Dec. 19, 1944. A. LARMUTH 2,365,569

APPARATUS FOR DETACHING THE EDGES OF SHEET PAPER AND LIKE MATERIALS

Filed Oct. 23, 1943 2 Sheets-Sheet 1

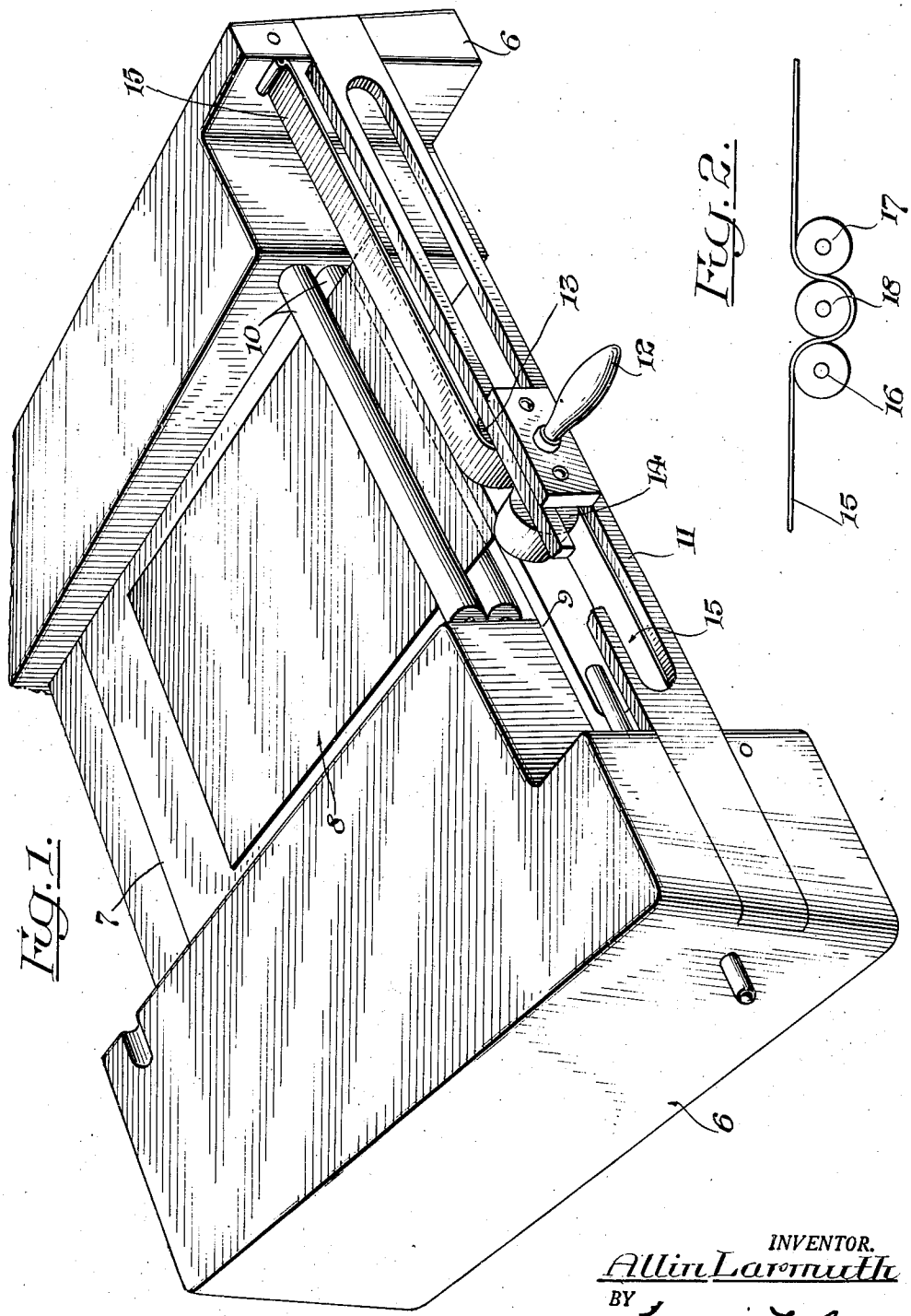


Fig. 1.

Fig. 2.

INVENTOR.
Allin Larmuth
BY Francis E. Boyce
Attorney

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Fig. 3.

