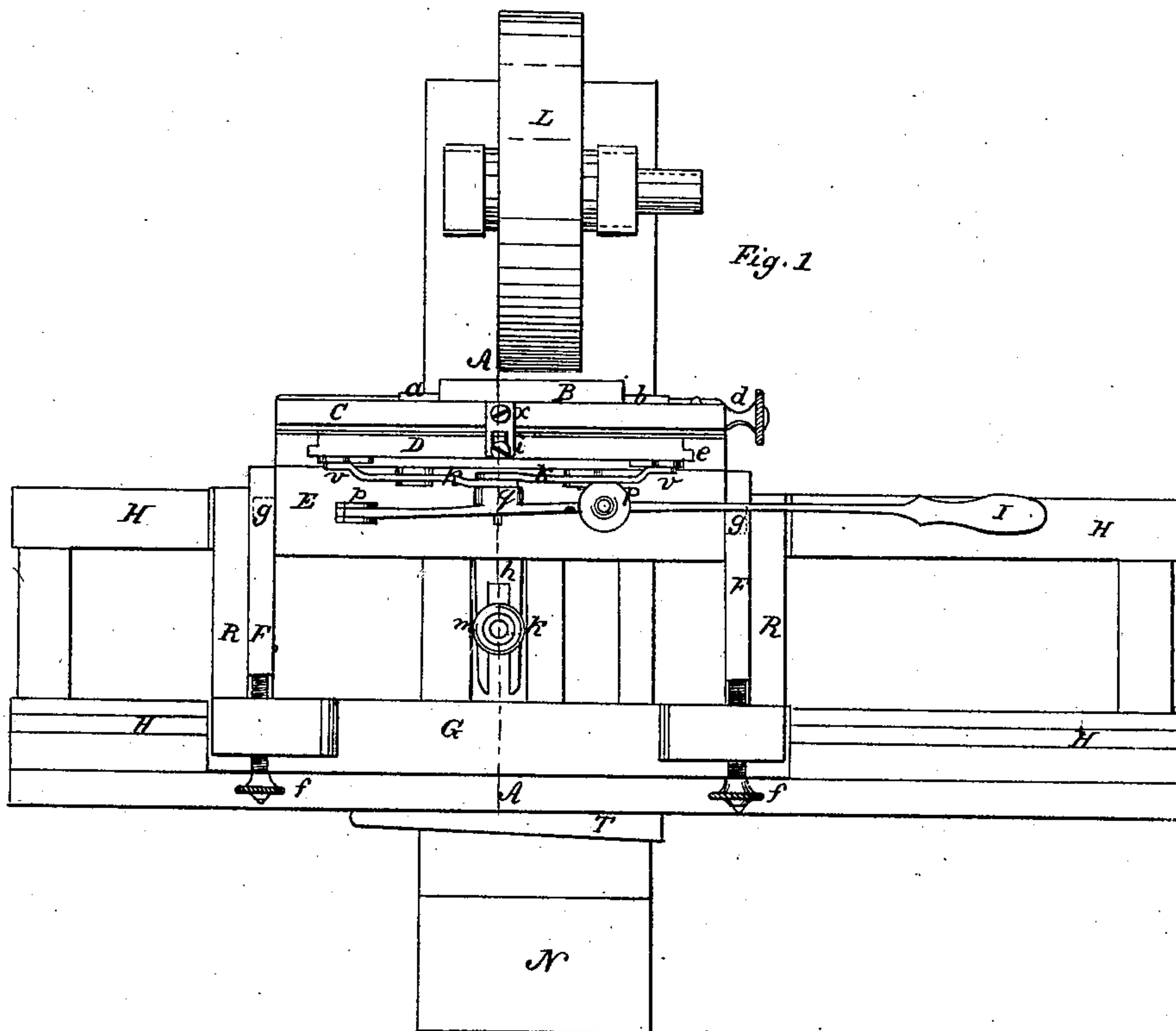
