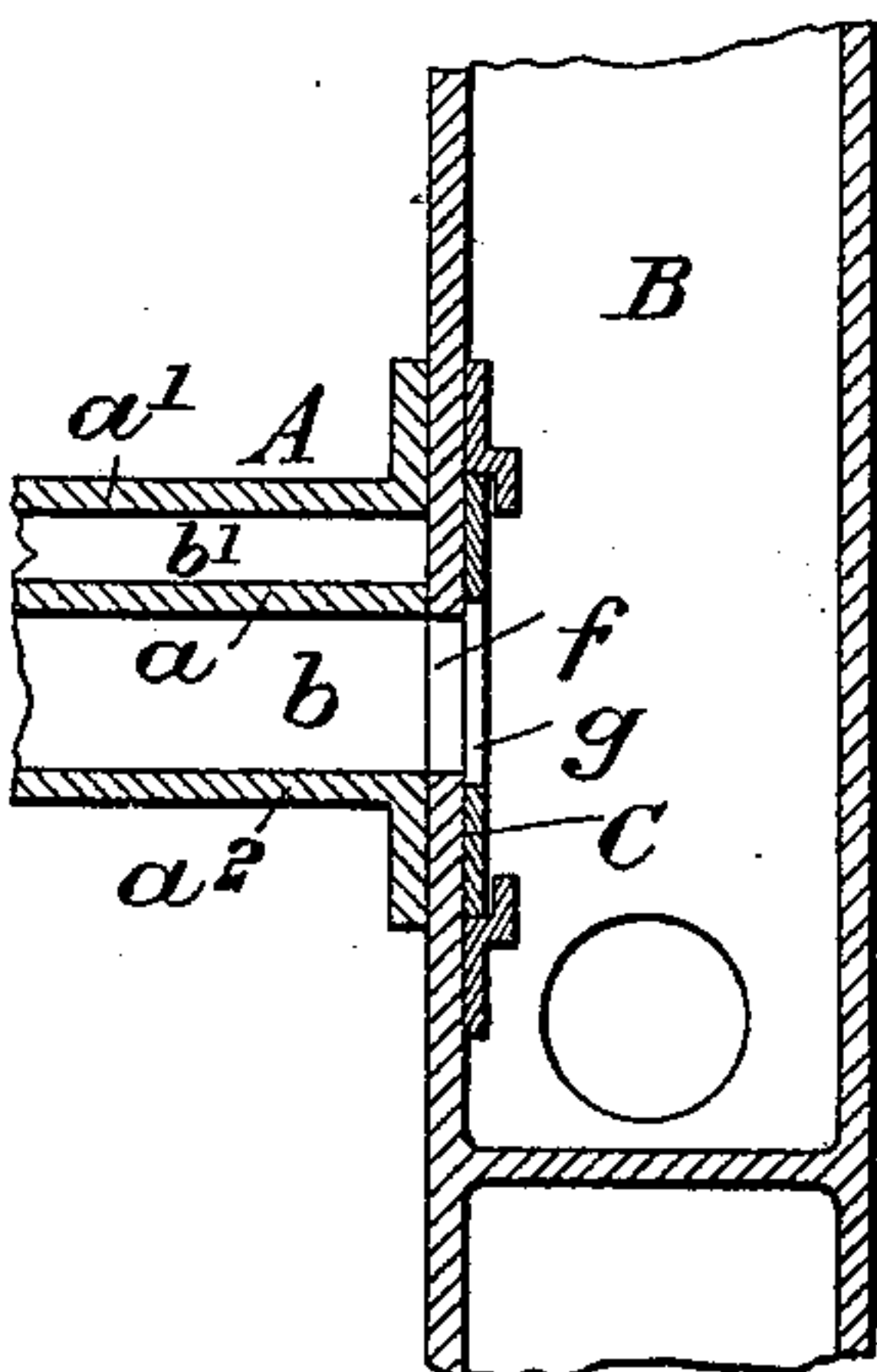


Fig. 9.