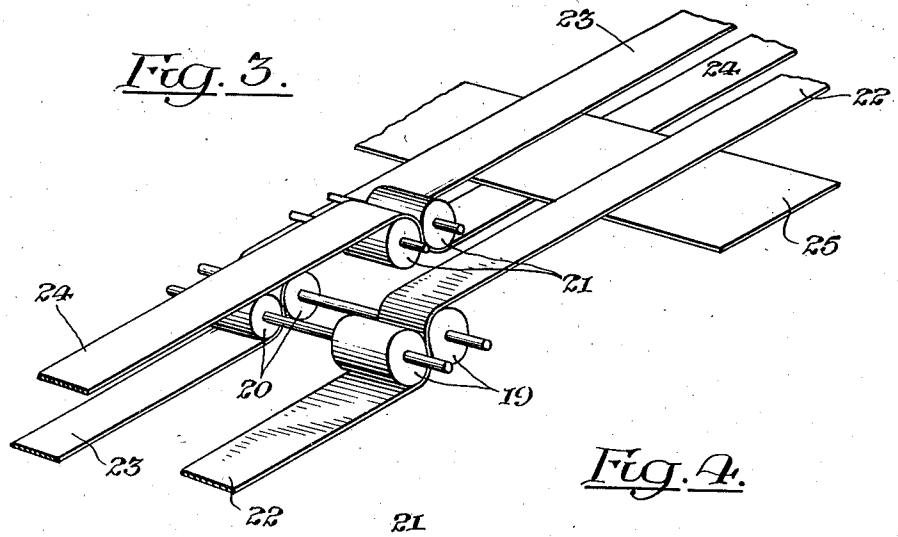
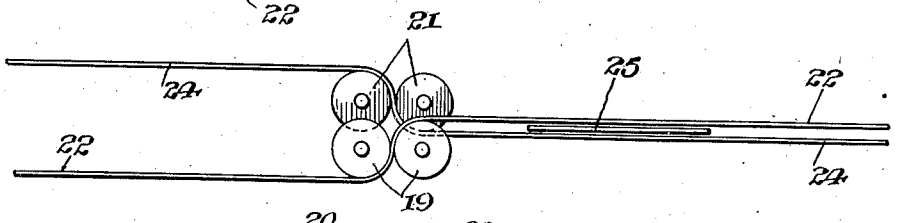


Fig. 4.



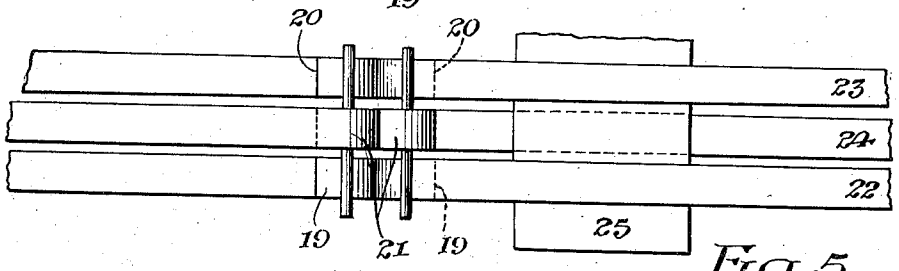
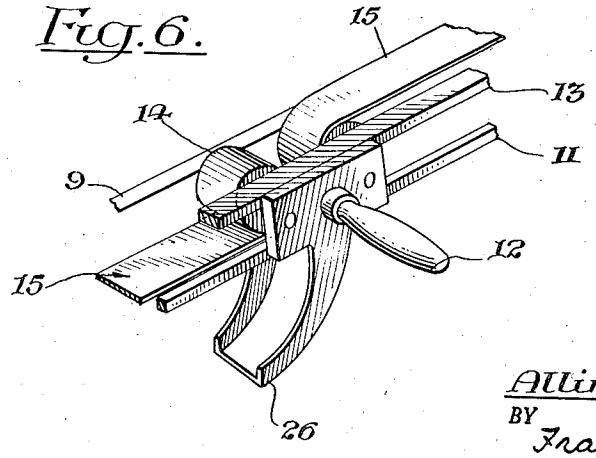


Fig. 5.

Fig. 6.



INVENTOR.
Allin Larmuth
BY
Francis E. Boyce
Attorney

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UNITED STATES PATENT OFFICE

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APPARATUS FOR DETACHING THE EDGES OF SHEET PAPER AND LIKE MATERIALS

Allin Larmuth, Broad Oak Park, Worsley, England

Application October 28, 1943, Serial No. 508,049
In Great Britain November 4, 1942

5 Claims. (Cl. 164—84.5)

This invention has reference to apparatus for detaching the edges of sheet paper and like material and has for its object to provide a simple and convenient means whereby the edges of sheets of paper and like material may be quickly, easily and exactly detached, the invention being more particularly designed for detaching successive edges from one end of a sheet which is advanced step by step.

According to this invention the edges of sheet paper and like material are detached by trapping the edge to be detached between a flexible holding member and a movable rigid member as the latter is moved along the paper from one side of the sheet to the other, to pull the paper up or down against an edge which severs the strip.

The invention is more particularly set forth with reference to the accompanying drawings in which—

Fig. 1 is a perspective view of one form of apparatus made according to the invention.

Fig. 2 is a side elevation of part of the machine showing a modified construction.

Fig. 3 is a diagrammatic perspective view of another form.

Fig. 4 is a side elevation thereof, and

Fig. 5 is a plan, and

Fig. 6 is a perspective detail.

