No. 609,896. Patented Aug. 30, 1898.

# E. MORRIS.

## ROTARY CUTTER.

(Application filed Nov. 12, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig: 1.

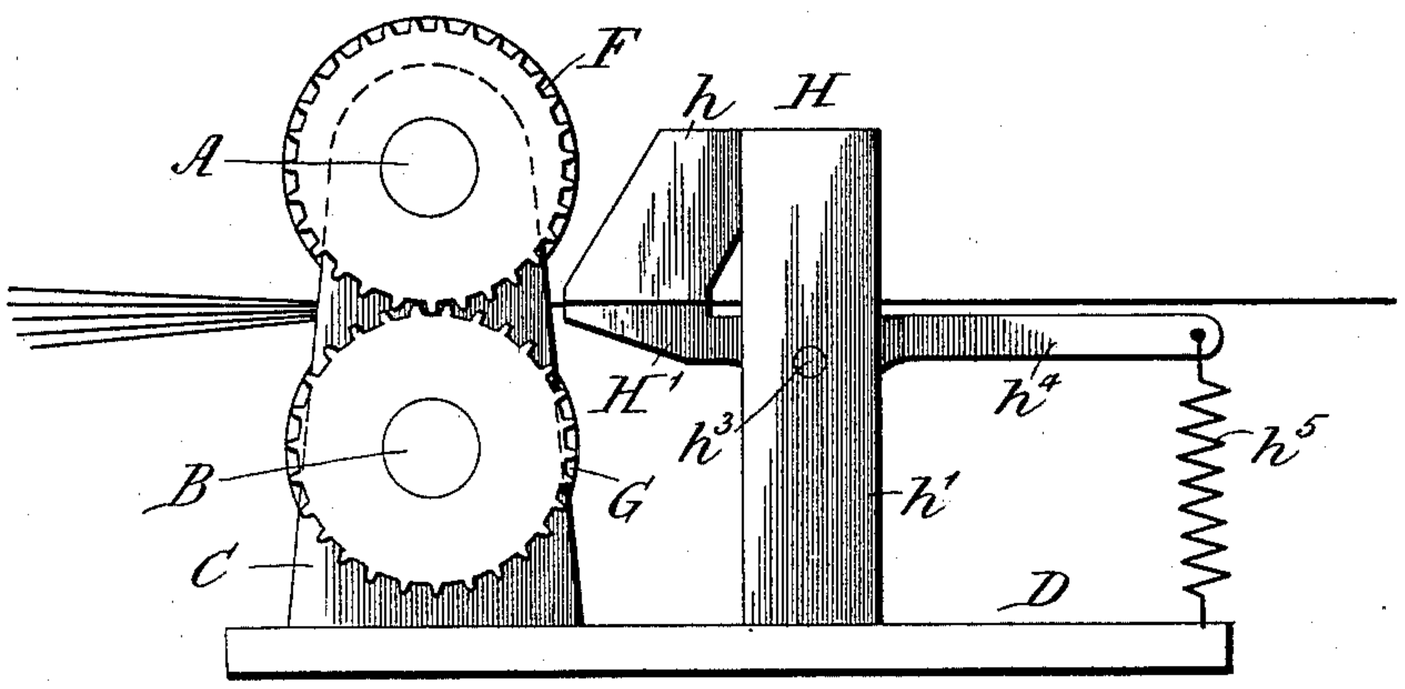
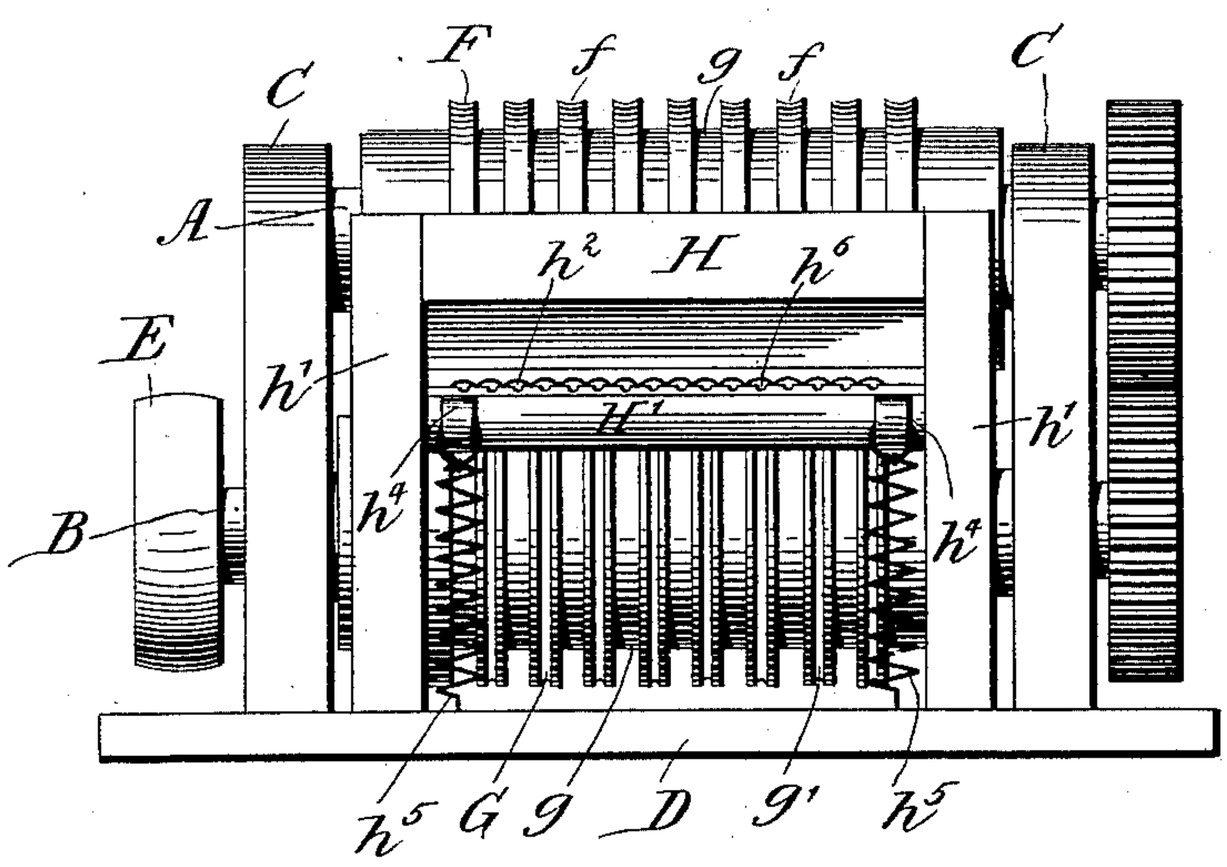