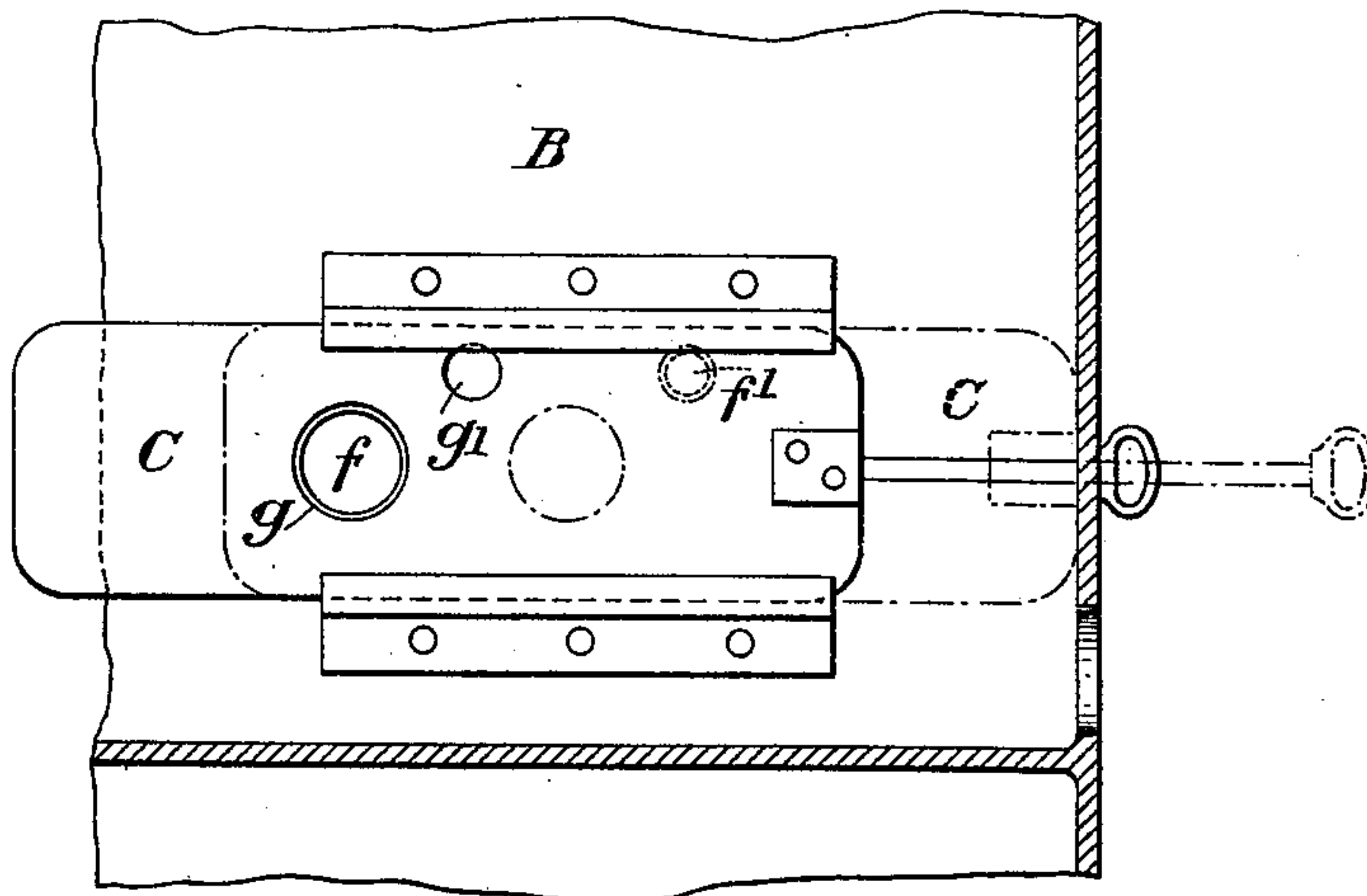
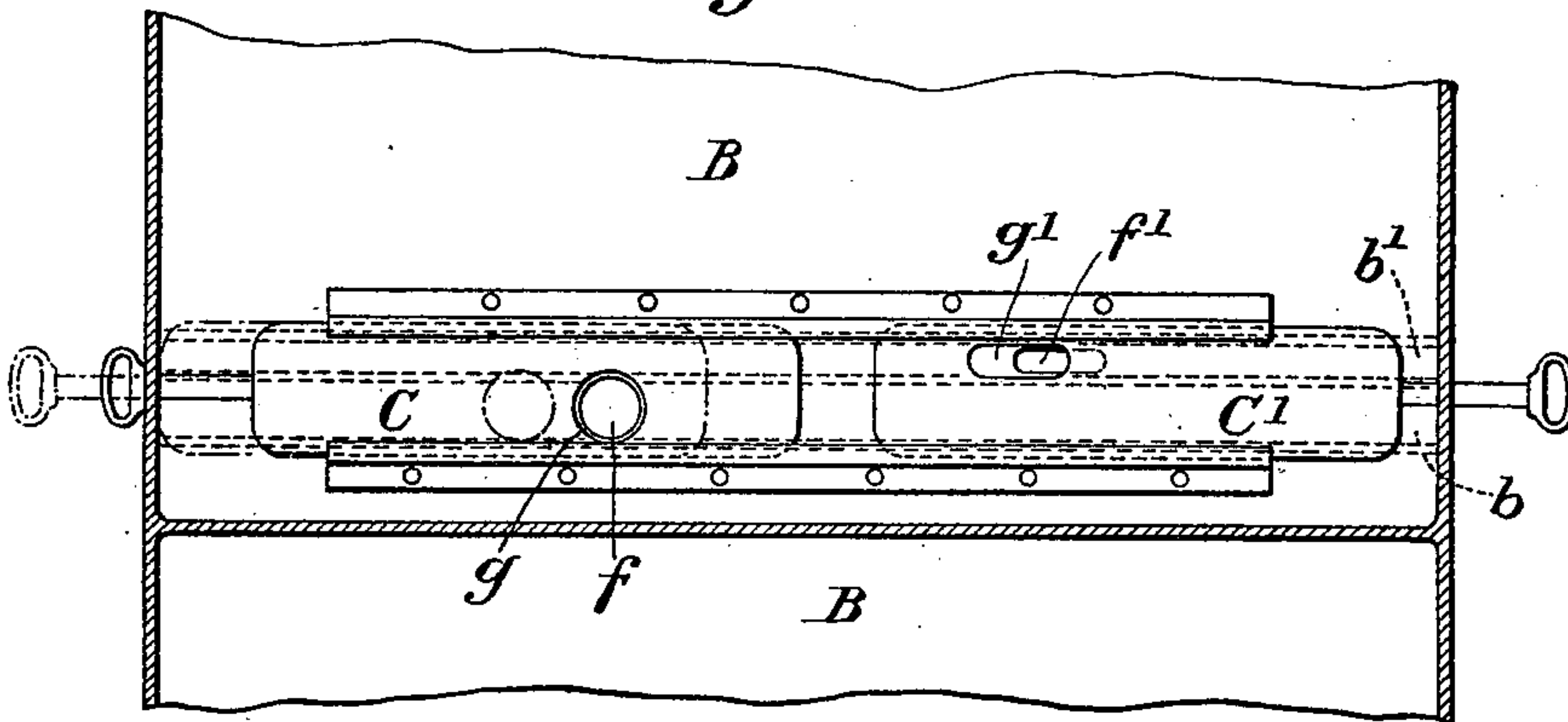


