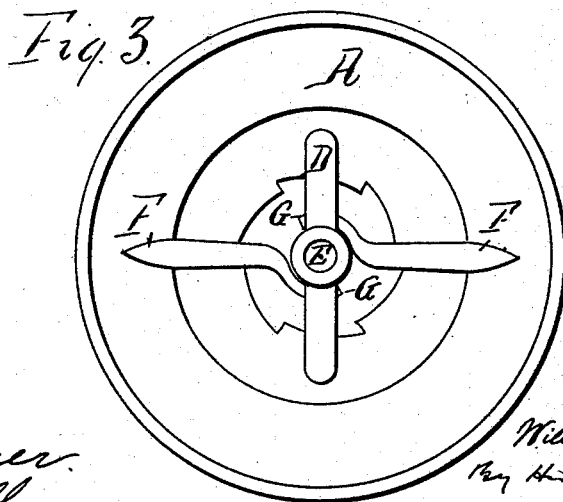
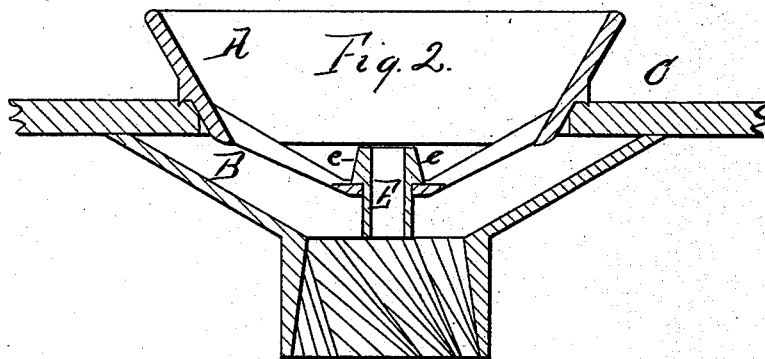
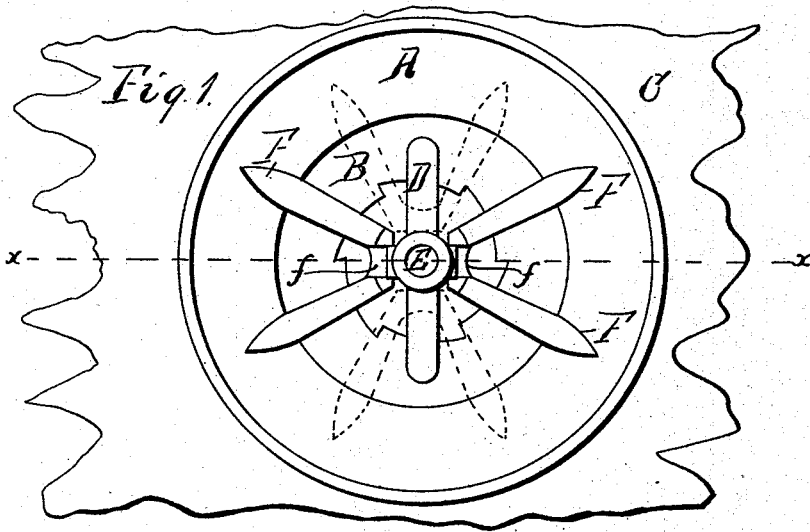


(No Model.)

W. A. HANCE.  
COFFEE MILL.

No. 413,320.

Patented Oct. 22, 1889.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. HANCE, OF FREEPORT, ILLINOIS, ASSIGNOR TO THE WARNER MANUFACTURING COMPANY, OF SAME PLACE.

## COFFEE-MILL.

SPECIFICATION forming part of Letters Patent No. 413,320, dated October 22, 1889.

Application filed June 24, 1889. Serial No. 315,333. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. HANCE, a citizen of the United States of America, residing at Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Coffee-Mills, of which the following is a description.

In the drawings presented herewith, wherein similar reference-letters are applied to the same or corresponding parts, Figure 1 is a plan view of the top of a coffee-mill, showing my improved construction; Fig. 2, a vertical section of the same in line *xx* of Fig. 1; and Fig. 3 illustrates a modification of my invention.

Said invention is applied to small coffee-mills, such as are adapted to the ordinary use of the household, and its object is to cheapen the manufacture of these mills, to the end that a perfectly reliable mill may be furnished to the public at a greatly-reduced price.

Referring to the drawings, A is the upper casting or hopper; B, the lower casting or body of the mill, and C the top of the box or stand which supports the mill. The bridge or cross-piece D is cast integral with the part B, and carries the central shaft of the mill at E.

My invention consists in the improved means devised to fasten the parts A and B together and firmly clamp them to the cover C. In my preferred construction I do this by casting two shoulders *ee* upon the part E and forming upon the lower edge of the hopper A the arms F F, projecting downward and inward to meet the shoulders *ee*. The bearing-surfaces of the shoulders and arms are slightly inclined, so that the hopper A can be shoved down into the position indicated by dotted lines in Fig. 1, and then twisted around into place, the ends of the arms F F being thereby tightly wedged under the shoulders *ee* on the bridge D. To prevent any accidental displacement of these parts, I form a slight depression *f* upon the inclined surface of the arm F, into which the shoulder *e* drops when it reaches the position shown in full lines in Fig. 1.

In the manufacture of these mills care should be taken that in putting the mill together the hopper A be turned or twisted in

a direction opposite to that in which the shaft of the mill will be rotated when in use, inasmuch as the force applied to do the latter tends to turn the casting B with it, and hence, if the above direction be observed, will twist the parts all the more tightly together.

The modifications that can be made in the above-described construction without departing from my invention are innumerable. For example, the parts may be reversed, the arms F F being placed upon the casting B or some attachment thereof, and the shoulders *ee* upon the casting A. Another form is shown in Fig. 3, in which the provision of separate shoulders *ee* is dispensed with by extending the arms F F around to engage with the under surface of the bridge D, as seen at G. From these illustrations it will be seen that the essential feature of my invention is the provision upon one of the castings A B of an inclined bearing surface or surfaces, and upon the other casting of shoulders against which such bearing-surfaces may be wedged by simply rotating or twisting the one casting upon the other.

The principal advantage of my invention over former constructions is the ease with which the mill can be put together by an unskilled workman without the use of any special tools or appliances. This enables the various parts to be made separately after a common pattern, shipped to their destination, and there put together by the dealer. A glance at the form of the different parts of the mill shows that they can be packed much more closely before they are put together than afterward, and hence a great saving effected by shipping them in the separate parts.

In the construction shown in Fig. 1—the form which I prefer—the elastic forces of the casting A and arms F F are combined to exert an upward pull upon the central portion E of the casting B, thereby keeping the parts properly centered and in position.

I claim as new and desire to secure by Letters Patent—

1. In combination with the case-cover C, a hopper A, resting thereupon, and bearing-arms F F, projecting inward toward the center, and a grinding-shell B beneath said cover and having a diametrical bridge D, provided

upon its central portion with shoulders *ee*, adapted to be engaged with the arms F F by rotating said hopper with reference to said shell, and thereby firmly clamp all of said parts together, as and for the purpose stated.

5 2. The combination of the casting A, bearing the arms F F, containing the depressions *ff*, the cover C, and the casting B, having

the bridge D, provided with the shoulders *ee* upon the central portion E thereof, as and 10 for the purpose stated.

WILLIAM A. HANCE.

Witnesses:

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