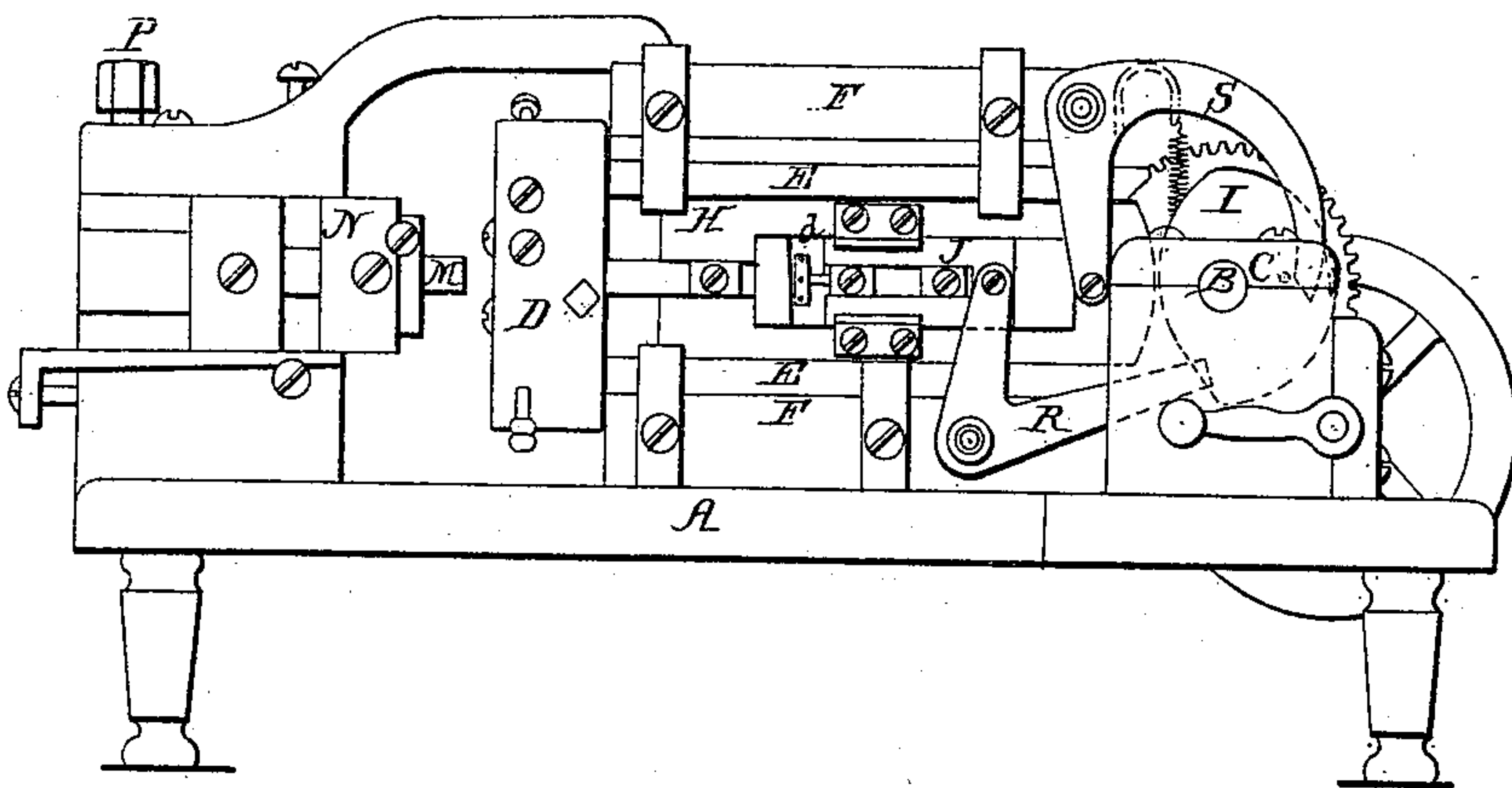
