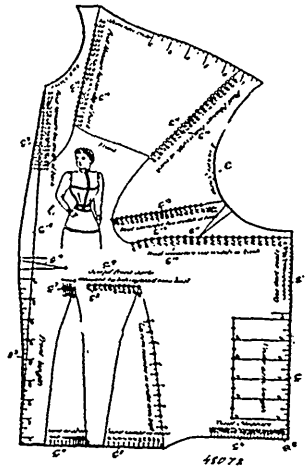
framework of a hollow spindle journalled therein, a hollow cutting tool connected to the lower end of the said spindle, a sliding bearing for each end of the said spindle, a connecting bar securing together the said bearings, a cam having a serrated face, a traveller rolling on the face of the said cam, a connection between the said roller and the lower one of the sliding bearings, means for imparting a rotary motion to the spindle, means for raising and lowering the spindle, means for arresting the descent of the spindle, means for forcing the bit through the lower end of the cutting tool after the descent of the spindle has been arrested, and means for returning the bit into the spindle and returning the spindle to its normal position, substantially as specified. 12th. In a machine for boring oval holes in piano or organ keys, the combination with the framework, the cam C journalled in the framework having about two-thirds of its periphery serrated and the remainder plain, a traveller F, rolling on the periphery of the cam, a bell crank lever E journalled in the framework, the traveller F, journalled in one arm of the bell crank lever E, a pitman I, one end of which is adjustably connected to the other arm $e^1$, of the bell crank lever E, the opposite end of the pitman I, connected to the sliding bearing J, for the hollow spindle K, in order that a vibratory motion can be transmitted from the traveller F, whilst rolling on the serrated part of the periphery of the cam C to the sliding bearing J, substantially as specified. 13th. In a machine for boring oval holes in piano or organ keys, the combination with the framework, the cam C, journalled in the framework having about two-thirds of its periphery serrated and the remainder plain, a traveller F rolling on the periphery of the cam, a bell crank lever E, journalled in the framework, the traveller F, journalled in one arm of the bell crank lever E, a pitman I one end of which is adjustably connected to the other arm $e^1$, of the bell crank lever E, the opposite end of the pitman I, connected to the sliding bearing J, for the hollow spindle K, in order that a vibratory motion can be transmitted from the traveller F, whilst rolling on the serrated part of the periphery of the cam C, to the sliding bearing J, and the spring $F^1$, one end of which is connected to the sliding bearing J, and the opposite end of the spring connected to the framework, substantially as specified. 14th. In a machine for boring oval holes in piano or organ keys, the combination with the framework, sliding bearings mounted in the framework, a hollow spindle journalled in the sliding bearings, means for connecting together the said sliding bearings, an adjustable collar mounted on the spindle above the lower bearings, a movable collar working up and down the said spindle located between the adjustable collar and the upper bearing, a spring between the adjustable collar and the moveable collar, a vertical slot in the said spindle, a bit within the spindle, a pin passing through the said movable collar and slot and connected to the bit, a hollow cutting tool connected to the lower end of the hollow spindle the said bit adapted to be moved out through the lower end of the hollow cutting tool, a bell crank lever N, one arm $n^1$, of which is connected to the movable collar and the opposite arm $n$, provided with a slot O, a pitman Q one end of which works in the slot O, and the opposite end of which is connected to a lever L, a traveller M journalled in the lever L, a cam C mounted upon a spindle B journalled in the framework, a cam D mounted upon the hub $b$, of the cam C on which rolls the traveller M, a spring $M^1$ connected to the upper end of the bell crank lever N and to the framework, a spring $F^1$ connected to the lower sliding bearing and to the framework, a traveller F rolling on the face of the cam C, a bell crank lever E in one arm of which is journalled the traveller F, a slot G formed in the other arm of the bell crank lever E. a pitman I one end of which works in the said slot and the opposite end of which is connected to the lower one of the sliding bearings, substantially as specified. 15th. In a machine for boring oval holes in piano or organ keys, the combination, with the framework, sliding bearings mounted in the framework, a hollow spindle journalled in the sliding bearings, means for connecting together the said sliding bearings, an adjustable collar mounted on the spindle above the lower bearing, a movable collar working up and down the said spindle located between the adjustable collar and the upper bearing, a spring between the adjustable collar and the movable collar, a vertical slot in the said spindle, a bit within the spindle, a pin passing through the said movable collar and slot and connected to the bit, a hollow cutting tool connected to the lower end of the hollow spindle, the said bit adapted to be moved out through the lower end of the hollow cutting tool, a bell crank lever N, one arm $n^1$ of which is connected to the movable collar and the opposite arm $n$, provided with a slot O, a pitman Q one end of which works in the slot O, and the opposite end of which is connected to a lever L, a traveller M journalled in the lever L, a cam C mounted upon a spindle B journalled in the framework, a cam D mounted upon the hub $b$ of the cam C, on which rolls the traveller M, a spring $M^1$ connected to the upper end of the bell crank lever N and to the framework, a spring $F^1$ connected to the lower sliding bearing and to the framework, a traveller F rolling on the face of the cam C, a bell crank lever E in one arm of which is journalled the traveller F, a slot G formed in the other arm of the bell crank lever E, a pitman I one end of which works in the said slot and the opposite end of which is connected to the lower one of the sliding bearings, and means for imparting a rotary motion to the said hollow spindle, substantially as specified. 16th. In a machine for boring oval holes in piano or organ keys, the combination, with the framework of a cutting tool mounted therein, means for imparting to the cutting tool a rotary vibratory motion to enable it to cut an oval hole, substantially as specified.



