J. H. WHITWORTH.

BUTTONHOLE MARKING MACHINE.

APPLICATION FILED MAR. 30, 1911.

1,052,395.

Patented Feb. 4, 1913.

4 SHEETS—SHEET 1.

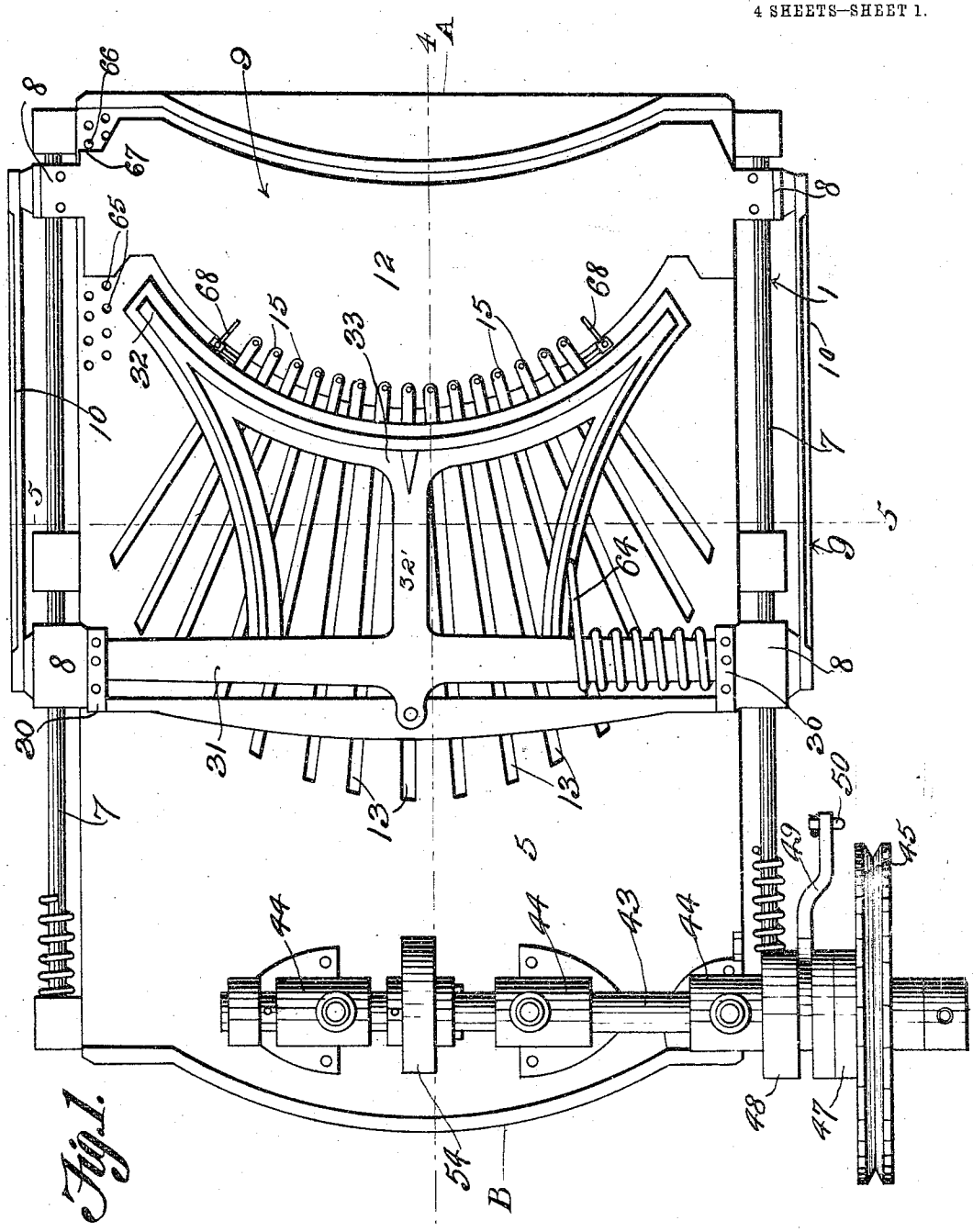

Fig. 1.

