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Quercia

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(54) **STRIPPING DEVICE FOR A PRESS**

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(51) **Int. Cl.**
B26F 3/00 (2006.01)

(52) **U.S. Cl.** **83/111**; 83/145; 225/93

(58) **Field of Classification Search** 83/343, 83/663, 117–119, 27, 111, 124, 132, 138–143, 83/347, 145, 146, 128, 129, 53, 102, 113, 83/115, 348, 886, 879; 493/342, 373; 76/107.1, 76/107.8; 225/93, 97, 103
See application file for complete search history.

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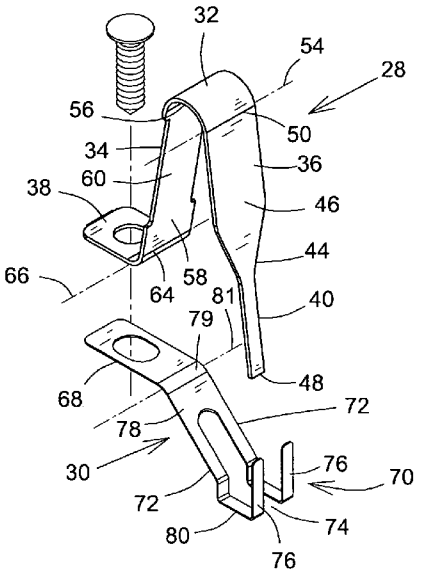
(57) **ABSTRACT**

A stripping device for stripping a waste piece from a sheet of material, which includes a stripping member with a connecting portion, a supporting finger located on one side of the connecting portion, and a stripping finger located on another side of the connecting portion. The supporting finger has one end connected to a frame and is movable about its end with respect to the frame. The stripping finger has a stripping end portion, which is biased away from the supporting finger and contacts the waste piece at an angle. The supporting finger is deflected away from the waste piece and the stripping end portion is moved further away from the supporting finger and against the waste piece to strip it from the sheet.

46 Claims, 8 Drawing Sheets



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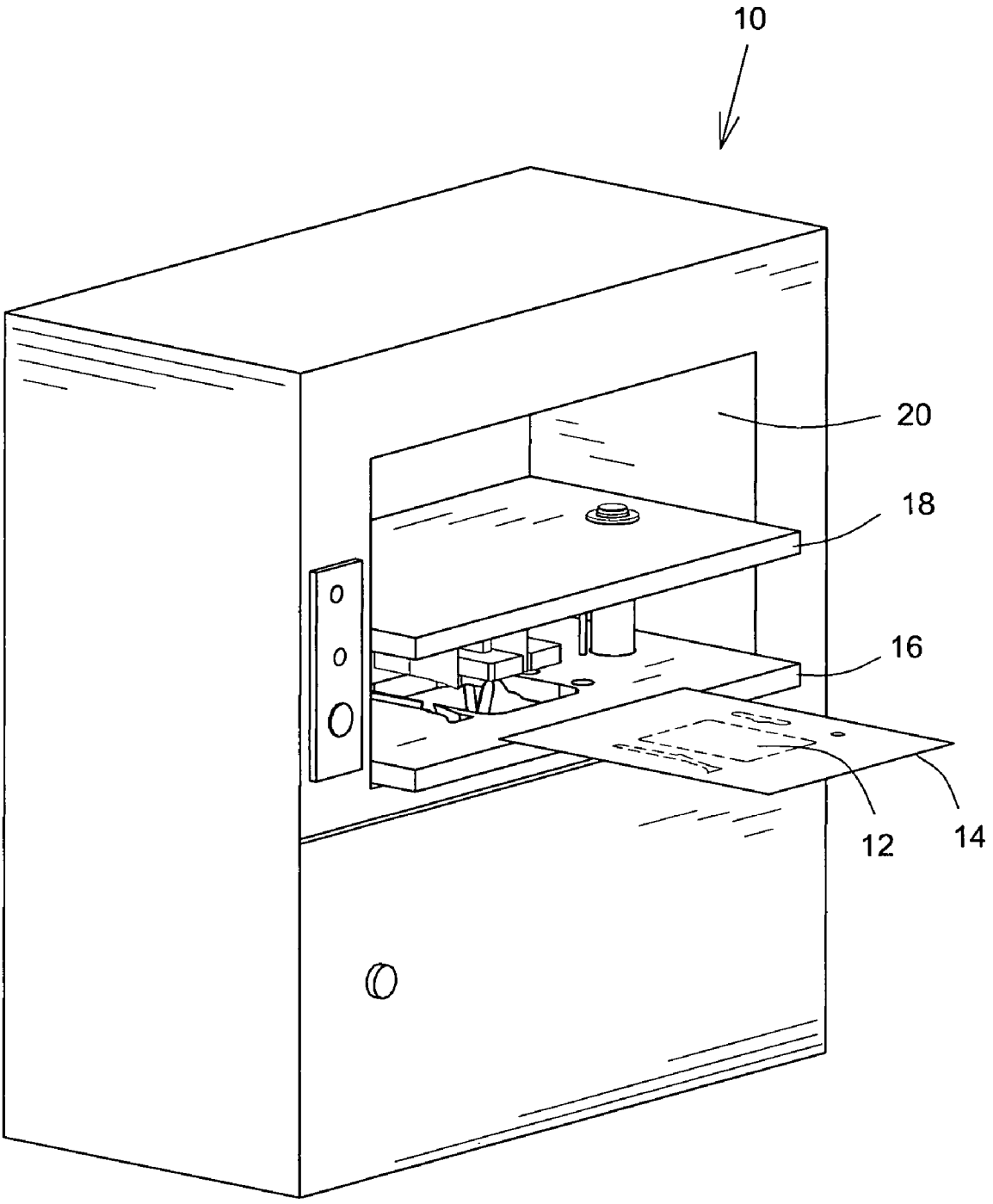

