(No Model.)

F. MINK & N. MOORE.

MECHANISM FOR MAKING WATCHCASE PENDANTS.

No. 561,942. Patented June 9, 1896.

FIG. 1.

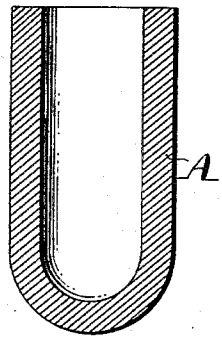


FIG. 4.

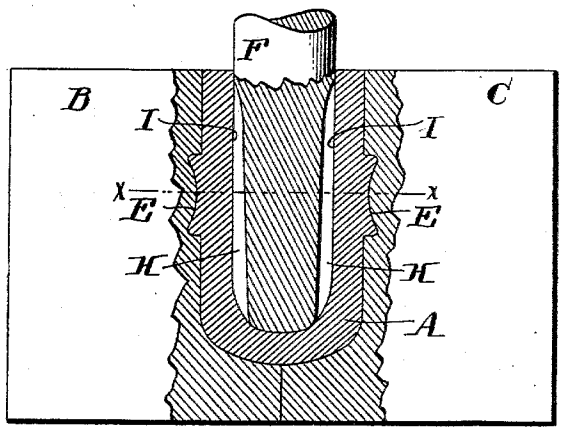


FIG. 2.

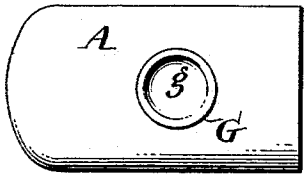


FIG. 5.

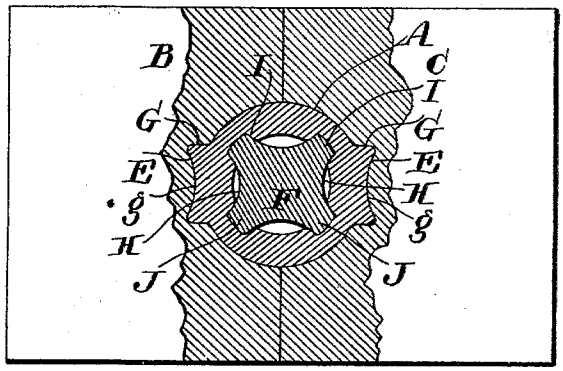
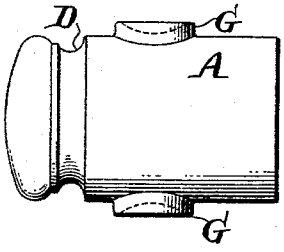


FIG. 3.



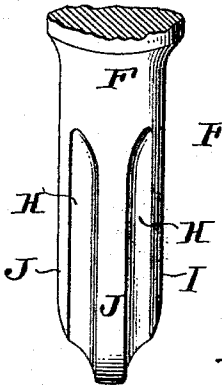


FIG. 6.

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UNITED STATES PATENT OFFICE.

FRITZ MINK AND NICHOLAS MOORE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE KEYSTONE WATCH CASE COMPANY, OF SAME PLACE.

MECHANISM FOR MAKING WATCHCASE-PENDANTS.

SPECIFICATION forming part of Letters Patent No. 561,942, dated June 9, 1896.

Application filed October 29, 1895. Serial No. 567,254. (No model.)

To all whom it may concern:

Be it known that we, FRITZ MINK and NICHOLAS MOORE, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Mechanism for Making Watchcase-Pendants, of which the following is a specification.

Our invention relates to the manufacture of watchcase-pendants; and it consists of certain improvements, which are set forth in the following specification, and are shown in the accompanying drawings.

Difficulty has been met in the formation of the ears or bow-sockets in the manufacture of watchcase-pendants. It has been proposed to form the ears by means of a punch driven into a tubular piece of pendant material while the same is clamped between dies having countersinks corresponding with the shape of the ears, the punch having its greater diameter in the line of the die-sinks, so as to force the metal outward into the cavities. The ears have been formed after the neck or base of the pendant was finished. The difficulty with this method has been that the punch acts upon the metal at the center of the cavities where they are shallow and limit the action of the punch. Consequently the metal is not forced out always to the full extent at the deeper portions which make the rims of the ears. It results from this that the metal is not forced fully and equally into the cavities or die-sinks and the formation of the ears is not perfect. The formation of the ears after the neck or base has been made or at the same operation is also objectionable, because of the necessary formation of longitudinal ribs on the surface of the pendant due to the forcing of the metal into the crack between the faces of the dies. When this rib extends over the irregularities or edges of the neck or base, it is liable to cause abrasion, which in the case of filled-metal pendants is especially objectionable, as it results in the breaking away of the surface metal and the exposure of the base interior.

