P. E. LANE.

ADJUSTABLE DIE HOLDER.

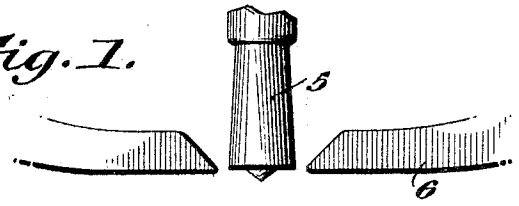
APPLICATION FILED AUG. 9, 1918.

1,288,054.

Patented Dec. 17, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



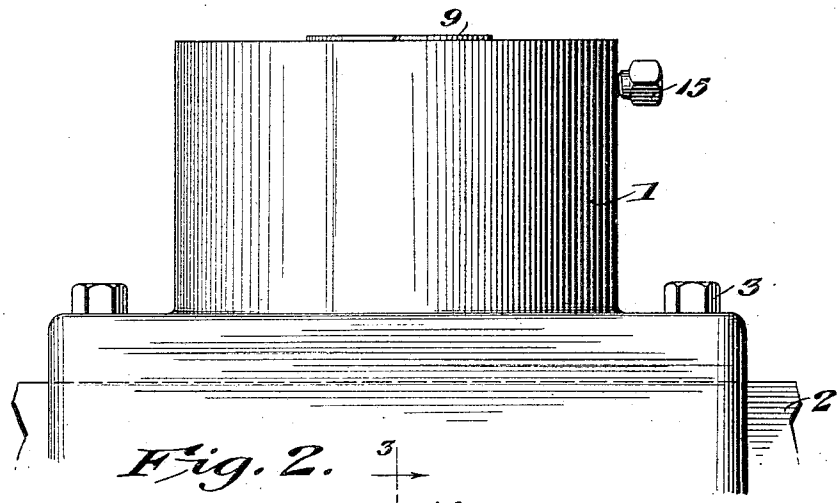
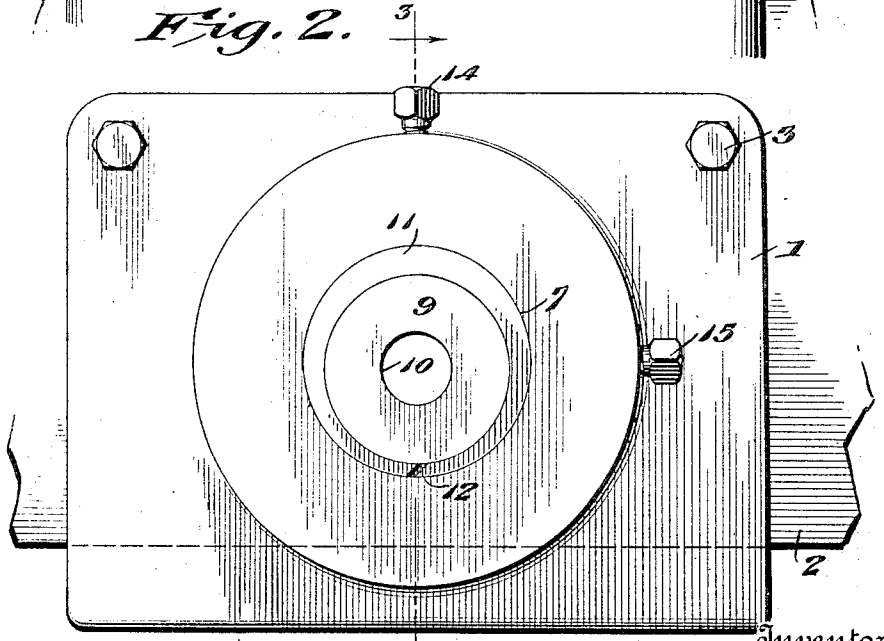


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

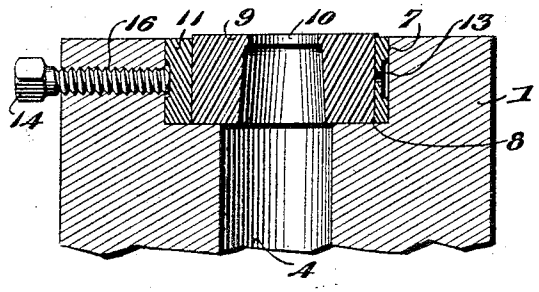


Fig. 4.

