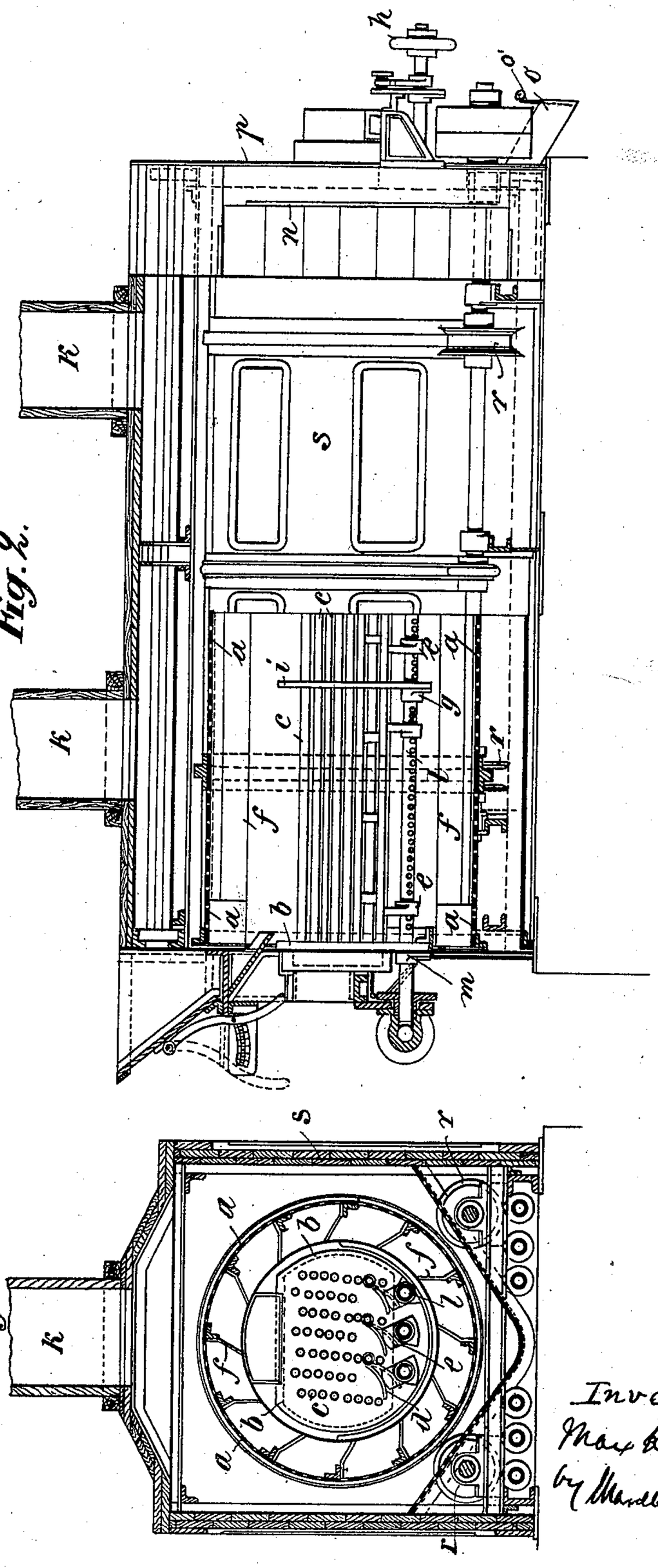
No. 687,037. Patented Nov. 19, 1901.

M. KÖNIG.

APPARATUS FOR DRYING GRAIN.

(Application filed July 23, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DRYING GRAIN.

SPECIFICATION forming part of Letters Patent No. 687,037, dated November 19, 1901.

Application filed July 23, 1901. Serial No. 69,370. (No model.)

To all whom it may concern:

Be it known that I, MAX KÖNIG, a subject of the King of Prussia, and a resident of No. 41 Parkstrasse, Cassel, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Apparatus for Drying Grain and other Materials, of which the following is a specification.

