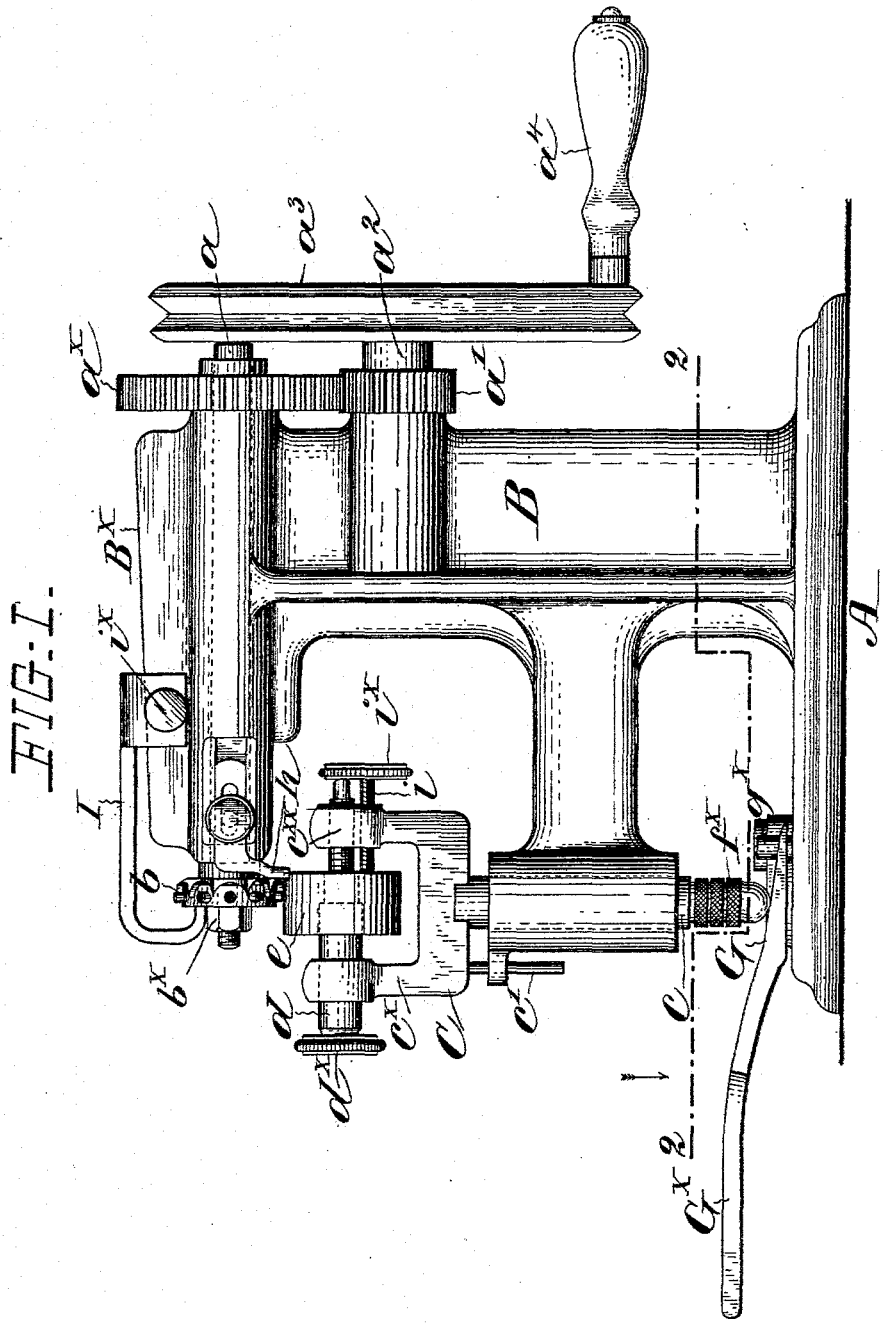
(No Model.) 2 Sheets—Sheet 1.

