

(No Model.)

A. LAUNDRY.  
DIE FOR MAKING AUGERS.

No. 382,710.

Patented May 15, 1888.

Fig. 1.

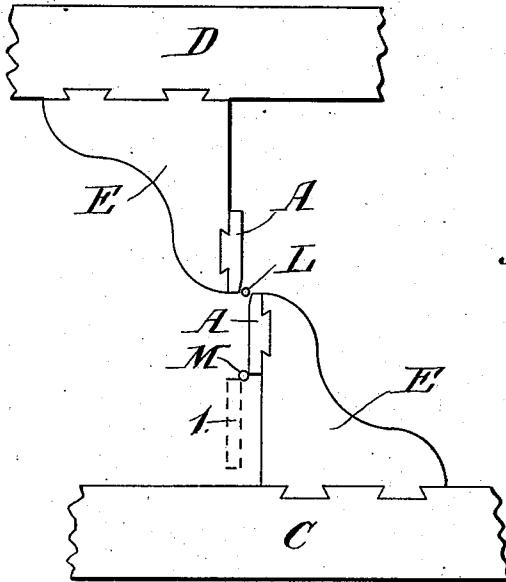


Fig. 3.

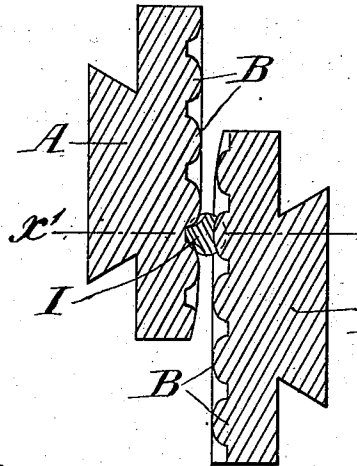


Fig. 5.



Fig. 2.

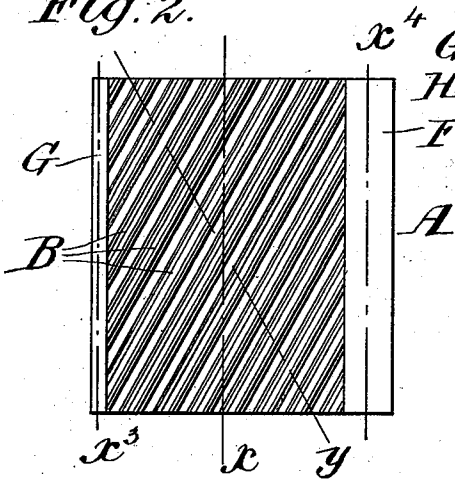
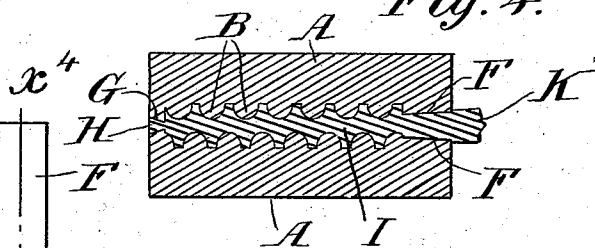


Fig. 4.



Inventor.

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By his Attorney

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Witnesses.

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# UNITED STATES PATENT OFFICE.

ANDREW LAUNDRY, OF CÔTE ST. PAUL, QUEBEC, CANADA, ASSIGNOR OF ONE-HALF TO HENRY HARRISON WARREN, OF MASSENA, NEW YORK.

## DIE FOR MAKING AUGERS.

SPECIFICATION forming part of Letters Patent No. 382,710, dated May 15, 1888.

Application filed February 6, 1888. Serial No. 263,186. (No model.)

To all whom it may concern:

Be it known that I, ANDREW LAUNDRY, a subject of the Queen of Great Britain, residing at Côte St. Paul, in the district of Montreal and Province of Quebec, Canada, have invented new and useful Improvements in Mechanism for Manufacturing Augers; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention has reference to the construction and arrangement of dies set face to face and arranged to act in suitably-situated planes, between which dies, by placing and rolling steel or other metallic round bars, they will have imparted to them the spiral or helicoidal twisted formation required for (so called) "pods" of augers, and which may also be employed in imparting such configuration to other tools and articles requiring the same.

