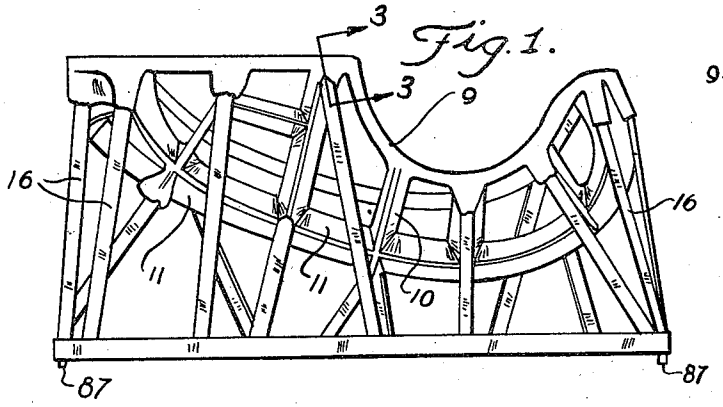
Jan. 13, 1948. A. P. STEWART 2,434,372

DIE SPOTTING DEVICE

Filed Nov. 13, 1944

Fig. 1.



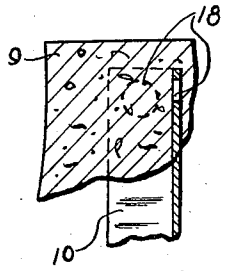




Fig. 3.

Fig. 2.

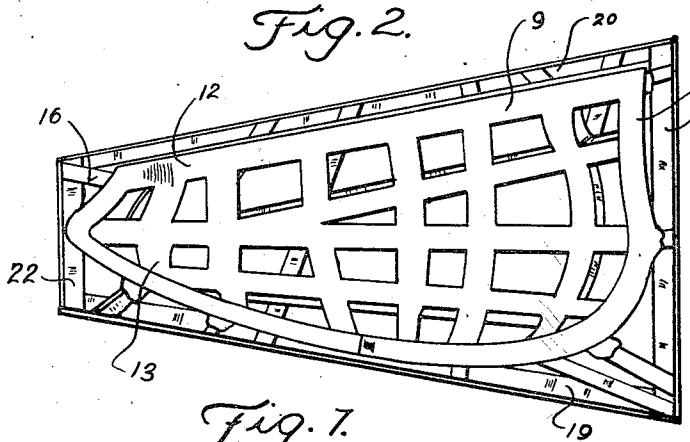



Fig. 6.

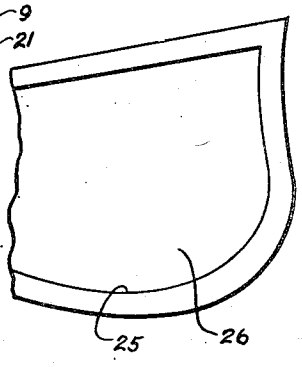



Fig. 7.

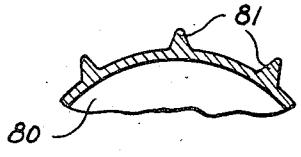



Fig. 5.

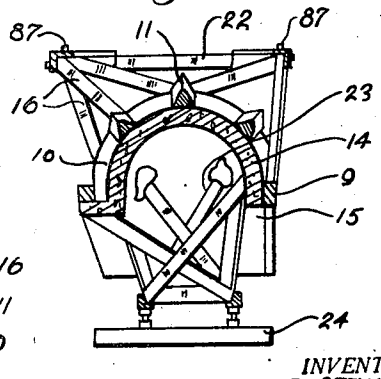
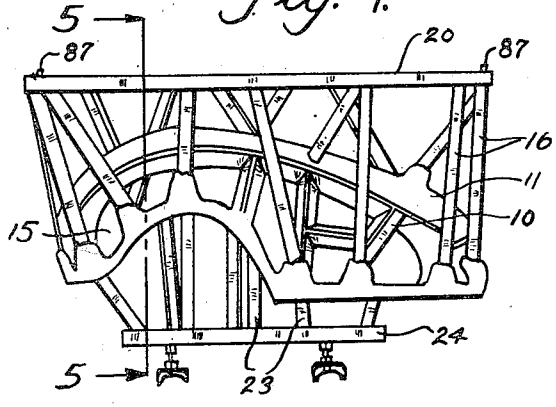



Fig. 4.




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## DIE SPOTTING DEVICE

Alexander P. Stewart, Detroit, Mich.

Application November 13, 1944, Serial No. 563,230

6 Claims. (Cl. 33—174)

1

This application constitutes a continuation in part of my co-pending application, Serial No. 354.135, filed August 24, 1940, which is abandoned.