Fig. 10.



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UNITED STATES PATENT OFFICE.

OLIVER HOWL, OF TIPTON, ENGLAND.

APPARATUS FOR DRYING BRICKS, &c.

SPECIFICATION forming part of Letters Patent No. 631,214, dated August 15, 1899.

Application filed June 20, 1899. Serial No. 721,262. (No model.)

To all whom it may concern:

Be it known that I, OLIVER HOWL, a subject of the Queen of Great Britain and Ireland, and a resident of Princes End, Tipton, in the county of Stafford, England, have invented certain new and useful Improvements in Apparatus for Drying Bricks or other Plastic Articles, (for which I have applied for a patent in Great Britain, No. 24,941, dated November 25, 1898,) which invention is fully set forth in the following specification.

My invention relates to apparatus for drying bricks or other plastic articles, in which the articles to be dried are placed on hollow shelves or supports into or through which steam or other like heating medium is admitted or caused to circulate to heat the surface of the shelves on which the articles to be dried are placed. In apparatus for this purpose and as illustrated and described in the specifications of United States Patents No. 611,965, dated October 6, 1898, and No. 622,626, dated April 4, 1899, granted to me, the heating medium in its passage through the hollow shelves or supports impinges directly on the under surface of the top plates or slabs of the hollow shelves or supports, and it has been found in practice in some cases, especially when steam is employed as the heating medium, that the surfaces on which the articles are placed become too rapidly highly heated, which causes the articles to crack.

The object of my present invention is to provide means whereby this defect is remedied, and in order that my invention may be understood I will describe the same with reference to the accompanying drawings, of which—

Figures 1 and 2 are vertical sections, at right angles to each other, of an apparatus similar to that described in my United States Patent No. 622,626, but provided with improvements according to my present invention. Fig. 3 illustrates in transverse section a shelf or support for the articles to be dried, constructed according to my invention. Fig. 4 is a similar view showing a modified construction of the shelf or support. Figs. 5, 6, and 7 are similar views showing further modifications. Figs. 8 and 9 are sectional elevations, at right angles to each other, of an arrangement for regulating the heat of

the hollow shelves as required, and Fig. 10 illustrates a modification of the heat-regulating device.

