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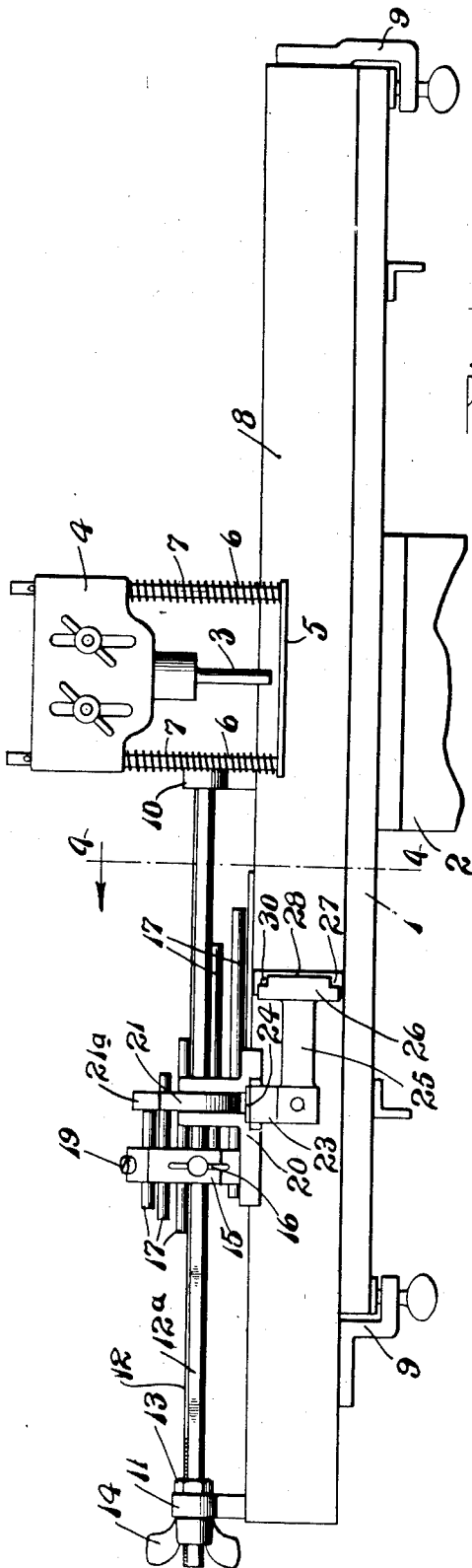
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GAUGE STOP FOR PAPER DRILLS

