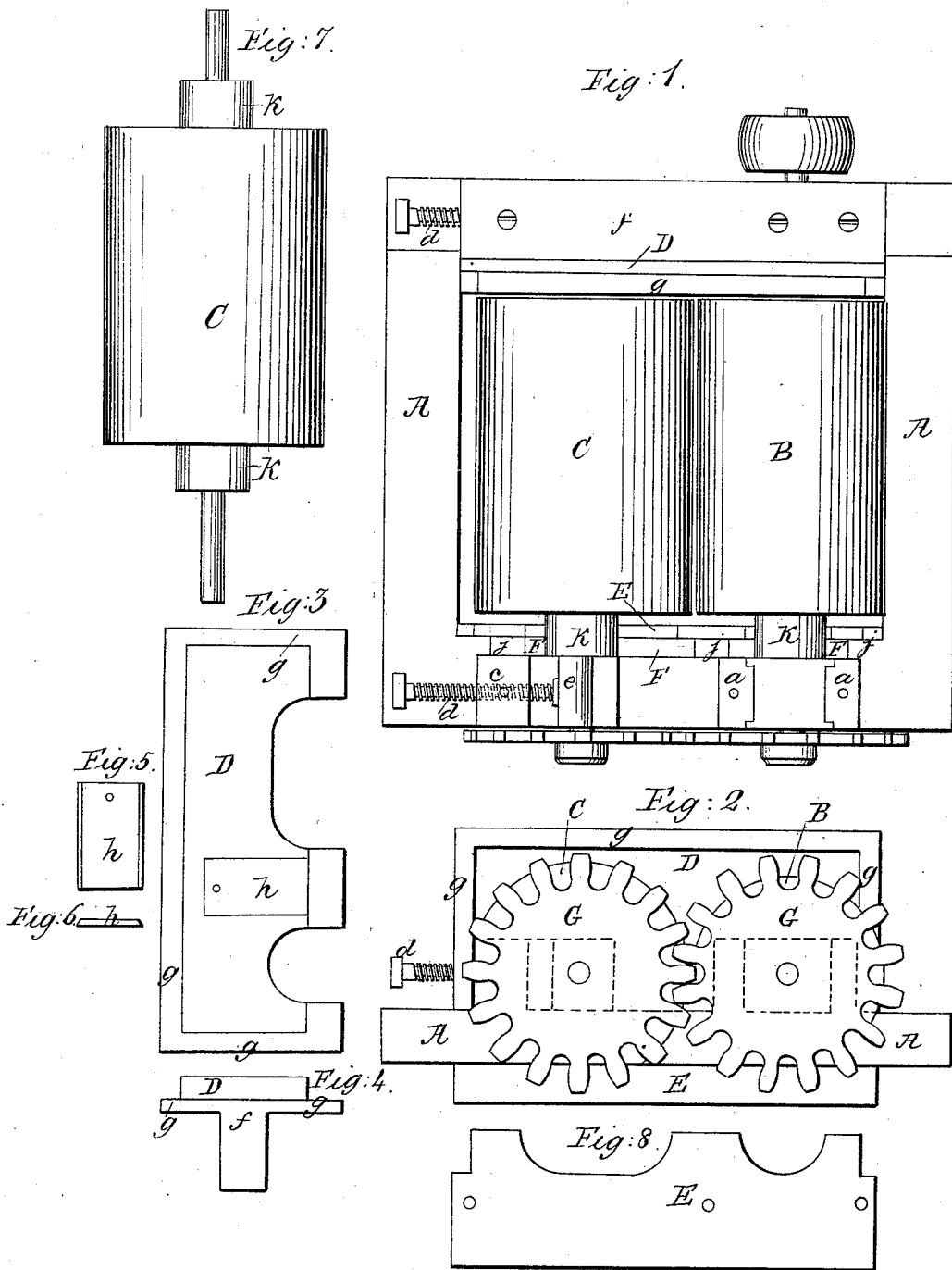


J. GARDINER.

Malt Mill.

