

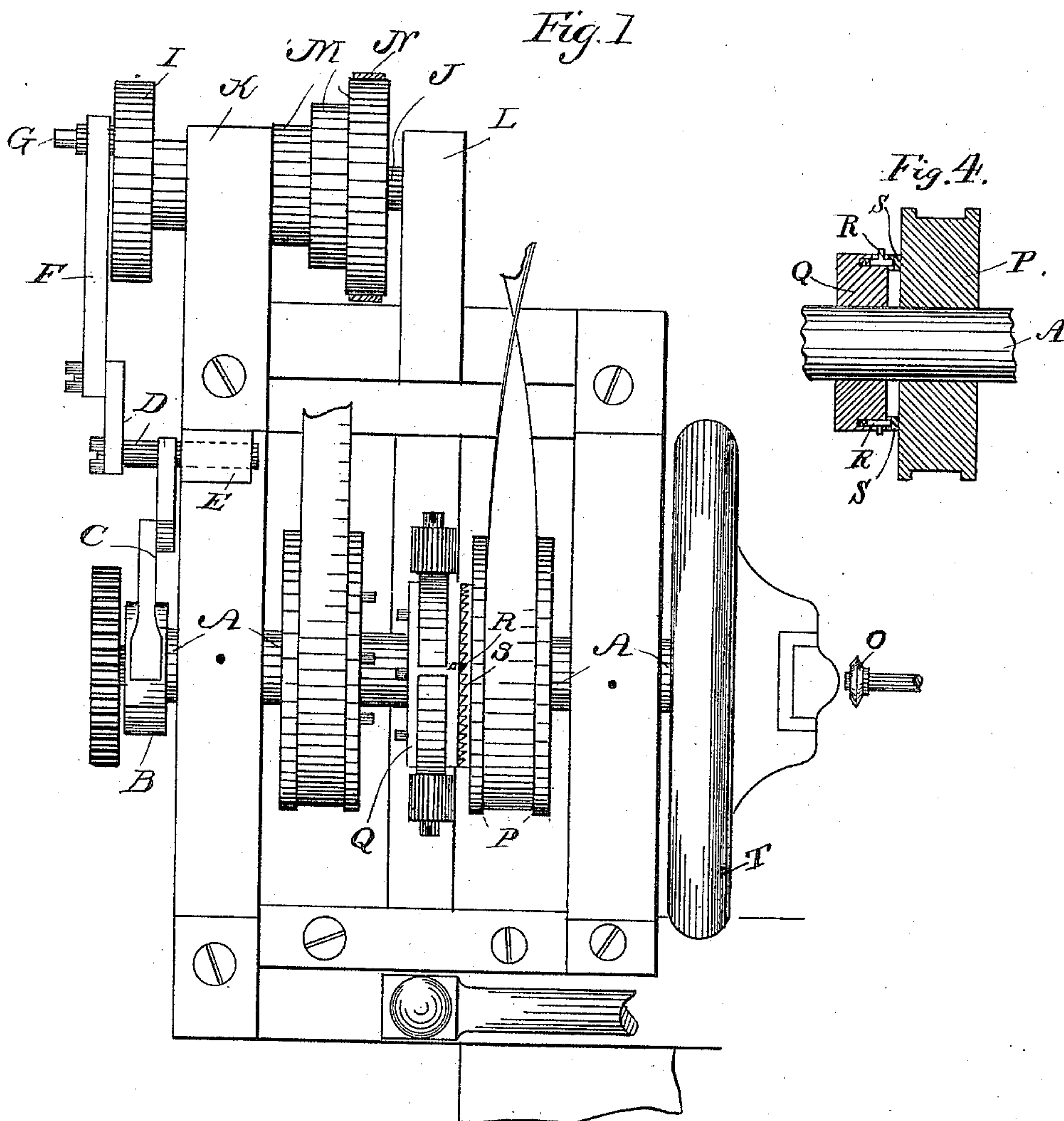
(No Model.)

2 Sheets—Sheet 1.

N. W. VANDEGRIFT.  
SCREW CUTTING MACHINE.

No. 330,174.

Patented Nov. 10, 1885.



Witnesses  
*S. S. Williamson*  
*W. T. Hailand*

Inventor  
*Nathaniel W. Vandegrift*  
By  
*Smith and Hubbard*  
Attys.