Filed Jan. 25, 1932

2 Sheets-Sheet 1



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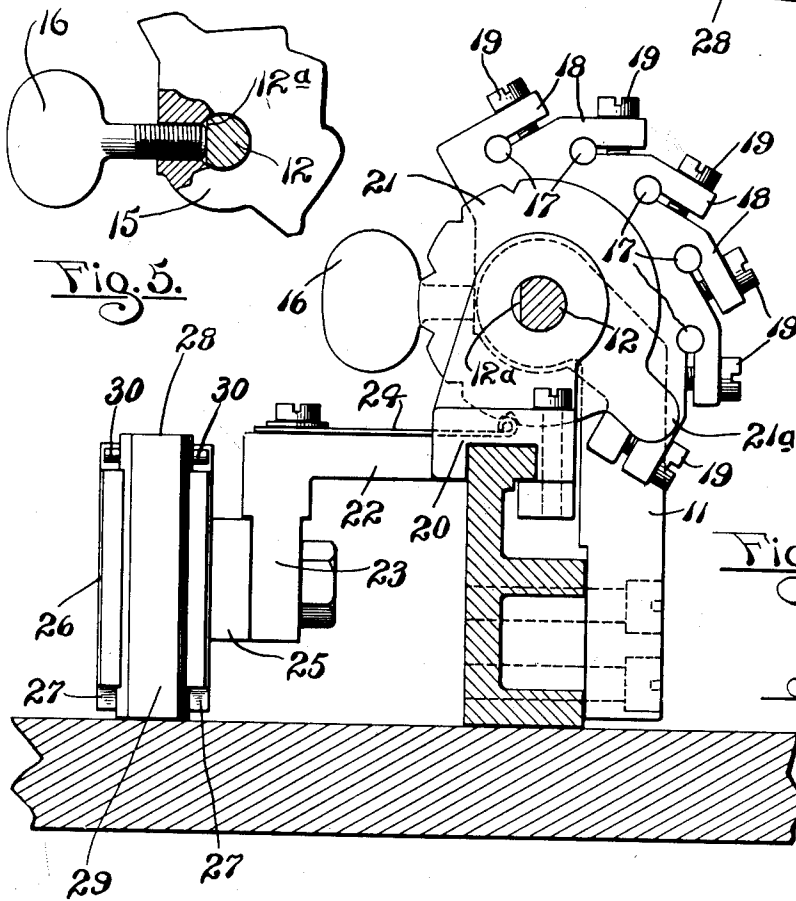
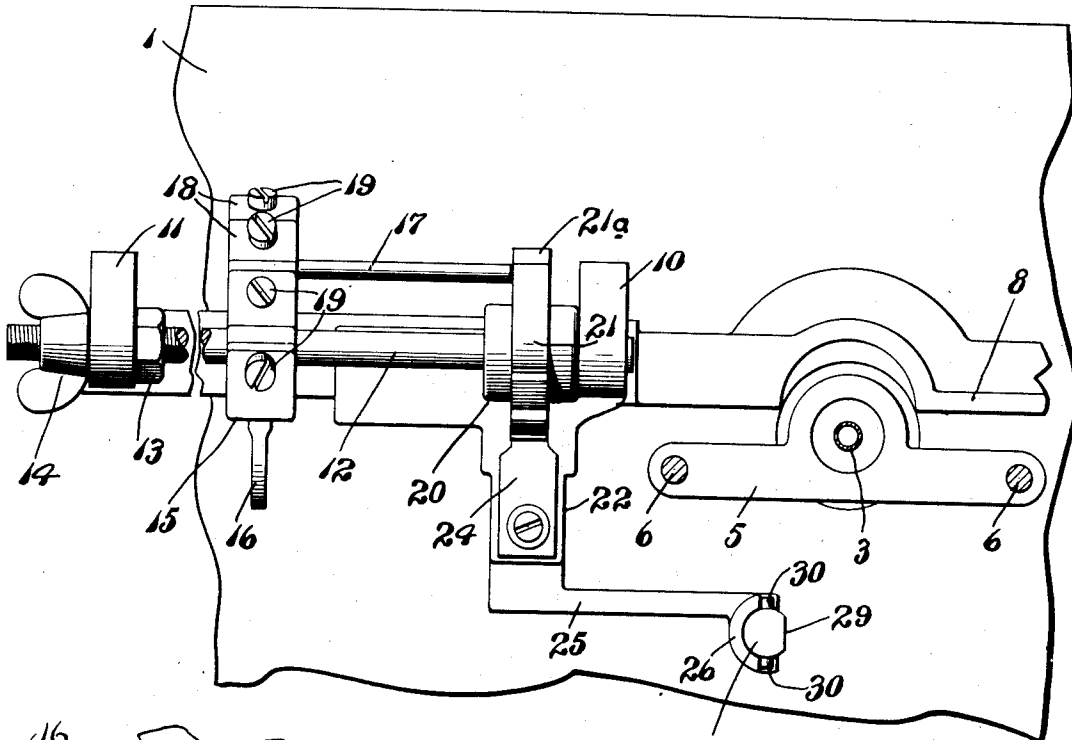


Fig. 3.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE

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GAUGE STOP FOR PAPER DRILLS

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10 Claims. (Cl. 164—59)

This invention relates to a gauge stop for paper drills and is concerned primarily with an adjustable side stop adapted to be used in conjunction with an adjustable back stop over a table upon which the paper to be drilled is located.

In drilling paper several sheets or a package thereof is placed upon a supporting table having a horizontal upper surface, and the back edges of said sheets are placed against a back gauge extending upwardly above the table so as to properly locate all of the back edges of the paper sheets in the same vertical plane; and the back gauge is adjustable to different positions so as to orient the drill at any desired distance from said back edges of the paper. It is also desirable that one of the side edges of the plurality of sheets of paper be likewise properly located with respect to the drill, and our invention is directed to the provision of a very novel and very quickly adjusted and arranged side gauge which may be shifted to different positions for different widths of sheets of paper or the like, or for drilling holes in sheets of the same width at different places with respect to the side edges of the paper, all of which will be clearly understood from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a front elevation of the gauge construction of our invention.

Fig. 2 is a plan view thereof.

Fig. 3 is a fragmentary enlarged plan view better showing the details of the construction.

Fig. 4 is a transverse vertical section substantially on the plane of the line 4—4 of Fig. 1, looking in the direction indicated by the arrow, and

Fig. 5 is a fragmentary view, partly in section, of the means for positioning and clamping an adjustable member of the gauge.