No. 81,994.

Patented Sept. 8, 1868.



Witnesses.

*Stephen Welch*  
*John H. H. H.*

Inventor.

*John Gardiner*

# United States Patent Office.

JOHN GARDINER, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 81,994, dated September 8, 1868.*

## IMPROVEMENT IN MALT-MILLS.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN GARDINER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Malt-Mills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a plan or top view of the improved mill, with one of the cheeks D removed.

Figure 2 is a side elevation of the same.

Figure 3 is a face view of one of the cheeks D.

Figure 4 is an end view of the same.

Figures 5 and 6 are a face and end view of one of the steel plates *d*.

Figure 7 is a face view of the roller C.

Figure 8 is a face view of one of the plates E.

Like letters in all the figures indicate the same parts.

The nature of my invention mainly consists in combining vertical cast-iron cheeks with a bed-plate, which supports the rollers of a malt-mill, for the rollers to work between, the said cheeks being faced, in whole or in part, with hardened-steel plates, to take the thrust of the malt as it passes between the rollers.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a cast-iron frame or bed-plate which supports the mashing-rollers B C.

It has pillow-blocks, *a*, which support and confine the boxes *b* of the fixed roller B, and studs *c* cast with it, the studs being for the reception of the set-screw *d*, for operating the journal-boxes *e* of the adjustable roller C.

Instead of constructing one of the rollers with wide flanges, for the other roller to work between, I construct the rollers both straight throughout their whole length, and have cast-iron cheeks, D D, between which they revolve.

These cheeks have flanges, *f*, which are bolted firmly to the pillow-blocks *a* and studs *c*, their under sides serving to keep the journal-boxes in their perpendicular position.

There are rebates, *g*, around the inside of the cheeks, to receive the hopper for feeding the mill, except at the lower edge, where the rebates fit against iron plates, for protecting the malt from the waste-oil from the journal-boxes, which plates I will hereafter describe.

The faces and flanges of the cheeks D, I plane square with each other, so as to effect a free running of the rollers without much play at their ends. One of the cheeks is represented in detail in figs. 5 and 6.

I face the cheeks in whole or in part with hardened-steel plates, to take the thrust of the malt as it passes between the rollers B C, as the lateral force of the malt is very great, making it necessary to provide hard facings, to prevent the rapid wear of the opposing faces; but as a small portion only of the cheeks takes the thrust, I usually have small plates, *h*, (see figs. 3, 5, and 6,) which are dove-tailed into the faces of the cheeks, and confined by means of rivets *i*.

There are iron plates, E, which are bolted fast to lugs *j*, which are cast fast to the inner edges of the bed-plate A, leaving spaces, F, between the bed-plate and the plates E, for waste-oil from the journal-boxes to pass down, to prevent its getting into the malt.

The lower parts of these plates, below the bed-plate, serve to bolt or otherwise confine the chute *w*, which conducts the mashed malt from the rollers.

The upper edges of the plates extend to the centre of the collars, hereinafter described, on the roller-shafts, being scalloped out, as seen in fig. 8, and fit in the rebates in the under edges of the cheeks D D.

The rollers B C have collars, *k*, which keep them in their lateral position, the collars fitting against the journal-boxes, and preventing their ends rubbing against the cheeks D D.

The rollers I make of unequal sizes, and gear them together with spur-wheels G, of equal size, to produce

a shearing or grinding operation on the malt, or else I make them of equal size, and have the gear-wheels of unequal sizes, to effect the same thing.

Having thus fully described my improvement in malt-mills, what I claim therein as new, and desire to secure by Letters Patent, is—

The construction of the cheeks D D with steel plates E E, and the arrangements of the said cheeks with the mashing-rollers B C, substantially in the manner hereinbefore described, and for the purpose set forth.

In testimony that the above is my invention, I have hereunto set my hand, this seventh day of October, 1865.

JOHN GARDINER.

Witnesses:

STEPHEN USTICK,

JOHN WHITE.