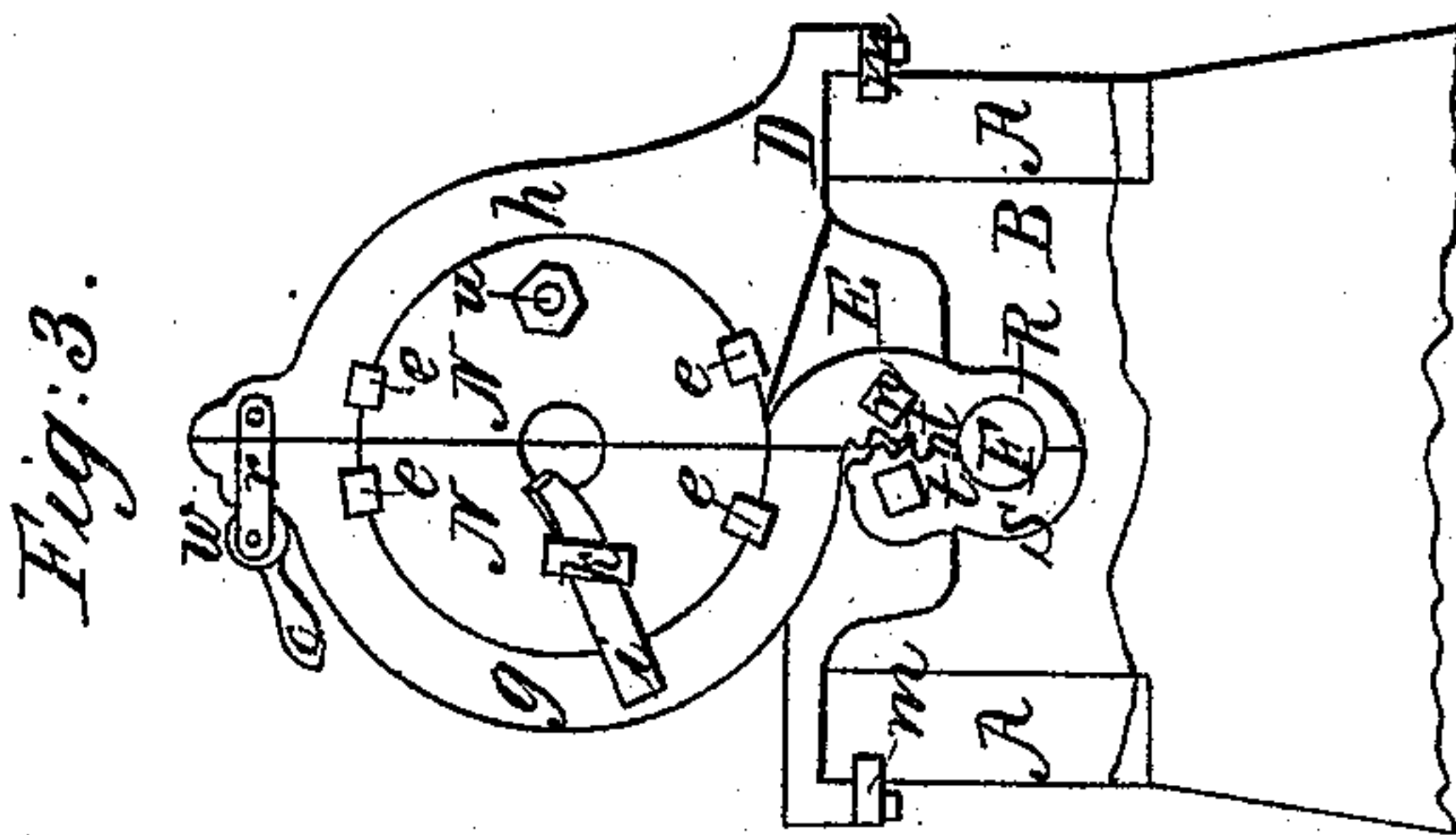