Referring to Figs. 1 and 2, A are the hollow shelves on which the articles to be dried are placed, which shelves can be made of any suitable length and breadth and may be connected at their ends to any suitable supports. I have shown them as being connected to hollow columns or standards B B, provided with means for circulating the heating medium through the shelves in the manner described in the before-mentioned United States Patent No. 622,626. Each hollow shelf is divided according to my present invention by a horizontal partition *a* into two compartments *b b'*. The heating medium, which I will refer to as "steam," is in this arrangement admitted into the lower compartments *b*, the steam so admitted rapidly heating the partition *a*, and the heat radiating from the said partition gradually heating the top plate of the said hollow shelf, on which top plate the articles to be dried are placed. By thus indirectly heating the upper plates of the hollow shelves by heat radiating from the partitions *a* the articles placed on the shelves are subjected to a gradually-increasing heat until the desired temperature is attained, which temperature can be maintained until the articles are sufficiently dried. The partition *a* can be permanently fixed in the hollow shelf by riveting or otherwise connecting it to the hollow columns B, or the three parallel plates *a a' a''*, constituting each hollow shelf, may be kept at the required distance apart by distance-pieces *c*, arranged along their sides, to which distance-pieces the said plates can be secured by riveting, as shown in Fig. 3. The lower plate *a''* may be made disk-shaped in transverse section, as shown in Fig. 4. Instead of the partition *a* being fixed in the hollow shelf it may be constructed as shown in Fig. 5 and arranged to slide in and out, one side of the hollow shelf being open to admit of the insertion and removal of the said partition, or instead of a partition, as hereinbefore described, a sliding box, as shown in Fig. 6, or a series of pipes or a coil of pipes, as shown in Fig. 7, may be arranged in each hollow shelf, through which box or pipes or coil of pipes steam is caused

to flow or circulate and heat by radiation the top plate of the shelf on which the articles to be dried are placed.

Figs. 8 and 9 are elevations at right angles to each other of an arrangement for regulating as required the heat of the top surface of the shelf on which the articles to be dried are placed. B represents one of the hollow columns or end standards constructed as described in the United States Patent No. 622,626, to which columns the several hollow shelves are secured so that the steam admitted to one of these columns may be caused to flow in a circuitous course or otherwise through the hollow shelves A. Passages *ff'* are provided in the hollow columns B, communicating with the lower and upper compartments, respectively, in the interior of each hollow shelf, the said passages being opened and closed by means of a sliding valve C, having holes or passages *gg* therein corresponding to the passages *ff'*, but so arranged that when the valve C is in the position shown the passage *g* in the valve coincides with the passage *f*, the passage *f'* being closed by the solid portion of the valve, and when the passage *g'* in the valve coincides with the passage *f'* the passage *f* will be closed by the solid portion of the valve. By this arrangement when the valve is moved into the position to cause the passages *g'* and *f'* to coincide steam admitted to the column B will pass into the upper compartment of the hollow shelf and impinge directly on the under surface of the top plate of the shelf. This may be continued as long as desired to heat the shelf to the required temperature, after which by moving the valve *c* the passage *f'* can be closed and the passage *f* be opened, as shown in full lines in Fig. 9, whereupon the admission of steam will be cut off from the upper compartment and be directed into the lower compartment beneath the partition *a*, so that the temperature of the top plate is maintained without the steam acting directly on the said top plate.

Fig. 10 illustrates a modification in which each shelf is provided with two valves C C', the valve C having an opening *g* for admitting steam into the lower compartment and the valve C' having an opening *g'* for admitting steam into the upper compartment of the hollow shelf. By this arrangement the temperature of the top plates of the hollow shelves can be regulated as required. The heating of the top plate of the hollow shelf can be effected by first admitting steam into the top

compartment by the valve C', and when the upper plate has been sufficiently heated the said valve can be moved so as to cut off the supply of steam to the said compartment and the valve C be moved so as to admit steam into the lower compartment to maintain the temperature by radiated heat from the partition *a* to the top plate, and, if desired, the valves can be moved so as to admit steam at the same time into both the upper and lower compartments of the shelves, so that the temperature of the top plate of the shelf can be readily resuscitated should it be reduced.

I do not limit myself to the precise details of the arrangements shown, as they may be varied without deviating from the nature of my invention; but

What I claim is—

1. In apparatus for drying bricks and other plastic articles hollow shelves or supports on which the articles to be dried are placed and means for causing heating medium such as steam to enter and pass through the hollow shelves or supports without impinging on the upper plates of the said hollow shelves or supports substantially as hereinbefore described.

2. In apparatus for drying bricks and other plastic articles, hollow shelves or supports on which the articles to be dried are placed each hollow shelf or support being divided by a horizontal partition into an upper compartment and a lower compartment and means for admitting steam or other suitable heating medium into the lower compartment substantially as and for the purpose hereinbefore described.

3. In apparatus for drying bricks and other plastic articles, hollow shelves or supports on which the articles to be dried are placed each hollow shelf or support being divided by a horizontal partition into two compartments, means for admitting steam or other heating medium into the hollow shelves or supports and valved means in connection with each shelf for directing the heating medium into either the upper compartment or into the lower compartment or simultaneously into both compartments substantially as and for the purpose hereinbefore described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

OLIVER HOWL.

Witnesses:

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ERNEST ROSE.