

Oct. 10, 1939.

O. T. GYLLECK ET AL

2,175,461

PAPER TRIMMING MACHINE

Filed July 20, 1938

2 Sheets-Sheet 1

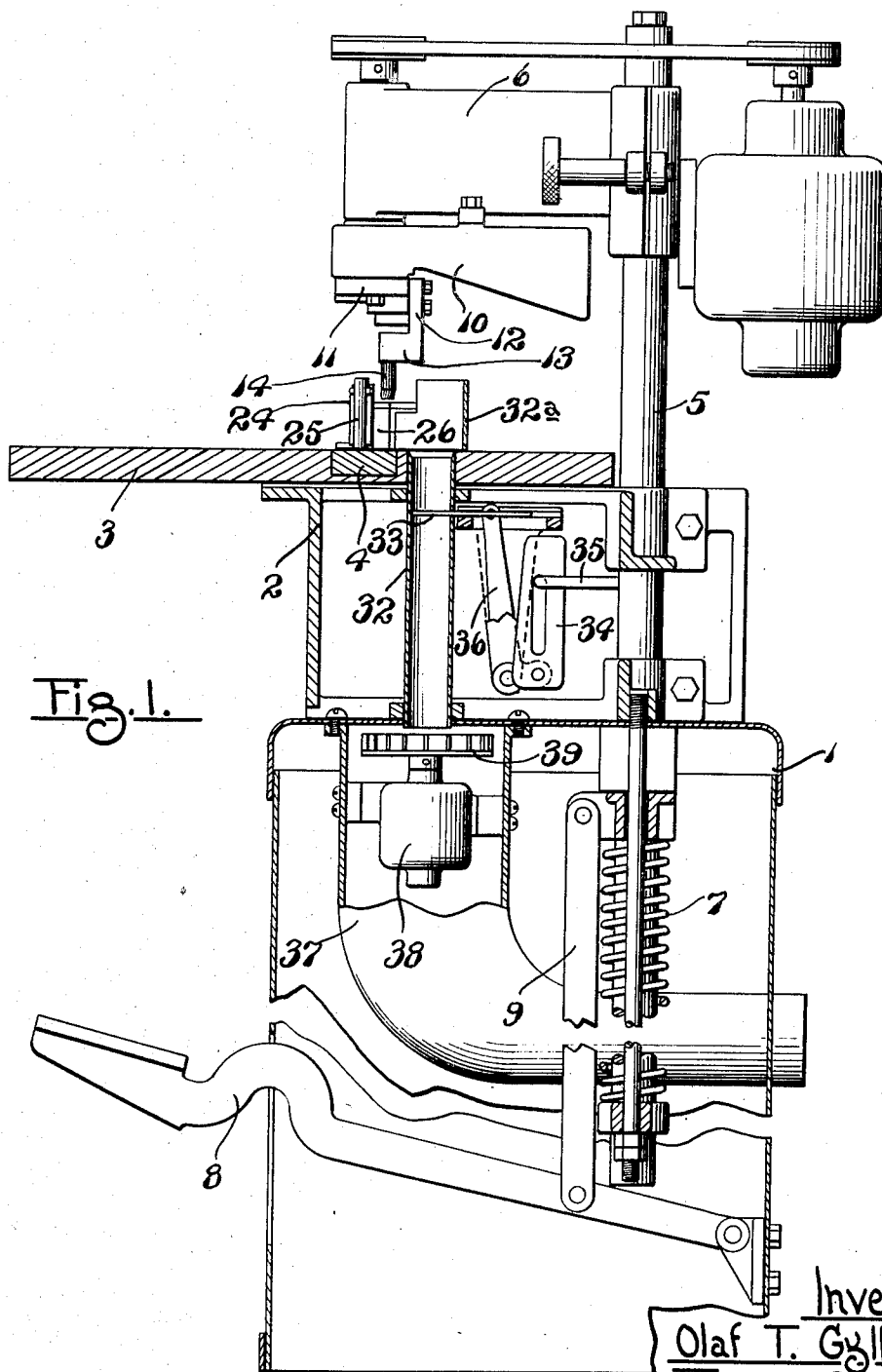


Fig. 1.