Witnesses

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4 SHEETS—SHEET 2.

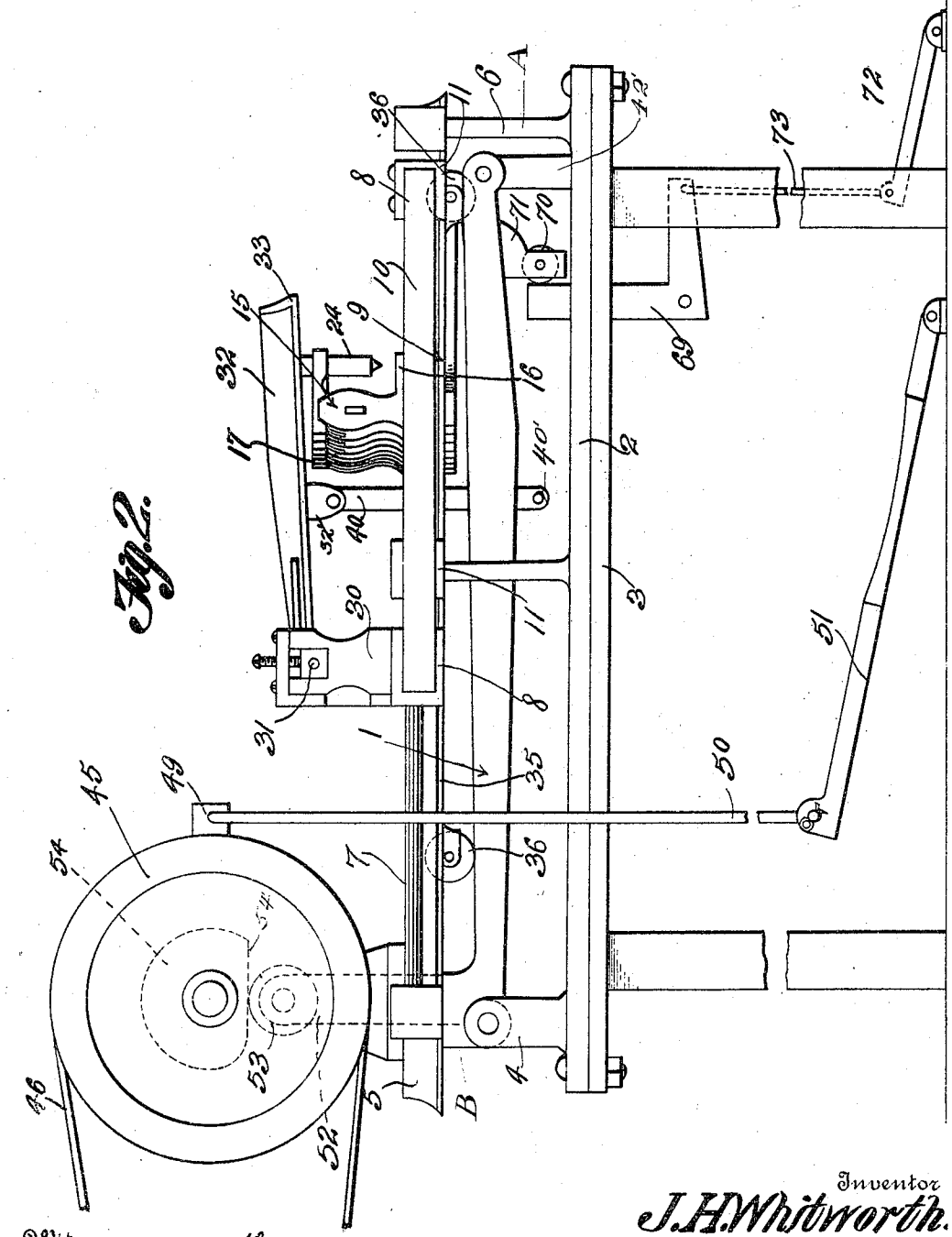

Fig. 2.

