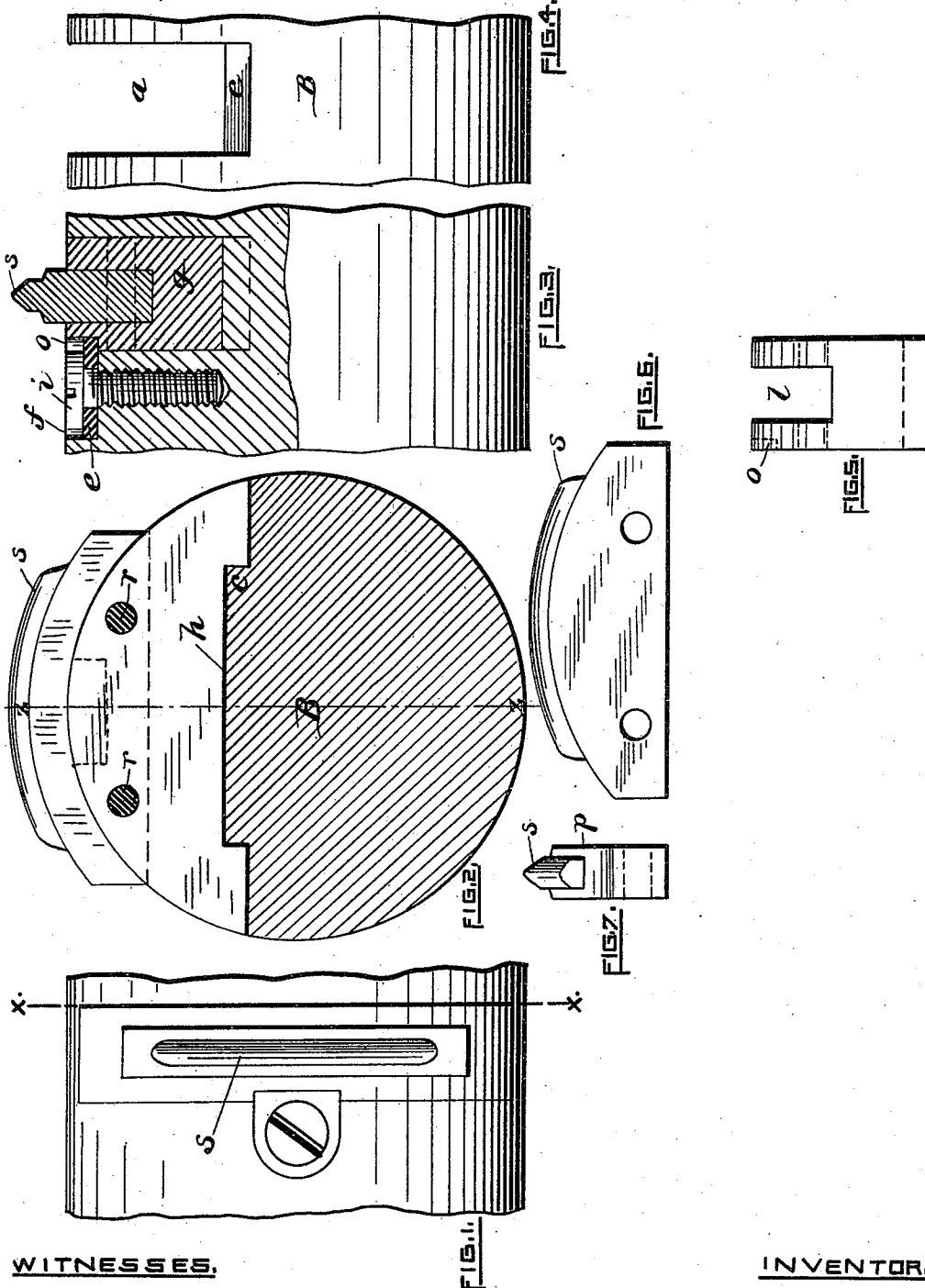


(No Model.)