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2 Sheets-Sheet 2

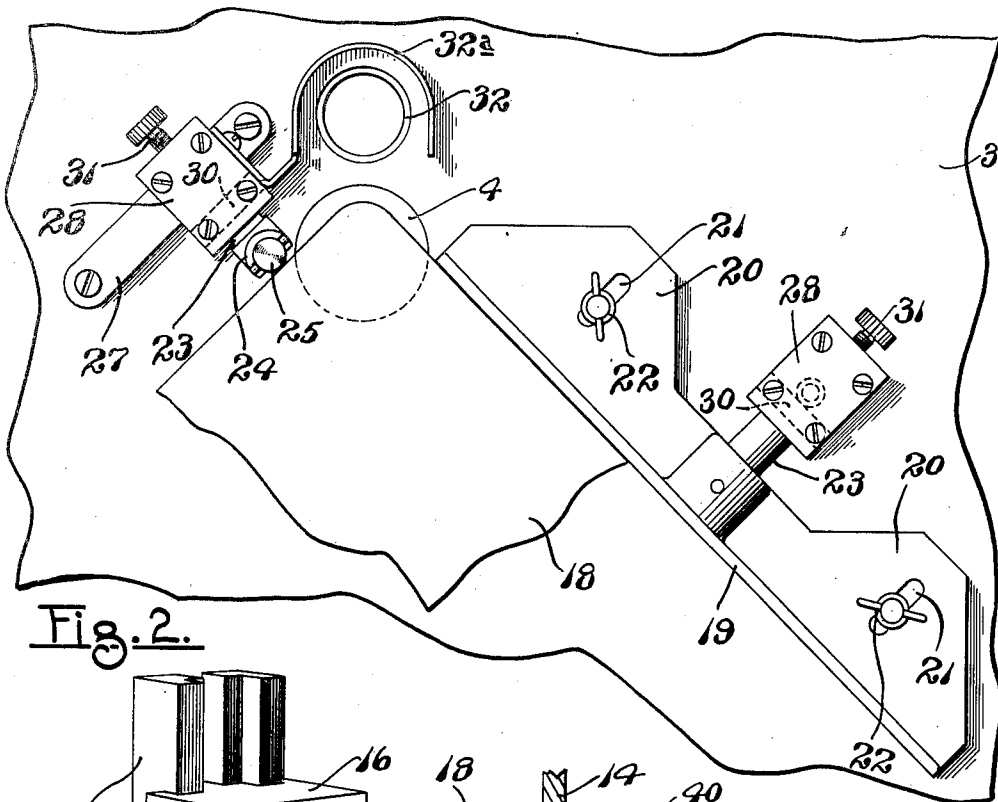


Fig. 2.

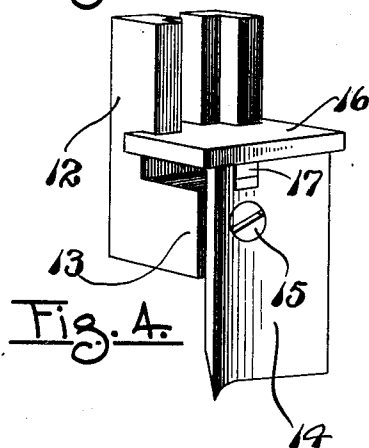


Fig. 4.

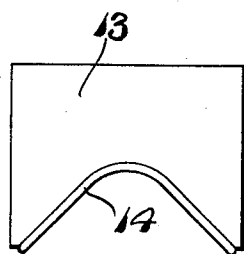


Fig. 5.

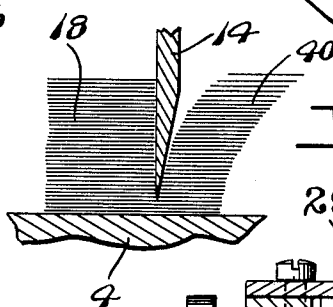


Fig. 6.

