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(54) Rotary press cutters.

(57) A rotary press cutter assembly comprising a generally cylindrical support (10), a flexible cutting die (12) having a cutting profile (24) thereon, means (24) for detachably securing at least a leading edge (16) of the die (12) on a radially outer surface of the support (10), magnetic strips (14) set in the surface of the support (10) to attract the die (12), and vacuum ports (26) provided in the surface for sucking cut out portions of material onto the die (12).

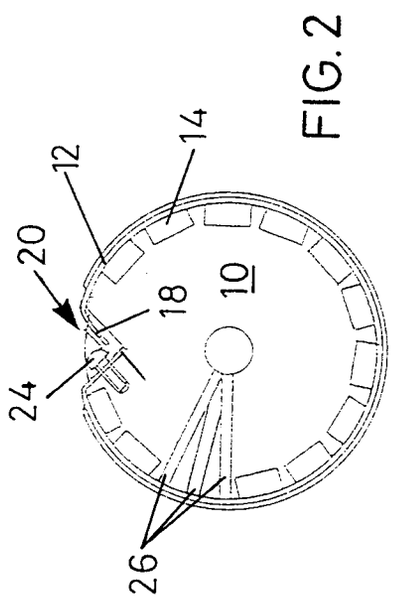

FIG. 2

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Technical Field

The invention relates to cutters for the production of envelope blanks and profiles from a sheet or continuous web of material.

Background Art

Currently, solid rotary cutters are used in the production of envelope blanks and profiles. Two rotary or web cutters are used to produce the side profiles of the envelope blank from a web of material and are separated on a common shaft in a machine by a further rotary or separating cutter which separates the web of material into individual envelope blanks. When a solid rotary cutter needs to be reground or replaced it is necessary to remove the complete assembly and, where regrinding is required, return the cutter to the manufacturer. This is time consuming and expensive.

The Invention

The invention provides a rotary press cutter assembly comprising a generally cylindrical support, a flexible cutting die having a cutting profile thereon, means for detachably securing at least a leading edge of the cutting die on a radially outer surface of the support, magnetic strips set in the surface of the support to attract the die, and vacuum ports provided in the surface for sucking cutout portions of material onto the die.

Such a die can quickly and inexpensively be changed or varied to a die of different profile. The profile need not only comprise the shape of an envelope side or end, but may include the outline of a complete blank, possibly having one or more windows. Thus the overall construction of the machine can be simplified, and particularly the length reduced.

For a window cutter, it is sufficient for the,leading edge only of the die to be secured to the support. For a profile cutter, the pressures are different, and it is sometimes desirable to stretch the die by securing also a trailing edge of the die to the support. If a portion of the material is not cut out, for example if there is to be no window, the vacuum ports need not be used. Otherwise, the ports are arranged to transport a cutout towards a receptable for waste.

Drawings

Figure 1 is a side elevation of a rotary support of a press cutter assembly according to the invention for a side profile of an envelope blank;

Figure 2 is an axial cross section corresponding to Figure 1 with a flexible cutting die mounted in position;

Figure 3 is a side view of the assembly corresponding to Figure 2;

Figure 4 is a laid-out view of the flexible cutting die from Figure 2;

Figure 5 is a side elevation of a rotary support on the mounting of a cutter assembly according to the invention for separating continuous envelope profiles from a web of material into the individual envelope blanks;

Figure 6 is an axial cross section corresponding to Figure 5 showing the mounting of a flexible cutting die;

Figure 7 is a view from the other side of the support of Figure 5;

Figure 8 is a view of a flexible window die on a rotary support for a cutter assembly according to the invention;

Figure 9 is an axial cross section corresponding to Figure 8; and

Figure 10 is a side view of an adaptor in Figure 8.

Best Mode

Figures 1 to 4 show an assembly which comprises a generally cylindrical rotary support 10 mounted on a shaft 11, and onto which is mounted a flexible cutting die 12 of spring steel. The die 12 is secured on the radial outer surface of the rotary support 10 by a screw 24 (Figure 2) and magnetic strips 14 which are set in recesses in the surface of the support 10. The die 12 is provided with end flanges 16,18 which are bent out of the plane of the die to sit in and against the side walls of an axial groove 20 formed in the radially outer surface of the support 10. The leading edge flange 16 is provided with through holes for screws 24 to engage threaded recesses in the groove 20. The trailing edge 18 is not secured, as the die is held in position by the magnetic strips 14.