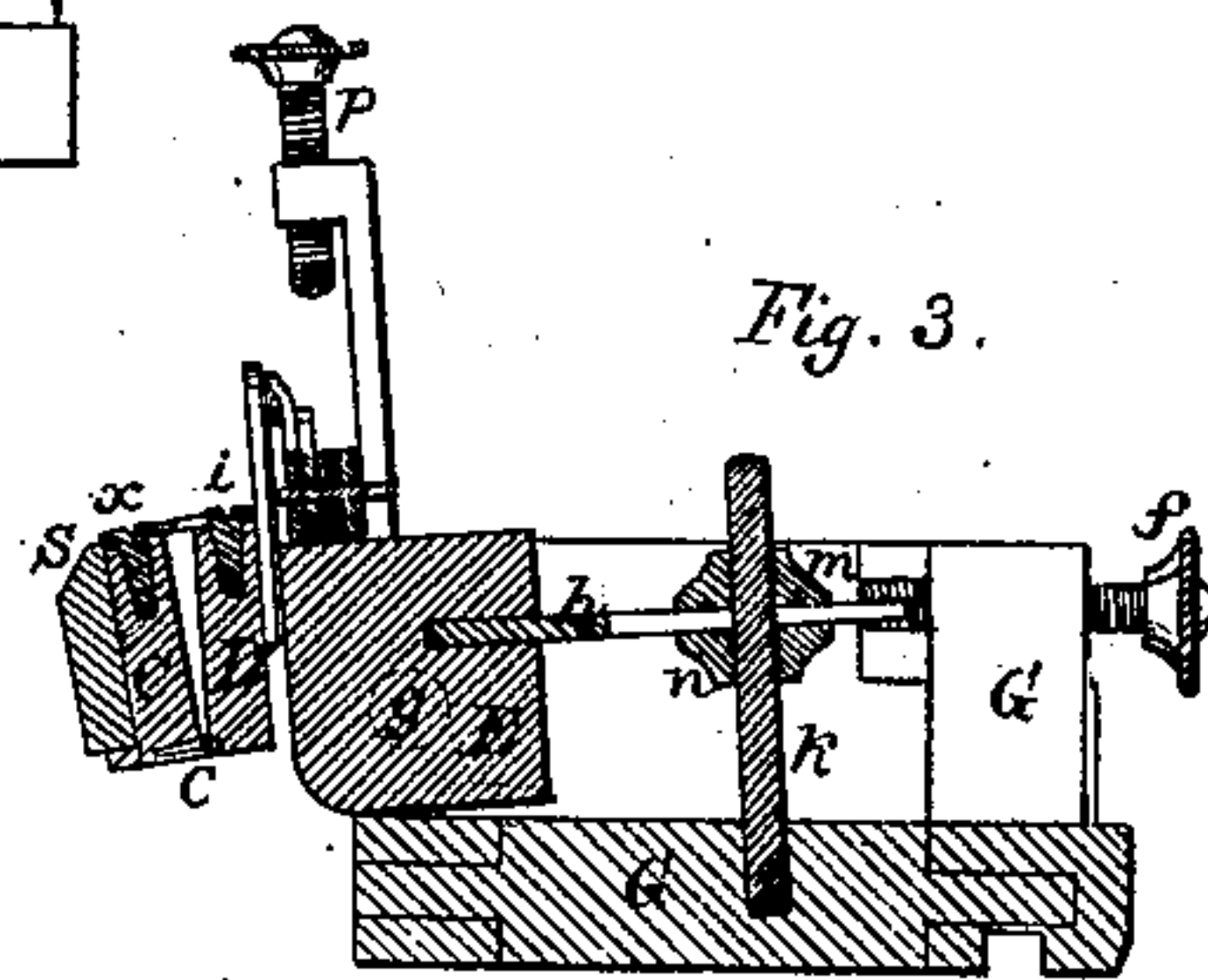