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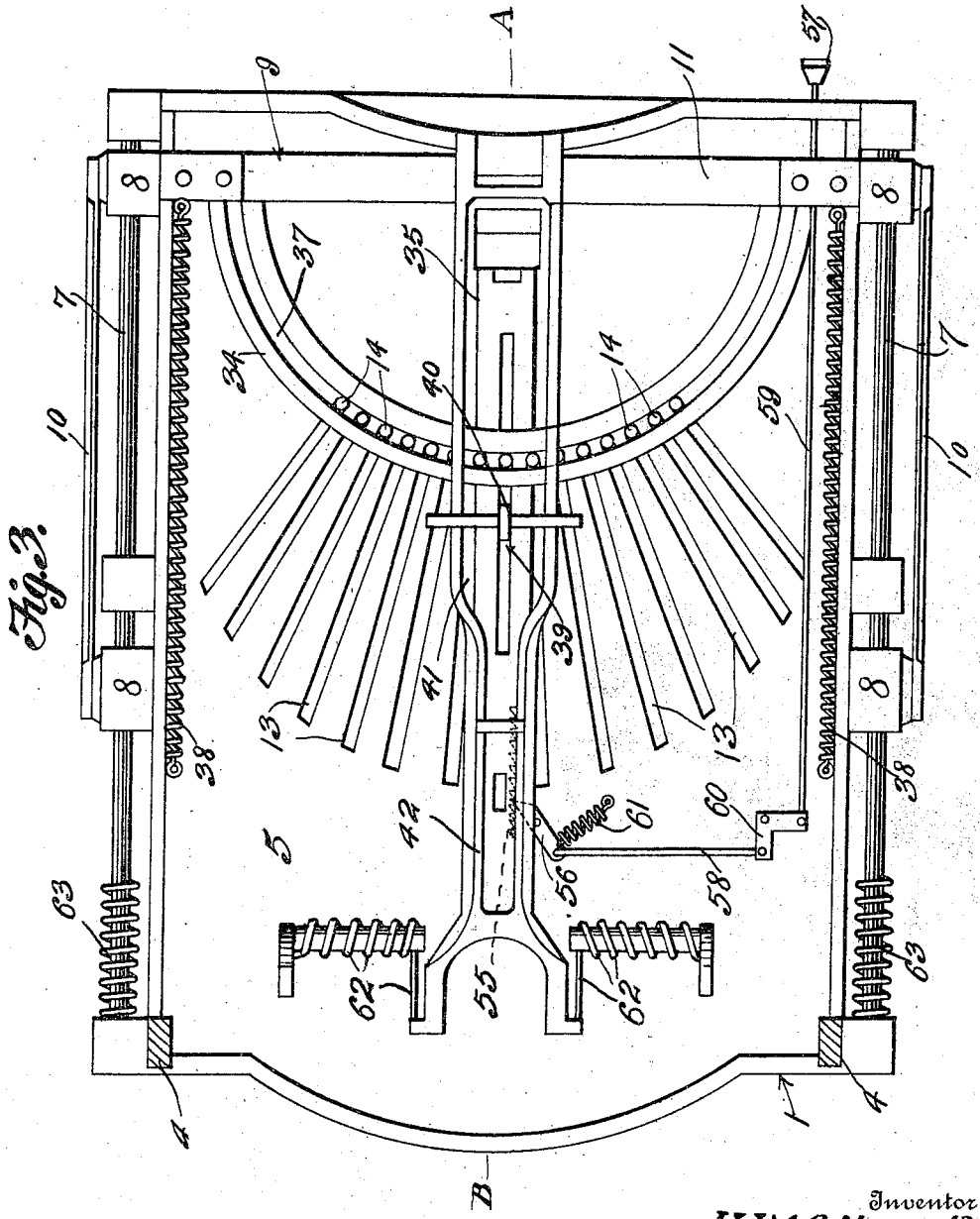
4 SHEETS—SHEET 3.

