

May 20, 1930.

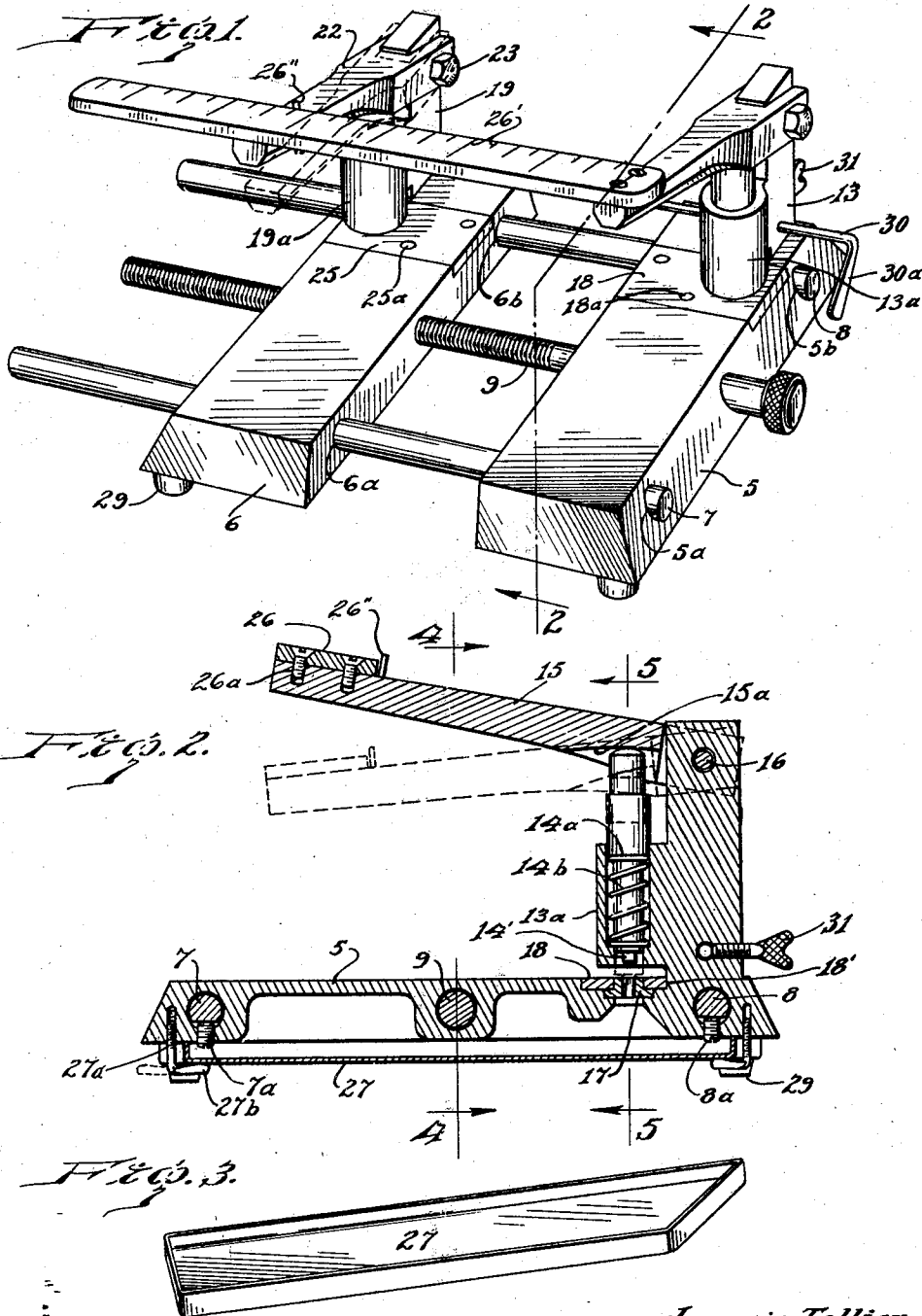
J. TELLIER

1,759,672

PAPER PUNCH

Filed Aug. 23, 1929

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 4.