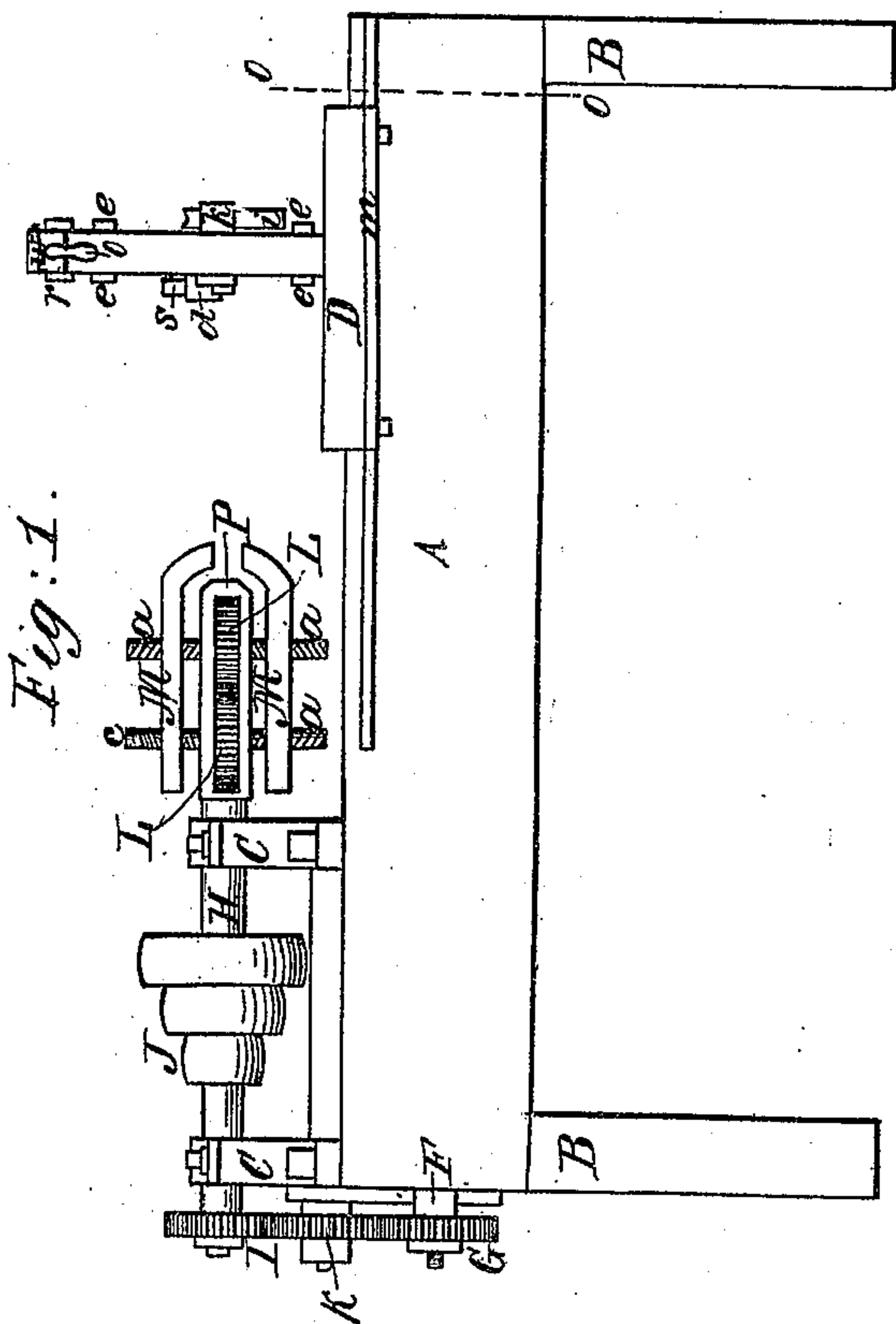
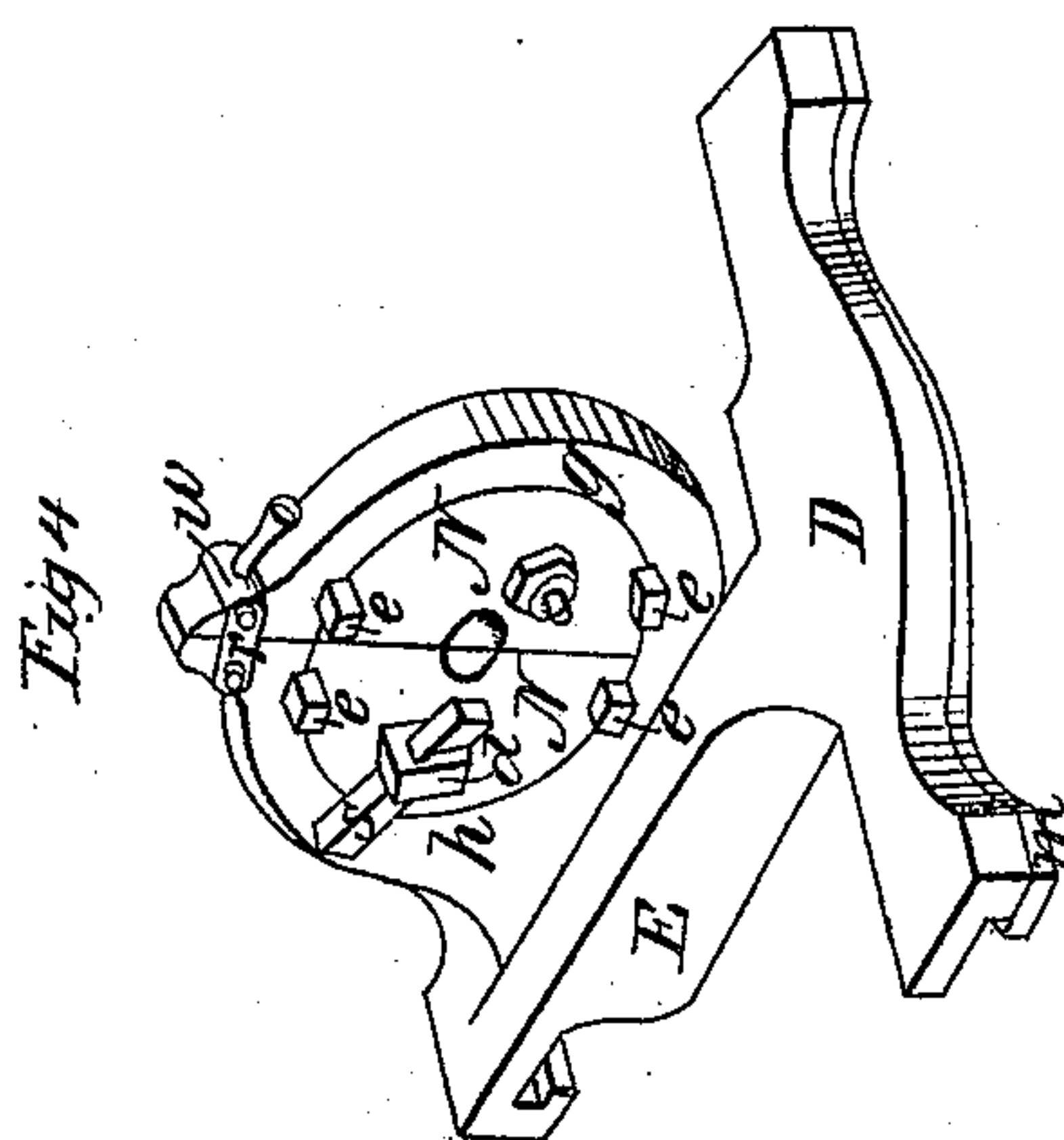
