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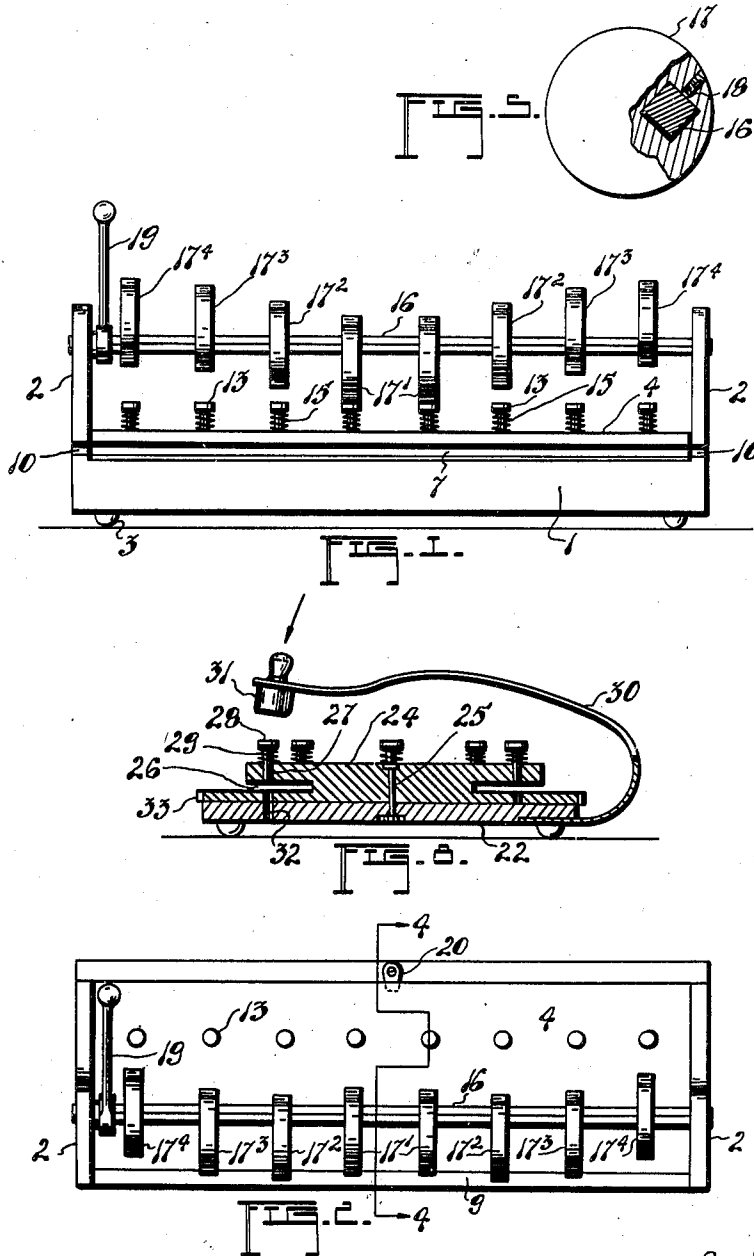
C. HUTCHINSON

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PAPER PUNCH

Filed June 9, 1941

2 Sheets-Sheet 1



Applicant:

