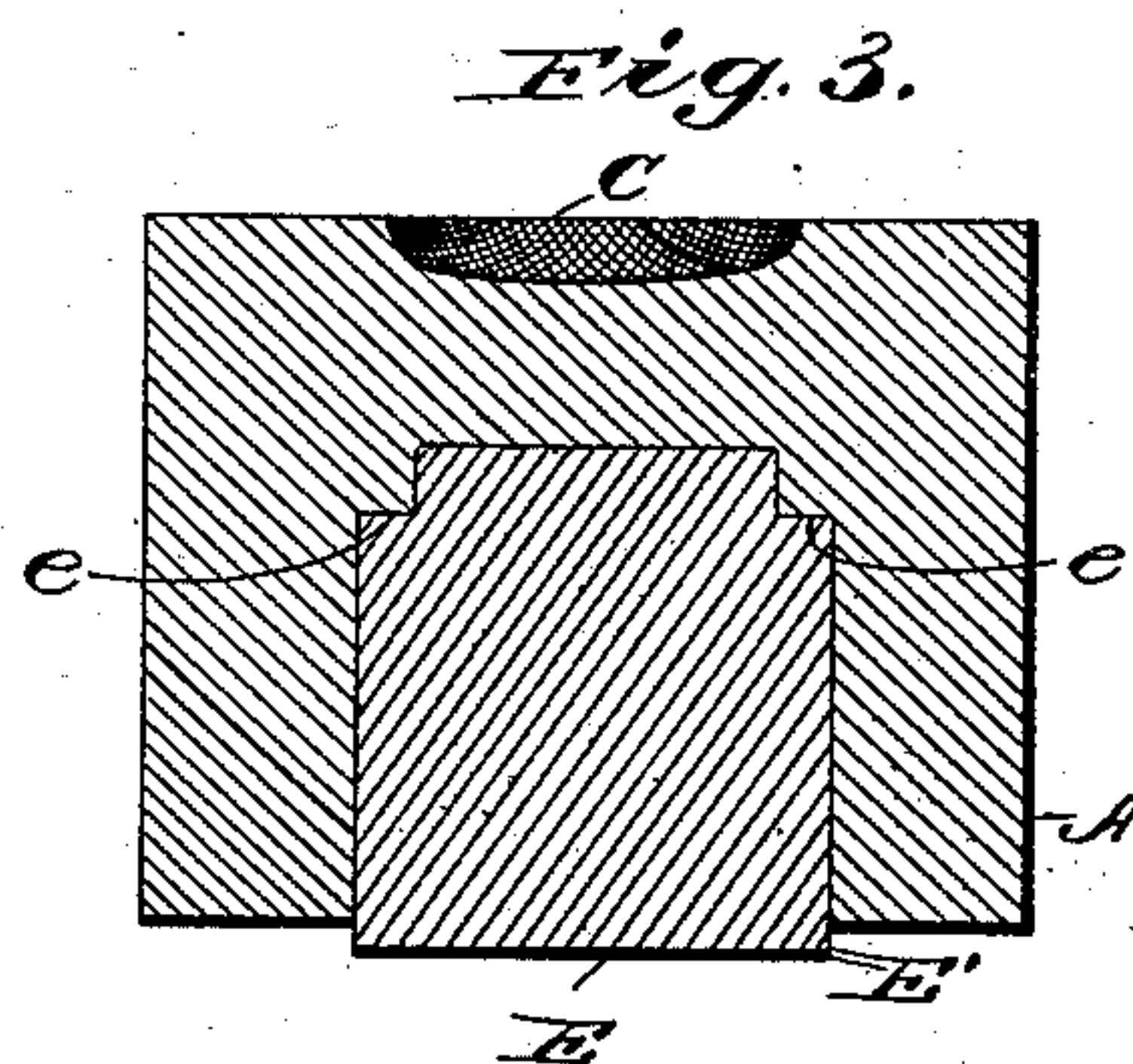
