

G. DILLMAN.
TOOL FOR OPERATING UPON CHAIRS.

APPLICATION FILED OCT. 19, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Figure 1.

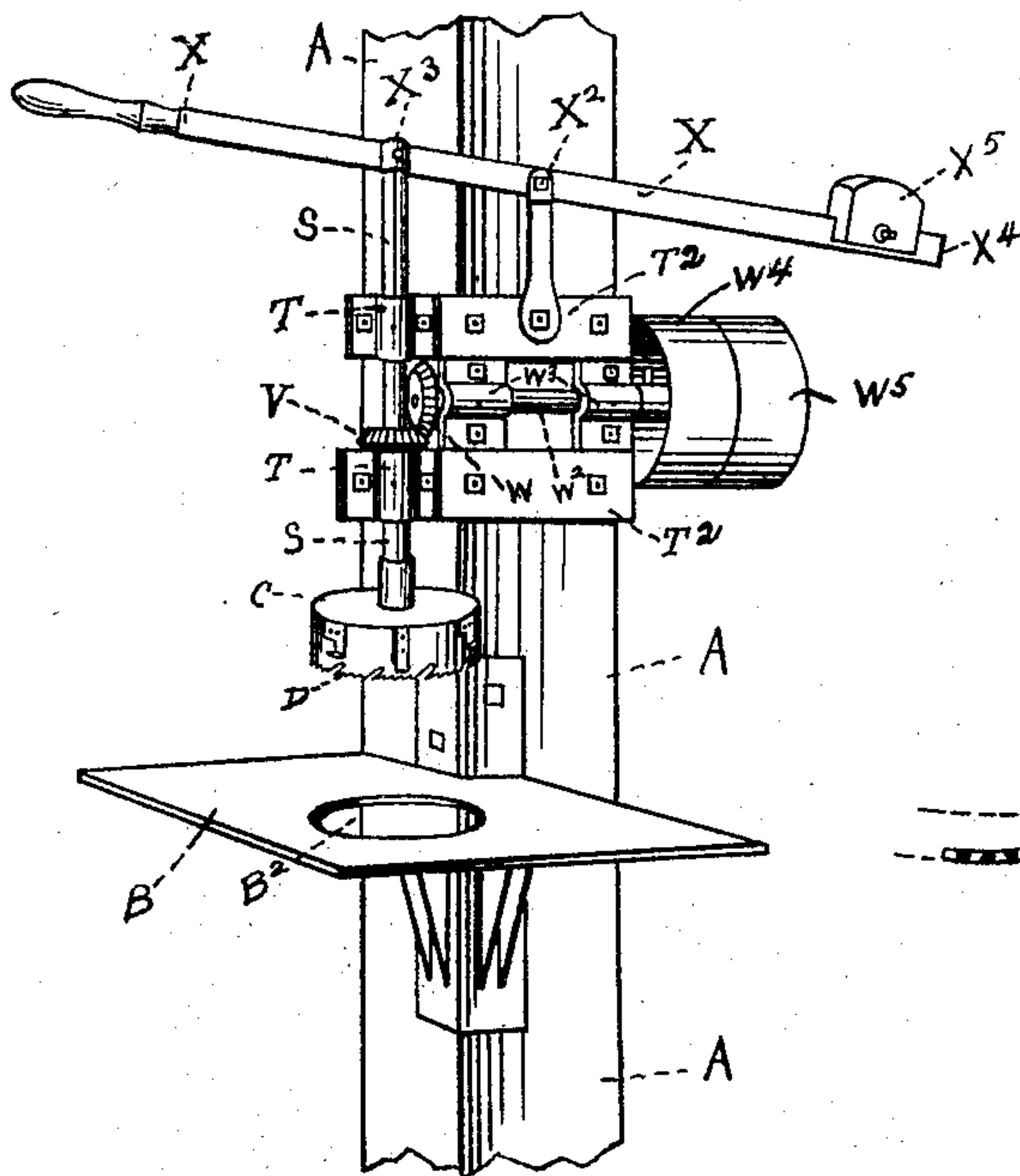


Fig. 3

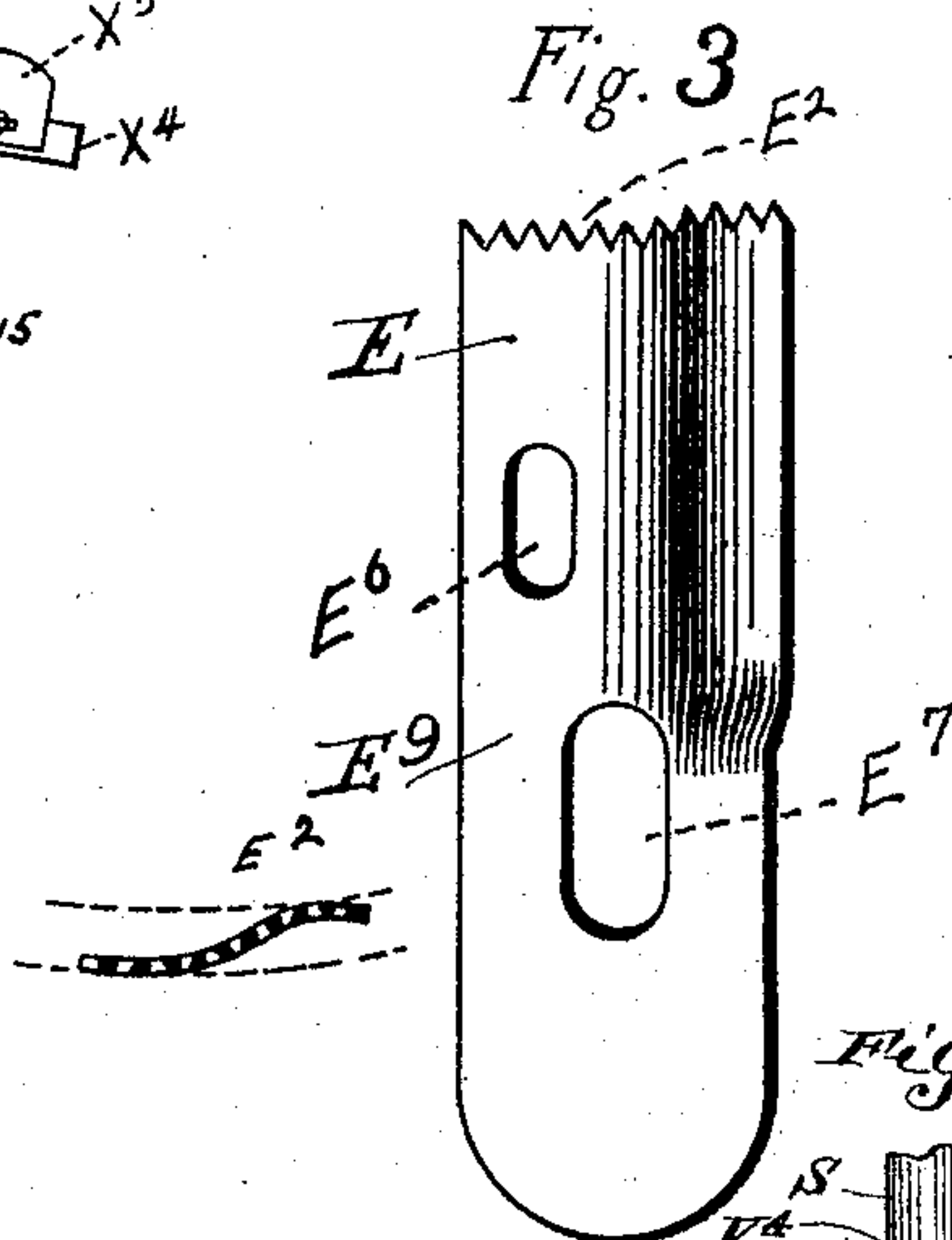


Fig. 12.

