2 Sheets—Sheet 1.

A. KIMBALL.

Machine for Making Wired Tickets.

No. 201,684. Patented March 26, 1878.

Fig. 1.

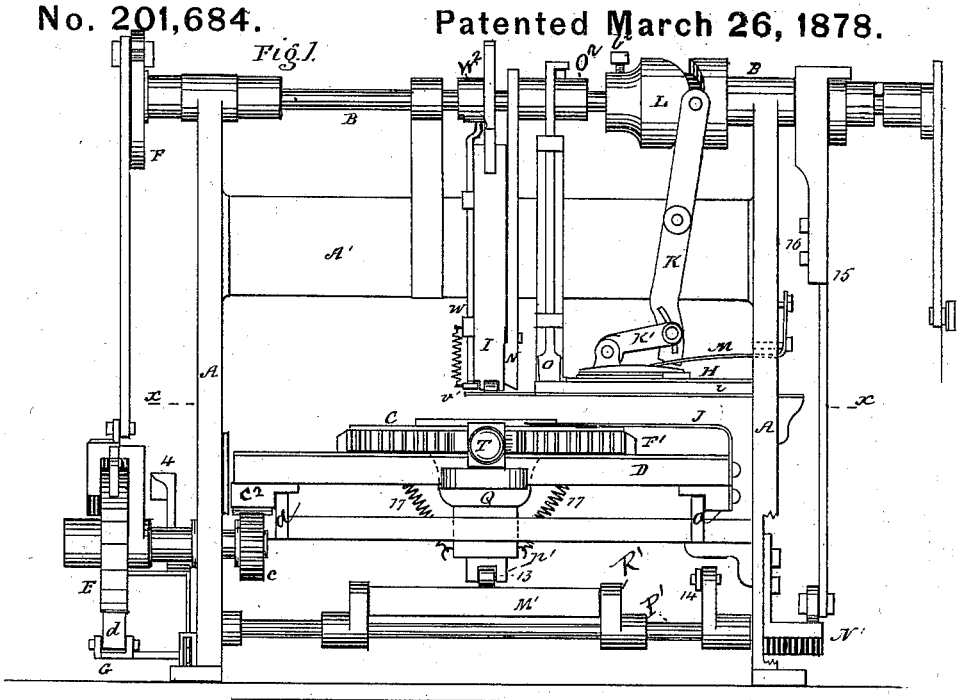
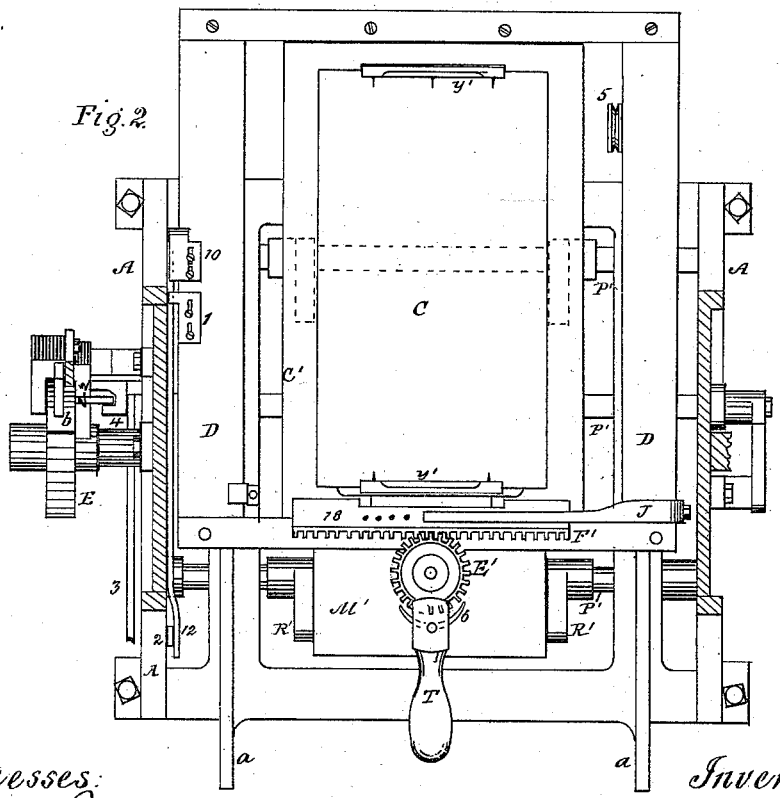


Fig. 2.



Witnesses:
Truman H. Baldwin
John F. Cheny

Inventor:
Alonzo Kimball
By his Atty
John S. Thornton

2 Sheets—Sheet 2.

A. KIMBALL.

Machine for Making Wired Tickets.

