

(No Model.)

W. A. INGALLS.

Device for Drawing Screw Patterns from the Mold.  
No. 236,594. Patented Jan. 11, 1881.

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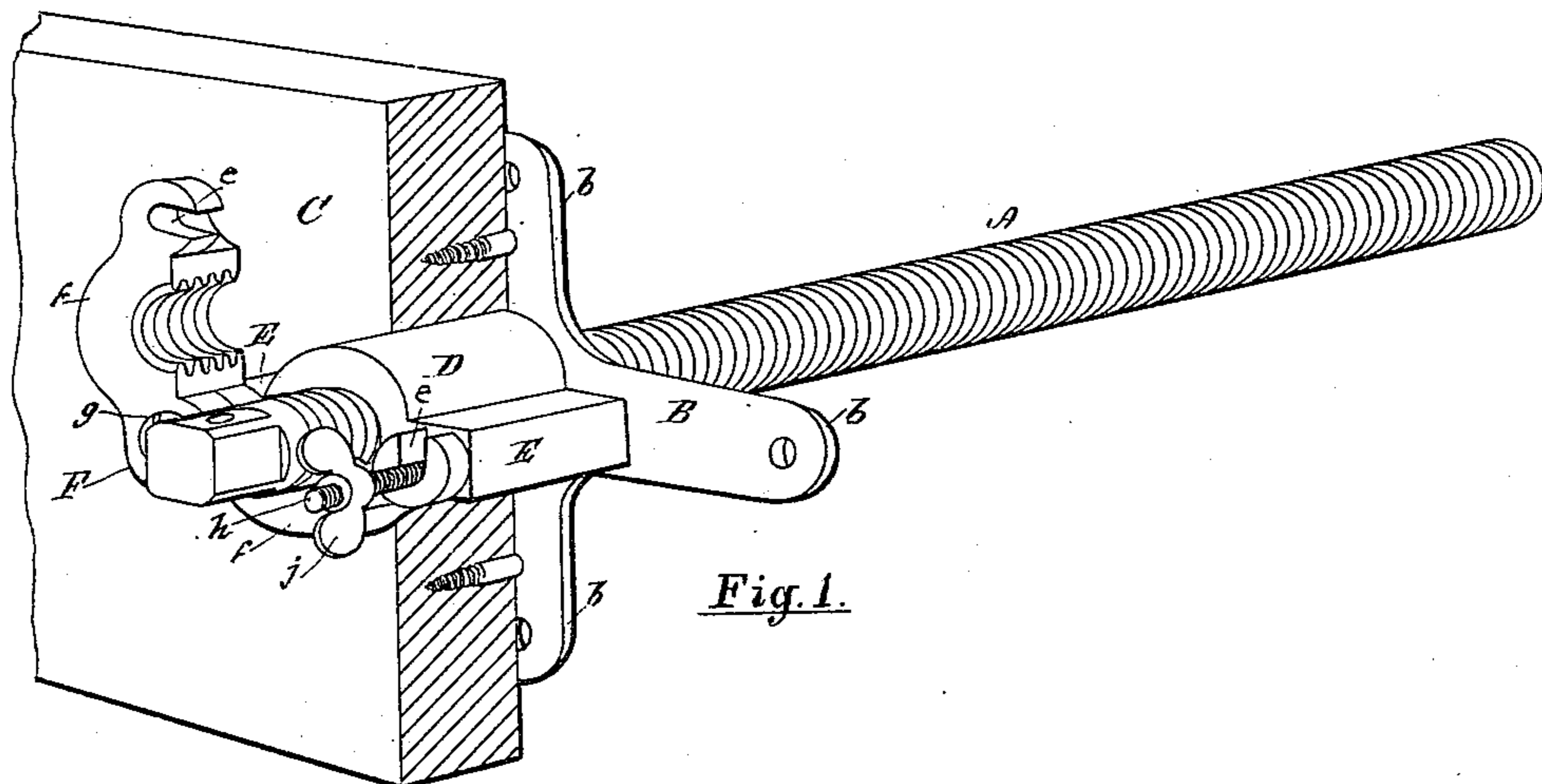


Fig. 1.