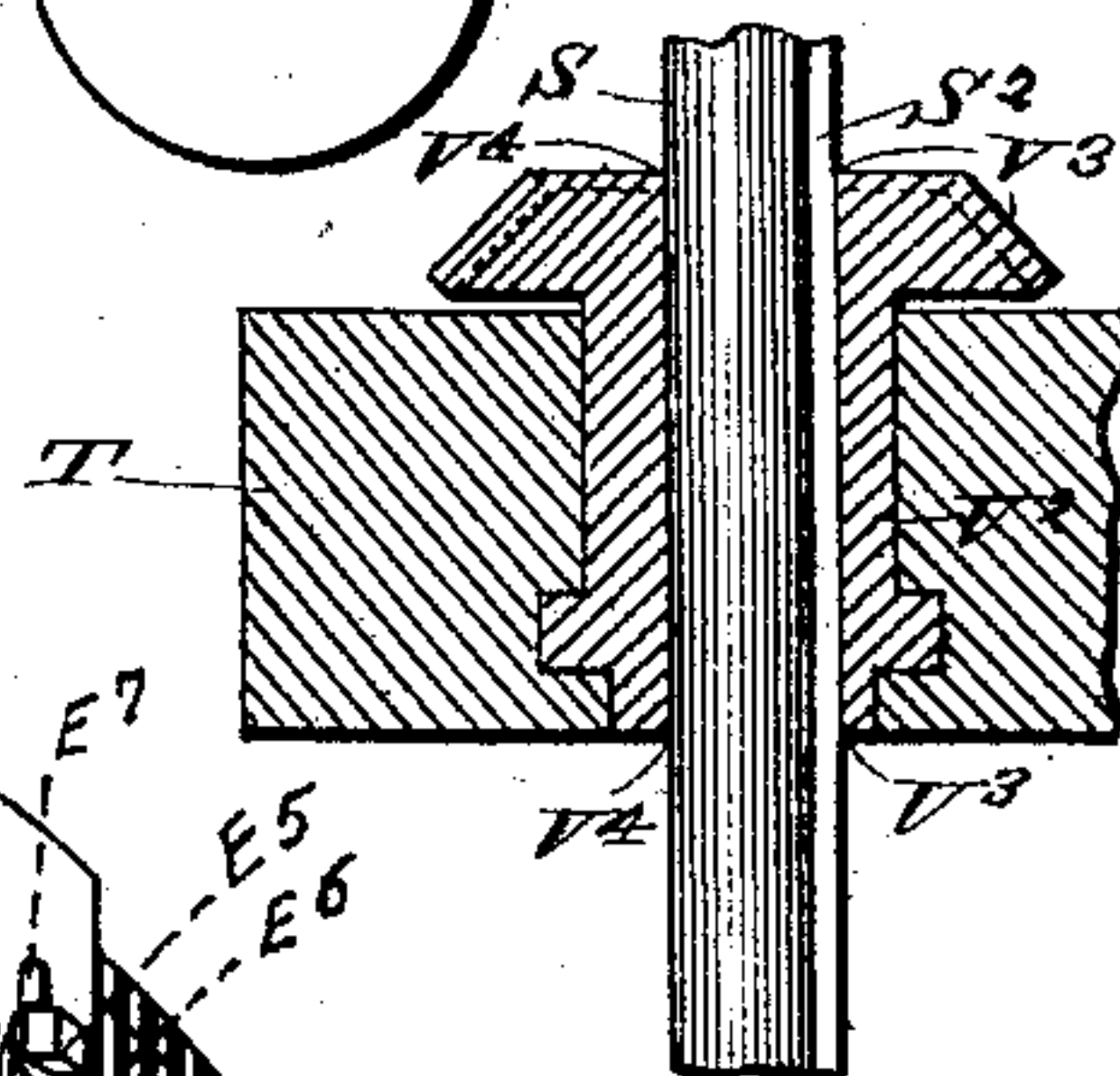


Fig. 2

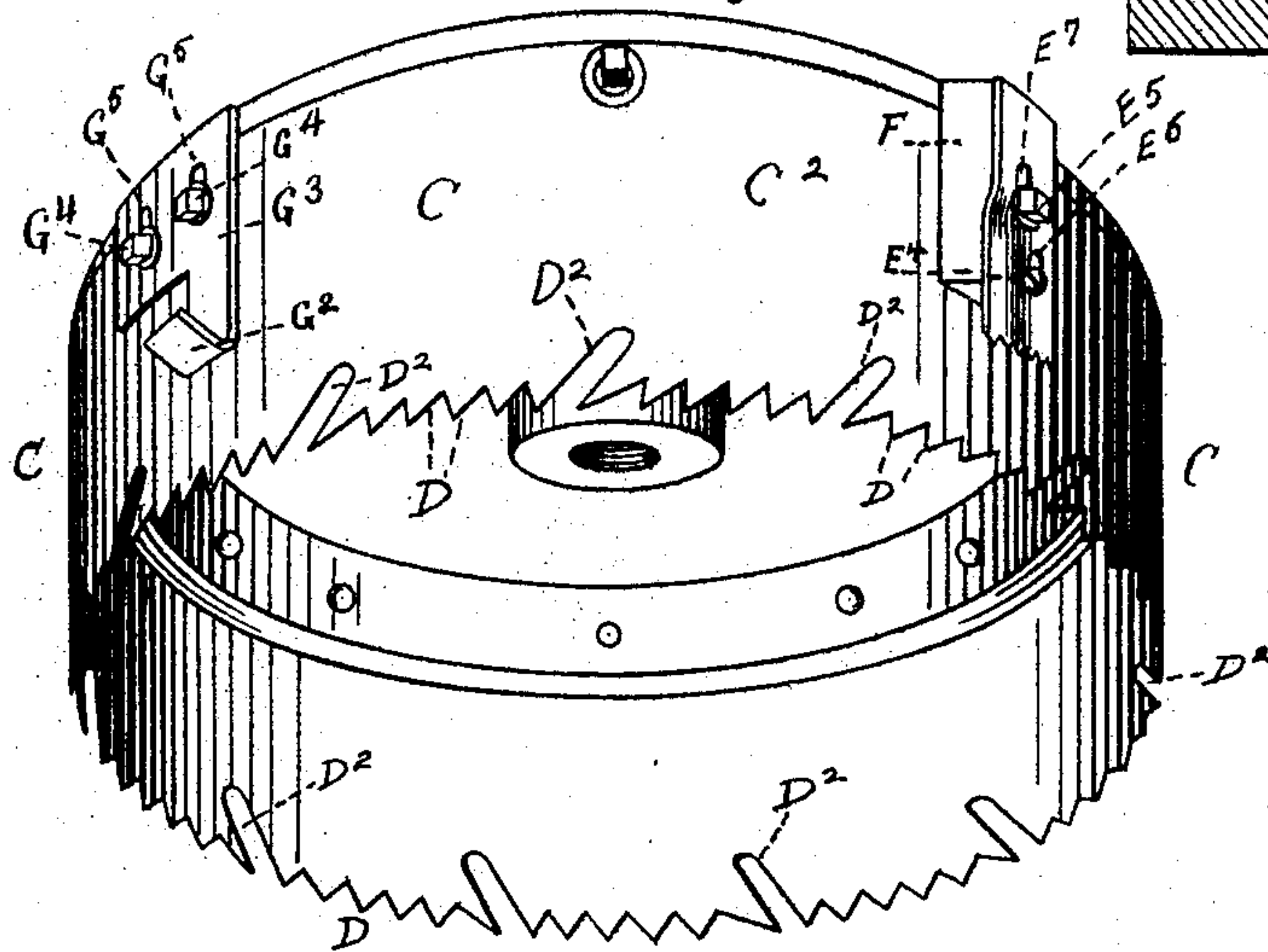


Fig. 13



WITNESSES:

Charles H. Spiegel.
H. Smith

INVENTOR.

George Dillman
BY Wm. Hubbell Fisher
ATTORNEY

No. 765,613.

