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(54) Mechanism for compact document shredder

(57) A mechanism for a compact document shredder has a supporting frame mounting a pair of cooperating rotational cutting rollers for shredding a document therebetween, A driving motor is also mounted to the frame and coupled to the cutting roller.s for rotating the cutting rollers. The driving motor is orientated on a driving axis that is orthogonal to the cutting plane. A gearbox uouples the motor to the cutting rollers. The gearbox has a pair of beveled gears and an input shaft that is orthogonal to its output shaft.

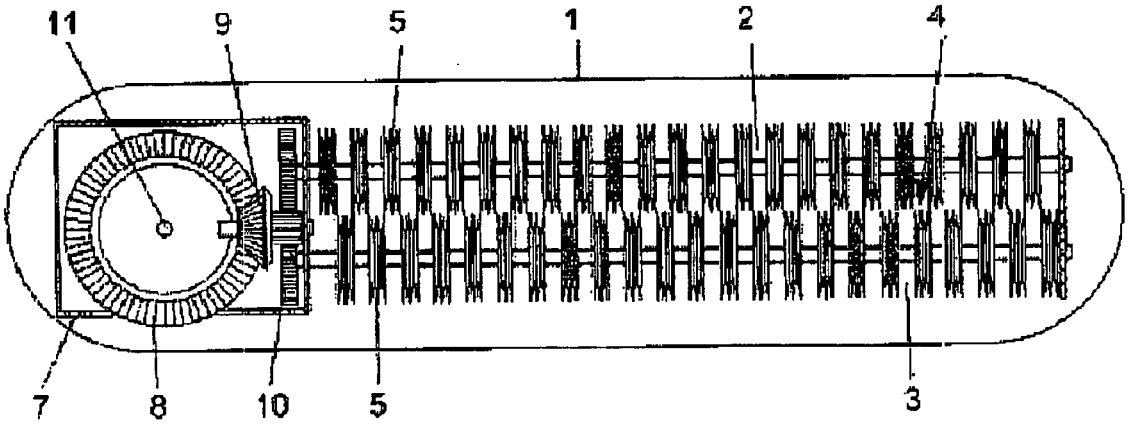

FIGURE 1

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Description

Background to the invention

1. Field of the Invention

[0001] The present invention relates to document shredders and more particularly to a mechanism for a compact document shredder.

2. Background Information

[0002] Document shredders are well-known. They typically comprise a pair of parallel cutter rollers with a narrow slot between them. The cutter rollers each have a plurality of cutting discs or blades. The rollers are driven by a motor and when a document, typically of paper or light card, passes between the rollers it is shredded by the cutter discs or blades.

[0003] Hitherto the driving motor for the cutter rollers has mounted on one end of the shredder mechanism meaning that the shredder is substantially wider than the document slot.

Summary of the Invention

[0004] It is an object of the present invention to overcome or substantially ameliorate the above disadvantages and/or more generally to provide an improved mechanism for a compact document shredder.

[0005] There is disclosed herein a mechanism for compact document shredder having a supporting frame mounting a pair of cooperating rotational cutting rollers defining a cutting plane for shredding a document. A driving motor is mounted to the frame and is coupled to the cutting rollers for rotating the cutting rollers. The driving motor is orientated on a driving axis that is orthogonal to the cutting plane.

[0006] The mechanism may further include a reduction gearbox coupling the motor to the cutting rollers. The gearbox has a pair of beveled gears, an input shaft and an output shaft. The input shaft is orthogonal to the output shaft.

[0007] Further aspects of the invention will become apparent from the following description.

Brief Description of the Drawings

[0008] A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

Figure 1 is a top view of a mechanism for a document shredder according to the invention,

Figure 2 is an elevation view of the mechanism for the document shredder.

Detailed Description of the Drawings

[0009] In the accompanying drawings there is depicted a mechanism for a compact document shredder. The mechanism comprises a frame 1 to which is mounted a pair of parallel cooperating rotational cutting rollers 2, 3 defining a paper shredding slot 4 between them. The rollers 2, 3 comprise a plurality of cutting blades 5 which slice or tear into a document passing through the cutting slot 4. The arrangement discussed thus far is well known.

[0010] At one end of the rollers 2, 3 is a drive mechanism comprising a drive motor 6 mounted to the frame at 90°C to the rotational cutting rollers 2, 3. Rotational driving torque of the motor 6 is transferred to the cutting rollers 2, 3 through a gearbox 7. The gearbox 7 comprises a first beveled gear 8 attached to the motor shaft 11 and a second beveled gear 9 interacting with the first beveled gear 8 on a rotational axis 90°C to the motor shaft 11. The second beveled gear 9 meshes with a reduction gear mechanism 10 the output of which is couple to the cutting rollers 2, 3 for rotating the cutting rollers 2, 3 during operation of the shredder.

[0011] According to the invention the driving motor 6 of the shredder is at 90°C to the plane of the cutting rollers 2, 3 so that the shredder mechanism according to the invention is narrower than those of the prior art shredders. This has advantage for compact document shredders such as those that position above an office wastepaper basket or small home or under desk type document shredders.

[0012] It should be appreciate that modifications and alternations obvious to those skilled in the art are not to be considered as beyond the scope of the present invention.