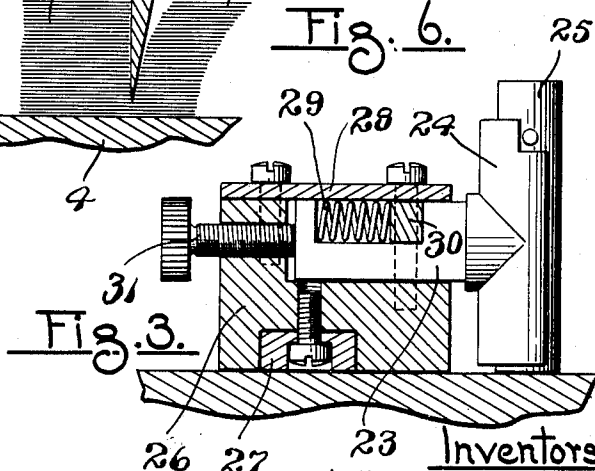


Fig. 3.

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UNITED STATES PATENT OFFICE

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PAPER TRIMMING MACHINE

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Application July 20, 1938, Serial No. 220,210

5 Claims. (Cl. 164—47)

This invention relates to paper trimming and is more particularly concerned with novel construction and arrangements of attachments whereby packs of paper sheets may be effectively trimmed, particularly at their corners so as to give the same a rounded or any other desired character of corner which may be wanted, the attachments being available for application to paper drilling machines of the general type and character shown in the pending application Serial No. 180,818, filed December 20, 1937, or to any other type of machine on which cornering work is to be done.

The present invention has for its primary object and purpose an attachment to be applied to the head of the machine, which attachment will serve to trim the paper as the head is moved to the paper and through the same. Other attachments are for application to the table upon which the packs of paper sheets are located, to thereby locate and properly gauge the sheet packs with reference to the trimming cutter. And one object of the invention, in connection with the gauge means is to provide a very accurate means of adjustment for the gauge so that the trimming of the paper may be accurately performed.

An understanding of the invention for the attainment of the objects stated, as well as many others not at this time enumerated, may be had from the following description, taken in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation and vertical section through a paper drilling machine equipped with our invention.

Fig. 2 is a fragmentary plan view of the table with the gauge attachments applied thereto.

Fig. 3 is a fragmentary enlarged section through the micrometer gauge adjusting mechanism.

Fig. 4 is a perspective view of the paper cutting assembly.

Fig. 5 is an under plan view thereof, and

Fig. 6 is an elevation illustrative of the trimming of a pack of paper sheets.

Like reference characters refer to like parts in the different figures of the drawings.

We have preferred to show and describe our invention as particularly applied to a drilling machine; it is to be understood, however, that this is done merely for illustration purposes and our invention may be applied to any type of machine without in any way departing from the spirit thereof.

The paper drilling machine, to which our invention is applied by way of illustration, includes

a lower support and housing 1 above which is a supporting casting 2 which carries a horizontal table 3. The table 3 is recessed at a point below the lower end of where the paper drill ordinarily is vertically operated, in which recess is a wood block 4, shown as of circular outline, though the form of the block is not material. Vertical posts 5, mounted for vertical reciprocation on the lower supporting part of the machine carry a drill head 6 which extends from the post horizontally over the block 4, and on which the usual drill spindle, electric motor for driving the same and interposed belt are mounted, as shown, but which form no part of the present invention. The posts 5 with the connected head 6 normally occupy an upper position under the influence of compression springs 7, but may be moved downwardly to a lower position by operating a foot pedal 8 through an interposed link 9 connecting them. It is of course to be understood that the means of moving the posts 5 and the attached drill head 6 in a downward direction is not a part of the present invention, and many times in practice the power operated means shown in the previously identified application will be used.

