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Rossetti

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[54] **TRIMMING APPARATUS**

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[51] **Int. Cl.** **B26d 7/02**

[58] **Field of Search**.....83/455, 520, 451, 452, 458, 83/459, 460, 463–466, 614; 156/502, 505, 506, 509

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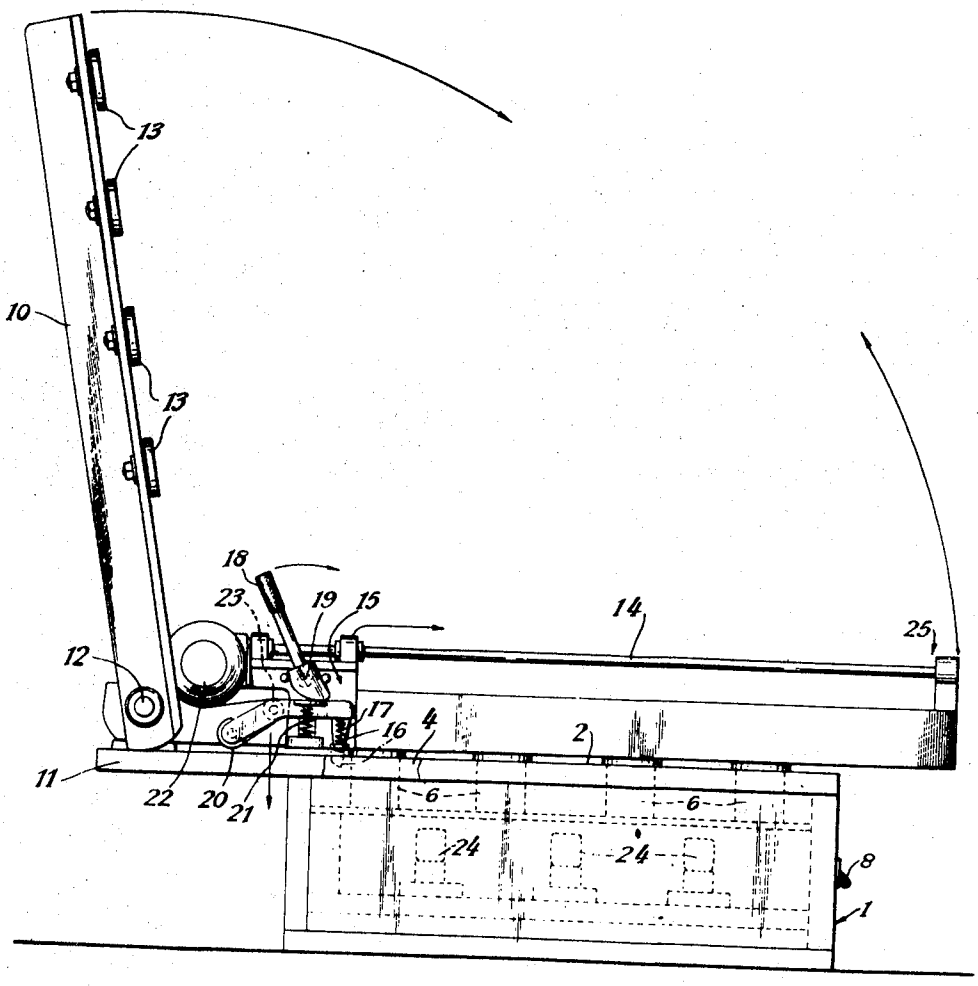
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[57] **ABSTRACT**

Apparatus for trimming and assembling separate parts of a document such as a plan or map, including a shallow box-like container having a supporting surface on which the parts may be placed, the surface having a slit therein adapted to accept a cutting implement. A pair of clamping members are each pivotally mounted on the container so as to be pivotable between a raised position and a clamping position on the surface adjacent a respective side of the slit, each clamping member having associated therewith a set of electromagnets which, when energized, attract the associated clamping member so that parts of a document are held against undesired movement. The cutting implement is secured to a carriage slidably mounted on one of the clamping members so that the implement is movable to and fro along the slit.