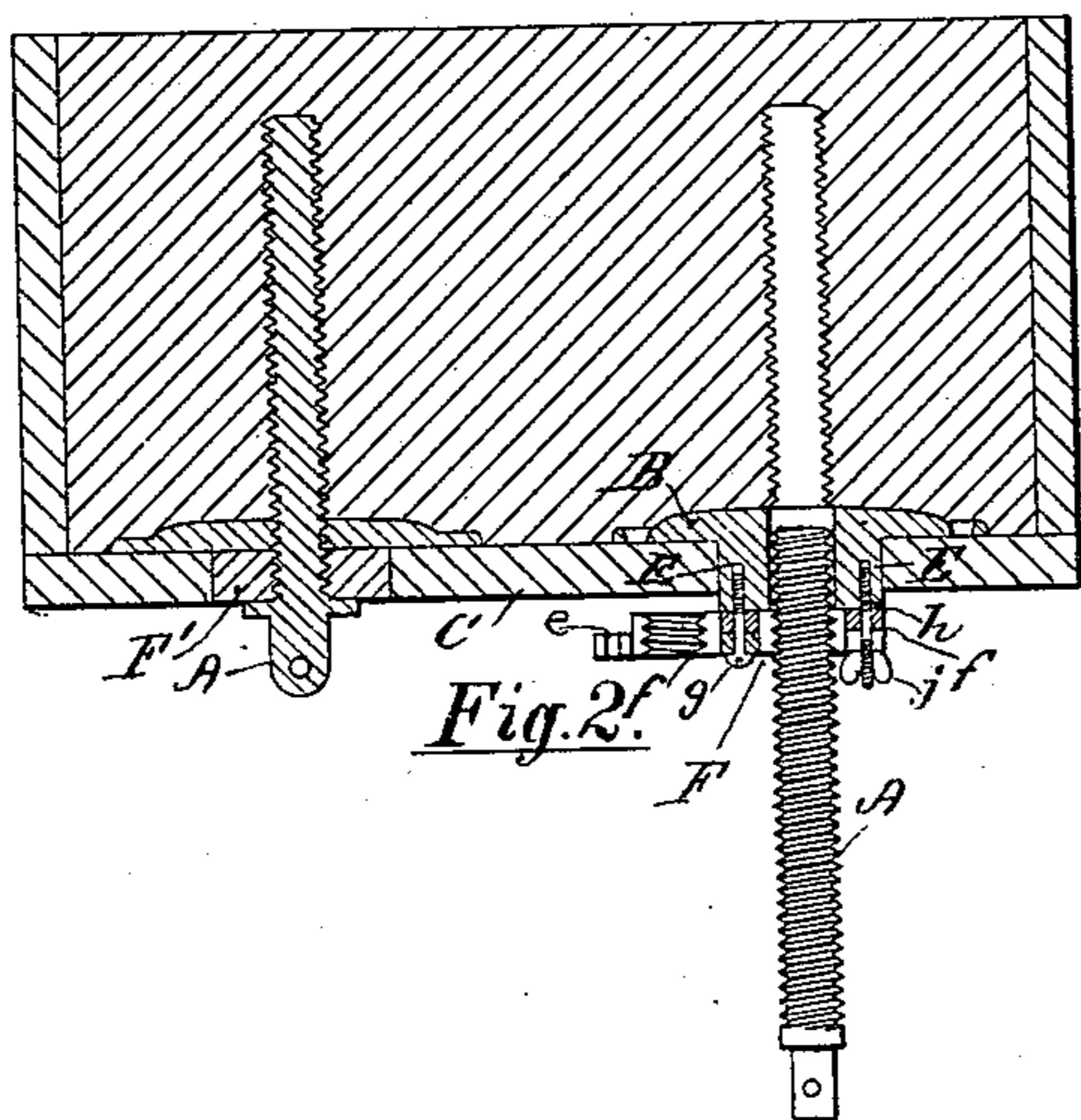


Fig. 2!