This invention relates to apparatus for drying grain and other materials of the kind as described in the specification of my prior application for a United States patent, filed by me on the 14th day of March, 1900, Serial No. 8,625; and it consists in arranging below the sections of the stationary heaters located within the troughs and agitators dampers adjustable from the outside by appropriate mechanism, so that the spaces between the heating-sections through which the drying material falls may be entirely or partly closed. This arrangement allows to retain the drying material during a longer or shorter period within the spaces between the heating-sections, and hence also to expose it during a longer or shorter period to the heat radiated from these sections.

In describing the invention reference will be had to the drawings, in which Figure 1 shows the apparatus in a vertical cross-section on the line 1 1 of Fig. 2, while the latter represents in one portion a vertical longitudinal section and in another one a side elevation.

The apparatus consists in a drum *a*, revolving upon rollers *r* and being open at the ends at *n*, but outwardly closed by walls *p*. Located within the drum *a* is a stationary heater consisting of sections *c*, having spaces between them which may be completely or partly closed by dampers *d*. The drum *a* is on its internal periphery provided with longitudinal scoops *f*. The material to be dried is fed into the hopper and from there into the apparatus. The latter is operated as follows: On beginning the drying operation the dampers *d* are opened and the discharge-openings *o* closed by means of slides *o'*. The material to be dried falls through the spaces of the heating-sections *c* into the revolving drum *a*, which by means of the scoops *f* lifts and drops it again onto the heater. At the start the apparatus is quickly charged with about three times the quantity the apparatus regularly works. Thereupon the feeding is reduced to the proper rate, the outlets *o* are opened, and the dampers *d* closed so far as to allow the material to collect between the heating-sections and to let only so much of the material fall from these into the drum as will correspond to the working capacity of the apparatus. Thereby the material is caused to slide slowly along the surfaces of the heater and is exposed for a longer period to the heat radiated from the heating-tubes. The material falling back into the drum is immediately lifted by the longitudinal scoops *f* and again dropped onto the heater. On its way from the scoops *f* to the heater the material is ventilated, air being constantly drawn through the apparatus by the chimney *k*. The dampers are adjusted and fixed in their positions by cams *e*, keyed on the hollow shafts *l*, passing through the apparatus and provided on the outside of the same with hand-wheels *h*. Outside of the drum the said shafts *l* are supported by bearings *m*, fitted in the stationary wall *p*, and within the drum they turn in bearings *g*, secured to walls *i*, which at the same time serve for staying the heating-tubes *c*. The hollow shafts are, moreover, provided with rows of small openings through which air is constantly blown through the material to be dried.

The apparatus is surrounded by a casing *s*, serving at the same time as dust-chambers when a dust-emitting material is operated upon. In this case the vapors, which also entrain the dust, are made to pass through the internal space, whereby owing to the low speed of the current the dust is deposited in the lower part of the apparatus.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for drying grain and other material comprising a trough or drum for receiving the material and an agitator with an internal stationary heater consisting of separate inclined sections the combination with the said heater of dampers arranged below the sections of the heater and means for adjusting the dampers from the outside of the apparatus, essentially as and for the purpose described.

2. In an apparatus for drying grain and other material comprising a trough or drum for receiving the material and an agitator with an internal stationary heater consisting of separate inclined sections the combination with the said heater of dampers arranged below the sections of the heater, cams acting on the said dampers and shafts passing through the apparatus to the outside of the same on which are keyed the said cams, essentially as and for the purpose described.

3. In an apparatus for drying grain and other material comprising a trough or drum for receiving the material and an agitator with an internal stationary heater consisting of separate inclined sections the combination with the said heater of dampers arranged below the sections of the heater, cams acting on the said dampers, and hollow perforated shafts passing through the apparatus to the outside of the same on which are keyed the said cams, essentially as and for the purpose described.

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

MAX KÖNIG.

Witnesses:
HÄMANN HINEMANN,
WERNER SCHMIDT.