

(No Model.)

M. G. LEWIS.
VISE.

No. 597,681.

Patented Jan. 18, 1898.

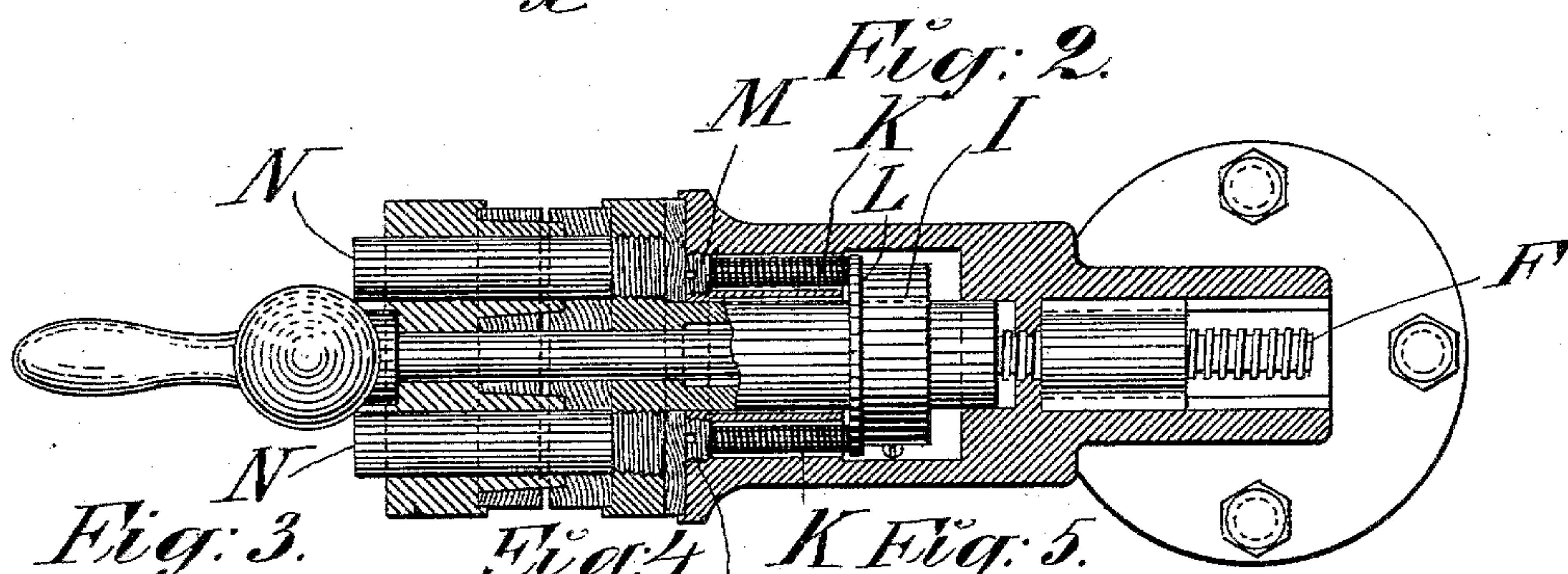
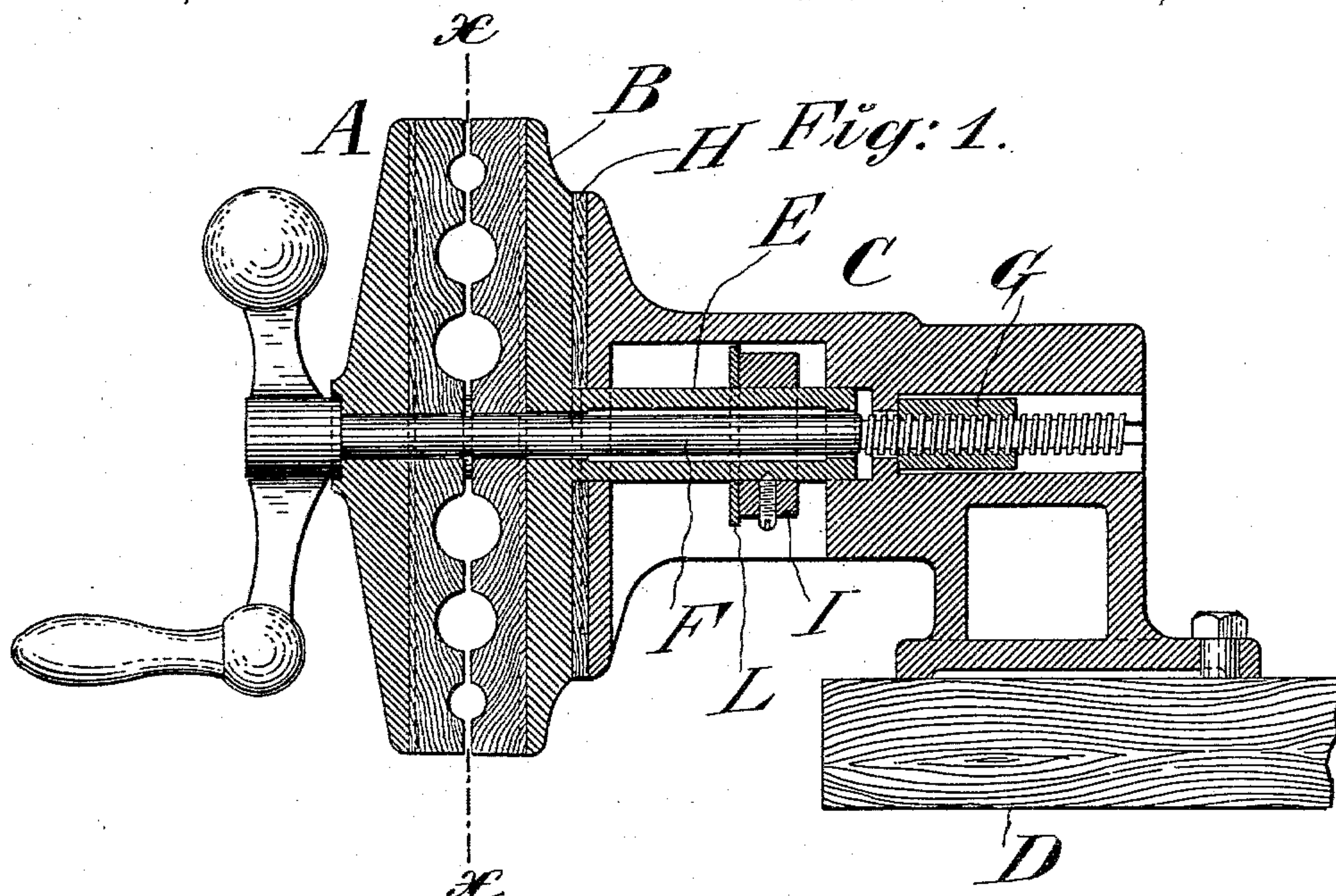