No. 201,684. **Patented March 26, 1878.**

Fig. 3.

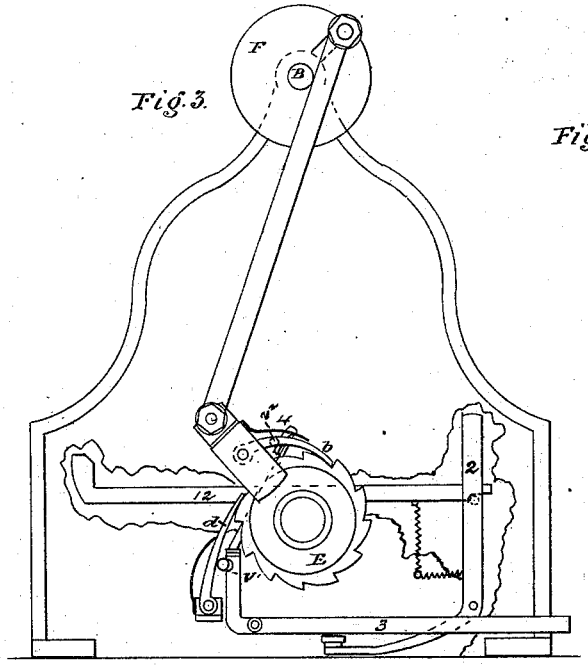


Fig. 4.

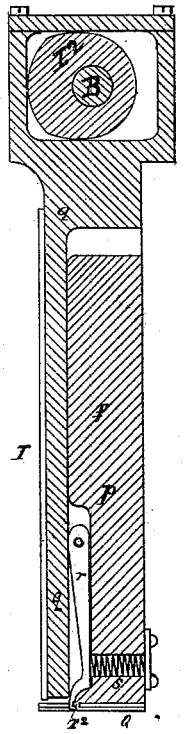


Fig. 10.

Fig. 11.

Fig. 5.

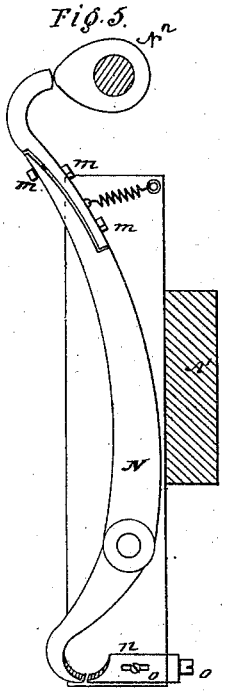


Fig. 7.

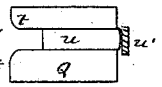


Fig. 6.

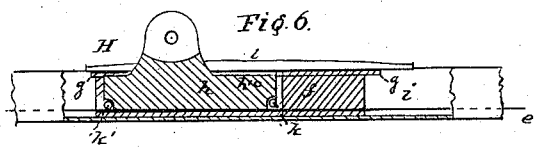


Fig. 8.

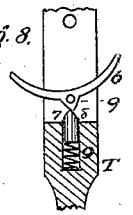
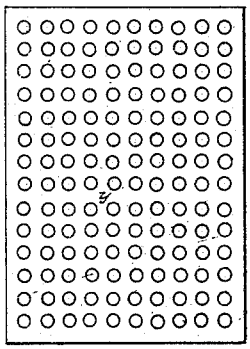


Fig. 9.



Witnesses:
Truman H. Baldwin
John F. Cheny

Inventor:
Alonzo Kimball
By his Atty.
John S. Thornton

UNITED STATES PATENT OFFICE.

ALONZO KIMBALL, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR MAKING WIRED TICKETS.

Specification forming part of Letters Patent No. **201,684**, dated March 26, 1878; application filed April 22, 1876.

To all whom it may concern:

Be it known that I, ALONZO KIMBALL, of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in a Machine for Making Wired Tickets; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification.

My said invention relates to improvements in a machine for making a certain "size and quality ticket," for which Letters Patent were granted to one Halmeagh Van Geasen, on or about the 21st day of April, 1874; and its object is to construct the machine in such a manner that it will form the wire fasteners and insert the same automatically and with great precision and rapidity.

These improvements consist in certain novel constructions and combinations of the several parts, as hereinafter particularly described, by means of which the machine is made capable of both forming the wire fasteners and inserting them at the same time.

