

(No Model.)

G. REININGHAUS.

3 Sheets—Sheet 1.

MALT KILN.

No. 385.137.

Patented June 26, 1888.

Fig:1.

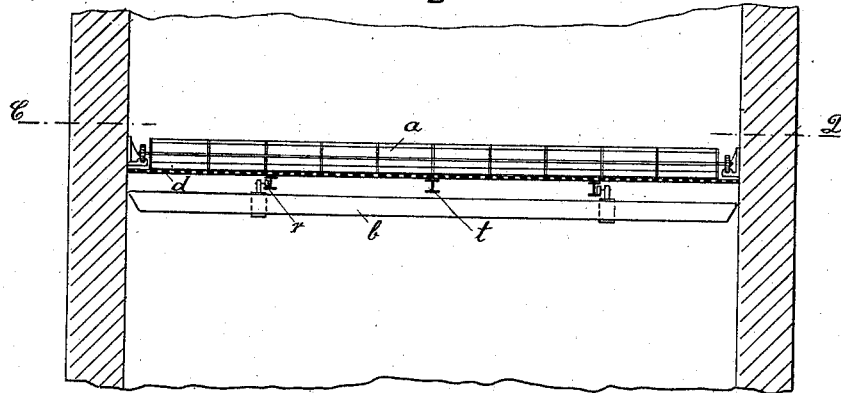
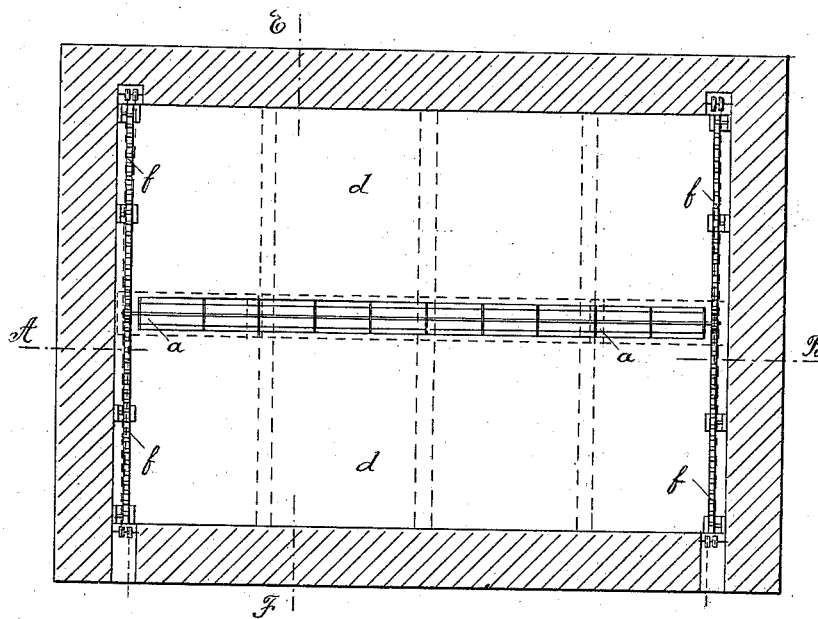


Fig:2.



Witnesses:

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his atty in fact.

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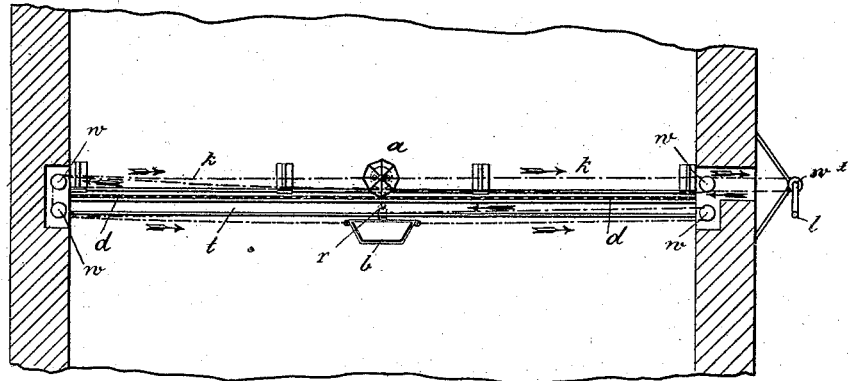
G. REININGHAUS.

MALT KILN.