The support 10 is provided with air ports 26 in its radially outer surface which register with cooperating ports (not shown) in the die 12, and through which air can be sucked or blown along an axial duct 13 in the shaft 11 to assist in removal of material cut out. The die 12 has a profile 34 for a side of an envelope, and does not include any cut out. When the die 12 becomes worn, or a different envelope profile is required, the screws 24 are removed, and the die 12 is replaced.

Figures 5 to 7 show an assembly for separating the continuous side profiles produced by two cutter assemblies as in Figures 1 to 4 into individual envelope blanks by cutting across the web of material. Thus the profile (not shown) is substantially parallel to the shaft 11, unlike the profile 34. The separating cutter assembly of Figures 5 to 7 is mounted in an envelope manufacturing machine to run in synchronisation with the side cutter assemblies of Figures 1 to 4, one side cutter assembly being mounted on each side of the machine in a specific relationship to the separating cutter assembly at a position determined by the de-

sign of the machine.

Figures 8 to 10 show an adaptor 40 supporting a window die 52 extending around only a part of the circumference of the support 10. At the ends of the adaptor 40, assembly retention screws 41 serve to hold in place end plates 43 while the magnetic strips 14 are secured in place by the setting of an adhesive. A number of adaptors may be secured to the support 10, to extend up to around the full circumference, so that more than one window can be cut per revolution of the support 10.

Claims

1. A rotary press cutter assembly comprising a generally cylindrical support (10), a flexible cutting die (12) having a cutting profile (34) thereon, means (24) for detachably securing at least a leading edge (16) of the die (12) on a radially outer surface of the support (10), magnetic strips (14) set in the surface of the support (10) to attract the die (12), and vacuum ports (26) provided in the surface for sucking cut out portions of material onto the die (12).

2. A rotary press cutter assembly according to claim 1 in which the die (12) extends around only a part of the circumference of the support (10), and is supported on an adaptor (40).

3. A rotary press cutter assembly according to claim 1 in which the die (12) includes the outline of a complete envelope blank.

4. A rotary press cutter assembly according to claim 3 in which the die (52) includes the outline of one or more windows.