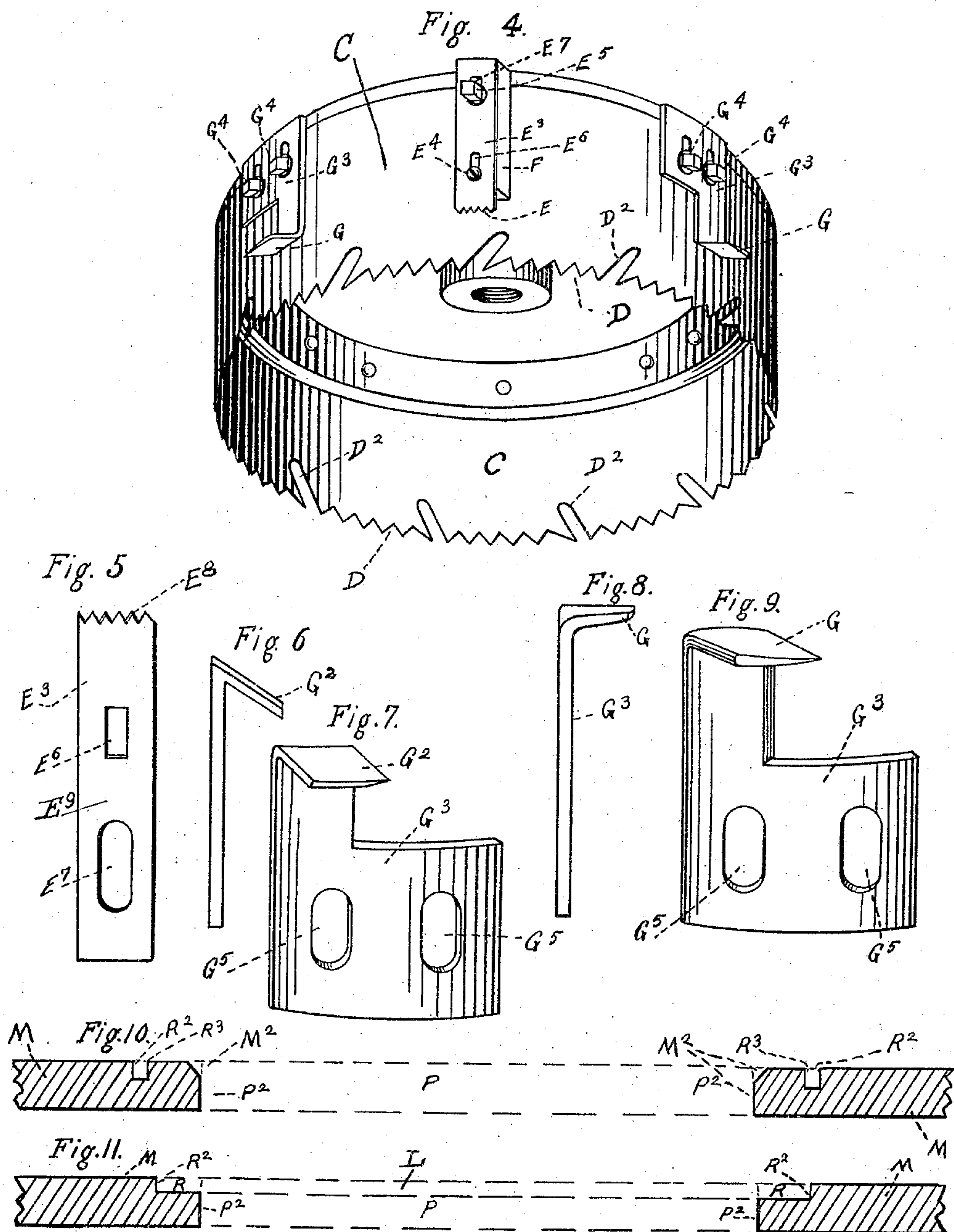
PATENTED JULY 19, 1904.

G. DILLMAN.
TOOL FOR OPERATING UPON CHAIRS.

APPLICATION FILED OCT. 19, 1901.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

Charles H. Spitzel.
H. Smith

INVENTOR.

George Dillman
BY Wm. Russell Fisher
ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE DILLMAN, OF WILLIAMSBURG, OHIO.

TOOL FOR OPERATING UPON CHAIRS.

SPECIFICATION forming part of Letters Patent No. 765,613, dated July 19, 1904.

Application filed October 19, 1901. Serial No. 79,222. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DILLMAN, a citizen of the United States, and a resident of the town of Williamsburg, in the county of Clermont and State of Ohio, have invented certain new and useful Improvements in Tools for Operating upon Chairs which are to Receive Bottoms of Certain Kinds, as hereinafter described, of which the following is a specification.

The object of my invention is to produce mechanism which will rapidly and accurately prepare that part of the chair-bottom which is to be provided with a supplemental bottom of wood or similar material or of cane.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1, Sheet 1, is a view in perspective of a machine and my tubular mechanism for operating upon the chair-bottom frame-piece for the reception of a supplemental bottom of wood or of similar material. Fig. 2, same sheet, is a view, enlarged, in perspective of the tubular tool shown in Fig. 1. Fig. 3, same sheet, illustrates in elevation the adjunct cutter for use in connection with the tubular saw. Fig. 4, Sheet 2, illustrates in perspective the same tubular saw when provided with additional adjuncts and all adjuncts arranged to form the annular recess R shown in Fig. 11. Fig. 5, Sheet 2, is an elevation of the additional adjunct cutting device carried by the tubular saw. Fig. 6, Sheet 2, represents an edge elevation of one of the cutting-tools, having an inclined blade to make an inclined or beveled cut, as hereinafter specified. Fig. 7, Sheet 2, is a side elevation of the same. Fig. 8, Sheet 2, represents an edge elevation of one of the cutting-tools whose blade is adapted to make a cut at right angles to the cut made by the adjunct cutting device shown in Fig. 5. Fig. 9 represents a side elevation of the tool shown in Fig. 8. Fig. 10 is a vertical cross-section of a portion of a chair-bottom after the latter has been operated upon by my in-

