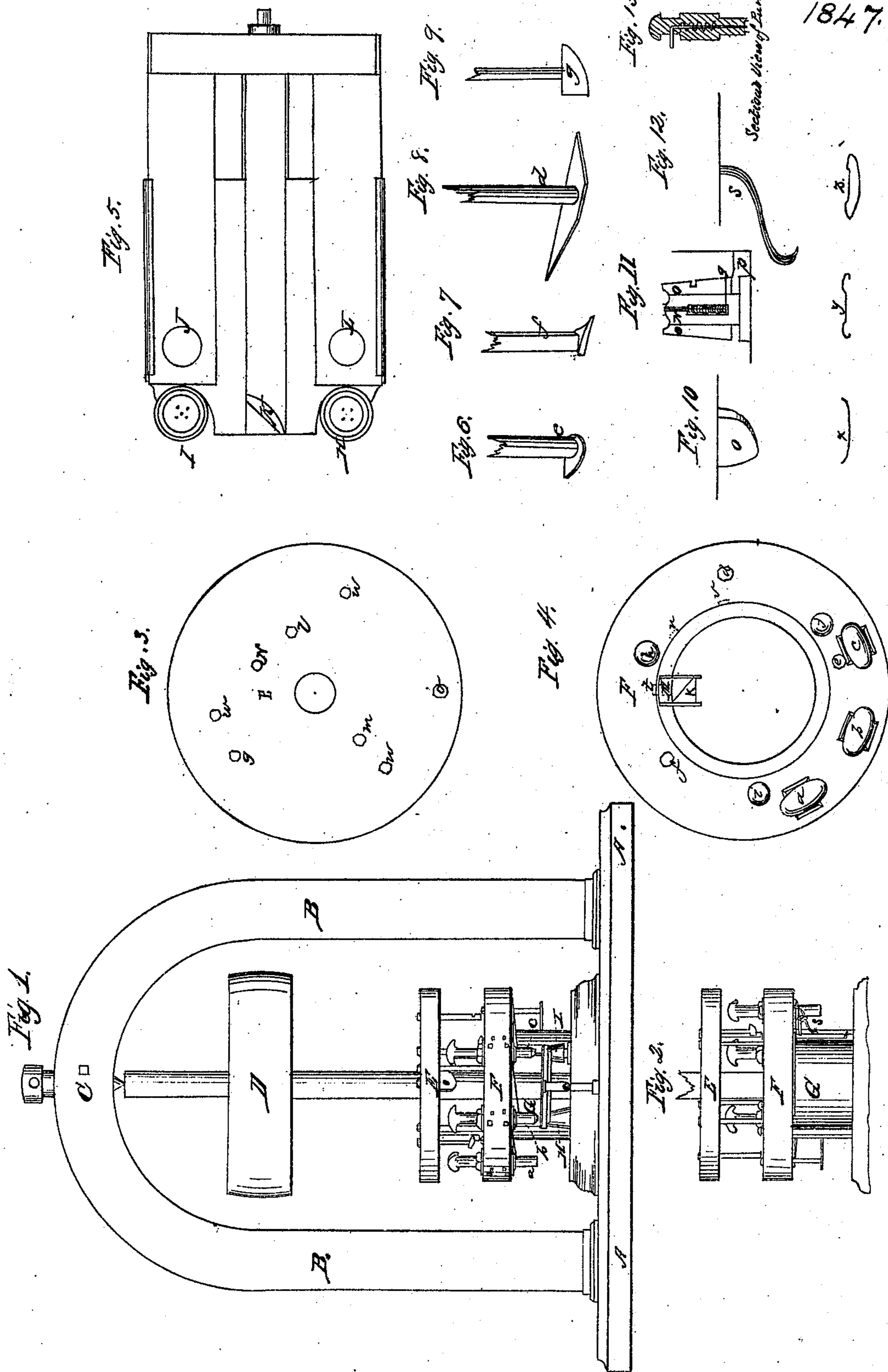


L. E. Hicks
Button Mach. Patented *Apr. 24*
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UNITED STATES PATENT OFFICE.