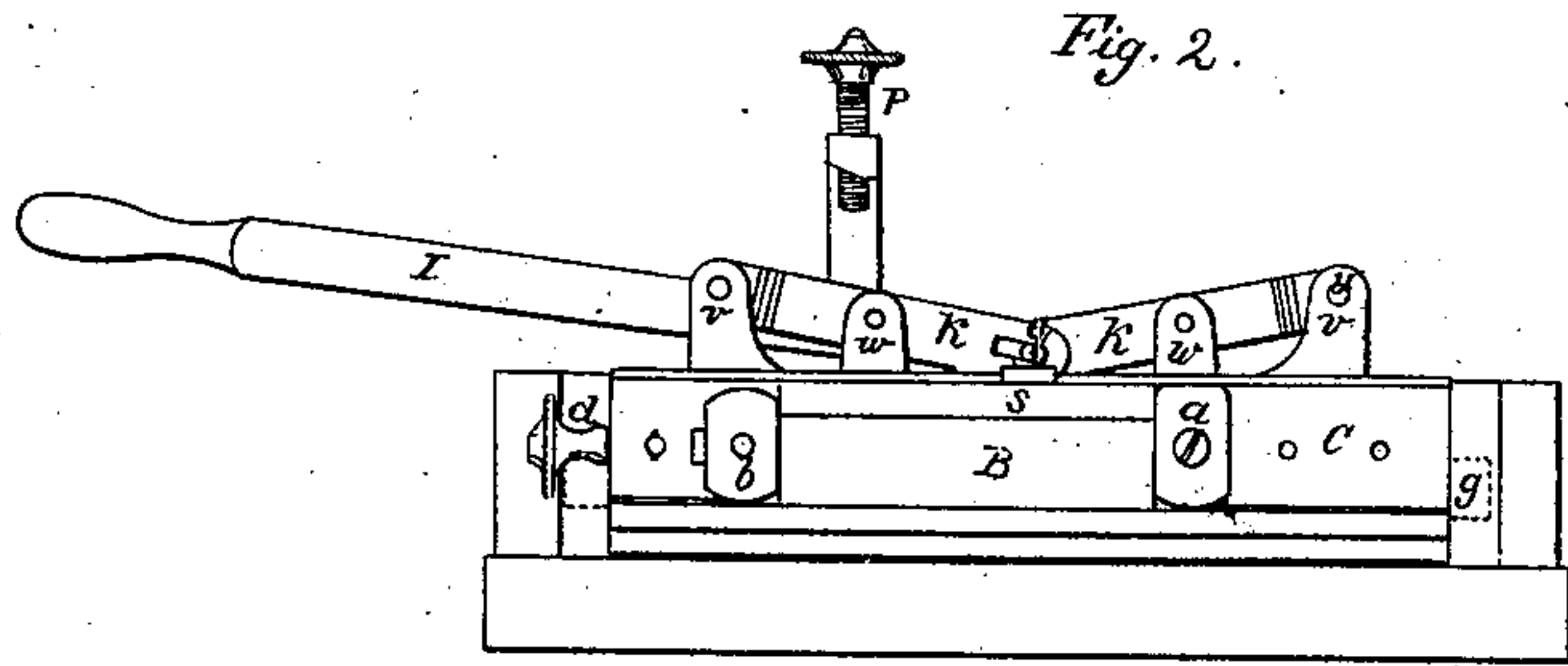