FIG.1

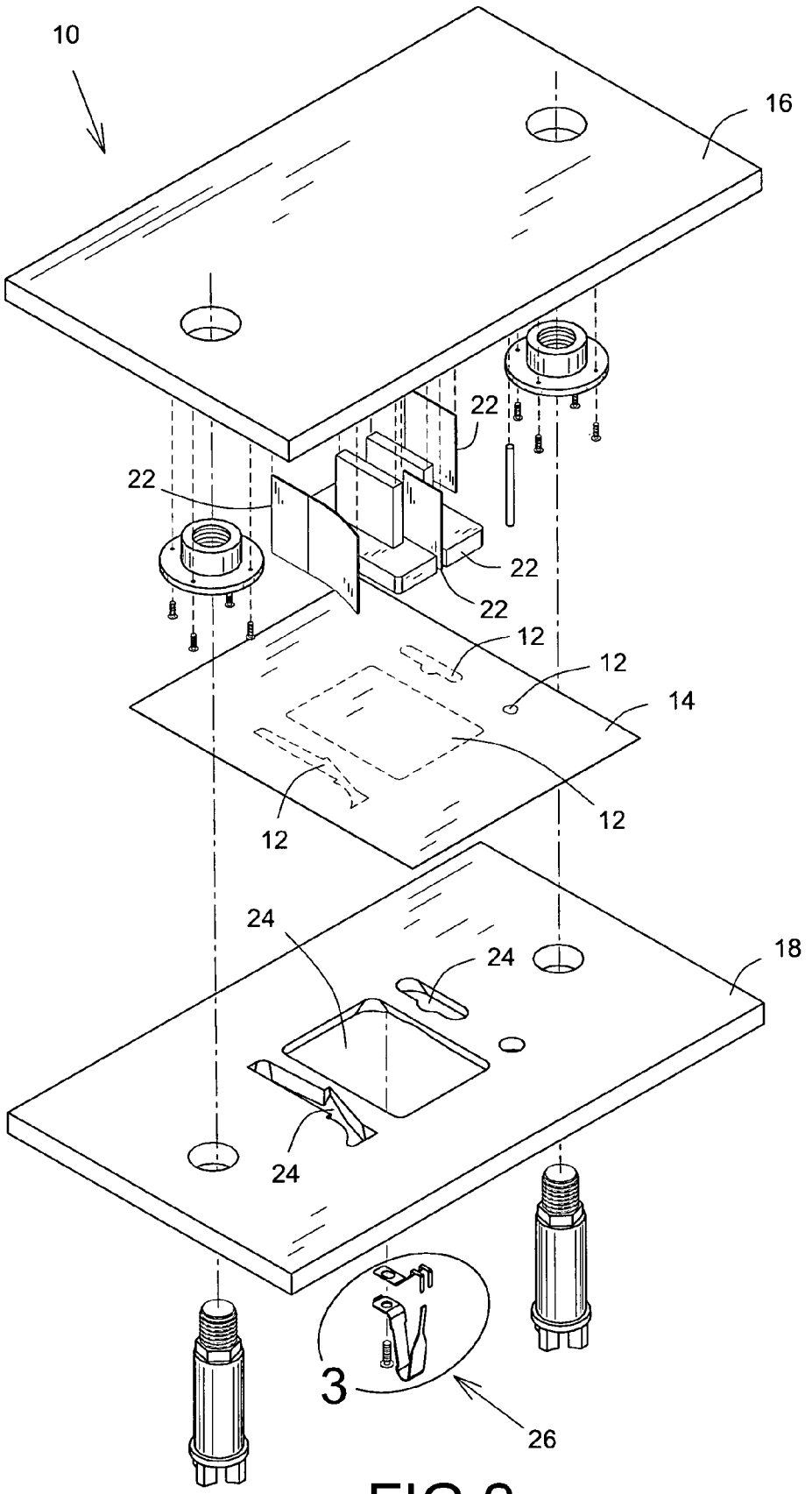

FIG.2

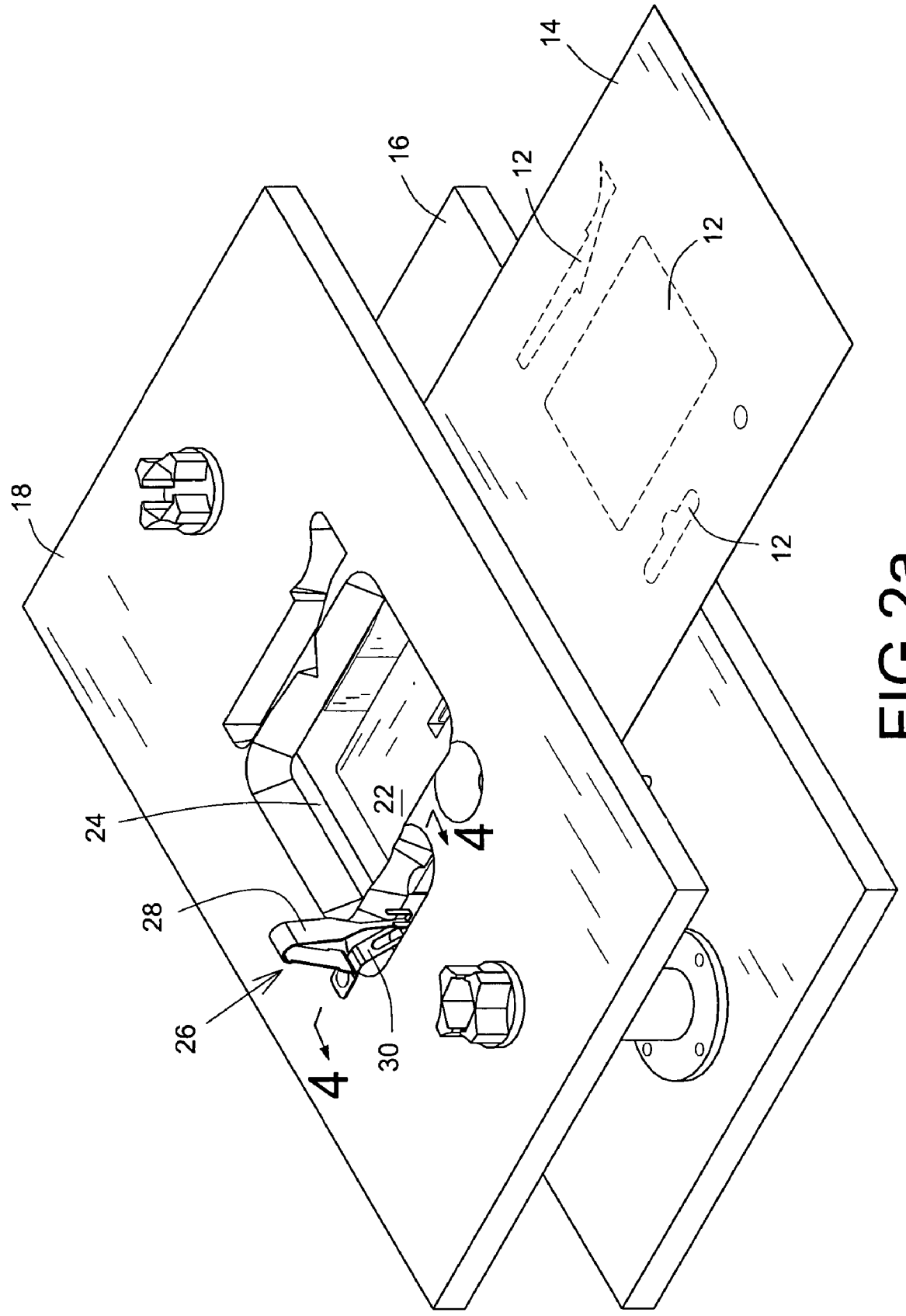

FIG.2a

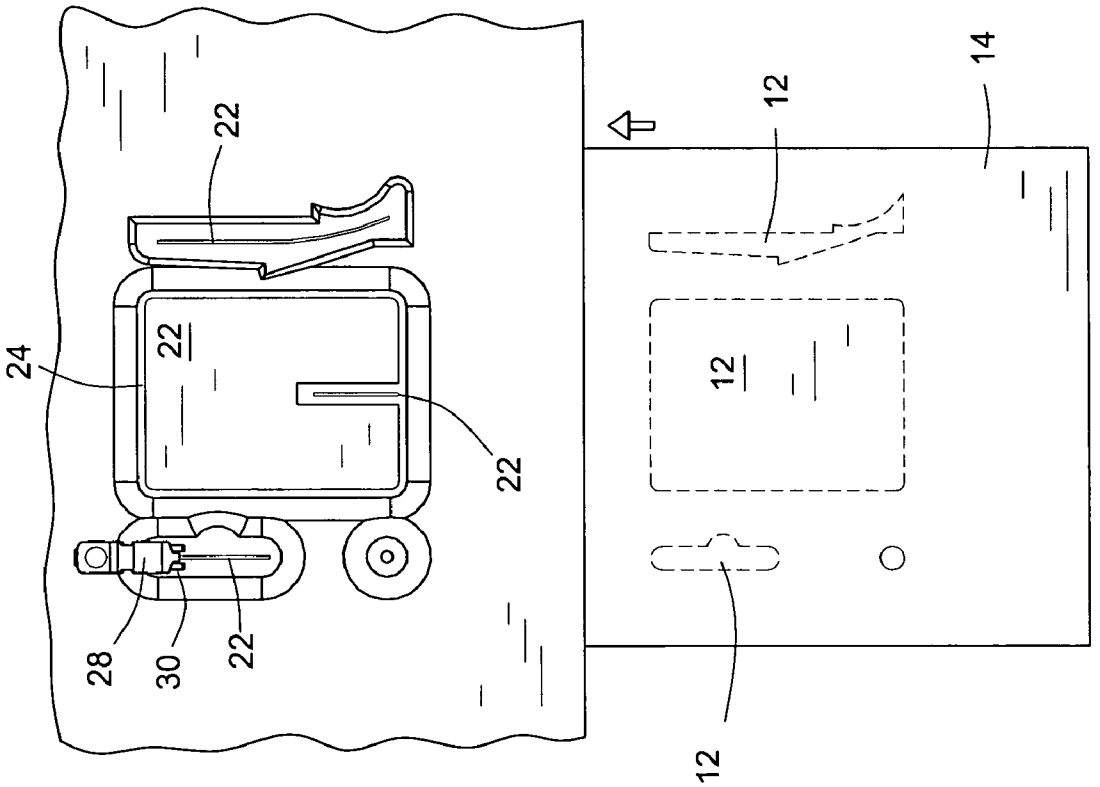

FIG.2b

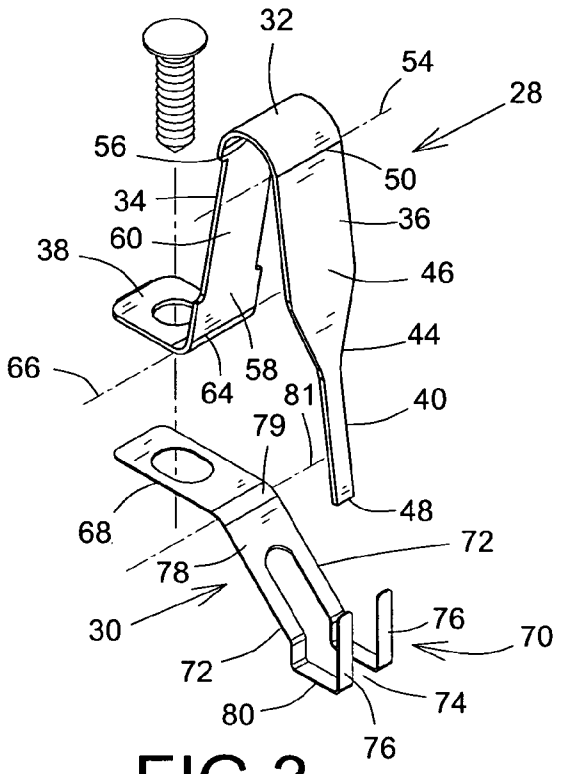

FIG.3

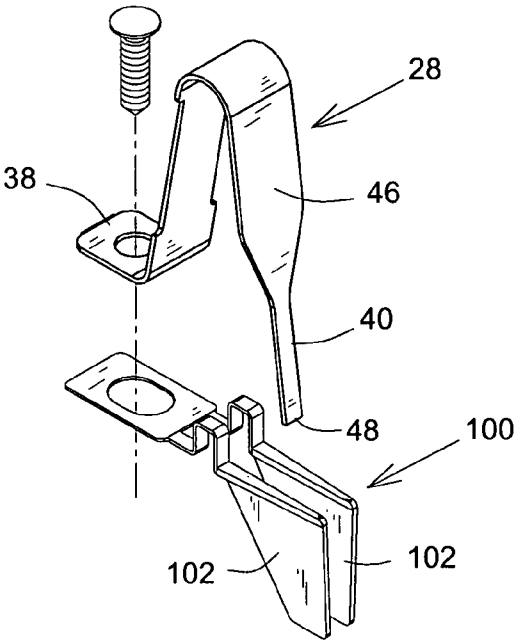

FIG.3a

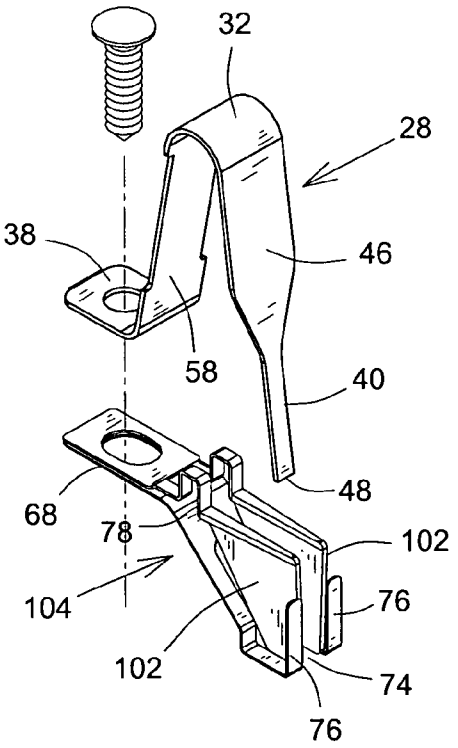

FIG.3b

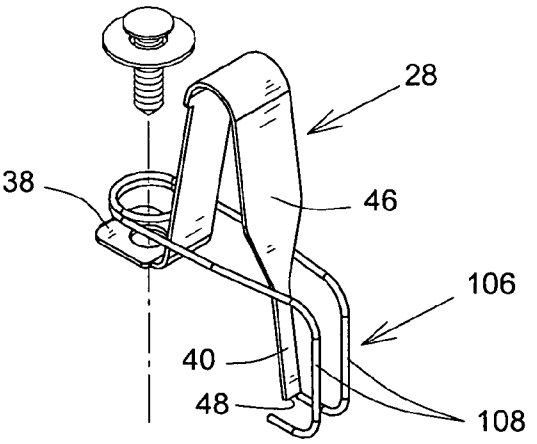

FIG.3c

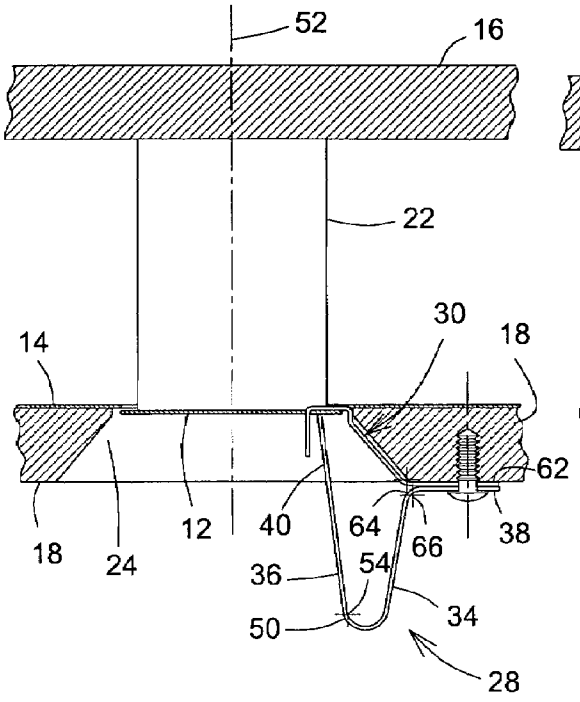

FIG.4a

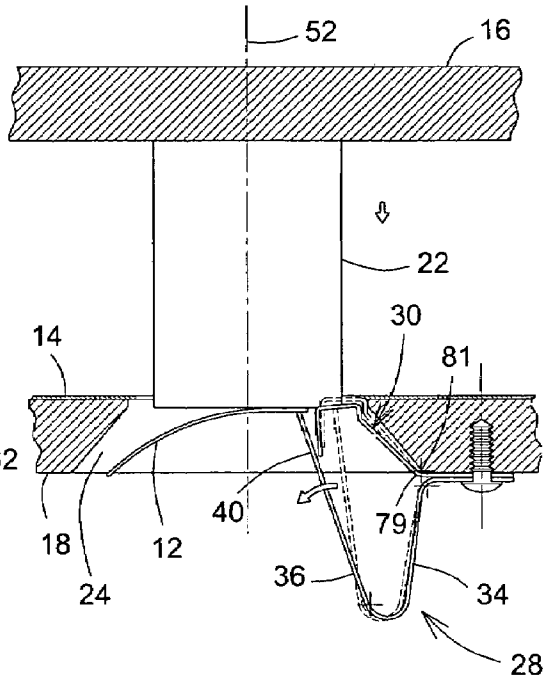

FIG.4b

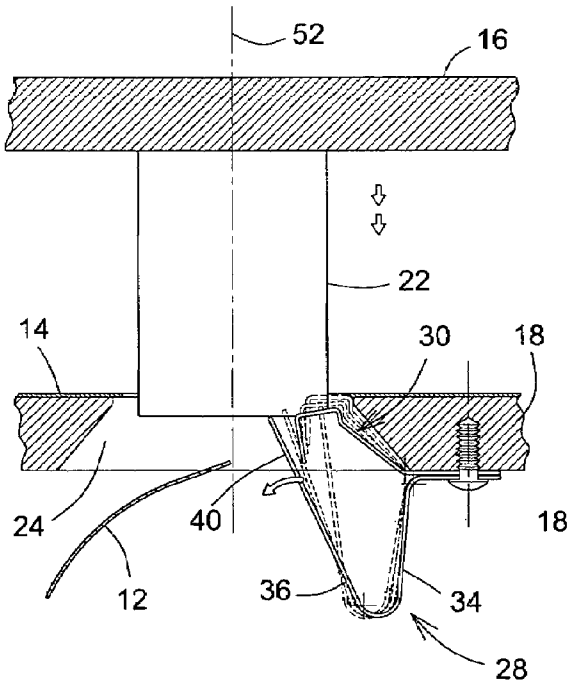

FIG.4c

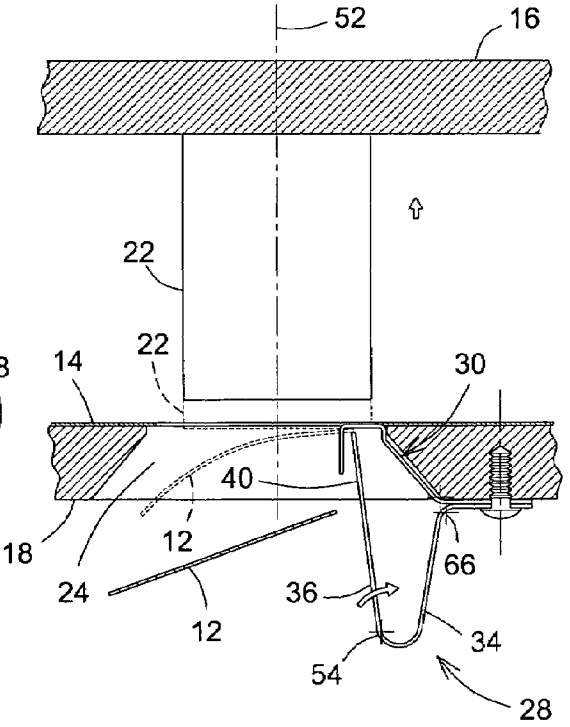

FIG.4d

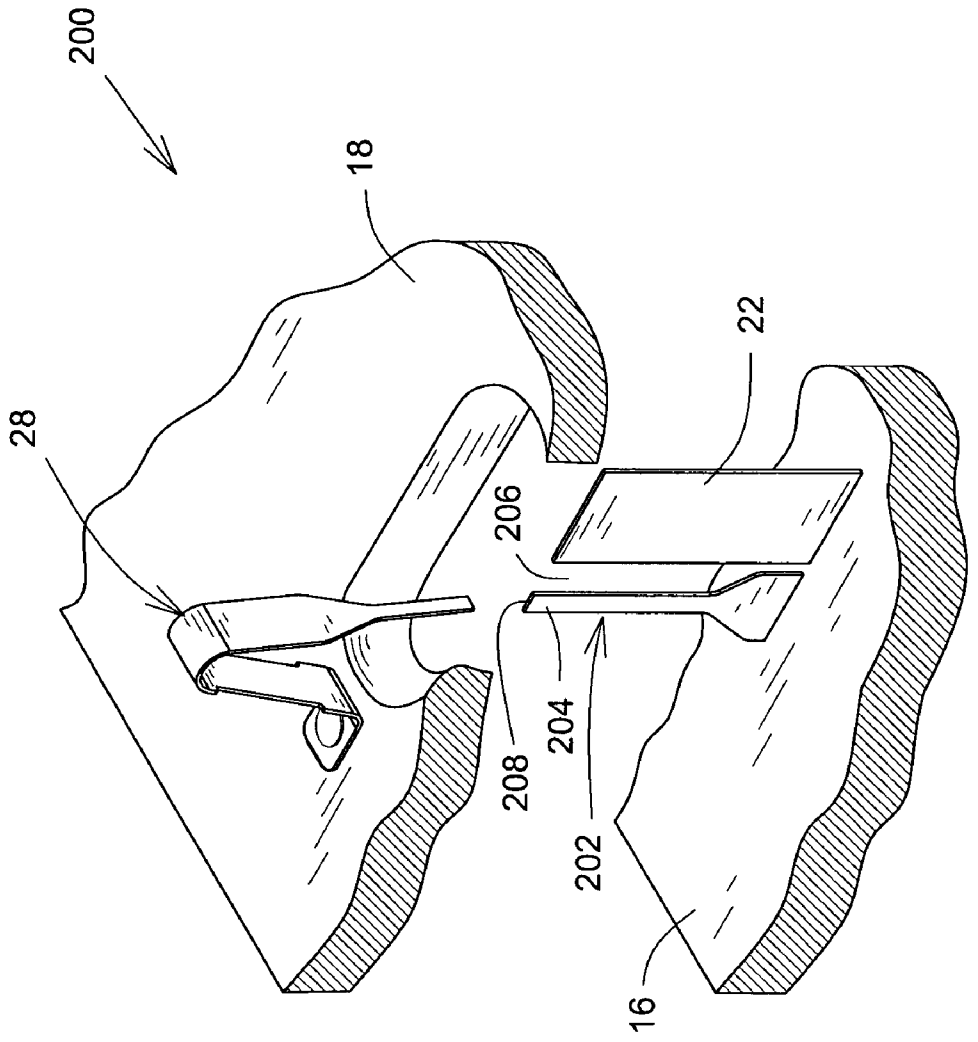

FIG.5

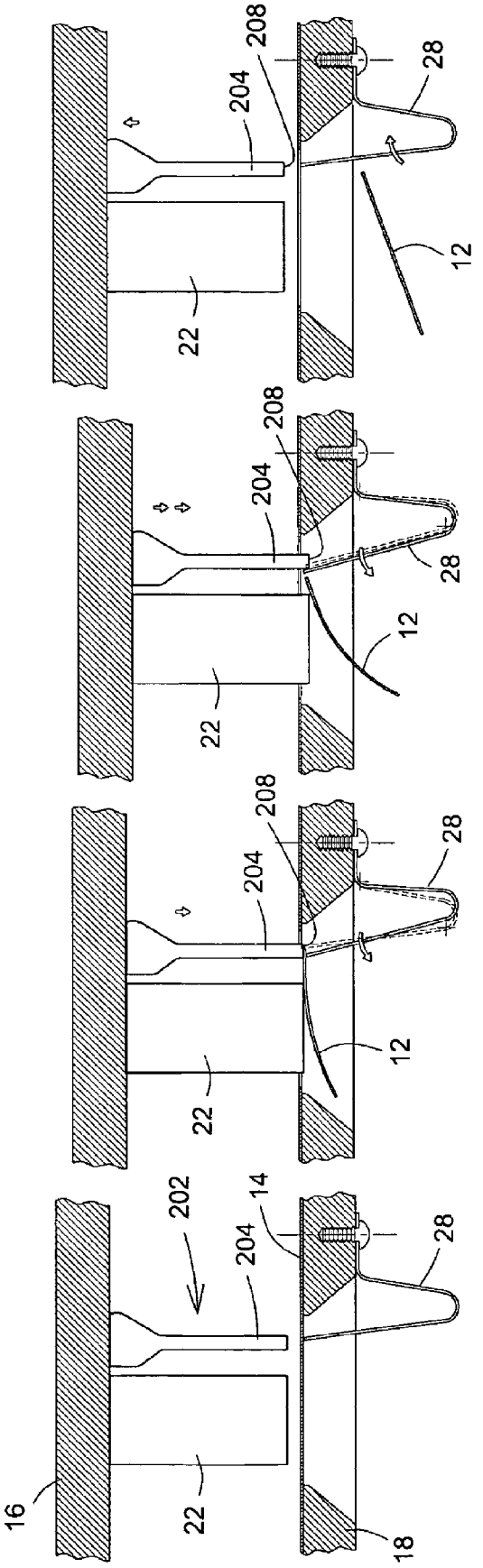

FIG.6d

FIG.6c

FIG.6b

FIG.6a

STRIPPING DEVICE FOR A PRESS

CROSS-REFERENCE TO RELATED APPLICATION

The present application is a Continuation-in-part (C.I.P.) of pending U.S. patent application Ser. No. 10/819,926 filed on Apr. 8, 2004.

FIELD OF THE INVENTION

The present invention concerns mechanical devices, more particularly to mechanical devices for stripping waste from a pre-cut sheet of material.

BACKGROUND OF THE INVENTION

Presses for cutting sheet material such as paper, paperboard, cardboard and the like, are well known. When the sheet material is pre-cut and includes pre-cute portions, which need to be stripped out, the presses include stripping stations. One such stripping station is disclosed in U.S. Pat. No. 3,786,731, issued to Bobst et al. on Jan. 22, 1974 for "Press for Cutting Sheet Material". Bobst discloses stripping stations, which include a pair of frames and a board, which has a series of pre-cut die openings, which are shaped to the desired design. Stripping tools are mounted to the frames and sandwich the waste material between once the sheet material is moved horizontally between the two frames. The stripping tools work together to remove the waste material. One problem, however, the stripping stations may operate too slowly for use with a high throughput stripping. Moreover, paper jams may occur frequently once the waste piece has been removed, thus causing the stripping station to be shut down for a significant time while the jam is removed.