Fig. 3.

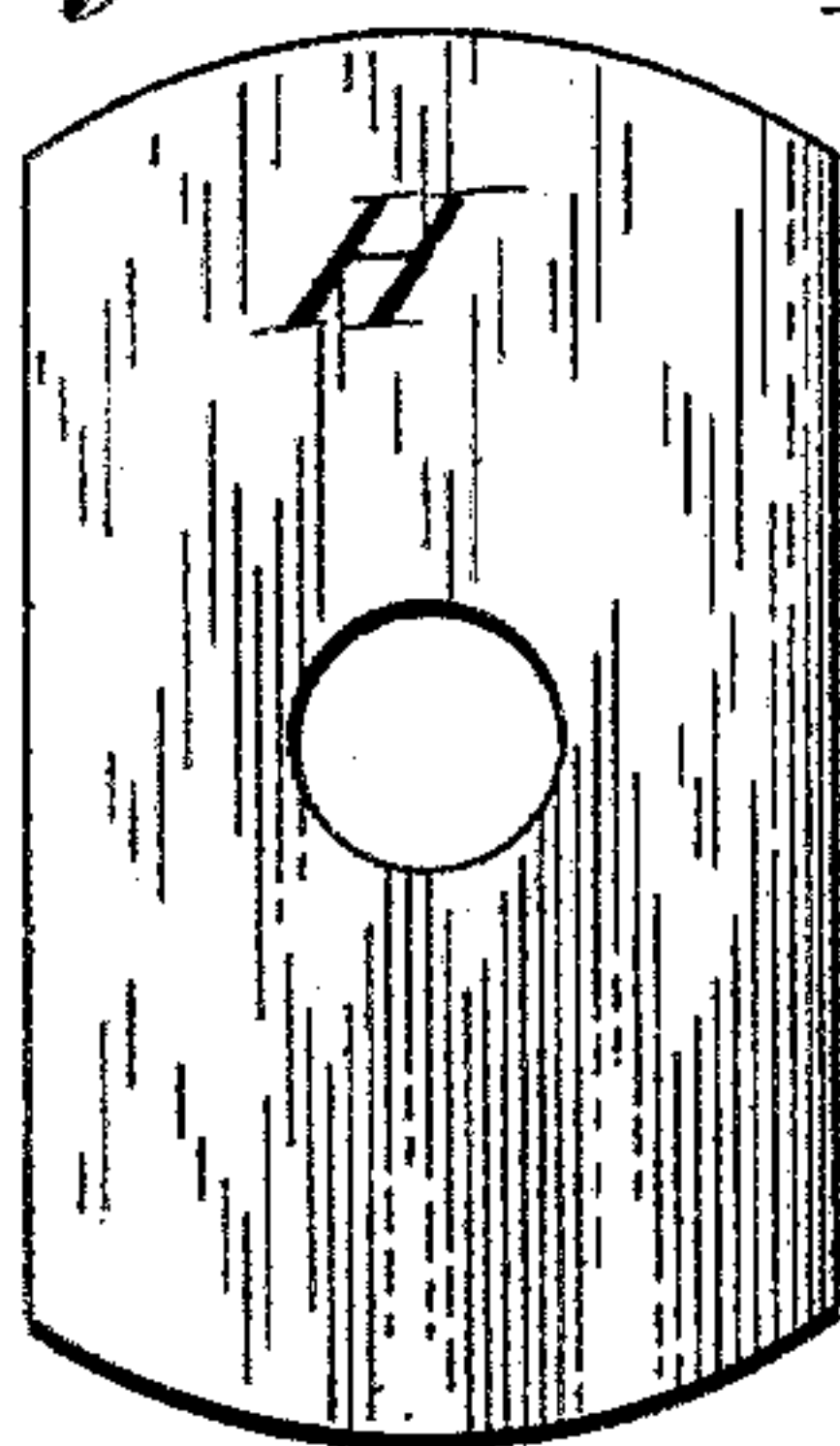
