H. W. WINTER.

STAMPING MACHINE.

APPLICATION FILED JUNE 18, 1909.

1,137,103.

Patented Apr. 27, 1915.

2 SHEETS—SHEET 1.

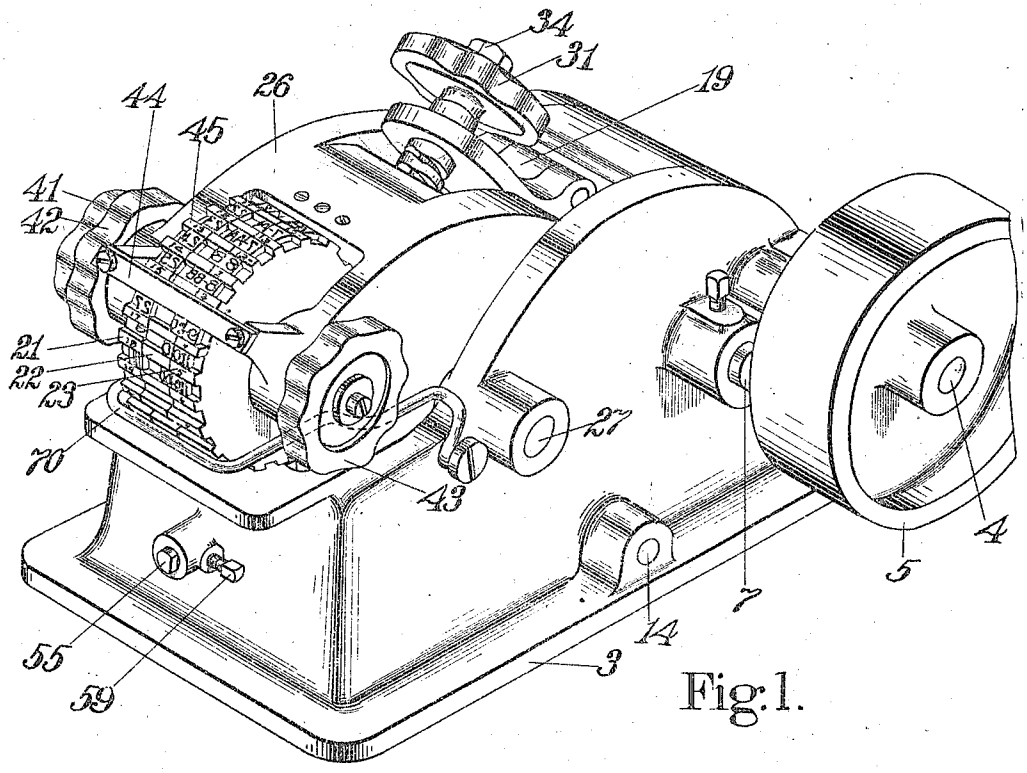
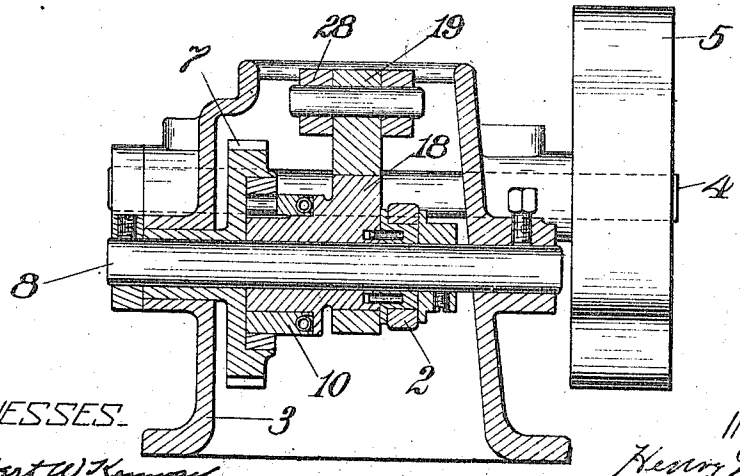


Fig. 1.



WITNESSES.

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Fig. 2.

