

K. REYSCHER.
 DRYING METHOD.
 APPLICATION FILED OCT. 29, 1910.

997,092.

Patented July 4, 1911.

Fig. 1.

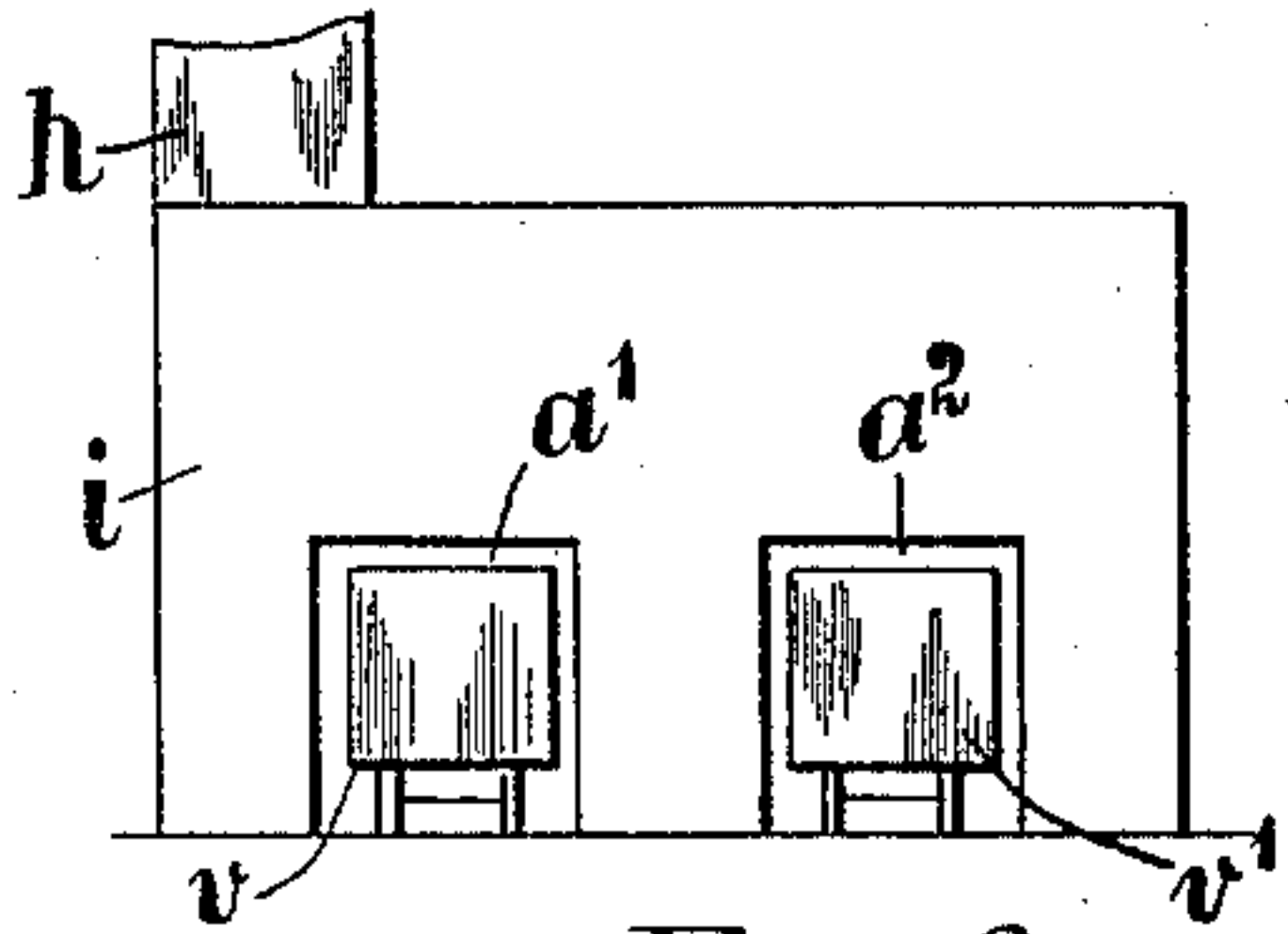


Fig. 2.

