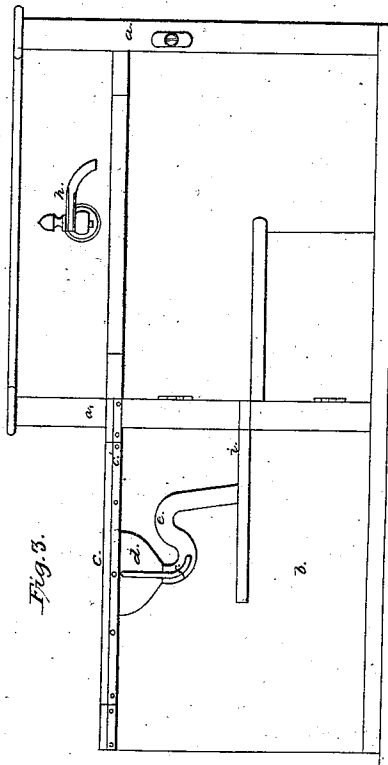
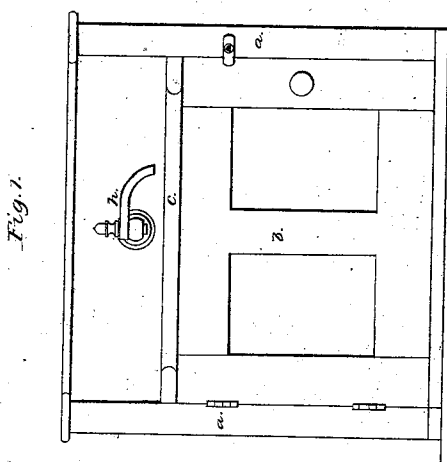
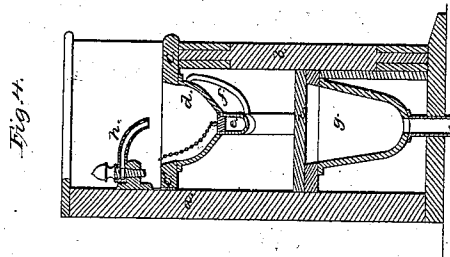
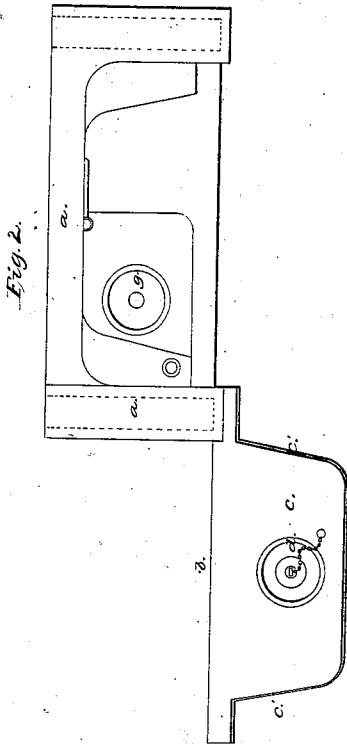


A. J. Knox,

Water Closet,

N^o 59,233.

Patented Oct. 30, 1866.



Witnesses:

J. H. Newton.
E. R. Drake.

Inventor:

Angelina J. Knox.

UNITED STATES PATENT OFFICE.

WILLIAM KRAEMER, OF CINCINNATI, OHIO.

IMPROVEMENT IN MACHINES FOR MAKING BUTTONS.

Specification forming part of Letters Patent No. 59,231, dated October 30, 1866.

To all whom it may concern:

Be it known that I, WILLIAM KRAEMER, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Machine for Manufacturing Buttons; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to a machine for the automatic manufacture of cloth and other buttons, the said machine comprising a series of consecutively-acting dies and counter-dies, adapted to coact in their appointed order with a peculiarly formed and operated traveling bed, die, or swage-stock.

Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 shows the traveling die detached. Fig. 3 is an axial section of the operative parts.

Diagrams I to VIII, inclusive, represent successive stages in the formation of a button.

A is a horizontal bed, perforated (a) at equal distances and supporting a suit of counter-dies, B C D E F G, which counter-dies may be secured in place by means of clips, or in any other suitable way.

The bed A is provided on its under side with flanges I I', which afford tracks for the support and guidance of my traveling die, bed, or swage-stock J. Rising from the bed A are standards K K', connected by rails L L'.

The rails L are traversed at equal distances by a series of vertical shafts or mandrels, M, said mandrels being secured by suitable boxes N in line with the counter-dies B C D E F G. The mandrels M contain at their lower ends screw-threaded or other sockets to receive the corresponding shanks of a series of dies or punches, O P Q R S T, formed to act in conjunction with the aforesaid counter-dies in manner hereinafter explained.

U is a shaft journaled horizontally in the standards K K', and furnished with segment-wheels V V', adapted to gear alternately in pinions W W' upon two shafts, X X', which are journaled horizontally and in line within the standards K, K', and K''.

The shafts X X' are armed with a series of cams, b c d e f g, of such form and position as to act consecutively and in the order enumerated to depress the series of mandrels M, each

cam completing its action in one-third of a revolution of the shaft X or X', as the case may be, so that the successive revolutions of the two shafts X and X' result in bringing the entire series of cams into action.

The mandrels M are retracted and held firmly up to the cams by means of springs W.

My traveling die J has ears j, which occupy the flanges or guides I I'. It has also a central aperture, j', which, during the operation of making the button, is closed by a plug, Z, which plug, during said operation, is upheld by a ledge, A'.

Depending from the bed A is a sloping projection, A'', against which the arm z, impinging at the end of the stroke, acts to withdraw the plug and to liberate the finished button.

The area of the aperture j' is partially contracted by a series of jaws, h, which are closed between the second and third sets of punches, and again opened between the fourth and fifth sets of punches, by impinging against stops.

The traveling die is propelled intermittently from station to station, and held at rest at each station in succession, by the following means: Projecting from the said die is a bar, 1, having a series of ratchets or shoulders, 2. 3 is a tappet which, immediately subsequent to each operation of the dies, is partially rotated so as to impinge successively against the several shoulders 2 and to propel the die J to the next station. The motion of this tappet is obtained from a rod, 4, operated by a cam, 5, upon the upper shaft, and retracted by a spring, 6.

7 is a catch, which, being pressed upward against the under side of the bed A by a spring, 8, engages in notches 9 therein, so as, after each advancement of the traveling die J to arrest the same at the proper station. After passing the last station a stud, 10, on the catch 7 strikes a sloping projection, 11, from the bed A, so as to throw the stud 10 past a kink, 13, in the spring, and to hold the catch 7 clear of the notches 9 and enable the retraction of the traveling die J by a weight, 14, or its equivalent. On reaching the back end of its stroke the stud 12 strikes another sloping projection, 15. The traveling die is thus propelled from die to die by an intermittent motion until a button has been completed, when the release of the catch 7 operates to liberate the said