*A. Hankey & F. Stiles, Jr.,*  
*Grinding Planing-Machine Knives.*

*N<sup>o</sup> 17,952.*

*Patented Aug. 4, 1857.*





# UNITED STATES PATENT OFFICE.

ANTHONY HANKEY AND FRANCIS STILES, JR., OF LEICESTER, MASSACHUSETTS,  
ASSIGNORS TO THEMSELVES AND FREDK. S. TAYLOR.

## MACHINE FOR GRINDING KNIVES.

Specification of Letters Patent No. 17,952, dated August 4, 1857.

*To all whom it may concern:*

Be it known that we, ANTHONY HANKEY and FRANCIS STILES, Jr., of Leicester, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Machines for Grinding Planing-Machine and other Knives, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my machine. Fig. 2 is an elevation of the carriage in which the knife to be ground is clamped. Fig. 3 a section upon the line A A, of Fig. 1.

Our invention has for its object to grind the faces of machine and other large knives, to a perfect plane at a single operation, which object we effect by clamping them in a compound carriage, so constructed and arranged that the knife may be traversed back and forth horizontally and up and down in contact with a revolving grindstone, the face of the knife remaining constantly in a vertical plane.

To enable others skilled in the art to understand our invention and to build and use our machine we will proceed to describe its construction and operation.

In the said drawings B, is the knife which is held between the jaws *a*, and *b*, the former being fixed and the latter operated to and from the other by a screw *d*. The knife is thus held clamped to a plate C, which is hinged at the bottom *c* (Fig. 3) to a similar plate D, upon the ends of the latter are tongues *e*, which slide up and down in grooves in the upper carriage. This carriage consists of a head block E, and side pieces F, and slides in the direction of the arrow upon the under carriage G. The side pieces F, being embraced by and sliding between the side pieces R, of the carriage G. This under carriage runs upon ways H and is traversed back and forth by hand or otherwise. The position of the upper and under carriage with respect to each other is regulated by the screws *f*, which pass through parts of the carriage G. The head blocks E, of the upper carriage are pivoted at *g*, to the side pieces F.

*h*, is a forked arm projecting back from the head block which embraces a screw rod *k*, rising from the carriage G, the upper carriage is thus allowed to slide transversely

upon the carriage G, and the head block E, to tilt so as to throw the knife into the required position and is held in place when adjusted by the jam nuts *m*, and *n*. The plate C, may also be inclined upon its hinges *e*, with respect to the head block and is clamped in position by the screw *i*, passing through a slot in a short arm *x*, attached to the plate C.

It now remains to describe the manner in which the knife and the plates C and D are raised and lowered in the head block as the carriage is traversed upon its ways.

I, is a hand lever pivoted at *p*, to the head block E, and at *q*, to two arms or levers K, which vibrate around their centers in standards *w*, rising from the head block and are hinged at their opposite extremities at *v*, to the plate D. By means of these connections the knife may be vibrated up and down in a vertical plane at the will of the operator.

L is the grindstone which is revolved by power suitably applied.

Operation: The knife B, being clamped to the plate C, the plate and the head block E, are adjusted by the screws *i*, and *k*, to bring the knife into the required position with respect to the grindstone. By means of the screws *f*, the upper carriage is thrown forward so as to cause the knife to bear with the required force upon the stone. The operator now takes hold of the handle I, and works it up and down, at the same time sliding the carriage past the stone; every portion of the face of the cutter is thus brought in contact with the stone, and the cutter is reduced to a perfect plane by a single traverse of the carriage G on the ways H. When this is effected, the knife is tilted either by tilting the head block on the plate C, or by the combined motion of both as before explained, and the knife is again traversed in contact with the stone to form the bevel S. P is a screw stop which serves to limit the upward motion of the handle I, a similar stop being attached to the head block for the purpose of limiting its downward motion if found necessary. The ways H, which carry the carriage are secured to the foundation N, which carries the stone, by a wedge T, or in any other suitable manner.

It is evident that by means of the above described machine, the work for which it



is intended may be performed much more expeditiously and perfectly than can be accomplished by the means heretofore employed.

5 Thus far we have spoken of our invention as particularly applicable to grinding knives and other similar articles, it is evident that it is equally applicable to the purpose of polishing, where emery or other wheels are  
10 employed.

We do not wish to confine ourselves to the precise mechanical devices employed for the purpose of effecting the end which we have in view, as it is evident that there are vari-  
15 ous means which are equally capable of accomplishing the same. For instance, the carriage may be so arranged as to be raised

and lowered by means of gears, or the knife may be made to vibrate in contact with the side instead of the periphery of the stone 20 without departing from the principle of our invention.

What we claim as our invention and desire to secure by Letters Patent, is—

Giving to the knife or other article to be 25 ground or polished, a vibrating motion in a plane tangent to the plane of motion of the stone or wheel or parallel therewith.

ANTHONY HANKEY.  
FRANCIS STILES, JR.

Witnesses:

AUGUSTUS O. BUNDY,  
DANIEL C. TOURTILLOT.