In the accompanying drawings, Figure 1 represents a front elevation of my improved machine; Fig. 2, a horizontal section of the same on the line *x x* in Fig. 1; Fig. 3, an elevation of one end, with portions broken away to show more clearly the arrangement of some of the parts; and Figs. 4, 5, 6, 7, 8, 9, 10, and 11 are detail views, hereinafter referred to and described.

Similar letters of reference indicate the same parts in all the several figures.

The ticket above mentioned is designed to be used on ready-made clothing and other articles of merchandise, and is provided with a double-pointed wire fastener, the pointed ends of the wire being passed through the goods, and then turned down, and on the face of the tickets may be printed words or numerals indicative of the size and quality of the goods; and before proceeding to describe the machine, I may state that these tickets are formed on rectangular sheets of paper or card-board of suitable size, in rows extending lengthwise and sidewise at equal distances apart, which said sheets are passed through the machine while the wires are being formed and inserted in the same, and for this purpose they are laid on blocks or boards having perforations, which are filled with cork or similar material which the wires will readily penetrate.

A represents the frame of the machine, and B is a shaft, having bearings in the upper part of the said frame, to which the power is applied for driving the machine.

C is a metal plate or table, on which the sheet of card-board or paper is laid, and which is fitted in the frame C′, which latter has a lateral movement back and forth toward the ends of the frame A, its two ends being secured on the movable frame D, which said frame D slides on the rails or tramway *a a* in directions at right angles to those in which the table C moves. Motion is imparted to the frame D by means of a pawl, *b*, that engages with the ratchet-wheel E, and which said pawl is operated by means of a crank, cam, or eccentric, F, on the end of the shaft B, a pinion, *c*, which meshes with a toothed bar, c^2, on one side of the frame D, being secured on the same shaft as is the said ratchet-wheel, so that with each revolution of the shaft B the said frame D is moved forward the length of one ticket. A second pawl, *d*, pivoted to a bracket, G, which is fixed to the frame of the machine, holds the ratchet-wheel E while the pawl *b* is being retracted.

H represents the wire-feeding device, for feeding the wire *e* from a continuous roll to the forming device I. It consists of a shuttle or rectangular piece of metal, *f*, which is slotted to receive a tongue, *h*, which is pivoted therein at *h′*, and which has flanges *g*, which slide on the upper edges of a box or trough, *i*, secured to the frame A in a horizontal position about an inch above the upper surface of the table C. A reciprocating movement is imparted to this shuttle by means of the levers K and K′, to the latter of which it is pivoted, and which said levers are operated by a grooved cam, L, on the shaft B, so that the said shuttle has a movement back and forth equal to the length of wire requisite for making one of the fasteners. The lower end of the lever K is slotted, to admit of its being adjusted so as to impart a longer or shorter stroke to the shuttle, thereby feeding a longer

or shorter length of wire, according to the size of the fastener which is being made and inserted, and the grooved cam is also made adjustable by the set-screws b^2, to compensate for wear. The said lever K′ is pivoted to the lever K, and the latter is pivoted to the cross-bar A′. The solid portion of the shuttle *f* is perforated longitudinally to admit the wire *e*, which latter passes through the same and between the under surface of the tongue *h* and the bottom of the slot above mentioned; and the said tongue being pivoted near its rear end, the forward end of the same is, by the action of the lever K′, pressed firmly down upon the wire during the forward stroke of the shuttle, and slightly raised as the latter is drawn back. A stop-pin, *k*, prevents the forward end being raised too high, and another pin, *k′*, underneath which the wire is passed, prevents the latter from rising out of the bottom of the slot. Friction is imparted to the shuttle by means of an adjustable spring, M, that presses upon a slotted plate, *l*, which rests upon the shuttle. This feeding device is most plainly seen at Fig. 6, which represents a sectional view of the same.

N is a knife for cutting the wire, located between the feeding device last described and the forming device I. The cutting-edge of this knife is at the lower end, as shown in Fig. 5, and the body of the knife is pivoted to I. It is operated by a cam, N^2, on the shaft B, its upper end being kept in contact with the same by means of a suitable spring, and is adjusted by means of the screws *m m m*. The cutting-edge of the knife works in connection with a stationary knife, *n*, so as to give a slanting cut, and thus form a sharp point on each part of the wire cut. The stationary knife is adjusted by means of the screws *o o′*.

O is a presser-foot, which is actuated by a suitable spring, and is lifted by a cam, O^2, on the shaft B, and is for the purpose of holding the wire at the bottom of the box, and preventing its being drawn back by the shuttle on its backward stroke.