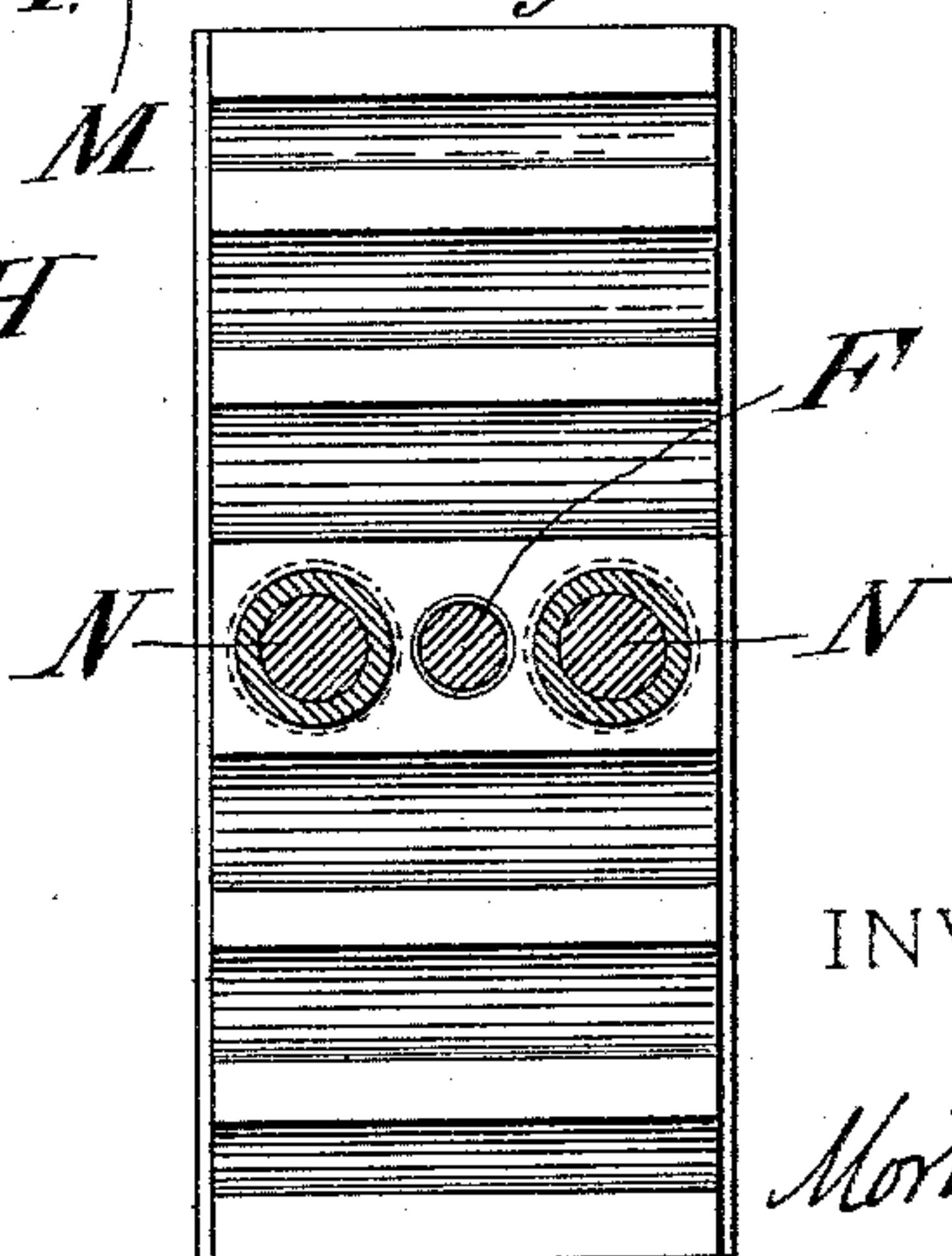