Thus there is a need for an improved stripping device.

SUMMARY OF THE INVENTION

The present invention reduces the difficulties and disadvantages of the aforesaid designs by providing a resilient spring-like stripping device, which can be easily retrofitted into an existing pressing machine to strip waste portions from a pre-cut sheet, without the need for complex machinery. The stripping device is constructed from inexpensive materials such as stainless steel. Advantageously, the previously mentioned problems associated with paper jams is significantly reduced or essentially eliminated by the addition of a either a resiliently movable blocking member or a stationary blocking member, which prevent the waste pieces from interfering with a stripping operation. The inherent resilience of the stripping device enables significantly increased stripping speeds, which increases productivity and decreases stoppage time. Furthermore, the device of the present invention significantly reduces pre-press/on-press make ready times.

In accordance with a first embodiment of the present invention, there is provided a stripping device for stripping a waste piece from a sheet of material, the device comprising: a) a stripping member having a connecting portion, a supporting finger located on one side of the connecting portion, and a stripping finger located on another side of the connecting portion; b) a frame having a planar body having at least one body opening located therein, and a die connected thereto and in register with the body opening, the die having a planar surface substantially facing the stripping finger; c) the supporting finger having a first end connected to the frame, the supporting finger being movable about the first end with respect to the frame; and d) the stripping finger having a stripping end portion, the stripping end portion being disposed towards the body opening in alignment with the die and being biased away from the supporting finger for contacting at an angle the waste piece to be stripped, the stripping