No. 645,927. Patented Mar. 20, 1900.

F. L. HARMON.

BELT PUNCH.

(Application filed May 13, 1897.)

(No Model.)

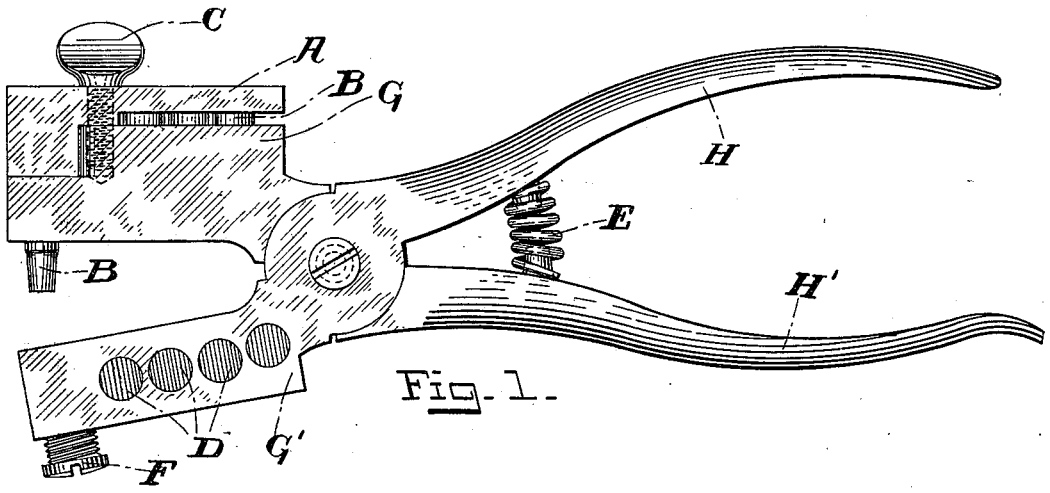

Fig. 1.

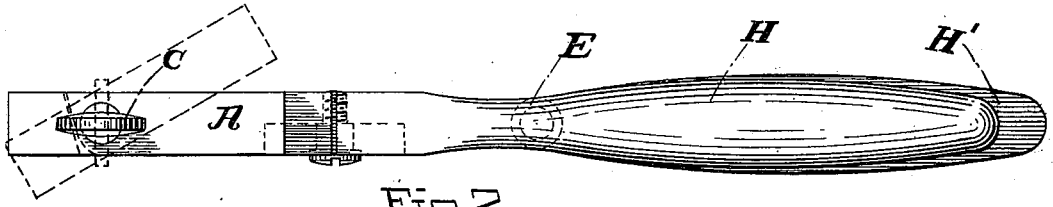

Fig. 2.

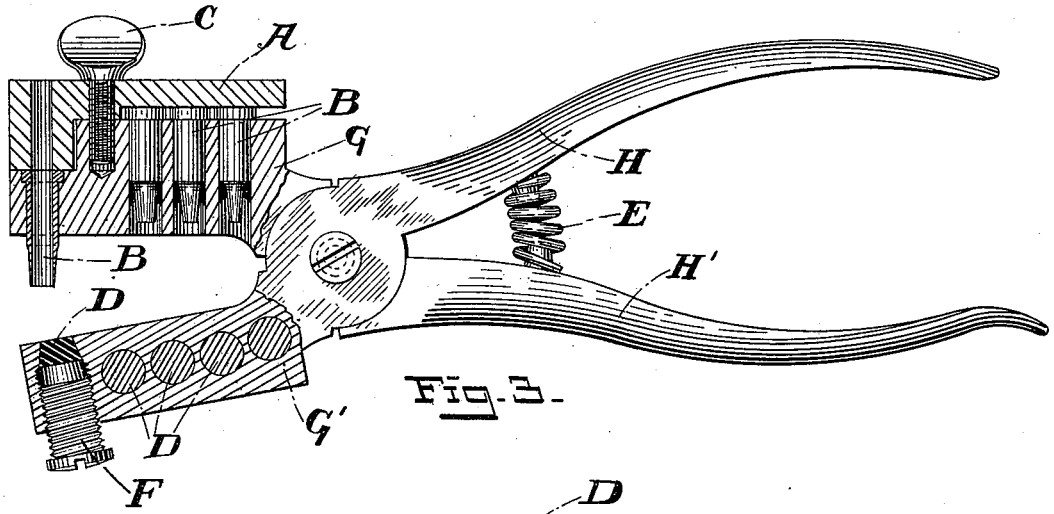

Fig. 3.

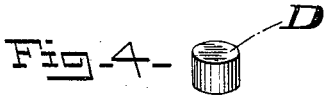

Fig. 4.

Witnesses.
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FRANK L. HARMON, OF BEVERLY, MASSACHUSETTS.

BELT-PUNCH.

SPECIFICATION forming part of Letters Patent No. 645,927, dated March 20, 1900.