Fig. 4.



Fig. 5.



WITNESSES:

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By

UNITED STATES PATENT OFFICE.

MORTIMER G. LEWIS, OF NEW YORK, N. Y., ASSIGNOR TO THE LEWIS TOOL COMPANY, OF NEW YORK.

WISE.

SPECIFICATION forming part of Letters Patent No. 597,681, dated January 18, 1898.

Application filed January 7, 1897. Serial No. 618,256. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER G. LEWIS, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Vises, of which the following is a specification.

My invention relates to vises or clamps such as are used by metal-workers or woodworkers, and more particularly to a form chiefly intended for holding the frames of bicycles; but my improvements may be applied as well upon vises for other purposes.

The object of my invention is to supply a vise having a head capable of turning upon a horizontal axis with means for producing sufficient friction to automatically hold the head against accidental turning while the article clamped is being worked upon, and yet to permit the head to be turned whenever purposely desired.

To accomplish this object and to secure other and further advantages in the matters of construction, operation, and use, my improvements involve certain novel and useful features of invention, as will be herein first fully described and then pointed out in the claims.

In the accompanying drawings I have shown a vise specially adapted for clamping the tubular frames of bicycles, and constructed and arranged to operate in accordance with my invention and involving my improvements.

Of the drawings, Figure 1 is a vertical section and partial elevation upon a plane supposed to pass through the clamping-screw. Fig. 2 is a horizontal section and partial plan view also upon a plane supposed to pass through the clamping-screw. Fig. 3 is an elevation of the friction-disk detached from the other parts, and Fig. 4 is an edge view of the same. Fig. 5 is an elevation of the face of the back jaw upon a plane through line *xx* of Fig. 1.

In all the figures like letters of reference, wherever they occur, indicate corresponding parts.