Fig. 3.



Witnesses

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4 SHEETS—SHEET 4.

Fig. 6.

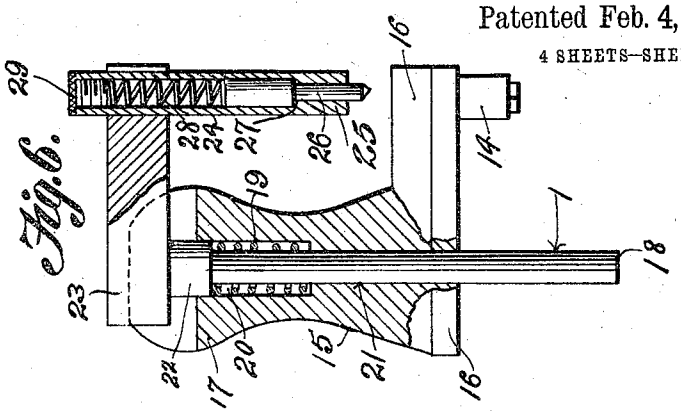


Fig. 4.

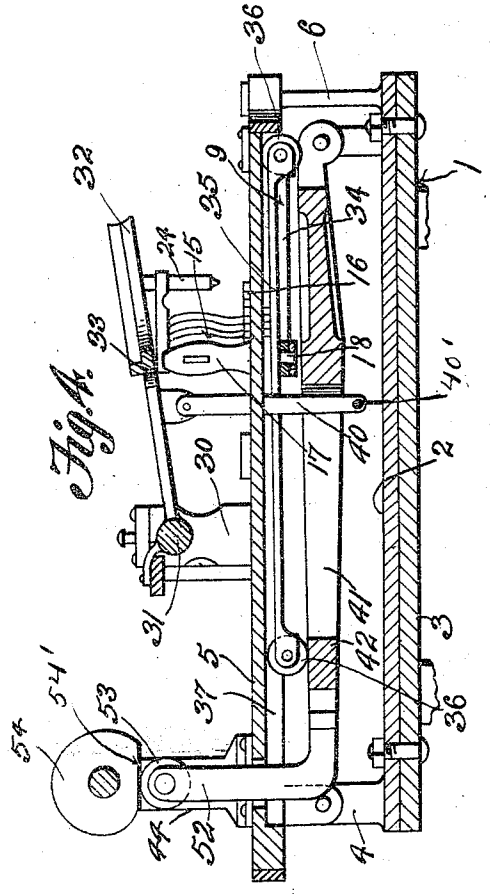
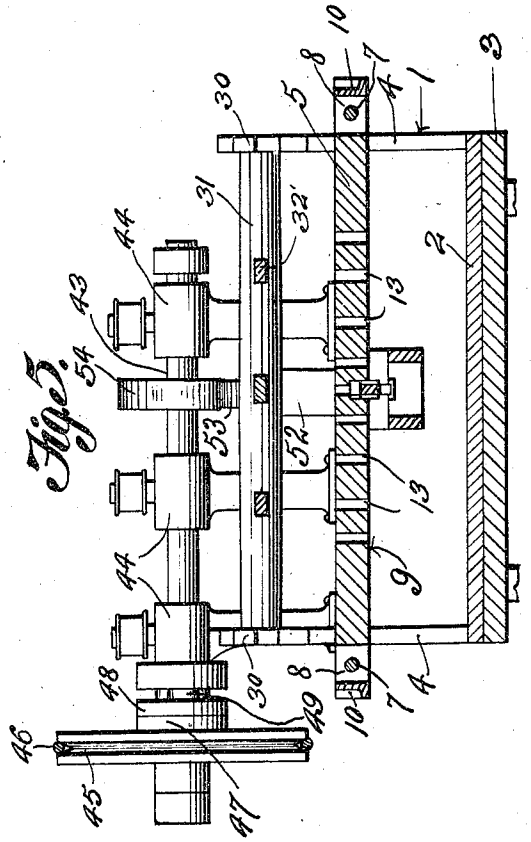


Fig. 5.



