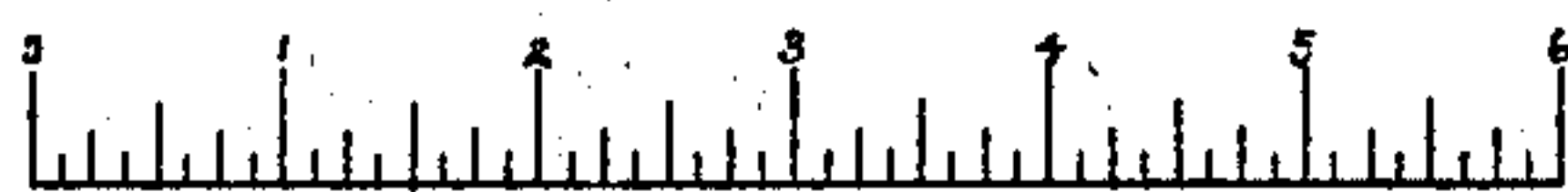
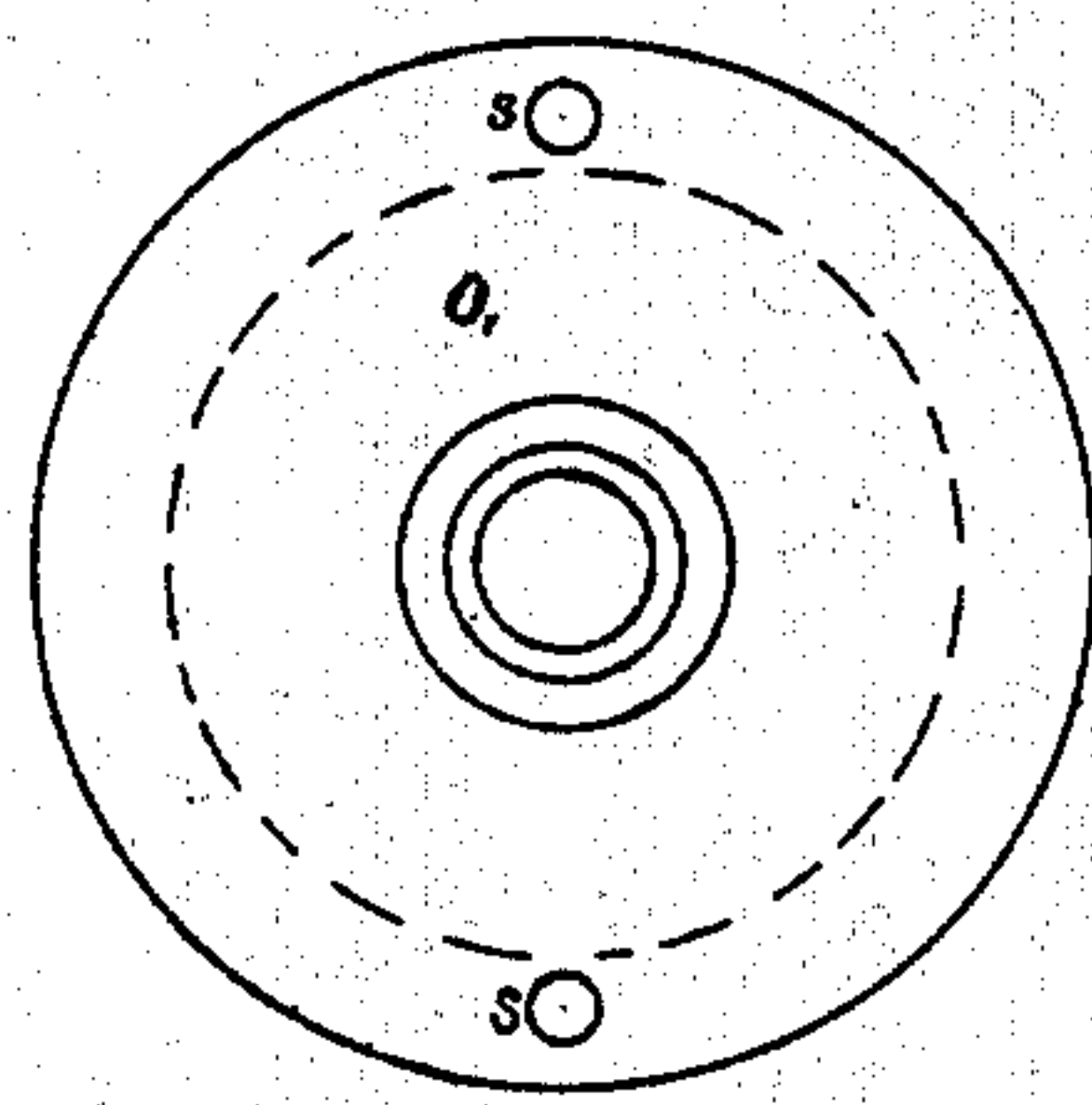