5 Claims, 2 Drawing Figures



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SHEET 1 OF 2

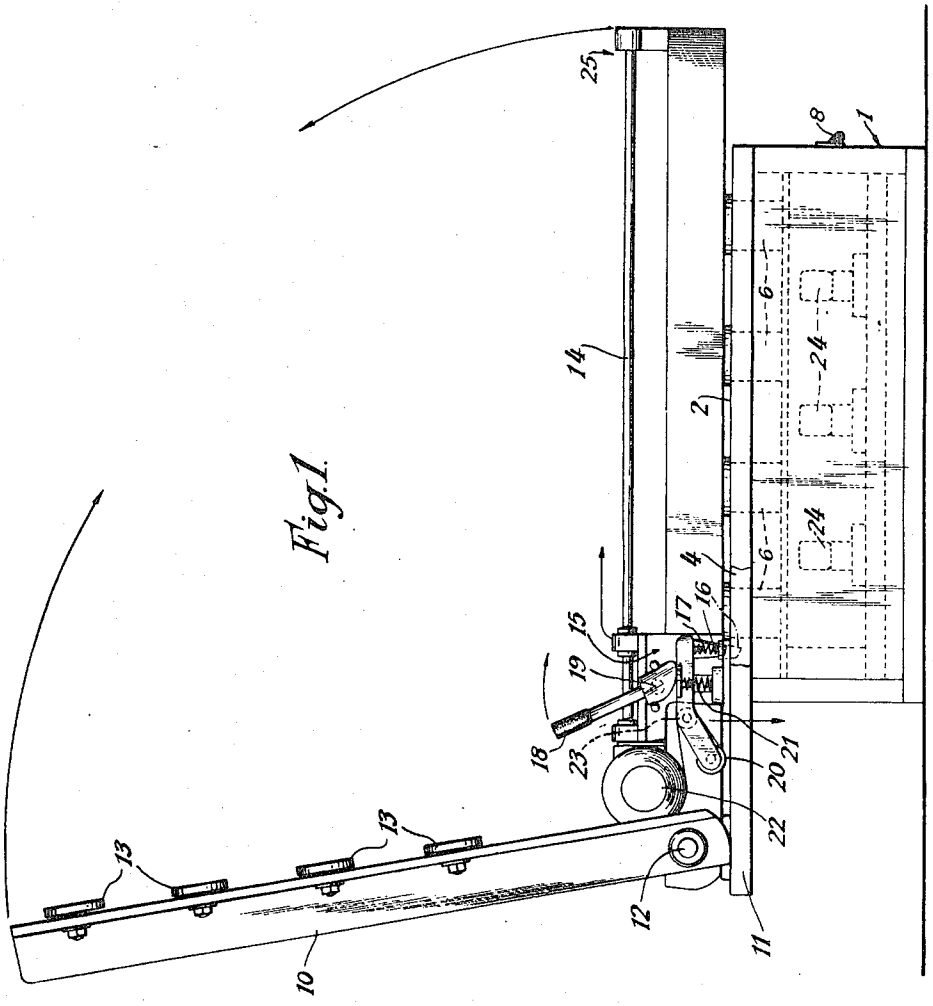
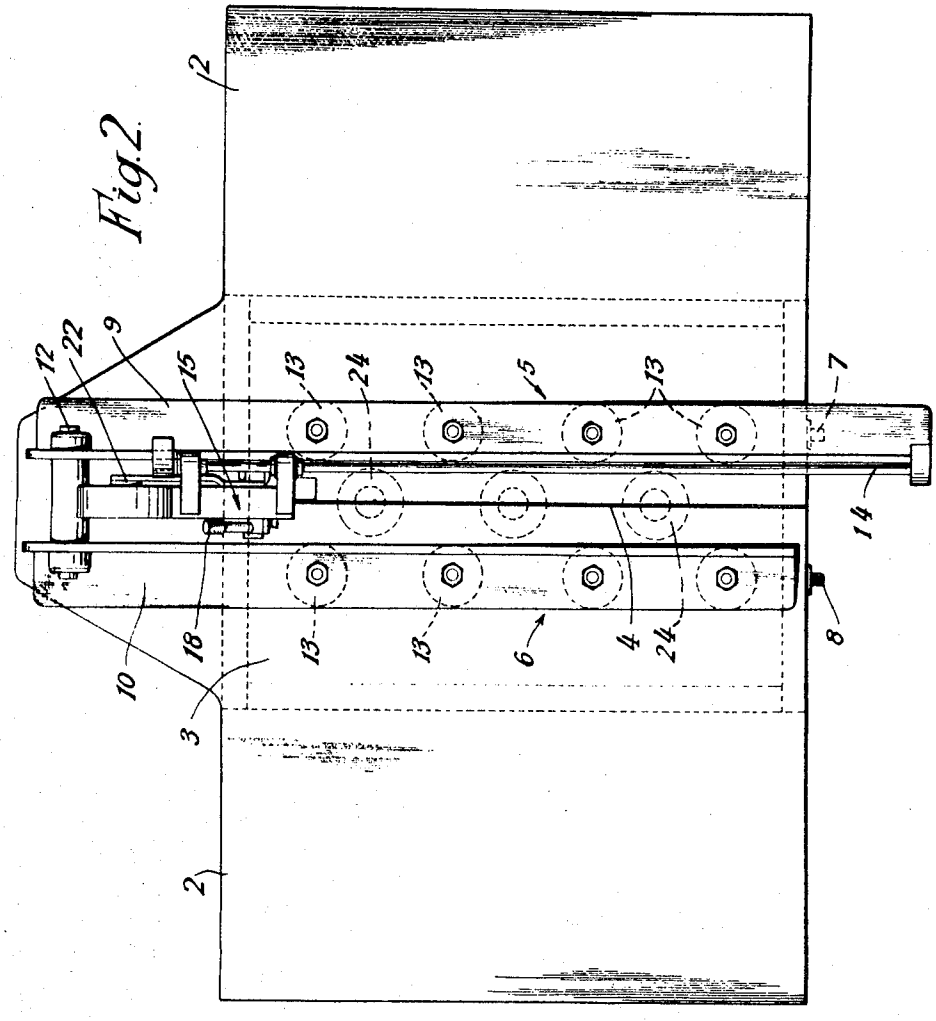