A is the front jaw of the vise, and B the back jaw. In the form shown these jaws are supplied with blocks of wood or other suitable material, with openings of various sizes to

accommodate the tubes of bicycle-frames, but these faces may be modified in substance or in form, depending upon the special work required of the vise.

C is the vise-arm which sustains the head and which is mounted in any suitable manner, either stationary or otherwise. Sometimes this arm is mounted on a stand which permits it to be moved up and down to regulate the height of the vise, and also permits the vise to be turned around its point of support, but the vise may be mounted in any manner.

D represents any form of table or bench or support for the vise.

The jaw B is provided with a central hollow stud E, journaled in the vise-arm, and on this stud the head, consisting of the two jaws, may be revolved to bring the work to any desired inclination.

F is the screw by which the front jaw is moved toward and from the back jaw to effect the desired clamping. This screw takes into any form of nut-setting in or with which the vise-arm may be supplied. G represents such a nut. The vise-head turns upon the stud E independently of the clamping-screw—that is, when it is turned it does not move the screw.

Heretofore, in order to hold the head from accidentally turning on its central axis within the vise-arm, the clamping effect of the screw alone has been relied upon to produce friction between the turning jaw and the face of the arm against which it was made to abut directly. In practice it is found that the friction between these two metal faces is not enough for the purposes intended unless the screw be turned up so tight as to damage the work, and even then frequently not sufficient to prevent the turning of the head. To obviate this severe clamping and to insure a sufficient amount of friction to prevent the head from accidentally turning even when the clamping-screw is not turned up, I supply the face of the vise-arm with a disk of some suitable material against which the back jaw may bear and with which it will produce a considerable amount of friction. For these purposes almost any material other than iron or steel would be found advantageous; but I

prefer to use a disk or plate of wood as being the most satisfactory, all things considered. However, the material of which this friction-disk is made is not essential, and any suitable material may be employed.

To press the back jaw against the friction-disk, I do not rely wholly upon the clamping-screw, as in other forms of vises, but produce a constant bearing between these two parts by a spring or springs or equivalent means, operating independently of the vise-screw, and constantly, whether the vise-jaw be open or closed. To make this spring force the back jaw against the friction-disk, a collar I is placed upon the stud E and set in place by a suitable set-screw, as indicated, or in other substantial manner. Through the front face of the arm I introduce a spring or springs, as at K, and these press upon the collar I through an intervening washer, as L. This washer is merely for the purpose of permitting the collar to turn without wearing against the ends of the springs. The pressure of the springs is regulated by screws which enter threaded seats in the face of the arm back of the friction-disk K and may be turned in or out, according to the pressure desired to be brought upon the collar. The springs afford a yielding pressure, as will be readily understood, and they are regulated to afford the amount that is necessary to keep the vise-head from revolving, while it sustains the work without being clamped up, and yet not so much as to interfere with the revolution of the head by the hand of the operator applied directly thereto or upon the end of the piece of work which may be sustained in the head. When the work is in place and clamped by use of the clamping-screw, it will be seen that the back jaw is thereby forced against the friction-disk with a pressure additional to that

produced by the pressure-springs, and this additional pressure is sufficient to keep the head from turning while the article is being worked upon.

N N are simply studs which guide the front jaw accurately with respect to the back jaw, so that the head will not mar the work, but they are not essential to my invention, nor is any particular form of jaw.

The friction-disk will wear a long time and may be easily replaced whenever required.

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

1. In a vise having a revolving head, the combination with the vise-arm and the back jaw, of a friction-disk interposed between the arm and jaw, substantially as and for the purposes set forth.

2. In a vise, the combination of the vise-arm, the back jaw having the central stud, a collar fixed upon said stud, and an adjustable spring operating upon said collar for the purpose and objects set forth.

3. In a vise having a revolving head, the combination as before set forth, of the back jaw having a central stud, a friction-disk interposed between the back jaw and the vise-arm, a collar fixed on the central stud, a spring or springs arranged to operate against said collar, and means for regulating the pressure of the spring or springs, substantially as shown and described.

Signed at New York, in the county and State of New York, this 5th day of January, A. D. 1897.

MORTIMER G. LEWIS.

Witnesses:

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WORTH OSGOOD.