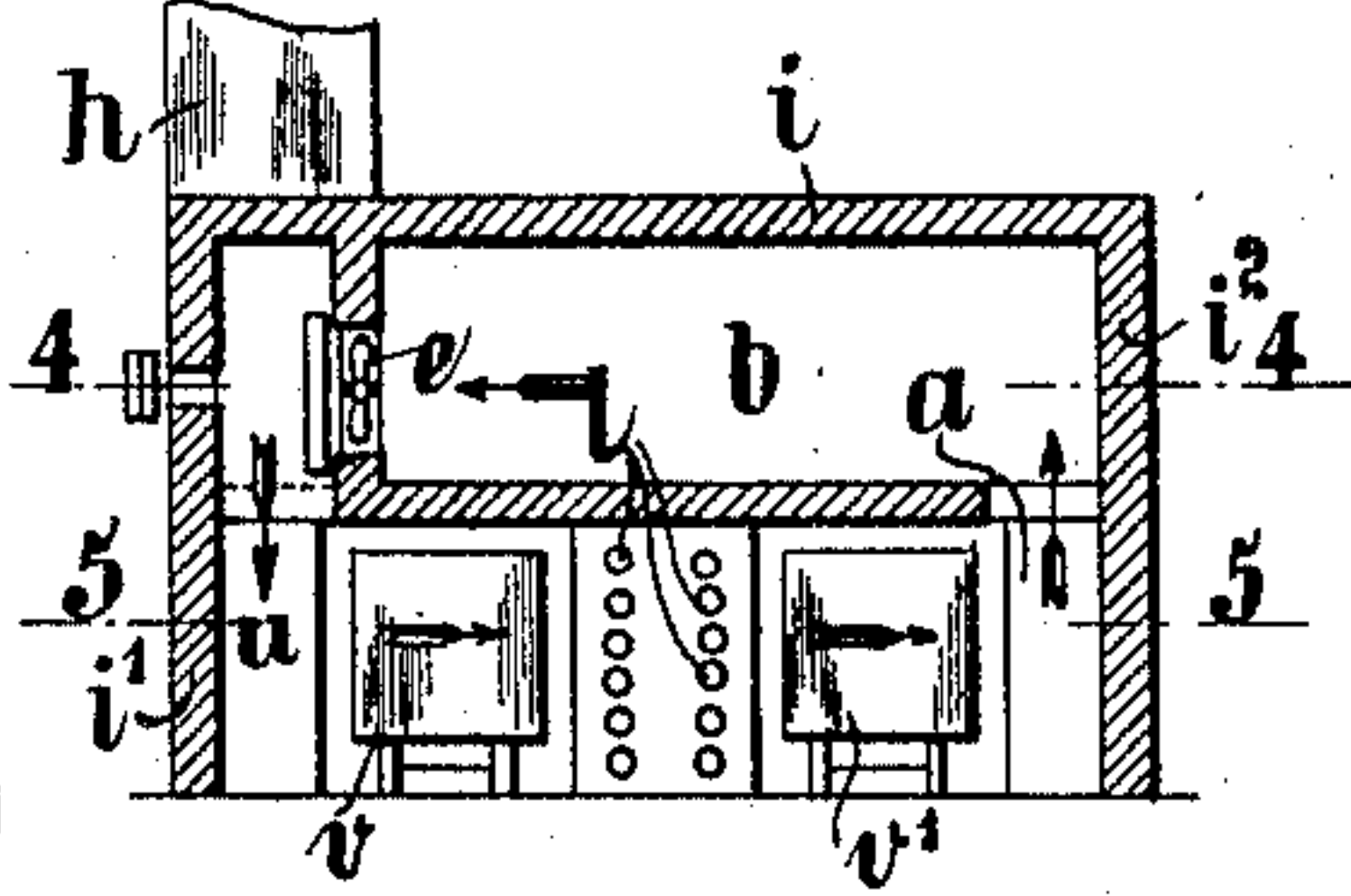


Fig. 3.