At the under forward side of the drill head 6 a casing 7 is bolted, below which a block 11 is secured, preferably for forward and rearward adjustment in accordance with the disclosure in a pending application, Serial No. 218,552, filed July 18, 1938. The cutter assembly includes a member 12 (Figs. 1 and 4) which may be detachably adjustably mounted on the block 11, being adjustable a short distance vertically and held in place by releasable clamping screws. The lower end of the member 12 has a forward projection 13 with a substantially V-shaped vertical recess in its front face, in which a cutting blade 14 of substantially V-shape, but curved at its apex as best shown in Fig. 5, is detachably secured by the screw 15. The upper end of the cutter comes against a horizontal shelf 16 which has a locating and holding lug 17 extending from its lower side into a notch in the upper edge portion of the cutter 14, thereby rigidly holding the cutter in place with reference to its carrying member 12. It is to be understood that the cutter 14 at its lower edge is sharpened and has an upwardly and rearwardly extending bevel, so that the parts of the paper cut from the paper pack at any corner thereof are more or less projected to the rear.

The paper sheet pack 18 will consist of a plurality of rectangular sheets of paper located one over the other in superimposed relation. It being desirable that a corner of the sheet pack be lo-

cated over the wood block 4, a gauge is detachably secured to the table to one side of said block, extending therefrom at an angle to both the sides and edges of the table 3. This gauge comprises a bar 19 against which one side of the pack 18 is adapted to be brought. The gauge bar 19 has horizontally extending wings 20 at its lower edge, with slots 21 therein at right angles to the length of the bar 19 through which threaded bolts from the table extend upwardly, and with wing nuts 22 screwing onto said bolts, whereby a range of adjustment is permitted for the gauge and by means of which the gauge may be clamped securely in any adjusted position on the table. From the central portion of the gauge at the end edge of the sheets at right angles to the side edges of the sheet which bear against the gauge 19. Said end gauge is similar to the side gauge, insofar as the part bearing against the paper is concerned, shown in Patent No. 1,928,383. That is, a vertically positioned gauge bar 25 having a flat side is carried in a vertical carrier 24 (Fig. 6) from which the rod 23 extends horizontally.

The structure associated with the rods 23 on both gauges is substantially the same. A block 26 of metal is secured to the table 3. With one of the gauges, the gauge 19, said block is secured by any suitable screw or screws passing upwardly through the table into the block 26. With the other gauge the under side of the block is slotted to receive a bar 27, said bar 27 is screw connected to the block (Fig. 3), and the ends of the bar 27 are connected to the table 3 by screws passing through its ends, as shown in Fig. 2. A cover plate 28 is located over and secured by screws to the upper side of each of said blocks 26. Said blocks are recessed underneath the plate 26 to receive the bars 23. The bars 23 in their upper sides are provided each with an elongated slot or recess in which a coiled compression spring 29 is located, bearing at its front end against a fixed cross bar connected with the block 26 and at its rear end bearing against the rear end of the recess in the bar 23, the tendency of the spring being to move the bar 23 inwardly until stopped by engaging against the bar 30. A micrometer adjusting screw 31 is threaded through the rear end of the block having its inner end engaging against the end of the bar 23, and by turning said screw the gauges may be adjusted accurately to a desired position. It is evident that the gauge bar 19 may be first adjusted by loosening the wing nuts at 22 and then tightening them to less than a clamping stage so that the wings 20 may slide underneath and after the proper position of adjustment of the gauge 19 has been obtained by operating the screw at 31, the wing nuts 22 are then turned to tightly clamp the gauge in position. The pack of paper sheets is located with the cover which is to be trimmed over the wood block 4, bringing both gauges in position so that the proper amount of material is cut off the corner of the stock. The adjustment of the gauges is simple and can be performed readily and quickly.

