

(No Model.)

2 Sheets—Sheet 1.

T. G. FROST.  
GRAIN DRYING APPARATUS.

No. 570,989.

Patented Nov. 10, 1896.

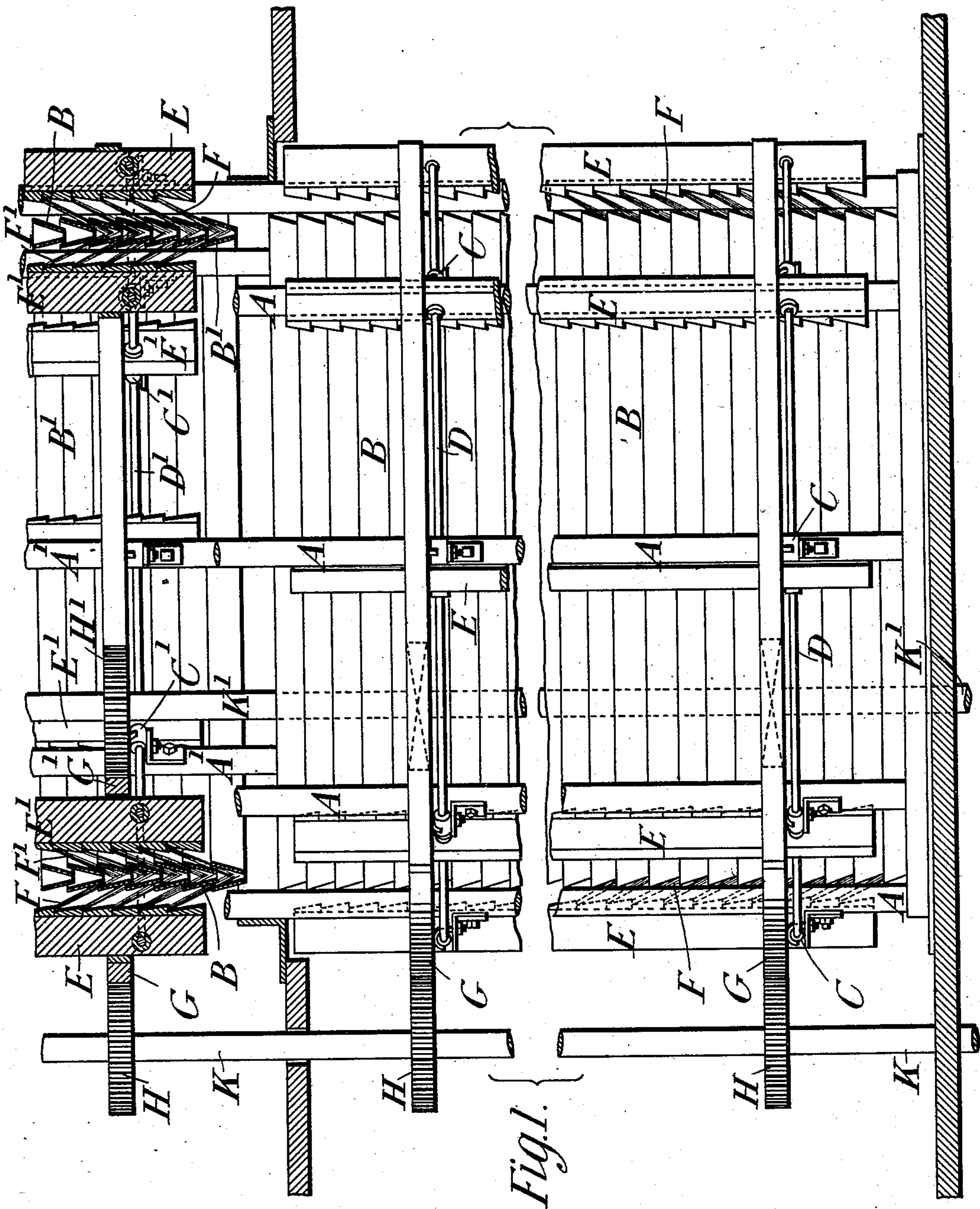


Fig. 1.