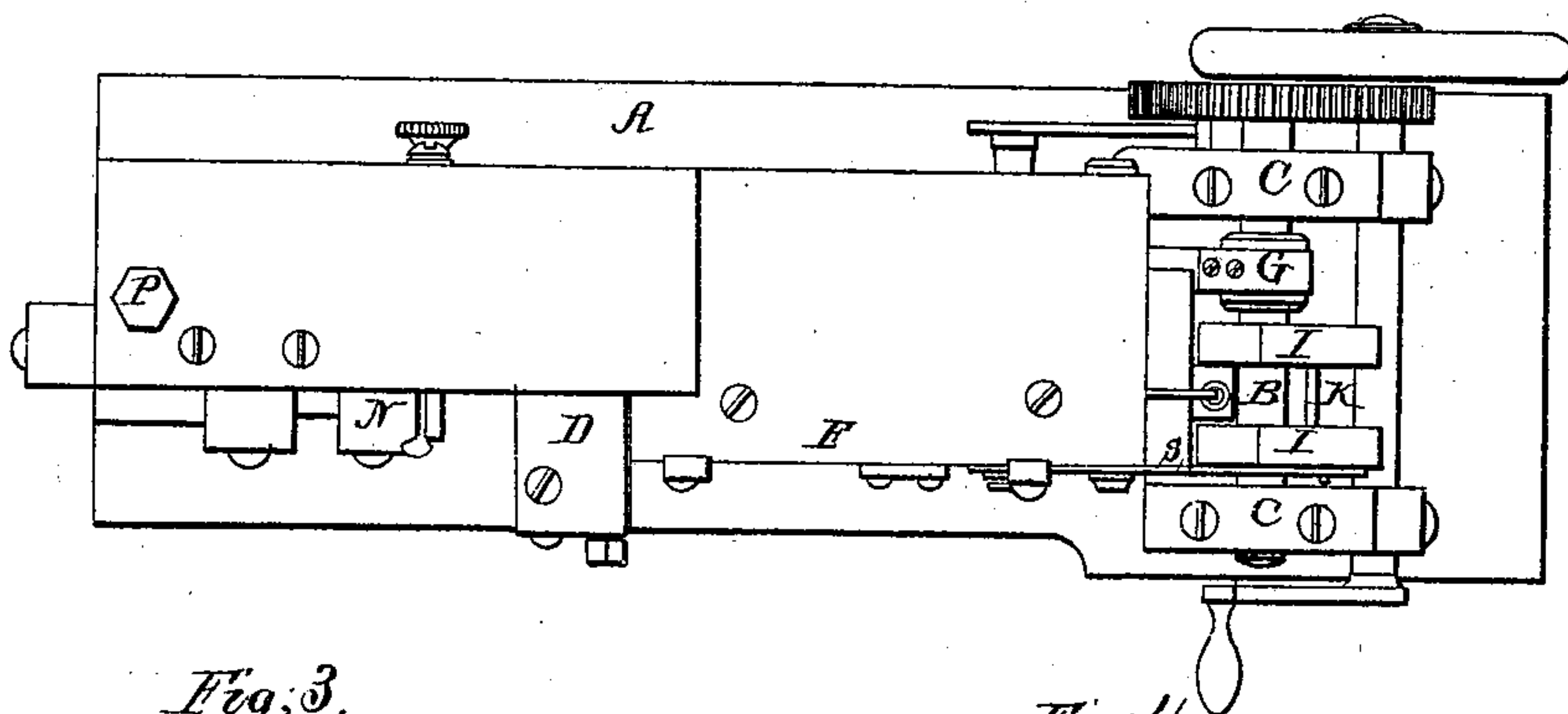