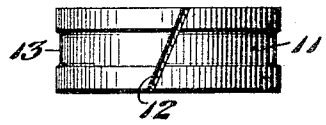
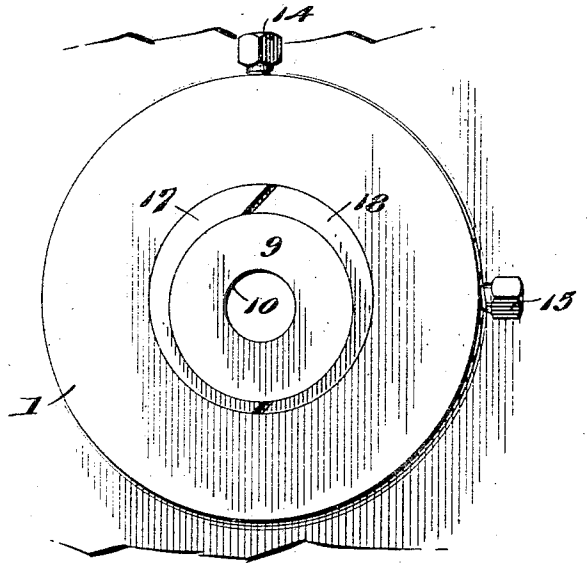


Fig. 5.



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ADJUSTABLE DIE-HOLDER.

1,288,054. Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed August 9, 1918. Serial No. 249,141.

To all whom it may concern:

Be it known that I, PHILANDER E. LANE, a citizen of the United States, residing at Atlantic City, in the county of Atlantic and State of New Jersey, have invented new and useful Improvements in Adjustable Die-Holders, of which the following is a specification.

My present invention pertains to adjustable die holders, and particularly to holders adapted for use in connection with punch machines such as are now employed in punching ship-plates and the like.

An object of the invention is to provide a die holder which may be built in the machine as constructed or can be fitted on machines already installed and in use, which holder securely locks the die in place and retains the same against displacement or shifting.

A further object resides in so constructing the die holder that most minute adjustments of the die can be made, to thus secure absolute registery of the die with the punch.

Yet another object is to arrange, in conjunction with the adjustable portions, lock means by which any adjustment of the die is set and held, while at the same time the die is clamped and secured against movement or displacement.

With these and other objects in view, which will be apparent from the specification, drawings, and claims, this invention includes certain novel features of construction and combinations of parts of which will now be set forth.

In the drawings:

Figure 1 is a fragmentary view in elevation showing the adaptation of my invention to a punch of usual construction.

Fig. 2 is a plan view showing the die block and holder.

Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a view in elevation of the die adjusting and holding ring.

Fig. 5 is a view similar to Fig. 2 illustrating one modification which might be resorted to.

In punching machines as now usually employed for punching ship-plate and the like, the die is mounted in the die holder to be held in a fixed and non-adjustable relation with respect to the punch, or is set in a die block adjustably mounted in the die holder. After the punch has been in use for a period of time and as moving parts of the punch machine wear, the perfect registry of punch and die opening is destroyed, and the purpose of the adjustable die block is to allow for resetting of the die for proper registry, however, as the die block must be manually moved or driven to the desired adjustment by hammer blows it will be seen that extremely fine settings and a truly accurate registry are difficult of attainment. Again, as the adjustable die blocks are held in place by set screws bearing against the sides thereof accurate settings are not retained under the strain of use.

In my invention I propose to construct and arrange the die and die holder to be of substantially the usual form, and to associate with these parts an eccentric ring by which the die is moved to and retained in desired settings. The die holder 1, is mounted on the lower jaw of the machine body 2 and is rigidly secured by bolts 3 or other suitable fastenings. The holder 1 has a central bore 4 located to be in vertical alinement with the punch 5, and of somewhat larger diameter. Stationary strippers 6 are also provided on the upper jaw of the machine body or some other form of stripper can be employed.

In its upper face the die holder 1 has an annular recess 7 formed concentrically with respect to the central bore and made of somewhat larger diameter to thus provide a supporting shoulder 8.

The die 9 having the punch opening 10 smaller than the bore 4 is provided to seat within the recess 7 upon the shoulder 8, the recess being of sufficiently large diameter that considerable clearance exists entirely around the die, and an eccentric die adjusting and holding ring 11 is provided to be received around the die 9 and within the clearance space of the recess 7. As shown in Figs. 2 and 4, the die holding ring 11 is cut across diagonally at 12, on the thin side, and by reason of this cutting or splitting the ring will have even contraction about, and upon the die as pressure is applied on the outside thereof.

A central groove 13 is provided peripherally around the die holding ring 11, and set screws 14 and 15 are turned into threaded

openings 16 formed at spaced points through the wall of the die holder and at their inner ends press against the die holding ring, seating in the groove 13.

