

W. J. Clark.

Die for Making Bolts.

N^o 43,669. Fig. 1.

Patented Aug. 2, 1864.

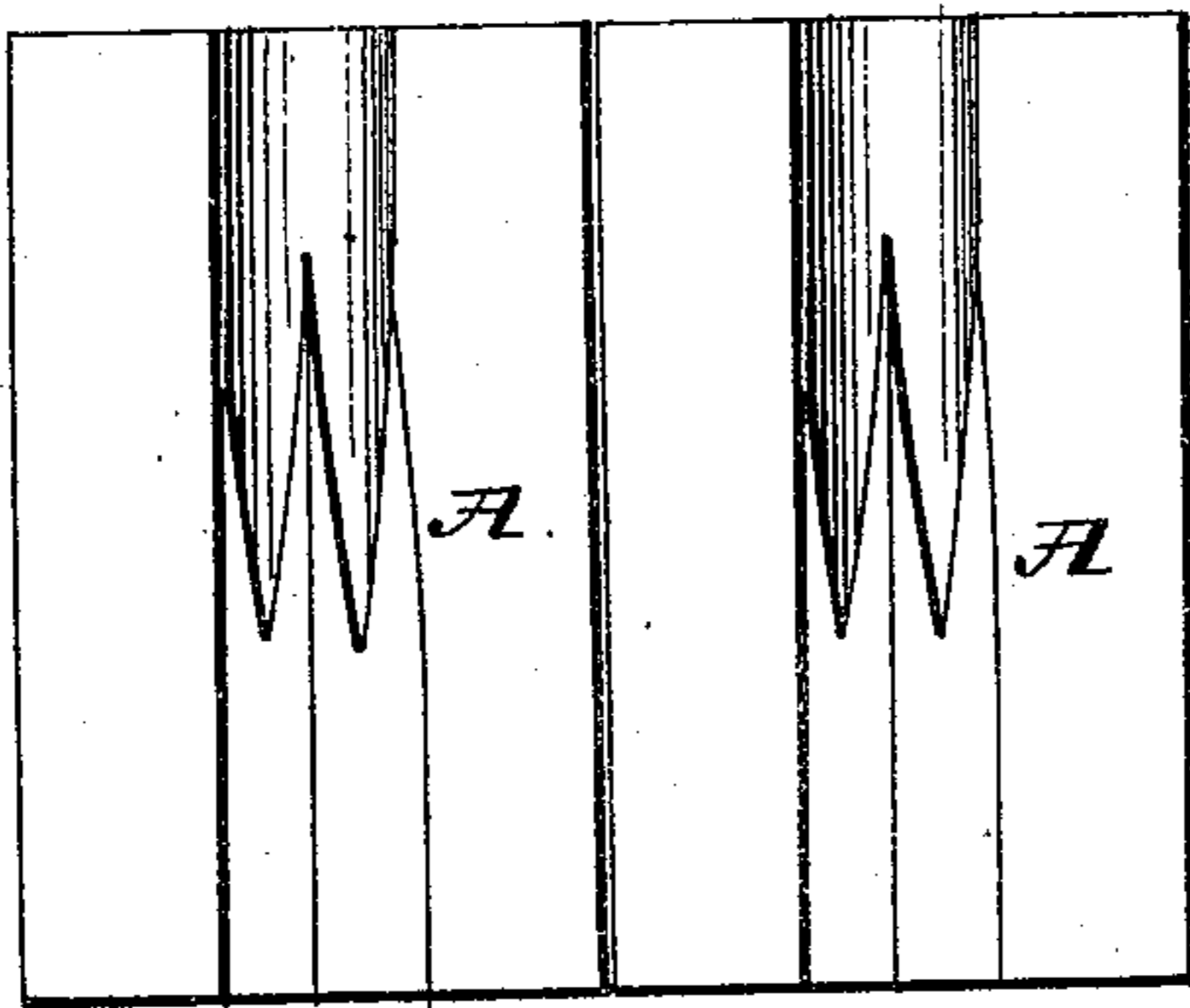


Fig. 2.

