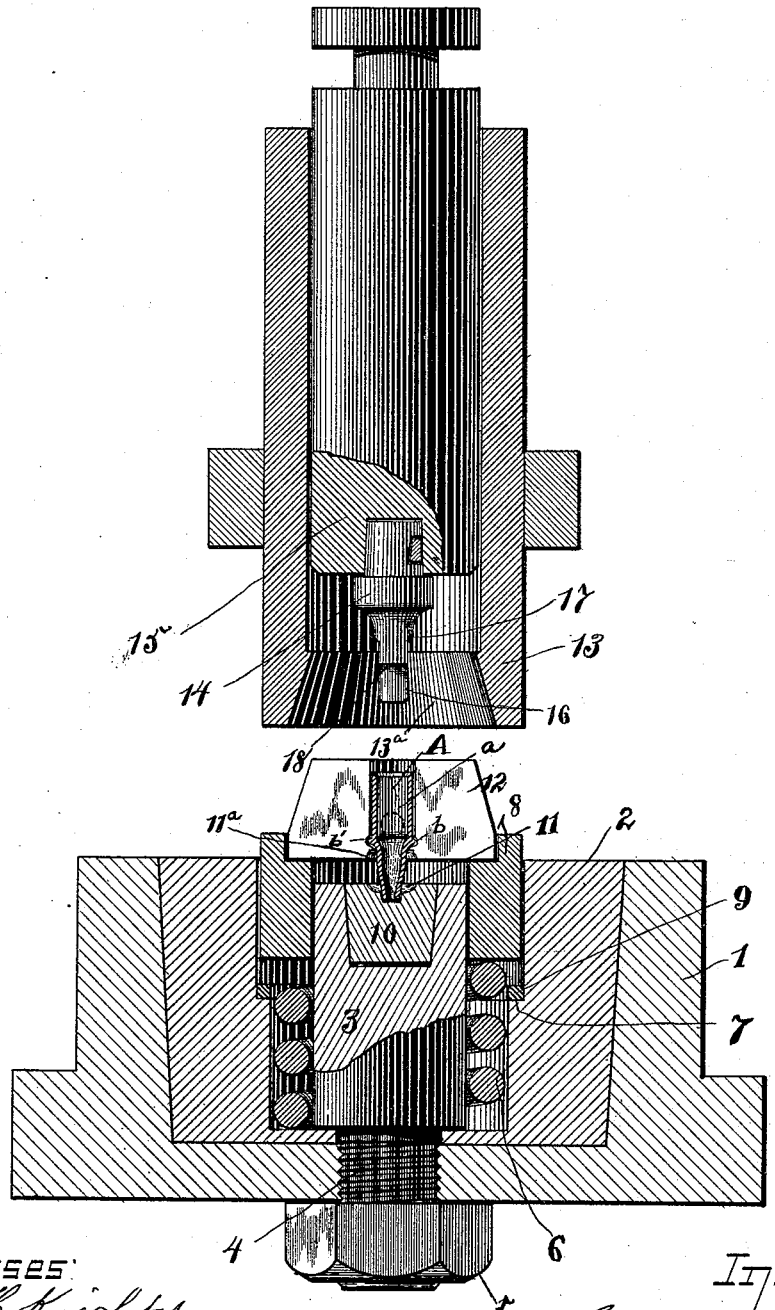
(No Model.) 3 Sheets—Sheet 1.

C. W. BUTTS.

APPARATUS FOR FORMING WATCHCASE PENDANTS.

No. 492,739. Patented Feb. 28, 1893.

Fig. 1.



Witnesses:
Geo. H. Knight jr.
M. V. Bidgood

Inventor
Chas. W. Butts
By Knight Bros
Attys

(No Model.) 3 Sheets—Sheet 2.

