2 Sheets—Sheet 1.

G. L. ASTON & A. HAMES.

Machine for the Manufacture of Buttons.

No. 228,017. **Patented May 25, 1880.**

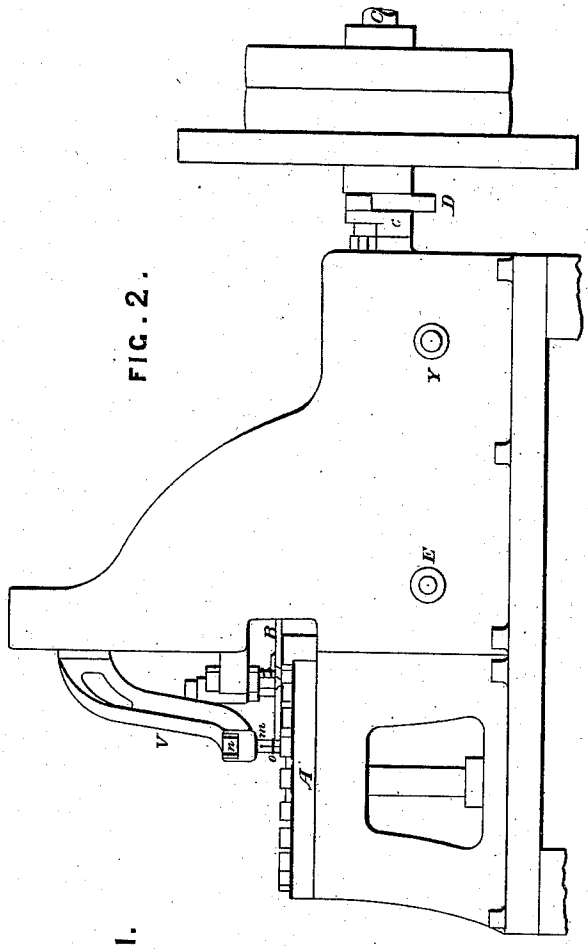


FIG. 2.

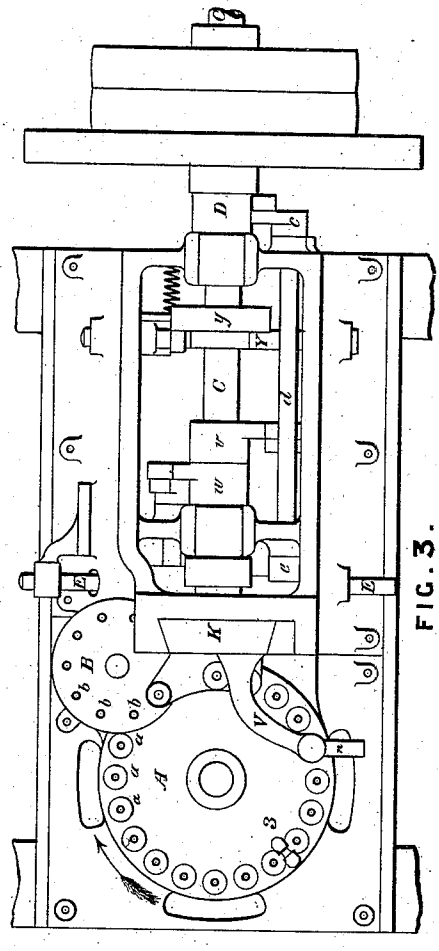


FIG. 3.

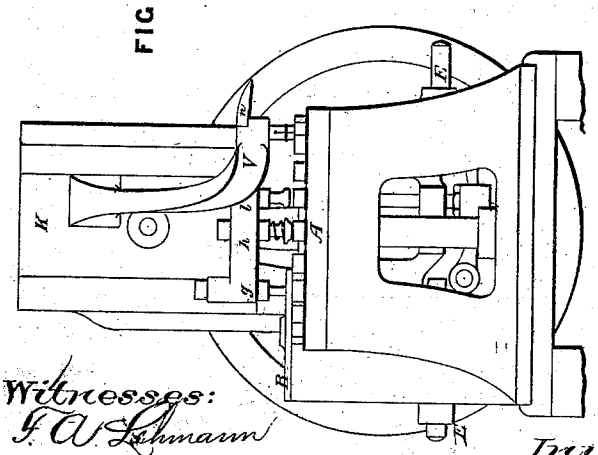


FIG. 1.

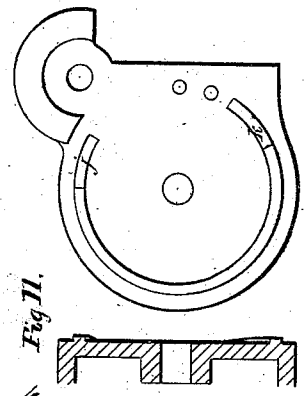


FIG. 8.