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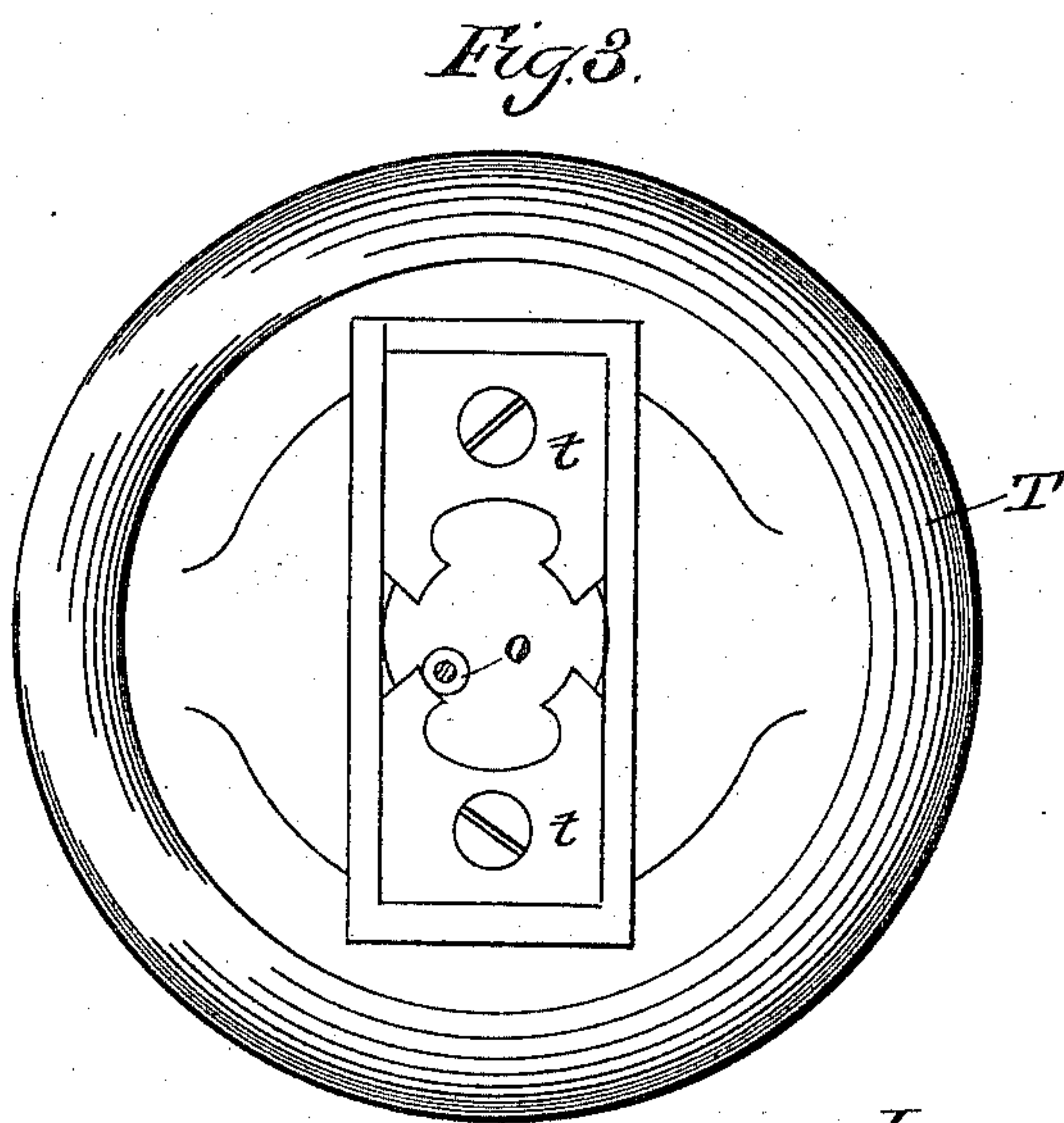
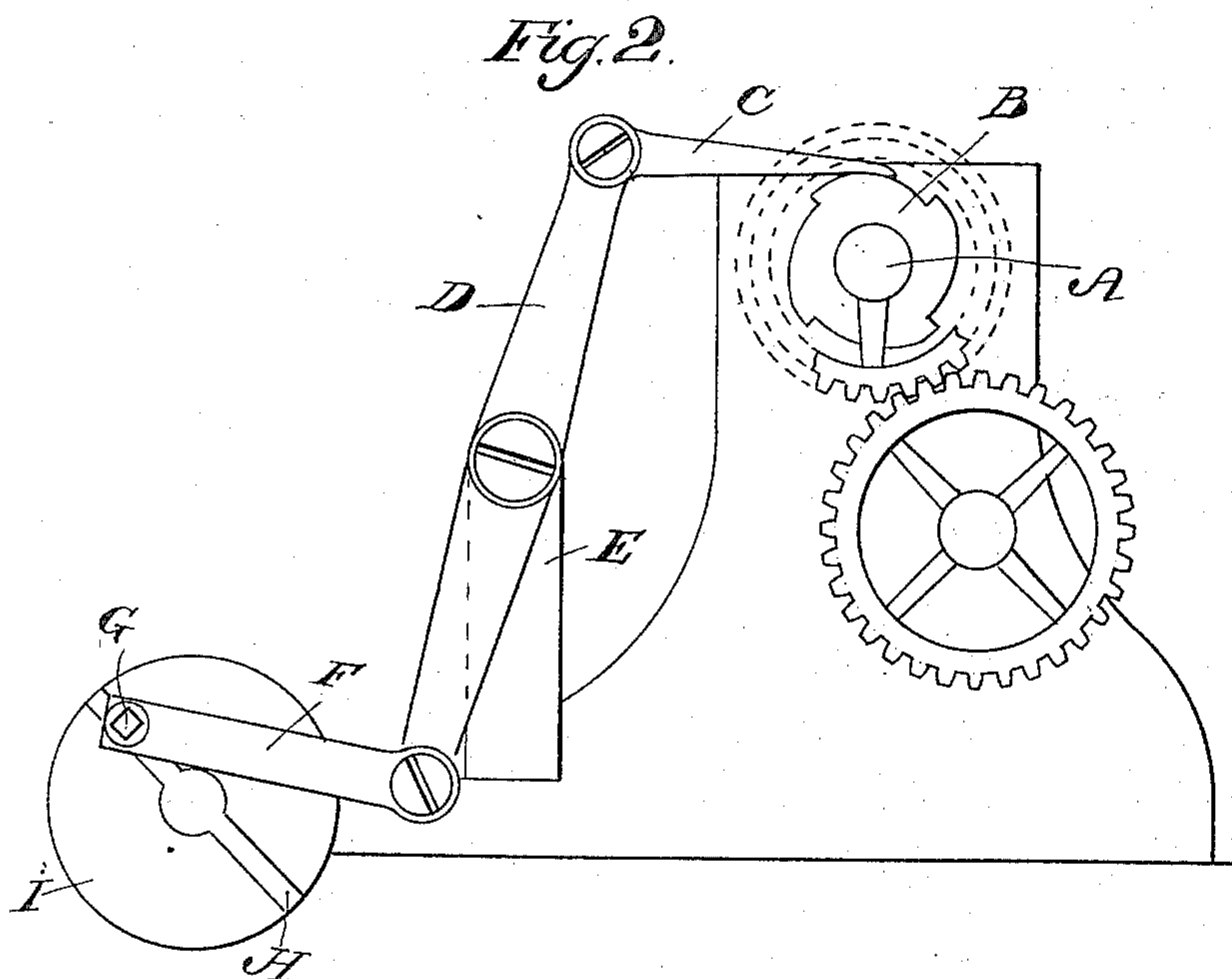
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N. W. VANDEGRIFT.