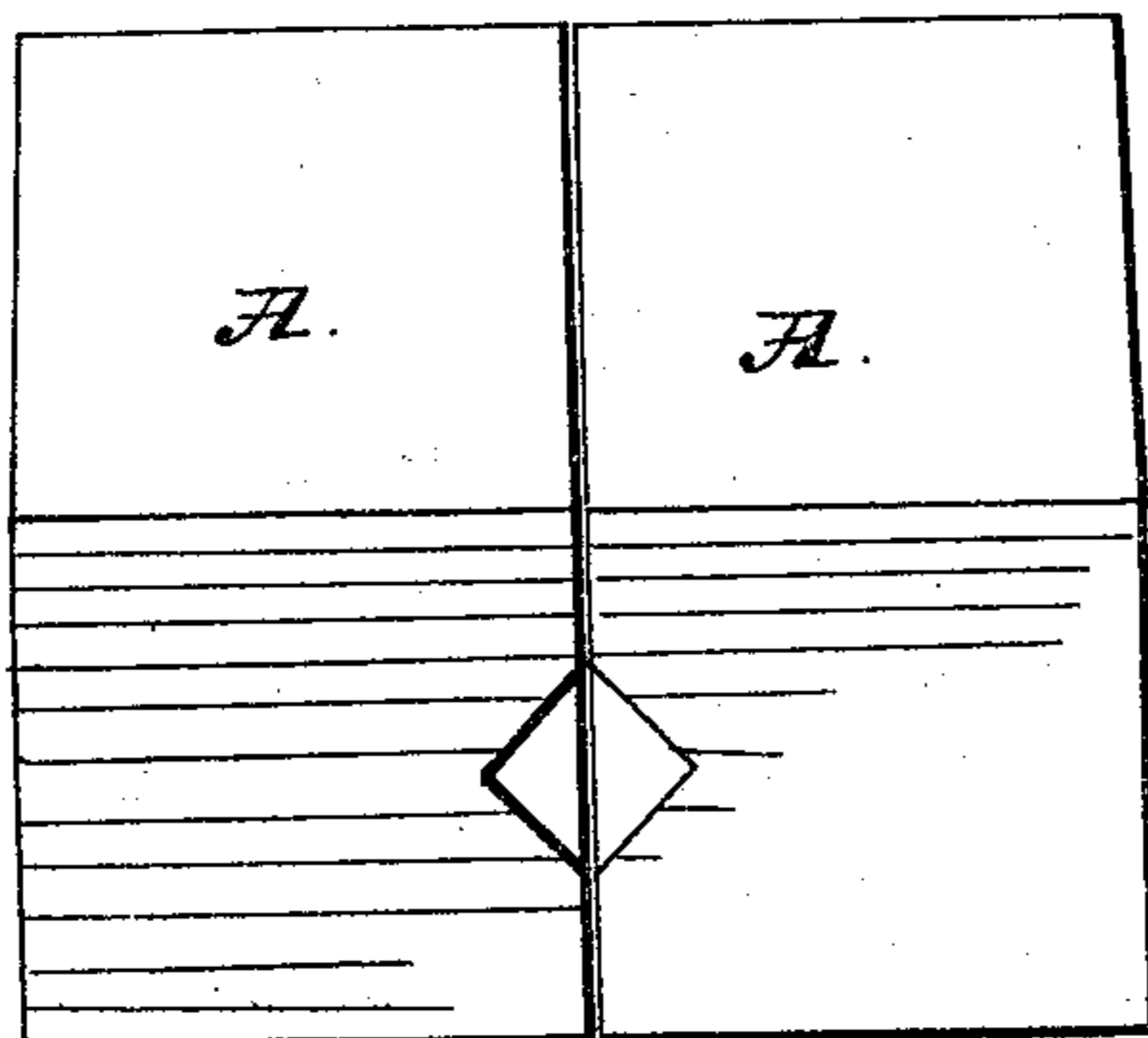


Fig. 3.

