Feb. 28, 1928. 1,660,929

J. W. LEE

PUNCH GAUGING MEANS

Filed June 28, 1926 2 Sheets-Sheet 1

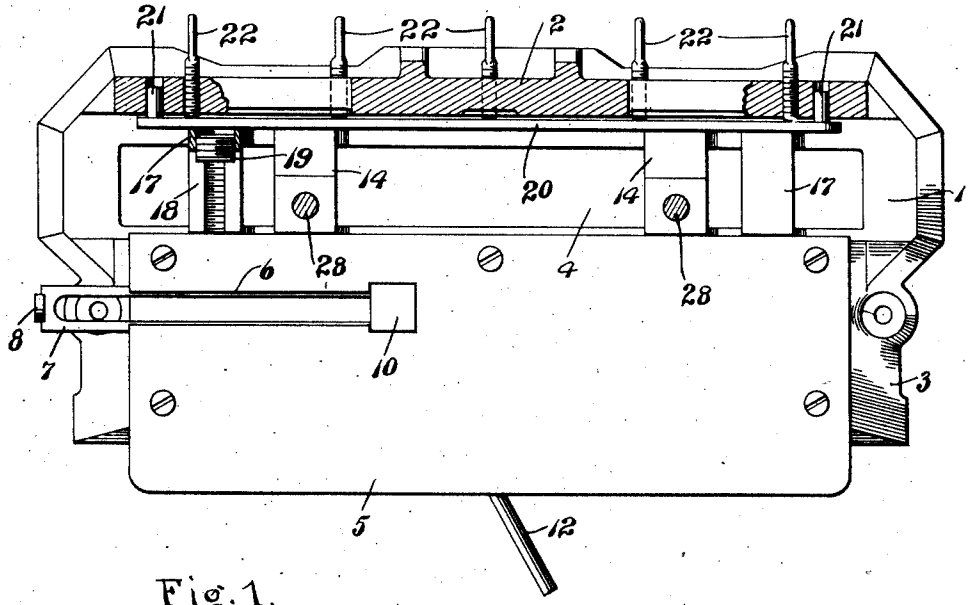


Fig. 1.

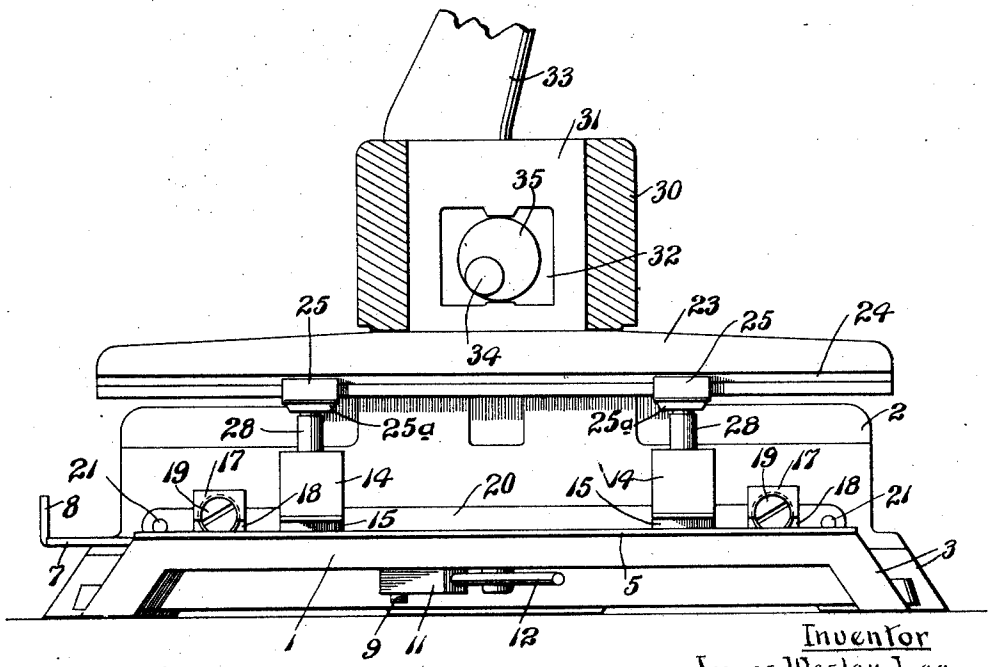


Fig. 2.