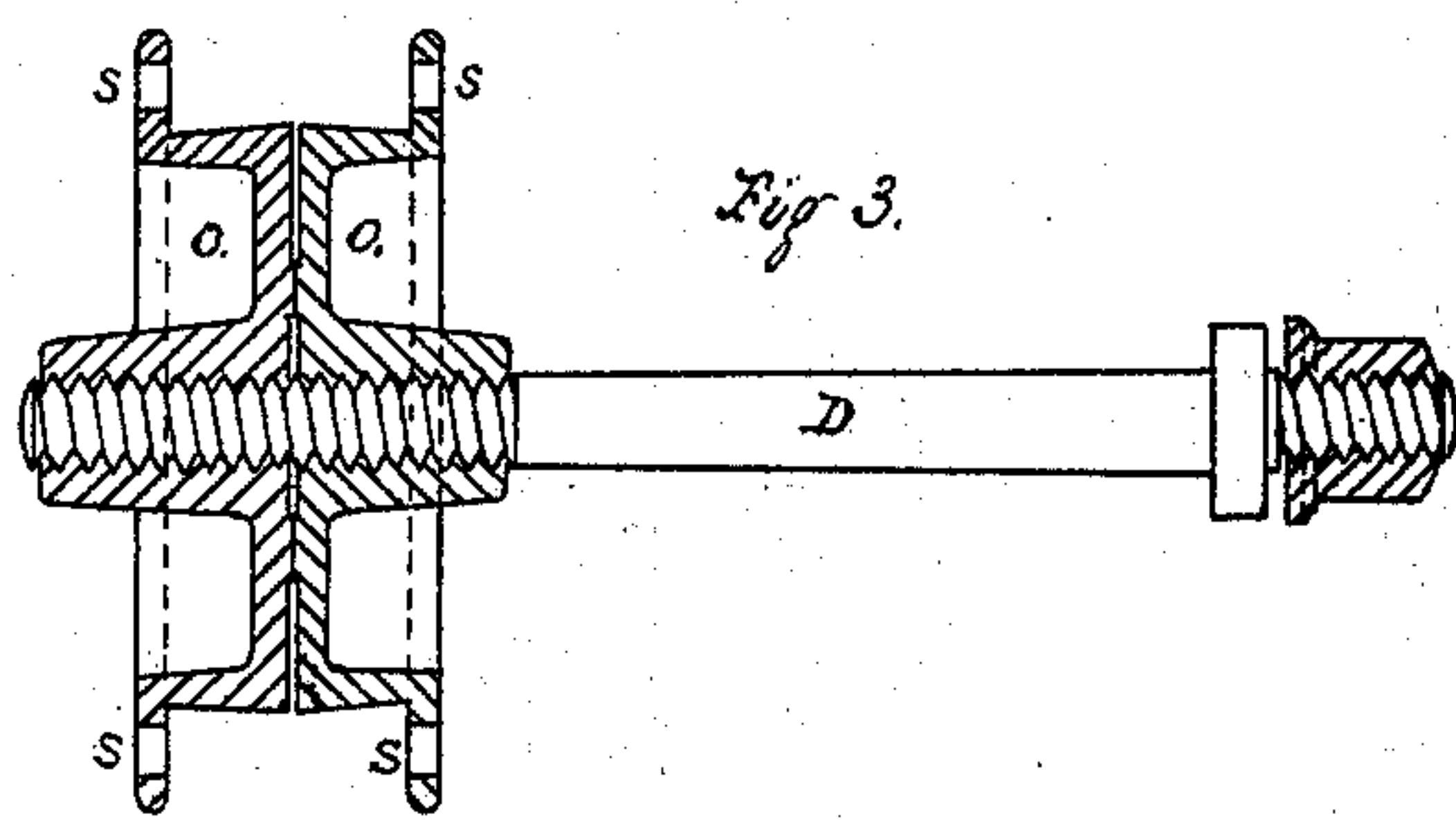
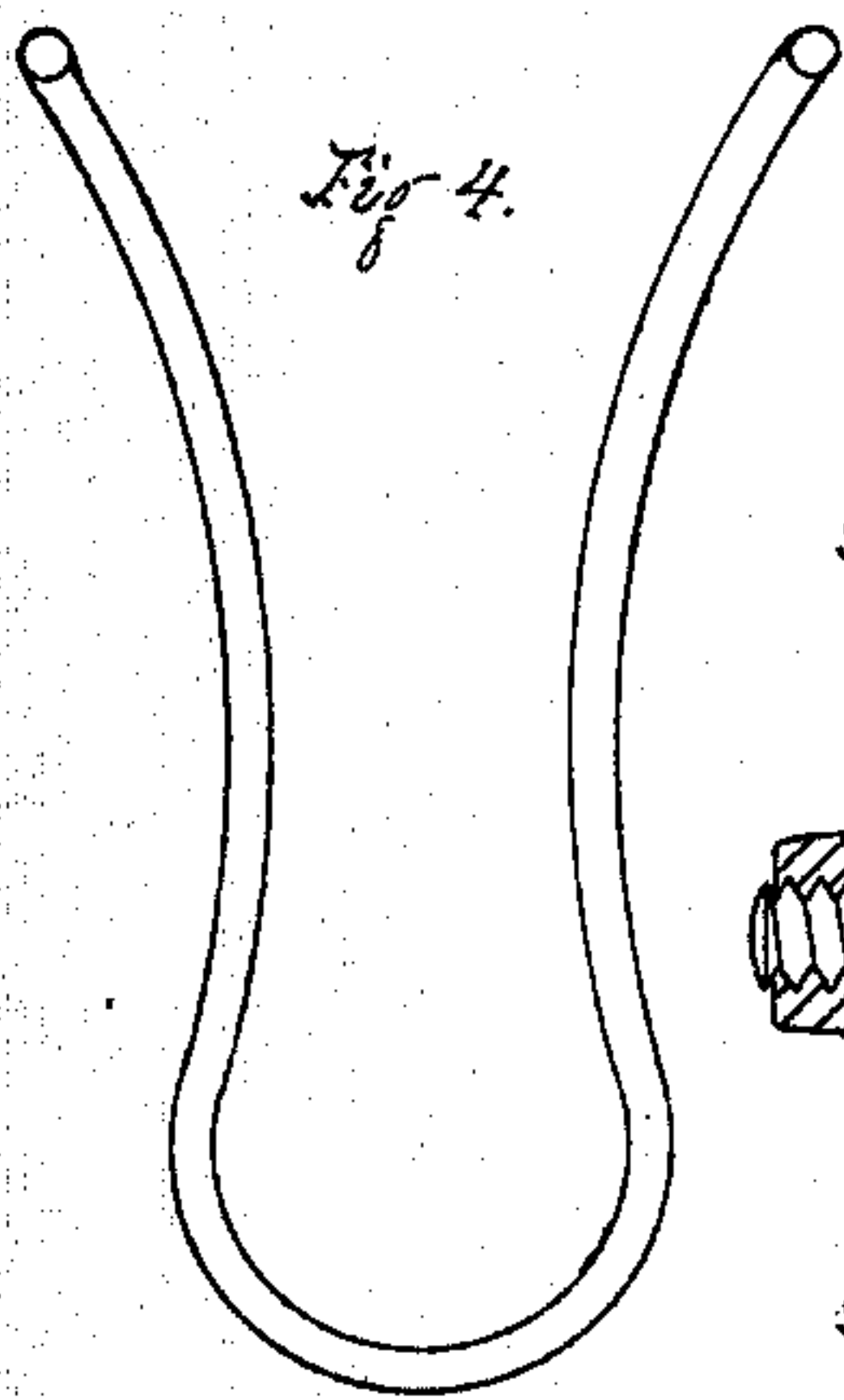