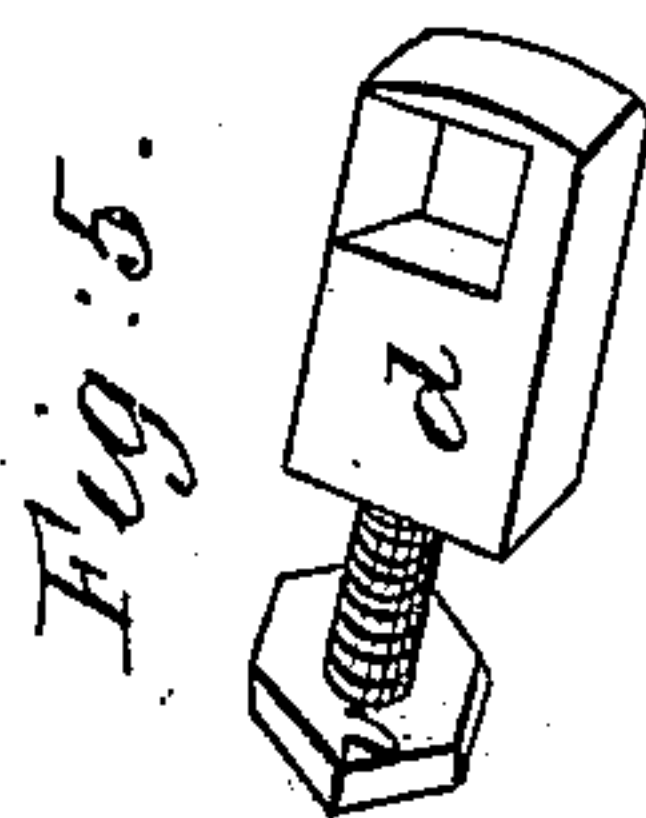