Fig: 2.

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# E. MORRIS.

## ROTARY CUTTER.

(Application filed Nov. 12, 1897.)

(No Model.) 2 Sheets—Sheet 2.

Fig: 3.

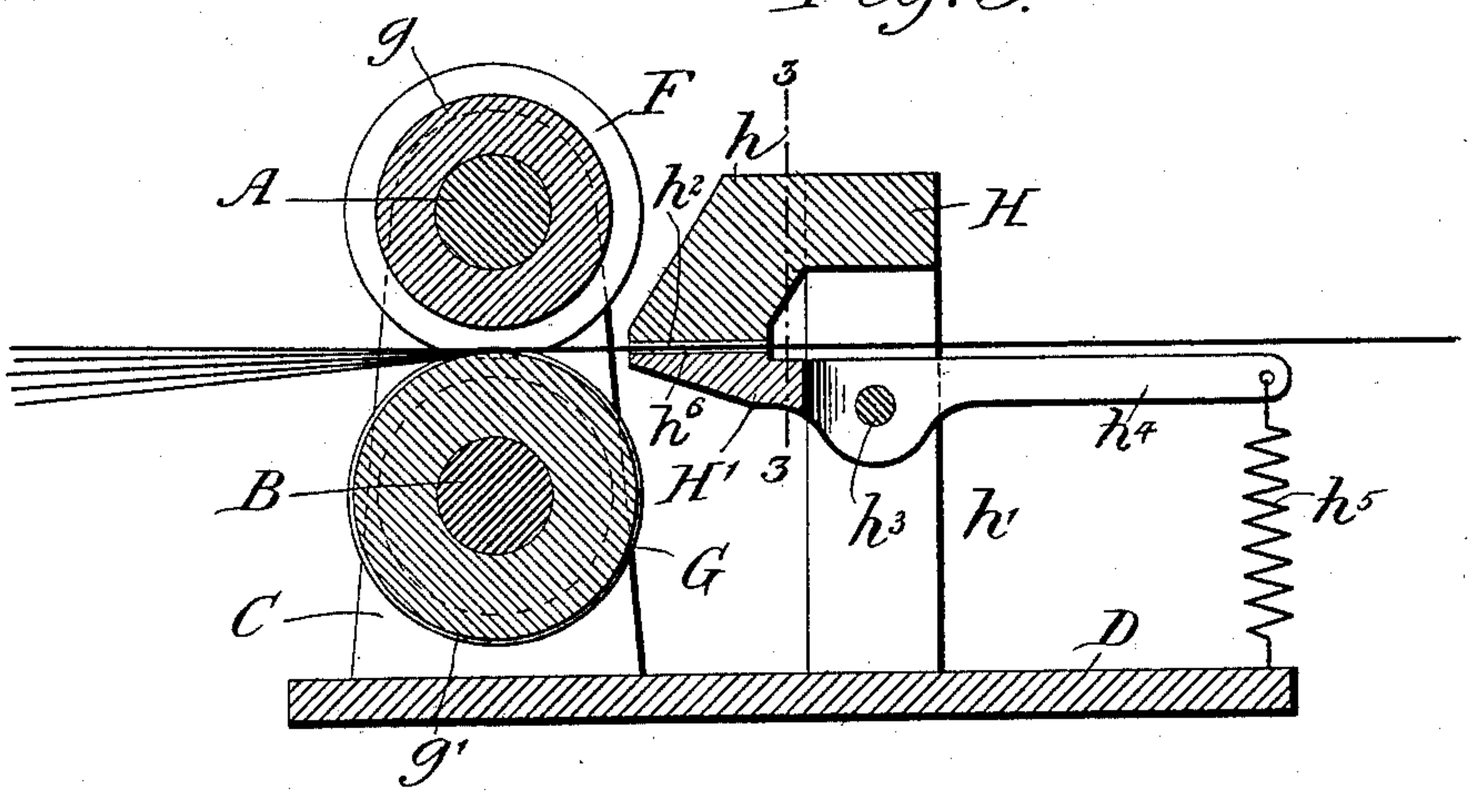



Fig: 4.