A.B. Bean,
Nut Machine,
N^o 77,347. *Patented Apr. 28, 1868.*

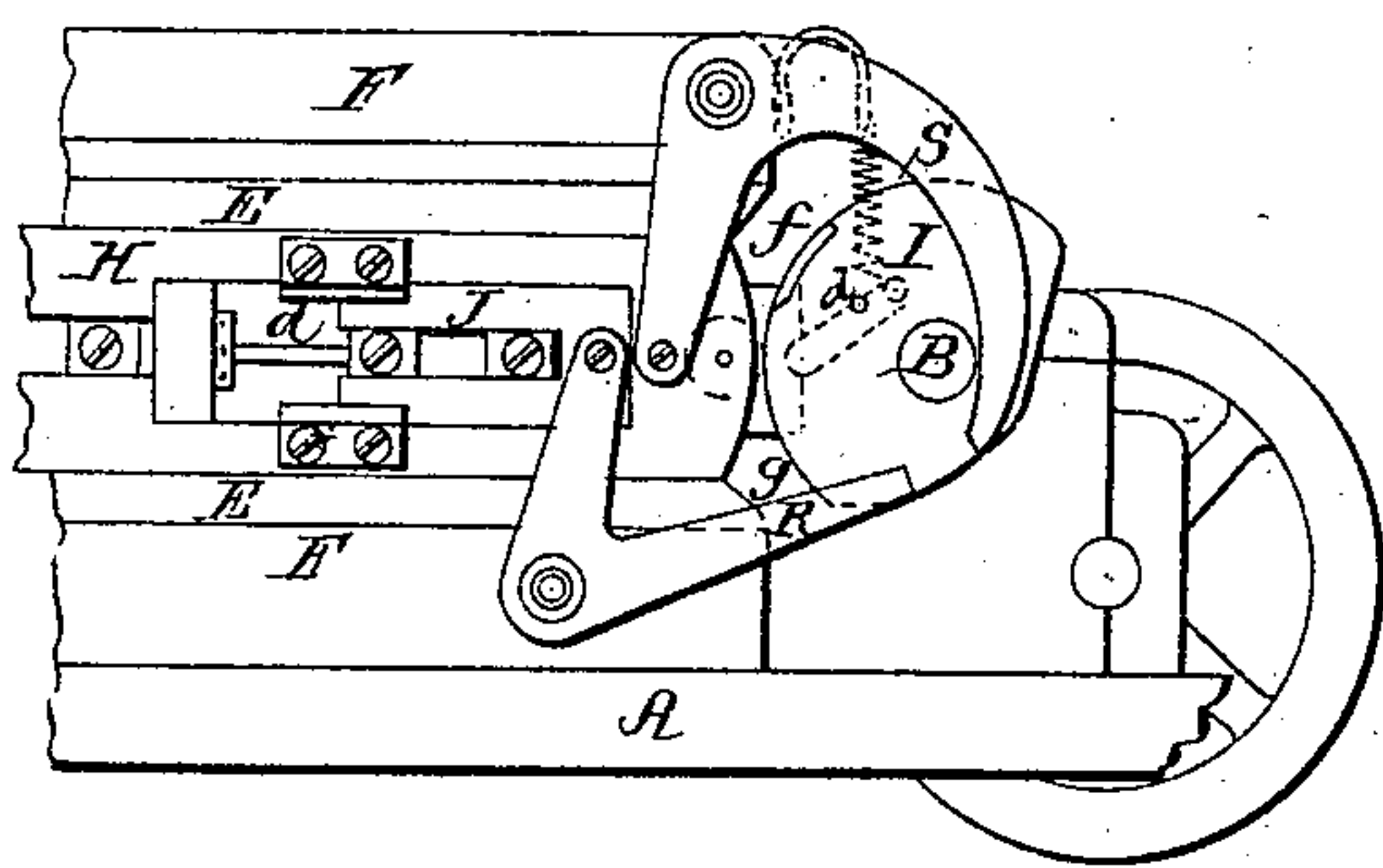
Fig; 1.