C. W. BUTTS.

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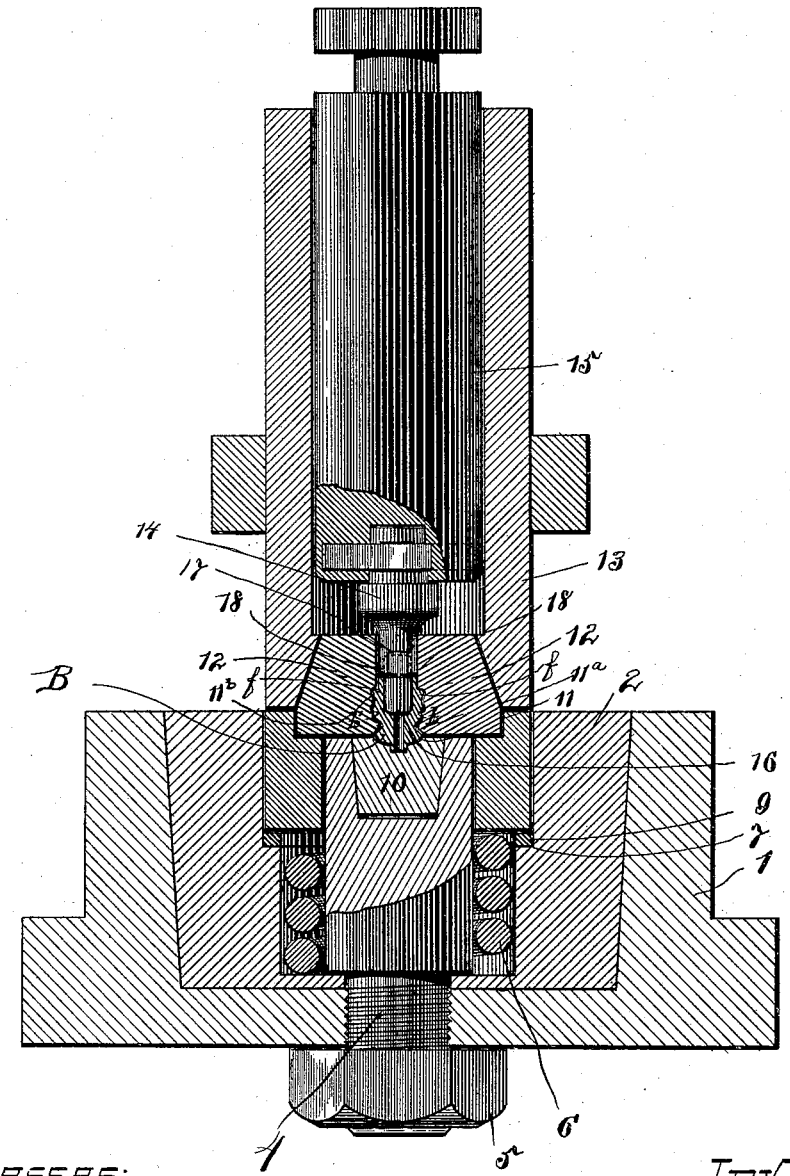
Fig. 2.



Witnesses:
Geo. H. Knight Jr.
M. V. Bidgood

Inventor:
Chas. W. Butts
By Knight Bros
Attys

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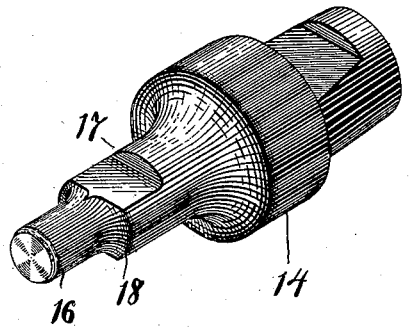
Fig. 3.



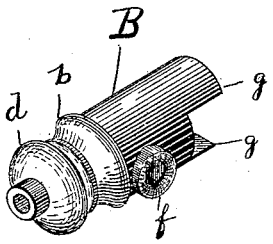
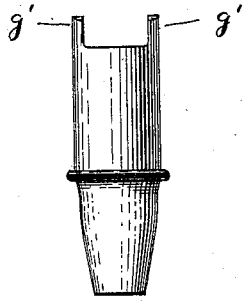


Fig. 4.



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Geo. H. Knight Jr.
M. V. Bidgood

Inventor:
Chas. W. Butts
By Knight Bros.
Attys

UNITED STATES PATENT OFFICE.

CHARLES W. BUTTS, OF SAG HARBOR, NEW YORK, ASSIGNOR TO THE FAHYS WATCH CASE COMPANY, OF NEW YORK.

APPARATUS FOR FORMING WATCHCASE-PENDANTS.

SPECIFICATION forming part of Letters Patent No. 492,739, dated February 28, 1893.

Application filed March 19, 1892. Serial No. 425,585. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. BUTTS, a citizen of the United States, residing at Sag Harbor, Suffolk county, New York, have invented certain new and useful Improvements in Methods of and Apparatus for Forming Watchcase-Pendants, of which the following is a specification.

