L. P. LUM.

Crimping-Machines.

No. 145,303. Patented Dec. 9, 1873.

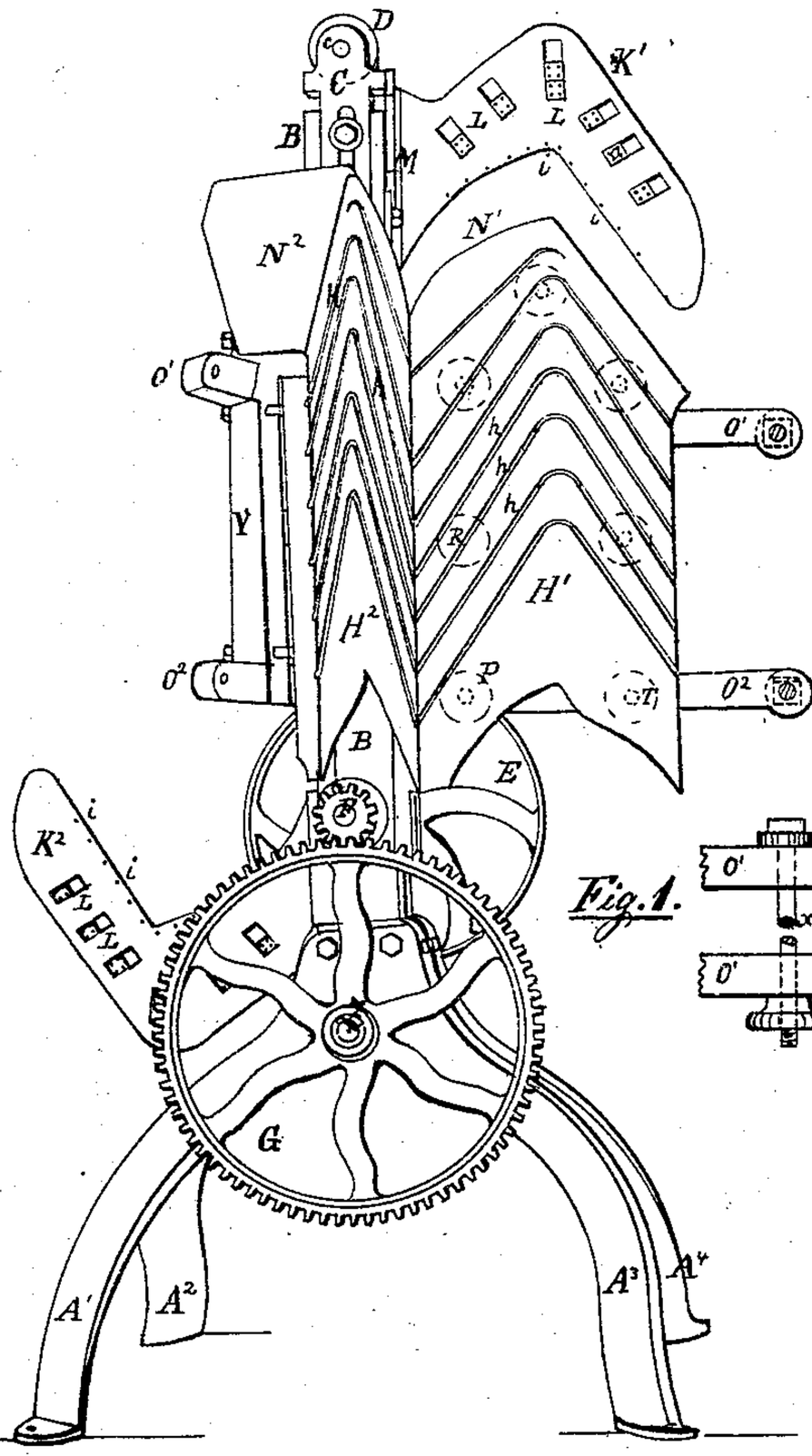


Fig. 1.

Fig. 2.