vention in preparation for receiving the cane bottom and showing the result of the work of my tool. Fig. 11 is a vertical cross-section of a portion of a supplemental chair-bottom after the latter has been operated upon by my invention, the part being shown as ready to receive a supplemental bottom of leather or other desirable material. Fig. 12 is a section showing the relative construction of the shaft S, the gear by which it is rotated, and the bearing which supports the gear. In this view the bearing and the gear are in section and the shaft is left in elevation. Fig. 13 represents a transverse section of the shaft S, taken at any point along its length.

I will now proceed to describe my invention in detail. The machine which is to operate my invention may be of any operative kind or type. It must provide a suitable support or rest for that portion of the chair which is to be cut out and which is to receive the supplemental bottom. It must have means for sustaining the tubular saw, with its adjuncts, and for reciprocating that saw to and from said chair-frame to be worked and for rotating the tubular saw and its adjuncts. One kind of such machine is shown, and, briefly described, is as follows:

A is the supporting-frame of the machine.

B is a rest or support for the chair frame-piece to be worked and has a central opening B², large enough to permit the tubular saw while cutting through the frame-piece to pass down through, so as not to cut the support.

C indicates the tubular saw supported by and fixed on a shaft S, rotatable in bearings T T, respectively supported on bracket-pieces T² T². Means for rotating the shaft S consist of the bevel-gear V on shaft S and bevel-gear W on shaft W², supported in bearings W³ W³ and operated by the pulley W⁴, W⁵ being a loose pulley. A lever X, pivotally fulcrumed at X², is pivotally connected to the upper end of the shaft S at X³. The end X⁴ of the lever X carries a weight X⁵ to balance the weight of the saw C and shaft S. The shaft S being duly rotated in turn duly rotates the tubular saw C. Elevation or depression of lever X at its handle operates to move up or down the shaft S and the saw C.

The hollow shaft V^2 of the bevel-gear V rotates in the box or bearing T in the adjacent bracket T^2 . This hollow shaft has a vertical groove V^3 located adjacent to the central aperture V^4 through this gear V . The shaft S carries a feather or spline S^2 , entering such vertical groove V^3 . Thus the shaft S is free to be moved vertically, and yet is at all times compelled to rotate with the gear V as the latter revolves.

Having described one kind of means which can be used to operate my invention, I will now proceed to describe my invention in detail.

The tubular saw C carries teeth D upon its edge, formed suitably to operate in connection with the circular motion of the saw. I have found by experimentation that such a saw when the teeth are continuous clogs, because there is no means of getting rid of the sawdust. To obviate this impediment, I place inclined slots D^2 at intervals in the line of the teeth, thus interrupting the teeth at intervals. These slots D^2 are places where the sawdust can gather and get out of the way of the teeth, thus leaving the latter free to act directly upon the wood. Upon the outer periphery of the cylinder or barrel C^2 of the saw is located an adjunct saw or cutter E^3 , having teeth E^8 . There are preferably two such, respectively located on opposite sides of the saw-barrel. Each of the adjunct saws is mounted upon a bed or offset F . The latter is of a thickness from the saw E to the barrel C^2 equal to the distance that the saw-cut or groove cut by saw-teeth D is to be from the saw-cut made by the saw-teeth E^8 , such distance being measured radially from the axis of the saw-barrel. Each of these adjunct saws E^3 is held in place upon its bed F by means of bolts or screws E^4 E^5 , passing through the plate E^{10} of the saw and into the bed F .

I find it desirable to give the saw E^3 a capacity for adjustment toward the saw-teeth D and away from them. This I do by means of slots. To this end I make the openings E^6 E^7 in the plate of the saw E^3 , through which the bolts E^4 and E^5 , respectively, pass in the form of slots, as shown.

In connection with the adjunct saw E^3 is a wood-separating device, whose blade G is mounted on a suitable plate G^3 , secured by bolts G^4 G^4 through openings G^5 G^5 to the barrel C^2 of the saw C . These bolts are relatively located so as to best brace the plate G^3 and its cutting-tool G against displacement. The openings G^5 are of a slotted form to allow of the adjustment of the tool G nearer to or farther from the cutting edge D of the tubular saw.

