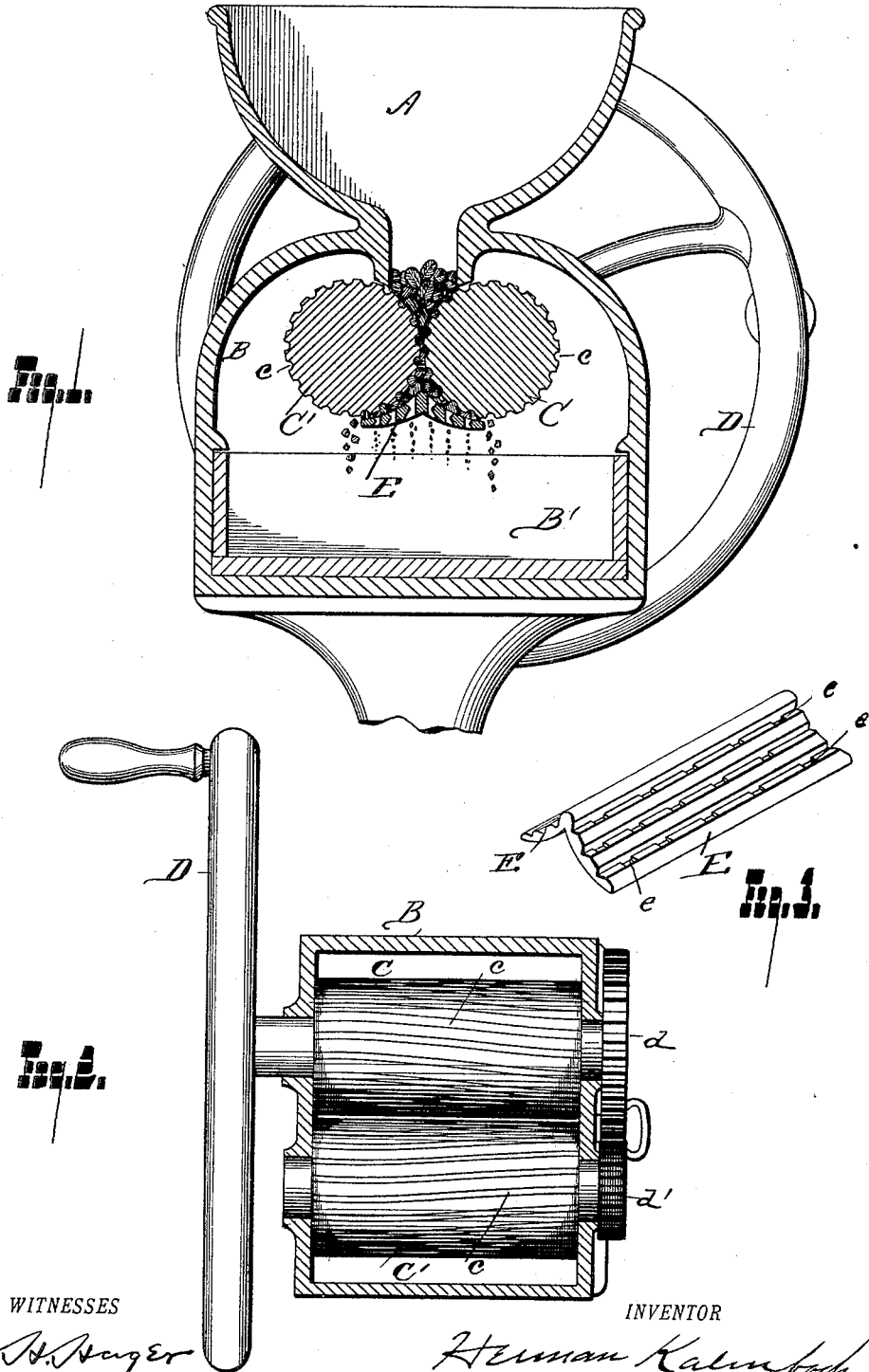


(No Model.)

H. KALMBACH.  
COFFEE MILL.

No. 581,729.

Patented May 4, 1897.



WITNESSES  
*J. H. Meyer*  
*S. C. Thomas*

INVENTOR  
*Herman Kalmbach*  
*By E. W. Abbott atty*

# UNITED STATES PATENT OFFICE.

HERMAN KALMBACH, OF FRANCISCO, MICHIGAN.

## COFFEE-MILL.

SPECIFICATION forming part of Letters Patent No. 581,729, dated May 4, 1897.

Application filed November 23, 1895. Serial No. 569,922. (No model.)

*To all whom it may concern:*

Be it known that I, HERMAN KALMBACH, a citizen of the United States, residing at Francisco, county of Jackson, State of Michigan, have invented a certain new and useful Improvement in Coffee-Mills; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to coffee-mills, and its object is to provide improved means for first crushing and then grinding the coffee.

My invention is shown in the accompanying drawings, in which—

Figure 1 is a vertical cross-sectional view.

Fig. 2 is a view showing the box and bearings in horizontal section and a plan of the rolls and gears. Fig. 3 is a view showing the concave grates.

In the drawings, A is the hopper, and B the shell or box, of the machine.

B' is a drawer or box to receive the ground coffee.

C C' are rolls having spiral corrugations *c c*. These rolls are mounted in the frame, one being driven by the hand and balance-wheel D and the other driven in the opposite direction through the gears *d d'*. The gear *d* is made larger than the gear *d'*, by means of which the roll C' is driven at a higher speed than the other roll. By means of these differences in speed the grinding action is created between the two rolls in addition to the ordinary action of crushing the berry.

E E are concave grates or grinders, preferably cast in one piece. These grates are concave to fit the rolls and are located immediately below and near enough to the rolls to

grind the broken coffee-berries as they come from between the rolls. These grates are provided with longitudinal grinding edges, preferably made straight as compared with the spiral corrugations on the rolls. The combination of these straight edges or corrugations on the grates or grinders and the spiral corrugations on the rolls produces a running action between them.

Any suitable means may be employed for adjusting the rolls to or from one another or to and from the grates, and as such adjustments are common they need not be shown or described. For all practical purposes mills may be made without any adjustment, thereby cheapening their production.

The grates are provided with openings *e e*, through which the finer particles of coffee pass, leaving the coarser grains to be delivered over the outer edges of the grates.

The advantages of my invention are found in its simplicity of construction and the effectiveness of its operation.

What I claim is—

In a coffee-grinding mill, the combination of the crushing-rolls C and C' driven at varying rates of speed and having longitudinal spiral corrugations *c*, the corrugations of each roll being spiraled reversely to the other, of the grates E, located immediately under, and concave to fit, the rolls C and C'; the said grates being provided with longitudinal grinding edges, and having openings *e* for the passage of the article ground, substantially as and for the purpose set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

HERMAN KALMBACH.

Witnesses:

E. A. CAREY,  
E. W. ABBOTT.