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

The table 1, upon which the sheets of paper to be drilled are located, is positioned horizontally and carried by a suitable support, fragmentarily indicated at 2, and which extending upwardly likewise supports the drill mechanism, a part only of which is shown. Said mechanism includes a drill 3, carried on a suitable supporting head 4, and in practice usually driven by an electric motor, together with a presser foot comprising, a horizontal plate 5 mounted at its ends at the lower ends of vertical rods 6 which extend upwardly through the head 4 and have a slidable movement thereon, being normally thrust downwardly by coiled springs 7

In practice, the paper to be drilled is supported on the table and it is preferable to have the supporting head 4, which carries the drill, mounted stationary and to move the table vertically relative to the drill although the opposite movement of these parts could be used without altering the result.

The paper is supported on the table 1 beneath the foot 5 and when the table is raised the foot first engages the paper and continued upward movement of the table compresses the springs 7 permitting the foot 5 to ride upwardly on the surface of the paper and the drill then enters the paper to produce the hole and on the reverse movement of the table the foot 5, by action of the springs 7 strips the paper from the drill. This construction is not novel in the present invention but is the conventional type of paper drill.

A back gauge 8 having a vertical front face is adjustably secured on the table 1 by brackets 9 and it may be moved to various positions between the front and rear edges of the table.

Two spaced apart supporting brackets 10 and 11 are secured to the back gauge 8 through which a rod 12 passes and which has a limited adjustment longitudinally thereon. This adjustment is provided by threading the outer end of the rod 12 and mounting thereon a lock nut 13 at one side of the bracket 11 and a thumb nut 14 at the opposite side, whereby the side stop gauge mechanism which is carried by the rod 12 may be adjusted as a whole a limited distance.

A member 15 is adjustably mounted on the rod 12 for movement lengthwise thereof and is held in any position to which moved by a set screw 16. The set screw 16 preferably has a flat end which engages a flattened surface 12a extending longitudinally of the rod 12, which provides means for accurately positioning and clamping the member 15 longitudinally relative to the shaft 12. The member 15 is substantially arc-shaped, and carries a plurality of horizontal rods 17 which are adapted to be clamped between the member 15 and the integral fingers 18 thereon, through each of which a set or clamping screw 19 passes as best shown in Fig. 4; and it is evident that by loosening any screw 19 the rod 17 associated therewith may be longitudinally shifted and adjusted to a desired position with respect to the member 15 on which it is mounted.

A support slide 20 is slidably mounted at the upper edge of the back gauge 8 and has two spaced apart upwardly extending ears between

which a disc 21 is rotatably mounted on the rod 12. The disc 21 has a short arm 21a extending radially from one side thereof. A horizontal bar 22 integral with the slide member 20 extends therefrom in front of the back gauge and terminates in a downwardly extending arm 23. A spring dog 24 is secured at the upper side of the arm 22 and has its free end adapted to engage any one of a series of spaced apart notches in the disc 21, as shown in Fig. 4, to thereby releasably hold the disc in a desired position, said positions being interposed in the path of movement of the end of a rod 17.

A supporting arm or bracket 25 for the side gauge is secured to the lower end portion of the arm 23 and is adapted to be secured at either side thereof. This arm 25 extends horizontally substantially parallel to the back gauge 8. At its free end it terminates in a vertical socket member 26, formed as a part of a cylinder and having a vertical guide for the gauge member which contacts against the side edges of the paper. The member 26 at both its upper and lower ends and at its free edges is notched providing notches or recesses 27.

The immediate gauge member 28 is of cylindrical form flattened at its outer side to provide a vertical face 29, and at its upper end carries oppositely extending pins 30 adapted to be received in the notches 27 at the upper end of the member 26 (see Fig. 4).

The gauge member 28 has a loose fit in its guide 26 and will always rest at its lower end on the upper side of the table irrespective of slight irregularities in the surface of the table, and said member is held against rotative movement by the pins 30. If desired to locate the arm 25 on the side of the arm 23 opposite to that shown in Fig. 4, it is very readily done by disconnecting said arm and reversing it in position, first removing the gauge member 28 and reinserting it at its guide 26 after the arm has been secured in its new position. It is for this reason that the notches 29 in the gauge guide 26 appear at both ends of the guide.

The object of providing means for reversibly mounting the arm 25 carrying the side gauge 28 is to vary its position laterally with respect to the back gauge 8. It is often desirable to drill a hole very close to the side edge of the paper and when so doing the side gauge 28 must be located in a position to stop the side edge of the paper very close to the drill and in some positions of the back gauge 8, and if the side gauge were rigidly fixed, the side gauge would be struck by the presser foot 5. With the present reversible construction of the arm 25 the side gauge 28 may be moved to stop the side edge of the paper as closely to the drill as desired and if in one position it interferes with movement of the presser foot 5 then it may be reversed to its other position in which it will be clear of said presser foot.

