J. F. HOLLISTER.

Machines for Cutting and Punching Leather Straps.

No. 139,388. Patented May 27, 1873.

Fig. 1.

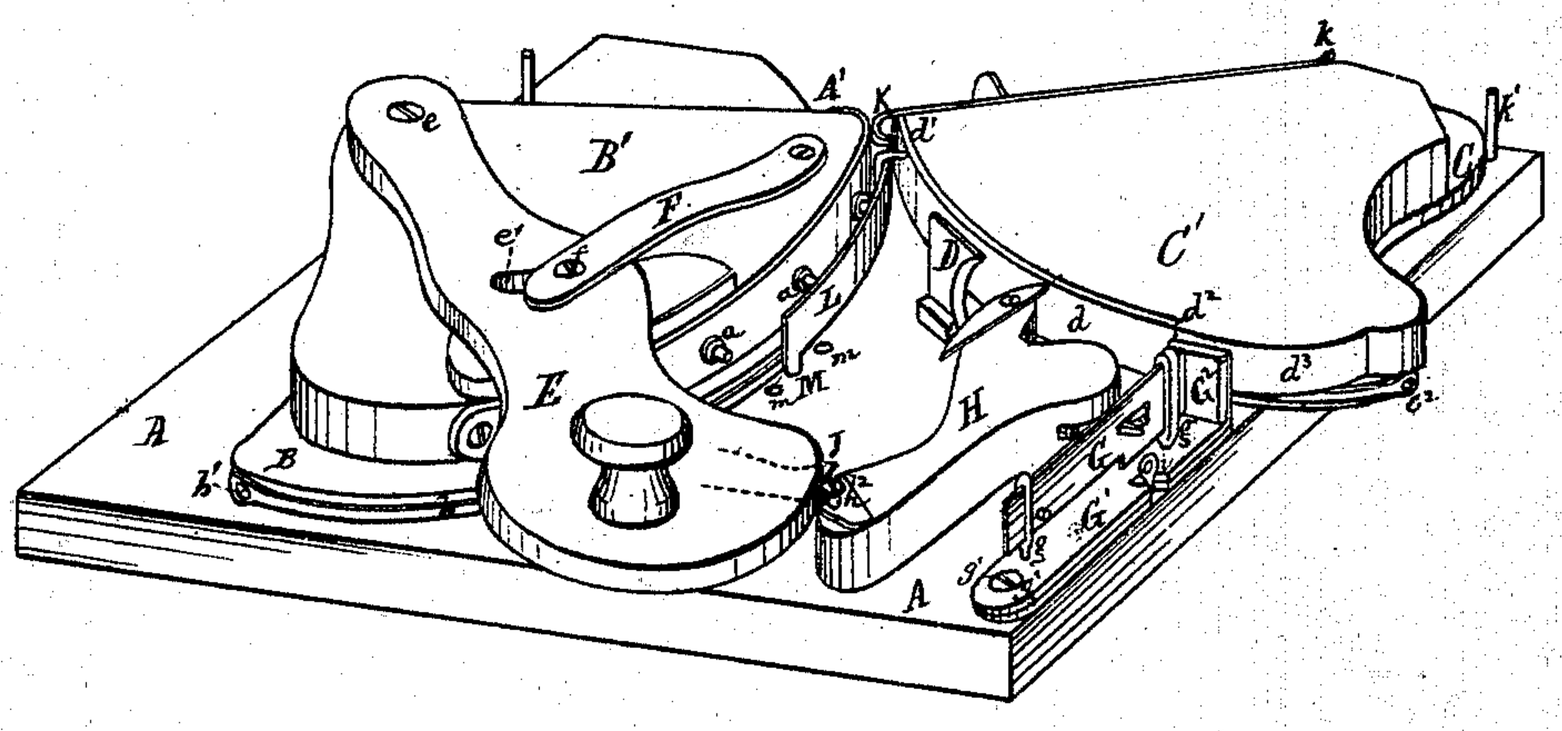


Fig. 2.