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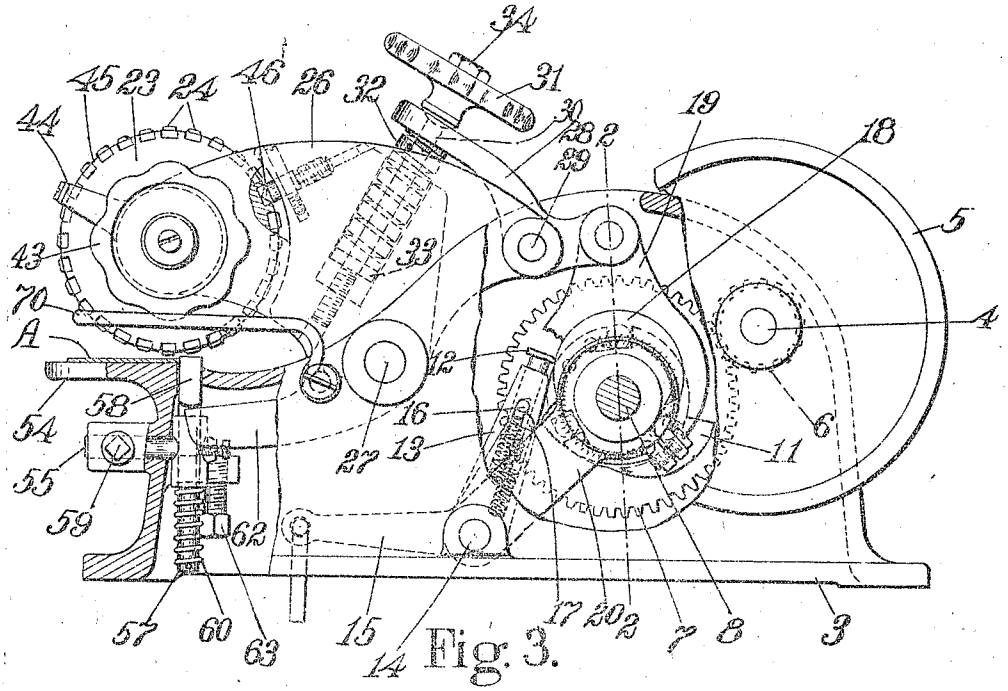


Fig. 3.

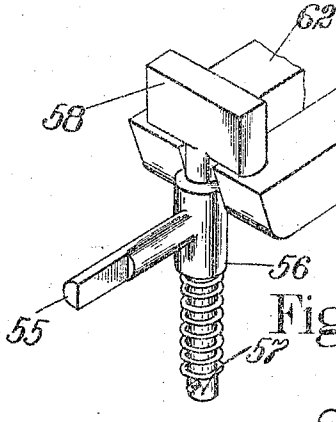


Fig. 4.

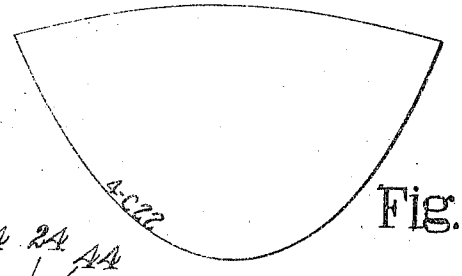


Fig. 6.

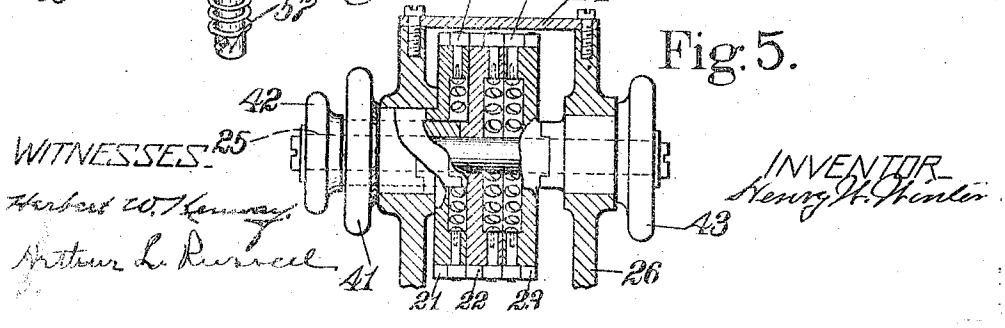


Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY W. WINTER, OF METHUEN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STAMPING-MACHINE.

1,137,103. Specification of Letters Patent. Patented Apr. 27, 1915.

Application filed June 18, 1909. Serial No. 502,931.

To all whom it may concern:

Be it known that I, HENRY W. WINTER, a citizen of the United States, residing at Methuen, in the county of Essex and State of Massachusetts, have invented certain Improvements in Stamping-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for stamping sheet material and particularly relates to machines used in the manufacture of boots and shoes for stamping size, width, color marks, etc., on sole leather, upper leather or linings.