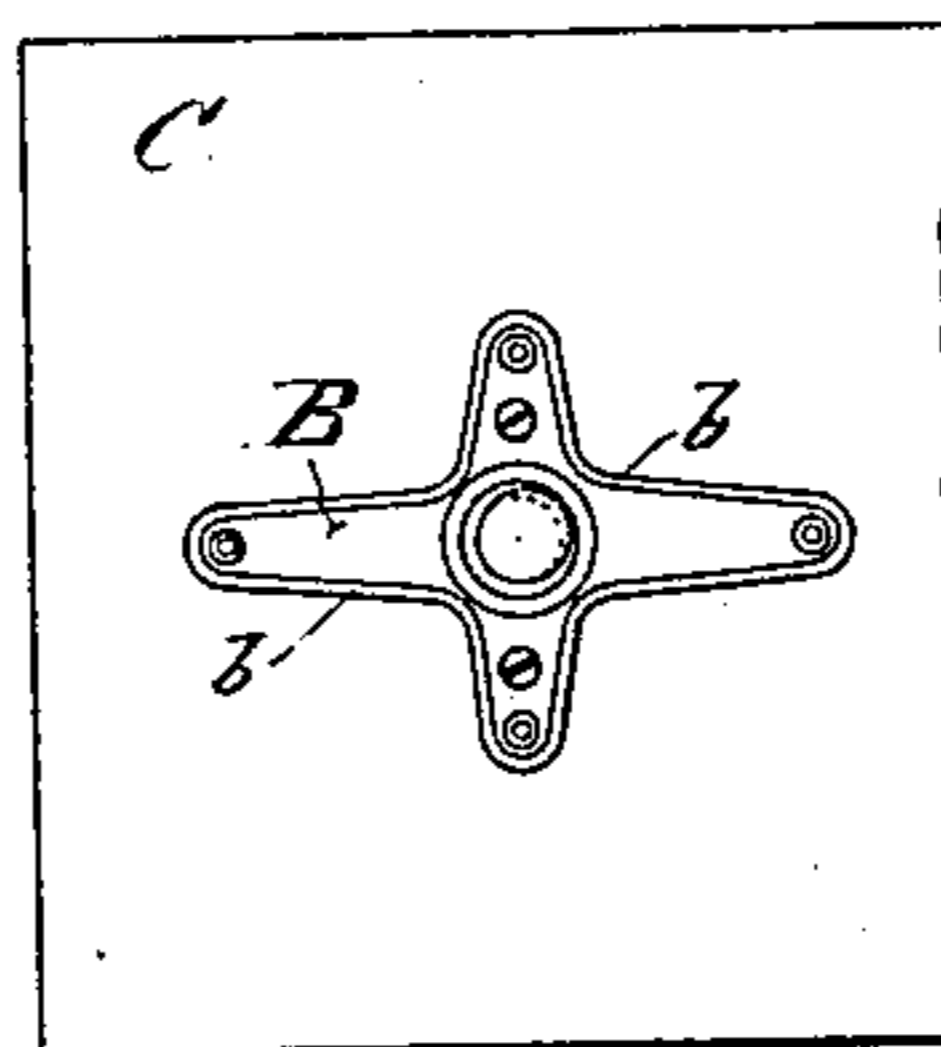


Fig. 3.

