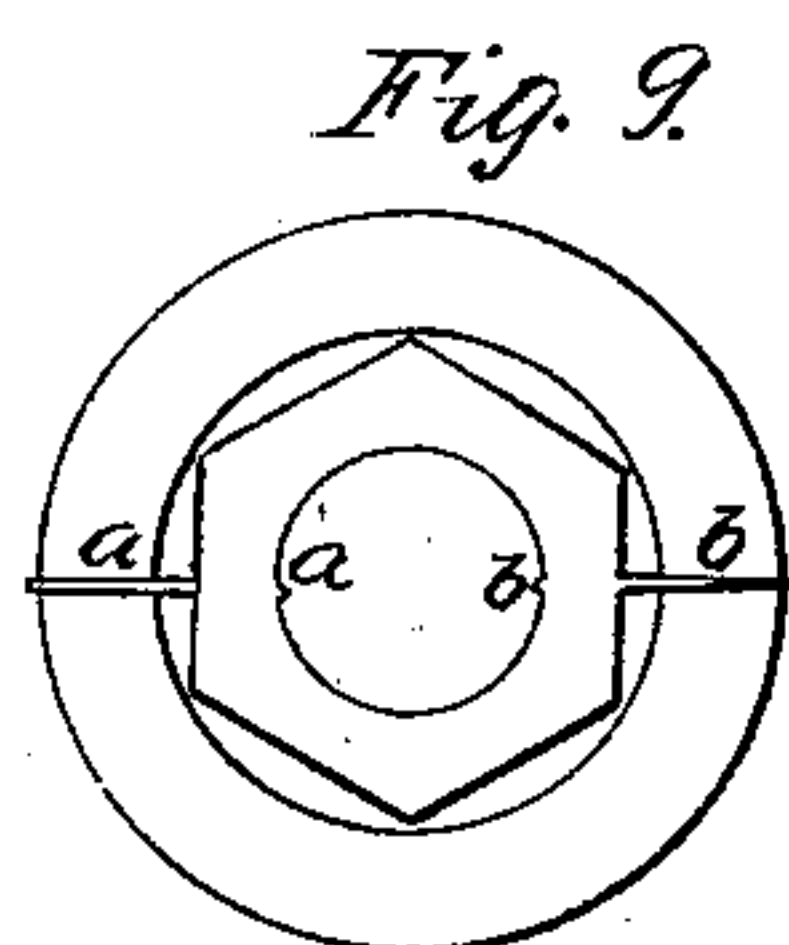
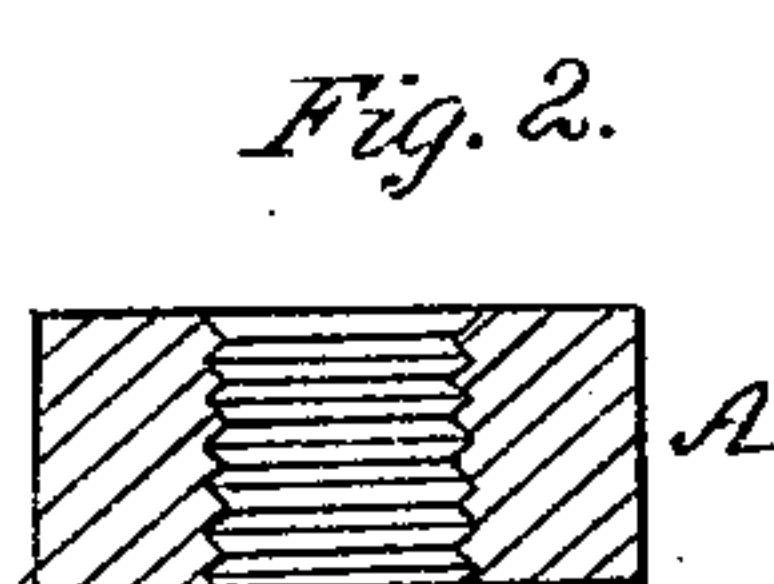