In the drawings hereunto annexed similar letters of reference indicate like parts.

Figure 1 is a diagram showing my improved dies as arranged in connection with an ordinary power-press. Fig. 2 is a front elevation of one of the dies on a larger scale than that in Fig. 1. Fig. 3 is a section of a pair of dies, taken as at line  $x$ , Fig. 2, and showing the cross-section of a bar being rolled by them. Fig. 4 is a section of the dies, taken on line  $x'$ , Fig. 3, and showing in connection therewith the longitudinal section of a bar being rolled thereby. Fig. 5 is a diagram showing plane in which the tops of the ribs B are situated, and also sections on lines  $x^3$   $x^4$ , Fig. 2.

Letters A A are two dies, each of which is provided with diagonal parallel ridges B, the size and shape of which will be governed by the fineness or coarseness of the twist to be imparted to the bar to be acted upon. The shape of the ridges may be also varied, but as shown in cross-section, Fig. 4, they are nearly semi-cylindrical.

In Fig. 2 the line  $x$  may not only be taken to be the line upon which the sections, Fig. 3, are taken, but also the line of direction in which the dies A stand and operate in relation to each other. The angle at which the ridges B are situated with regard to the line  $x$  will be governed by the pitch of the twist desired.

F and G are marginal surfaces of the dies A. These, as shown, are slightly inclined, but, if desired, may be made parallel to give a cylindrical neck, K, instead of a conical, as shown. They are arranged so that a piece of metal, H, is left on the end of the pod I suitable for forming the screw at the end thereof, while the margins F are arranged for forming the beginning of the neck K, the completion of which and the formation of a square end or eye at the extremity (does not form any part of my present invention) may be accomplished by rolls or by hand-work, &c., in any ordinary manner after the pod has been formed, as also the part H into a screw.

The dies A are set face to face, preferably formed and set so that their faces from 2 to 3, Fig. 5, will be parallel planes. From 3 to 4 the faces fall away at a gentle incline, and from 4 to 5 at a more abrupt incline or curve. By this arrangement the bars to be acted upon can be freely entered, as at L, and easily rolled, and will come out from between the dies at M.

I would explain that if the bars are of steel or iron the rolling is done hot, and that it will produce but very little, if any, lengthening effect upon the bars; that the bars should be about one-fifth part larger in diameter than the distance between the dies A in their parallel parts from 2 to 3, measuring from the top of the ridges of the one die to those of the other; but this amount will have to be varied according to circumstances, size of pod, and thickness of twist.

The ridges B on both dies A are at an equal angle to the line  $x$ , Fig. 2, but when face to face are at opposite inclinations, as indicated by the line  $y$ . Fig. 5 may also be taken to be a longitudinal section or sections of the die A, taken on either of the lines  $x^3$  or  $x^4$ .

C represents a portion of the bed, and D the movable follower, of an ordinary "power-press." E are two ordinary rests or carriers, attached one on each. To these are secured the dies A, Fig. 1. The follower D will be arranged to move the die A thereunto attached down to about the position marked 1.

Many other means than a power-press may be employed to cause the dies A to operate together upon a bar to form the pod I, as above

described; but the said means do not form any part of my present invention.

The dies A may be made without one or both of the margins F or G.

5 What I claim is as follows:

1. The combination of the dies A, each having diagonal parallel ridges B, arranged face to face, and caused to reciprocate and to act in parallel planes upon the metal placed between them, substantially as described.
- 10 2. The combination of the dies A, each having diagonal parallel ridges B and a margin, F, arranged face to face, and caused to reciprocate and to act in parallel planes upon the
- 15 metal placed between them, substantially as described.

3. The combination of the dies A, each having diagonal parallel ridges B and a margin, G, arranged face to face, and caused to reciprocate and to act in parallel planes upon the metal placed between them, substantially as described.

4. The combination of the dies A, each having ridges B and margins F and G, arranged face to face, and caused to reciprocate and to act in parallel planes upon the metal placed between them, substantially as described.

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Witnesses:

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