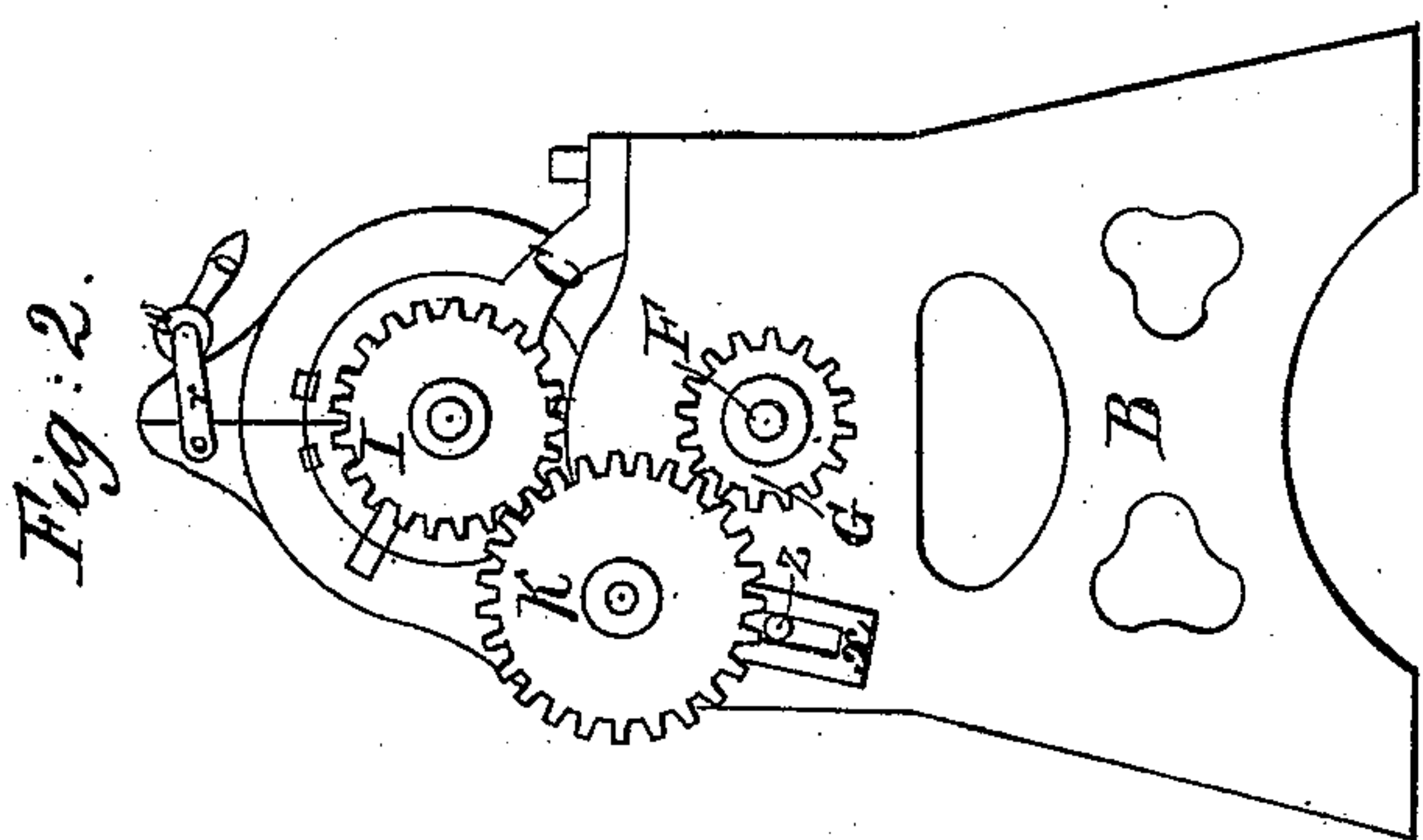