A watch-case pendant is usually formed hollow to receive the stem, provided with an angular shoulder or foot which seats against the case-center and with ears, one on each side, to receive the ends of the bow.

The present invention relates to a process of and machine for stamping the pendant, with its foot and ears, from a suitably formed blank.

In the accompanying drawings, Figure I is a sectional elevation of the improved machine,—a pendant blank being in position to be operated on and the punches raised. Fig. II is a sectional elevation of the machine with punches depressed and acting upon a blank—the plane of section being at a right angle to that at which Fig. I is taken. Fig. III is a perspective view of the inner punch and the pendant as formed thereby. Fig. IV is an elevation of one form of pendant.

The machine comprises a three-part matrix or die for holding the pendant blank during the operation, and a two-part punch which acts with the die in holding the blank and at the same time upsets the blank into the proper shape.

Referring to the drawings, 1 is a bolster, which may be of cast iron and which has a flaring seat for a correspondingly shaped cup 2. These members fit snugly and solidly together so that there is no movement of the cup in the bolster during the operation of the machine. The cup 2 is fixed to bolster 1 by the stud 3 whose screw-threaded extension 4 passes through the bottoms of both cup, and bolster and has screwed thereon, below the bolster, a nut 5. The recessed interior of cup 2 is made large enough to receive, between the cup 2 and stud 3 a spiral spring 6, and is shouldered about half-way up as shown at 7. In the enlarged annular space above said shoulder I arrange a ring or die receiver 8, which, during the inaction of the machine, is supported, in the position shown in Fig. I, by the spring 6. Its downward movement is limited by a steel ring 9 placed on the shoulder 7. The thickness of this ring is readily adjusted to the amount of depression desired for the receiver 8. If found a trifle too thick, it is ground down until it stops the receiver at precisely the right point. The stud 3 has at top a flaring seat for the pad or lower die 10, a matrix 11 in the top of which, in the operation of the machine, fashions the lower half of the pendant foot.

12, 12 are two half-dies, supported removably on the receiver 8 and having a tapering outer surface and inner recesses, which when the half-dies are placed together, as shown in Fig. II are adapted to hold the pendant blank, and during the operation of the machine, form on such blank, the upper half of the foot and the ears for the bow. The matrix for the upper half of the foot is shown at 11^a and the matrices for the pendant ears are shown at 11^b.

13 is the outer punch and half die holder. (The details of the press employed for supporting and operating the apparatus are not shown in the drawings. They may be of any desired construction.)

14 is the inside or upsetting punch and 15 is its holder arranged to move within and independently of the outside punch 13. The punch 14 is keyed or otherwise attached to the holder 15 so as not to turn therein and its shape may be best understood from Fig. III. Its lower end 16 is of small diameter the same as the hollow interior of the pendant blank, and on two sides this diameter is continued up to the shoulder 17, which during the operation of the machine do not quite descend into contact with the pendant blank. But on the remaining two sides, the punch is as shown at 18 shouldered out, below the shoulders 17 to a diameter equal to the diameter above said shoulders and the part having shoulders 18 is of greater diameter than the narrow or small end 16. By reference to Fig. II it will be seen that the punch 14 is so mounted that the shouldered portions 18, 18 enter the half-dies immediately over and in the vertical plane of the matrices 11^b therein, which form the pendant ears.

A (Fig. I) represents the pendant blank in the form in which it is prepared in readiness to be treated by my process and machine, while B (Figs. II and III) shows the pendant after treatment in my machine. The blank A is made longer than the pendant is intended to be, and as usual, it has the bore *a* for the stem and the crown stud. It has also the bead *b* which usually terminates the barrel portion of the completed pendant. The greater length of metal below this bead goes to supply the metal for the foot of the pendant, while the greater length of the metal above the bead, supplies the material for the bow ears. The blank being in this shape and the parts of the machine in the position shown in Fig. I, the blank is put in and the half-dies closed. The bead *b* enters a recess *b'* prepared for it in the matrix of the half-dies and securely holds the blank during the operation of the machine. The outer punch 13 is now brought down and its tapering seat 13^a surrounds the half-dies and firmly holds them together. Continuing its movement, it forces down the half-dies, their contained pendant blank A, and the receiver 8, against the action of spring 6, until arrested by the striking of receiver 8 on the stop ring 9. During this movement the part of the blank A below the bead *b* is partly flattened, until when the matrix 11^a in the half-dies coincides with the matrix 11 in the pad or lower die and forms therewith a flattened recess, the lower part of the blank is forced to flow into and occupy the same and there is thus formed on the pendant the rounded foot or base piece *d*, immediately above the boss which when the pendant is to be applied to a case is adapted to seat in the case center. While this action is going on, the inside or upsetting punch 14 is brought down by the action of the press. Its narrow lower end enters the bore of the blank and shoulders 18 rest upon upper edge of blank taking part of the pressure from the bead. The shoulders 18 on coming in contact with the upper edge of the blank, press their way into the same, forcing down the metal on each side of the blank and causing it to flow into and fill the matrices 11^b in the half dies and so form the ears *f*, for the bow. The position of the parts of the machine and the shape of the pendant is now shown by Fig. II. The punches being then raised, the spring 6 forces up the receiver and half dies, the half-dies are taken out and separated and the pendant removed. Its shape is shown in Fig. III. To complete it, the lugs *g*, left by the forcing of the shoulders 18 into the metal of the blank, are cut away.