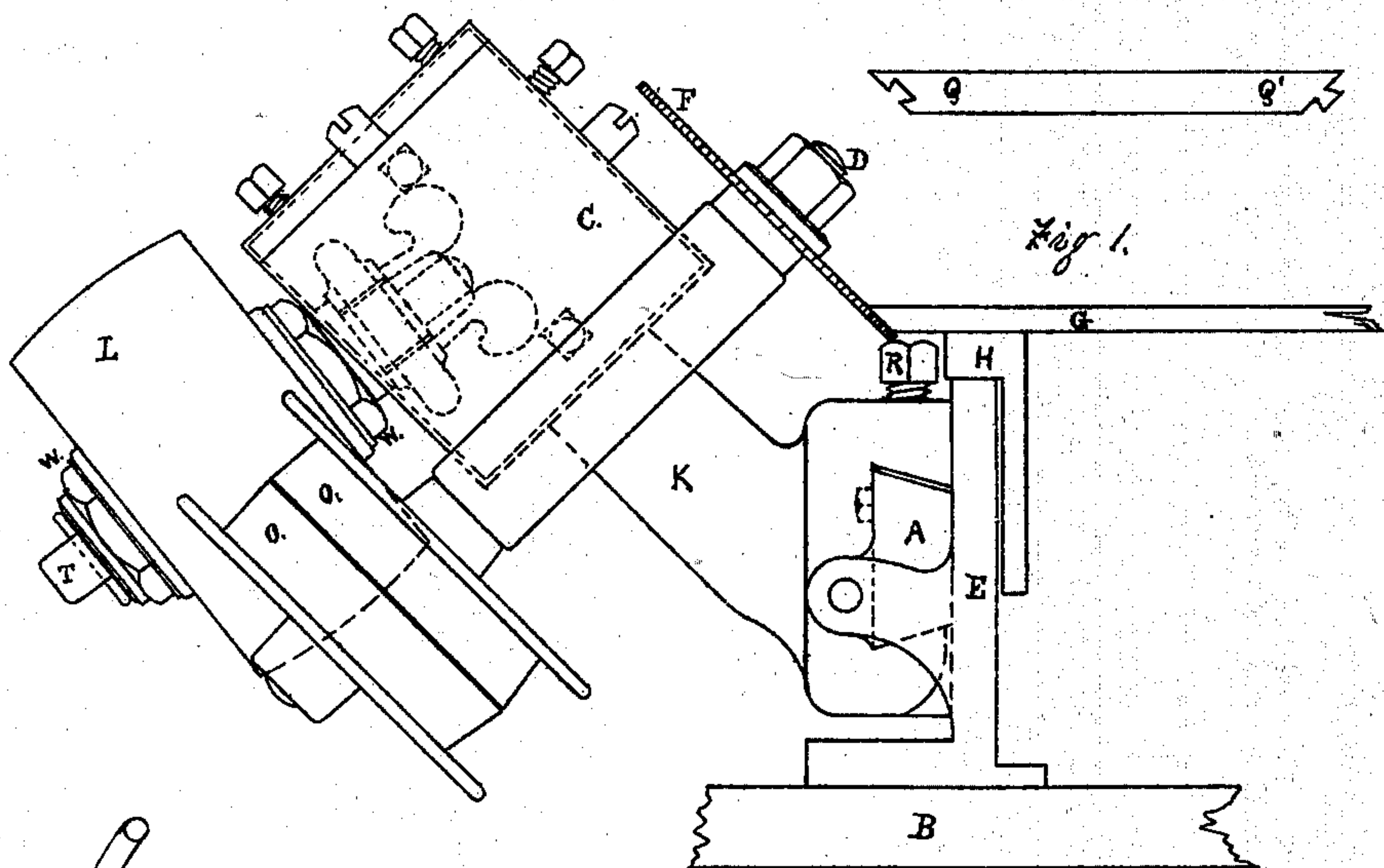