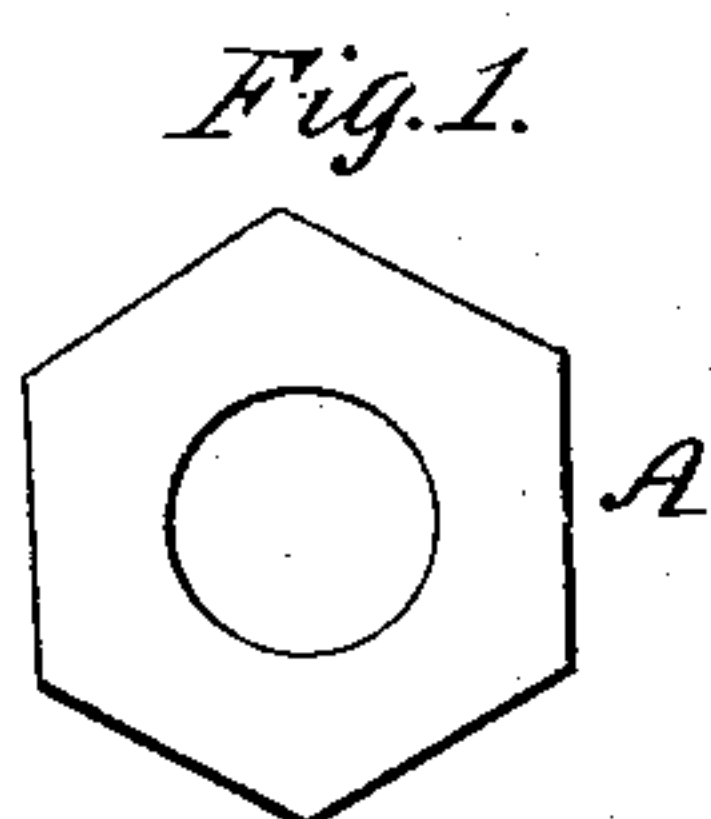
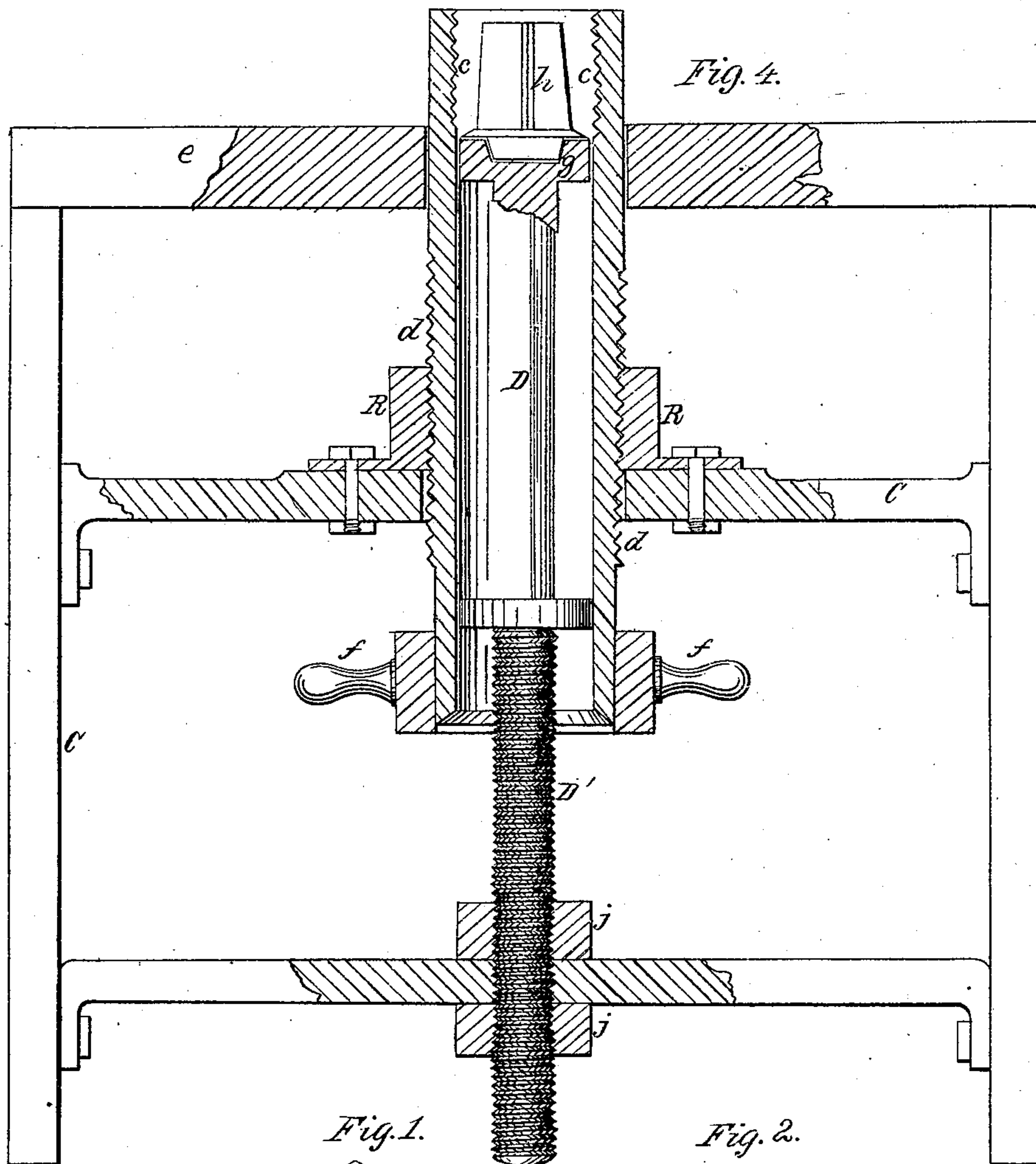