E. B. STIMPSON.

PUNCHING AND PINKING MACHINE.

No. 515,927. Patented Mar. 6, 1894.

FIG. I.



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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

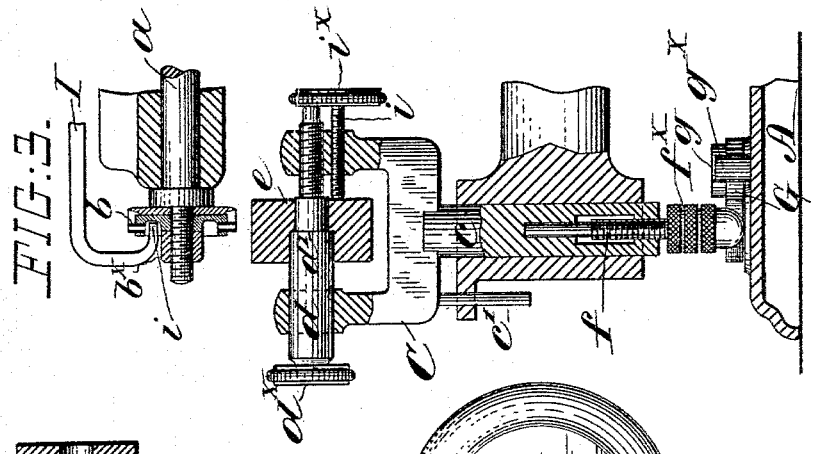


FIG. 4.

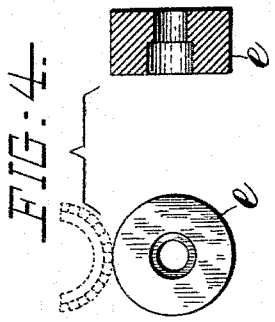
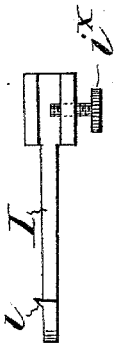


FIG. 2.

FIG. 5.



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UNITED STATES PATENT OFFICE.

EDWIN B. STIMPSON, OF BROOKLYN, NEW YORK.

PUNCHING AND PINKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 515,927, dated March 6, 1894.

Application filed October 9, 1893. Serial No. 487,704. (No model.)

To all whom it may concern:

Be it known that I, EDWIN B. STIMPSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Punching and Pinking Machines, of which the following is a specification.

My invention relates to the class of machines usually employed for ornamenting the margins of leather, cloth and the like, such machine comprising as essentials, a rotary wheel-bearing, ordinarily, punches and pinking-cutters, a bearing-roller on which the material rests while being punched and pinked, and means for adjusting the bearing-roller up to the cutting-wheel. It has been customary, in this class of machines, to employ a bearing-roller of hard rubber or the like, and to employ a screw for adjusting this roller up to the cutting-wheel so that the cutters on the latter may cut through the material but not enter the surface of the bearing-roller too deeply. After the latter roller has been a short time in use its surface becomes roughened by the cutters and it is then turned down smooth. This cutting away at intervals continually reduces the diameter of the roller and the forked carrier in which the roller is mounted must be adjusted up toward the cutting-wheel. I find it desirable to provide the bearing-roller with a screw adjustment for setting the roller up to the proper point with respect to the cutting-wheel, and a cam device for clamping the material to be cut between the bearing-roller and the cutting-wheel. This latter device is adapted to always impart the same amount of movement and it thus insures the material being always pressed up to the cutters with a uniform pressure and with a simple movement of the cam-arm or lever. I also find it desirable to employ means for adjusting the bearing-roller longitudinally with respect to the wheel bearing the cutters so that when the roller becomes roughened by the cutters at one point the roller may be shifted longitudinally so as to present a fresh and smooth surface to the cutters.

In the accompanying drawings I have illustrated a machine embodying my improvements for accomplishing the purposes stated above.