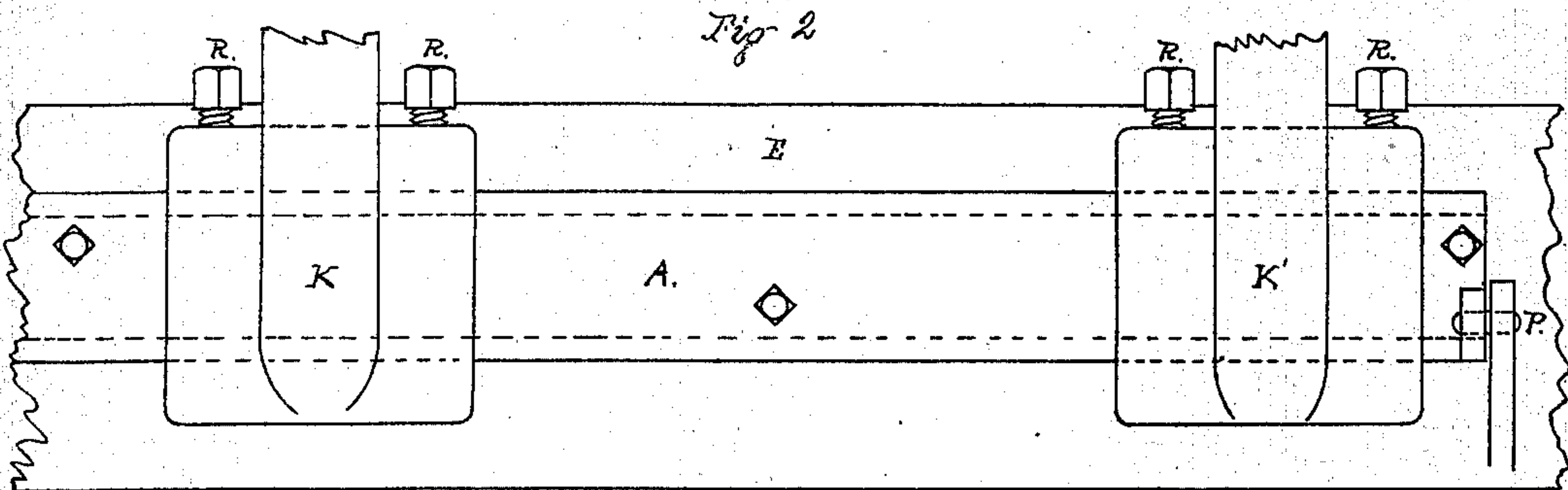