end portion being slidable relative to and along the planar surface of the die with the waste piece therebetween to deflect the waste piece as the waste piece moves towards the body opening, the stripping end portion being movable further away from the supporting finger and against the waste piece so as to strip the waste piece, the body opening receiving the waste piece, the stripping end portion slidably and directly contacting the planar surface of the die after stripping of the waste piece.

In accordance with another aspect of the present invention, there is provided a stripping device for use in a die cutting press, for stripping a waste piece from a pre-cut sheet the press having a first frame having at least one frame opening therein and a second frame having at least one punch complementary with the frame opening, the frames being movable with respect to each other, the punch being cooperable with the frame opening, the device comprising: a) a folded over piece of resilient material having a supporting finger located on one side of the fold, and a stripping finger located on another side of the fold, the supporting finger having a first end connected to the first frame, the supporting finger being movable about the first end with respect to the first frame, the stripping finger having a stripping end portion, the stripping end portion being resiliently biased away from the supporting finger for contacting at an angle the waste piece to be stripped, the stripping end portion being slidable along the punch to deflect the waste piece, the stripping end portion being movable further away from the supporting finger and against the waste piece so as to strip the waste piece; b) a blocking member for blocking the waste piece after it has been stripped, the blocking member having a second end resiliently hinged to the frame and a pair of blocking fingers connected to the second end, the blocking fingers being spaced apart to define a gap therebetween, the gap being of sufficient size to permit the stripping end portion to move between the blocking fingers.