The wire-forming device I, a vertical section of which is shown in Fig. 4, consists of a metal box, *p*, which is secured to the cross-bar A′, and in which works a plunger, *q*, actuated by a cam, I^2, on the shaft B, and having a vertical movement up and down, and a lever or tongue, *r*, which is pivoted within the box *p*, and is moved in one direction by the plunger *q*, and in the opposite direction by a spiral or other spring, *s*. At the rear side of the extreme lower end of the tongue *r* a groove, r^2, is cut, into which the wire is received when the said tongue is driven inward by the descent of the plunger, which said groove extends across both sides of the tongue to receive the shanks of the wire when thus drawn inward, by which means the wire is brought into the form shown in Fig. 10, its two ends being drawn within the projections *t t* of a slotted plate, Q, secured to the under side of the box *p*, and its head resting against an adjustable sliding piece, *u*, in the plate Q, the said slide *u* being adjusted by means of the screw *w′*. By the completion of the stroke of the plunger these projecting ends are forced downward and brought into the form shown in Fig. 11, and are held in this position until, by the ascent of the plunger, the spring *s* comes into play and throws outward the lower end of the tongue, and thus releases the wire.

At the farther side of the forming device just described, and at its lower end, is a pivoted lever, *v*, which holds the end of the wire while it is being cut by the knives, and prevents its starting aside and being thrown out of proper position by the action of the knives. This lever is acted upon by a rod, *w*, which is operated by a cam, w^2, on the shaft B.

The block or board S, Fig. 9, on which the card-board or paper is laid, as before stated, is rectangular in form, and is perforated or mortised at regular intervals, corresponding to the size of the tickets, which said perforations *y* or mortises I fill with cork or similar material which the points of the wires will readily penetrate, so that while the main portion of the block is sufficiently rigid to cause the heads of the wires to lie snugly against the card-board when under pressure, the portion which the points penetrate is sufficiently yielding to allow the said points to penetrate it without being thrown out of proper position. This block S is laid on the table C between the bars *y′*, which latter are provided with prongs to keep it steady, and are pivoted to the table-frame C′, and actuated by suitable springs.

The operation of the parts already described is as follows: The sheet of card-board from which the tickets are to be cut having first been tacked on the block S, the latter is laid on the table C and secured in position by the pronged bars *y′*, the center of the first line of tickets being on a line with and directly underneath the forming device; and the wire from which the fasteners are formed is fed from a coil, placed in any suitable position, through the feeding device, (each stroke of the latter pushing forward a proper length of the same for forming one fastener,) and thence under the presser-foot and into the forming device, the end of the wire extending a short distance beyond the latter and under the presser-rod *w*, when it is in position for forming one of the fasteners.

The cams on the shaft are arranged in such a manner that the several parts will operate as follows: First, the feeding device pushes the wire forward, and at the completion of its stroke the presser-foot O descends and holds the wire, as also does the presser-rod *w;* then the knife cuts off the length, and the presser-foot and presser-rod begin to rise, while at the same time the plunger *q* begins to descend, and, pushing back the tongue *r*, bends the cut-off length of wire into the form shown in Fig. 10; and the farther descent of the said plunger brings it into the form shown in Fig. 11, in

which position, at the foot of the forming device, it is held until the table and the plunger begin to rise, and in the meantime the table C is raised by the cranks R′ on the rock-shafts P′, and the points of the wires are thereby pushed into the card-board and into the cork *y* in the block S, which being done, the plunger rises and releases the wire, and the table descends, carrying the wire inserted into the card-board, as aforesaid. While the plunger rises and the table descends the shuttle makes its backward stroke, and the presser-foot and presser-rod ascend, and the knife is drawn back, all of which said operations are repeated with each formation and insertion of a fastener.

Immediately after the table has descended, the frame D is pushed forward by the action of the ratchet E, and thereby another ticket is brought underneath the forming device, and so on until one row of the tickets has been filled.

The devices employed for bringing another row of tickets into position are as follows: An adjustable plate, 1, which is secured to the frame D, comes against the upper end of a bent lever, 2, which is pivoted to the end of the frame A, as soon as the frame D has reached its extreme forward movement in the manner above mentioned, and the lower end of the said lever 2 acts upon another bent lever, 3, on the upright portion of which is a pin, v^1, which comes against the inner side of the pawl *d*, and thereby disengages it from the ratchet; and on its upper end is an incline, 4, which presses against a pin, v^2, secured to the pawl *b*, and releases the latter. The ratchet-wheel E is thereby released, and the frame D is run back by the action of a weight suspended over the pulley 5 and attached to the side of the frame. These movements are repeated for each row of tickets.