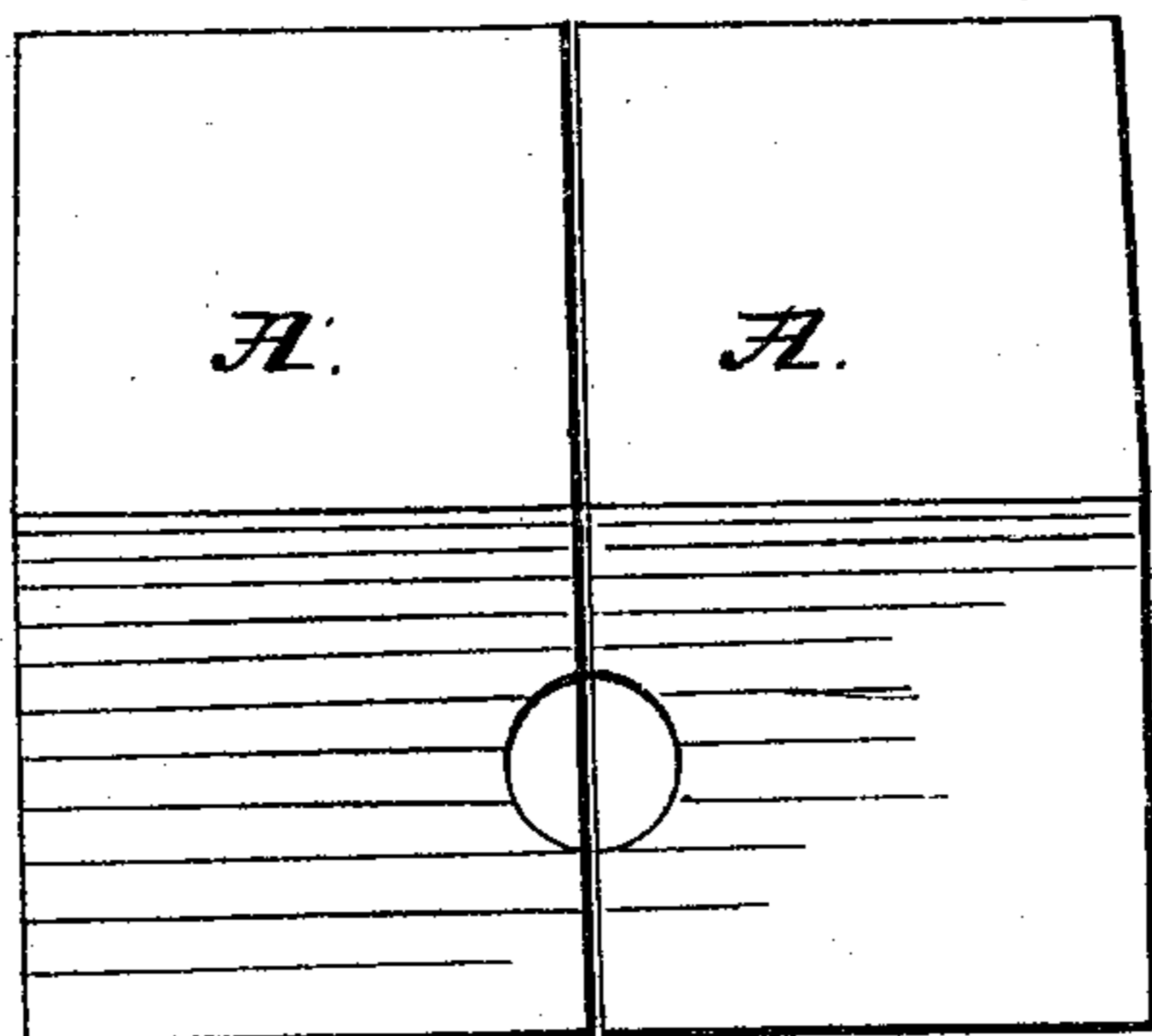
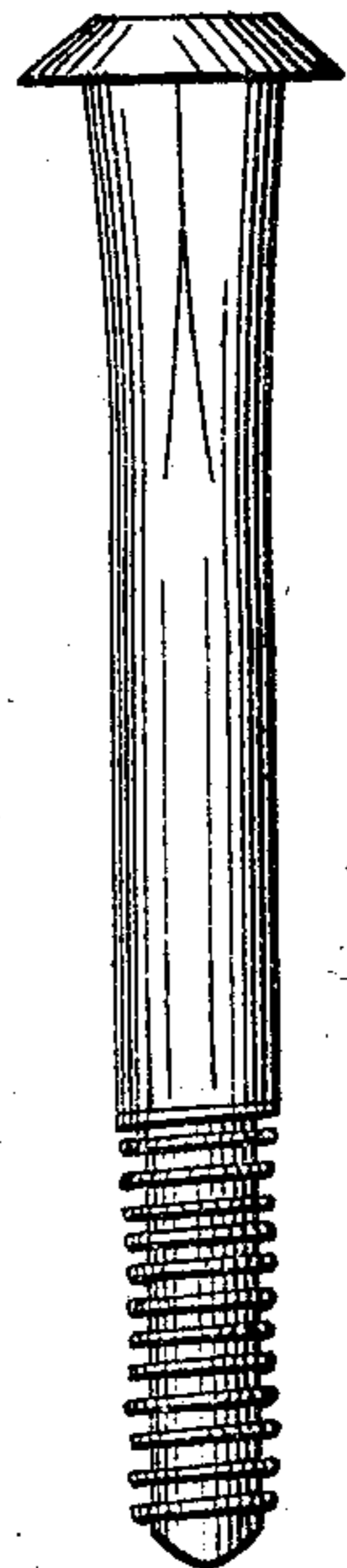