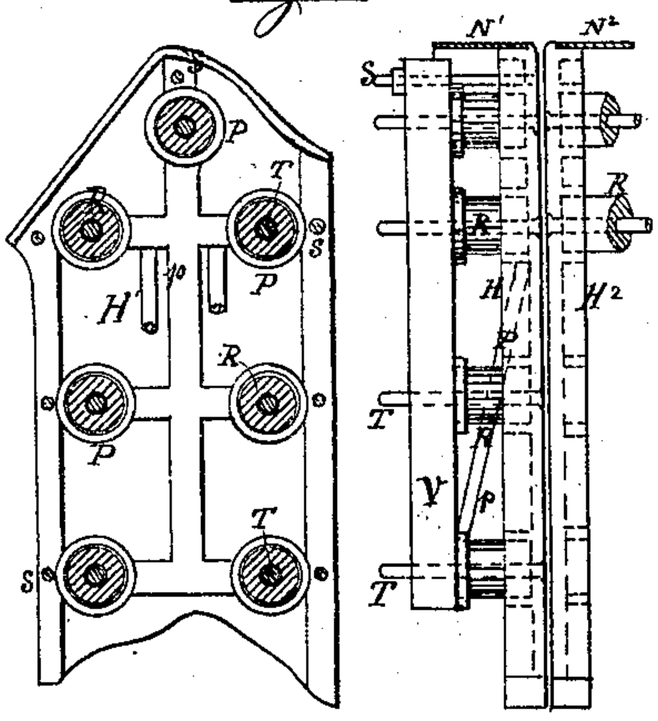
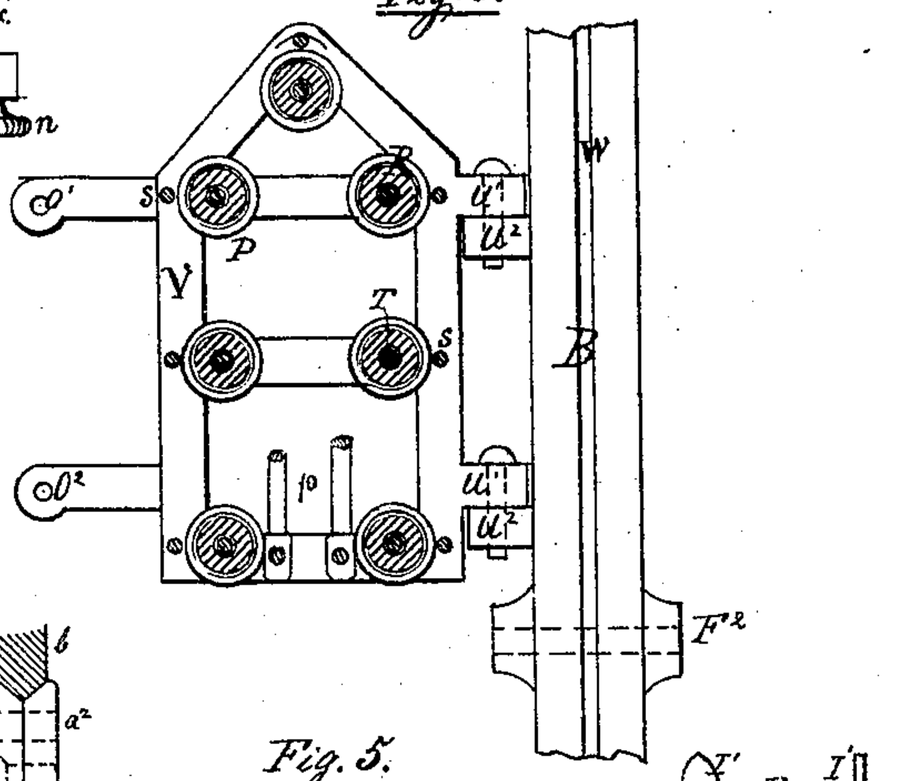


Fig. 3.



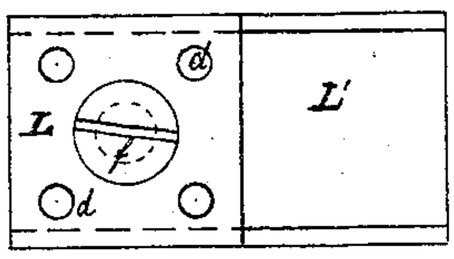


Fig. 4.

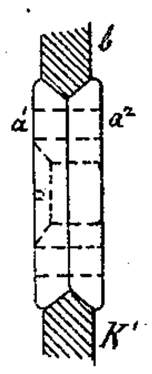


Fig. 5.