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Dexter Stanhaugh & Co
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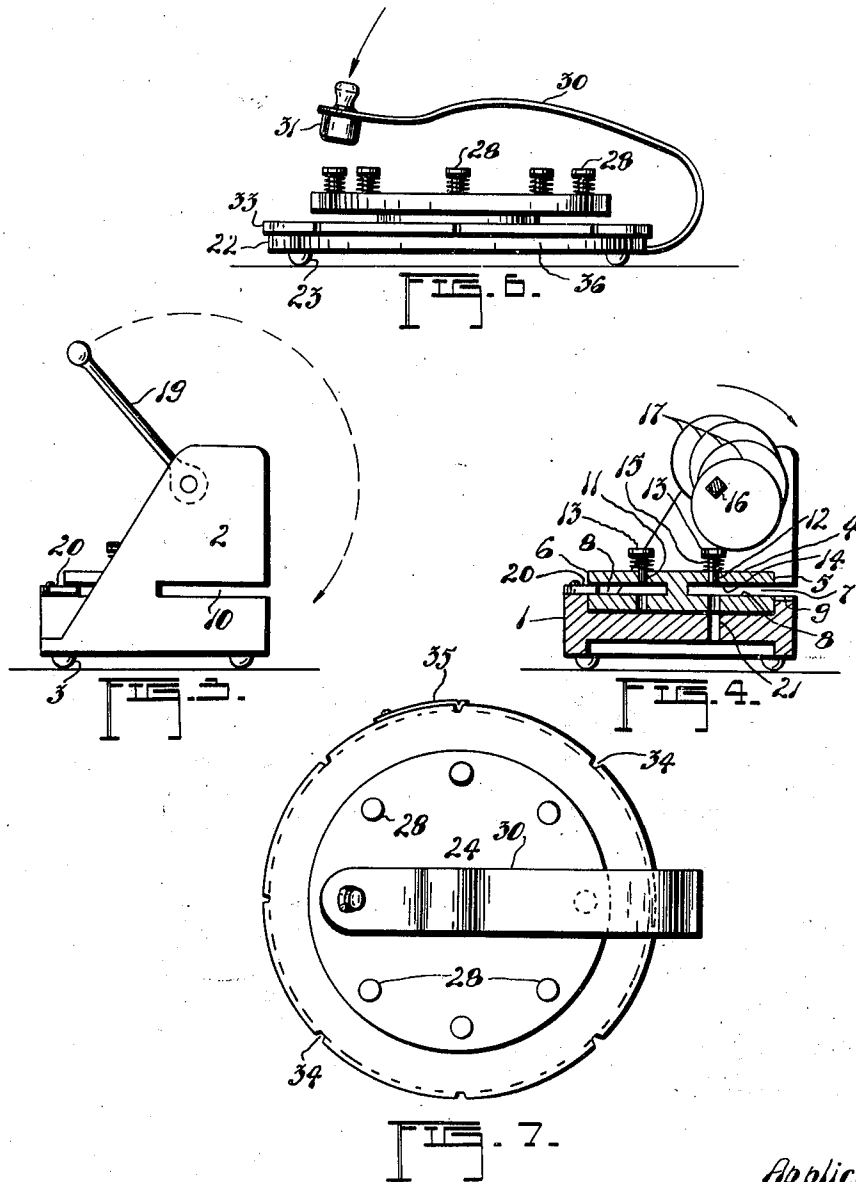
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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PAPER PUNCH

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Application June 9, 1941, Serial No. 397,337

1 Claim. (Cl. 164—91)

My invention relates to improvements in paper punches, an object thereof being to provide a device of the character herewithin described, by the use of which the edges of a quantity of sheets of paper may be perforated in exact alignment at the same time.

A further object of my invention is to provide a device of the character herewithin described which is of eminently simple construction and which cannot readily become out of order.

A further object of my invention is to provide a device of the character herewithin described including manually operable mechanism which materially reduced the pressure required at any given moment to punch holes in a plurality of sheets of paper.

A further object of my invention is to provide a device of the character herewithin described in the base of which, punch-blocks having line-ups of different sized holes may be inserted and removed according to the size of hole it is desired to punch in any given batch of paper sheets.

A further object of my invention is to provide a device of the character herewithin described wherein as many or as few holes may be punched in a given batch of paper sheets as may be required.

With the above more important objects in view and such other minor objects as may appear as the specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings, in which:

Figure 1 is a front elevation of the first embodiment of my invention.

Figure 2 is a plan view of Figure 1.

Figure 3 is an end elevation of the first embodiment of my invention.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is an enlarged detail illustrating the manner in which my cams are secured upon the cam-shaft in the first embodiment of my invention.

Figure 6 is an elevation illustrating an alternative embodiment of my invention.

Figure 7 is a plan view of Figure 6.

Figure 8 is a vertical cross-section of the embodiment of my invention illustrated in Figure 6, except for the operating mechanism thereof which is shown in elevation.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Describing first the embodiment of my invention illustrated in the accompanying Figures 1 to 5, it will be seen that the same consist of a base 1 of the cross-section best illustrated in the accompanying Figure 4 and upwardly projecting end members 2.

The base preferably rests upon the cushions 3 which may be of rubber or the like and it will be seen that in effect, this base acts as a bed for the punch-block 4.