FIG. 3

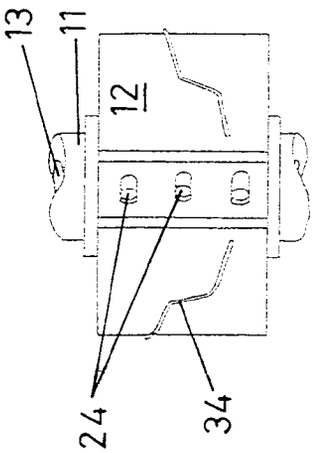


FIG. 2

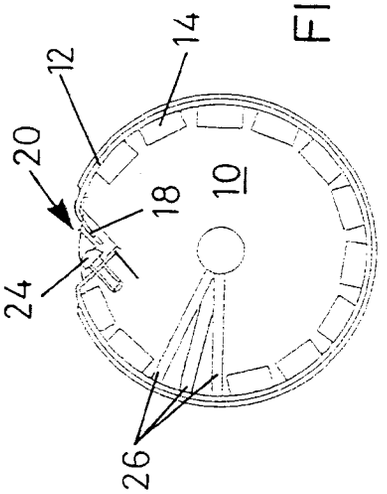


FIG.1

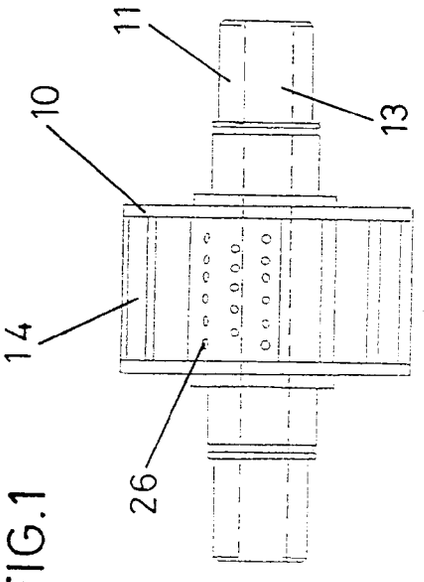
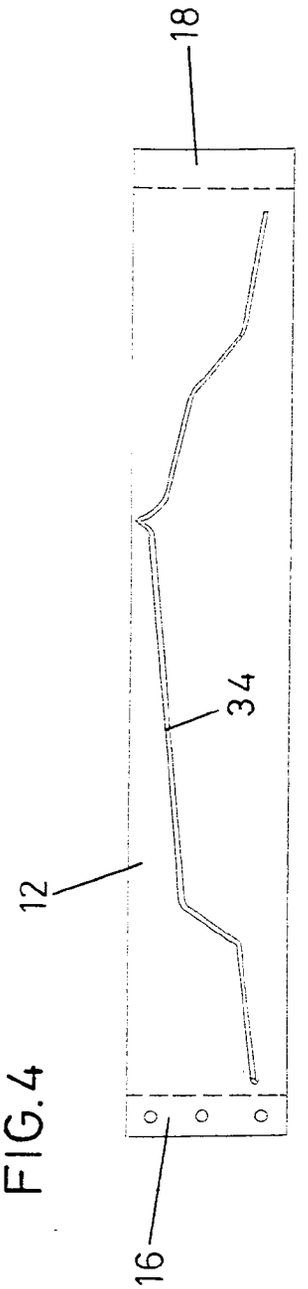