Fig II.

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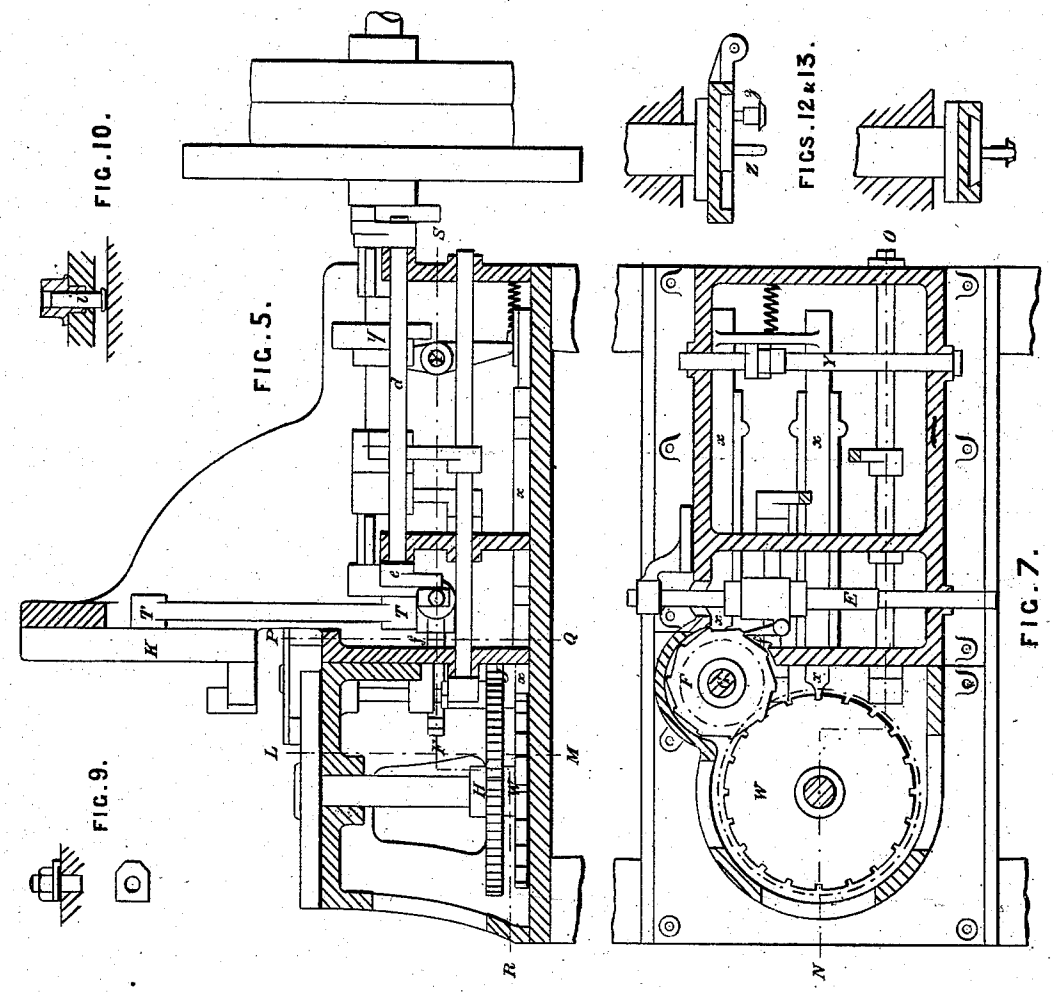
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UNITED STATES PATENT OFFICE.

GEORGE L. ASTON AND ARTHUR HAMES, OF BIRMINGHAM, ENGLAND.

MACHINE FOR THE MANUFACTURE OF BUTTONS.

SPECIFICATION forming part of Letters Patent No. 228,017, dated May 25, 1880.

Application filed January 21, 1880. Patented in England April 30, 1879.

To all whom it may concern:

Be it known that we, GEORGE LITTLETON ASTON and ARTHUR HAMES, of Birmingham, England, have invented new and useful Improvements in Machines for the Manufacture of Buttons, which improvements are also applicable to other similar purposes. These improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

Figure 1 is a front elevation of the machine. Fig. 2 is a side elevation. Fig. 3 is a plan; Fig. 4, a sectional elevation on line L M. Fig. 5 is a sectional elevation on line N O. Fig. 6 is a sectional elevation on line P Q, and Fig. 7 is a sectional plan on line R S.