The punch-block is of rectangular configuration as best indicated by reference to the accompanying Figure 2 and from the accompanying Figures 1 and 4, it will be seen that the two edges 5 and 6 of the punch-block are deeply and longitudinally grooved as at 7 and 8 and it will be seen from Figure 4 that when the punch-block is imbedded, the lower surface 8 is in horizontal alignment with the surrounding surface 9 of the base 1 and also that recesses 10 are formed in the end members 2, these being in alignment with the grooves.

Extending through the punch-blocks are two rows of apertures 11 and 12, these rows of apertures being parallel and intersecting the grooves as clearly seen from Figure 4. In each aperture is a stud 13, the lower end of each stud being normally held above the upper surface 14 of the grooves by means of the coil spring 15.

Extending between the end members 2 and journaled therein is a cam-shaft 16 of square cross-section, a plurality of cams 17 being mounted on the shaft and held in any desired location by means of set-screws 18.

These cams may be moved along the shaft upon loosening the set-screws 18 thereof from binding engagement with the shaft so that one or more of the cams may be moved out of vertical alignment with the stud below it so that it will not depress such stud upon rotation of the shaft.

The cam shaft is rotated by means of the lever or handle 19 and by reference to the accompanying Figure 4, it will be seen that the several cams are staggered so that they do not all make contact with the studs beneath at the same moment.

Thus, by reference to Figure 1, it will be seen that the two cams 17¹ come up against the heads of the studs first to be followed by the pair 17², then the pair 17³, and finally by the pair 17⁴. Thus, the pressure required to be exerted upon the lever or handle 19 at various degrees in its rotation is considerably less than would be required if the cams were in alignment.

It will be seen that only one row of studs is engageable by the cams at one time, and yet it

will be seen (best in the accompanying Figure 4) that I have provided two rows of studs. The reason for this is that the size of aperture in one row of studs will be different from the size in the other. Thus, by reversing the position of the block 4, it is possible to punch a row of holes in a stack of paper sheets of a different size.

It is to be understood that I may have several blocks in each of which the rows of apertures will be of different size. The block is held imbedded in the base 1 by means of the catch 29. It should be noted that the apertures 12 extend clear through the block 4 and are in alignment with a longitudinal channel 21 through which paper removed in punching may fall.

In the accompanying Figures 6 to 8, I have illustrated an alternative embodiment of my invention designed for punching single holes in a quantity of sheets of paper, this embodiment comprising a circular base 22 mounted on rubber studs 23. Centrally upon the base 22 is a circular punch-block 24, which, it is to be understood, is rotatable about the central stem or axle 25.

The punch-block 24 is provided with a circum-scribing groove 26 and around the edge of the block are a number of different-sized apertures 27 in each of which is positioned a punch-stud 28 held normally raised as best illustrated in the accompanying Figure 8 by means of the springs 29 exactly similar to the manner described in connection with my first embodiment.

The apertures 27 extend clear through the block and intersect the groove 26, and secured to the base 22 is a forwardly extending spring arm 30 held normally in the position illustrated in Figures 6 and 8, the same terminating in the punching head 31 which is designed, upon manual depression thereof, to bear against the stud below it and thus punch a single hole through a given pile of paper sheets.

An aperture 32 is provided in the base 22

through which the material removed in punching may drop.

At intervals around the lower edge 33 of my rotating punch-block I provide the notches 34 (best illustrated in the accompanying Figure 7), these notches being in radial alignment with the various apertures 27 and by means of the small spring dog 35 which is secured upon the edge 36 of the base, I am able to lock the block at any desired position.

Since various modifications can be made in my invention and many apparently widely different embodiments of same made within the scope of the claim without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense and I desire only such limitations placed thereon as are specifically expressed in the accompanying claim.

What I claim as my invention is:

A stationery paper punch comprising in combination, a substantially rectangular base, a substantially rectangular punch-block designed to be received into said base but detachable therefrom, said punch-block having at least one edge longitudinally grooved medially of its thickness, said block having also a plurality of apertures along the edge thereof, said apertures intersecting said groove, a row of spring-pressed punch studs, one of said punch studs being in each of said apertures, a rotatable cam-shaft of square cross section above said studs, a plurality of cams in staggered relation on said shaft capable of depressing said studs through said groove and thereby perforating the edge of sheets of paper in said groove, a handle for rotating said cam-shaft in said cams, said cams being movable along said cam-shaft into or out of alignment with said studs.

CHARLES HUTCHINSON.