Referring first to Fig. 1 of the drawings, a base 6 of any convenient shape or construction is provided having a bed 7 for the paper 8 to be cut, the front edge 9 of which bed may be slightly upstanding, or may be a sharp blade-like or serrated edge, the front edge 9 if upstanding is only very slightly so, and may be flush, and is not intended to do more than provide an edge against which the paper can be pulled to sever it, as it must not impede the forward feed of the paper. Upon the bed 7 are rollers 10 between which the paper passes and these rollers, by means of mechanism not part of this invention, are used to advance or assist the advance of the paper, to bring forward the edge to be severed. The feeding or advancing of the paper may be effected automatically at the end of each cut, or it may be controlled independently. In front of the bed 7 is a guide 11 in which a frame is mounted so that it can be moved from side to side by a handle 12, and this frame carries two rollers 13 and 14. In the line of movement of these rollers is a flexible strip or band 15 or a series of parallel flexible members which all act as a strip or band, anchored in the base 6 at both ends but being at different levels at the two ends and long enough to pass over one roller 13 and under the other rollers 14 as shown; the inside edge of the flexible strip or band 15 is as close as possible to the edge 9 at the front of the bed 7. The anchoring of the right hand end of the strip or band is slightly above the level of the bed 7 and the diameter of the rollers 13 and 14 is such that the strip or band is kept above the bed 7 when it rests on the top of the roller 13.

In Fig. 2 a modification is shown in which there are three rollers, over two of which, namely, 16 and 17 the flexible strip or band 15 passes, and one, 18 under which it passes; in this arrangement the flexible band or strip is secured at the same level at both ends and the rollers 16 and 17 are also of sufficient diameter to hold up the flexible band or strip.

When the apparatus is to be used and considering first Fig. 1, the handle 12 is pulled to the left where there is a recess to receive the rollers and the flexible band or strip is thus above the bed level for the full width of the bed. The paper 8 is placed on the bed, several sheets may be laid on top of one another, and are advanced between the rollers 10 till the paper projects the desired distance as shown in dotted lines in Fig. 1. The handle is then moved across to the other side, the rollers being received in the recess there, and as the rollers move across, the paper is nipped between the roller 13 and the flexible band or strip and is thus pulled down on to the edge 9 thus clearly detaching the strip of paper which falls clear.

In Fig. 6 a modification is shown comprising a guide 26 mounted on the frame and curving downwardly therefrom below the roller 13, and into this guide the detached strip of paper passes and is guided downwardly. An envelope may be mounted on the end of the guide so that the paper can be fed into it, the envelope being removed at the end of the severing movement.

When using the modification shown in Fig. 2 a strip is severed by the movement of the handle in both directions. It will be understood that after each severance the paper is brought forward into position for the next detachment and in so doing is brought under the flexible band or strip, consequently by using the modification shown in Fig. 2 the paper is moved under the flexible band or strip each time the rollers arrive at the end of their movement.

In Figs. 3, 4 and 5, respectively, a perspective side elevation and plan of a further arrangement are shown in which there are three sets of rollers, 19, 20 and 21 with flexible bands or strips 22, 23, and 24. In this arrangement the flexible band or

strip **24** passes over and under the rollers **21** in the opposite direction to **22** and **23**, thus providing as shown at Fig. 4 for different levels for the flexible bands or strips between which the paper **25** passes, thus, by using this arrangement three parallel strips of paper can be detached at the same time at one movement of the rollers which are arranged all to be moved together by one handle.

It will be appreciated that in this arrangement the right hand edge of the flexible bands or strips **24** and **23** serve the same purpose as the edge **9** in Fig. 1.

What I claim as my invention and desire to secure by Letters Patent is:

1. Apparatus for severing sheet material, comprising a base having a cutting edge over which the material is conducted, a plurality of rollers mounted for reciprocatory movement adjacent to said edge, and a flexible strip secured at its ends on said base and passing over one roller and under another in such manner as to trap the leading end of the material to be detached between said strip and one of the rollers as the latter are moved along said cutting edge whereby the material to be severed is pulled at an angle to the horizontal plane of the sheet against said cutting edge thereby to sever the leading end from the rest of the sheet.

2. Apparatus for cutting sheet material as set forth in claim 1, the rollers comprising a pair of rollers mounted in a frame movable bodily along the cutting edge, the base having recesses extending laterally beyond the opposite side edges of the material to be cut thereby to permit said frame and its rollers to pass beyond the material at the opposite ends of the path of movement of the frame, one end of the flexible strip being above and the opposite end below the level of said cutting edge whereby the leading end of the material is pulled downward during the travel of the rollers toward the higher end of the flexible strip.

3. Apparatus as set forth in claim 1, said rollers being mounted in a movable frame having a guide for receiving the severed end of the material.

4. Apparatus as set forth in claim 1, said rollers comprising a plurality of sets of rollers mounted for movement in parallel paths, each set having its own flexible strip, adjacent strips being alternately above and below each other thereby to provide a passageway between the strips for the passage of the material to be severed, the adjacent edges of any two strips mutually acting to sever the material.

5. Apparatus for severing sheet material, comprising a base having an edge over which the material is conducted, a set of three rollers movable together along said edge, and a flexible strip disposed in contiguous relation to said edge and secured at its opposite ends on said base at a level above the edge of the base, said flexible strip passing alternately over and under the successive rollers of the set.

ALLIN LARMUTH.