In accordance with another aspect of the present invention, there is provided a stripping device for use in a die cuffing press, for stripping a waste piece from a pre-cut sheet, the press having a first frame having at least one frame opening therein and a second frame having at least one punch complementary with the frame opening, the frames being movable with respect to each other, the punch being cooperable with the frame opening, the device comprising: a) a folded over piece of resilient material having a supporting finger located on one side of the fold, and a stripping finger located on another side of the fold, the supporting finger having a first end connected to the first frame, the supporting finger being movable about the first end with respect to the first frame, the stripping finger having a stripping end portion, the stripping end portion being resiliently biased away from the supporting finger for contacting at an angle the waste piece to be stripped, the supporting finger being deflectable away from the waste piece, the stripping end portion being movable further away from the supporting finger; b) an abutment member for blocking the waste piece after it has been stripped, the abutment member having a stationary finger fixedly connected to the second frame, the stationary finger being spaced apart from the punch and defining a blocking gap therebetween, the stationary finger includes a planar surface, the stationary finger

being tapered away from the second frame towards the planar surface, the stripping end portion being slidable along the planar surface against the waste piece towards the blocking gap so as to strip the waste piece.

In accordance with yet another aspect of the present invention, there is provided a method of stripping a waste piece from a sheet of pre-cut material, the method comprising: a) biasing a stripping finger away from a supporting finger, the stripping finger being in contact with the waste piece at an angle; b) deflecting the supporting finger away from the waste piece so as to strip the waste piece from the sheet.