L. E. HICKS, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO JUNIUS S. NORTON.

BUTTON MACHINERY.

Specification of Letters Patent No. 5,079, dated April 24, 1847.

To all whom it may concern:

Be it known that I, LUCIEN E. HICKS, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Machine for Making Metallic-Plate Buttons; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, of which—

Figure 1 is a front elevation; Fig. 2 a section showing a different position of the revolving circles; Fig. 3 is a vertical view or plan of the first, or impelling circle; Fig. 4, a vertical view or plan of the second or carrying circle, and of the tubular axle on which it revolves; Fig. 5, a vertical view or plan of the feeding table; Figs. 6, 7, 8, 9, 10, 11, and 12, are representations of sections and parts of the machine and of the button plates in the different stages of the process of manufacture, as hereinafter explained.

Upon a bed plate or stand A, A, are erected two posts B, B, which are connected at the top by an arch C. Centrally between these posts is a vertical shaft, upon which is mounted a band-wheel D, by means of which motion is communicated to the machinery. Below the band-wheel are two revolving circles E, F, the first of which is attached to the shaft and revolves with it; but the other circle, F, is mounted on the head of a stationary hollow cylinder G, as its axle, and depends on the circle E, for its occasional motion. (This cylindrical axle has three vertical slots in its sides, as shown in the drawings, but which are of no important use). In front of these circles is a feeding table somewhat elevated above the stand, and the rear end of the table extends under the front edge of the circle F. This table is shown in Fig. 5, in which H, I, represent the heads of two dies, which are firmly fixed upon the stand, and are so formed as to give to the button plates their required form when pressed upon the dies.

J, K, L, are three branches of a horizontal slide, by which the metallic disks, or circular plates of which the buttons are made, and carried to their respective dies; the circular apertures J and L, are made to receive the disks for that purpose, and on the center branch K, is an oblique hub or projection, by means of which the slide is occa-

sionally drawn back as hereinafter described; but it is quickly returned to its ordinary position by means of a helical spring, placed under, and parallel to the center branch.

Three punches *a, b, c*, Fig. 4, are vertically adjusted in the circle F, and are occasionally depressed and made to descend in their sockets a short distance, but are returned to their positions by springs. Four legs *d, e, f*, Fig. 4 and *g*, Fig. 3, project downward from the circles, and to the bottom of each is attached a shoe (or wiper, represented in Figs. 6, 7, 8 and 9,) for purposes hereinafter described. Three vertical depressible pins *h, i, j*, Fig. 4, are so adjusted in the circle F, that they may be occasionally depressed a quarter of an inch, but are returned to their ordinary positions by springs, which are attached to the under side of the circles.

A stop or catch M, Fig. 4, is attached to the top of the stationary cylinder, and is ordinarily pressed against the inside surface of the circle F by a spring, and occasionally stops and holds the same by projecting into holes or cavities made for the purpose in the centerward surface thereof. This stop is furnished with an oblique shoulder *k*, by means of which the stop is occasionally withdrawn from either of the cavities by the circular movement of the pins or legs *l, m, n*, Fig. 3, which project downward from the circle E; thus liberating the circle F, from its detention. A cam *o*, (shown also in Fig. 10) is attached to the under side of the circle E, for the purpose of occasionally depressing the punches.

The die H, is of solid steel, and the head thereof is so formed as to conform to the underside of the back plate of the button; the die I, consists of a permanent post, which constitutes the center of the die, and a hollow movable cylinder which encircles the post, and which is supported in its ordinary position by a spring, as shown sectionally in Fig. 11, in which N, is the center post; *o, o*, the cylinder; *p*, the spring which supports the cylinder, and *q*, the foot of a lifter, consisting of a wire, or small rod, by which the button is raised from the die when finished; this lifter is ordinarily kept in its proper position by a small helical spring, coiled around the rod within the post; and on the centerward side of the cylinder is a horizontal notch or groove *r*; and