WITNESSES

Warren W. Swartz  
B. D. Doolittle

INVENTOR

Thomas Gibson Frost  
by his attorneys  
Baker & Baker

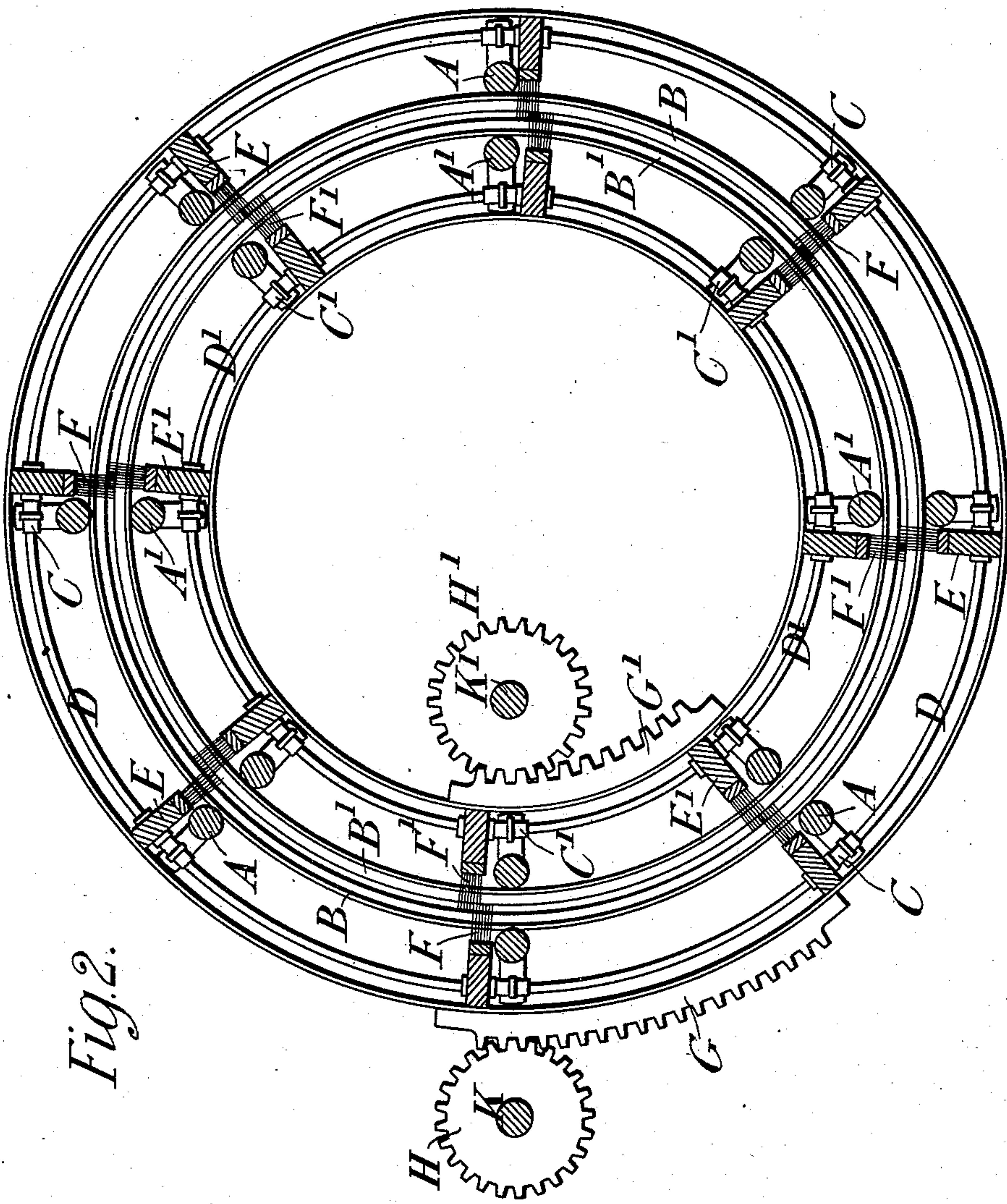
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*Fig. 2.*

**WITNESSES**

Warren W. Swartz,  
U.S. Stewardship

**INVENTOR**

Thomas Gibbons First  
by his attorneys  
Bakewell, Bakewell



# UNITED STATES PATENT OFFICE.

THOMAS GIBBONS FROST, OF CHESTER, ENGLAND.

## GRAIN-DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 570,989, dated November 10, 1896.

Application filed July 1, 1896. Serial No. 597,666. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS GIBBONS FROST, a citizen of England, residing at Richmond Hill, Chester, in the county of Chester, Eng-

land, have invented a certain new and useful Improvement in Grain-Drying Apparatus, of which the following is a specification.

In many grain-drying apparatus the grain descends in a thin layer between walls which are perforated or have openings through them of various forms—sometimes louvers—while air is caused to pass through the descending grain. The openings through which the air issues are apt to become clogged with dust and other matter separated from the grain.

My invention relates to means of clearing these openings, so as to maintain free passage of air through them. For this purpose at the side or each side of the drying apparatus, which is usually in the form of a high column, I arrange several uprights which can move to and fro on horizontal guides, each upright having projecting from it brushes, which bear against the wall of the drying apparatus, or, in cases where the openings are in the form of louvers, I incline the brushes so as to enter into the louver-openings.

For each set of the uprights carrying the brushes I provide a vertical shaft having on it pinions gearing with horizontal racks fixed on the uprights, so that by giving these shafts a rocking motion from any convenient motor the brushes are caused to move to and fro, clearing the openings over or along which they pass.

When the column of the drying apparatus is of cylindrical form, I attach all the uprights (of which there may be a number arranged at intervals around the column) to rings, so that they all move together, and guide them on rings concentric with the column. In this case a single rack and pinion for each of the rings that connect the uprights serves to move all the brushes to and fro simultaneously.

The accompanying drawings illustrate my invention as applied to a drying apparatus of cylindrical form.

Figure 1 is a part elevation, partly in section; and Fig. 2, a sectional plan.

A A' are the external and internal columns, to which are attached the two sets of louvers B B', between which the grain descends, all this being of ordinary construction.

To the columns A A', I fix guide-eyes C C', through which can slide outer and inner rings D D', these being repeated at various heights.

To the rings D D' are attached uprights E E', one between each pair of the columns A A', and on the faces of these uprights I fix brushes F F', directed obliquely downward into the space between the louvers B B'.

On a pair of the outer uprights E, I fix toothed racks G, and on a pair of the inner uprights E', I also fix toothed racks G', these racks gearing with pinions H H' on two upright rocking shafts K K'. On giving these shafts a reciprocating movement by suitable gear from any convenient motor the two sets of uprights E E' are caused to move to and fro, their brushes F F' cleaning the spaces between the louvers B B'. When the drying apparatus is of rectangular form, the uprights carrying brushes are driven and guided to move to and fro rectilineally, one upright between each pair of the supporting-columns, there being four sets of the racks, pinions, and shafts, one for each side of the rectangular structure.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

For cleaning the air-openings of grain-drying apparatus, apparatus consisting of uprights caused to move to and fro, these uprights carrying brushes which enter the air-openings, clearing them, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 17th day of June, A. D. 1896.

THOMAS GIBBONS FROST.

Witnesses:

J. E. HENDERSON,  
RICHARD MASSEY.