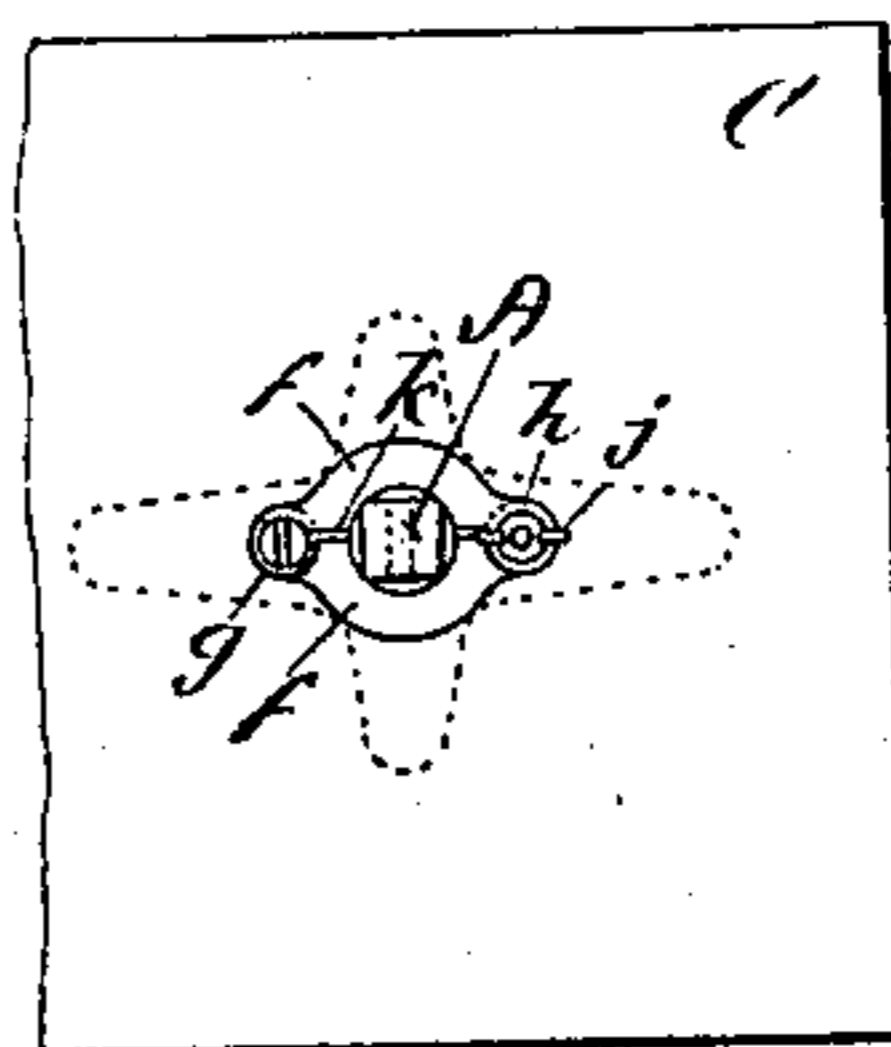


Fig. 4.

***Witnesses.***

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# UNITED STATES PATENT OFFICE.

WILLIAM A. INGALLS, OF PROVIDENCE, RHODE ISLAND.

## DEVICE FOR DRAWING SCREW-PATTERNS FROM THE MOLD.

SPECIFICATION forming part of Letters Patent No. 236,594, dated January 11, 1881.

Application filed June 21, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. INGALLS, of Providence, in the county of Providence and State of Rhode Island, have invented an Improved Device for Drawing Screw-Patterns from the Mold, of which the following is a specification.

The nature of my invention consists in a new and improved device for drawing the screw-pattern from the mold in manufacturing screws under my Letters Patent No. 54,733, dated May 15, 1866, Reissue No. 2,849, dated February 4, 1868, for an improved method of casting screws.

Figure 1 is a perspective view, showing my improved apparatus with a portion of the mold-board removed. Fig. 2 is a vertical section of the mold resting upon the mold-board, showing my original device and the present improvement. Fig. 3 is a plan view of a portion of the mold-board, showing the lower end of the screw-pattern, and also the pattern for the cross-arms at the upper end of the screw. Fig. 4 is a plan view of the outside of the mold-board, showing my improved device for withdrawing the screw-pattern.