Fig.1

Fig. 2



TRIMMING APPARATUS

The invention relates to apparatus for trimming and assembling separate parts of a document to provide a complete document.

Frequently it is necessary to copy a large original document part-by-part and subsequently to assemble the parts to form a copy of the original document. There is generally overlap between neighboring parts and the overlapping peripheral areas are trimmed from the parts and the trimmed parts are then placed in abutting relationship and secured together to form the whole document. Particular problems arise when copying such large documents as maps or plans which have to be copied part-by-part due to limitations in the copying apparatus. With maps and plans it is particularly important to ensure that the individual parts are trimmed and assembled accurately, and the present invention seeks to provide apparatus to enable this to be done.

According to the present invention there is provided apparatus for trimming and assembling parts of a document, the apparatus including a support having a surface on which the parts may be positioned, the surface having therein a slit adapted to accept a cutting implement, magnetic means being mounted on said support and a pair of clamping members each movable to an operative position in which it lies on the surface on a respective side of the slit, the magnetic means being adapted to attract said members so that, when parts of a document are positioned on the surface so as to lie between the surface and the members and the members are magnetically attracted by said magnetic means, the parts are held against undesired movement.

The pair of members may each be mounted on the support so as to be pivotable between the operative position and an inoperative position clear of the surface. A carriage may be slidably mounted on one of said members, the carriage carrying the cutting implement which is urgable into the slit against a resilient bias so as to be slidable longitudinally along the length of the slit to cut the parts of the document overlying the slit so that the severed peripheral areas may be removed leaving the two parts in abutting relationship along a line on which the parts are to be joined. The carriage may also be adapted to carry means for joining the parts and the means may comprise mounting means for a reel of adhesive tape and a roller adapted to be urged into contact with the surface the arrangement being such that in operation, the tape is passed under the roller so as to be urged into contact with both the parts along the abutting line to thereby join the two parts.