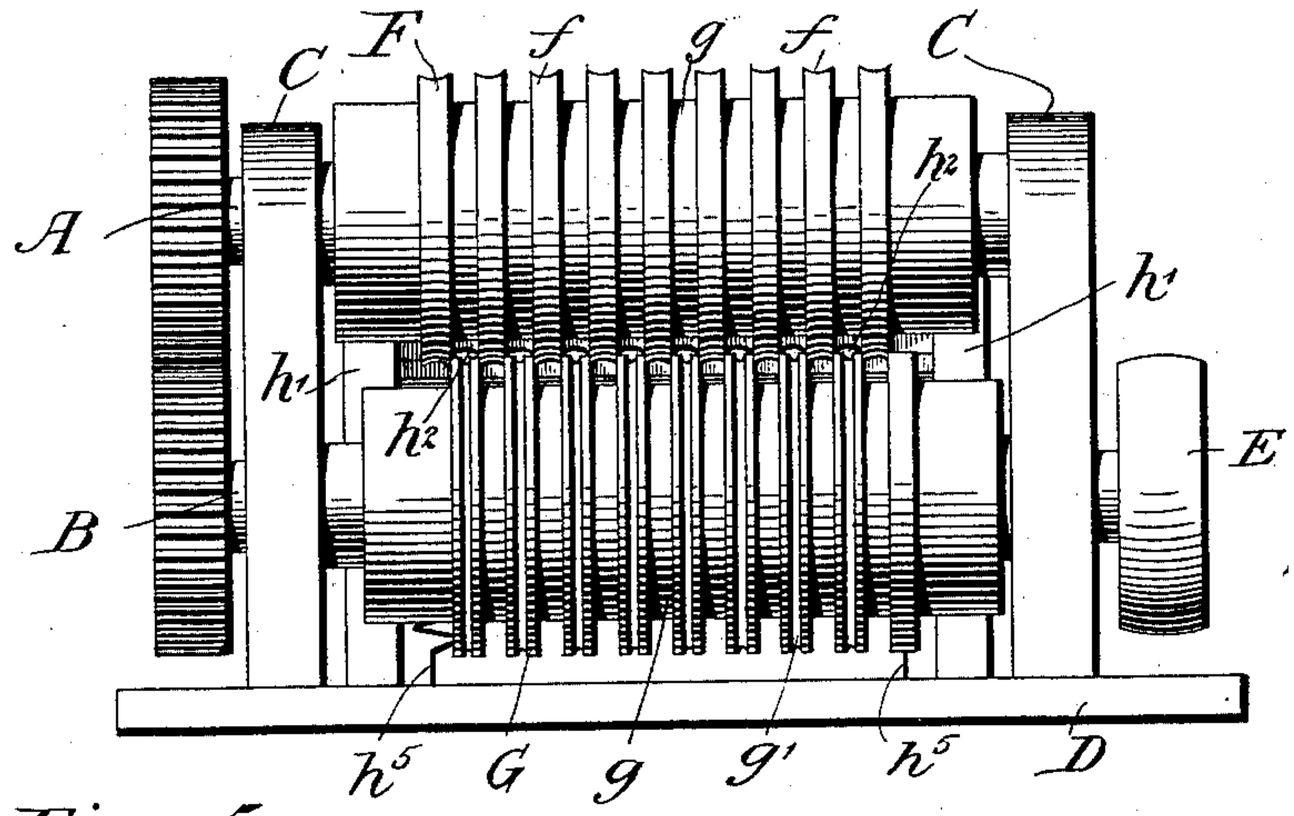



Fig: 5.

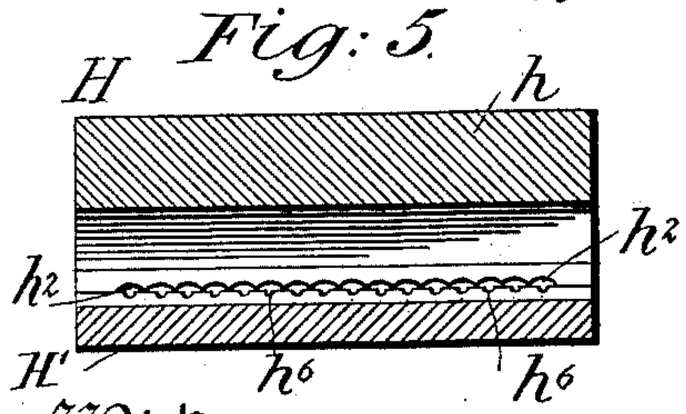
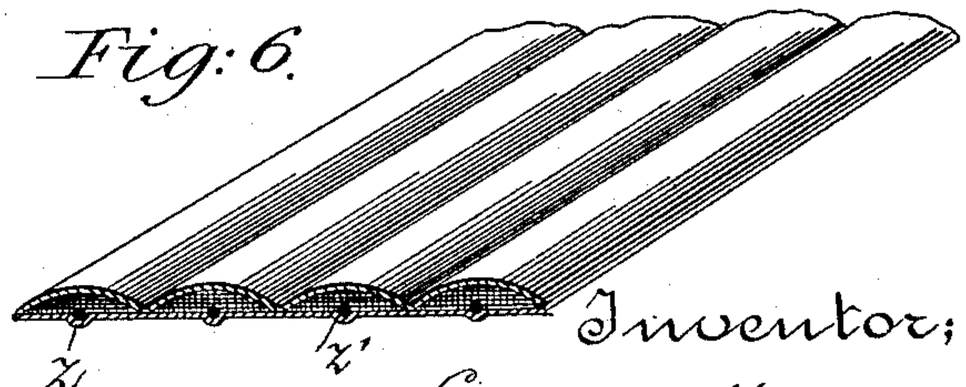



Fig: 6.

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# UNITED STATES PATENT OFFICE.

EDMUND MORRIS, OF MICHIGAN CITY, INDIANA.

## ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 609,896, dated August 30, 1898.

Application filed November 12, 1897. Serial No. 658,327. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND MORRIS, a citizen of the United States, residing at Michigan City, in the county of La Porte and State of Indiana, have invented certain new and useful Improvements in Rotary Cutters, of which the following is a specification.

In my application for patent filed November 6, 1897, Serial No. 657,680, I have described means for forming a gang of composite threads, which are, after being formed, cut up into individual threads. My present invention relates to the machine for cutting the individual threads from the gang.

In the drawings, Figure 1 shows a side elevation through my improved machine. Fig. 2 shows a front elevation thereof. Fig. 3 shows a longitudinal central section. Fig. 4 shows a rear elevation. Fig. 5 shows a section on the line 3 3 of Fig. 3. Fig. 6 shows a cross-section and a perspective view of a gang of threads upon which my improved machine is adapted to operate.

Two horizontal parallel shafts A B are journaled in standards C, mounted on a bed-plate D. The shafts are geared together and the lower shaft is extended to receive a pulley E, to which power may be applied. Upon the upper shaft A is fitted a series or gang of rotary cutters F. Upon the lower shaft is a corresponding gang of cutters G. All of these cutters are of the same thickness or width and this width corresponds exactly with the width of the threads produced. The cutters are so disposed that the peripheries of one series intersect or overlap the peripheries of the other in order to shear the fabric. The cutters of each gang are separated from one another by collars *g*, interposed between them, said collars being of the same width as the cutters and of the same width as the threads produced. The faces of the cutters F of the upper series are grooved at *f* to fit the convex upper sides of the threads in order to prevent any distortion or marring of the surface thereof, and the faces of the lower cutters are grooved at *g'* for the passage of the ribs *z*, which contain the wires *z'*. The grooves *g'* are preferably somewhat larger than the ribs usually require, so as to give plenty of room in case the wires are slightly displaced. The grooves in the upper cutters may be more concave than is required to fit the threads, so that the fabric shall be pressed upon by the cutters only along the lines where it is to be cut—that is to say, the cutters are so constructed that they do not press upon all portions of the fabric, but only along the thin edges or webs between the threads.

It is important that the fabric be guided very correctly with reference to the slitting-cutters, so that it shall be cut only on the lines between the threads. For this purpose I employ a guide H, preferably constructed as follows: A guide-bar *h* is arranged transversely in rear of the cutters and is supported on standards *h'*, mounted on the bed-plate D. The lower side of the guide-bar *h* is corrugated, as shown at $h^2$, to permit the passage of the fabric. Below the guide-bar *h* is arranged another guide-bar H', which is pivoted at $h^3$ to the standards *h'*. This guide-bar has rearwardly-projecting arms $h^4$, to which are attached springs $h^5$, connected also with the bed-plate D. The upper front edge of the guide-bar H' is also corrugated, as shown at $h^6$, the arrangement being such as to permit the corrugated fabric to pass through and between the bars *h* H' in a straight line, each individual thread passing through individual corrugations in the guide-bars. These corrugations, however, are made slightly larger than the threads, so as not to exert pressure thereon, but are sufficiently small to prevent the threads from being dislodged. The pressure exerted by the spring $h^5$ is not such as to cause the guide-bars to bite or unduly press the fabric, but is merely sufficient to keep the threads in line and permit the bars to yield to accommodate any slight inequalities in the fabric.

I claim as my invention—

1. The combination of a gang of circular cutters having concave grooves in their peripheries, another gang of circular cutters overlapping the cutters of the first-mentioned gang and having relatively narrow grooves in their peripheries.

2. The combination of a gang of circular cutters having concave grooves in their peripheries, a second series of circular cutters

having relatively narrow grooves in their peripheries, and a guide having corrugated openings placed opposite the grooves in the cutters.

3. The combination of the rotary cutters and a guide, consisting of an upper guide-bar having a series of curved grooves, and a lower guide-bar having a series of grooves arranged beneath the first-mentioned grooves, but smaller in cross-section than said grooves.

In testimony whereof I have hereunto subscribed my name.

EDMUND MORRIS.

Witnesses:
HENRY B. MORRIS,
HENRY V. HITCHCOCK.