A. B. SHIPPEE.
ROTARY DIE.

No. 470,215.

Patented Mar. 8, 1892.



WITNESSES.

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UNITED STATES PATENT OFFICE.

AARON B. SHIPFEE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO ALBERT W. CHAPMAN, OF SAME PLACE.

ROTARY DIE.

SPECIFICATION forming part of Letters Patent No. 470,215, dated March 8, 1892.

Application filed September 21, 1891. Serial No. 406,313. (No model.)

To all whom it may concern:

Be it known that I, AARON B. SHIPFEE, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Rotary Dies; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to rotating dies used in swaging metal and to the means used for holding them in place when in use, referring more especially to such dies when used in rolling twist-drills.

It is fully illustrated in the accompanying drawings.

Figure 1 is a top view of a die in its place in an arbor, a portion of which only is shown. Fig. 2 shows a cross-section of the arbor, taken through on line *x x*, Fig. 1, showing a side elevation of a die-block and die. Fig. 3 is a longitudinal section of a part of an arbor, die-block, and die, taken on line *z z*, Fig. 2. Fig. 4 shows an elevation of a part of an arbor having a recess made in it to receive the die or block. Fig. 5 is an end view of a die-block also fitted into the recess in the arbor in Fig. 4. Fig. 6 shows a side elevation of a smaller die fitted to the recess in die-block, Fig. 5. Fig. 7 is an end view of the die shown in Fig. 6.

The rotating dies herein shown and described are intended to take the place of circular-plate dies, which are usually held on an arbor. They have the advantage of being easier to construct in duplicate and much less liable to be damaged by cracking and warping in the process of hardening. They are also much more readily put in place in the machine or taken out and changed without disturbing the other parts of the mechanism. They are held in a recess made in the side of an arbor and are intermittent in action, making an impression at each revolution of the arbor carrying them.

In Fig. 4 a part of an arbor *B* is seen with a recess *a* made through one side, leaving a raised portion *c* in the middle, which fits into a recess *h* on the under side of the die-block *g*, which fits snugly into the recess *a*, the object of the raised part *c* being to prevent the sliding of the die-block endwise in the recess.

The die-block is held from rising out of the recess in a radial direction by a plate *e*, (see Fig. 3,) which fits into a recess *f*, made for it in the arbor, and projects into a recess *o* in the side of the die-block *g*, which fits into the recess *a*. A screw *i*, that screws into the arbor, passes through the plate *e* and holds it down, so as to prevent the die from rising. A die-block *g* is made and is fitted to be held in the recess *a*, and it has a recess *l* made through it (see Fig. 5,) to receive a smaller die *p*, of which Fig. 6 shows a side elevation and Fig. 7 an end view. This die *p* is held in the recess *l* by means of two pins *r r*, which pass through the sides of the block *g* and the die *p*. On the periphery of this die *p* a small projection *s* is made to make the required impression.

One advantage of having a smaller body for a small projection is that when the small projection is made on a large die-body it is very liable to crack and fly in pieces in the process of hardening; but when the die-body is small the parts are in better proportion and can be hardened without cracking or warping out of shape; and another advantage is that by means of the block small dies can be used in the same arbor in which large solid dies are used and save the extra labor and stock that would be required if the small dies had to be made large enough to fit in the same recesses made for the large ones.

The dies as described may be used in pairs, each die having its separate arbor to operate on opposite sides of a bar, as in rolling the grooves in twist-drills, for which use it is especially adapted; or they may be used singly in connection with a traveling table to support the work for other purposes.

Having thus set forth the construction and operation of my improvements, I claim as my invention—

In rotary dies, a block having a recess made in it to hold a die, fitted into a recess in an arbor, in combination with said arbor and die and means, substantially as set forth, for holding the die in the block and the block in the arbor.

A. B. SHIPFEE.

Witnesses:

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