SCREW CUTTING MACHINE.

No. 330,174.

Patented Nov. 10, 1885.



Witnesses:  
S. S. Williamson  
Charles C. Stanton

Inventor  
Nathaniel W. Vandegrift  
By Smith & Hubbard  
Atty.



# UNITED STATES PATENT OFFICE.

NATHANIEL W. VANDEGRIFT, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR  
TO FRANK ARMSTRONG, OF SAME PLACE.

## SCREW-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 330,174, dated November 10, 1885.

Application filed December 29, 1884. Serial No. 151,387. (No model.)

*To all whom it may concern:*

Be it known that I, NATHANIEL W. VANDEGRIFT, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Cutting Screw-Threads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in machines for cutting screw-threads, but is more especially intended as an improvement upon certain Letters Patent of the United States, No. 233,821, granted to John H. Vinton, the 26th day of November, 1880, for improvement in machines for cutting screw-threads.

My invention has for its object to greatly augment the speed of the machine described in the patent referred to, by enabling it to pass rapidly over the blank spaces of the work, instead of continuing over said spaces at the same rate of speed as over the portions of the work to be cut; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully described, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand its construction, I will proceed to describe it in detail, referring by letter to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of my improvement and of the machine to which it is applied; Fig. 2, an elevation of the disk, ratchet-wheel, and connections; Fig. 3, an elevation of the chuck or die-holder and a die, showing the proportion of blank space therein. Fig. 4 is a detail sectional view showing the spring-pawls in their operative relation to the other parts.