It is an object of the present invention to provide a power operated stamping machine of the type above referred to, which shall be simple in construction, silent, speedy and accurate in operation and capable of producing clear and permanent impressions on various kinds of stock.

It is essential that a machine for stamping soles and uppers should have a large number of different marking dies readily accessible and movable with certainty into an operative position for stamping the work.

With this end in view, a feature of the present invention consists in providing a stamping machine with a plurality of die carrying disks or turrets, each disk having mounted thereon a number of different dies for impressing the various characters upon the stock and being provided with means whereby any desired die or combination of dies may be brought into the stamping position. Preferably means may be provided for stopping the die carrying disks when one or another of the marking dies is squarely in position for stamping and holding the disks against accidental displacement.

An important feature of the invention lies in the construction of the die carrying disks and the arrangement for mounting the individual dies therein. Preferably the disks may be cut away on one side leaving a peripheral annular flange which may be drilled for the reception of the shanks of the marking dies. This construction is particularly advantageous since it permits access to the ends of the shanks which may be drawn in radially and held by suitable screws or nuts, thus forming a permanent connection between the marking dies and the die carrying disks.

To prevent the turning of the marking dies relatively to the die carrying disks the peripheral face of the latter may be formed with sockets for each die, the sockets being formed preferably between ribs extending parallel to the axis of the disks. The ribs may be further utilized by placing upon them index characters for indicating the character of that marking die which is in stamping position.

For the purpose of utilizing a stamping machine for operating on stocks of various thicknesses it is important that the point of nearest approach of the stamping head to the work table should be adjustable, in order that the marking dies may approach the work table more closely when thin material is to be stamped than when relatively thick material, such as sole leather, is to be stamped.

The present invention contemplates the provision of an articulated member interposed between the carrier for the stamping head and the actuating means therefor, together with means for changing the relation of the carrier and articulated member whereby the above described adjustment may be effected.

In addition to the provision for adjusting the point of nearest approach of the stamping head and work table it is advantageous to provide a yielding connection between the stamping head and its actuating means thereby allowing for slight and unexpected variations in the thickness of the work to be stamped.

With this end in view, the present invention contemplates the provision of a yielding connection preferably located between the carrier and the articulated member above mentioned, which member is connected with the carrier actuating means.

The invention further contemplates the provision of means, operating independently of the means for adjusting the point of nearest approach of stamping head and work table, for regulating the degree of

stiffness of said yielding connection whereby heavier and tougher stock may be impressed more firmly by the marking dies than thinner and more delicate stock.

In a stamping machine of the character in question it is important that provision be made for determining accurately the position on the work table of the material to be stamped in order that the impressions may be located at the desired points.

Another feature of the present invention consists in providing a movably mounted gage arranged to project considerably above the work table, when the stamping head of the machine is in its elevated position in order to prevent work, presented carelessly to the machine, from being pushed in over the gage.

For insuring the safety of the operator the invention contemplates as another feature the provision of a guard surrounding the work table so constructed and arranged that the operator in presenting the work to the machine can not accidentally get his fingers caught between the stamping head and work table. Such a guard may preferably take the form of a continuous strip located a sufficient distance above the work table to allow free insertion of the work and at the same time prevent accident to the operator.

The advantages above set forth and others incident to the invention will be best understood and appreciated from the following description of a preferred embodiment together with the accompanying drawings in which;

Figure 1 is a view in perspective of a stamping machine constructed in accordance with my invention; Fig. 2 is a transverse sectional view on the line 2—2 of Fig. 3; Fig. 3 is a side elevation of the machine illustrated in Fig. 1, part of the frame of the machine being broken away; Fig. 4 is a view in perspective of the gage member; Fig. 5 is a sectional view of the die carrying disks or turrets; Fig. 6 illustrates a blank having stamped thereon a size, width and case number.

The frame of the machine comprises a box shaped casting 3 having formed therein bearings for the main driving shaft 4 which is actuated by the pulley 5 from any suitable source of power. Fast on the main shaft 4 is the pinion 6 meshing with a larger pinion 7 loosely mounted in the counter shaft 8. Between the pinion 7 and an eccentric 18, also loosely mounted on the shaft 8, is interposed any suitable clutch mechanism, whereby the operator may clutch the pinion and eccentric together for actuating the stamping head when it is desired to make an impression.