Witnesses,

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UNITED STATES PATENT OFFICE.

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BUTTONHOLE-MARKING MACHINE.

1,052,395. Specification of Letters Pate . Patented Feb. 4, 1913.

Application filed March 30, 1911. Serial No. 617,864.

To all whom it may concern:

Be it known that I, JAMES H. WHITWORTH, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented certain new and useful Improvements in Buttonhole-Marking Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to button hole marking machines, and has for its object to construct a machine of this nature wherein the same may be adjusted to properly mark button holes upon various sized shoes, wherein the space between the button holes is either decreased or increased, as may be desired.

Heretofore, it has been customary in the manufacture of shoes to mark the button holes thereon by hand or by machines many of which require the substitution of new marking implements as the different sizes of shoes are operated upon. This has proven to be a very unsatisfactory and time consuming operation, and it is the principal object of the present invention to eliminate these objectionable features and produce a machine which will mark the shoes not only accurately, but will operate upon any size of shoe now in use.

With the above and other objects in view, this invention consists in the construction, combination and arrangement of parts, all as hereinafter more particularly described, claimed and illustrated in the accompanying drawings, wherein:

Figure 1 is a top plan view of my improved button hole marking machine; Fig. 2 is a side elevation thereof; Fig. 3 is a bottom plan thereof; Fig. 4 is a section taken along line 4—4 of Fig. 1; Fig. 5 is a section taken along line 5—5 of Fig. 1; and Fig. 6 is an enlarged sectional view of one of the punches and coöperating parts.

Reference being had more particularly to the drawings, 1 indicates generally my improved button hole marking machine which constitutes a base plate 2 bolted, riveted or otherwise secured to a suitable support 3. For the purposes of description "A" as applied to the figures will designate the forward terminal of my machine, and "B", the rear terminal thereof. At the rear terminal "B" of the base 2, is formed a plurality of upwardly extending standards or supports 4, to which is hinged in any suitable manner the bed plate 5. the forward end of which removably rests upon the standards or supports 6, which are secured to the base 2 at the forward terminal "A" thereof. Longitudinally to each side of the bed plate 5, through the instrumentality of any suitable bearing, and held thereby in superposed parallel relation to said bed plate, is a bearing rod 7 upon which operates for reciprocation a pair of suitable bearings or sleeves 8 which carry a carriage 9. This carriage comprises the side members 10 which are rigidly and securely connected to the outer sides of the guides 8. These side members are connected by the transverse bars 11 forming a rigid structure for the carriage 9, the forward transverse bar 11 of which carries, or has secured thereto, a plate 12 which constitutes a cloth or leather support. This plate 12 is curved to correspond and cooperate with the forward terminals of the converging guides of the punches. Adjacent to the plate 12 which is located at the forward terminal "A" of the machine, the bed plate 5 is pierced by a series of rearwardly divergent slots 13, which form guides for the punches superposed thereabove and mounted upon the bed plate.

The punches designated generally as 15 each comprise a bracket or base plate 16 provided with the vertical extension 17 at one terminal thereof, said extension adapted to operate above the surface of the bed plate 5 and with a dependent roller 14 at the opposite terminal thereof, said rollers adapted to operate in convergent guides or slots of the bed plate. A longitudinal socket 21 pierces the plate or bracket 16 and extends longitudinally through the extension 17 and is provided at its upper terminal with the enlargement 20. A pin 18 is adapted to reciprocate in this socket 21, and is provided with a head 22 which operates in the enlargement 20. A spring 19 is interposed between the base of the enlargement 20 and the head 22, and is adapted to normally force the rod 18 in an upward direction. The lower terminal of the rod 18 operates in one of the slots or guides 13 and in combination with the roller 14 overcomes any tendency of the punch to move laterally. The head 22 of

the rod 18 is provided with a forwardly extending horizontal bar or support 23, which carries at its free terminal the depending sleeve 24. This head 23 operates in the depression in the upper terminal of the extension 17, as illustrated in Fig. 6, and is permitted to move within said depression. The lower terminal of the sleeve 24 is provided with a reduced portion 25, while the upper terminal of said sleeve is provided with a closure cap 29 which is threaded in the upper terminal thereof.