BRIEF DESCRIPTION OF THE DRAWINGS

Further aspects and advantages of the present invention will become better understood with reference to the description in association with the following Figures, in which:

FIG. **1** is a simplified perspective view of a die cutting press with a pair of stripping frames located therein;

FIG. **2** is a simplified exploded view of the stripping frames showing an embodiment of a stripping device;

FIG. **2***a* is a perspective view of the stripping frames showing the stripping device connected to a lower stripping frame;

FIG. **2***b* is a bottom view of the stripping device and a sheet of pre-cut material;

FIG. **3** is an exploded perspective view of the stripping device;

FIG. **3***a* is an exploded perspective view of an alternative blocking member;

FIG. **3***b* is an exploded perspective view of another alternative blocking member;

FIG. **3***c* is an exploded perspective view of another alternative blocking member;

FIG. **4***a* is a simplified side view of the stripping device in a default position;

FIG. **4***b* is a simplified side view of the stripping device in an intermediate stripping position;

FIG. **4***c* is a simplified side view of the stripping device in a final stripping position showing a waste piece being removed from the pre-cut sheet;

FIG. **4***d* is a simplified side view of the stripping device showing the stripped waste piece contacting the blocking member;

FIG. **5** is an exploded perspective view of an alternative blocking member;

FIG. **6***a* is a simplified side view of the alternative blocking member in a default position;

FIG. **6***b* is a simplified side view of the alternative blocking member in an intermediate stripping position;

FIG. **6***c* is a simplified side view of the alternative blocking member in a final stripping position; and

FIG. **6***d* is a simplified side view of the alternative blocking member showing the blocking member and the stripping member returning to the default position.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIG. **1**, a paper press for pressing paper products is shown generally at **10**. The press **10** is used to remove waste pieces of material **12** from pre-cut sheets of material **14**, which is typically paper, paperboard, cardboard and the like. The pre-cut sheet of material **14** is typically a template for many applications. Examples include, but are not limited to, backing sheets for a blister package, blanks for constructing paperboard cartons and the like. The press **10** is a die-cutting press of a conventional design known to those skilled in the art and includes a pair of planar body press frames **16**, **18** mounted within a housing **20**.

FIG. **2** illustrates a portion of the frames **16**, **18** for ease of viewing. The frame **16** includes a number of pre-shaped male dies (punches) **22**; the frame **18** includes a corresponding number of pre-shaped female body openings **24**, which are complementary to the male dies **22**. The dies **22** and the openings **24** are pre-shaped according to a required template design and the cutting patterns on the sheets of material **14**, the dies **22** and the openings **24** being complementary to the cut-outs on in the sheet **14**. While rectangular or square shaped sheets of material are illustrated throughout, it is to be understood that any type of sheet shape may be used without deviating from the scope of the present invention. Moreover, the number of body openings **24** and dies **22** may vary and depend on the design requirements of the finished template.

Referring now to FIGS. **2** and **2***a*, an embodiment of a stripping device of the present invention is shown generally at **26** and is connected to the frame **18**. Broadly speaking, the stripping device **26** includes a stripping member **28**, which strips the waste piece **12** from the sheet of pre-cut material, and a blocking member **30**, which blocks the waste piece **12** and prevents it from interfering with a stripping operation, as described below.

As best seen in FIGS. **2**, **3**, **4***a*, **4***b*, **4***c*, and **4***d*, the stripping member **28** includes an arcuate connecting portion **32**, a supporting finger **34** located on one side of the connecting portion **32**, and a stripping finger **36** located on another side of the connecting portion **32**. The supporting finger **34** has a first end **38**, which is connected to the frame **18** and is located adjacent the body opening **24**. The stripping finger **36** has a stripping end portion **40**, which is disposed at an angle towards the waste piece **12** to be stripped. The stripping member **28** is typically made from a resilient material, which in the embodiment illustrated, is a folded over single piece of hardened steel. In another aspect, the resilient material may also be a single piece of resilient plastic. In a default configuration, as illustrated in FIG. **4***a*, the inherent resilience of the folded over hardened steel piece biases the stripping end portion **40** away from the supporting finger **34** so that it contacts the waste piece **12** at an angle. As best seen in FIG. **4***c*, the resilience of the folded over piece enables the supporting finger **34** to be moved about the first end **38** with respect to the frame **18** so that it may be deflected rearwardly away from the waste piece **12** during a stripping operation. The stripping end portion **40** is disposed towards the body opening **24** so that it may contact the waste piece **12** as it moves towards the body opening **24**. In the embodiment illustrated, the stripping end portion **40** is typically is disposed into the body opening **24** and inclined away from the supporting finger **34**. Although a single folded over piece of resilient material is illustrated, it is also contemplated that resilient compression springs may be used to resiliently bias apart the stripping end **40** from the supporting finger **34** and to enable deflection of the supporting finger **34**.

As best seen in FIGS. **3**, **4***a*, **4***b*, **4***c*, and **4***d*, the stripping finger **36** has a distal portion **42**, a proximal portion **44** and an intermediate portion **46**. The distal portion **42** connects the stripping finger **36** to the arcuate connecting portion **32**. The proximal portion **44** connects the stripping end portion **40** to the intermediate portion **46** and the intermediate portion **46** interconnects the distal portion **42** and the proximal portion **44**.

In the embodiment illustrated, the intermediate portion **46** tapers away from the distal portion **42** towards the proximal portion **44**, so that the proximal portion **44** is narrower than the distal portion **42**. The proximal portion **44** is an elongate rectangular strip with the stripping end portion **40** located at a squared end **48** of the rectangular strip. The squared end **48** is typically sharp to enable it to dig into the waste piece **12** and to strip it from the pre-cut sheet **14**. The stripping finger **36** is resiliently hinged to the arcuate connecting portion **32** to permit movement of the stripping end portion **40** relative to the supporting finger **34** between default and stripping positions. The connection between the stripping finger **36** and the arcuate connecting portion **32**, because of the inherent resilience of the folded over stainless steel, operates as a first resilient hinge **50** to permit the stripping finger **36** to move relative to the supporting finger in a restricted hinging movement. The body opening **24** has an opening axis **52** and the first resilient hinge **50** has a first hinge axis **54**, which is generally perpendicular to the opening axis **52**.

The length of the stripping finger **36** is typically longer than the length of the supporting finger **34** so that the stripping end portion **40** is disposed below the first end **38** and into the body opening **24**.

The supporting finger **34** has a distal portion **56**, a proximal portion **58** and an intermediate portion **60**. The distal portion **56** connects the supporting finger **34** to the arcuate portion **32**, the proximal portion **58** connects the first end **38** of the supporting finger **34** to the intermediate portion **60** and the intermediate portion **60** interconnects the distal portion **56** and the proximal portion **58**. The distal portion **56** and the proximal portion **58** may be tapered towards the intermediate portion **60**. The intermediate portion **60** may be narrower than the distal and proximal portions. A connecting foot **62** is located at proximal portion **58** and connects the supporting finger **34** to the frame **18**. The connecting foot **62** is disposed away from the body opening **24**. To permit the supporting finger **34** to be deflected rearwardly away from the body opening **24**, the supporting finger **34** is resiliently hinged to the frame **18** so that the supporting finger can move relative to the frame **18** between default and stripping positions. A second resilient hinge **64** is located near the connecting foot **62** and has a second hinge axis **66**, which is perpendicular to the opening axis **52**. The second hinge axis **66** and the first hinge axis **54** are generally parallel to each other and perpendicular to the opening axis **52**.

