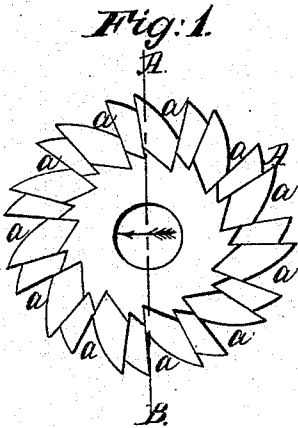
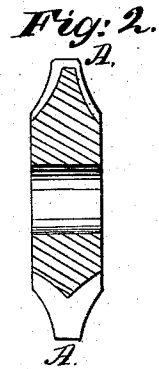


H. N. Keables.

Milling Machine.

N^o 66,354.

Patented Jul. 2, 1867.



Witnesses;
Jos. H. Dodge
D. L. Miller.

Inventor;
H. N. Keables.

United States Patent Office.

H. N. KEABLES, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 66,354, dated July 2, 1867.

IMPROVEMENT IN GEAR-CUTTERS.

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

KNOW ALL MEN BY THESE PRESENTS:

That I, H. N. KEABLES, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Cutters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side view of a cutter for cutting gears, made according to my invention, and

Figure 2 represents a section of fig. 1, on line A B, looking in the direction indicated by the arrow.

As cutters have heretofore been made the cutting-teeth A have followed each other in regular order and at equal distances apart, and those who are acquainted with or skilled in the art of gear-cutting know that oftentimes the chips so clog up and crowd in between the cutting-teeth and the sides of the cogs on the blank being cut as to injure the work, and often to such an extent as to derange the whole operation. In a large class of work it is very important to have the sides of the cogs cut with great precision and evenness, and it is a great source of annoyance and expense to have the work injured by the clogging or chattering of the cutters.

To remedy the foregoing and other objections to the old style of cutters is the object of my present invention, and which consists in leaving a clearing space, *a*, at regular and equal distances apart, and which distance I have found to produce the best results, if arranged so as to occur after two teeth, as shown in fig. 1. It might occur after three or more teeth, but I prefer two teeth. The result is that the cutter always runs smooth and easy, doing its work even and true, and never clogging up. The same principle could be applied with good effect to "side" or "slabbing" cutters, as they are called.

With my cutter there is no "chattering," and the work is unequalled, besides it requires less power to drive the cutter than it does to drive one of the same size made according to the old plan. The mode of using the cutter is the same as that in common use, the cutter being placed upon a revolving arbor, spindle, or similar device.

Having described my improved cutter, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

A gear-cutting tool of continuous operation by revolution, the cutting-teeth of which are arranged radially at equal distances from their centre of revolution in groups, leaving equidistant and equal-sized clearing spaces between said groups, and otherwise constructed substantially as and for the purposes set forth.

Witnesses:

THOS. H. DODGE,
D. L. MILLER.

H. N. KEABLES.