The member 15 which carries the rods 17 may be roughly adjusted on the rod 12 to desired position and then secured in such position by tightening the screw 16. Then by turning the disc 21 to desired position such that the arm 21a will strike against the end of a selected rod 17 when the slide member 20 carrying the gauge and the disc 21 is moved to the left (in Fig. 1), the gauge may be approximately located in a selected position whereby the side edges of paper placed on the table underneath the pressing plate 5 will bear against the flat vertical face 29 of the gauge member 28. Close or fine adjustment may be

effected by loosening the lock nut 13 and turning the thumb nut 14 and the exact position of the gauge secured.

It is apparent that the plurality of rods 17 carried by the member 15, in conjunction with the control disc 21 which governs the position of the slide member 20 carrying the gauge with respect to the said rods, permits a great many positions of the gauge for any one position of the rod carrying member 15, and that with this construction of side gauge a very rapid change or adjustment of position of the side gauge may be obtained whenever needed or desired, many times without releasing the member 15 and changing its position on the rod 12.

It is to be understood that this gauge is particularly adapted for use where a large quantity of paper is to be drilled and that a comparatively small pile of paper is drilled at each operation and the operation repeated many times until all of the paper has been operated upon. With the previous types of gauges and where it is desired to drill several holes at different locations in the paper it has been necessary to first operate upon all of the paper to drill holes at one location and to then set the gauge at another location and repeat the operation on all of the paper. With the present gauge the operator may place a pile of paper on the table and, by quickly shifting the side gauge as herein described, he may drill all of the holes at the different locations without removing the pile from the table and therefore all of the paper need only be handled once which is a great saving in time and expense.

The construction is very practical for the purposes for which it is designed and has proved exceptionally satisfactory in saving time in the matter of drilling paper sheets of different sizes which require different positions of said gauge with respect to the position of the drill. 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 a construction of the class described, a table, a side gauge mounted for adjustment over said table to a plurality of different positions including, a supporting arm, a vertical guide at the end of said arm and a freely slidable gauge member carried by said guide having an outer vertical surface to engage against the side edges of sheets of paper and having a lower end resting against the upper side of the table.

2. In a construction of the class described, a supporting table, a back gauge mounted longitudinally thereof, a side gauge slidably mounted at one end on said back gauge and including an arm extending in front of the back gauge, a second arm attached to the first arm and located substantially parallel to the length of said back gauge and terminating in a vertical guide, and a gauge member slidably mounted in said guide having its lower end resting against the upper side of the table, and having an outer plain surface located in a plane substantially at right angles to the plane of the forward side of the back gauge, as specified.

3. In a construction of the class described, a table, a bar carried by said table, a side gauge slidably mounted on said bar, a rod mounted on and carried by said bar longitudinally thereof, a member having a plurality of rods carried thereby adjustably mounted on the first mentioned rod, said second mentioned rods being of varying lengths and a disc mounted on the side

gauge and movable therewith, having an arm radially projecting therefrom adapted to be moved to any one of a plurality of different positions in any one of which said arm is in the path of movement of the end of one of the second mentioned rods, for the purposes specified.

4. In a construction of the class described, a horizontal table, a back gauge located longitudinally thereof, a side gauge slidably mounted on the back gauge, a plurality of stops carried on said back gauge and located in different operative positions and a selector member mounted on a side gauge movable into a plurality of different positions in each of which it engages with a different stop when moved in one direction on the back gauge.

5. A construction containing the elements in combination defined in claim 3, said first mentioned rod being mounted for a limited longitudinal adjustment on and with respect to the bar.

6. In a side gauge construction, a horizontal table and a side gauge member adjustably mounted for lateral movements with respect to sheets of paper carried on the table, said side gauge member including a vertical guide, and an immediate paper edge engaging gauge member mounted for free vertical movement in said guide and resting at its lower end on the upper side of the table.

7. In a construction of the class described, a horizontal table, a side gauge slidably mounted

to move over the table, a plurality of stops located in different operative positions, and a selector member movable with the side gauge and movable with respect to the side gauge into a plurality of different positions, in each of which it engages with a different stop when the side gauge is moved in one direction.

8. A construction containing the elements in combination defined in claim 3, combined with means for longitudinally adjusting said plurality of rods carried on the member in the direction of their lengths so as to locate the same in different positions.

9. In a construction of the class described, the combination with a table having a back gauge, a side gauge, means slidably mounted longitudinally of the back gauge and means for attaching said side gauge to said slidable means in a plurality of positions at right angles to said back gauge.

10. In a construction of the class described, the combination with a table and a back gauge, of a support adjustable longitudinally of the back gauge, a member on said support having two faces extending parallel with said back gauge and at different distances therefrom and a side gauge attachable to either of said faces whereby its distance from the back gauge may be altered.

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