The blocking member **30** includes a second end **68** connected to the frame **18** and a blocking portion **70**. In the default configuration, the stripping finger **36** is located adjacent the blocking portion **70**. The second end **68** of the blocking member **30** is located adjacent the body opening **24** so that the blocking portion **70** is disposed towards and into the body opening **24**, and inclined away from the second end **68**. The blocking portion **70** has a pair of blocking fingers **72**, which are connected to the second end **68**. The blocking fingers **72** are spaced apart and define a gap **74** therebetween. The gap **74** is of a sufficient size to permit the rectangular strip of the stripping finger **36** to move between the blocking fingers **72**. Each blocking finger **72** has a proximal blocking panel **76**, which contacts the waste piece **12**. A blocking finger distal portion **78** resiliently and hingeably connects the blocking finger **72** to the second end **68** and an intermediate portion **80** interconnects the proximal blocking panel **76** with the distal portion **78**. A third resilient hinge **79** is located between the distal portion **78** and the second end **68** to allow the blocking member **30** to move when the stripping member **28** moves during the stripping operation. The third hinge **79** has a third hinge axis **81**, which is generally parallel to the first and second hinge axes **54**, **66**. The proximal blocking panel **76** is disposed perpendicular to the intermediate portion **80** and generally parallel to the opening axis **52**. The rectangular strip of the stripping finger **36** is disposed rearwardly of the blocking fingers **72** in the default position. The blocking member **30** is typically made from a single piece of resilient stainless steel. It is also contemplated that the stripping member **28** and the blocking member **30** may be made from a single piece of resilient material, without deviating from the scope of the present invention. Moreover, in another aspect, the blocking member **30** may also be made from a piece of resilient plastic.

In the embodiment illustrated, the second end **68** of the blocking member **30** and the first end **38** of the stripping member **28** are connected together, typically using conventional securing means. It is also contemplated that the stripping member **28** and the blocking member **30** may be used together or they may be used separately.

Operation

A typical stripping operation will now be described with reference to FIGS. **2***a*, **4***a*, **4***b*, **4***c*, and **4***d*. Since the description of the operation may apply to a sheet of pre-cut material having many waste pieces to be stripped, the following refers to only one waste piece.

The stripping device **26** may begin from the default configuration, as shown in FIG. **4***a*, in which the stripping finger **36** is biased away from the supporting finger **34**. With the frames **16**, **18** spaced apart, a sheet of pre-cut material loads horizontally between the frames **16**, **18** and is held in place by a series of guides (not shown), which correctly orientate and align the waste piece **12** with the die **22** and the opening **24**. The frame **18** rapidly moves the sheet of pre-cut material towards the second frame **16** so that the waste piece **12** contacts the stripping device **26**. The stripping end portion **40** of the stripping finger **36** contacts the waste piece **12** at an angle. The force of the frame **16** moving along its vertical path of travel moves the stripping finger **36** about the first hinge **50** and biases the stripping finger and thus the stripping end portion **40** further away from the supporting finger **34** so that the squared end **48** contacts the waste piece and causes the perforations connecting the waste piece **12** to the sheet **14**, to rip. The squared end **48** slides along the surface of the die **22** until the waste piece is completely stripped from the sheet **14**, while the supporting finger **34** is deflected rearwardly about the second hinge **64**. The blocking member **30** moves together with the stripping member **28** about the third resilient hinge **79**, as best illustrated by the phantom lines in FIG. **4***b*. The frame **16** moves away from the frame **18** so that the stripping finger **36** and the supporting finger **34** return to their respective default positions. The waste piece **12** often tends to be dragged back towards the blocking member **30** and may interfere with the next stripping operation. The blocking portion **70** reduces this interference by acting as a barrier against which the waste piece **12** may move so that is deflected away from the stripping device **26**.

Alternatives

The embodiment of the stripping device **26** described above may also be used with different designs of blocking member **30**, as illustrated in FIGS. **3***a*, **3***b*, and **3***c*.

An alternative blocking member **100**, as seen in FIG. **3***a*, is similar to the blocking member **30**, but includes a pair of blocking panels **102** connected to the second end **68**.

Another alternative blocking member **104**, as seen in FIG. **3***b*, includes a combination of blocking member **100** with the blocking member **30**.

Still another alternative blocking member **106** includes a pair of blocking wires **108** connected to the second end **68**. The alternative blocking members **100**, **104** and **106** operate essentially identically to the blocking member **30**.

An alternative embodiment of a stripping device is shown generally at **200** in FIG. **5**. Briefly, the device **200** includes the stripping member **28** and a stationary abutment member **202**. The stripping member **28** operates in essentially the same way as the stripping member **28** in the stripping device **26**, but with some differences, which will be described below.

The abutment member **202** includes a stationary finger **204**, which is fixedly connected to the press frame **16**. The stationary finger **204** is located spaced apart from the die **22** to define a blocking gap **206** therebetween. The stationary finger **204** is typically tapered away from the frame **16** and towards a planar surface **208**.

The operation of the blocking member **202** will now be described with reference to FIGS. **5**, **6***a*through **6***d*. As described above for the stripping device **26**, the frame **18** moves the sheet of pre-cut material towards the other frame **16** so that the waste piece contacts the stripping member **28**. However, instead of the abutment member **202** being resiliently moved together with the stripping finger **36** of the stripping member **28**, as described above, the abutment member **202** remains stationary such that only the resilient stripping finger **36** moves. The stripping finger **36** slides across the planar surface **208** of the abutment member **202** until it reaches the blocking gap **206**, as best illustrated in FIGS. **6***b* and **6***c*. The stationary finger **204** moves the resilient stripping finger **36** partially into the blocking gap **206** and the stripping finger **36** strips the waste material **12** away from the pre-cut sheet **14**. The die **22** then pushes the waste material **12** away from the pre-cut sheet of material **14** and the stripping finger **36** returns to the default position, as illustrated In FIG. **6***d*.

The stationary finger **204** blocks the waste piece, once stripped, and stops it from interfering with the next stripping operation.

While specific embodiments have been described, those skilled in the art will recognize many alterations that could be made within the spirit of the invention, which is defined solely according to the following claims.

I claim:

1. A stripping device for stripping a waste piece from a sheet of material, the device comprising:

a) a stripping member having a connecting portion, a supporting finger located on one side of the connecting portion, and a stripping finger located on another side of the connecting portion;

b) a frame having a planar body having at least one body opening located therein, and a die connected thereto and in register with the body opening, the die having a planar surface substantially facing the stripping finger;

c) the supporting finger having a first end connected to the frame, the supporting finger being movable about the first end with respect to the frame;

d) the stripping finger having a stripping end portion, the stripping end portion being disposed towards the body opening in alignment with the die and being biased away from the supporting finger for contacting at an angle the waste piece to be stripped, the stripping end portion being slidable relative to and along the planar surface of the die with the waste piece therebetween to deflect the waste piece as the waste piece moves towards the body opening, the stripping end portion being movable further away from the supporting finger and against the waste piece so as to strip the waste piece, the body opening receiving the waste piece, the stripping end portion slidably and directly contacting the planar surface of the die after stripping of the waste piece.

2. The device, according to claim **1**, in which:

a) the first end of the supporting finger is located adjacent the body opening.

3. The device, according to claim **2**, in which:

a) the stripping end portion is disposed into the body opening and inclined away from the supporting finger.

4. The device, according to claim **1**, in which:

a) the connecting portion is an arcuate portion, the supporting finger and the stripping finger being connected to each end of the arcuate portion.

5. The device, according to claim **4**, in which the stripping finger has:

a) a distal portion for connecting the stripping finger to the arcuate portion;

b) an intermediate portion; and

c) a proximal portion for connecting the stripping end portion to the intermediate portion, the intermediate portion interconnecting the distal portion and the proximal portion.

6. The device, according to claim **5**, in which:

a) the intermediate portion tapers away from the distal portion towards the proximal portion, the proximal portion being narrower than the distal portion.

7. The device, according to claim **4**, in which:

a) the proximal portion is an elongate rectangular strip, the stripping end portion being located at a squared end of the rectangular strip.

8. The device, according to claim **1**, in which:

a) the stripping finger is resiliently hinged to the connecting portion to permit movement of the stripping end portion relative to the supporting finger between default and stripping positions.