In the drawings Figure 1 is a side elevation of the machine; and Fig. 2 is a horizontal section taken in the plane of the line 2, 2, in Fig. 1. Fig. 3 is a fragmentary view showing the main, operative, part of the machine in vertical section. Fig. 4 represents the bearing-roller, detached. Fig. 5 shows the clearing finger, detached.

A is the base of the machine and B, the standard; these parts will be, preferably, cast in one piece and they form the frame of the machine. This frame may have any convenient shape or configuration. Mounted rotatively in the upper arm of the standard, is the cutter-wheel shaft, a, provided with a gear-wheel, $a^{\times}$, which gears with a wheel a', on the crank-shaft, a^2. This shaft is mounted in the standard and bears a driving-wheel, a^3, whereby the shaft a may be run by power if desired. The wheel a^3 also has a handle, a^4, whereby the shaft may, as well, be driven by hand. The outer end of the shaft a, is fitted to receive a cutter-wheel, b, and a securing nut, $b^{\times}$, to hold said wheel firmly in place. The wheel b, may be of the usual kind and bear punches and pinking cutters, and cutter-wheels of different kinds, may be readily interchanged. Mounted in a lower arm of the standard, is a forked carrier, C, the stem, c, of which plays in a bore in the arm having its axis at right-angles to the axis of the shaft a. In the branches, $c^{\times}$, $c^{\times\times}$, of the fork is mounted a spindle, d, which screws into the branch $c^{\times\times}$, and has a shoulder, d', and milled head, $d^{\times}$. On the spindle d, is rotatively mounted the bearing-roller, e, which is commonly made of hard or vulcanized india rubber. This roller is represented in end elevation and in longitudinal section, detached, in Fig. 4. It has in it a counterbore, as clearly shown, to adapt it to fit the shouldered spindle d. On the carrier C, is a guide-pin, c', which plays in a guide on the arm, in a well known way, and prevents the rotation of the fork in its bearing; and in the lower end of the stem, c, of the fork, is set an adjusting screw, f, the head, $f^{\times}$, of which is milled or roughened, so that it may be conveniently turned by the thumb and finger.

The lower end of the head $f^{\times}$, is somewhat rounded, as shown, and rests on the base A, whereby it forms a stop to limit the descent of the fork. It will readily be seen how, by means of the screw *f*, the upper surface of the bearing-roller *e* may be moved up or down to adjust it to the under side of the cutter-wheel *b*.

On the bed A, is pivotally mounted at *g*, (see Fig. 2) a swinging cam, or wedge, G, provided with an operating lever or handle, $G^{\times}$. When moved to the position seen in Figs. 1 and 2, this cam takes under the head of the screw *f* and raises the carrier C until the upper surface of the bearing-roller is pressed into contact with the cutters on the wheel *b*. The cam G always raises the roller *b* to the same extent if swung around until it strikes a limiting stop $g^{\times}$, on the base.

So far as described the operation is as follows: To set the machine primarily, the operator may pull the cam G into the position seen in full lines in Figs. 1 and 2, and then, by means of the screw *f*, adjust the bearing-roller *e* into contact with the cutters on the wheel *b*. He then swings the cam G back to the position seen in dotted lines in Fig. 2, when the carrier C will drop by gravity to the position indicated in Fig. 3, leaving thus sufficient space between the bearing-roller and the cutter-wheel to introduce the material to be cut. In Fig. 1, *h* is the feed-guide for the material. When the material is in place, the operator swings the cam G again to the position seen in Figs. 1 and 2, thus pressing the material up against the cutters, and then sets the cutter-wheel in motion. When once properly set by the screw *f*, the operator need only employ the cam G for moving the roller *e* up to the cutter-wheel, and by always swinging the cam up to its stop $g^{\times}$, he can always be assured of the uniformity of the pressure, no matter what may be the character of the material operated on. It will be understood that the essential idea is the combination with the variable adjustment afforded by the screw, of an invariable adjustment or regulation afforded by the cam, this latter being so constructed as to raise the roller *e*, always to the same extent when it has imparted to it sufficient movement to bring its thickest part under the head $f^{\times}$.