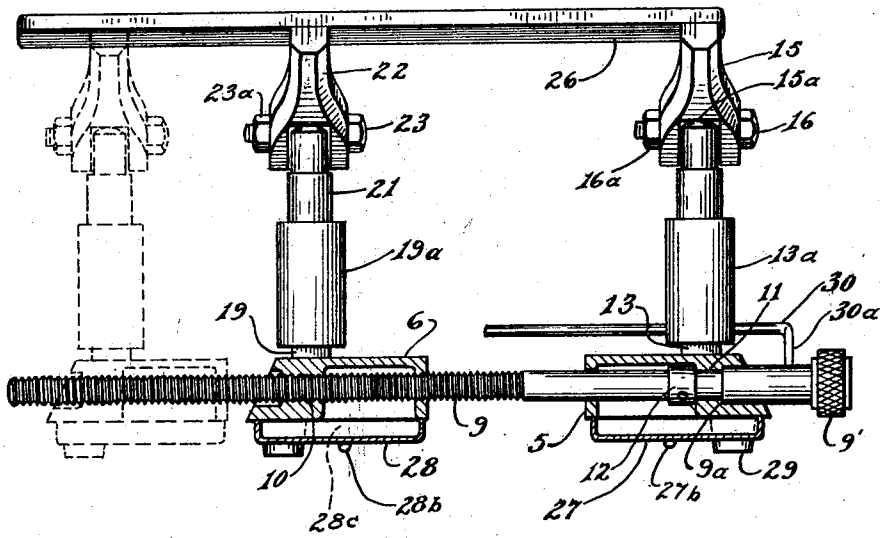


Fig. 5.

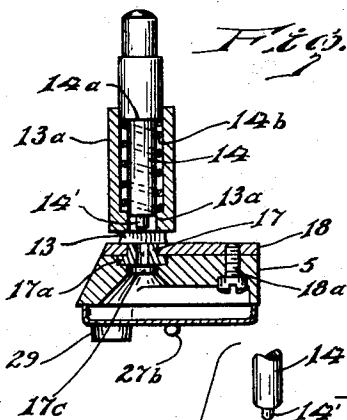


Fig. 6.

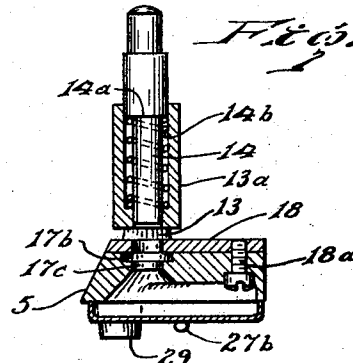
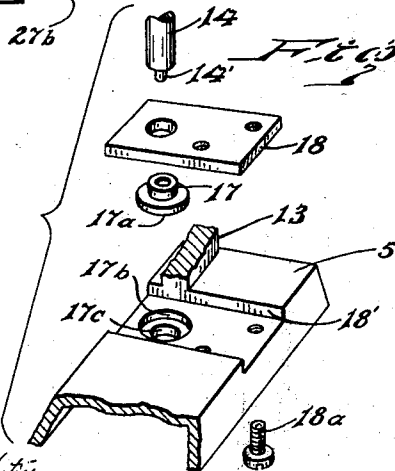


Fig. 7.



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PAPER PUNCH

Application filed August 23, 1929. Serial No. 387,974.

This invention relates to improvements in adjustable paper punches, and one of its leading objects is to provide a device of this character with a pair of independently operating punches, means for adjusting the punches relative to each other to vary the spacing required between companion holes required in the edge of a sheet of paper or cardboard, and a combined handle bar and distance gauge for operating both punches, so arranged that the exact distance between the punches will be indicated at a point always in the direct sight of the operator, and yet one of the punches may be operated independently of the other, if desired.

Another object of the invention is the provision of a changeable die set for each punch, whereby the size of the hole produced may be varied at will.

A further object of the invention is the provision of a handle lever system whereby powerful pressure may be exerted upon the male punch elements, and yet these may be readily withdrawn and others placed in position.

The invention also comprises other objects, combinations, constructions and arrangements of parts, clearly described in the following specification, and fully illustrated in the accompanying drawings, which latter show an embodiment of the invention as at present preferred and in which:—

Fig. 1 is a perspective view of my improved adjustable punch.

Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a detail perspective view of one of the detachable waste pans.

Fig. 4 is a central vertical sectional view taken on line 4—4 of Fig. 2, showing the mounting of the screw for adjusting the two punches relative to each other.

Fig. 5 is a detail vertical sectional view through one of the punches, taken on line 5—5 of Fig. 2.

Fig. 6 is a similar view, showing the bottom female die of the punch set, in elevation.

Fig. 7 is a view of an assembly for the

punch, shown in perspective, with the parts separated.

Referring to the accompanying drawings, which illustrate as aforesaid a practical embodiment of my invention, 5 designates the base for the right punch, and 6 the base for the left punch. The base 5 is formed with a pair of parallel holes 5^a and 5^b, shown to be positioned near the opposite ends of the base. In these holes the ends of the guide rods 7 and 8 are located, and set screws 7^a and 8^a threaded through the base hold these rods against relative longitudinal movement to said base. The opposite end portions of the rods slidably extend through the parallel holes 6^a and 6^b of the left base 6.

Midway of the guide rods 7 and 8 an adjusting screw 9 is rotatably mounted in the right base 5 and extends through an internally threaded lug 10 formed on the left base 6. The right end portion of the adjusting screw 9 is formed with a shoulder 9^a, which bears against the bearing lug 11 formed on the right base 5, while a stop collar 12 is secured to this screw against the opposite side of the said bearing lug, to limit the relative longitudinal movement of the screw 9 in the base 5.

All three rods are disposed in parallel relation to each other, so that an easy adjustment of the two bases may be accomplished by a finger turning of the screw 9, the outer end of which is provided with a knurled head 9' for this purpose.

The base is equipped with an integral upstanding post 13, which is provided with a forwardly offset bearing lug 13^a, the lower end of which is slightly spaced above the flat upper surface of the base, to provide the necessary restricted space for the admission of paper or cardboard. The lower end of this bearing lug is formed with an internal shoulder 13^b, through which the male punch 14 operates. This punch is formed with an external shoulder 14^a. An expansion spring 14^b is located around the male punch and bears at its lower end against the shoulder 13^a and at its upper end against the shoulder 14^a. The portion of the shank of the male punch above the shoulder 14^a is cylindrical and is designed

to have a smooth sliding fit with the cylindrical bore of the bearing lug 13^a, while the upper end of this punch is rounded to provide a smooth engagement with the curved recess wall 15^a of the handle bar 15.

The handle bar 15 is pivoted to the upper end of the post 13, the sides of which are flat, while the end of the handle bar is bifurcated to straddle the post. In this case the pivot consists of a bolt 16 detachably secured to the post by means of the nut 16^a; this pivot bolt extending through aligned openings in the bifurcated end of the handle. The handle abuts against the post 13 in its upper position, and is normally held at a slight upward angle by the pressure of the coil spring 14^b.

The male punch is formed on its lower end with a hardened perforating tool 14' which is designed to enter the female element of the punch set, or die, 17. In order to retain the female punch element or die in place against the thrusts produced during the operation of punching paper or other material, this female member or die is formed with an integral head 17^a, which is seated in the nest 17^b formed in the base 5, around the waste hole 17^c. A keeper plate 18 is secured to the base 5 by means of the screws 18^a which are threaded through the bottom of the said base into threaded openings 18^b provided in said keeper plate. This keeper plate is seated in a nest 18' formed in the upper side of the base 5, so that the upper surface of said keeper plate will be in the same plane as the base itself. In this way thrusts developed against the female die are distributed by the keeper plate over a relatively large area of the base, while the die is retained against wobbling. By changing the die or punch set the hole produced may be varied in size at the will of the operator.

The left base 6 is equipped with an integral post 19 which is formed with a bearing lug 19^a, similar to the bearing lug 13^a. In this bearing lug the male punch 21, corresponding to the punch 14 or 14-14', operates against a coil spring similar to that described with reference to the male punch 14. The upper end of the post 19 is provided with flat sides to which the bifurcated end of the handle bar 22 is pivoted by means of the bolt 23, which is detachably held in place by the nut 23^a. This handle bar bears against the rounded upper end of the male punch 21, and is held at an upward angle by the coil spring which surrounds the punch 21.