The portion of the surface adjacent to the slit may be formed of a translucent material which may be a transparent material preferably a synthetic plastics material such as "Perspex" a Registered Trade Mark. When a portion is thus provided, illumination may be provided under the portion so that with document parts which are sufficiently translucent that the slit and matter on the document can be seen there through the parts may be placed in position on the surface facing downwardly, the correct positioning of the parts being easily achieved, the parts then being joined by placing adhesive tape on the backs of the parts. The illumination may comprise a plurality of lights spaced along the length of the slit or, alternatively, may comprise a strip light such as a neon tube positioned under the slit and parallel thereto.

The magnetic means may be in the form of permanent magnets but is preferably in the form of electro-magnets which can be switched on or off at will to thereby enable the members to be retained in or released from their clamping position at will.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

FIG. 1 shows a side view of apparatus for trimming and assembling separate parts and of a document.

FIG. 2 shows a plan view of FIG. 1.

The apparatus is in the form of a shallow box 1 with a supporting surface 2 on which the parts to be joined may lie, the box being formed of wood except for a portion 3 of the supporting surface 2 which is of a transparent material preferably of a synthetic plastics material such as "Perspex" a Registered Trade Mark. The transparent portion 3 has a slit 4 therein which extends substantially the width of the upper surface 2.

Two sets of electro-magnets are 5 and 6 respectively positioned in the box 1, one set on each side of the slit 4. Each set comprises four electro-magnets spaced along a line parallel to the slit but spaced therefrom. The pole pieces of the electro-magnets are arranged to lie substantially flush with the supporting surface 2 of the box 1. Thus, one set of electro-magnets 5 will be associated with a part of a document substantially on one side of the slit 4 and the other set of electro-magnets 6 will be associated with a part of the documents substantially on the other side of the slit. The electro-magnets of each set are connected in series so as to be energized simultaneously when the respective control switch 7 or 8 is moved to the "on" position.

A pair of clamping members 9 and 10 respectively are each mounted on a rearwardly extending extension 11 of the box 1 so as to be pivotable about an axis 12. Each of the members has spaced therealong a set of four soft iron elements 13, each of the elements 13 being positioned so as to be aligned with a respective one of the electro-magnets when the members 9 and 10 are moved to an operative position in which they lie on the upper surface 2 of the box 1. The elements are resiliently mounted on the members so as to allow slight movement of the elements 13 relative to the members 9, 10 to accommodate slight variations in, for example, the level of the surface.

An elongate bar 14 is secured to the member 9 so as to lie substantially parallel to the slit 4 when the member 9 is in the operative position. A carriage 15 is slidably mounted on the rod 14 so as to be movable to and fro along the length of the slit 4. The carriage 15 carries a cutting implement 16 which, in one form of the invention, comprises a blade resiliently biased by a coil spring 17 out of engagement with the slot 4. It will be appreciated that many forms of cutting implements may be used, for example, a rotary cutter may be particularly suitable. The cutting implement 16 may be urged downwardly to enter the slot by pivotal movement of an operating lever 18 which is mounted on the carriage so as to pivot about an axis 19. The control lever 18 is also arranged to urge a roller 20 into contact with the surface 2 against the bias of a spring 21. The carriage 15 carries a rotatable pulley 22 which is

adapted to receive a reel of tape, preferably a transparent adhesive tape such as Sello-tape. The pulley **22** is mounted so that a reel of tape mounted thereon may be passed over an idler roller **23** before passing between the roller **20** and the surface **2** in such a way that when the roller **20** is urged into contact with the upper surface **2** adhesive tape adheres to the surface or **2** parts of a document thereon.

Illumination of the slit **4** is provided by three bulbs **24** mounted in the box **1** and spaced along the length of the slit **4**. In an alternative form, the three bulbs may be replaced by a single strip light such as a neon-tube aligned with the slit so as to give even illumination therealong.