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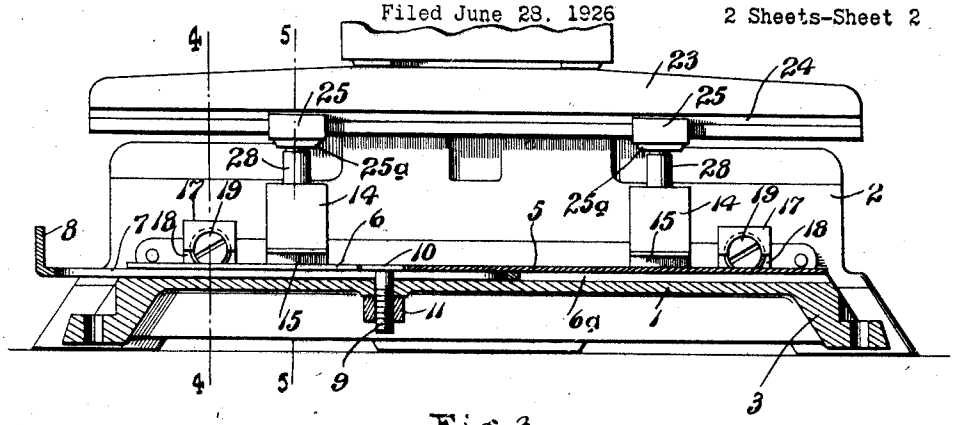


Fig. 3.

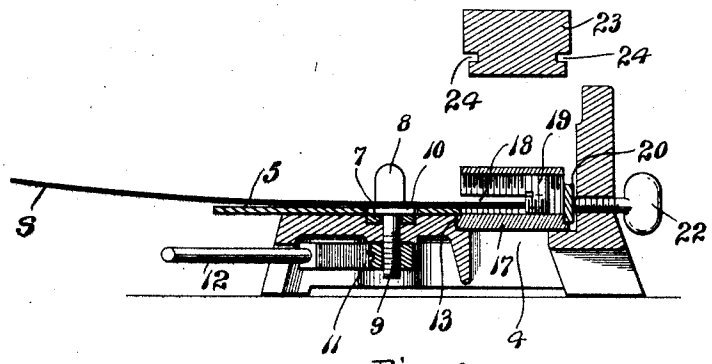


Fig. 4.

Fig. 6.

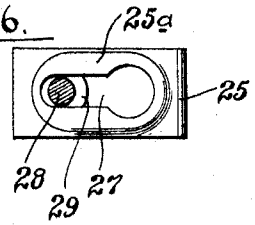


Fig. 5.

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UNITED STATES PATENT OFFICE.

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PUNCH-GAUGING MEANS.

Application filed June 28, 1926. Serial No. 119,062.

This invention relates to a punch which is useful particularly to punch holes in sheets of paper at spaced apart points so that the same may be engaged with binding posts of binders in which they are to be bound which may be engaged with posts or other devices for the purpose of holding the sheets against misplacement or the like.

The present invention is directed to means for gauging the sheets of paper so as to properly locate the holes which are to be punched therein. This requires gauges at two edges of the sheet so as to accurately locate the holes and these gauges must be adjustable for different sizes of sheets which may be punched in the device. It is a primary object and purpose of the present invention to provide simple, practical and very easily adjusted gauges of the kind specified and which can be very readily manufactured and installed in a machine. To these ends, as well as to others not at this time specifically stated, I have devised the construction described in the following description and shown in the accompanying drawings, in which

Fig. 1 is a horizontal sectional and plan view of the punch equipped with the gauge devices of my invention.

Fig. 2 is a front elevation of the punch, one part thereof being shown in section for better illustration of the construction.

Fig. 3 is a view similar to Fig. 2 except that the forwardly extending lower portion of the punch is shown in horizontal section.

Figs. 4 and 5 are vertical sections taken substantially on the planes of lines 4—4 and 5—5 of Fig. 3, and

Fig. 6 is an under plan view of the retaining device for each of the punching rods, the rod itself being shown in horizontal section.