In the accompanying drawings, Fig. 1, A is the screw-pattern; B, the pattern for the cross-arms to a screw adapted to adjustable stools and similar purposes; C, the mold-board, a portion of which is cut away in order to fully illustrate my improvement.

D is a collar provided exteriorly with the longitudinal ribs E E, and bored out so as to form a chamber made to loosely fit the outer diameter of the screw-pattern A. The collar D may be secured to the mold-board in any suitable manner, as by insertion into a hole of suitable dimensions made through the board, where it may be firmly held by means of screws, or otherwise.

In the drawings, the pattern B is, for the sake of convenience, represented as attached to and forming a part of the collar D. The collar can therefore, in this instance, be readily secured in a firm and substantial manner to the board by means of screws passing through the cross-arms b b of the pattern B.

At the outer end of the collar D is placed the divided nut F, made to clasp upon both sides of the screw-pattern A for the purpose of withdrawing the pattern, as heretofore, from

the mold G. (Shown in Fig. 2.) The sand in the mold G around the screw-pattern does not, as heretofore, come in direct contact with the side of the withdrawing-nut F, whereby it is readily drawn into the threads, thus causing rapid wear; but, on the contrary, the loose sand is drawn into the chamber without entering between the threads of the screw and nut.

The divisions f f of the nut F are pivoted by the screw g passing into the end of the rib E, and are provided at their outer ends with the notches e e, made to receive the shank of the fixed screw-stud h, and are held together for operation in withdrawing the pattern by means of the thumb-nut j and screw-stud h, which is securely set in the end of the rib E of the collar; but other suitable convenient modes of securing the divisions f f in a working position may be adopted, if desired.

F', in Fig. 2, represents the fixed nut heretofore employed for withdrawing the screw-pattern, causing a considerable loss of time in returning the pattern to its original position after its proper withdrawal from the mold, and the particles of sand, by insinuating themselves directly between the threads of the screw and nut, have heretofore caused a very rapid wear; but in my present improvement the chamber around the threads of the screw will form a receiving-space for the loose sand raised by turning the screw-pattern backward to withdraw it from the mold G.

A narrow space, k, is left between the two divisions f f of the nut, in order to allow particles of sand to pass out without following the threads of the screw.

The divided nut F serves for the purpose of withdrawing the pattern, as heretofore, and then, by being thrown open by the operator, allows the pattern to be instantly placed in the proper position for ramming up the sand in the mold without the trouble and delay experienced in screwing the pattern back through the solid nut, consuming time unnecessarily and doubling the wear upon the screw-threads of the pattern.

Several sets of divided nuts F having threads of different pitch may be adapted to a single collar, D, whereby the same mold-board may be adapted to screws of the same diameter, but having different threads, in order that by

changing from one to the other screws suited to different purposes may be readily manufactured, and also by inserting suitable bushings into the collar D, thus reducing its diameter. Another complete set of similar nuts may be employed, thus greatly extending the working capacity of a single mold-board, the change from one nut to another being readily made by means of the screw *g*, to which the divisions *ff* are pivoted.

I claim as my invention—

1. The combination of a mold-board with a screw-pattern provided with a screw-thread, extending beyond the inside of the mold-board and held within a nut, the screw-threads of which are separated from the sand in the mold by a chamber inclosing the threads of the screw-pattern, and into which loose disengaged particles of sand may be drawn without entering between the threads of the nut and screw-pattern, substantially as described.

2. The combination of a mold-board with a screw-pattern provided with a screw-thread, extending beyond the inside of the mold-board and held within a nut, the screw-thread of which is intersected by openings *h*, for the escape of loose sand, substantially as described.

3. The combination of a mold-board with a screw-pattern provided with a screw-thread, extending beyond the inside of the mold-board and held within a nut made in two parts, whereby the screw-pattern may be properly withdrawn from the mold and again inserted in proper position in the mold-board for forming a new mold by opening the guiding-nut, substantially as described.

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Witnesses:

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H. W. HUBBARD.