The apparatus is used in the following manner.

Two neighboring document parts, which are sufficiently transparent when light is directed thereon and having matter thereon which overlaps by a small amount i.e., by ½ inch, are placed face downwards on the top surface **2** of the box **1**. As a result of the illumination provided by the bulbs **24** the slit **4** and the matter on the parts are visible therethrough. The members **9** and **10** are then pivoted to their operative position in which they lie on the surface **2**, the electro-magnets being switched off at this stage. The parts of the document are then aligned until the slit **4** coincides with the line along which it is desired to join the parts of the document. The weight of the members **9** and **10** prevents excessive movement of the parts while they are maneuvered into the correct position. With the parts in the desired position, the electro-magnets are switched on to thereby clamp the members **9** and **10** securely to the upper surface **2** of the box to thereby lock the parts against undesirable movement. Alternatively, one of the members, **9** or **10**, can be locked in position while the part of the document under the other member is suitably positioned and then locked by energization of the electro-magnets associated with that member.

The cutting implement **16** is then urged downwardly into the slit **4** by operation of the lever **18** and the carriage **15** is drawn along the rod **14** to the forward end **25** of the rod **14**. Thus, the portions of the parts of the document overlying the slit are cut along the desired line, the remaining portions of the parts being abutting relationship. The abutting parts of the document are secured together by the adhesive tape which is mounted on the reel **22**, the end of the tape is secured to the supporting surface **2** or the end of the parts of the document adjacent to the pivotal mounting of the members **9** and **10** after passing over the roller **20**. Thus, when the carriage **15** is drawn forwardly the two abutting parts are joined immediately after the cutting has taken place. In this case, it may be desirable to provide on the carriage **15** a curved guide or guides to guide the severed peripheral areas of one or both parts away from the adhesive tape.

When the parts have been suitably joined the current supplied to the electro-magnets is removed by moving the switches **7** and **8** to the "off " position to enable the members **9** and **10** to be pivoted upwardly to the inoperative position, in which position the member **10** is shown in FIG. **1**, to enable the joined parts of the documents to be removed from the surface.

Many alternative arrangements are envisaged and in particular, it is envisaged that the clamping members may be free-standing members manually placeable on the supporting surface. In this case a locating member having therein a slit corresponding to the slit in the supporting surface may be provided. The locating member in operation is placed on top of the parts before the clamping members and is located relative to the surface by means of dowels or the like so that to be joined the slit therein is aligned with the slit in the supporting surface. The slit in the locating member serves as a guide for a manually held cutting implement, or alternatively the slit may be wide enough to enable the two parts to be joined together by use of an adhesive tape without removing the locating member from the surface.

I claim

1. Apparatus for trimming and assembling parts of a document, comprising: a support member having a surface on which said parts are positioned, said surface having a slit therein to accept a cutting implement; magnetic means mounted on said support; and a pair of clamping members each movable to an operative position adjacent said surface, each on a respective side of said slit; said magnetic means attracting said clamping members when said parts of a document are positioned on said surface between said surface and said clamping members; whereby said parts are held against undesired movement; a carriage slidably mounted on one of said clamping members, said carriage carrying a cutting implement which is urged into engagement with said slit against a resilient bias; means sliding said cutting implement longitudinally along the length of said slit to cut said parts of a document overlying the slit so that the severed peripheral area of said document parts may be removed, leaving the two parts in abutting relationship along a line on which said parts are to be joined.

2. Apparatus as claimed in claim **1**, wherein said magnetic means comprises two sets of electro-magnets positioned one set on each side of said slit.

3. Apparatus as claimed in claim **2** in which each set comprises four electro-magnets spaced along the length of the slit.

4. An apparatus according to claim **1** further comprising means to pivot said pair of clamping members between said operative position and an inoperative position clear of said surface.

5. Apparatus as claimed in claim **2**, wherein each clamping member carries a soft iron element which is aligned with an associated electromagnet when said clamping member is in the operative position.

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