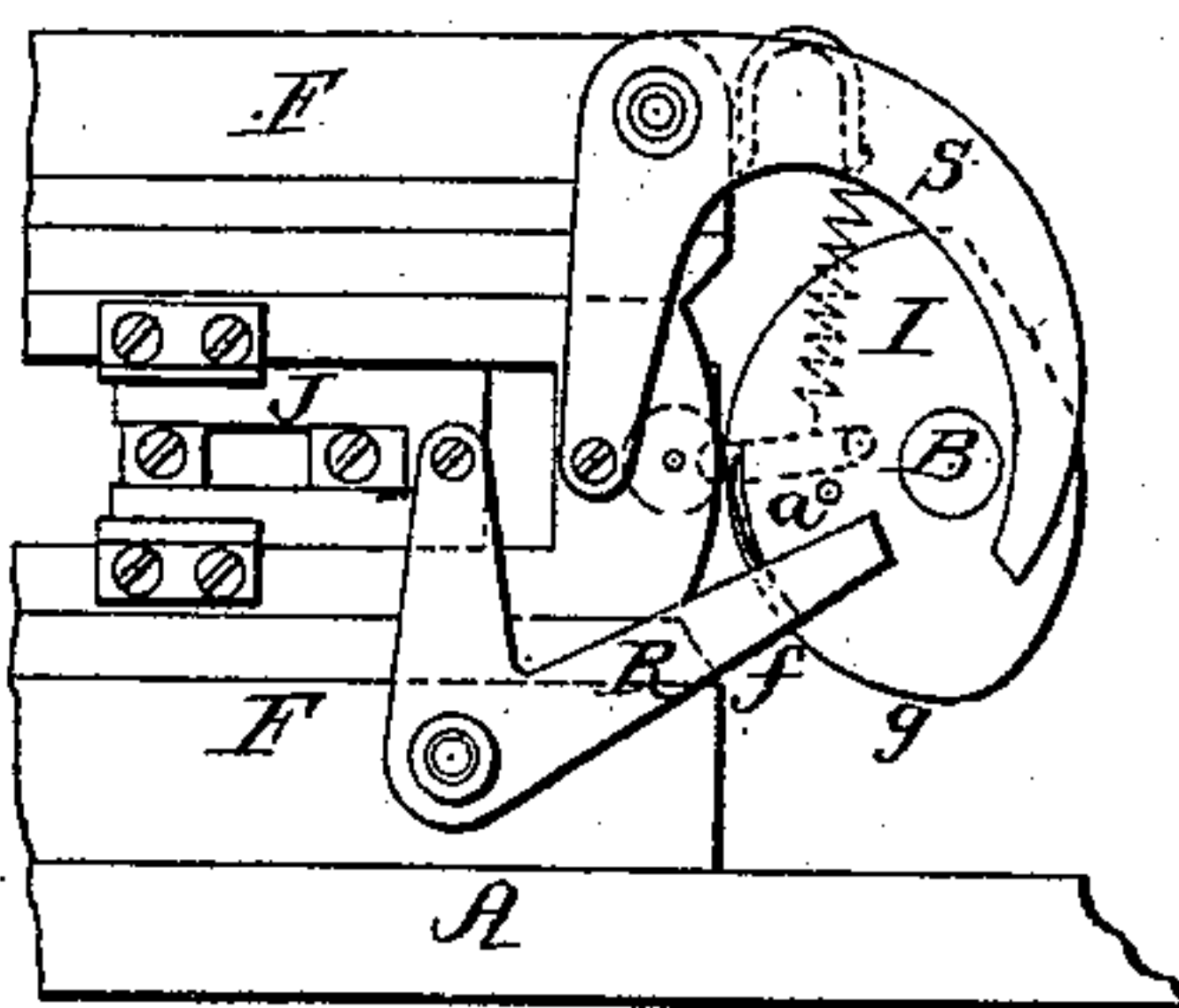
Fig; 2.



Fig; 3.



Fig; 4.