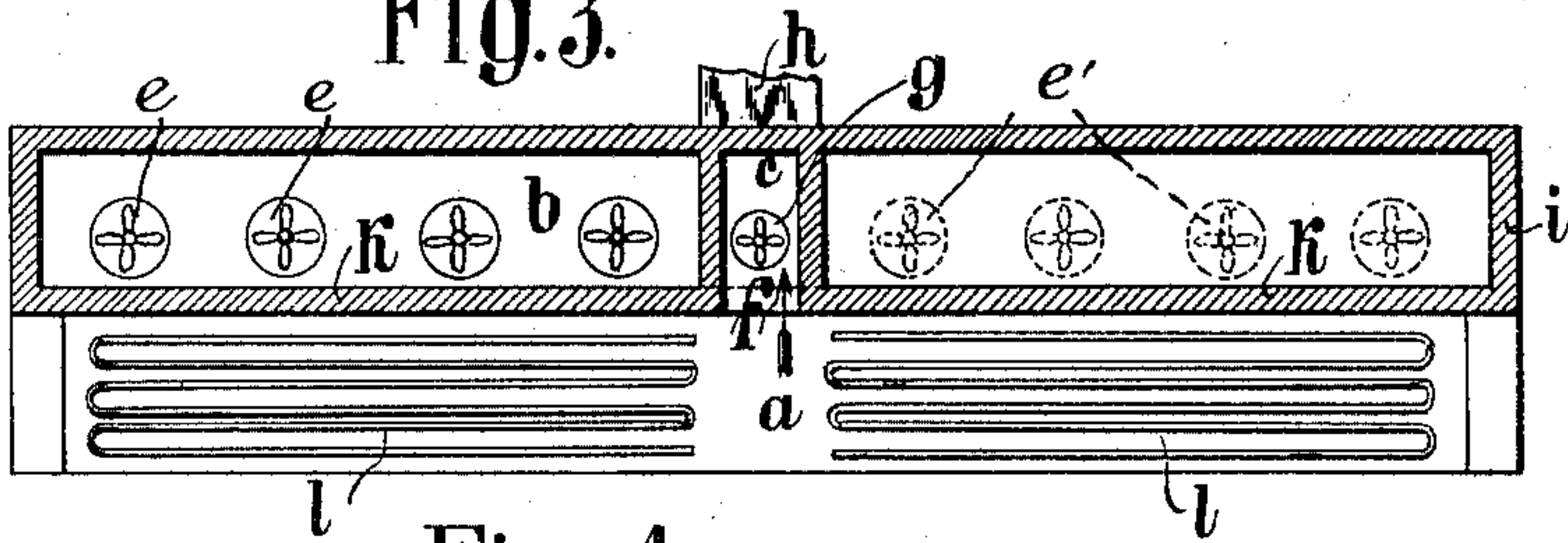


Fig. 4.