My invention relates to a new and useful improvement in a die spotting device adapted for use in spotting dies for locating imperfections such as high spots and the like. The dies, whether made by tracer controlled cutting machine or whether made by hand, are generally patterned after a pre-formed pattern. This pattern may be made from wood or other material and the die maker working from the pattern as a model proceeds to construct the die out of more lasting material such as steel or cast iron. In die work a male die and female die are generally arranged for cooperative action, the male die entering into the female die for forming the stamping to the desired shape and size. It is necessary that these cooperating parts be constructed in the proper dimensions and free from imperfections such as high spots and low spots. The present invention consists of a cavity-bearing member in which the cavity conforms to the male die so that its surface will be in duplicate of the working surface of the male die. If it is a female die that is to be "spotted" the spotting device would consist of a head or body having an outer surface corresponding to the work surface of the female cavity.

It is an object of the present invention to provide a die spotting device of this class which will be simple in structure, economical of manufacture, durable, compact and easily and quickly operated.

Another object of the invention is the provision of a die spotting device of this class having a contacting or gauging surface corresponding to the working surface of the die portion to be spotted therein.

Another object of the invention is the provision of a die spotting device having a gauging or contacting portion provided with openings formed therein so that provision is made for the insertion of feelers or the like whereby depressions or pockets may be readily located or determined.

Another object of the invention is the provision of a die spotting device mounted in a frame so arranged and constructed that the angulation of the die may be maintained during the spotting operation. Other objects will appear hereinafter. It is recognized that various modifications and changes may be made in the detail of structure illustrated without departing from the spirit of the invention and it is intended that such modifications and changes may be embraced within the scope hereof.

Another object of the invention is the provision of an all-metal spotting device consisting of a spotting or contact face area and a steel frame forming a single composite unit.

2

Another object of the invention is the provision of a device of the class described whereby changes of atmospheric conditions will be reduced to a minimum.

Forming a part of the specification are drawings in which,

Fig. 1 is a side elevational view of the invention;

Fig. 2 is a top plan view of the invention;

Fig. 3 is a fragmentary sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a side elevational view of the invention slightly reduced showing the invention applied to the die;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a fragmentary top plan view of a slightly modified form of the invention;

Fig. 7 is a fragmentary sectional view of a slightly modified form of the construction.

In the structure illustrated in Fig. 1, Fig. 2 and Fig. 3 a network construction is resorted to. As shown in Fig. 6 this network construction may be departed from if desired and solid construction used instead. However, the network construction has proven more practical and satisfactory due to economy of construction and lightness of the finished article.

It is preferred to construct the device from a material which is commonly referred to as white metal or a low melting alloy. This material is capable of being melted at a temperature of about 180° F. It is obvious, however, that the structure may also be made from plastics or from any other suitable material. In the construction illustrated, a marginal frame 9 is provided which extends around the edge of the device. This frame is traversed by a plurality of transverse ribs 10 and longitudinally directed ribs 11. The inner face 12 of the frame 9 and the inner faces 13 of the transverse ribs and longitudinally extending ribs determine a surface corresponding to the working surface 14 of the die body 15 which it is intended to spot so that the cavity determined by the spotting device is, on its inner face, a duplicate of the outer or working face of the die. In the drawings the structure has been illustrated as a construction for spotting a male die. It is obvious that in spotting a female die instead of a male, a body capable of fitting ino the cavity would be provided formed from the network construction illustrated.

A plurality of legs 16 are secured at one of their ends to this spotting structure and in the structure illustrated these legs project at said ends into the transverse and longitudinally directed ribs while the same are in plastic or molten condition, so that when the mass hardens the legs 16 will be anchored to the mass, the material having flowed through the opening 18 formed in the

embedded end of the leg. The other ends of the legs are secured to a steel frame embodying the side rails 19 and 20 and the end rails 21 and 22, the ends of the legs being bolted, riveted, or otherwise secured to the frame. The frame and the legs are preferably formed from metal such as steel or the like. In securing the spotting structure on the frame, the legs are determined to a proper length so that the spotting structure will bear to the supporting frame the same angulation or relative tilt or position as the die bears to its supporting frame.

In the drawings, I have illustrated the die 15 as being the body which is being constructed and which it is desired to form to the shape and dimensions of the surface determined by the inner face of the spotting structure. In this drawing I have illustrated the die 15 provided with attaching legs 23 and a securing frame 24 to which the legs are attached. This is merely illustrative as the piece of metal from which the die 15 is being made may be supported by any suitable supporting body such as the floor, a table or the like. This frame 24 may correspond to the floor, or other suitable support or it may correspond to the planed base or under side of the die body itself. The plane of this supporting structure 24, however, will bear to the working face of the die being formed, a predetermined angulation, the angularity of the die body 15 to its support 24 being obtained from the supporting body of the pattern in accordance with which the die body 15 is being made. This supporting body on the pattern is, of course, generally determined by the engineering department and its angularity set depending upon the uses and purposes which it is intended the die shall be put and for which it is intended that the finished product shall be used.

In constructing the spotting structure and mounting its frame thereon, the frame embodying the parts 19, 20, 21 and 22 will be secured in position so that it bears to the inner surface of the spotting structure, the same angular relation that the supporting body 24 bears to the die body 15.