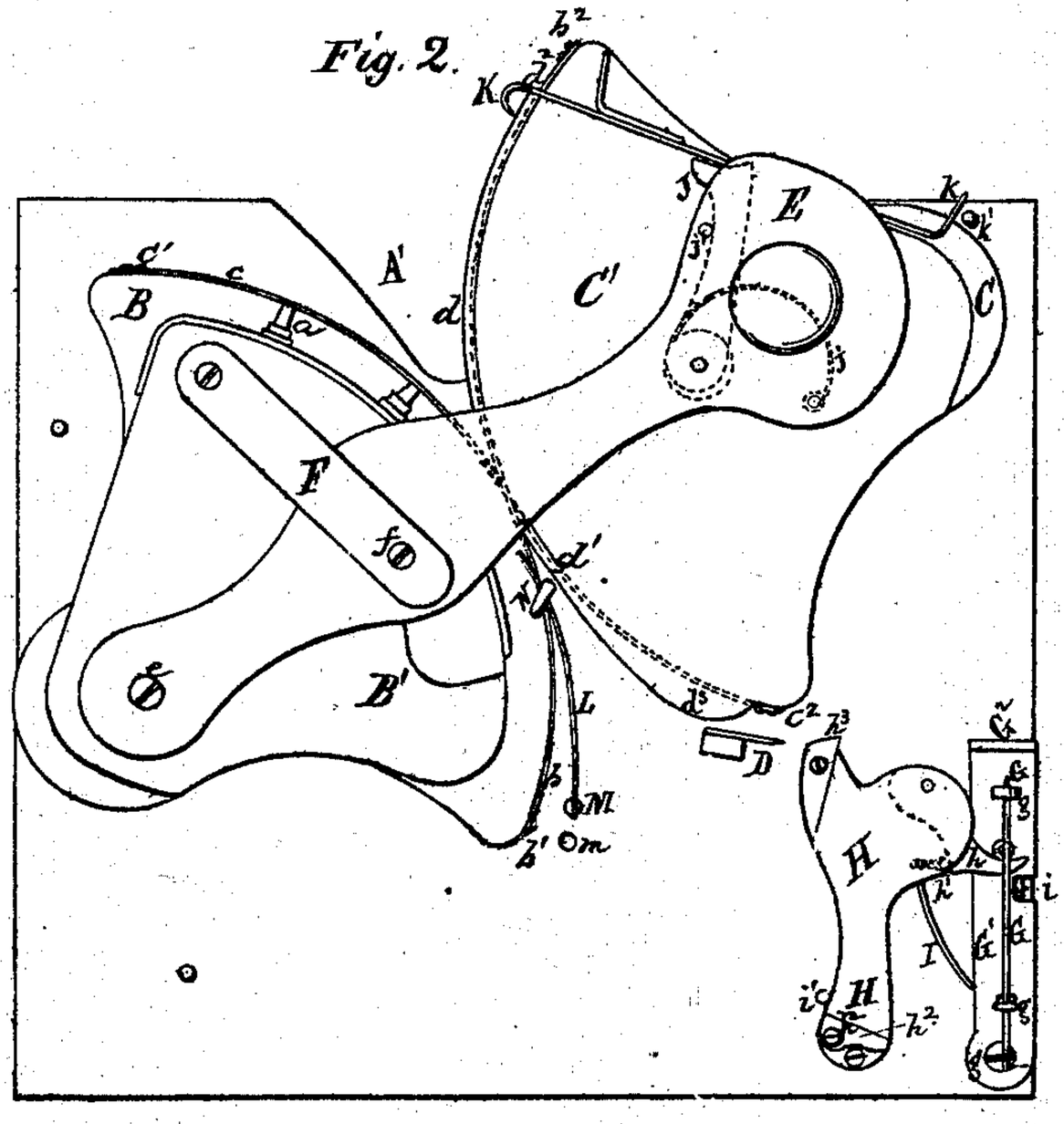
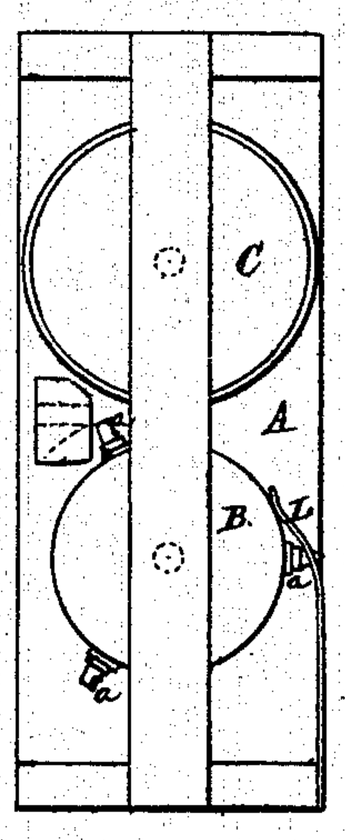


Fig. 3.



Witnesses.

J. F. Thomas

Alex. Mahon

Inventor.

John F. Hollister

by A. Lull Smith

attorney

UNITED STATES PATENT OFFICE.

JOHN F. HOLLISTER, OF PLANO, ILLINOIS.

IMPROVEMENT IN MACHINES FOR CUTTING AND PUNCHING LEATHER STRAPS.

Specification forming part of Letters Patent No. **139,388**, dated May 27, 1873; application filed April 14, 1873.