J. G. HOLT.

Casting Seamless Screw Nuts.

No. 33,783.

Patented Nov. 26, 1861.



Witnesses:
Eust. D. Dierichs
R. L. Hobbs

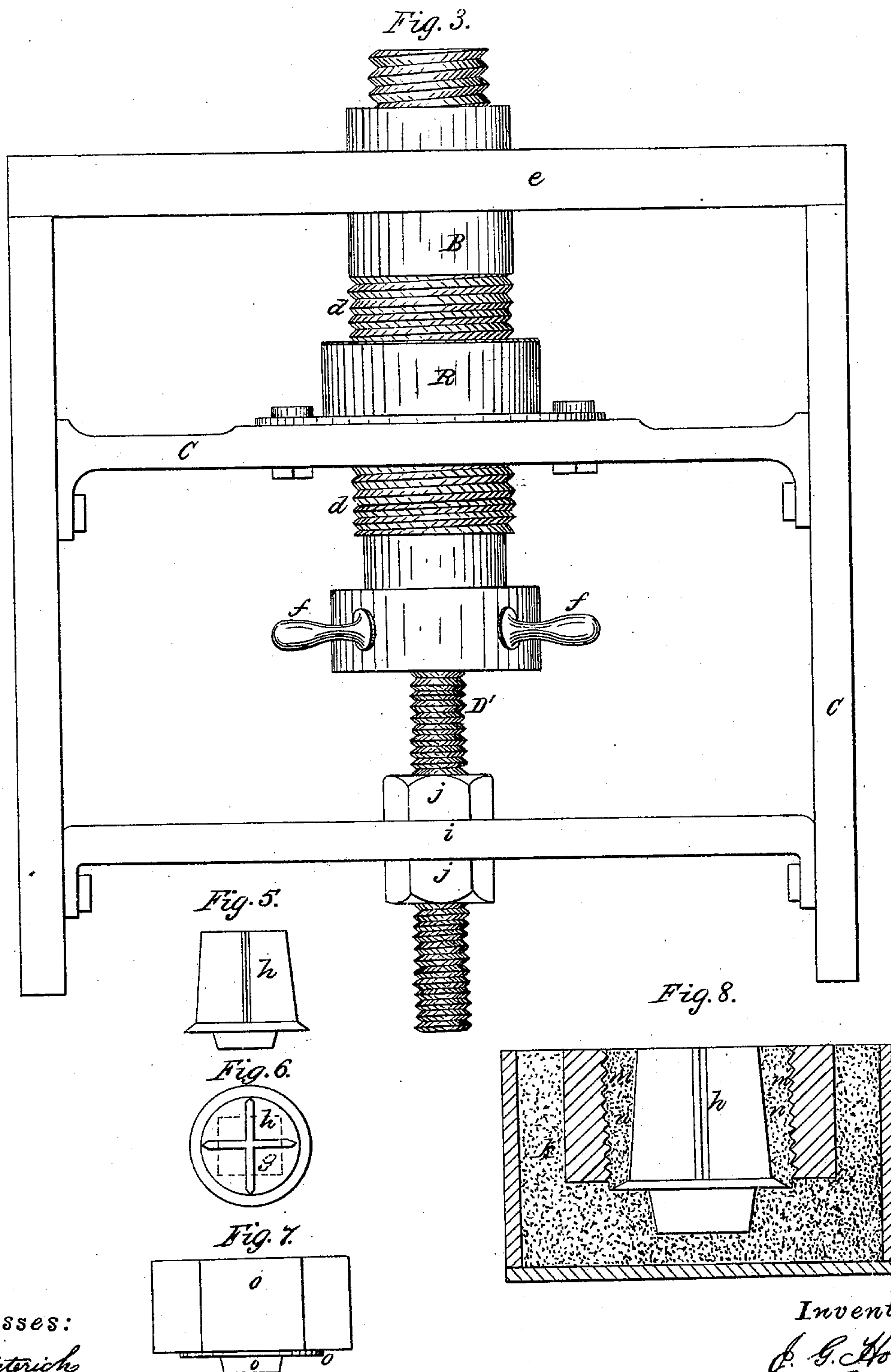
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J. G. Holt
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Casting Seamless Screw Nuts.