Back of the block 4 the table 3 has a vertical circular opening into which the upper end of a tube 32 extends, said tube extending downwardly through the support 2. A guard 32a of sheet metal is located back of, around and to each side of the upper end of the tube 32 and projects above the table 33 whereby the parts of the paper cut from the pack of sheets cannot pass rearwardly beyond said guard. A plate 33 mounted

for sliding movement enters at the rear side of and extends across the tube 32 when the drill head 6 is in upper position. It is withdrawn when the drill head and the attached cutter are moved downwardly in accordance with the structure including the vertically slotted weight 34, the rod 35 carried by one of the posts 5 which extends into the slot of said weight, and the pivoted lever 36 interposed between the slide plate 33 and said weight. This structure need not be specifically described as it is fully outlined in the application Serial No. 218,552, above noted. The plate 33 is to safeguard against the dropping of undesired articles through the tube 32. The tube 32 at its lower end communicates with an elongated fan housing 37 in which an electric motor 38 to drive a suction fan 39 within the housing is mounted and which, operating when the machine is used, draws the severed portions of the paper into a suction draft of air caused by the fan to move downwardly through the tube 32 and be ejected at the outlet end of the fan housing 37.

It is evident that the corners of a paper sheet pack such as indicated at 18 may be very quickly and effectively trimmed with an immediate carrying away of the severed portions, shown at 40 in Fig. 6, through the tube 32 and thence out at the end of the fan housing 37. The gauges described and their means of accurate adjustment insure a proper location of a paper sheet pack with reference to the trimming knife which is brought downwardly thereagainst. The structure is very effective, relatively simple and has been especially satisfactory in use.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

We claim:

1. In combination, a horizontal table, a gauge bar located over said table having an inner gauge face in a vertical plane, horizontal wings extending from the lower edge of said gauge bar, said wings having slots therein substantially at right angles to the length of the bar, means extending through said slots for releasably holding said gauge bar in adjusted position, spring means associated with the gauge bar normally tending to move the bar diagonally rearwardly toward the rear and side edges of the table and in a direction at right angles to the length of the bar, and manually operable adjusting means for adjusting the bar in an opposite direction, as specified.

2. In combination with a horizontal table, a gauge bar located thereover having a gauge face located in a vertical plane, wings extending at right angles from the lower part of the gauge bar and bearing against the upper side of the table, said wings having slots therein at an angle to the length of the gauge bar, means extending through said slots for releasably holding said gauge bar in adjusted position, a rod connected with and extending from the gauge bar, a housing in which the rod is slidably received, spring means located within said housing acting on said rod to move the gauge bar in one direction, and an adjusting screw threaded through the housing against the end of said rod to move the same and the connected gauge bar a predetermined distance in the opposite direction.

3. In a device of the class described, gauge means to locate a pack of paper sheets in a predetermined position including, a gauge bar, a rod connected with and extending from said bar, a housing in which said rod is slidably received,

spring means within said housing acting on said rod to move the gauge bar in one direction, and an adjusting screw threaded through the housing against the end of said rod to move the same and the connected gauge bar a predetermined distance in the opposite direction.

4. In combination, a horizontal table, gauge means thereon adapted to locate a corner of a pack of sheets of paper in a predetermined position, a cutter disposed in a position to cut the corners of said pack, means for mounting said cutter for vertical reciprocation, a tube having its upper end extending into said table at a point back of the corner of the paper sheet pack to be cut, means for creating a suction in said tube, said cutter having an upward and rearward bevel whereby when the paper is cut on downward movement of the cutter the parts severed are directed toward said tube and guard.

5. A device of the class described comprising, a horizontal table, two gauges mounted on the top thereof to locate the corner of a pack of paper sheets in a predetermined position, one of said gauges including an elongated bar having a vertical face thereon adapted to engage one side of said pack, and the other of said gauges including a vertical bar adapted to have substantially a point contact with each sheet at another edge of said pack, a rod connected with and extending from one of said bars, a housing in which the rod is slidably received, means in said housing to force said bar in one direction, and an adjusting screw threaded through the housing engaging said rod to move the same and the connected bar in the opposite direction.

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