To all whom it may concern:

Be it known that I, JOHN F. HOLLISTER, of Plano, in the county of Kendall and State of Illinois, have invented certain new and useful Improvements in Machines for Cutting and Punching Leather Straps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 represents a perspective view of my improved machine; Fig. 2, a plan or top view of the same; and Fig. 3 a modification of the punching device, adapted to punching straps of any length.

Similar letters of reference denote corresponding parts in all the figures.

My invention has for its object the construction of a machine for cutting straps of leather of uniform lengths, punching the holes therein at regular intervals, and for skiving the end of the strap at a single operation, whereby it is particularly adapted for use by harness-makers, and others, who find it necessary for any purpose to cut large numbers of straps of uniform size. The invention consists in the employment of two pivoted segments provided one with a clamp for grasping the strap, and the other with a series of punches, arranged to operate against the opposing face of the first-named segment for punching the holes in the straps, as hereinafter described; and further, in connecting these disks or segments by means of straps instead of teeth for producing a regular, even, and, at the same time, a positive movement of the segments in both directions, and insuring an even measurement of the lengths of strap. It further consists in the employment of a reciprocating knife in combination with the pivoted segments, and operated thereby, or by mechanism connected therewith in such manner that when properly adjusted relatively it will cut any desired number of straps of uniform length. It further consists in the combination, with the segments, of a skiving-knife, the construction and arrangement being such that, after the strap is cut of the proper length, the end of the strap is skived in such manner as to adapt it to be readily sewed to another strap or thickness of leather for attaching buckles, and other purposes. It further consists in certain details of construction and arrangement of parts, all of which will be best understood from the following description with reference to the drawings, in which—

A represents a bed-plate, bench, or table of any suitable construction; B C, segments or disks, mounted in pivotal bearings in plate A in such manner as to turn or vibrate freely, and so arranged as to vibrate in opposite directions with their outer curved faces in close proximity with each other. These segments or disks are connected with each other by means of straps *b c*, each connected at one end with the segment B, and at the other with the segment C, as follows: The strap *b* is connected at b^1 with the segment B, and at its other end with the segment C at b^2, and the strap *c* alternating with or crossing the strap *b* is connected at c^1 with the segment B, and c^2 with the segment C, the straps *b* and *c* being arranged one above the other and crossing from one segment to the other, as shown in dotted lines, Fig. 2. The segments in that portion of their adjacent faces covered by the straps are each in, or nearly in, the arc of a circle, and thus connected by the straps *b c*, which, by preference, I make of light steel springs, are simultaneously operated in either direction by a positive movement whenever either of them is operated, and by a device much simpler and less expensive than cogs or teeth, besides giving a much smoother and more even and regular, and therefore more desirable, movement for the purpose herein described. The segments B C are each double, or rather have, in addition to the lower portion to which the straps are connected for operating them as described, each an upper segment, as follows: The segment B has upon it an upper portion, B^1, of a diameter diminished sufficient to accommodate the punches *a* secured to its outer curved face, as shown. The upper portion of segment C, on the contrary, slightly overhangs the lower portion, as shown by the dotted lines, Fig. 2, said overhanging face forming, by preference, an elastic cushion, *d*, of leather or other suitable facing, for the punches *a* to cut against, said facing of leather extending from one end, d^1, of the arc or segment to a point, d^2, where it is

supplemented by an unyielding overhanging and slightly eccentric ledge or lip, d^3, which serves to move the end of the strap gradually outward, and to hold it up to the action of a skiving-knife, D, secured to the bed-plate A. The segments thus constructed and connected are actuated by a handle or lever, E, pivoted to segment B at *e*, and further connected with said segment by a spring strap or brace, F, a pin or bolt at *f* connecting the strap with the handle or lever through a slot, *e'*, which allows a slight movement of the handle relative to the segment at each end of its throw. G is a reciprocating knife mounted in vertical slots in standards *g g* in a plate, G^1, pivoted at *g'* to the bed-plate or table A at any convenient point, and provided with a vertical lip or shoulder, G^2, against which the knife works for cutting the strap. H is a lever pivoted to the face of plate A, and provided with a pivoted arm or spur, *h*, which passes through a slot in or between shoulders on the knife-blade G, as shown, for operating the same, and made adjustable relative to the lever H, if desired, for varying the throw or movement of the knife, by means of a set-screw shown in dotted lines at h^1, Fig. 2. *i* is a stop for limiting the movement of the plate G^1 in one direction, and I is a spring applied to lever H, and so arranged that when the lever is at rest the tension of said spring serves to hold the lever-plate G^1 firmly against the stop *i*, and the lever-arm H' against a stop-pin, *i'*, as shown in Fig. 2.