A. DAVIS.
Dovetailing-Machines.

No. 139,299.

Patented May 27, 1873.



Witnesses.

Whitlock G. Tilton
C. L. Bourne

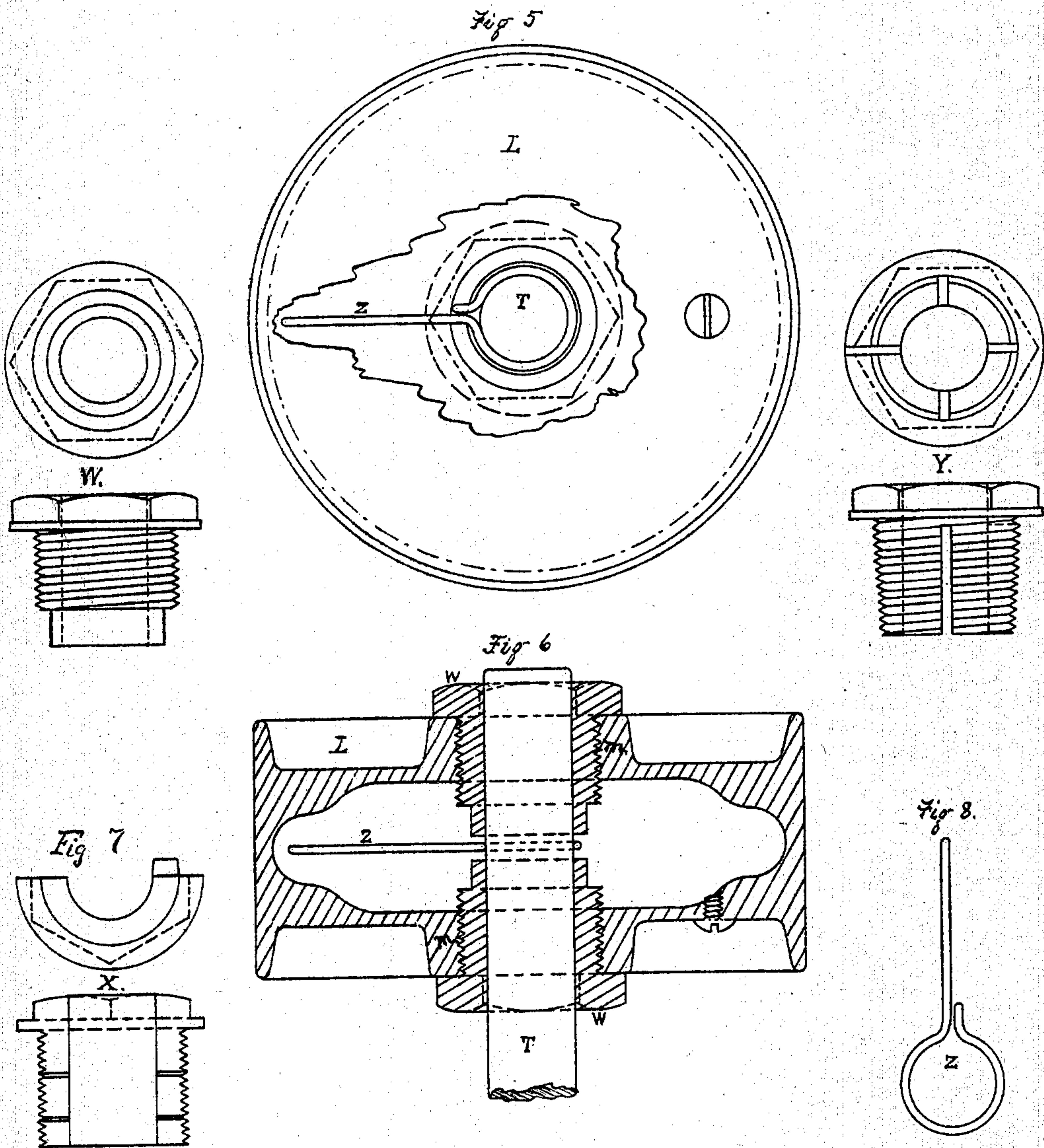
Inventor.

Asahel Davis

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UNITED STATES PATENT OFFICE.

ASAHEL DAVIS, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN DOVETAILING-MACHINES.

Specification forming part of Letters Patent No. 139,299, dated May 27, 1873; application filed February 6, 1873.

To all whom it may concern:

Be it known that I, ASAHEL DAVIS, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain Improvement in Dovetailing-Machines, of which the following is a specification:

The first part of my invention relates to a hinged bar, in combination with the frame of the machine; and its object is to so adjust all the cutters with their necessary supports on a hinged bar for dovetailing one end of the board, that when the bar is turned down all the cutters and their necessary shafts, stands, and pulleys, may be turned below the track of a board when too long to pass between the cutters for forming both ends simultaneously. The second part of my invention relates to the combination of the sliding stands with the said hinged bar. The object is to enable the stands to be so adjusted that the necessary space between them may be given for the width of board; and it further consists in the construction and arrangement of the pulleys, by which the rotating cutters are driven, and the belts guided in their proper directions, as will be hereinafter fully set forth.

Figure 1 is an end elevation of the hinged bar, attached to the frame of the machine, embodying the first and second parts of my invention. Fig. 2 is a side view of the movable stands upon the hinged bar, and showing the method of adjustment. Fig. 3 is a sectional and end view of the divided pulley on the cutter-shaft. Fig. 4 is a spanner, used for operating the divided pulley. Fig. 5 is an end view of the double-disk pulley with its adjustable bushings, a part of one disk being broken away to show the oil-chamber and inside arrangement of the pulley. Fig. 6 is a sectional view of the same pulley, showing the arrangement of the pulley and its adjustable bushings. Fig. 7 presents a sectional view of the bushings. Fig. 8 is a spring which is placed on the shaft to spray the oil in fast-running pulleys.

In the following description similar letters of reference represent corresponding parts in the different figures of the drawing.