Claims

1. A mechanism for a compact document shredder comprising:

   a supporting frame,
   a pair of cooperating rotational cutting rollers mounted to the frame for shredding a document therebetween, the cutting rollers lying on a cutting plane,
   a driving motor mounted to the frame and coupled to the cutting rollers for rotating the cutting rollers, wherein the driving motor is orientated on a driving axis that is orthogonal to the cutting plane.

2. The mechanism of claim 1 further including a reduction gearbox coupling the motor to the cutting rollers.

3. The mechanism of claim 2 wherein the gearbox has an input shaft and an output shaft, the input shaft being orthogonal to the output shaft.

4. The mechanism of claim 2 wherein the gearbox includes a pair of beveled gears, and wherein a first of the beveled gears defines an input direction of the gearbox and a second of the beveled gears defines an output direction which is ninety degrees to the input direction.

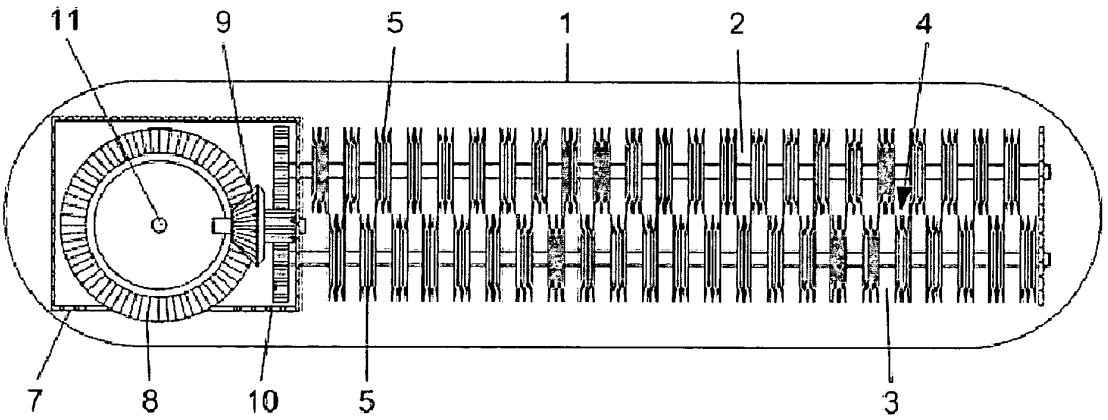

FIGURE 1

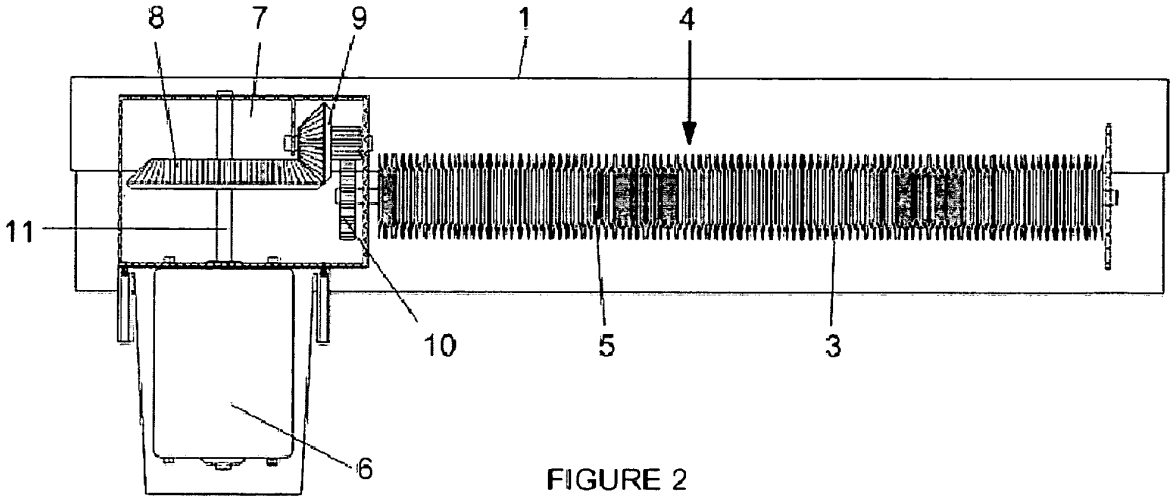

FIGURE 2

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EUROPEAN SEARCH REPORT

Application Number
EP 07 25 2190

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 2 087 608 A (SODEQUIP) 31 December 1971 (1971-12-31) * the whole document * -----	1-4	INV. B02C18/24 B02C18/00
X	DE 41 04 439 A1 (MEIER KLAUS [DE]) 20 August 1992 (1992-08-20) * the whole document * -----	1-4	
A	US 2005/279869 A1 (BARKLAGE KEVIN [US]) 22 December 2005 (2005-12-22) * the whole document * -----	1-4	
			TECHNICAL FIELDS SEARCHED (IPC) B02C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 September 2007	Kopacz, Ireneusz

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X : particularly relevant if taken alone
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A : technological background
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1 EPO FORM 1503 03.82 (P04C01)

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11-09-2007

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82