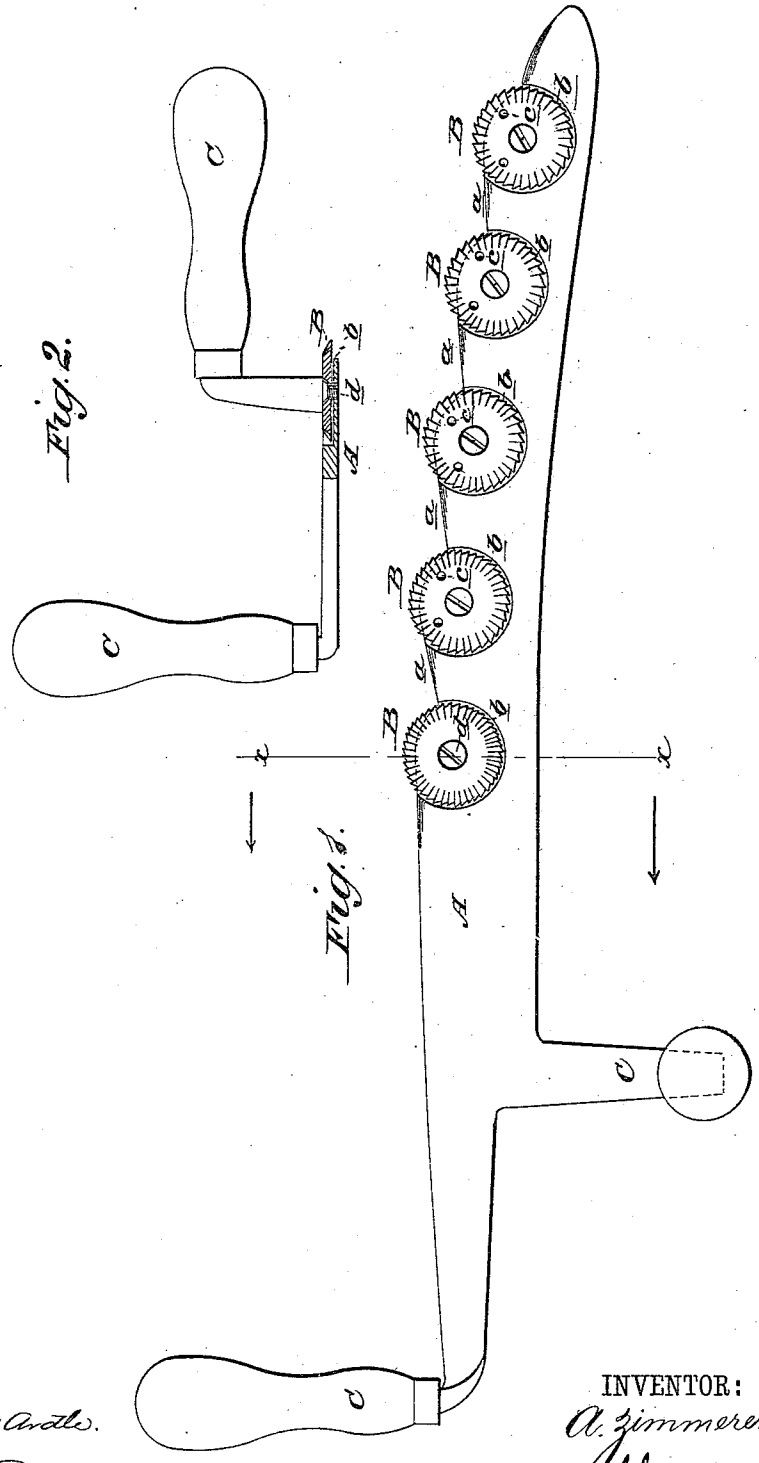
A. ZIMMERER.
Hay-Knife.

No. 226,146 Patented Mar. 30, 1880.



WITNESSES:
Francis McArdle.
C. Benguirck

INVENTOR:
A. Zimmerer
BY Munn & Co
ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ANTON ZIMMERER, OF NEBRASKA CITY, NEBRASKA.

HAY-KNIFE.

SPECIFICATION forming part of Letters Patent No. 226,146, dated March 30, 1880.

Application filed December 15, 1879.

To all whom it may concern:

Be it known that I, ANTON ZIMMERER, of Nebraska City, in the county of Otoe and State of Nebraska, have invented a new and Improved Hay-Knife, of which the following is a specification.

Figure 1 is a longitudinal side elevation of the knife. Fig. 2 is a cross-sectional elevation on line *x x*, Fig. 1, looking in the direction of the arrows.

Similar letters of reference indicate corresponding parts.

This invention relates to that class of knives that are designed for cutting hay, straw, fodder, &c., in bundles or stacks.

The invention consists of a series of revolving or stationary circular cutters inserted along the cutting-edge of a suitable blade, bar, or frame.

In the drawings, A represents the blade or frame, having teeth *a a* and circular sockets *b b*, that occupy the edge space between the said teeth *a a* and extend upward on a face of the blade toward its back. In these sockets *b b* the circular sickle-edged cutters B are set so that their edges shall project beyond the teeth *a a*, and the cutters B are preferably secured in place with screws and pins, as shown at *c c*, or with screws alone, as shown at *d*, so that they may be stationary or be turned around at any time to present fresh cutting-edges.

The blade or cutter frame A will last indefinitely, and the cutters B may readily be removed to be sharpened and be renewed when worn out.

The edges of the cutters B may be toothed, as shown, or be smooth, as may be best adapted to the work to be done by them.

C C are the handles of the device.

I do not confine myself to the application of these circular cutters to hay-knives, for it is evident that they can advantageously be applied to sickles, hedge-trimmers, and other agricultural tools.

I am aware that it is not new in tools to use a circular adjustable extra tooth; but

What I claim is—

A hay-knife provided with teeth *a* and a series of circular sickle-edged cutters, B, projecting beyond the teeth *a* and arranged in the sockets *b*, as shown and described.

ANTON ZIMMERER.

Witnesses:
PAUL SCHMINKE,
J. C. SCHMINKE.