Witnesses;
John H. Shumway
A. J. Tibbitts

Inventor;

A.B. Bean.
by his Attorney,
John E. Earle

United States Patent Office.

ALBERT B. BEAN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF
AND W. T. SCRANTON, OF SAME PLACE.

Letters Patent No. 77,347, dated April 28, 1868.

IMPROVEMENT IN NUT-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ALBERT B. BEAN, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Nut-Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a side view,

Figure 2 a top view,

Figures 3 and 4, partial side views to illustrate the improvement.

This invention relates to an improvement in machines for the manufacture of metal nuts for bolts, and more particularly to the machine for which Letters Patent were granted to me, bearing date March 19, 1867.

One great difficulty in this class of machines arises from the fact that it is impossible at all times that the same quantity of metal should enter the die; therefore, if there be not sufficient metal, the nut will be imperfectly formed, or if there be too much, the strain upon the machine is very great, and of tensufficient to break some part. To overcome this difficulty is the object of my present invention; and it consists in the arrangement of a spring upon the face of the cam, which being of sufficient strength to perfectly form the nut if a little less than the necessary quantity of metal enters the die, and yet so as to yield if there be too much metal, thus, while forming a perfect nut, at all times relieves the machine from the strain which would otherwise come upon it.

To enable others to construct and use my improvement, I will proceed to describe the same as illustrated in the accompanying drawings.

Although nearly a duplicate of my former machine, I will briefly describe the present machine before proceeding to this specific invention.

A is the bed-plate, B the main shaft, supported in bearings C, and caused to revolve by the application of power thereto in any convenient manner. D is the die-holder, in the face of which the die is placed, and the said die-holder attached to a slide, E, moving in proper guides F, by means of an eccentric, G, on the driving-shaft. H is the crowner-holder, moving within the slide E, and operated by the cams I. J is the punch-carrier, moving within the slide H by means of a cam, K. M is a fixed punch, arranged in a holder, N, and so that the said holder may be swung outward upon a pivot, P, as occasion may require. The several slides are returned by a cam or pin, a, on one of the cams I acting against levers R S.

The metal from which the nut is to be formed, after being heated, is placed between the punch M and the dies in the holder D; the machine then set in motion; the crowner advances to hold the metal; then the die passes over, cutting away the surplus metal; then the punch d in the holder J punches the hole in the nut; then, retreating, the nut is discharged finished. This general description, in view of the patent before referred to, will be all-sufficient for the illustration of the present improvement.

It will be readily seen that the movement of the several parts is positive, and that too little metal would form an imperfect nut, while too much must necessarily strain the machine. To avoid this, on the face of the cam or cams I, I arrange a spring, f, denoted in heavy black, figs. 3 and 4, extending from the point of greatest pressure back to a point sufficiently distant to give the necessary elasticity to the spring. At that distant point, g, the spring is firmly fixed to the cam; the other end projects from the face of the cam, and a recess is formed in the cam so as to allow the spring to recede, the end of the spring being turned down to give an easy movement from the spring on to the face of the cam. This spring must be of sufficient strength to give the pressure necessary for the perfectly filling of the nut when a little less than the requisite quantity of metal is in the die, and thus produce a nut slightly thinner than should be in the general run of the same nuts from the machine.

If, however, there may be more metal in the die, then, as the cam approaches the greatest point of pressure,

as denoted in fig. 4, the spring *f* will yield, so that while it gives the requisite pressure to form a perfect nut, will relieve the machine from the strain which would otherwise come upon it.

The arrangement of this spring or springs *f*, adds very little to the cost of the machine, and affords sufficient compensation for the greatest variation of the metal, and is positive and reliable, and although peculiarly adapted to my nut-machine, is equally so to other machines.

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

The arrangement of a spring or springs *f* upon the face of the cam, so as to yield at the point of pressure, and relieve the strain upon the machine, substantially as herein set forth.

ALBERT B. BEAN.

Witnesses:

JOHN H. SHUMWAY,
A. J. TIBBITS.