No. 33,783.

Patented Nov. 26, 1861.



Witnesses:
Jos. Dietrich
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UNITED STATES PATENT OFFICE.

JAMES GILBERT HOLT, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN CASTING SEAMLESS SCREW-NUTS.

Specification forming part of Letters Patent No. 33,783, dated November 26, 1861.

To all whom it may concern:

Be it known that I, JAMES GILBERT HOLT, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Casting Seamless Nuts and other Internally-Screw-Threaded Tubular Articles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top view, and Fig. 2 a section, of a seamless screw-threaded cast nut. Figs. 3, 4, 5, 6, 7, and 8 show my improved screw-threaded sand core, means for making it, and the manner of its use. The means for making the core I intend to patent hereafter. Figs. 9 and 10 are views of a nut cast with seams.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of my invention consists in an externally-screw-threaded seamless sand core for the production by casting of nuts and other tubular articles with a seamless screw-thread on their inner circumference.

Previously to the date of my invention it was considered impracticable to cast from sand cores a nut, hub band, or cap with a perfect seamless screw-thread on its inner circumference.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A, Figs. 1 and 2, designates a seamless cast nut. The term "seamless cast nut" is used to distinguish the nut produced by my invention from a nut produced from ordinary sand cores, and with vertical seams or ribs *a b* cutting across the screw-thread and breaking the continuity of the same.

To make the seamless nut A from a sand core, I employ an undivided cylinder of sand, *n*, built up on a support hereinafter described, and on the circumference of said cylinder form an unbroken or continuous screw-thread, *m*. This core is placed in a sand mold, *k*, formed by a solid nut-pattern, *o*, of the configuration shown in Fig. 7. The whole being properly adjusted, the molten metal is run in between the core and the mold, as shown in Fig. 8. The result is the production from a sand core of a cast nut with a perfectly unbroken thread

on its inner circumference, the same as if it had been cut or tapped, or as if it had been cast from a pattern-screw of metal.

To make the screw-threaded sand cores expeditiously and perfectly, I employ a machine which is constructed and operates as follows:

B is a tube with an internal screw-thread, *c*, in one end for forming the screw-thread on the core, and an external screw-thread, *d*, on the other end for moving the tube up and down to form the core-thread. The pitch of the two threads is the same; but the length of the external thread is much greater than the length of the internal thread, in order that any required length of core may be screw-threaded. The external thread moves up and down through a screw-nut, R, made stationary on a frame, C, said frame having a table, *e*, on its top, through which the plain upper portion of the tube B moves, being guided thereby. The tube is turned by means of handles *f f* at its bottom, or by means of gearing, as circumstances may require.

D is an iron spindle, fitted snugly to the interior of the tube, and with a square recess, *g*, in its upper end for holding an arbor, *h*, made of cast-iron or any suitable material. This spindle has a screw-thread, *D'*, cut on its lower portion, said thread passing through a stationary nut, *i*, and through two jam-nuts, *j j*, as shown, the nut *i* being formed in the bridge-tree of the frame of the machine, and the jam-nuts being on opposite sides of the bridge-tree. By means of the screw-thread *D'* and the jam-nuts *j j* the spindle can be adjusted and set so as to suit cores of different lengths. The arbor *h* has a square base and rests in the square recess of the spindle. This arbor serves as a support to the sand, and keeps the sand in a compact state while the thread is being formed on its outer surface. It will be seen that the arbor is in form of a cross, and that it presents in its horizontal section a solid center and four V-shaped chambers outside thereof for the sand to pack into.

The operation of the machine in making the screw-threaded sand core: Turn the tube until it rises as high on the spindle as the desired length of the core or screw-thread thereof. Set the arbor in the tube upon the spindle, all as shown in Fig. 4. Now fill the cavity between the tube and the arbor with strong green sand and ram the sand compactly,

smoothing off the top at the completion. Now slowly turn the tube down, as illustrated in Fig. 3. The result of the operation is a perfect screw-thread, *m*, of sand formed on the core *n*. The core after drying is ready for use.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A seamless screw-threaded sand core, the seamless thread being on the outer circumference of the sand core, for the purpose set forth.

2. The production of nuts and other tubular articles with a seamless screw-thread on their inner circumference from seamless screw-threaded sand cores, substantially as set forth.

JAMES GILBERT HOLT.

Witnesses:

EDM. KNAUER,

JOHN HETTINGER.