

Jan. 20, 1925.

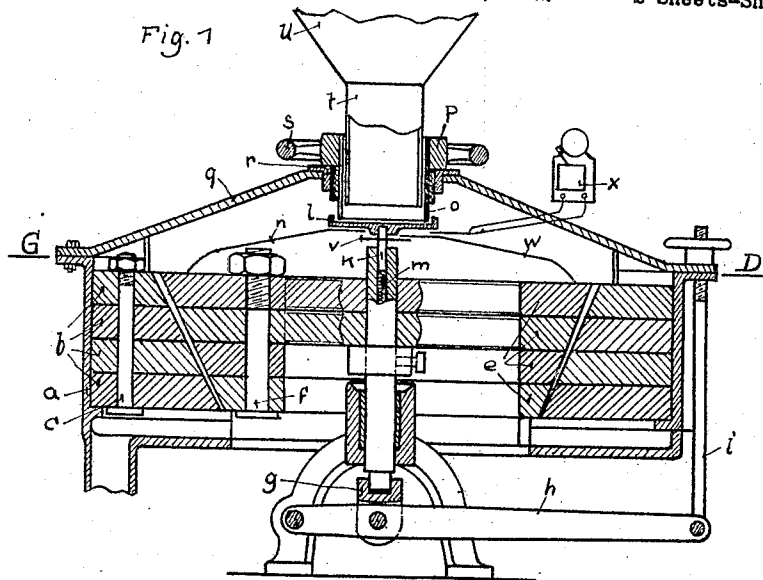
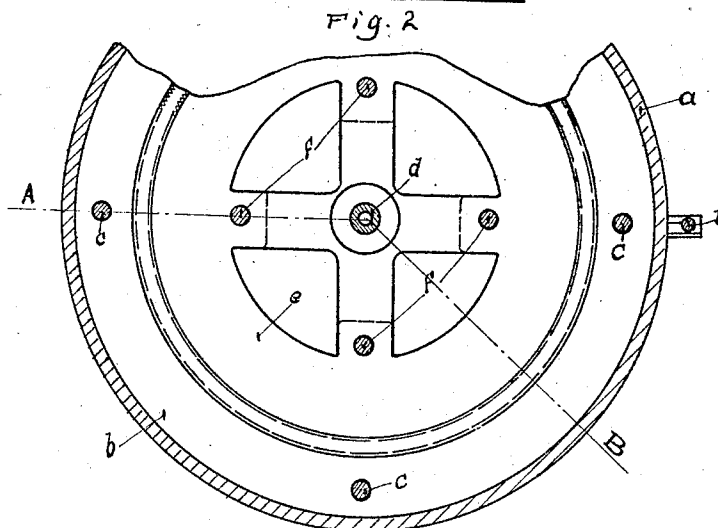
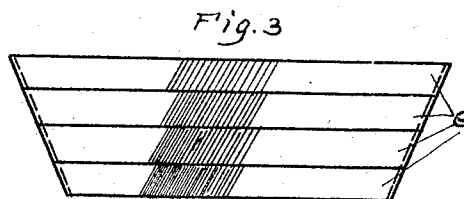
A. FISCHER

1,523,478

MILL

Filed March 25, 1922

2 Sheets-Sheet 1



Inventor:
Adolf Fischer
by: Edward J. R.
Attorney

Jan. 20, 1925.

A. FISCHER

1,523,478

MILL

Filed March 25, 1922

2 Sheets-Sheet 2

Fig. 4.

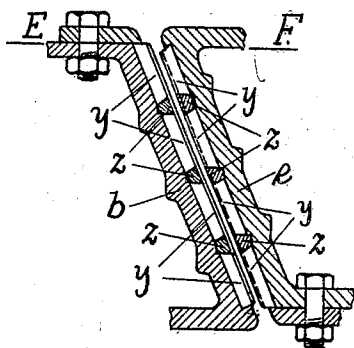


Fig. 5.

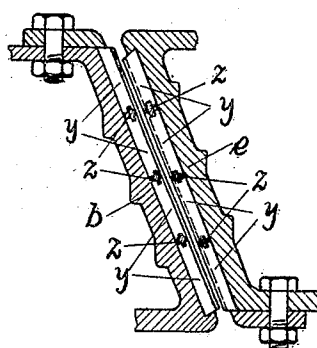


Fig. 6.

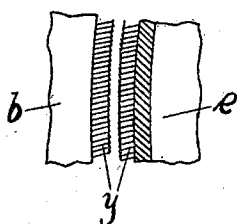


Fig. 7.

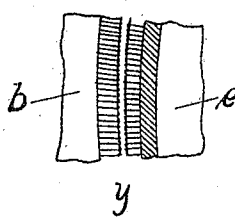
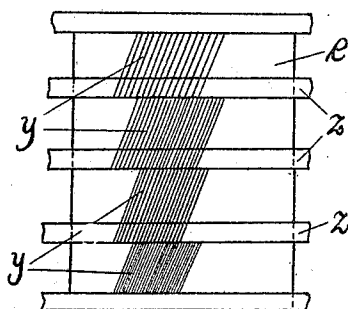


Fig. 8.



Inventor:
Adolf Fischer
by: Robert J. R.
Attorney!

UNITED STATES PATENT OFFICE.

ADOLF FISCHER, OF HAGEN, WESTPHALIA, GERMANY.

MILL.

Application filed March 25, 1922. Serial No. 546,797.