The lever-arm H' is provided on its upper face with a pin or spur, h^2, through which the lever is actuated as follows: The arm or lever E, for actuating the segments, has on its lower face, and at its outer-swinging end, a pivoted spring dog or latch, J, which, by the tension of a spring, *j*, is held when at rest against a stop-pin, *j'*. The outer swinging end of the latch or dog is curved slightly, as shown, and is so arranged that, when the parts are in position to begin their operative stroke, the pin h^2 on the lever-arm H' will rest in the curve in the end of latch J, the yielding movement of lever H allowing the pin h^2 to pass the latch or dog J and enter the curve or notch in its end, as shown in Fig. 1. It is necessary to vary the position of the knife G upon the bench or bed-plate, and relatively to the disks or segments, for cutting straps of different lengths, and this may be done by connecting the pin h^2 on the knife-lever with an adjustable slide; or the same end may be attained by adjusting the handle E, relatively to the disk or segment, so that, for a short strap but slight movement of the segments will be required, and an increasing throw may be given corresponding to the increased length of strap to be cut. K is a sliding dog or jaw connected to one side of segment C, and provided with a hook or jaw projecting over the curved face for grasping and holding the strap to be cut and punched. Said slide is connected with the segment by a slot and set-screw, or in any convenient manner, and is held firmly in place grasping the strap by any convenient arrangement of spring for that purpose until the operation of cutting, skiving, and punching is completed, when an angular foot-piece, *k*, striking against a pin, *k'*, the dog *k* is thrust outward, allowing the completed strap to drop out of the machine through an opening, A', in the bed-plate. L is a flat tension-spring, secured to an adjustable post or standard, M, which may be secured in any one of a series of holes, *m*, in the bed-plate A, for varying the pressure or tension of the spring. N is a standard secured to the base-plate for holding the free end against the segment C, or the strap moving on the face of said segment. The upper end of standard N is armed with a horizontal spur, which overhangs the spring L, and also, if desired, the face of segment C, serving to hold the spring down properly, and also as a guide to the strap which is being operated upon. The object of the spring L is to keep the strap taut on the face of segment C, insuring its being punched at regular intervals, and also the cutting of the straps of uniform lengths. The upper portion B^1 of segment B is, by preference, faced with a perforated metal plate, B^2, for securing the punches, and pockets or recesses formed within the segments serve to receive the wads cut by the punches, said pockets opening underneath and permitting the wads to escape through an opening in the bed-plate A.

In operation, supposing the parts to be in position shown in Fig. 1, the strap is inserted between the knife G and its opposing cutting-face G^2, between the skiving-knife D and tension-spring L, and the segment C, and is grasped and held to the latter at its forward end by the dog K. Motion is now imparted by means of the handle or crank E, and the latch J, operating the lever H and its knife-actuating spur *h*, the knife G is thrust forward and cuts the strap the desired length. A continued movement of the handle actuates the segments punching the strap, and the end of the strap, resting against the eccentric portion d^3 of segment C, is carried up to the skiving-knife D and properly pared; thence the movement carries the skived end past the tension-spring L, when the angular foot *k* of dog K is brought into contact with the stop *k'* and the dog is thrust outward, releasing the strap, which drops through the opening A', when the movement of the segments, where segments are employed, is reversed, and the parts, returned to the position shown in Fig. 1, are ready to repeat the operation. Where disks are used the motion may be continuous, and either the vibrating segments or rotating disks may be operated by hand, by crank, or lever, as shown, or by power applied either to a crank or pulley in any convenient manner.

The pivoting of the knife-frame G allows the knife to vibrate slightly with the forward movement of the strap as the knife is passing through it, and the form of the spur H' is

such as to form an inclined plane up which a friction-roller on the knife rides, where vibration of the knife-frame occurs, and thus insures the cutting of the strap.

Where disks are employed, and it is simply desired to punch straps of any length, the knife may be removed, and a construction substantially like that shown in Fig. 3 may be employed.

Having now described my invention, I would have it understood that what I claim, and desire to secure by Letters Patent, is—

1. The pivoted segments B C provided one with the holding jaw or clamp K, and the other with the punches *a*, combined and operating substantially as and for the purpose described.

2. The segments B C, in combination with the straps *b c*, applied and operating substantially as described.

3. The combination of the knife G with the punching-segments B C, for cutting the straps of uniform lengths, as described.

4. The skiving-knife D, in combination with the eccentric d^3 on the segment or disk C, substantially as and for the purpose set forth.

5. The dog or clamp K, in combination with the segment C, for holding the strap to the segment, operating as described.

6. The tension-spring L, operating in combination with the strap-segment C, for holding the strap, as described.

In testimony whereof I have hereunto set my hand this 4th day of February, A. D. 1873.

JOHN F. HOLLISTER.

Witnesses:
A. L. MOORE,
A. N. BEEBE.