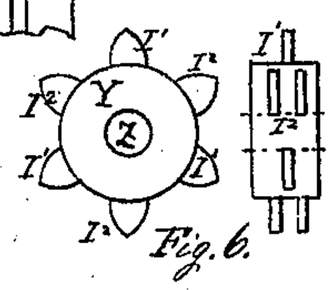


Fig. 6.

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LEWIS P. LUM, OF NEWBURG, NEW YORK.

IMPROVEMENT IN CRIMPING-MACHINES.

Specification forming part of Letters Patent No. **145,303**, dated December 9, 1873; application filed October 25, 1873.

To all whom it may concern:

Be it known that I, LEWIS P. LUM, of Newburg, in the county of Orange and State of New York, have invented certain Improvements in Crimping-Machines, of which the following is a specification:

This crimping-machine consists of a vertical post, supported on legs high enough so that the forms which move up on one side and down on the other side of the post clear the floor, when swinging around the lower end of the machine. To this vertical post are fastened all working parts of the machine; but to facilitate the description of the same, I refer to the annexed drawing, in which—

Figure 1 represents a perspective view of the whole machine; Figs. 2, 3, 4, 5, and 6, the main details of the same, on which the claims for improvement are based.

B B is the vertical iron post, supported by legs A^1 A^2 A^3 A^4 in such a way that the bottom side of the post is free. This post carries at its lowest end a horizontal shaft, Z, which is revolved by means of a large spur-gear, G, at one end of the same. Right in the middle of the post on the same shaft Z is a chain-wheel, Y, which moves an endless chain of flat links, J, which runs up on one side of the post B over a roller, D, and down on the other side over the chain-wheel before mentioned. The chain is stretched by the adjustable bearings C C, in which the roller-shaft *c* is supported. A second shaft, running through the vertical column B, at F, Fig. 3, has a pinion, F, on one end, to drive the gear-wheel G, and a pulley for a belt at the other end, by which the whole machine is set in motion, so that the chain makes about one revolution over the column every minute. To the endless chain are fastened two forms, K^1 K^2, equal distanced, and which move with the chain. They are about three-sixteenths of an inch thick, and have the shape on their front edge that the leather will have after crimping—one leg of the angle for the foot part, and the other leg for the leg part, of the boot. The part M of the form nearest to the post moves up and down in a long straight groove, W, Fig. 3, and is guided by top slides bolted to the post B, so that the forms K^1 K^2, on their downward movement, have to pass between two plates, H^1 H^2, fastened to the post B. These plates H^1 H^2 are placed with their smooth faces about three-sixteenths of an inch apart, so that the metal forms K^1 K^2 can pass between them. On top of these plates are fastened the table or shelf plates N^1 N^2, and conform exactly with the shape of the forms K^1 K^2. On these shelf-plates the leather is placed which has to be crimped, and the form K, on its downward movement, takes hold of the same and pulls the leather through between the two plates H^1 H^2, and drops it as soon as it is passed through. On this passage between the two plates H^1 H^2, the leather is sufficiently crimped for use. Another piece of leather, prepared in the usual way, is placed on the shelf-plate; the next form coming over the top roller D pulls it through with it, and so on.

The peculiar construction of the forms K^1 K^2 and the plates H^1 H^2 is the subject of a closer description. The plates H^1 H^2 are solid, and their faces, which are turned toward each other, have grooves *h h h*, Fig. 1, cast in them; but the faces are preferably planed and smooth, so that the leather will not be scratched. The upper edge is slightly rounded. These plates H^1 H^2 are firmly held by two outside jaws, V V, to which they are fastened by bolts *s s* and guide or steady pins T T. On the backs of the plates H are cast round cups P P, and also on the opposite places on the jaws V V, to receive rubber rollers R R. Placed between these inside plates H and jaws V, and through these rubber rollers, pass pins T T, to guide and to keep straight the plates to the jaws. Just outside the cups bolts *s s* are fastened in the plates, and pass through the jaws with nuts on the outside, so that the rubber rollers can be compressed between the plates and jaws, and give the inside plates H a certain elasticity, which can be regulated by the tension-screws *s s*. One of the jaws V is fastened firmly to the vertical column B. The other jaw is hung on hinges U^1 U^2, so that the one plate, H^2, can be turned outward to clean the faces, or for other purposes, Fig. 1.

