No. 721,659. PATENTED MAR. 3, 1903.

J. R. BLAKESLEE.

DIE.

APPLICATION FILED FEB. 23, 1901.

NO MODEL.

FIG. I

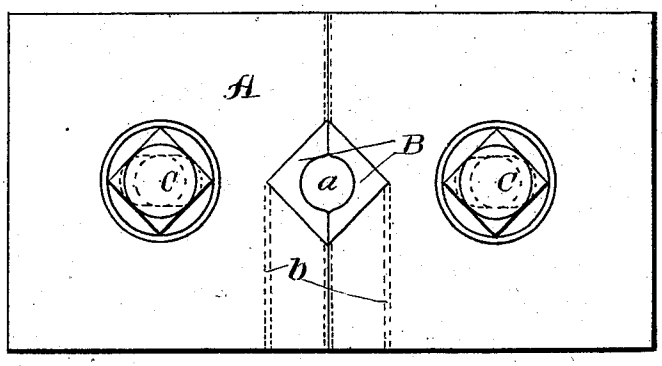


FIG. II

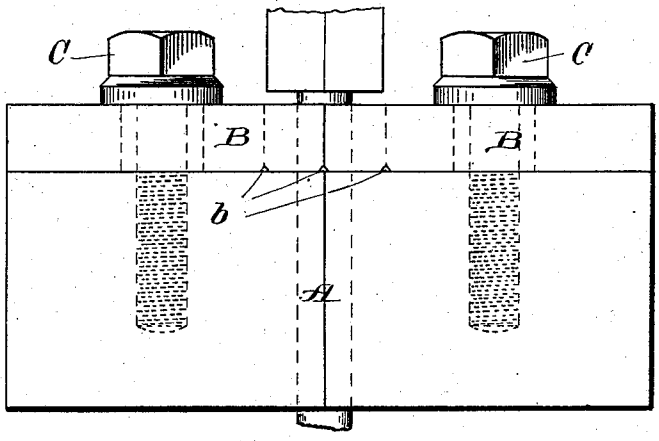
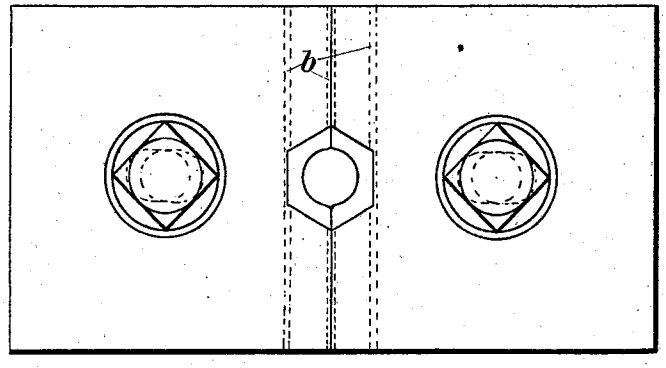


FIG. III



Witnesses,
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Inventor,
J. R. Blakeslee,
By J. D. Gay
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THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN R. BLAKESLEE, OF GLENVILLE, OHIO.

DIE.

SPECIFICATION forming part of Letters Patent No. 721,659, dated March 3, 1903.

Application filed February 23, 1901. Serial No. 48,416. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. BLAKESLEE, a citizen of the United States, and a resident of Glenville, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Dies, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to dies for forming or upsetting the heads of bolts, cap-screws, or the like, the object of such invention being to permit of the formation of a head having a contour exactly conforming with the contour of the intaglio of the die, so as to produce sharp, well-defined, and finished outlines in such head.

Said invention consists of means hereinafter fully described, and specifically set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a plan view of a die embodying my invention for forming a square head; and Fig. II represents a front elevation of the same, showing also a blank secured in such die and a portion of an upsetting-tool used in connection therewith. Fig. III represents a plan view of a die embodying my invention for forming a hexagonal head.

My improved die consists of two parts comprising a bipartite die-body A and a bipartite cheek-piece B, a cheek-piece part being secured to each part of the body portion, as shown, by means of suitable bolts C. The two parts of the body portion jointly form a cylindrical recess *a* for holding the body of the blank upon which it is desired to form the head. The juxtaposed cheek-piece parts jointly form the intaglio for forming the required head, the upper surface of the body portion surrounding the recess *a* forming the bottom surface of the intaglio, the side walls of which are formed in the cheek-piece parts. At the contiguous surfaces of the juxtaposed cheek-piece and die-body are formed a series of air-ducts *b*, affording atmospheric communication with the intaglio, one duct being in communication with the apex of each solid angle formed by the intersecting planes of the surfaces of the intaglio. These ducts are entirely formed upon the cheek-piece, as illustrated, so as to permit the formation of a perfectly-flat under surface upon the head. When one or more angles fall upon the planes of contiguous surfaces of the two parts of the cheek-piece, as illustrated, one-half of each corresponding duct is formed upon each cheek-piece part.

It has been found that in upsetting a head in dies of the usual construction which are not provided with the air-ducts above described the solid angles of the intaglios are not completely filled in the upsetting operation and the resulting head is after formation rounded instead of sharp and well defined at the corresponding points. I have found that in the course of the upsetting process by the use of such dies the upper portion of the intaglio first becomes completely filled before the extreme lower portion thereof, thereby impounding a small quantity of air, which gathers in the angles of the intaglio and prevents the flow of the metal therein. By providing the above-described air-ducts communicating with such angles, so as to permit of the exit of air from the intaglio when the mouth thereof is closed by the upset metal, such undesirable formation is prevented and all angles are completely filled, so as to produce a contour of the head exactly corresponding with that of the intaglio.

The above-described die is particularly applicable to the economical manufacture of cap-screws and permits the use of unfinished or common stock in such manufacture, necessitating only a small amount of finishing to complete a marketable article, thereby greatly reducing their cost of production as compared with that involved by any of the methods at present practiced, in so far as I am aware.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the

means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. A die comprising a two-part body portion; cheek-pieces secured to the body portion, the intaglio of the die being formed by the upper portion of the body portion, and the inner side walls of the cheek-pieces, and having angles; and air-ducts communicating with the intaglio at the angles, as herein set forth.

2. A die for forming angular heads in bolts, comprising a two-piece body portion, the adjacent surfaces thereof each having a semi-cylindrical recess, which together form a cylindrical recess to hold the body of the bolt; cheek-pieces superposed to the body portion, and secured thereto, their abutting ends each having an angular recess which together form the intaglio, and also having air-ducts leading from the apexes of the angles formed by the intaglio, as herein set forth.

Signed by me this 16th day of February, 1901.

JOHN R. BLAKESLEE.

Attest:
GEO. WM. SAYWELL,
A. E. MERKEL.