9. The device, according to claim **8**, in which:

a) the stripping finger is resiliently hinged about a first resilient hinge.

10. The device, according to claim **9**, in which:

a) the first resilient hinge has a first hinge axis which is perpendicular to the opening axis.

11. The device, according to claim **1**, in which the supporting finger has:

a) a distal portion for connecting the supporting finger to the connecting portion;

b) an intermediate portion; and

c) a proximal portion for connecting the first end of the supporting finger to the intermediate portion, the intermediate portion interconnecting the distal portion and the proximal portion.

12. The device, according to claim **11**, in which:

a) the distal portion and the proximal portion taper towards the intermediate portion, the intermediate portion being narrower than the distal and proximal portions.

13. The device, according to claim **12**, in which:

a) the distal portion has a connecting foot connected to the frame and disposed away from the body opening.

14. The device, according to claim **1**, in which:

a) the supporting finger is resiliently hinged to the frame to permit movement of the supporting finger relative to the frame between default and stripping positions.

15. The device, according to claim 14, in which:
a) the supporting finger is resiliently hinged about a second resilient hinge.
16. The device, according to claim 15, in which:
a) the body opening has an opening axis; and
b) the second resilient hinge has a second hinge axis which is perpendicular to the opening axis.
17. The device, according to claim 15, in which:
a) the stripping finger has a first resilient hinge with a first hinge axis;
b) the second hinge axis and the first hinge axis being parallel to each other, the first and second hinge axes being perpendicular to the opening axis.
18. The device, according to claim 1, in which:
a) the length of the stripping finger is longer than the length of the supporting finger.
19. The device, according to claim 1, in which:
a) the stripping end portion is disposed below the first end.
20. The device, according to claim 1, in which:
a) the stripping member is made from a single piece of forded over material.
21. The device, according to claim 1, in which:
a) the stripping member is made from a single piece of folded over resilient material.
22. The device, according to claim 21, in which:
a) the resilient material is hardened steel.
23. The device, according to claim 21, in which:
a) the resilient material is plastic.
24. The device, according to claim 1, further includes:
a) a blocking member for blocking the waste piece after it has been stripped, the blocking member having a second end connected to the frame and a blocking portion, the blocking member being movable about the second end, the stripping finger being locatable adjacent the blocking portion.
25. The device, according to claim 24, in which:
a) the second end of the blocking member is located adjacent the body opening and the blocking portion is disposed towards the body opening.
26. The device, according to claim 25, in which:
a) the blocking portion is disposed into the body opening and inclined away from the second end.
27. The device, according to claim 24, in which:
a) the stripping finger has a proximal portion, the proximal portion being an elongate rectangular strip;
b) the blocking portion having a pair of blocking fingers connected to the second end, the blocking fingers being spaced apart to define a gap therebetween, the gap being of sufficient size to permit the rectangular strip to move between the blocking fingers.
28. The device, according to claim 27, in which each blocking finger has:
a) a proximal blocking panel for contacting the waste piece;
b) a distal portion for connecting the blocking finger to the second end;
c) an intermediate portion interconnecting the proximal blocking panel with the distal portion.
29. The device, according to claim 28, in which:
a) the proximal blocking panel is disposed perpendicular to the intermediate portion.
30. The device, according to claim 29, in which:
a) the body opening has an opening axis;
b) the proximal blocking panel is disposed parallel to the opening axis.
31. The device, according to claim 27, in which:
a) the rectangular strip is disposed rearwardly of the blocking fingers in the default position.
32. The device, according to claim 28, in which:
a) the distal portion is resiliently hinged to the second end to permit movement of the blocking fingers relative to the second end between default and stripping positions.
33. The device, according to claim 32, in which:
a) the distal portion is resiliently hinged about a third resilient hinge.
34. The device, according to claim 24, in which:
a) the second end of the blocking member and the first end of the stripping member are connected together.
35. The device, according to claim 24, in which:
a) the stripping finger has a proximal portion, the proximal portion being an elongate rectangular strip;
b) the blocking portion having a pair of blocking panels connected to the second end, the blocking panels being spaced apart to define a gap therebetween, the gap being of sufficient size to permit the rectangular strip to move between the blocking panels.
36. The device, according to claim 24, in which:
a) the stripping finger has a proximal portion, the proximal portion being an elongate rectangular strip;
b) the blocking portion having a pair of blocking wires connected to the second end, the blocking fingers being spaced apart to define a gap therebetween, the gap being of sufficient size to permit the rectangular strip to move between the blocking wires.
37. The device, according to claim 24, in which:
a) the blocking member is made from a single piece of resilient material.
38. The device, according to claim 37, in which:
a) the resilient material is stainless steel.
39. The device, according to claim 37, in which:
a) the resilient material is plastic.
40. The device, according to claim 1, in which:
a) the sheet of material is pre-cut paperboard, the waste piece being partially connected within the paperboard.
41. The device, according to claim 1, in which:
a) a blocking member for blocking the waste piece after it has been stripped, the blocking member having a stationary finger fixedly connected to the frame, the stationary finger being spaced apart from the die and defining a blocking gap therebetween.
42. The device, according to claim 41, in which:
a) the stationary finger includes a planar surface, the stationary finger being tapered away from the frame towards the planar surface, the stripping finger being slidable along the planar surface towards the blocking gap during a stripping operation.
43. A stripping device for use in a die cutting press, for stripping a waste piece from a pre-cut sheet, the press having a first frame having at least one frame opening therein and a second frame having at least one punch complementary with the frame opening, the frames being movable with respect to each other, the punch being cooperable with the frame opening, the device comprising:
a) a folded over piece of resilient material having a supporting finger located on one side of the fold, and a stripping finger located on another side of the fold, the supporting finger having a first end connected to the first frame, the supporting finger being movable about the first end with respect to the first frame, the stripping finger having a stripping end portion, the stripping end portion being resiliently biased away from the support-

ing finger for contacting at an angle the waste piece to be stripped, the stripping end portion being slidable along the punch to deflect the waste piece, the stripping end portion being movable further away from the supporting finger and against the waste piece so as to strip the waste piece;

b) a blocking member for blocking the waste piece after it has been stripped, the blocking member having a second end connected to the frame and a pair of blocking fingers resiliently hinged to the second end, the blocking fingers being spaced apart to define a gap therebetween, the gap being of sufficient size to permit the stripping end portion to move between the blocking fingers.

44. The device, according to claim **43**, in which:

a) the first end and the second end are connected together.

45. The device, according to claim **43**, in which:

a) the fold is arcuate.

46. A stripping device for use in a die cutting press, for stripping a waste piece from a pre-cut sheet, the press having a first frame having at least one frame opening therein and a second frame having at least one punch complementary with the frame opening, the frames being movable with respect to each other, the punch being cooperable with the frame opening, the device comprising:

a) a folded over piece of resilient material having a supporting finger located on one side of the fold, and a stripping finger located off another side of the fold, the supporting finger having a first end connected to the first frame, the supporting finger being movable about the first end with respect to the first frame, the stripping finger having a stripping end portion, the stripping end portion being resiliently biased away from the supporting finger for contacting at an angle the waste piece to be stripped, the supporting finger being deflectable away from the waste piece, the stripping end portion being movable further away from the supporting finger;

b) an abutment member for blocking the waste piece after it has been stripped, the abutment member having a stationary finger fixedly connected to the second frame, the stationary finger being spaced apart from the punch and defining a blocking gap therebetween, the stationary finger includes a planar surface, the stationary finger being tapered away from the second frame towards the planar surface, the stripping end portion being slidable along the planar surface against the waste piece towards the blocking gap so as to strip the waste piece.

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