Similar letters denote like parts in the several figures of the drawings.

I do not deem it necessary to enter into any detailed description of the working of the machine itself, for this is sufficiently described in the Patent No. 233,821, hereinbefore re-

ferred to. I will therefore explain only that which is new and its method of application to the machine itself.

A is the main shaft shown in the patent referred to. Near the outer end of this shaft I attach a ratchet-wheel, B, shown in Fig. 2 of the drawings as having four teeth.

C is a pawl pivoted to the upper end of rock-arm D, and with its free end resting upon and adapted to operate ratchet-wheel B. The rock-arm D is journaled in the upright standard E, and has pivoted to its lower end a connecting-rod, F, through whose outer end passes a bolt, G, securing a shoe in the way H, formed in the disk I. By the adjustment of this shoe in its slot the distance of the throw of the pawl is regulated. The disk I is rigidly secured on the outer end of shaft J, which is journaled in the bearings K L. Differential pulley-wheel M is also secured upon this shaft and receives motion from belt N, running from any convenient point.

T is a chuck or die-holder, and *t t* are dies held thereby in readiness to be operated on by the rotary cutter O, which works in the manner described in the Vinton patent, before referred to.

The feed-wheel P is loose on the shaft A, and the clutch-disk Q is splined on said shaft, as in the patent to Vinton cited, but has spring-pawls R, which engage with the ratchet S, secured to the feed-wheel P. By this arrangement the shaft A is slowly revolved with the feed-wheel P, the ratchet-wheel S on the latter being engaged by the spring-pawls R on the wheel Q, which latter is splined to the said shaft, as above described.

The teeth of the ratchet-wheel B are so arranged relatively to the blank spaces between the points of the dies *t t* held by the chuck T that as soon as one of said points passes beyond the rotary cutter O one of the teeth of the said wheel B will be engaged by the reciprocating pawl C, which rests constantly against said wheel, and thus the latter and the shaft A, to which it is attached, will be moved quickly forward a distance equal to one of the blank spaces between the points of the dies, so that no time will be lost in bringing the next die into position to be operated on by the cutter, and thereby avoiding the



objection as to slowness of operation incidental to machines in which the shaft A has a constant slow rotation.

As the shaft A is moved quickly forward in the manner above described, the spring-pawls R ride over the teeth of the ratchet-wheel S on the slowly-rotating feed-wheel P, and at the termination of this quick movement the pawls are in engagement with the teeth of the ratchet-wheel, so that the feed-wheel P will then slowly rotate the shaft A in the usual manner while the next point or die is being acted on by the cutter O.

In the patent referred to the shaft A has a uniform movement, as and for the purpose therein set forth; and as the die to be threaded is about two-thirds blank it will be readily understood that the time wasted in traversing that space is just in proportion to the whole time as that space is to the whole space. To obviate this waste is, therefore, the object of this invention.

By the use of ratchet-wheels of different spacing of teeth, and the adjustment of the shoe in the way, this rapid movement may be made to occur any number of times in the circumference of the wheel.

I do not wish to be confined in my invention to the exact construction of the mechanism shown, as the gist of my invention rests in the broad idea of the application, to a machine of the character described, of a reciprocating pawl operating upon the periphery of a slowly-revolving ratchet-wheel, and adapted, upon the engagement of the former with a tooth of the latter, to turn it and the main shaft and feeding mechanism rapidly forward through a certain proportion of its circumference.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for cutting screw-threads, the ratchet-wheel connected with the main shaft, in combination with a pivoted pawl adapted to be reciprocated upon the periphery of said wheel by the rock-arm, disk, and counter-shaft, substantially as set forth.

2. In a machine for cutting screw-threads, a ratchet and pawl clutch on the main shaft, and the ratchet-wheel also on said shaft, in combination with the reciprocating pawl and the operating mechanism thereof, substantially as described.

3. The combination, in a machine of the character described, of the shaft carrying the work and actuating the feeding mechanism with the feed-wheel connected thereto by a ratchet and spring-pawl connection, substantially as set forth.

4. In combination with the main shaft, connected to the feed-wheel as described, the ratchet-wheel mounted on said shaft, the reciprocating pawl, its connections, and the counter-shaft giving motion thereto, as set forth and shown.

5. The combination of shaft A, carrying the work and feed, and having ratchet S, with ratchet-wheel B, reciprocating pawl C, rock-arm D, connection F, disk I, carrying shoe G, and the counter-shaft J, all operating as described, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

NATHANIEL W. VANDEGRIFT.

Witnesses:

GEO. F. KERN,  
WM. S. BULL.