The lateral movement of the table C, for the purpose of bringing the next row of tickets under the forming device, is effected by means of a ratchet-wheel, E′, which meshes with a toothed bar, F′, on the front edge of the table-frame C′, and is operated by a pawl, 6, pivoted in a handle, T, which latter is slotted to receive a piston, 7, having its forward end brought in wedge shape to engage with a wedge-shaped projection, 8, on the back of the said pawl 6, which said piston is actuated by a spring, 9, located in the said slot. This handle is operated by the person in charge of the machine.

When the frame D has been run back by the action of the weight, as above mentioned, on reaching the termination of its backward movement an adjustable plate, 10, which is secured to the said frame, presses down the farther end of a lever, 12, which is pivoted to the frame A, and on the other end of which is a slot or notch, which receives a pin secured upon the lever, until thus acted upon by the plate 10; and when the plate 10 passes over the farther end of the lever 12, and thereby raises its forward end, the said pin is released, and the lower end of the lever 2 is disengaged from the lever 3, whereby the pawls *b* and *d* are again brought into action with the ratchet E, and the frame D is moved forward, as before.

M′ is an oscillating platform, which is operated by the cranks R′ on the rock-shafts P′, and which raises the table C through the medium of a rod, *n*′, which works in a slotted bracket, Q, attached to the table-frame C′, the upper end of the said rod *n*′ working in contact with the under side of the said table C, and being provided at its lower end with a friction-roller, 13, which is pivoted therein and rests upon the platform M′. The said platform is pivoted to the cranks R′ on the rock-shafts P′, which latter are connected by a bar, 14, and are operated by a cam on the shaft B through the rod 15, which latter is adjusted by means of the set-screws 16. N^1 is an adjustable rest, for regulating the throw of the said platform M′. By means of this arrangement the table C is caused to act in unison with the other parts, as before described. 17 are springs, for retracting the table C.

J is a spring-bar attached to the frame D, and provided at its farther end, and on its under side, with a pin, which lets into perforations or mortises formed in the plate 18, attached to the table-frame C′, for the purpose of regulating the movement of the latter, so as to bring the rows of the tickets successively under the forming device I.

I may state that the table C is moved forward by the action of the ratchet and pawls immediately before it descends, and after the points of the wire have been inserted through the ticket into the block S, so that the said wire will clear the plate at the foot of the forming device.

What I claim as my invention is—

1. The wire-feeding device H, consisting of the combination of the shuttle *f*, having the tongue *h* pivoted therein, the stop-pins *k* and *k*′, the box *i*, and the slotted plate *l*, as and for the purpose set forth.

2. In combination with the forming device I, the presser-rod *w* and pivoted lever *v*, as herein shown and described, for the purpose set forth.

3. The table-frame C′, arranged to slide on the movable frame D, and provided with a graduated plate, 18, in combination with the ratchet-wheel E′, spring-bar J, and handle T, the latter being provided with the spring 9, piston 7, and pawl 6, as and for the purpose set forth.

4. In combination with the table C, the rod *n*′ and oscillating platform M′, as and for the purpose set forth.

5. In combination with the oscillating platform M′ and rock-shafts P′ P′ P′, the adjustable rest N′ and adjustable rod 15, as and for the purpose set forth.

6. The combination of the table C, frame D, ratchet-wheel E, pawls *b* and *d*, rack c^2

and pinion *c*, and cam F with the forming device I, as shown and described, for the purpose set forth.

7. In combination with the sliding frame D, provided with the adjustable plate 1, the lever 2, the lever 3, provided with a pin, v^1, and the incline 4, substantially as described, to operate in connection with the pawls *b* and *d*, in the manner set forth.

8. In combination with the sliding frame D, provided with the adjustable plate 10, the lever 12, constructed as described, and the levers 2 and 3, as and for the purpose set forth.

9. In combination with the table C, the pronged bars *y' y'*, pivoted to the table-frame C', and actuated by springs in the manner set forth, for the purpose of holding the block S, as described.

10. In combination with the tongue *r* of the forming device I, the slotted plate Q, provided with the projections *t t* and with the sliding piece *u*, the latter being made adjustable by a set-screw, *w'*, as and for the purpose set forth.

11. The knife N, formed in sections and made adjustable by set-screws *m m' m''*, in combination with the stationary knife *n*, made adjustable by set-screws *o o'*, as and for the purposes set forth.

12. The block S, provided with mortises or perforations *y* at regular intervals, the said mortises being filled with cork or similar material, as and for the purpose set forth.

ALONZO KIMBALL.

Witnesses:
JOHN S. THORNTON,
JOHN F. CHERRY.