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

In the construction of the punch, a supporting base 1 of somewhat elongated form is provided integral with which is a vertical back 2 extending upwardly from the base for a distance. The base is located a short distance above the desk or counter on which it is supported, and has downwardly turned flanges at its rear side and ends which at the corners are formed into feet indicated at 3. A longitudinal slot 4 is made in the base nearly from one end thereof to the other a short distance in front of the back 2 described. On the base a table 5 of sheet metal is permanently secured by means of screws or like suitable fastenings, the rear edge of which is a short distance in front of the front side of the slot 4 while its front edge projects somewhat in front of the supporting base 1. The plate 5 is longitudinally slotted from one end inwardly substantially one third or more of its length, as indicated at 6, underneath which a longitudinal slotted gauge bar 7 is mounted for adjustment being received in a groove 6ª made the entire length of and in the upper side of the base 1, as shown in Fig. 3. Said groove is somewhat wider than the width of the slot 6. The outer end of the bar 7 is turned upwardly at right angles making the lip 8, best shown in Figs. 2 and 3.

At the inner end of the slot 6 a substantially square enlargement is made in table 5. A threaded bolt 9 having a square head 10 passes downwardly through the slot in the gauge bar 7, the square head 10 lying in the square opening described with its upper side flush with the upper side of the table 5. A nut 11 is threaded onto the lower end of the bolt 9 and is provided with an outwardly extending rod or handle 12 so that it may be turned from in front to secure the gauge bar 6 in any position to which it may be adjusted. It is evident that by turning the handle 12, as shown in Fig. 1, in a counter clockwise direction the nut may be loosened and the bar 7 may be moved inwardly or outwardly as far as desired and then by merely moving the handle 12 in the opposite direction the gauge bar will be securely held in place. This adjustment is accomplished very easily and almost instantly and paper placed over the table 5 will have one edge thereof brought against the upturned lip 8; and each sheet of paper placed in the punch will be located with reference to the punch at exactly the same place so far as said edge of the sheet is concerned, as long as the position of the gauge bar 7 remains unchanged. For different sizes of sheets of paper the gauge bar may be adjusted, but remaining fixed in one position for sheets of the same size.

The base 1 at the front edge of the elon-

gated slot 4 therein is rabbeted providing a vertical elongated shoulder 13. Guide blocks 14 for the punches are located over the slot 4 in spaced apart relation and at their front lower corners bear against said shoulder 13. Each of these blocks is formed with a horizontal slot 15 at its front, the lower side of which is in the same plane with the upper side of the table 5. A sheet of paper placed over the table may be inserted into the slots 15 of the blocks 14. These blocks are also formed with vertical cylindrical openings 16 therethrough for guidance of the punches used therewith as later described. As many of these guide blocks may be used as desired, there being two located at spaced apart points shown in the drawings. In addition to the punch guide blocks 14 gauge blocks 17 are likewise located over the slot 4, their front ends bearing against the shoulder 13 in the same way that the guide blocks 14 bear and their rear ends being disposed in the same vertical plate with the rear sides of the blocks 14. These gauge blocks 17 are slotted horizontally from their front ends back nearly to their rear ends and the lower sides of said slots, indicated at 18, are likewise in the same plane with the upper side of the table 5. Blocks 17 are also interiorly bored and threaded so as to receive gauge screws 19 which may be adjusted to any desired position in the length of the gauge blocks 17 and against which the edge of the paper inserted into the slots 15 and 18 will engage so as to stop the sheet of paper at a predetermined position. This is indicated in Fig. 4 wherein the sheet of paper S placed over the table 5 at its rear edge is shown as abutting against the front end of the gauge screw 19.

The punch blocks 14 and the gauge blocks 17 are all held in place by a presser bar 20 bearing against the rear sides of said blocks and pressed thereagainst by set screws 22 which thread through the back 2. The presser bar 20 at each end is equipped with a pin 21 which is received in a suitable guide opening in the back 2 so as to properly locate the same. At any time it is desired to change the position of the guide and gauge blocks it is necessary merely to loosen the screws 22 whereupon the blocks 14 or 17 may be moved to the positions desired.