P. Chapin,

Screw-Threading Machine,

N^o 20,036.

Patented Apr. 27, 1858.



UNITED STATES PATENT OFFICE.

P. CHAPIN, OF BALTIMORE, MARYLAND.

MACHINE FOR CUTTING SCREWS.

Specification of Letters Patent No. 20,036, dated April 27, 1858.

To all whom it may concern:

Be it known that I, PHILIP CHAPIN, of the city of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Screw-Cutting Machines; and I do hereby declare that the following is a full and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a front elevation; Fig. 2 is an end view from the left; Fig. 3 is a transverse section on the line O O of Fig. 1; Fig. 4 is a perspective view of the cutter carriage, showing the left side thereof, and Fig. 5 is a perspective view of one of the cutter-holders or binders.

The nature of this invention consists mainly in the peculiar construction of a sliding carriage having two elevated curved branches, one of which is permanent and the other, being mounted upon a pivot, movable. These branches are furnished with semicircular dies, which are secured to the branches by a peculiar device, and have a hollow center for the purpose of receiving and holding the wood material in its proper position while being wrought: and to each die is attached a cutter, by an improved method; one of which cutters reduces the material to the proper diameter, which the other follows and cuts a true and regular screw thread. Moreover, the bottom of the movable branch constitutes one half of a claspingscrew-nut, which half is so connected by gear teeth to the other half or jaw of the nut, that the two are made to clasp the main driving screw, at the same time, and by the same movement whereby the wood material is clasped by the semicircular dies before mentioned. By these devices, in combination with an improved chuck or holder, hereinafter described, the business of screw-cutting is greatly facilitated.