FIG.4



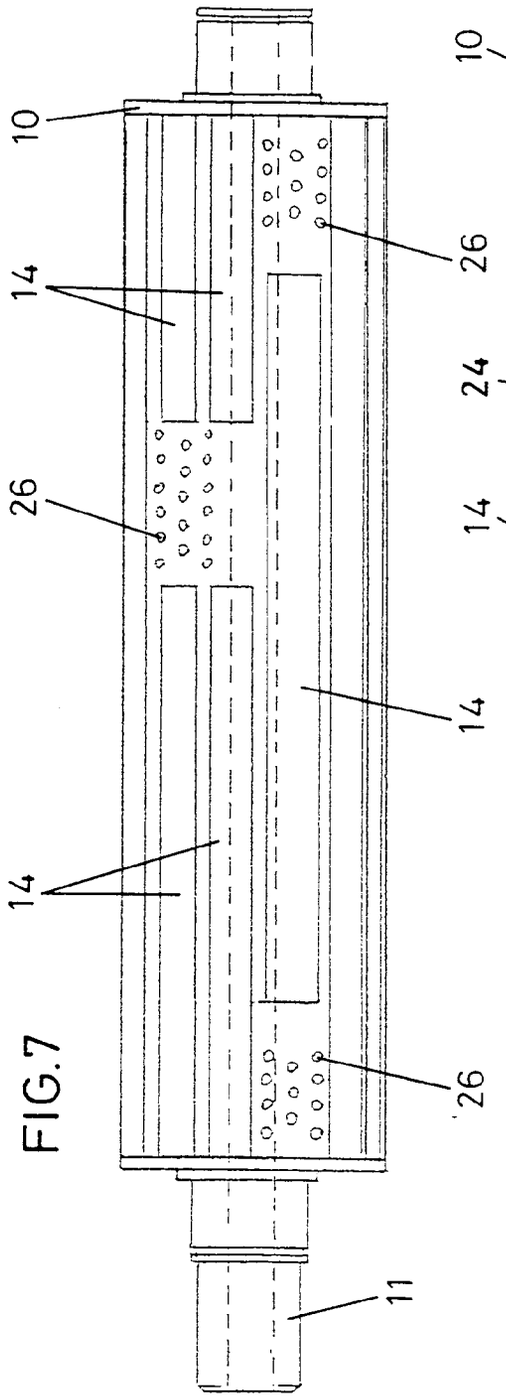


FIG.7

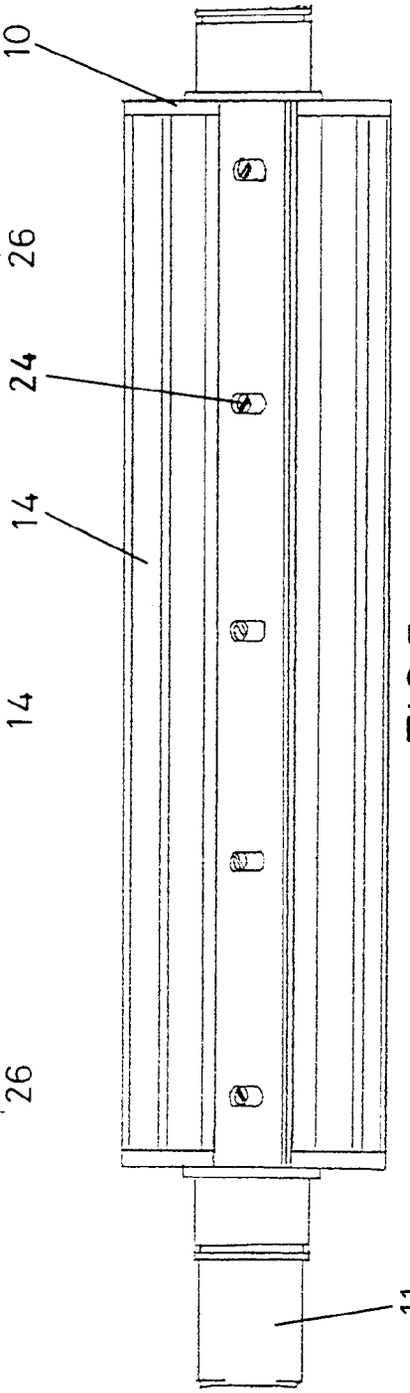


FIG.5

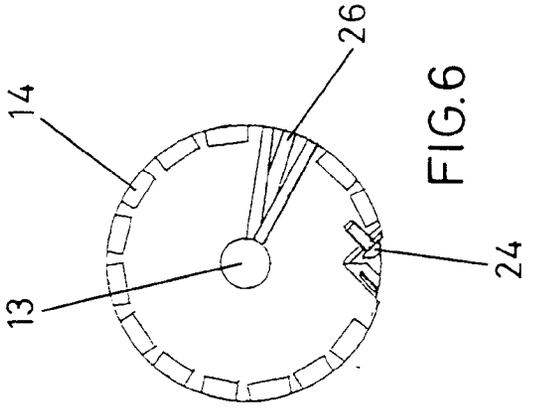


FIG.6

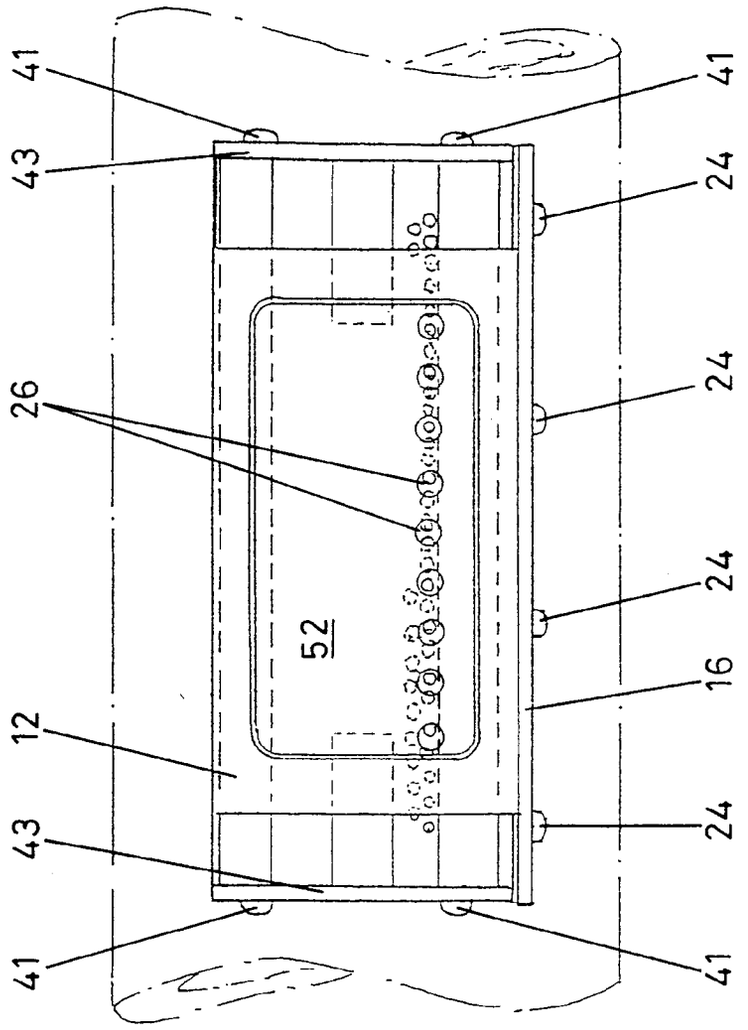


FIG. 8

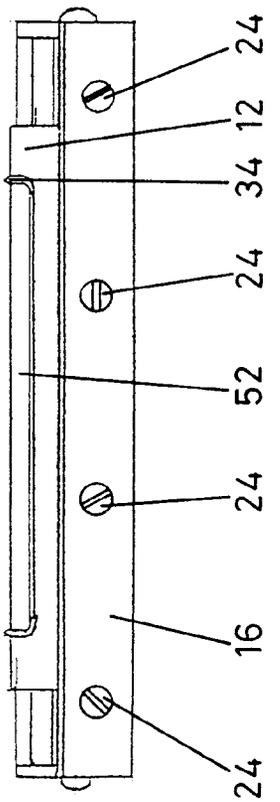


FIG. 10

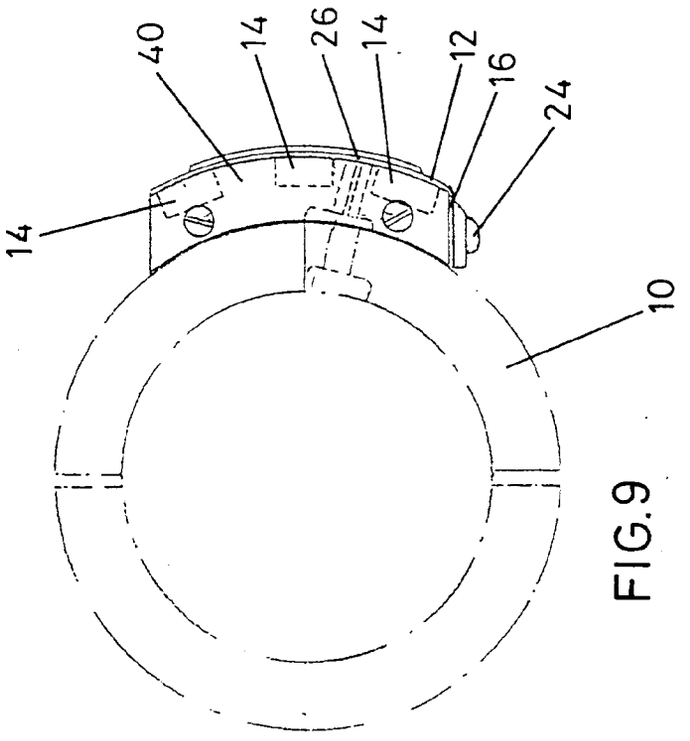


FIG. 9

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 92 30 5465

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	EP-A-0 312 422 (J.J. BULAND) * column 1, line 1 - column 2, line 28; figures *	1-4	B26F1/44 B26D7/26
Y	GB-A-1 322 090 (R. SCHUCHARDT ET AL.) * page 3, line 1 - page 4, line 29; figures *	1-4	
A	EP-A-0 277 268 (ENVELOPPE MONTREAL INC.)		
A	US-A-3 244 335 (R.H. DOWNIE)		
A	FR-A-2 435 331 (M. KADNER)		
A	DE-B-1 016 112 (FA. CARL AUG. PICARD)		
A	WO-A-8 304 004 (R. SCHNELLENBERG)		

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B26F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 SEPTEMBER 1992	VAGLIENTI G.L.M.

CATEGORY OF CITED DOCUMENTS

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