While I have shown in Fig. I, the whole of the pendant blank above the bead *b*, of equal length, it is obvious that the only part which has to be of greater length than the barrel of the finished pendant, is the part which is to be crushed down to form the ears for the bow. So that instead of having the whole of the blank A, above the bead *b* of full length, such blank may be provided with ears *g'* Fig. IV projecting beyond the end of the blank on the sides in which the ears are to be formed. When the shoulders 18 of the upsetting punch strike these projecting lugs, they will crush them down to a level with the remaining end of the pendant, causing the metal of the lugs to flow and form the ears of the bow.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The process of forming a watch case pendant having ears for the bow, consisting in forming a blank longer than the pendant is to be, and then crushing down that portion of the blank that is in line with the part to form the ears and causing that portion of the blank to flow to form the ears and replace the metal that is forced out to form the ears, substantially as set forth.

2. The process of forming a watch case pendant, which consists in forming a blank of greater length than the pendant is intended to have, and then crushing down the blank to form the pendant foot and at the same operation crushing down that portion of the blank that is in line with the part to form the ears and causing that portion of the blank to flow to form the ears and replace the metal that is forced out to form the ears, substantially as set forth.

3. The pendant forming machine comprising in combination, a lower die having a matrix to form the lower half of the pendant foot, the upper or half-dies, having a coinciding similar matrix for the other half of the foot and supported normally above and separated from said lower die, said upper dies clamping the blank to press it longitudinally while the foot is being made and a suitable punch arranged and adapted to operate, substantially as set forth.

4. In a pendant forming machine the combination of the lower pad or die 10 having matrix 11, the spring supported upper or half dies 12 having a recess to receive a bead or projection on the blank to be operated upon and the punch 13 having a movement independent of the upper dies, substantially as set forth.

5. In a pendant forming machine the combination of the lower dies 10, the spring supported upper or half die 12, and the variable stop 9 therefor.

6. The combination of the die containing cup 2, having shoulder 7, the stud 3, fixed thereon, the pad or lower die 10, supported on stud 3, the receiver 8, upper or half dies 12 carried by said receiver, and the spring 6 whereon said receiver is supported substantially as set forth.

7. The combination of the dies 12 having matrices 11^b for the bow ears, and a suitable punch constructed with shoulders in line only with that portion of the blank that is to have ears to longitudinally crush in the metal of a pendant inserted in said dies and cause the

metal thereof that is in line only with said matrices to flow into said matrices, substantially as set forth.

8. The combination of the lower die 10 having matrix 11, the spring-supported upper or half dies 12 having matrices 11^a and 11^b, and being superposed over the lower and the punch 14 having the narrow lower end and suitably shouldered to longitudinally crush the edge of a pendant inserted in said dies 12 substantially as set forth.

9. The combination of the lower die 10, the spring supported tapering upper or half dies 12 superposed over the lower die said dies having matrices 11, 11^a, 11^b and the two part punch of which the outer punch 13 has flaring seat 13^a and the inner punch 14 is adapted to enter said upper dies and is suitably shouldered substantially as set forth.

10. The punch 14 having narrow lower end 16 and shoulders 18 on two sides only of the punch at a part which is of greater diameter than said narrow lower end substantially as set forth.

CHARLES W. BUTTS.

Witnesses:
WILLIAM E. DENISON,
THOMAS F. BISGOOD.