In the use of the device of my invention, the parts will be assembled and mounted in the manner described, the eccentric die holding ring being placed within the recess 7 around the die 9, and the set screws 14 and 15 being turned in to catch within groove 13 and secure ring 11 against withdrawal. The outer diameter of ring 11 is such that this ring will turn within recess 7, and the central opening is preferably sufficiently large that the die will turn therein. When adjustment of the die is to be made, set screws 14 and 15 are loosened from clamping engagement with the eccentric ring 11, and this ring and the die block can then be moved freely to secure proper setting of the die block to register the opening thereof with punch 5. When proper adjustment is attained, set screws 14 and 15 are again tightened to seat in groove 13 in which relation they securely clamp die 9 within the ring and positively lock the holding ring against turning movement within or withdrawal from recess 7.

In Fig. 5 I have illustrated one modification which might be employed in adapting my invention to use, and as here shown, the holder, die, and set screws are the same as set forth in connection with the preferred embodiment. The die 9 is placed within recess 7 and is supported on shoulder 8. A two-part eccentric adjusting and holding ring, the parts of which are designated 17 and 18, is provided to fit within the clearance of recess 7 around die 9, and each of these parts has a peripheral groove corresponding to the groove 11, in which the ends of set screws 14 and 15 seat. The use of the structure and the function of the parts is the same as set forth in detail in connection with the preferred embodiment, in view of which it is not thought that recapitulation need here be indulged in.

In commercial employment of this invention it may be found that where a die with circular opening and a correspondingly shaped punch are used the die 9 and ring 11 can be made integral, although this would not be practicable where rectangular or other than circular openings are to be punched. Further, the ring or die, or both, can be provided with openings for reception of a spanner wrench by which the parts may be more readily turned and adjusted, however, as these and similar refinements are obvious it is not thought that these need be shown, or enumerated in detail.

While, in the foregoing, I have described specific embodiments, and have mentioned only certain possible modifications, it will be appreciated that my purpose is to provide an adjustable die holder in which micrometric adjustments to a perfect registry may be made, and will be retained, in view of which it is to be understood that in practice I do not limit myself to such specific details as herein set forth, but may resort to any practical modifications falling within the scope of the invention as defined in the appended claims.

I claim:

1. An adjustable die holder comprising with a die holder having a recess therein, a die located in said recess, and an eccentric ring in said recess around said die mounted for turning adjustment.

2. An adjustable die holder comprising with a die holder having a recess therein, a die located in said recess, an eccentric ring in said recess around said die mounted for turning adjustment, and means by which said eccentric ring is set and held when adjusted.

3. An adjustable die holder including with a die holder having a recess therein, a die provided with a punch opening mounted within said recess to have turning movement and to adjust said die opening eccentrically upon such turning movement.

4. An adjustable die holder including with a die holder having a recess therein, a die provided with a punch opening mounted within said recess to have turning movement and to adjust said die opening eccentrically upon such turning movement, and means to secure said die in adjusted positions.

5. An adjustable die holder including with a die holder, a die having a punch opening therein, a split eccentric ring located between said holder and the die and capable of movement with respect to each of said parts, and set screws by which said split ring is contracted upon said die and is locked against movement.

6. An adjustable die holder including with a die, a die holder having a recess therein for reception of said die with clearance therearound, and a ring thickened at one side mounted revolubly around the die within said recess to give micrometric adjustments to said die upon being turned.

7. An adjustable die holder including with a die, a die holder having a recess therein for reception of said die with clearance therearound, a split ring thickened at one side mounted revolubly around the die within said recess to give micrometric adjustments to said die upon being turned, and means by which said ring is contracted about said die and is set against movement.

8. An adjustable die holder for punch machines including with a die holder provided with a vertical bore and having a recess in its upper face formed concentrically around said bore, a die having a punch

opening therein located in said recess, a split eccentric adjusting and holding ring received in said recess around said die, said ring having a peripheral groove, and set screws turned into threaded openings in said die holder to seat within said annular groove and contract said ring upon the die.

9. An adjustable die holder including with a die, a die holder having a recess of greater size than the die in which said die is received, a two-part split ring made as an eccentric placed within the recess around said die, and means to contract the two parts of said ring upon said die and to set said ring against movement.

10. An adjustable die holder for punch machines including with a die holder provided with a vertical bore and having a recess in its upper face formed concentrically around said bore, a die having a punch opening therein located in said recess, a two-part split adjusting and holding ring made as an eccentric received in said recess around said die, said ring having a peripheral groove, and set screws turned into threaded openings in said die holder to seat within said annular groove and contract said ring upon the die.

In testimony whereof, I affix my signature.

PHILANDER E. LANE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."