A punch head 27 is mounted for reciprocation in the sleeve 24 above the reduced portion 25 thereof, and is provided with a punch 26, which operates in the reduced portion 25 and projects therefrom. A spring is interposed between the cap 29 and the punch head 27 and normally tends to force said punch from the sleeve 24, and also provides a cushion for said punch. There is one punch mechanism 15 for each slot 13, as is clearly illustrated in Fig. 4. The slides 8 operable on the rod 7 adjacent to the rear terminal "B" of the machine have secured or mounted thereon the vertical bearings 30, in which is mounted a shaft 31 which constitutes a pivot for the hammer mechanism. A plurality of forwardly extending arms 32′ are rigidly secured to the rod or shaft 31 and carry at their outer terminals the curved bar 32 which constitutes the hammer provided with a head 33 which is adapted to be superposed above the caps 29 of the sleeves 24 of the punches 15, and adapted to contact therewith upon the downward movement of said hammer. In order to normally retain the hammer in an elevated position and to return the same to this position after it has operated upon the punches, a spring 64 is secured to the inner face of one of the bearings 30, wound about the shaft 31, and is secured to the adjacent arm 32′, and normally exerts a tension upon the said arm in an upward direction.

A semi-circular plate 34 provided with a similar groove 37 is mounted on the under side of the bed plate 5 and is secured to the transverse bar 11, and is adapted to reciprocate with said bar as the carriage 9 passes through a like motion. The groove 37 of this plate is adapted to receive the rollers 14 of the punches 15 which project below the guides or slots of the base plate 5. Thus, upon the movement of the carriage 9, and consequently the plate 34, in a rearward direction, the punches 15 similarly operate and diverge as they travel in the slots or guides 13. A longitudinal plate 35 is superposed above the upper surface of the plate 34, to wit: the surface thereof adjacent to the bed plate 5, and is provided at its opposite terminal with the rollers 36 which are adapted to engage the under side of the bed plate 5 and a support, which will specifically hereinafter be more fully described. In order to provide a means whereby the carriage 9 may normally tend to operate toward the rear "B" of the machine, one retractile spring 38 is secured to each terminal of the bar 11 on the under side of the machine and is also secured to the bed plate 5 adjacent the rear terminal thereof.

A pair of supports 42′ are mounted on the base 2, adjacent to the standard or support 6, and have a longitudinal bar 42 pivoted thereto, said longitudinal bar being provided with a central slot 41 and an upwardly extending pedestal 52 at the rear terminal thereof, which extends vertically through the bed plate 5, and is provided at its upper terminal with a roller 53. In order to provide a connection between this longitudinal bar 42 which constitutes the actuating mechanism for the hammer, and the intermediate arm 32′ a link 40 extends through the bed plate 5 and is pivotally connected at its upper terminal to the intermediate arms 32′ of the hammer 32, and is provided at its lower terminal with cross bar 40′, which operates against the lower edges of the lever 42. Thus it will be seen that as the actuating member or bar 42 is moved about its pivotal point, to wit: the bearings 42′, a pressure will be exerted upon the link 40, thereby moving the hammer in a downward direction and exerting pressure upon the caps 29 of the sleeves 24, constituting elements of the punches 15. The rollers 36 of the plate 35 operate upon and in connection with the actuating bar 42 and are retained between this bar and the base plate 5. Adjacent to the rear terminal of the bed plate 5 are a plurality of vertical bearings 44, in which is rotatably mounted the shaft 43, said shaft carrying at its outer terminal a pulley 45, to which power from any suitable source is supplied. A central cam 54 is mounted upon the shaft 43 and is provided with the flattened surface 54′ which is adapted to contact with the roller 53 carried by the actuating member 42 at predetermined intervals, to permit the upward movement of said actuating member. As the curved surface of the cam 54 comes in contact with the roller 53, the actuating bar 42 moves in a downward direction about its pivot and exerts a pull upon the link 40, bringing the hammer head 32 in engagement with the punch. Any suitable clutch members 47 and 48 are mounted upon the shaft 43 and are actuated by the yoke 49 connected with any suitable lever or rod 50, thereby permitting the rotation of the shaft when so desired.