Application filed May 13, 1897. Serial No. 636,426. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. HARMON, of Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Belt-Punches, &c., of which the following is a specification, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation showing the belt-punch complete. Fig. 2 is a plan showing the top of the same. Fig. 3 shows said belt-punch with the jaws shown in section, so as to disclose the cutters therein. Fig. 4 is a perspective view of a cylindrical piece of rawhide to be forced into and condensed in a socket, which socket, with said rawhide forced therein, is my improved cutter-block.

My invention is shown as embodied in a belt-punch of a new class—viz., one in which a sharp cutter and a cutter-block comprising a piece of rawhide forced into a socket are employed.

My invention is not intended to be restricted to punches to be used by hand for mending belts, because it may be embodied in machines for making buttonholes and also in machines for putting eyelets into material, &c. In belt-punches and in said machines brass has been generally used in practice for a cutter-block, and a dull cutter has been employed for cutting holes in material resting upon said cutter-block. Said dull cutter must have a dull cutting edge or surface of about one one-hundredth of an inch, because if it be sharper its edge will be damaged in practice on account of said brass cutter-block. The surface of said cutting edge must fit perfectly against said brass cutter-block, and great force must be used in order to punch or cut through hard leather and some kinds of material with said dull cutter. If said dull cutter be not tempered perfectly, or if it be a little too thin, it may be quickly broken or rendered useless on account of said brass cutter-block. As soon as the cutting edge of said dull cutter is rendered uneven by being forced against said brass cutter-block said cutting edge does not then fit perfectly upon said brass cutter-block, and the belt-punch is thus rendered inoperative, because holes cannot then be punched therewith. To improve such belt-punches and machines, I have employed a metal socket, a cylindrical piece of rawhide forced therein, a thin keen cutter, and means for forcing said thin keen cutter through a material to be cut and into said rawhide a short distance. The rawhide which I use is not the material sometimes known as "rawhide." Leather which is partially tanned, which therefore is not strictly rawhide, is sometimes called "rawhide." I use genuine rawhide, which is nearly as hard, if not as hard, as horn. This rawhide does not dull or break a good keen cutter when said cutter is forced into it, and the tenacity of said rawhide when confined as described is very great to withstand the impacts of said cutter.

It has been discovered that condensation of rawhide—in other words, the driving together of the fiber of said rawhide—is essential in order to obtain the best results. Therefore the rawhide may be condensed by aid of the screw F in said socket comprised by the jaw G. This socket is provided with a conical-shaped hole, in which a cylindrical piece of rawhide D, such as is shown in Fig. 4, is shown condensed and forced into conical shape and held in a state of condensation. Cylindrical pieces of rawhide D, like the piece shown in Fig. 4, are kept for use in the jaw or socket G, as will be plain by Figs. 1 and 3. The spring E (shown between the levers H and H in Figs. 1 and 3) is to aid in the operation of said punch by opening the levers H and H.

In Fig. 2 the dotted lines show the position in which the button A may be turned in order to remove the cutters B by the thumb and finger.

The cutter B (shown in the end of the jaw G in Figs. 1 and 3) may be removed while the button is thus turned, and any of the other cutters may be put in its place, and the cutter removed from the end of the jaw may be also kept in the jaw G. When the button is in the position shown in Figs. 1 and 3, it is held firmly down upon all the cutters by the aid of the thumb-screw C. When said sharp cutter is employed in connection with the rawhide held in a socket, whether it is employed in my improved belt-punch or in said machines, said cutter need not fit perfectly upon the rawhide held confined in the socket, because the cutting edge of said cutter may be pressed

into said rawhide until every part of said cutting edge makes its imprint into said rawhide.

It is regarded that the combination of a metal piece with a hole therein, with a piece of rawhide forced into said hole, or, in other words, a socket with a piece of rawhide compressed therein, a thin sharp cutter, and means for forcing said cutter through a piece of material and into said rawhide constitutes my invention, and therefore I claim said combination, regardless of the machine or device in which it may be employed, in language as follows:

1. In combination, a socket; a piece of rawhide forced into said socket, and held in a state of condensation in said socket; a thin keen cutter; means by which said thin keen cutter may be forced through a piece of material to be punched, and into said rawhide.

2. In combination, a socket; a piece of rawhide forced into said socket and held in a state of condensation in said socket; means by which said rawhide may be forced into and may be condensed in said socket; a thin sharp cutter; means by which said thin sharp cutter may be forced through a piece of material and into said rawhide.

3. A punch comprising a socket G with a piece of rawhide D held in a state of condensation therein; the screw F; the cutter B; the lever H by which the thin sharp cutter B may be forced through leather and by which said cutter, and said rawhide are forced into contact with each other for the purposes set forth and described.

4. In combination, a socket; a piece of rawhide held in a state of condensation in said socket for the purposes set forth and described.

FRANK L. HARMON.

Witnesses:
WEST D. ELDRIDGE,
MARY E. ELDRIDGE.