Upon a suitable frame A B, is mounted a pair of bearing bars or supporters C C, and a sliding carriage D E; and through the center of the frame, and parallel to the rails A, a longitudinal screw F extends the entire length of the frame, and upon the head, or left end thereof, is mounted a gear wheel G. The bearing-bars support a mandrel H, upon the center of which is mounted a pulley J, and on the left end thereof is a gear wheel I; and these gear wheels G and I, are connected by a connecting wheel K. The

right end of the mandrel (P) projects in a square form several inches to the right of the bearing, and has a slot through it, within which slot are adjusted two gear wheels L L, which mesh into each other; and the axles thereof project from this mandrel head, in opposite directions, in the form of right-and-left screws (*a a*) which extend through two parallel jaws M M. One of these screws terminates in a square head (*c*) and is occasionally turned by a crank or key; and the threads of the two screws are so arranged that when the key-screw *c* is turned in one direction, the two jaws are drawn toward the mandrel-head; and vice versa. The right or prominent ends of the jaws are bent centerward, and having notches in the extreme ends, serve to hold one end of the wood or material of which a screw is to be formed; while the right end of the said material, being slightly reduced or tapered for the purpose, is clasped by the semicircular dies N N.

The sliding carriage D rests upon the rails A of the frame, and both front and rear project a little beyond the rails; and to the underside of each end (front and rear) is attached a plate *m* which slides in a groove made in the outside of the rail. The elevated part of the carriage, consists of two curved branches *g h*, each of which embraces a semicircular die N, which is secured to its respective branch by horizontal splines or keys *e e*. The branch *h* is permanent, but the other branch (*g*) is movable, being connected to the body of the carriage by a pivot *n*; and the bottom thereof constitutes one of the jaws of a claspingscrew-nut R S; and the two branches are fastened together at the top by a binder, consisting of two side straps *r r*, and an eccentric roller *w* with a handle *o*. Another jaw (S) of the claspingscrew-nut, is connected to the bottom of the carriage by a pivot; and these two jaws are furnished with gear teeth *t t*, which mesh into each other, whereby the motion of one produces a counter motion in the other; and they are so adjusted as to clasp the main driving screw F, at the same time that the rough material is clasped by the dies N.

A binder *d* (constructed as represented in Fig. 5) passes through the rear die, and terminates in a screw-nut *u*; and by means of this binder, a cutter *s* is secured to the left side of the die. This cutter has an an-

gular or curved edge; and its use is to reduce the material to a proper size or diameter. To the right side of the front die, is attached by a similar binder, (*h*) a V-cutter *i*, which is employed to cut a screw-thread in the rounded material, as the carriage progresses from right to left.

The connecting gear wheel *K* is attached to an adjustable slide *x*, which is secured in position by a set-screw *z*, for the purpose of accommodating and connecting gear wheels of different sizes upon the screw *F*, whereby screw threads of different grades may be cut in the rounded wood.

Operation: When a prepared piece of wood is adjusted by securing one end between the jaws and the other end is clasped by the cutter dies *N*, and the machine is put in motion, the preceding cutter *s* cuts away the superfluous wood as the carriage advances, and the V-cutter forms a screw-thread in the rounded material, till the carriage has advanced as far as a thread is required, when, by lifting the handle (which may be done by a properly adjusted inclined plane or rod) the dies are separated, and the further progress of the carriage is arrested; and it may be pushed back by the hand, and the new-made screw being de-

tached from the jaws *N*, the machine will be ready to repeat the operation.

This machine is supposed to be generally put in motion by means of a belt passing over the pulley *J*; but it may be occasionally operated by means of a hand-crank attached to either end of the driving screw *F*.

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

1. The employment of a cutter carriage *D E*, constructed substantially as herein described, with two branches, one of which (*g*) is movable, and so constructed, mounted and arranged as to embrace the prepared material, and the driving screw (*F*) at the same time, and by the same movement.

2. The combination of the carriage *D E*, the driving screw *F* and the adjustable gear *K, I, G*, for the purpose of cutting threads in wooden screws, as herein described.

3. The employment of the hollow binders *d, i*, for the purpose of securing the cutters *s, i*, in proper positions for the forming of wooden screws.

PHILIP CHAPIN.

Witnesses:

JOS. N. AUDOM,
ROBERT MEAS.