the head of the die is so formed as to give the required form to the face-plate of the button, and contains four conical pins or points projecting upward, by which the face-plate is pierced with eye-let holes. The bottom of the punch *b*, is so formed as to give the required shape to the outside of the back-plate of the button, and also contains four conical projecting pins which, when the punch descends, perforate the back-plate for eyelet holes. In the center of this punch is a vertical wire (Fig. 13) the top of which turns horizontally centerward, about half an inch; and this rod is connected to the punch and held in its ordinary position by a helical spring similar to that described in the die I. The bottom of the punch *c*, is made to conform to the inside of the face-plate of the button. The punch *a*, has a simple concave in the bottom, the rim of which serves to finish the button by gathering and setting down the rim or edge of the face-plate upon that of the back plate. A small wire hook *s*, (shown in Fig. 12) is attached to the underside of the circle *F*, near the leg *f*, for the purpose of removing the button when finished.

Operation of the machine.—The machine being put in motion by a belt passing over the band wheel, a disk of tin, or other metallic plate, is placed within each of the circular apertures *J*, *L*, of the feeding slide; the legs *w*, *w*, *w*, take to the heads of the depressible pins *h*, *i*, *j*, whereby the circle, *F*, is put in motion, and the shoe, *d*, takes to the hub or projection *K*, on the center branch of the slide, and draws back the slide until the two disks fall into the cavities of the two dies; the slide then being liberated, is returned by the helical spring to its ordinary position. The punches *b*, *c*, are then brought to positions directly over the two dies, *H*, *I*, the shoe *e*, at the same time, passing into the groove *r*, (Fig. 11) of the die *I*, (to prevent the depression of the cylinder,) when the stop, *M*, projects into the cavity *t*, which stops the circle *F*, and the three legs, *w*, *w*, *w*, depress and pass over the pins *h*, *i*, *j*, Fig. 4, and the cam *o*, comes in contact with and depresses the punch *a*, without effect; it then approaches and depresses the punch *b*, whereby the disk plate in the die *H*, is stamped, molded and perforated, and by its adhesion to the perforating pins, is raised from the die. The punch *c*, is then depressed by the cam, whereby the face-plate, in the die *I* is mold-

ed and perforated. The stop *M*, is then withdrawn by the leg *l*, and the three impelling legs again taking to the three depressible pins, the circle *F*, moves on until the punch *b*, comes to a position over the die *I*, when the stop projects into the cavity *u*, which detains the circle *F*, while the shoe *g*, passing on, comes in contact with the horizontal head of the vertical rod in the punch *b*, thereby depressing both the rod and punch until the perforating pins of the punch meet those of the die, thus preventing the further depression of the punch, while by the depression of the center rod of the punch, the plate is detached upon the face-plate in the die *I*. The stop is again withdrawn by the leg *m*, and the circle *F*, is again moved on until the punch *a*, comes to a position over the die *I*, when the stop again detains the circle by projecting into the cavity *v*; the legs again pass over the depressible pins, and the cam *o*, overtakes and depresses the punch *a*, whereby the edge of the face-plate (which is somewhat larger than the back-plate) is drawn inward and closely pressed down upon the back-plate, thus completing the button. The stop is then withdrawn by the leg *n* and the circle moves on until the shoe *f*, takes to the horizontal foot of the lifter, (*q*, Fig. 11,) thus elevating the rod, and with it the button from the die *I*, when the button is caught by the hook *s*, (Fig. 12) and deposited in a receptacle.

I shall occasionally place short vertical tubes over the two apertures of the feeding slide, for the purpose of holding a quantity of the disks or circular plates, to supply the feeding slide, and avoid the care of placing each disk within the apertures severally by hand.

The small sectionals *x*, *y*, *z*, at the bottom of the drawings, represent the two plates after being stamped or molded, and a button composed of the two plates after being locked together.

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

The circles *E* and *F*, with their punches, pins, cam, legs and shoes; in combination with the dies and the feeding slide, in the manner and for the purposes herein described.

L. E. HICKS.

Witnesses:

DYER AMOS NEW,
N. S. LAMBERTON.