Directly over the punch guide blocks 14 is a punching head 23 formed at its front and rear sides with elongated horizontal grooves 24 for the slidable connection of punch carrying members 25, the same being formed of sheet metal and of substantially channel form having the edges of the flanges turned inwardly, as indicated at 26, to slidably fit the grooves 24. The under face of each member 25 is pressed downwardly forming the embossing 25[a] which is provided with a key hole slot 27. The punch is a cylindrical rod 28 having an enlarged flat head 29 which may be readily connected with or disconnected from the member 25 through the medium of the key hole slot described and fully shown in Fig. 6. The punches 28 pass downwardly into the openings 16 through the blocks 14 and are guided therein in their up and down movements.

The back 2 midway between its ends is extended outwardly and formed as a vertical guide 30 in which a vertical stem 31 attached to or formed integral with the punching head 23 is slidably mounted. This part 31 has an opening 32 through it. A handle 33 is pivotally mounted to turn about the axis of the pin 34 associated with which is an eccentric 35 received in the opening 32, it being evident that on turning the handle in one direction the head 23 with the punches 28 connected thereto is moved downwardly so that said punches pass across the slots 15 in blocks 14 and perforate any sheet S which may be located in the slots 15. By reason of the loose connection of the members 25 to the head 23, said members with the attached punches 28 may be moved and readily adjusted at the same time the guide blocks 14 are adjusted.

A sheet of paper indicated at S in Figs. 4 and 5, when placed in the device for punching is brought against the front ends of the gauge screws 19 and at an outer edge against the lip 8 on the gauge bar 7. This properly locates the sheet and then by operating the handle 33 the holes desired in the sheet are readily punched. The gauge bar 7, as previously described, may be changed in position very quickly and easily and it is also evident that the gauge screws 19 may be very quickly and easily changed being moved inward or outward as desired. This makes the punch adaptable for many different sizes of sheets of paper which are to be punched. If the gauges are set for one size, every sheet of the size punched will have openings made therein which when all of the sheets are placed together, will align so as to readily pass over binding posts and the edges of all the sheets will be even. The invention described is very practical and simple, is economically manufactured and is sure and efficient in its operation. The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a device of the class described, a table over which a sheet of paper may be placed for punching, said table being longitudinally slotted inward for a distance from one end thereof, said slot at its inner end being enlarged, a support underneath the table having a groove in its upper surface

lengthwise thereof wider than the slot in the table and lying under the same, a longitudinally slotted gauge bar mounted in said groove for slidable movement and at its outer end being formed with an upturned lip, a bolt having a flat head passing downwardly through said gauge bar and support with its head received in the enlargement at the end of said slot, the upper side of the head lying flush with the upper side of the table, a nut threaded onto the lower end of the bolt, and a handle extending outward from said nut to a point in front of the front edge of said table, substantially as described.

2. In a device of the class described, a horizontal support, a table secured thereon and slotted inwardly from one end thereof for a distance, a slotted gauge bar mounted between said table and its support at said slot in the table, said gauge bar at its end being formed with an upturned lip, a bolt passing downwardly through the gauge bar and support and having a head flush with the upper side of the table, and means connected with the lower end of the bolt and extending outwardly beyond the front edge of the table adapted to be manually operated to tighten or release said gauge bar for longitudinal movement whereby it may be adjusted to any desired position and retained in such position.

3. In a device of the class described, a horizontal support having a vertical back connected therewith, a horizontal table mounted on said support, a gauge bar adjustably mounted between the table and support at one end thereof and movable inward and outward with respect thereto and at its outer end equipped with an upwardly extending projection, means for releasibly securing the gauge bar in any position to which adjusted, punch guide blocks located back of the table between its rear edge and said back of the support, said punch blocks being horizontally slotted, gauge blocks mounted back of the table between its rear edge and back of the support, said gauge blocks also being horizontally slotted and being interiorly bored and threaded, gauge screws threaded into the gauge blocks and adjustable to any desired position in the length thereof, a presser bar located against the rear end of said punch guide blocks and gauge blocks, and set screws threaded through the back of the support against the presser bar to hold the said blocks securely in place, said punch guide blocks being adapted to guide punches to punch holes through a sheet of paper placed over a table and properly located by engagement of its edge against said projection on the gauge bar and against the front end of said gauge screws.

In testimony whereof I affix my signature.

JAMES WESLEY LEE.