To all whom it may concern:

Be it known that I, ADOLF FISCHER, merchant, Hagen in Westphalia, Germany, Dreieckstrasse 11, residing at Hagen in Westphalia, Germany, Dreieckstrasse 11, have invented certain new and useful Improvements in Mills, of which the following is a specification.

The present invention has for its object certain improvements in mills.

On the accompanying drawings:

Fig. 1 is a cross section on line A—B of Fig. 2;

Fig. 2 is a horizontal section on line C—D of Fig. 1;

Fig. 3 is an exterior view of the interior grinding body with its channeled grooves.

Figs. 4 to 8 show a second form of embodiment of the invention; Figs. 4 and 5 are sectional views; Figs. 6 and 7 sections on line E—F of Fig. 4, and Fig. 9 is an outer view of the inner grinding body.

Into a hollow body *a* are placed, for example, four rings *b* of moderate height, i. e. from 5 to 6 cm., the inner surfaces whereof are conically shaped and uniformly rifled or channelled. These rings form the outer grinding body and are connected by bolts *c*.

With a central axle *d* are connected four rings *e* of a height corresponding to that of the rings *b* (i. e. 5–6 cm.); their outer surface is uniformly spirally grooved or channelled, and provided, like the outer rings *a*, with a spiral or twist of grooves; these rings *e* form the inner grinding body; they are connected with each other by bolts *f*.

In lieu of the four rings *b* and four rings *e*, as shown, another number may be used, and they may consist of steel, stone, emery, or another suitable material.

The low height of the rings permits that the same pitch of channelling can be given to the upper line and the bottom line. As the angle of the conical rings is very small owing, to the low height of the ring, the channels are only a little wider at the top than at the bottom. When the rings are put onto one another, there is obtained a grinding surface surrounding the conical body and having the desired uniform spiral or twist of grooves.

The rings have differently wide and deep channels and they are placed upon one another in such a manner that the uppermost

inner and outer rings show the widest, and the lowermost inner and outer ring the narrowest channels or twist of the grooves.

The shaft *d* rotates in a foot-bearing *g*, the position of height of which may be adjusted by means of a lever *h* and a rod *i*, so that the grinding surfaces of the rings *b* and *e* can be moved towards, or away from, each other.

The axle *d* is provided on its upper end with a bore whereinto is put a vertical pivot *k* equipped on its upper end with a strewing plate *l*, and is set with its bottom end on a spring *m*. The strewing plate rotates with the axle *d*. Immediately below the plate *l* an annular cone-shaped plate *n* is provided, which contacts with the grinding surface of the uppermost ring *e*. The said plate is connected to this ring and rotates together with it.

Above the strewing plate *l* a tube *o* is disposed which is put with a screwed socket *p* into a screwed-ring *r* fixed to the cover *q*. By rotating the hand-wheel *s*, the tube *o* is shifted vertically. The distance between the strewing plate and the tube *o* can, therefore, be regulated as desired. The passage between these parts may be completely closed. The tube *o* surrounds the tubular end *t* of the hopper *u*.

On the journal of the strewing plate *l* a contact plate *v* is fixed and over it is arranged a contact piece *w* which is in connection with an electric bell *x*. As long as, while the mill is running, grain is contained in the hopper and the tube *t*, the strewing plate *l* is pressed down by the weight of the grain. Contrarily thereto, the plate is lifted by the spring *m* and the plate *v* contacts with the piece *w*. The bell *x* sounds and informs the miller that the mill is empty and fresh grain must be supplied. The mill may be employed for any kind of vegetable grinding material.

According to Figs. 4 to 8 the rings *b* and *e* are replaced by annular bodies *b* and *e* of correspondingly greater height, and the grinding surfaces are formed of a series of thin knife plates *y*, arranged obliquely on the bodies *b* and *e* in the manner shown in Fig. 8.

The thickness of the knife plates is made dependent on the width of the channels. If, for instance, 5 channels are to be distributed over 1 cm., the knife plates have a thickness

of 2 mm. There are several layers of knife plates, one over the others, each being held in place by intermediate rings z fastened on the bodies b and c . The last layer upon the body b and the uppermost layer upon the body c are held in place by a rigid ring, and the uppermost layer of the body b together with the lowermost layer upon the body c are held in place by movable rings provided with screws. According to Fig. 4 the intermediate rings z are of trapezoidal section, whereas the intermediate rings z of Figure 5 are cross-shaped in section. The outer surface of the rings is channeled according to the thickness of the knife plates y . The fastening of the plates can be effected also in any other way. The thickness of the knife plates of the different layers corresponds to the different channeling of the rings, Figs. 1 to 3.

According to Fig. 6, the knife plates y are inclined in such a manner that they are angularly disposed relatively to the circumference of the body, whereas in Fig. 7 they

are disposed perpendicularly on the outer surface.

I claim:

In a grinding mill, the combination of a stationary body composed of superposed rings forming at their combined inner faces a hopper-like grinding surface and being each provided at these faces with steep oblique grooves decreasing in width in each ring following immediately in downward direction; with a central grinding body composed of superposed disks forming in their entirety an inverted truncated cone, the conicalness of which corresponds to that of said hopper-like grinding surface, each disk being provided with steep oblique grooves corresponding to those of the ring in the same horizontal plane.

In testimony whereof I affixed my signature in presence of two witnesses.

ADOLF FISCHER.

Witnesses:

HENRY W. HAAS,
WILLIAM E. LANE.