

# The United States of America



## The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

### United States Patent

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Director of the United States Patent and Trademark Office



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(12) **United States Patent**  
Sturm

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(54) **SHREDDER** 4,344,581 A \* 8/1982 Redemann ..... 241/084  
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(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 208 days. DE 39 32 345 C 2 2/1993  
\* cited by examiner

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#### (57) ABSTRACT

A rotary shredder for shredding various materials including fibrous materials, comprising at least one rotor that carries a plurality of V-cutters axially spaced apart along the rotor to mesh with recesses between adjacent teeth of a counter knife. The rotor also carries a plurality of flat cutters. Each flat cutter has a cutting edge that is parallel to the axis of the rotor. The flat cutters are aligned in the axial direction with the teeth of the counter knife, and hence are axially positioned between axially adjacent V-cutters. The flat cutters thus are positioned to work in conjunction with the counter knife to cut material that accumulates between adjacent V-cutters.

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19 Claims, 3 Drawing Sheets