The left base 6, in a manner not shown, incorporates elements corresponding to the parts 17^b and 17^c, so that, as desired, a part corresponding to die 17 may or may not be employed. On base 6 there is a keeper plate 25, held in place by the screws 25^a; this plate 25 being similar to the plate 18 on base 5, previously described.

A combined handle bar and gauge 26 is positively secured to the handle bar 15 by means of the screws 26^a, and extends over the handle bar 22, but is not connected or attached thereto, merely bearing against the upper side thereof. The gauge bar 26 is provided with graduations 26', arranged in any desired order, and the handle bar 22 is equipped with an indicating pin or pointer 26'' designed to ride close to the adjacent edge of the gauge bar.

Each base is equipped with its own waste pan, the base 5 having a waste pan 27, which is held in place for ready detachment by the screws or pins 27^a, secured to the base, and provided with angular arms 27^b to engage the pan and hold it in place.

The base 6 is equipped with the waste pan 28, held in place for easy removal by the screws or pins 28^a, which are, likewise, formed with angular arms 28^b. Each base is further equipped with rubber cushion feet 29, so that the device will not mar the surface of any table or other article or piece of furniture on which it is laid, and can be operated noiselessly.

The punch and die sets are preferably made from a rustless steel, so that exposure to dampness will not impair their usefulness.

A gauge 30 is mounted on the post 12 of the base 5 for adjusting the relation of the edge of the paper or cardboard to the punch. This gauge is shown to be in the form of a rod which slides through an opening formed in the post 13, and its outer end is provided with an angular arm 30^a against which the edge of the sheet abuts. A set screw 31 threaded through the post holds the gauge rod 30 in selected position.

It will be observed that the operator can quickly determine the spacing of the two punches by merely placing a sheet of paper or other material, showing the correct hole spacing, on the combined handle and gauge bar, and that any required change in the spacing of the punches may be quickly accomplished by the mere turning of the adjusting screw.

The length of each of the handle bars 12 and 22 from its bearing on the punch engaged thereby to the extreme formed end thereof is shown to be about four times the distance from the center of the punch to the pivot of the handle, thus providing a long and powerful leverage. The proportions shown may be changed at will. The punches are so mounted that they have a short stroke, thus limiting the stroke required on the combined handle and gauge bar.

The bases are positively maintained in parallel relation to each other by the two guide rods and the adjusting screw, and no matter what the distance between the two punches may be pressure upon the combined handle bar and gauge will operate both punches si-

multaneously. As there is no connection between the left punch handle and the common operating handle bar, the left punch may be operated independently of the right punch, should occasion so require.

What I claim as new is:

1. An adjustable punching device consisting of a pair of punching units, each having an operating handle, an adjustable connection between said units, and a combined handle bar and gauge secured to one of said handles and overlying and adapted to bear upon the other of said handles, said other handle having a pointer to co-operate with said gauge to indicate the spacing between the punching centers of the two punching units.

2. A punching mechanism consisting of a pair of punching units, guide rods secured to one of said units and slidably extending through the other unit, a screw mounted for rotation on one of the units and threaded through the other unit, each of the units having a handle to operate the same, and a handle bar connected to one of the handles and overlying and adapted to bear upon the other handle but not connected thereto.

3. In combination, a pair of substantially similar bases, guide rods secured to one of the bases and slidably extending through the other base, means for moving the bases toward and away from each other, an upstanding post on each of the bases, said post having a bearing lug, a male punch element mounted in each bearing lug, a coil spring in said lug to exert upward pressure on said punch element, a handle pivoted at its rear end to each post and a combined handle bar and gauge mounted on one of said handles and overlying and adapted to bear upon the other.

4. In combination, a pair of independent bases, means for connecting the bases for parallel sliding motion, means for moving the bases toward each other and away from each other, a punching device mounted on each base, a spring pressed handle for each punching device, and a common handle bar mounted on one of the handles and overlying and adapted to bear upon the other to permit both punching devices to be operated simultaneously or independently.

In testimony whereof I hereby affix my signature.

JEREMIE TELLIER.