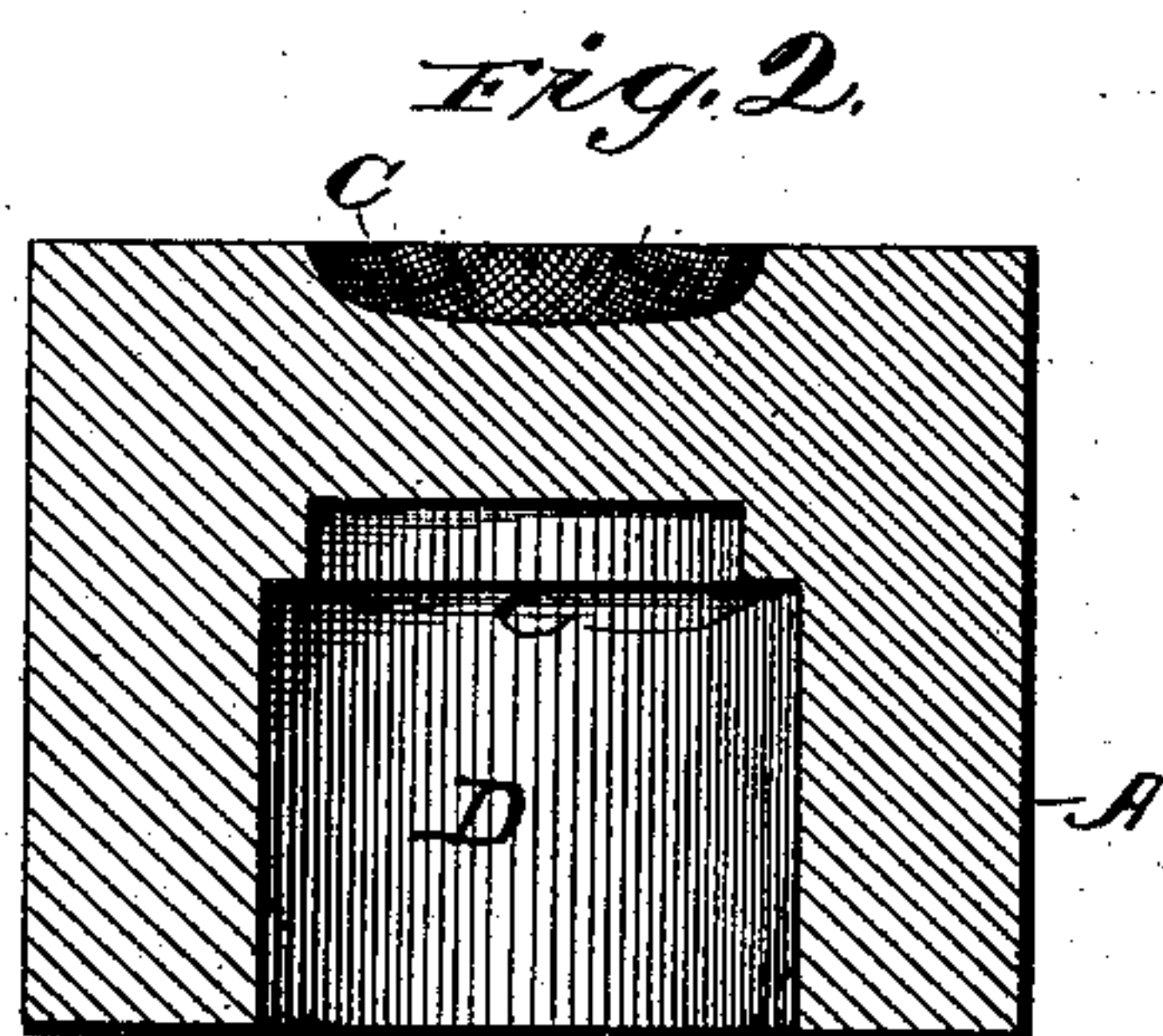