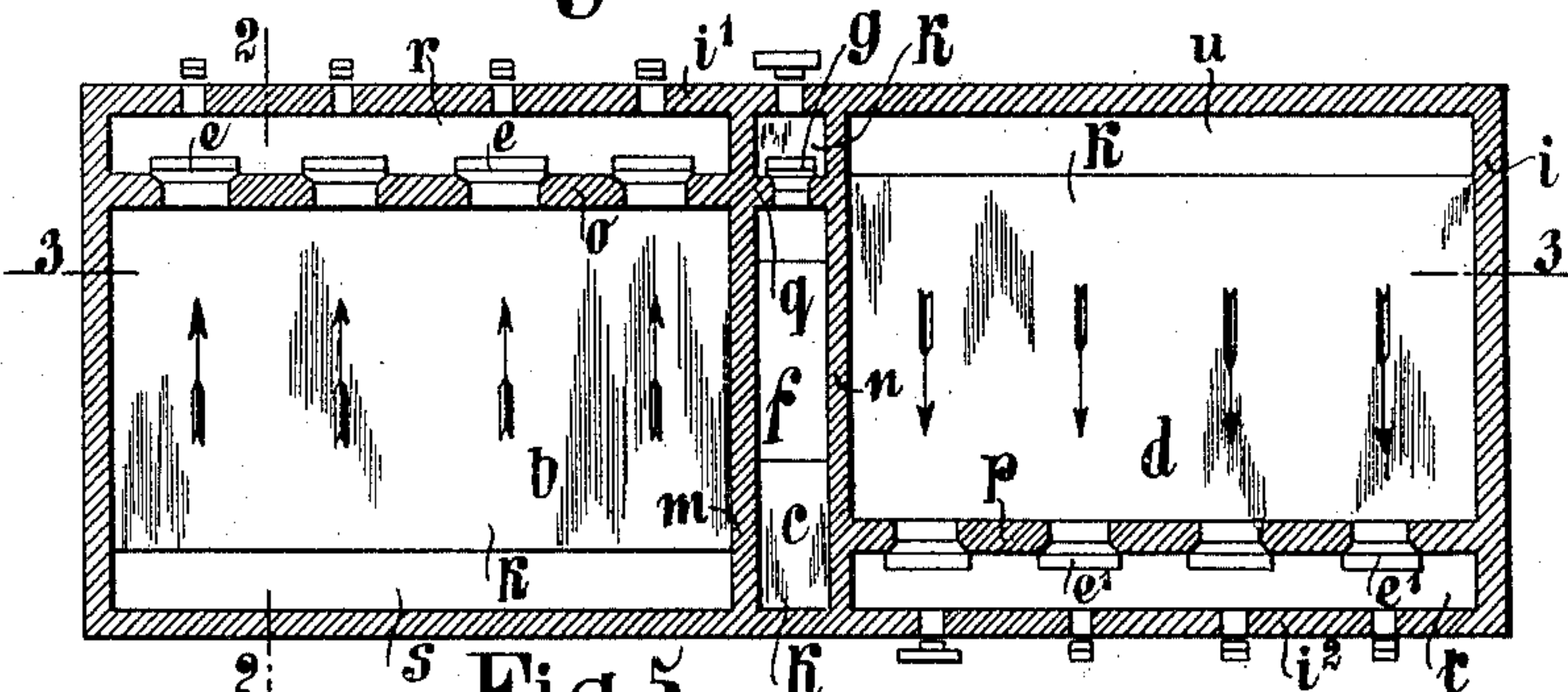
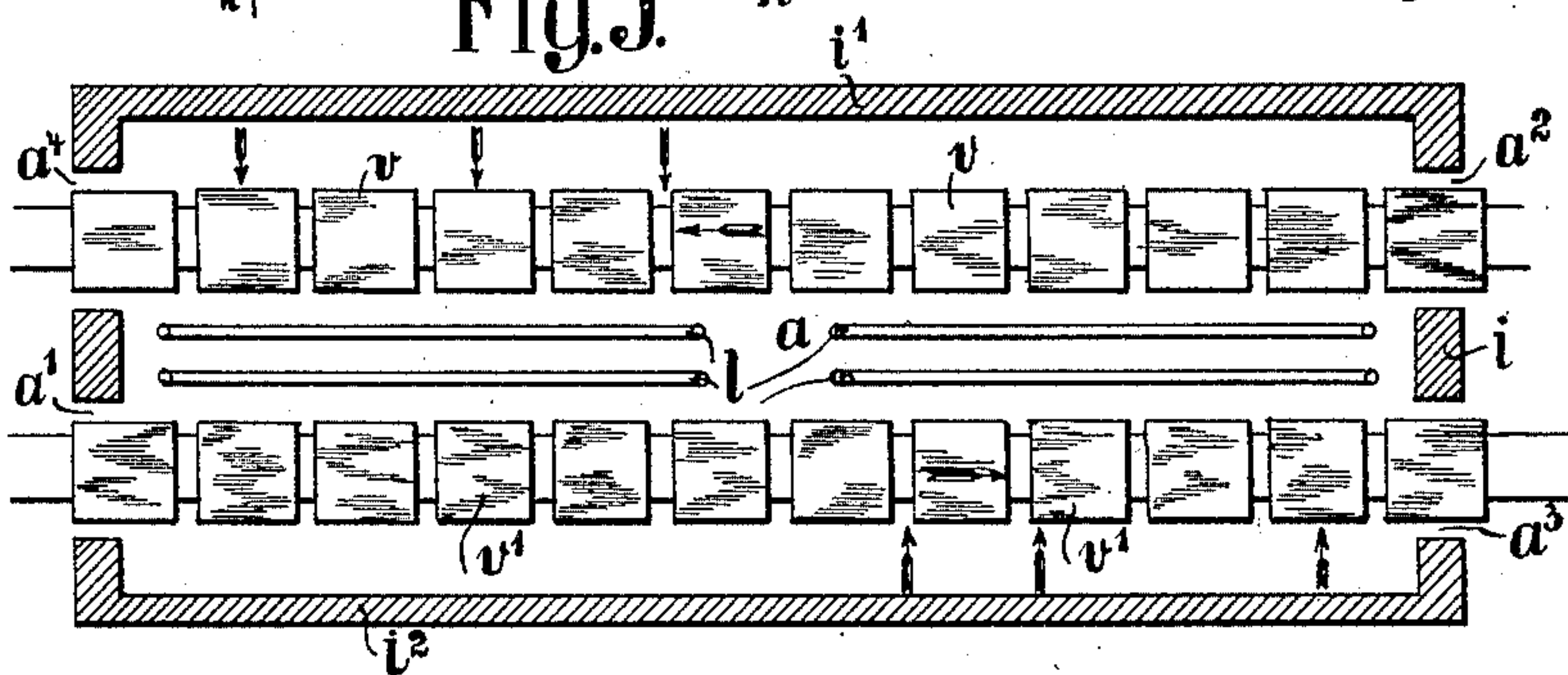