When the bearing-roller becomes roughened by the cutters, it may be shifted longitudinally under the cutter-wheel by means of the screw-spindle *d*, and a gage-screw, *i*, with a broad milled head, $i^{\times}$. This gage-screw screws through the branch $c^{\times\times}$ of the forked carrier and its shank, measured from the head $i^{\times}$, to its tip, is the same as that of the spindle *d*, measured from its tip to that face or end of the roller *e* which is adjacent to the branch $c^{\times\times}$ of the fork.

In effecting the shifting of the bearing-roller *e* to the right in Figs. 1 and 3 (for example), the gage-screw *i*, is unscrewed or withdrawn to the desired extent and the spindle *d* screwed in until its tip strikes the head $i^{\times}$ of the screw *i*. The shoulder *d'* on the spindle will drive the roller *e* over to the right, and the roller will then be embraced loosely between said shoulder at the one side and the tip of the gage-screw *i* at the other side, so that it cannot move in the direction of its axis.

When the surface of the bearing-roller becomes so roughened as to require it, said roller may be put in a lathe and turned down smooth. This will reduce its diameter and make another adjustment with the screw *f* necessary.

I find that in using a cutter-wheel, as *b*, with a recessed face, as clearly shown in Fig. 3, the bits cut from the leather or other material, and which work out from the punches into the annular recess in the face of the wheel, are apt to pack in said recess and clog it. To prevent this I employ a clearing finger, I, seen detached in Fig. 5, and in place in Figs. 1 and 3. This device has a curved extremity, *i*, which when the finger is in place on the arm of the machine, enters into the annular recess in the face of the cutter-wheel and as the latter rotates, dislodges the bits collected therein or prevents them from collecting. This curved extremity or tip *i*, may be so beveled or shaped, as seen in Fig. 5, as to throw out the bits from the punches. The finger I may be adjustably secured to the fin or rib, $B^{\times}$, on the standard B, by means of a set-screw, $i^{\times}$. I do not limit myself to the particular construction of this device as shown; it is only essential that the finger shall enter and occupy the recess in the wheel and be held stationary by attachment to some part of the machine frame; and that it be readily removable and adjustable.

Having thus described my invention, I claim—

1. A machine of the character described, provided with an adjusting screw for regulating the space to receive the materials between the cutting-wheel and bearing-roller and a movable cam for clamping the material with a uniform pressure between said bearing-roller and cutter-wheel independently of the screw adjustment, substantially as set forth.

2. In a machine for the purpose specified, the combination with the frame, a rotatable cutter-wheel mounted therein, a bearing-roller, a movable carrier for said bearing-roller, and an adjusting screw in said carrier and interposed between it and a part of the frame, whereby the bearing-roller may be moved toward or from the cutter-wheel, the cam G, pivotally mounted on the frame and adapted to be interposed between the frame and said screw, and a stop to limit the movement of said cam substantially as set forth.

3. In a machine for the purpose specified, the combination with the forked carrier, of the shouldered spindle, mounted in the branches of the same and screwing into one of said

branches, and the bearing-roller, mounted rotatively on said spindle, of the gage-screw, *i*, mounted in the branch of the forked carrier and having a head arranged to impinge on the point of the screw-spindle and form a limiting stop therefor, substantially as set forth.

4. In a machine for the purpose specified, the combination with the frame, and a rotatable cutter-wheel mounted therein, said wheel having a recessed face and punches, as described, of a clearing finger mounted removably on the frame, said finger having a tip or extremity which takes into the recess in the face of the wheel, substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWIN B. STIMPSON.

Witnesses:
HENRY CONNETT,
JAS. KING DUFFY.