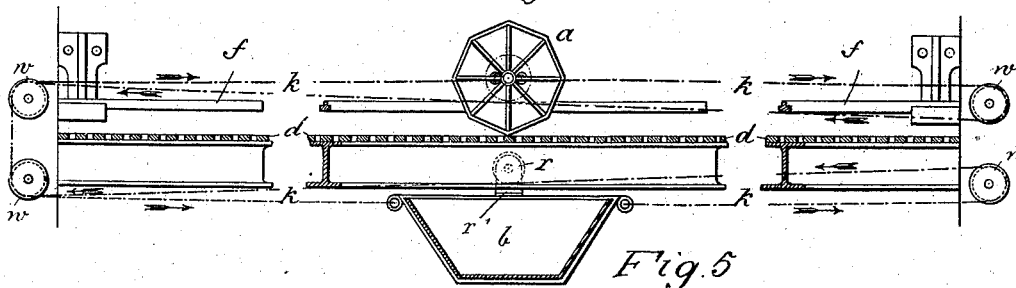
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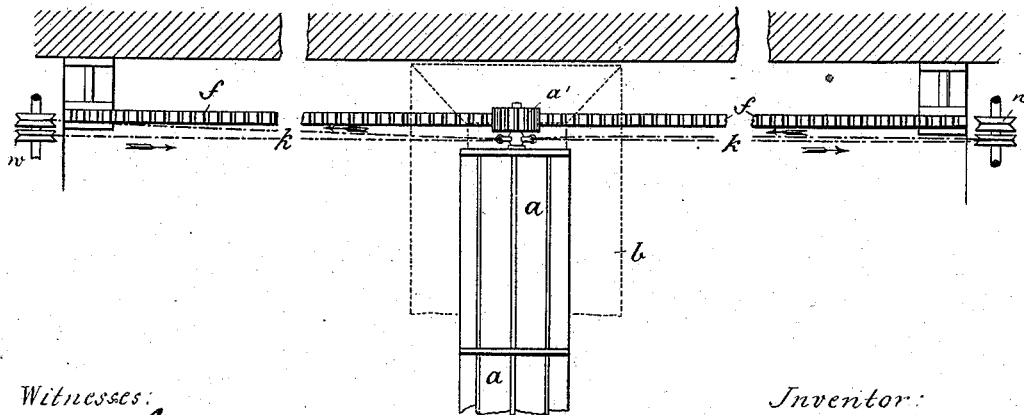
*Fig. 3*



*Fig. 4*



*Fig. 5*



Witnesses:  
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*E. Goldammer.*

Inventor:  
*Gustav Reininghaus.*  
by *A. D. S. S. S.*  
his attorneys.

Fig. 6

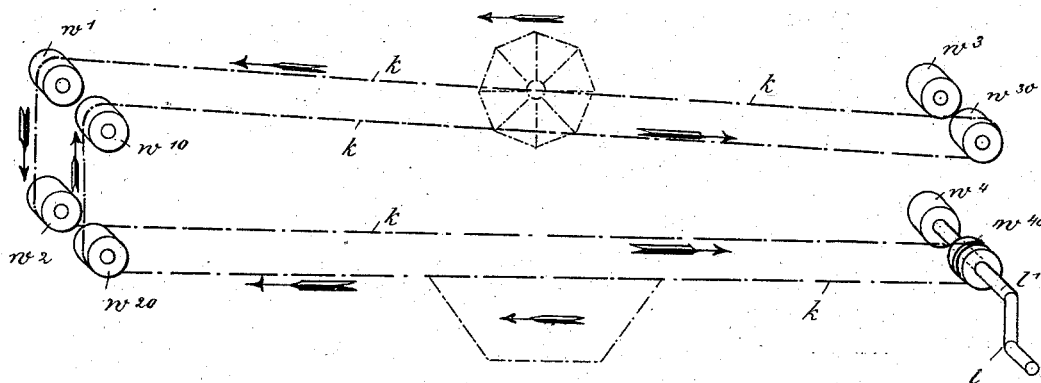
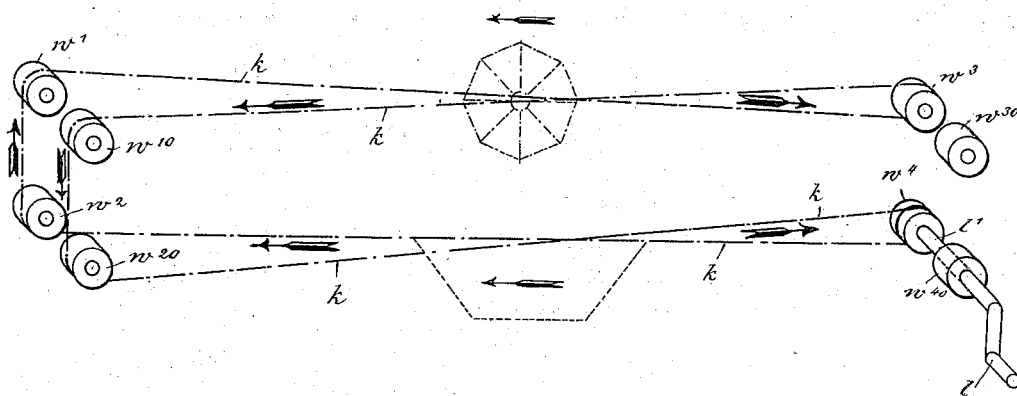


Fig. 7



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# UNITED STATES PATENT OFFICE.

GUSTAV REININGHAUS, OF MAYENCE, HESSE, GERMANY.