In the illustrated embodiment of the invention a roller clutch, commonly known as the Horton clutch, is employed. This clutch includes a loose member, which in the present case comprises the gear or pinion 7, a driven member 18 and a roller carrying member 10 loosely mounted on the driven member. A spring tends to move the roller carrying member 10 relative to the driven member for engaging the clutch by carrying the rollers into the narrower part of wedge shaped recesses formed in the driven member 18 in which position the rollers become wedged between the inner surface of the gear 7 and the member 18, thus forming a driving connection. A projection 11 is formed upon the periphery of the roller carrying member 10 and an abutment 12 is mounted for movement into the path of the projection 11 for engaging the latter and stopping the rotation of the roller carrying member 10. When this takes place the driven member, owing to its inertia will rotate slightly with respect to the roller carrying member, thus carrying the rollers into the deeper end of the pockets and so interrupting the driving connection. The roller carrying member 10 and the driven member 18 will then remain at rest until the abutment 12 is moved out of engagement with the projection 11 when the spring above mentioned will cause the roller carrying member 10 to rotate with respect to the driven member and the clutch to engage again.

The abutment 12 is yieldingly mounted in an arm 13 which is pivoted on a pin 14 in close proximity to the vertical arm of a bell crank lever 15, also pivoted on the pin 14 and connected with a treadle rod, as shown in Fig. 3. A laterally extending pin 16 projects from the shank of the abutment 12 and a coöperating spring actuated latch 17 is mounted in the vertical arm of the bell crank lever and so located as to engage the pin 16 when the abutment 12 is forced downwardly by the projection 11 on the roller carrying member 10.

The mechanism above described serves to insure that the clutch shall be engaged for a single revolution only, regardless of whether the operator keeps the treadle rod depressed or not. When the machine is at rest the abutment 12 is depressed and the pin 16 stands in the path of the latch 17. Under these conditions, depressing the treadle rod moves the abutment out of engagement with the projection 12 and allows the clutch to engage. The abutment, however, on being released from the pressure of the roller carrying member moves upwardly in the arm 13 and carries the pin 16 above the latch 17. The arm 13 and abutment 12 are then returned toward the clutch by a spiral spring (not shown) which encircles the pin 14 and the abutment 12 is again in position to engage the projection 11 and cause disen-

gagement of the clutch. When the treadle rod is released a spring (not shown) returns the bell crank lever 15 to its initial position, the latch 17 yielding downwardly as it passes under the pin 16. With this construction it will be apparent that a non-repeating operation of the machine is insured and that but one impression will occur for each depression of the treadle rod.

On account of the light load upon the driven member of the clutch it has been found desirable to provide a brake member 20 which frictionally retards the eccentric 18 and insures a satisfactory operation of the clutch.

The eccentric 18 mounted on the counter shaft 8 actuates an eccentric strap 19 which, in turn, serves to impart an oscillation to the stamping head of the machine. The disks 21, 22 and 23 carrying the marking dies 24 and being rotatably mounted on a spindle 25 comprise the stamping head of the machine and are carried by the forward end of the lever 26 journaled on the pivot 27 in the frame. The eccentric strap 19 is connected with the lever 26 through the medium of the bell crank lever 28 which is pivoted at 29 on the lever 26 and allowed to yield slightly with respect to the latter when the marking dies encounter the work in order to allow for variations in the thickness of the stock. To this end a pin 30, having the hand wheel 31 keyed on its upper end, is threaded into the lever 26 and passes through a slot in the upper arm of the bell crank lever 28.

A stiff compression spring 32 encircles the pin 30 and normally holds the upper arm of the bell crank lever 28 against a boss on the hub of the hand wheel 31. The spring 32 at its lower end bears upon a collar 33 formed integral with or otherwise made fast on the threaded pin 30. Above the hand wheel 31 is a nut 34 and by turning this nut on the pin 30 the wheel 31 is moved longitudinally whereby the length of the spring 32 will be reduced or increased and the stiffness of the yielding connection between the lever 26 and its actuating means correspondingly adjusted.

The yielding connection above described will allow for the proper impression of materials varying in thickness by relatively inconsiderable amounts but in order to permit adjustment of the point of nearest approach of stamping head and work table to adapt the machine for stamping materials differing considerably in thickness, such as upper leather and sole leather, the relative position of the bell crank lever 28 and the lever or carrier 26 may be adjusted. Such adjustment is effected by screwing the pin 30 in or out by means of the hand wheel 31, which results in raising or lowering the forward end of the lever 26 and consequently the point of nearest approach of dies and work table. As will be apparent the length of the spring 32 and consequently the stiffness of the yielding connections is unaffected by this adjustment.