Fig. 5.



WITNESSES

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DRYING METHOD.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, KARL REYSCHER, a subject of the King of Prussia, and a resident of Bielefeld, Germany, have invented a new and Improved Drying Method, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved drying method for drying various goods, such as by the use of hot air, in the most economical manner.

The method consists in passing the goods in two sections in opposite directions through two currents of air, each current passing over the dried departing portion of one section, then over the heater and then over the wet portion of the other section, whereby the air currents receive the preliminary heat by contact with the dried goods and are then heated by the heater, and finally come in contact with the entering wet goods to quickly dry the same prior to the latter reaching the exit portion of the drying chamber. In order to carry this method into effect, use is made of a drying apparatus, such, for instance, as illustrated in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an end view of the apparatus; Fig. 2 is a cross section of the same on the line 2—2 of Fig. 4; Fig. 3 is a longitudinal section of the same on the line 3—3 of Fig. 4; Fig. 4 is a sectional plan view of the same on the line 4—4 of Fig. 2; and Fig. 5 is a similar view of the same on the line 5—5 of Fig. 2.

The drying apparatus is preferably in the form of a rectangular structure *i*, provided in its lower portion with a drying chamber *a*, through which pass the goods to be dried in opposite directions, by the use of two suitable conveying means *v*, *v'*, entering the drying chamber *a* at opposite ends through entrances *a'*, *a''* and passing out of the said chamber through exit openings *a'''*, *a''''*, as will be readily understood by reference to Fig. 5. In the chamber *a* are arranged heaters *h*, on opposite sides of which pass the conveying means *v*, *v'*, the heaters *h* being preferably in the form of connected pipes through which passes live or exhaust steam as the heating medium. On top of the ceiling *k* of the drying chamber *a* and near the middle

of the structure are arranged the transverse partitions *m*, *n* (see Fig. 4), and near the sides *i'*, *i''* of the structure *i* are arranged longitudinal partitions *o*, *p*, of which the partition *o* extends from one end of the structure to the transverse partition *m* and the partition *p* extends from the other end of the structure *i* to the partition *n*, as plainly indicated in Fig. 4. Between the transverse partitions *m* and *n* is arranged a longitudinal partition *q*, which forms a continuation of the partition *o*. By the use of the partitions the portion of the structure *i* above the ceiling *k* is divided into the air return chambers *b* and *d* and the air exhaust chamber *c*. Channels *s* and *u* are formed in the ceiling *k* to connect the drying chamber *a* with the return air chambers *b* and *d*. In the partitions *o* and *p* are arranged ventilators *e* and *e'* to draw the air from the chambers *b* and *d* into chambers *r* and *t* connected with the drying chamber *a*, adjacent the walls *i'*, *i''*. The exit chamber *c* is connected by an opening *f* formed in the ceiling *k* of the drying chamber *a* at or near the middle thereof, and in the partitions *q* is arranged a ventilator *g* for drawing the air from the chamber *a* through the opening *f* into the chamber *c* and from the latter into a stack *h*, from which the hot air may be carried to other structures for use therein. Now by having the ventilators *e* and *e'* arranged in the manner described transverse air currents are set up in one portion of the chamber *a* while opposite air currents are produced in the other portion of the chamber *a*. The air currents produced by the ventilators *e* pass from the chamber *a* up through the opening *s* into the chamber *b* and from the latter into the chamber *r* and back into the drying chamber *a*, while the currents produced by the ventilators *e'* pass from the drying chamber *a* up through the opening *u* into the chamber *d*, from which the currents pass by way of the chamber *t* into the drying chamber *a*. By the use of the ventilator *g* the air is drawn out of the middle of the chamber *a*, as previously explained. Air enters the chamber *a* through the inlet and exit openings *a'*, *a''*, *a'''* and *a''''*, and can pass out through the opening *f* into the chamber *c* as previously explained.