A plurality of teeth 55 are formed upon one side of the plate 35 and are adapted to engage the pawl 56 mounted on the under surface of the bed plate 5. This pawl is connected to a link which is connected to

an actuating rod 59 through the instrumentality of the bell crank 60. In order to hold the pawl 56 normally in engagement with the teeth 55, an expansible spring 61 is secured to the bed plate 5 and to the pawl 56. By the provision of this pawl, all retrograde movement or tendency of the carriage to move in the direction of the rear terminal "B" of the machine is overcome, and the same is rigidly held in any desired position. In order to retain the actuating member in a normally parallel position to the bed plate 5, a plurality of springs 62 are mounted upon said bed plate, and are secured to the actuating bar 42 in such a manner that the cam 54 operating against the roller 53 carried by said operating bar must operate against the tension of said springs to move said operating bar in a downward direction. In order to provide a means whereby the carriage 9 may be moved to the forward terminal "A" of the machine, a bell crank 69 is mounted in the under surface of the support 3 and projects above the surface of the bed plate 2 and contacts with the roller 70 carried by dependent brackets 71 secured to the bed plate 35. A link 73 connects the horizontal arm of the bell crank 69 to a suitable treadle 72; thus, when pressure is exerted upon the treadle 72, the vertical arm of the bell crank 69 may move in a forward direction, drawing the carriage therewith. In order to adjust the cloth supporting plate 12 in any desired position, the forward terminal of the bed plate 5 is provided with a series of apertures 65 corresponding to the number of ratchet teeth 55 formed in the bed plate 35, in which a pin 66 may be inserted and adapted to contact with a shoulder 67 formed on the supporting plate 12, thereby adjusting the same to the length of the shoe being marked, which is registered by the gages 68 located upon the rear edge of the cloth supporting plate 12.

From the foregoing disclosure it will readily be understood that when the pawl 56, which engages the teeth 55 of the plate 35 by the tension of the spring 61, is released through the instrumentality of the actuating rod 59, the carriage 9 will be released and forced in a rearward direction by the retractile springs 38. In order to eliminate all damaging jar caused by this movement, a plurality of cushion springs 63 are mounted upon the rods 7.

From the foregoing it will clearly be understood that shoes of various sizes may readily have button holes marked thereon by the adjustment of the plate 35 which provides the adjustment for the punches 15.

Having thus fully described my invention, what I claim as new, and desire to secure by U. S. Letters Patent, is:

1. In a button hole marking machine, the combination with a base, of a bed plate carried thereby, a series of punches mounted upon said bed plate, a hammer adapted to actuate said punches, and means for adjusting said punches and hammer.

2. In a button hole marking machine, the combination with a bed plate, of a plurality of punches carried thereby, a carriage coöperating with said bed plate, and means for actuating said punches mounted on said carriage.

3. In a button hole marking machine, the combination with a bed plate, of a plurality of punches carried thereby, a carriage cooperating with said bed plate, and means mounted on said carriage for adjusting said punches upon the movements of the carriage aforesaid.

4. In a button hole marking machine, the combination with a bed plate, of a cloth supporting plate mounted upon the bed plate, a series of punches carried by said bed plate, means for actuating said punches, an operating member carried by the bed plate for coöperating with said punch actuating means, and means for actuating the operating member.

5. In a button hole marking machine, the combination with a bed plate, of a cloth supporting plate mounted upon the bed plate, a series of punches carried by said bed plate, means for actuating said punches, an operating member carried by the bed plate for coöperating with said punch actuating means, means for actuating the operating member, and a connection between the operating member and the punch actuating means.