The die carrying disks 21, 22 and 23 have one substantially plane surface and are recessed on the other side to form an annular peripheral flange. The marking dies 24 are provided with cylindrical shanks which are inserted in holes drilled through the flanges of the die-carrying disks and the dies are retained in place and drawn against the disks by screws extending into the shanks of the dies, as shown in Fig. 5.

Ribs 45 are provided on the peripheries of the disks, extending parallel with their common axis, the spindle 25, and these ribs form sockets for the marking dies and maintain them in proper alinement. The ribs 45 also serve as a convenient location for index characters, which, in connection with an index bar 44 indicate which marking dies are in operative position. The ribs 45 have still another function which consists in coöperating with the spring actuated detents 46 to insure the stopping of the die-carrying disks with one or another marking dies squarely in stamping position.

Each die-carrying disk is provided with a hand wheel by which it may be rotated for bringing the various marking dies into stamping position. The disks 22 and 23 have outwardly extending hubs each provided with two clutch teeth which engage with a correspondingly toothed hub on the hand wheels 42 and 43, respectively. The disk 21 is provided with a hub of greater diameter than the others and is journaled upon the hub of the disk 22 and connects with its hand wheel 41 by a two tooth clutch as in the case of the other disks. A washer and screw on either end of the spindle 25 serve to keep the parts of the stamping head on their assembled relation.

Slidably mounted in a boss formed in the front side of the frame 3 is a rod 55 carrying a socket 56 in which is slidably mounted the shank 57 of the gage block 58 which projects upwardly at the back of the work table 34 and serves to determine the location of the work presented in stamping position. The gage may be adjusted toward and from the work table, for varying the position of the stamped markings with respect to the edge of the work, by loosening the set screw 59 and sliding the rod 55 in or out as the case may be. The gage block 58 is normally retracted by the compression spring 60 whereby it is maintained out of the path of the die-carrying disks 21, 22 and 23. As the stamping head is raised the forwardly extending arms 62 of the lever 26 engage the lower surface of the gage block and elevate it, maintaining it always in close prox-

imity with, but not touching the marking dies. As the stamping head is moved toward the work table to make an impression the gage block recedes till the arms 62 come into contact with the stops 63 which prevent further movement of the lever 26 and are so adjusted that the marking dies can not be forced against the work table and so damaged. By limiting the downward movement of the arms 62 the stops 63 also determine the lowest point in the path of movement of the gage block 58.

For the purpose of preventing the operator from getting his fingers caught between the dies and the work table when presenting work to the machine, there is provided a guard 70 comprising a ductile rod or heavy wire attached at either side of the frame in the rear of the stamping head and extending across the front of the work table a short distance above the table, allowing sheet material to be inserted between the guard and the table but preventing the insertion of the operator's fingers.

In operation the die-carrying disks are set with the desired dies in the stamping position. The work A is then placed on the table 34 bearing against the gage block 58 and the abutment 12 disengaged from the projection 11 which allows the clutch to engage and the eccentric 18 to be rotated. The eccentric strap 19 thereupon actuates the lever 26 which presses the dies firmly on the work with the degrees of pressure determined by the compression of the spring 32. Continued rotation of the shaft elevates the stamping head and after one revolution the projection 11 is again engaged by the abutment 12 and the machine brought to a stop.

Having now described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A machine of the class described, having, in combination, a work table and a movably mounted stamping head coöperating with said table for stamping sheet material, said stamping head comprising a plurality of flanged die-carrying disks, marking dies having shanks extending through the flanges of said disks and means for drawing said shanks inwardly to hold said dies rigidly against the flange in stamping position.

2. A machine of the class described, having, in combination, a work table and a movably mounted stamping head coöperating with said table for stamping sheet material, said stamping head comprising die-carrying disks having peripheral annular flanges and axially extending ribs forming sockets, together with marking dies having shanks extending through said flanges, said dies being prevented from turning by said ribs.

3. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said work table, a carrier for said stamping head, and actuating means therefor, a lever pivoted on said carrier and adjustable with respect thereto, whereby adjustment of the point of nearest approach of the stamping head and work table may be effected.

4. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said work table, a carrier for said stamping head and actuating means therefor, a lever pivoted on said carrier and connected with said actuating means, said lever being adjustable with respect to said carrier, whereby adjustment of the point of nearest approach of the stamping head and work table may be effected.