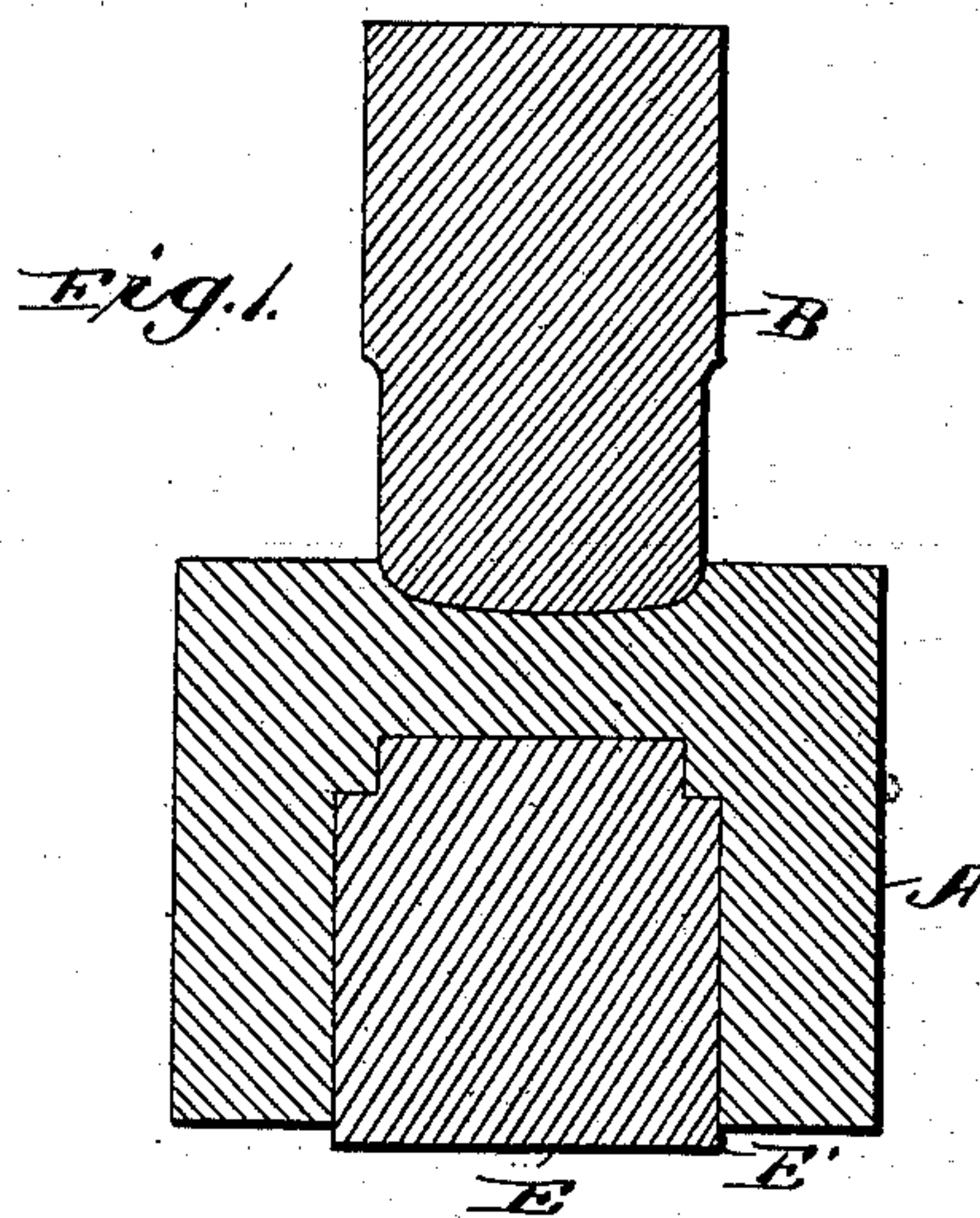