B E are the parts of the frame showing the connection with the hinged bar A. H G are the movable parts for carrying the board past the cutters F on the shafts D in the stands K

K', which are supported by the hinged bar A. K K' are the movable stands for supporting the cutters and guide-pulleys on the bar A, which is held in the required position by set-screws R R R. O O is the divided pulley for the driving-shaft D and cutter F. P are the pivots on which the bar A turns. S S are holes in the pulley O O for inserting the ends of the spanner shown in Fig. 4. Q Q' show the two dovetailed ends of a board, Q being the grooved end, and Q' the tongued end. W X Y are bushings which are used for securing the pulleys L in different required positions on their shafts, the form represented by W being best adapted for loose pulleys on horizontal shafts. X shows a divided bushing for a pulley made in halves. Y is a bushing made tapering to hold a pulley on the shaft, when used as a tight pulley.

When the board is too long to admit of the cutting of both ends at the same time, it is necessary to remove all of the cutters on one side for dovetailing one end of the board; then, to replace them and remove those on the other side for cutting the other end of the board; but by means of the hinged bar A the stands K K', Fig. 2, with the cutters, pulleys, and guide-pulley stands, can be turned down out of the way, and replaced in position for operation very quickly, and in the exact position required.

As it is necessary to pass the whole width of the board by the first cutter in order to clear the end for the next cutter, it is obvious that the stand K' must have a sufficient range of movement upon the bar A, as to admit of its position being changed so as to suit boards of all widths. The divided pulley O O on the shaft D is made adjustable by turning one-half to the required position close to the box C; then, by turning the other half until it meets the first by means of the spanner, the two halves are screwed tightly together leaving the least possible distance between the hub of the pulley O O and the box C, thus securing great precision in the operation of the cutter F.

For convenience I have arranged these parts to fit the frame shown in my patent, issued November 28, 1871, for an improvement in dovetailing-machines.

For cutting the grooved end Q I use three stands with three saws or cutters, and three divided pulleys, and three hollow-bushed pulleys for driving and guiding the belts. For cutting the tongue Q' I use three cutters on two heads and four pulleys. These pulleys are of different sizes, and are placed in different positions, and each requires modified bushings to suit the case. L, Fig. 6, shows the hub of the pulley a little thickened at the center, to allow for a screw-thread, *m*, on the inside, wherein is put an outside-threaded bushing, W, with a hole of any desired size to fit the shaft T, upon which it is placed. These bushings can be easily changed for new ones when worn, or may be changed for different sized shafts. I do not let these bushings come quite together in the center, thus leaving a small space for oil to reach the shaft. In very fast-running pulleys I put a spring, Z, upon the shaft which will reach out to the oil, which will be in that part of the cavity farthest from the shaft; this sprays the oil so that some of it is sure to reach the shaft. In slow-running pulleys too much oil may reach the shaft, causing waste through the bearings, in which case, instead of the spring Z, a porous packing may be used to prevent such waste.

It is obvious that these combinations may be somewhat modified by substituting a different joint from the one shown at P. The whole end of the bar A may be made to form the joint, or the pivot may be fastened in the bar A, and turn in a projection upon the frame E; or the sliding stands K K' may be fastened by wedges, or by screws in another part of the stand; or the divided pulley may be made with bushings, as shown in Figs. 6 and 7; or the hollow pulley may be made partly disked, and partly with arms, hollow, or solid.

For pulleys more than eight inches in diameter, I use hollow arms outside the disk, in which to put the material used as balance, it being driven in or fastened by glue, or otherwise the balance then being inside the pulley no accidents can arise from its being thrown off when they run at a high speed.

I do not claim dovetailing one end of the board at a time, and after that the other end; neither do I claim adjusting the stands for wide or narrow boards, or fastening the pulleys on their shafts with a screw-thread; but

What I do claim, and wish to secure by Letters Patent, is—

1. The bar A, provided with lugs at each end, in which are inserted the pivot-pins P, in combination with the frame E, having projections which receive the pivot-pins of the bar, substantially as described.

2. The adjustable stands K K', in combination with the hinged-bar A, as and for the purpose specified.

3. The cutter-shaft D, provided with the divided pulley O O, in combination with the stand K and bar A, as specified.

4. The guide-pulley L, provided with bushings as shown, and carried upon the stud T, in combination with a supporting stand upon the bar A, substantially as described.

5. The guide-pulley L and driving-pulley O O upon the shaft D, in combination with the adjustable stands and hinged-bar A, all the parts being constructed and arranged as, and for the purpose specified.

ASAHEL DAVIS.

Witnesses:

M. K. CHANDLER,
C. D. IRELAN.