**No. 48,078. Dress Cutting System.**

(*Système de tailler les vêtements.*)



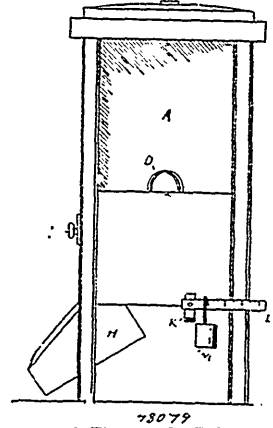
48078

Emma M. Hout, Lewiston, Maine, U.S.A., 29th January, 1895; 6 years.

*Claim.*—A system of cutting dresses composed of charts or templates A, B, C, D and E, and a square G, the ones A, B and D having waist slot scales $a^{10}$, $b^9$, and $d^6$, also width of back scales $a^4$, $a^1$, $b^1$, $c^2$, $c^{16}$, $c^{14}$, $c^{12}$, and $c^{10}$, also dart scales $c^4$, $c^5$, $c^7$, $c^3$, and dart curve $g^5$, on square G, shoulder length scales $a^2$, $c^{18}$, length of back scale, a waist measure scales $a^5$, $a^6$, $b^6$, $d^6$, underarm length scales $H^1$, $b^2$, $d^4$, hip measure scales $b^4$, $d$ and $g^1$, on square G, high point of sleeve scale $c^{21}$, under for basque scales $c^{20}$, and $c^{11}$, upper for basque scales $c^{19}$ and $c^{15}$, high point scale $c^{18}$, an under scale $c^{18}$, an upper scale $c^{13}$, and scales $c^7$, $c^8$, $c^4$, $c$ and $c^1$, substantially as described and for the purposes set forth.

**No. 48,079. Combined Scales and Coffee Case.**

(*Bascule et boîte à café combinées.*)



48079

John T. Whelstine and Thomas C. Baker, both of Washington, Kansas, U.S.A., 29th January, 1895; 6 years.

*Claim.*—In an automatic measuring device, the combination of a receptacle, a discharge orifice, a tilting box beneath the orifice having both a counterpoise and a graduating weight, a permanent partition for closing said box when in a horizontal position, a cut-off for the orifice, and mechanism for operating the cut-off by hand and by the movement of the tilting box.

**No. 48,080. Rag or Beating Engine.**

(*Machine à battre les guénilles.*)

John Shank, St. Katherines Works, Scienns, Edinburgh, Scotland, 29th January, 1895; 6 years.

*Claim.*—1st. In beating engines, the combination with a vat shell