Fig. 4.



Witnesses:
G. E. Upson
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Inventor:
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UNITED STATES PATENT OFFICE.

WILLIAM J. CLARK, OF SOUTHLINGTON, CONNECTICUT.

IMPROVEMENT IN METHOD OF MAKING BOLTS.

Specification forming part of Letters Patent No. **43,669**, dated August 2, 1864; antedated February 2, 1864.

To all whom it may concern:

Be it known that I, WILLIAM J. CLARK, of the town of Southington, in the county of Hartford, State of Connecticut, have invented a new and useful improvement in the manufacture of bolts from round rods or bars. For this purpose I construct a pair of dies of cast-iron or other metal, making the grooves therein for a portion of their length of a semi-cylindrical form, and the remaining portion of an angular form. Each die being provided with a groove of this character, will permit the two when placed together to present at one end a cylindrical opening, corresponding in diameter to that of the cylindrical bolt-blank, while the opening at the opposite end, instead of being cylindrical, will be square or angular, but of similar sectional area to the cylindrical end, so that when the two dies are forced together upon bolt-blank (which is heated to a proper degree before being placed therein) that part of the blank lying within the angular portion of the grooves will be swaged out and forced to take the angular form corresponding to that of the angular portion of the groove, while the part lying within the cylindrical portion of the groove will retain its original shape; and while the bolt-blank is held in the dies they form an anvil upon which a portion of the blank projecting from the dies at the end containing the angular groove

is upset and formed into a head by any proper machinery.

Figure 1 represents the dies open to an interior view, showing a square or angular form in each for a portion of the length of the dies as long as may be required on the bolt, the said square or angular form gradually merging into a semi cylindrical form in each of the dies to conform to the size of the rod to be used. Fig. 2 shows the front or anvil end of the dies, on which the head of bolt is formed. Fig. 3 shows the back or cylindrical end. Fig. 4 shows the bolt as completed of one form of head, but I confine myself to no particular form of head.

What I claim is—

The combination and use of metallic dies for the purpose of giving angular shape to a portion of a cylindrical bolt, by compression laterally, leaving the remaining portion of the bolt in its original form, and which dies at the same time serve the purpose of an anvil, upon which the head of the bolt is formed by upsetting a projecting portion thereof, substantially as set forth.

Washington, District of Columbia, March 16, 1863.

WM. J. CLARK.

Witnesses:

G. E. UPSON,
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