## MALT-KILN.

SPECIFICATION forming part of Letters Patent No. 385,137, dated June 26, 1888.

Application filed August 24, 1887. Serial No. 247,776. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAV REININGHAUS, a subject of the German Emperor, and a resident of Mayence, in the Grand Duchy of Hesse, German Empire, have invented certain new and useful Improvements in Malt-Kilns, of which the following is a full and complete specification, reference being had to the accompanying drawings, in which like letters designate like parts in all the figures.

The object of my invention is to prevent the germs of the malt, when the latter is turned, from falling upon the heated pipes arranged below the floors of the malt-kiln, in which case the malt receives a taste as if it were burned; and my invention consists in the arrangement of a receptacle below the floor over which the malt-turner travels, and which receptacle or receiver is made to follow or accompany the turner on its way in both directions in order to receive the germs which fall through the perforations of the malt-kiln floor.

These improvements are shown in the accompanying drawings, in which—

Figure 1 shows part of a malt-kiln in a vertical section on line A B, Fig. 2, the floor being provided with a turner and a germ-receiver. Fig. 2 is a horizontal section on line C D of Fig. 1. Fig. 3 is a section on line E F of Fig. 2. Fig. 4 shows part of Fig. 3 in an enlarged view. Fig. 5 is a top view of Fig. 4, the malt-turner and germ-receiver being broken away; and Figs. 6 and 7 are diagrams showing the manner in which corresponding motion of the malt-turner and germ-receiver may be produced.

In all the figures, *a* is the malt-turner, which may be of any construction, and which carries a pinion, *a'*, at each end, (see Fig. 5,) which engage with horizontal racks *f f*, suitably secured in or to the walls of the kiln.

*d* is the malt-kiln floor, being perforated and resting on iron trusses *t*.

*b* is the receiver provided with rolls or wheels *r*, which are pivoted to vertically-projecting arms *r'*, and which run on the lower flange of the I-trusses *t*.

The corresponding motion of the malt-turner and germ-receiver is attained by chains *k*,

which are connected in both directions to the turner *a* and receiver *b*, and which are wound over and around four sets of pulleys or rolls, *w' w<sup>10</sup>*, *w<sup>2</sup> w<sup>20</sup>*, *w<sup>3</sup> w<sup>30</sup>*, and *w<sup>4</sup> w<sup>40</sup>*. There are many ways in which the chain may be wound around the pulleys—thus, for instance, as in Fig. 6, commencing at *w<sup>10</sup>*, it is connected to receiver *b*, then going around pulley *w<sup>20</sup>*, *w<sup>10</sup>*, and *w<sup>30</sup>*, and turning back it is fastened to the turner *a*; thence it goes over *w' w<sup>3</sup>* back to *w<sup>40</sup>*, around which it is wound several times and connected with its two ends, so that when a crank, *l*, is put on shaft *l'* of pulleys *w<sup>4</sup> w<sup>40</sup>* the turner *a* and receiver *b* will move in the same direction, as is indicated by the arrows. I attain the same result when I guide the chain as in Fig. 7—that is, from *w<sup>4</sup>* to the receiver *b*, then around *w<sup>2</sup> w' w<sup>3</sup>*, then back to the turner *a* over *w<sup>10</sup> w<sup>20</sup>* and around *w<sup>4</sup>*; but I do not confine myself to these two manners of guiding the chain or chains, nor do I always mount crank *l* on the extending shaft of one of the pulleys *w*. I may as well use a supplementary pulley, *w*, outside the kiln, as in Fig. 3, around which I wind the chain for several times and which I provide with a crank, *l*; or I may use any other well-known means for attaining the object in view. I may also move the turner and receiver independently from each other, but I prefer to start them by one mechanism. In any case, however, the receiver will prevent the germs from falling on the heated pipes below, which are not shown in the drawings.

My germ-receiver and its mechanism may be arranged below each floor of a kiln, provided there is a turner for each, but for economy I arrange it only below the undermost floor. The receiver may also be provided with any common tilting device.

Having thus fully described and explained the nature of my invention, I claim as new and desire to secure by Letters Patent—

1. In a malt-kiln, the combination, with the malt-kiln floor *d*, of a malt-turner, *a*, and a germ-receiver, *b*, connected thereto, as described, so as to accompany the turner *a* on its way over the floor *d* in both directions, substantially for the purpose as described.

2. In a malt-kiln, the combination, with a

malt-kiln floor, *d*, of a malt-turner, *a*, and a  
germ-receiver, *b*, pulleys *w*, and chains *k*, the  
latter being wound around said pulleys and  
connected to the receiver *b* and turner *a*, so  
5 as to make the receiver accompany the turner  
on its way over the floor *d* in both directions,  
substantially for the purpose as described.

In witness whereof I have hereunto set my  
hand in presence of two witnesses.

GUSTAV REININGHAUS.

Witnesses:

TH. JOS. KÖGHER.

CARL ED. HAHN.