6. In a button hole marking machine, the combination with a bed plate, of a plurality of punches mounted upon said bed plate, a carriage coöperating with said bed plate, a cloth supporting member carried by said carriage and adapted to coöperate with said punches, means for actuating said punches, an operating member carried by said bed plate for operating said punch actuating mechanism, and a connection between said operating member and said punch actuating means.

7. In a button hole marking machine, the combination with a bed plate, of a plurality of punches mounted upon said bed plate, a carriage coöperating with said bed plate, a cloth supporting member carried by said carriage and adapted to coöperate with said punches, means for actuating said punches, an operating member carried by said bed plate for operating said punch actuating mechanism, a connection between said operating member and said punch actuating means, and means for actuating said operating member.

8. In a button hole marking machine, the combination with a bed plate, of a plurality

of punches mounted upon said bed plate, a carriage coöperating with said bed plate, a cloth supporting member carried by said carriage and adapted to coöperate with said punches, a punch operating member carried by said carriage, a shaft mounted upon said bed plate, a cam carried by said shaft, and a connection between said cam and said punch operating member, whereby the latter may be actuated vertically.

9. In a button hole marking machine, the combination with a bed plate, said bed plate being provided with a series of diverging slots, of a carriage mounted thereon, punches slidable within said slots, a cloth supporting plate mounted on said carriage, a hammer carried by the carriage, means for operating said hammer, and means secured to the carriage for adjusting the punches.

10. In a button hole marking machine, the combination with a bed plate, said bed plate being provided with a plurality of rearwardly diverging slots, of a carriage mounted on said bed plate, punches adjustably carried by said bed plate and mounted within said slots, a cloth supporting plate mounted upon said carriage and coöperating with said punches, a hammer pivoted upon said carriage for operating said punches, a grooved plate mounted upon the carriage and coöperating with said punches for the adjustment thereof, a plate secured to said last named plate, rolls carried by said plate for frictional engagement with said bed plate, means for operating the punch adjusting plate, and means for operating the hammer.

11. In a button hole marking machine, the combination with a base, of a bed plate hinged thereto, said bed plate being provided with a series of rearwardly diverging slots, guide rods upon the opposite sides of the bed plate, a carriage slidable upon said guide rods, a cloth supporting plate mounted upon the carriage, punches adjustable within the slots and engaging the cloth supporting plate, a hammer carried by said carriage and engaging the punches, and means for operating the hammer.

12. In a button hole marking machine, the combination with a bed plate, said bed plate being provided with a series of diverging slots, of a carriage mounted thereon, punches slidable within said slots, a cloth supporting plate mounted on said carriage, a hammer carried by the carriage, means for operating said hammer, a cam for adjusting the punches, and means for operating the cam, substantially as and for the purposes set forth.

13. In a button hole marking machine, the combination with a bed plate hinged upon the base, having a plurality of diverging slots therein, of guide rods carried by the bed plate, bearings slidable upon said guide rods, braces connecting the bearings, a cloth supporting plate carried by said braces, punches adjustable within the diverging slots for engagement with the cloth supporting plate, a hammer coöperating with said punches, an operating member hinged to the bed plate, a link connecting the operating member with the hammer, and means for actuating the said operating member, substantially as and for the purposes set forth.

14. In a button hole marking machine, the combination with a base, of a bed plate hinged upon the said base, guide rods carried by the bed plate, bearings slidable upon the said guide rods, a cloth supporting plate carried by the forward bearings, punches slidable in slots formed in the bed plate, a hammer carried by a portion of said bearings for engaging the punches, an operating member hinged to the bed plate, a link connecting the operating member with the hammer, a cam for actuating the said operating member, a cam grooved plate slidably mounted upon the bed plate, a supporting plate coöperating with said grooved plate, a roller carried by the plate, and a bell crank lever adapted to engage said roller and operate the cam plate for the purpose of adjusting the punches, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES H. WHITWORTH.

Witnesses:
LOUIS T. SPENCER,
CHARLES C. BRIDWELL.