When in use, the plates are set apart about three-sixteenths of an inch, and held in that way by screws *x x*, going through the arms O^1 O^2. Under the heads of the screws *x x* are placed rubber washers *w w*, to give also a

little elasticity to the bolts *x*, to prevent breaking at the moment the form K strikes the leather to carry it through between the plates. Another device to hold the plates in position is to fasten braces *p p* to the lower end of the jaw, Fig. 3, and let them rest under a cross-rib of the plate H, Fig. 2, so that the blow of the form on the leather will be partially carried to the jaws by those braces *p*, and that, when the form is carrying the leather through and the plates H^1 H^2 have to spread apart a little to let the form with the leather pass, the plates H will be lifted rather than carried down with the form. Should the thickness of the leather vary, the plates can be set right by loosening the tension-screws *s s*, which closes the space between the plates, or by compressing the rubber more by means of the bolts *s s*, which widens the space, that thicker leather may pass with the same strain upon it as on thinner stock. The grooves *h h* in the plates H take out the folds and wrinkles from the leather when it is passing through, at the same time letting the water run out which is squeezed from the leather during the operation. The forms K^1 K^2 have oblong holes L′ L′ cut in near the outside edges, Fig. 1, with dovetailed sides, of which Fig. 4 represents a cut in full size. In these holes are fitted brass blocks L, projecting a little over the sides *b* of the form-plate K. These brass blocks are in two parts, a^1 a^2, held together by a bolt, *f*, and can slide easily in the holes L′ from one end to the other. The holes in the forms are cut so that the inside edges are parallel with the grooves in the faces of the plates H; therefore the oblong holes are vertical to the grooves, and the brass blocks or slides L move vertically against the line of the grooves. Through the brass blocks are drilled small holes of about one-eighth of an inch diameter, and also along the inside edge of the forms K^1 K^2, Fig. 1. Now, when the form strikes the leather stretched on the shelf N^1 N^2, the wet leather is pressed in the holes *i i*, and held there firmly, also, by the holes *d d* in the sliding blocks, and the blocks, projecting over the sides of the forms, take hold of the leather; and when moving over the grooves *h h* in the plates H, the blocks L move toward the outside edge of the forms, and stretch out in this way all folds and wrinkles which may be in the leather, and the crimping is complete as soon as the form is passed through between the plates. The chain J, Fig. 5, is made of flat links, four pieces of equal thickness in each link; or, where two pieces lie close together, one piece of double thickness may be put in. This gives one space in every second link, two spaces in the links between for the cogs of the chain-wheel to enter and to move the chain. The chain-wheel itself, as represented in Fig. 6, has single cogs I^1, and double cogs I^2, which fit into the spaces of the chain to prevent the chain from edging and slipping, and the chain moves more evenly on its way around the vertical post.

I am aware of the patent crimping-machine of Rufus H. Dorn; but I claim as an improvement on his machine the vertical position of my machine, so that the forms strike the leather on their vertical downward motion; and it brings the table or shelf in such position that one man can place the leather on it, and it will lie still without being held until the form takes hold of it. Besides, the inside plates of my machine are solid, and the elasticity is given by the rubber between the plates and the jaws, which can be adjusted by the tension-screws. The sliding blocks and holes in the same and in the forms to hold the leather have not been used before, and are very essential for the successful operation of the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The jaws V V, one of which is stationary, the other being movable on hinges U^1 U^2, in combination with the inside plates H^1 H^2, for the purpose of bracing the same, substantially as specified.

2. The rubber cushions R R, in combination with the guide-pins T T and tension-screws, or their equivalents, between the jaws V V and inside plates H^1 H^2, arranged substantially as and for the purpose specified.

3. The forms K^1 K^2, provided with the slots L′ and sliding blocks L, substantially as specified.

4. The forms K^1 K^2, with the holes *i i* along the inside edge, and the sliding blocks L, with the holes *d d*, for the purpose as specified.

5. The chain-wheel Y, provided with single and double cogs, in combination with the chain J, provided with single and double spaces between the links to match the wheel, substantially as specified.

6. The combination of the forms K^1 K^2, slides L, inside plates H^1 H^2, jaws V V, and adjustable rubber cushions R R with vertical frame B, chain J, and chain-wheel Y, substantially as and for the purpose described.

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Witnesses:
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