It is the object of our invention to obviate these defects and to produce a pendant having perfectly formed ears and without the formation of longitudinal ribs over the base or neck portion.

In carrying out our invention we form the ears by the employment of a punch of special construction having longitudinal grooves and ribs which act upon the metal in line with the deeper portions of the cavities or die-sockets so as to force the metal outward fully at those points without excessive protrusion of metal at the center or shallow portions, and we form the ears in this manner at a separate operation and before the neck or base of the pendant is formed. The subsequent formation of the neck or base by spinning or pressing the metal obliterates the ribs which were produced on the lower portion of the pendant while the ears were being formed.

In the drawings, Figure 1 is a vertical sectional view of the pendant material cupped into approximate shape, but before it has been otherwise operated upon. Fig. 2 is an elevation of the same after the ears have been formed therein. Fig. 3 is a similar view of the pendant after the neck or base has been spun or finished. Fig. 4 is a vertical sectional view of the dies, punch, and pendant material, showing the manner of forming the ears. Fig. 5 is a horizontal sectional view of the same on the line $x\ x$ of Fig. 4. Fig. 6 is a perspective view of the punch used in forming the ears.

A is the pendant material, which consists of a piece of metal which is first cupped up into the tubular shape shown in Fig. 1 in the manner well known in the art.

B C are the dies which are provided with suitable recesses to receive the pendant material A, the same fitting snugly into the hole or recess formed by the recesses in the dies. The dies B C are provided with die sinks or recesses E of a shape corresponding with the shape of the ears to be formed on the pendant.

F is a punch adapted to be driven into the interior of the tubular piece A, while the same is clamped between the dies B C, for the purpose of forcing the metal outward into the die-sinks E to produce the ears G on the pendant. This punch is formed with longitudinal grooves H, producing longitudinal ribs I J I J with a longitudinal groove between.

The cup-shaped piece A is placed between the dies B C in the recess or hole formed therein, and the punch F is then driven into the

piece A in such position that the ribs I J and I J will occupy the position substantially as shown in Fig. 5, with the ribs acting on the metal approximately in line with the outer portions of the sinks E E. They thus act to force the metal outward more at these points than at the center, where the die-sinks incline outward to form the central recesses *g* of the ears. The advantage of using a punch of this character as compared with one without the grooves H is that the metal is forced outward to a greater extent at those points where the greatest protrusion of metal is required in the construction of the ears, and consequently the metal is made to conform more readily to the die-sinks, so that more perfect ears are formed. The die-sinks are filled with the metal which is forced out. After the ears are thus formed the dies B C are separated and the partially-finished pendant is in the condition shown in Fig. 2. It is then further treated to form the usual end finish D by a separate operation, which may be accomplished either by spinning the metal or by dies.

The advantage of forming the ears G before the finish D and by a separate operation is that the longitudinal ribs on the faces of the pendant which are produced by the action of the dies, owing to the slight opening or crack which necessarily exists between the two edges of the dies B C, are not formed on the face of the finished base D. When the ears are formed after the base D is made or at the same operation, these ribs will extend over the face of the base D, and, besides being a blemish, are liable to produce cutting or abrasion of the metal at the corners of the base. This is particularly objectionable in the case of filled-metal pendants, as the abrasion of the surface metal is liable to cut through the thin surface-covering and expose the base-filling.

With new dies the edges fit together so tightly that comparatively slight ribs are formed; but after dies have been used to any extent the edges become worn and the ribs formed are proportionally larger. The evil results that would arise therefrom is, however, avoided by the formation of the ears G by an independent operation and before the neck D is made.

Such ribs as are formed on the lower part of the material A during the operation of making the ears G will be spun or pressed down and thus obliterated when the base D is made.

The details of construction shown may be varied without departing from the invention.

What we claim as new, and desire to secure by Letters Patent, is as follows:

In apparatus for manufacturing watchcase-pendants, the combination with dies provided with die-sinks E of a shape corresponding with the shape of the ears to be formed, of the punch F having on each side the longitudinal ribs I, J, so located as to act on the metal of the pendant material at points in line with the deep edges of the die-sinks.

In testimony of which invention we have hereunto set our hands.

FRITZ MINK.
NICHOLAS MOORE.

Witnesses:
FREDERIC W. HUNTER,
ERNEST HOWARD HUNTER.