5. A machine of the class described, having in combination, a work table, a stamping head carrier mounted for oscillation about an axis at one side of the table and having an arm disposed below the plane of the table, a movable edge gage controlled in its position by said arm, and adjustable means arranged to be encountered by the arm during the movement of the carrier for arresting the movement thereof at a predetermined distance from the work table.

6. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said work table, a carrier for said stamping head, a pin adjustably connected with said carrier and a spring carried by said pin, actuating means for said carrier, and a connecting member normally maintained in a definite relation with said carrier by said spring and adjustable relatively to said carrier by means of said pin and independently of said spring.

7. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said work table, a carrier for said stamping head, actuating means therefor yieldingly connected with said carrier, means for varying the stiffness of said connection, and means for adjusting the point of nearest approach of the stamping head and work table.

8. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said work table, a carrier for said stamping head, a bell crank lever pivoted thereto, actuating means for said carrier connected to said bell crank lever, and means for adjusting the relative position of said carrier and said bell crank lever.

9. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said table, a carrier therefor, and actuating means for said carrier, an articulated member interposed between said actuating means and the

carrier, a spring maintaining said articulated member in a predetermined relation with said carrier, and means for adjusting said relation without affecting the action of said spring.

10. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said table, a carrier therefor, and actuating means for said carrier, an articulated member interposed between said carrier and its actuating means, a spring maintaining said articulated member in a predetermined relation with said carrier, means for moving said spring bodily with respect to said carrier for adjusting the point of nearest approach of said stamping head and table, and means for adjusting stress developed by said spring.

11. A machine of the class described, having, in combination, a work table, a stamping head movable to and from said table, a carrier therefor and actuating means for said carrier, an articulated member interposed between said carrier and its actuating means, a spring maintaining said articulated member in a predetermined relation with said carrier, means for moving said spring bodily with said articulated member and relatively to said carrier, and means for adjusting the stress developed by said spring.

12. A machine of the class described having, in combination, a work table having a plane supporting face, a stamping head movable toward and from the table, a gage mounted to reciprocate in a path at right angles to the surface of the work table, a spring tending to retract the gage below the surface of the work table, and an oscillating actuating lever for elevating the gage above the surface of the work table after each stamping movement of the head.

13. A machine of the class described having, in combination, a work table, a coöperating stamping head, a gage movable in a path at right angles to the work table, a power driven actuator and means, including a yielding connection, for transmitting motion from the actuator to the gage.

14. A machine of the class described having, in combination, a work table, a coöperating stamping head, a gage movable relatively to the work table, a power driven actuator, transmission means, including a yielding connection, interposed between the actuator and the gage, and adjustable means for determining the path of the gage.

15. A machine of the class described, having, in combination, a work table and a movably mounted stamping head coöperating with said table, together with a laterally adjustable gage mounted to reciprocate vertically and means for causing reciprocation of said gage in both directions in conjunction with the movement of said stamping head.

16. A machine of the class described, having, in combination, a work table and a movably mounted stamping head coöperating with said table, together with a gage, means for normally retracting said gage, and means for moving said gage in a path substantially parallel to that of said movable stamping head.

17. A machine of the class described having, in combination, a work support, a stamping head movable toward and from said support, a socket piece mounted for adjustment in a direction parallel with the face of said work support, and a gage mounted in said socket piece for movement in a direction at right angles to the face of said work support.

18. A machine of the class described having, in combination, a work support, a stamping head arranged for oscillation toward and from said support, a gage mounted for reciprocation in a path substantially at right angles to the surface of said support, and a member movable about the axis of oscillation of said head for imparting movement to said gage.

19. A machine of the class described, having, in combination, a work table and a movably mounted stamping head coöperating with said table, together with a stationary guard comprising a continuous strip of ductile material, said guard being attached to the frame of the machine at a point in the rear of said stamping head and extending forwardly and across the front of said work table at a predetermined height above it.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY W. WINTER.

Witnesses:
HERBERT W. KENWAY,
ARTHUR L. RUSSELL.

Correction in Letters Patent No. 1,137,103.

It is hereby certified that in Letters Patent No. 1,137,103, granted April 27, 1915, upon the application of Henry W. Winter, of Methuen, Massachusetts, for an improvement in "Stamping-Machines," an error appears in the printed specification requiring correction as follows: Page 3, line 105, for the word "connects" read *connected;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of January, A. D., 1916.

[SEAL.]

R. F. WHITEHEAD,

Acting Commissioner of Patents.

Cl. 101—83.