(No Model.)

A. W. HOFMANN.
WATCHCASE DIE.

No. 503,600.

Patented Aug. 22, 1893.



WITNESSES,
J. M. Fowler
Alfred Stewart

INVENTOR,
Adolph W. Hofmann
By *Charles Schuch*
ATTYS.

UNITED STATES PATENT OFFICE.

ADOLPH W. HOFMANN, OF BROOKLYN, NEW YORK.

WATCHCASE-DIE.

SPECIFICATION forming part of Letters Patent No. 503,600, dated August 22, 1893.

Application filed May 19, 1893. Serial No. 474,786. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH W. HOFMANN, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Watchcase-Dies; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to dies, such as are used in the manufacture of watch case backs, &c., and more especially for imparting the ornamentation thereto, for which purpose the dies are suitably engraved and ornamented and the watch case backs, &c., are forced to conform thereto in a practically cold state by means of a power press or drop hammer.

The objects of the invention are, first, to prevent the cracking or distortion of the die when in use and secondly, to so construct the dies that they may be ornamented with uniformity throughout by means of a hub or ornamented and hardened male die.

The invention consists in certain novel details of construction and combinations and arrangements of parts all as will be hereinafter described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figure 1 is a sectional view through a die in process of manufacture. Fig. 2 is a similar view through the female die alone. Fig. 3 is a similar view with the supporting plug in place.

Like letters of reference denote the same parts in all the views.

As is well understood by those skilled in the art, watch case backs, &c., are usually ornamented and formed by being set into female dies, which have been properly shaped, ornamented and hardened to withstand the pressure necessary to sink the case metal into the interstices and irregularities of the die. In carrying out this method of manufacturing watch case backs, it is found that it is difficult to secure full, sharp impressions at the center of the die, and further, the greatest difficulty is experienced in preventing the cracking of the die and sinking of central part.

The first difficulty mentioned, *i. e.*, the fail-

ure to secure sharp impressions at the center, I have found is due to the fact that the steel of the female die, or die block, lettered A in the drawings, is soft when the ornamentation is imparted thereto from the hardened and ornamented male die B, and hence, the metal of the die A gives or yields at the center sufficiently to prevent a full and sharp impression being imparted thereto, producing a defective die from which it is impossible to secure perfectly ornamented watch case backs. The second difficulty, is due to the fact that the solid metal of the female die can only be successfully hardened for a comparatively short depth or distance inward, the result of which is, that the die while perfect on the exterior, has a soft interior, incapable of supporting the exterior so as to make it capable of withstanding blows or the excessive pressure to which dies of this kind are subjected, and hence, when the watch case backs are set into the ornamented concavity C and the pressure exceeds that which can be sustained by the comparatively thin hardened exterior, the surface of the die is cracked and the center of the ornamented surface sinks because of the failure of the center to support the same.

Now, I have overcome the difficulties above mentioned, completely, by forming the female die with a comparatively thin body of metal as a backing for the ornamented recess, preferably, by hollowing out the die block A on the rear side as at D, Fig. 2, up to a point comparatively near the bottom of the ornamented recess, and adapting such hollowed out portion for the reception of a hardened steel plug E which while removable, nevertheless fits accurately in place and preferably projects slightly below the bottom of the block at E' so as to sustain the entire pressure. The diameter of the plug should conform quite accurately to the diameter of the ornamented recess and in the preferred construction I form shoulders *e* to distribute the pressure on the die block more evenly.

In manufacturing the die, it is first formed as last described ready to be ornamented. Then the plug having been put in place the hardened hub or ornamented male die is forced into the concavity at the top. The metal of the die block being solidly supported

by the plug will receive a uniform and sharp impression throughout. Then the die block is removed and hardened, the comparatively thin body of metal back of the ornament-
5 ed concavity being readily hardened way through, and when backed by the solid hardened steel plug is capable of withstanding practically any pressure which it will be found
10 necessary to use even in the manufacture of backs from hard metal.

Practical use of die blocks constructed in accordance with this invention, shows that the impressions given the watch case backs, are sharper, more uniform and more easily
15 formed than with the old forms of die block, and further, the blocks do not crack or sink under excessive pressure or under the action of successive blows such as are necessary to set the watch case backs into the die properly.

20 Having thus described my invention, what I claim as new is—

1. In a die for manufacturing watch case

backs, &c., the combination with the block having the concavity in the top for the recep- 25 tion of the watch case back, and the recess in the bottom extending up into proximity to the concavity in the top, of the hardened plug fitting in said recess and adapted to support the bottom of the concavity; substantially as described. 30

2. In a die for manufacturing watch case backs, &c., the combination with the die block having the ornamented concavity in the top for the reception of the watch case back, and the recess in the bottom extending up into 35 proximity to the concavity in the top, of the hardened plug fitting in said recess and projecting below the bottom of the die block; substantially as described.

ADOLPH W. HOFMANN.

Witnesses:

SYDNEY H. CARR,
IGNATZ MARTIN.