In operation the spotting structure would be applied to the die body and the support 24 of the die body 15 would be brought to extend parallel to the frame of the spotting structure which embodies the side walls 19, 20, 21 and 22, or if not parallel thereto, into a position of predetermined angularity relatively thereto. The parts, when in this predetermined relative position, are then coordinated for use and the spotting device would be lowered so that the surfaces 12 and 13 and the die body face contact. In use these surfaces 12 and 13 are generally covered with a carbon or transferrable ink so that when the spotting fixture is rested on the die body and then raised therefrom, the high spots will be properly marked. When the spotting fixture is resting on the die face as shown in Fig. 4 or Fig. 5 feelers or calipers may be inserted beneath the various ribs and cavities, thus determined and measured. Likewise, high spots may be more clearly indicated, determined, and in some instances roughly measured. By forming the structure of a web-like formation, the visibility of the die at all times assists the operator in carrying on the spotting operation and in properly seating the die in the spotting device. In Fig. 6, however, I have illustrated the structure as comprising a solid body having the cavity 25 formed therein, the inner surface 26 of which would constitute the spotting or measuring surface and be formed as a duplicate of the outer face or working face of the die body 15.



In Fig. 7 I have shown a slightly modified form of the construction in which the web-like structure is dispensed with and replaced by the shell like form 80 having reinforcing ribs 81 projecting outwardly from the periphery thereof in which are embedded the ends of the legs 16.

Studs 87 project downwardly from the end rails 21 and 22 of the frame, two of these bolts being provided in the rail 21 and one in rail 22 so that when the device is placed upon the floor or other suitable supporting surface, a three-point contact will be provided, thus reducing warping and twisting.

With a spotting device such as illustrated an easy and quick spotting of the die which is in progress of manufacture may be made and the length of time required for die fabrication considerably reduced. Moreover, with such a die spotting device a more accurate duplicating of a pattern in the form of a die becomes possible with a consequent increased efficiency in the manufacture of the finished product. As referred to the mounting of the spotting device on the supporting frame bearing the same angular relation thereto as the supporting body to which the die is attached will assure the spotting of the die while in the proper angularity relative to its supporting frame.

It will be noted that the device is formed from cast material, either a suitable metal or plastic. When the body is cast, it will ordinarily be homogenous throughout. Moreover, the metal alloy or the plastic would be waterproof or non-absorbent as would likewise be the steel legs or the steel frame. It is to be noted that the contact surface is integral with the body itself, no separate facing layers being used. It will also be noted that the cast body is contacted by the supporting legs at spaced points, the body being sufficiently rigid to support itself intermediate these points of contact.

What I claim as new is:

1. A die spotting device adapted for use on dies having a contact surface shaped to conform to a pattern surface comprising: a unitary web-like body of non-absorbent material having a contact surface duplicating a pattern surface contour for engagement with the contact surface of a die; and a non-absorbent supporting structure having spaced rigid connections with said body, said body being unsupported by said structure intermediate the connections.

2. A die spotting device adapted for use on dies having a contact face formed to duplicate a pattern surface comprising: a unitary cast waterproof body having an integral contact face duplicating a pattern surface contour for contacting the die contact face for checking the accuracy thereof; a plurality of non-absorbent legs connected at spaced points with and projecting outwardly from said body, and a connecting frame for connecting said legs.

3. A die spotting device of the class described, comprising: a shell-like body of cast material non-absorbent as to water and having an integral contact face duplicating a pattern surface contour for engaging the working face of a die for determining the accuracy thereof; and a water non-absorbent supporting structure connected with said body at spaced points, said supporting structure being prearranged to secure the spotting device in the same relative position as the die bears to its support.

4. A die spotting device of the class described, comprising: a shell-like body of cast material

non-absorbent as to water and having an integral contact face duplicating a pattern surface contour for engaging the working face of a die for determining the accuracy thereof; a water non-absorbent supporting structure being prearranged to secure the spotting device in the same relative position as the die bears to its support and cross bars mounted on said supporting structure and extending outwardly therefrom.

5. A die spotting device of the class described, comprising a body of cast non-absorbent material having an integral contact face duplicating a pattern surface contour for engaging the working face of a die for checking the accuracy thereof; non-absorbent supporting legs projecting outwardly from another face of said body; and a non-absorbent frame mounted on said supporting legs said supporting legs being prearranged to secure the spotting device in the same relative position as the die bears to its support.

6. A die spotting device of the class described, comprising: a body of material non-absorbent as



to water having an integral contact face duplicating a pattern surface contour for engaging a die portion for checking the accuracy thereof; and non-absorbent supporting means carried by said body and projecting outwardly therefrom for retaining said body in spaced relation to a support engaged by said supporting means said body supporting means being arranged in the same relative position as the die bears to its support.

ALEXANDER P. STEWART.


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