We construct a machine having a revolving table, A, fitted with any convenient number of dies, *a a a*, in which part of the material is placed for making the buttons. Above the table A we have a revolving feeder, B, supplied with the holes *b*, into which other portions of the materials for making the buttons are placed. Motion is imparted to this feeder B from the main shaft C by the eccentric D, through the lever *c* and rocking spindle *d*, to the lever *e*, carried at the opposite end, which gives a reciprocating motion to the draw-bar E. This draw-bar E carries the pawl *f*, working into the ratchet-wheel F, which is hung upon the spindle G, carrying the feeding-table B. This spindle G transmits its motion to the table A in the ratio of two to one through the toothed wheels H and J. The vertical slide K works above these tables, carrying suitable tools, *g*, *h*, and *l*, and is reciprocated by the connecting-rod T from the end of the main shaft.

The plunger *g* presses the material or part of the material for making the button through the feeding-table B into the receiving-die or mold, which is then directly under the plunger *g*. The table is then moved round one notch in the direction of the arrow on the plan, Fig. 3, when the spring-tool *h* comes down and brings the material into a more or less finished form, when the table is again moved round and the button finished under the die *l*. Pressure is imparted to both sides of the button when under the tools *h* and *l* from the under side by the rods *p* and *q*, worked through the levers *r* and *s* and rocking shaft *t* and *u* from the eccentrics *v* and *w*, thus finishing the button by a succession of motions, which may be more or less in number, according to the nature and quality of the button or other similar article at the time in hand.

Fig. 8 is a plan of the bed with the table A removed, showing a circular fillet ending with the inclines *j* and *k*. Fig. 11 is a cross-section of the bed.

Now, as the table A continues to move, the finished button is carried over the inclined plane *j*, and as each of the twenty or other number of dies is fitted with a loose piston, *i*, (shown on the full-sized section, Fig. 10,) the button is lifted out of the die.

We can take the buttons from the top of the dies either by hand or by the machine. If by the latter, we fix a bracket, V, to the slide K, which carries the split tube *m*, picking off the buttons and delivering them through the pipe *n*. The elasticity of the tube *m*, for griping the button, is assisted by the elastic band *o*, stretched over the lower end of the tube.

The two tables A and B are secured in their respective positions while the buttons are being made by the locking draw-bar *x x*, actuated by the cross-shaft Y from the face-eccentric or projection disk-plate *y* taking into the notched disks W and X. The number of notches correspond with the number of dies or holes in the feeders, and thus both the tables are locked in a set position during the movements of the plungers in making the buttons.

Fig. 9 is the nut for holding the dies in place, as shown at 3, Fig. 3, of which any convenient number may be used.

Instead of using the tools *g*, *h*, and *l*, we sometimes substitute the double sliding tool shown at Figs. 12 and 13, where the tools Z and *z* are brought alternately over the dies by a suitable eccentric. In this case the slide K makes two strokes to one movement of the table A. We also use a horizontsl slide instead of the table B to feed the dies when more convenient.

In making some classes of buttons we may place the material direct into the dies or recesses in the lower table, A, and in other cases we might use a second feeding-table or second slide. The ratio of speeds may also be varied

of the tables to each other and of the vertical slide to the tables, so that by these and similar means we are enabled to produce compound buttons much more rapidly than formerly; but we would have it clearly understood that we do not confine ourselves to the precise details of these plans; but

We do claim as our invention—

1. In a machine for making buttons, a revolving table provided with a number of dies, as set forth, in combination with a revolving feeder and one or more plungers for compressing the material in the dies, as described.

2. The combination, in a button-machine, of the revolving table A, having a series of dies, *a a*, the revolving feeding-table, and one or more under plungers, *p q*, as and for the purpose set forth.

3. In combination with the tables A B, the slide K and dies *g h l*, as set forth.

4. In combination with the tables A B, having dies or receptacles for the material to be formed into buttons, a series of upper and lower plungers for compressing and finishing the buttons, as set forth.

5. In combination with the tables A B, having dies and plungers, as set forth, the arm V, provided with the resilient griping and discharging device *m o*, as described.

6. In combination with the tables A B, provided with dies and plungers, as set forth, mechanism for imparting to the said tables a coincident revolving motion and for locking them when the dies and plungers are brought into proper juxtaposition, as set forth.

In testimony that we claim the foregoing as our own we affix our signatures in the presence of two witnesses.

GEORGE LITTLETON ASTON.
ARTHUR HAMES.

Witnesses:
JOHN HILL,
CHARLES RICHARDSON.