From the foregoing it will be seen that by the use of the ventilators *e*, *e'* and *g* currents are produced in the two halves of the

structure *i*, and which currents pass in opposite directions from the ends of the chamber *a* to the middle thereof, whereby the air is heated gradually on passing over the heaters *l*. The heated air finally passes into the chamber *c* from which the air is drawn by the ventilator *g* into the stack *h*, to be then used for other purposes, as previously explained.

It is understood that I do not limit myself to the particular construction of the ventilators or heaters.

The operation is as follows: The goods to be dried are carried by the conveying means *v*, *v'*, through the drying chamber *a* past the heaters *l*, *l*, the conveying means *v*, *v'* moving either continuously or intermittently, according to the nature of the goods to be dried, that is, whether the goods require a shorter or longer period for drying, but the conveying means *v*, *v'*, in either case, move in opposite directions through the drying chamber *a*. As the action of the air currents in one half of the structure *i* is the same as in the other half it suffices to describe but one. The conveying means *v'* with the goods thereon is subjected to the action of the hot air currents as soon as the conveying means and wet goods pass into the chamber *a* by way of the entrance opening *a'*, the hot air thus heating the wet goods and gradually drying the same. The air is finally drawn up through the channels into the chamber *b*, from which the air is passed by the ventilators *e* and chamber *r* into the chamber *a*, to then pass over the dried goods carried by the conveying means *v* toward the exit *a''*, so that the air receives a preliminary heating by taking up heat from the already dried goods on the conveying means *v*. The air then passes over the heater *l* to be re-heated to the full extent, and to then pass over the wet goods on the conveying means *v'*.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The method herein described of treating goods to be dried which consists in arranging the goods in separate sections passing said goods in opposite directions through a drying chamber and simultaneously subjecting the goods to the action of air currents, each air current being directed first over the dried departing portion of one sec-

tion, then heated and finally directed over the entering wet portion of another section.

2. The method herein described of treating goods to be dried which consists in arranging goods in separate sections, passing said goods in opposite directions through a drying chamber subjecting the goods while thus passing in opposite directions to the action of air currents, each current being first directed over the dried departing portion of one section and is next heated and is finally directed over the wet portion of another section, said air currents entering the drying chamber from opposite ends thereof and passing toward the middle of said drying chamber.

3. A drying apparatus, comprising a drying chamber, a heater arranged lengthwise in the middle of the chamber, means for carrying the goods to be dried in opposite directions and lengthwise through the drying chamber at opposite sides of the heater, an exit air channel leading from the middle of the drying chamber, return air chambers on opposite sides of the said channel and connected with the said drying chamber at opposite sides thereof, end inlet channels leading into the said drying chamber on opposite sides thereof, and circulating means intermediate the said return air channels and the said inlet channels.

4. A drying apparatus, comprising a drying chamber, a heater arranged lengthwise in the middle of the chamber, means for carrying the goods to be dried in opposite directions and lengthwise through the drying chamber at opposite sides of the heater, an exit air channel leading from the middle of the drying chamber, return air chambers on opposite sides of the said channel and connected with the said drying chamber at opposite sides thereof, end inlet channels leading into the said drying chamber on opposite sides thereof, circulating means intermediate the said return chambers and the said inlet channels, and exhausting means in the said exit air channel for drawing the air out of the drying chamber.

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

KARL REYSCHER.

Witnesses:

GUSTAV REYSCHER,
HEINR. PROINS.