As there are preferably two adjunct saws E^3 E^3 , so there are also preferably two cutting-tools G , respectively located on opposite sides of the tubular saw.

The mode in which this combined tool is

used and the resultant product is as follows: There is first made ready a wooden piece which is to form the outer portion of the chair-bottom and to support the supplemental central bottom of leather or the like. More commonly this outer portion of the chair-bottom is made of several pieces, and these are duly and strongly united. This outer portion of the chair-bottom I will for convenience hereinafter term the "bottom-frame." This bottom-frame M must have a circular opening P cut through it. It must also have an annular recess R extending from this opening back a desirable distance sufficient to receive the leather or like central (supplemental) bottom and to afford a place where such leather bottom can be fastened in place. In Fig. 11 this latter bottom L is shown in dotted lines. In effecting this shaping of the bottom-frame the rotating tubular saw is moved down and its teeth D cut whatever of the central portion of the frame M is present and leave the hole P . The edge P^2 is formed by the saw D thus descending and cutting the wood. The rotating saw-cylinder continues to descend, and the teeth E^8 of the adjunct saws cut into the bottom-frame at the line R^2 and cut there an annular groove. Meanwhile the separating knives or cutter G shave down and off the wood R^3 (see Fig. 10) lying between the edge P^2 and the groove R^2 to a horizontal plane even with the bottom of the groove R^2 . The bottom-frame is now provided with the recess R and with the opening P and is in readiness to receive the central bottom.

For shaping the chair-bottom for the application of the supplemental (central) cane or similar bottom the tubular saw receives, preferably, an additional set of adjunct saw-teeth. The saw D is duly employed to form the hole P and the adjunct teeth E to cut an annular groove at R^2 . A second set of adjunct teeth are employed to cut the groove at R^2 wider. Hence this second set of adjunct teeth E^2 are set upon a bed F and are preferably connected in the same adjustable manner as the adjunct teeth E are to the bed; but they are set farther from the barrel or cylinder C^2 . As the result, they cut out the wood at R^3 alongside of the groove R^2 , made by the teeth E , and thus make the groove of a desirable width to receive a spline. It is to be understood that the supplemental cane or like seat is laid over the opening P and its edge portion lies over the groove R^2 R^3 . A spline is then laid upon the supplemental seat and above the groove and pressed down forcibly, carrying the cane into the groove, the spline being now wedged in the groove. When the annular corner at M^2 is left sharp, it will when the cane is pressed down by a person sitting thereon operate to cut the cane at this point much sooner than it otherwise would. To obviate this I use on the tubular saw a cutter G^2 , substantially the same as the cutter G

and secured to the tubular saw-barrel in substantially the same way, with the exception that the blade of the cutter is somewhat inclined and is set nearer to the plane of the saw C. Then while the tubular saw is rotating and the teeth E E^2 are forming the groove R^3 R^2 the cutter G^2 shaves off the corner at M^2 , leaving it beveled, so that it is no longer sharp and cannot injure the cane.

Among the advantages to be derived from my invention are the following: The central aperture in the seat is cut at substantially the same time as is the recess or annular channel which surrounds the central aperture and which is the means whereby the central or supplemental seat is supported.

The entire operation is performed with great accuracy and celerity, and the resultant product is ready for immediate use—that is to say, is ready for the application of the leather or cane, &c., seat thereto and for the final attachment of the same to the seat.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of the barrel having teeth on its edge, and offsets on the barrel carrying a cutting device for cutting an annular groove or kerf other than that cut by the edge teeth, and a knife or cutter for operating at the edge of the material where the edge teeth operate, substantially as and for the purposes specified.

2. The combination of the barrel C^2 provided at its edge with saw-teeth D , teeth E , offset on the barrel carrying the teeth E , and the knife or cutter G , carried by the barrel, substantially as and for the purposes specified.

3. A tool consisting of the barrel C^2 , teeth D thereon, teeth E offset from the barrel, teeth E^2 staggered relatively to teeth E , substantially as shown, and offset supporting knife or cutter, at the side of the barrel, substantially as and for the purposes specified.

4. The combination of the barrel C^2 provided at its edge with saw-teeth D , teeth E , offset on the barrel carrying the teeth E and the knife or cutter G , inclined to the peripheral plane of the cut made by the saw-teeth D , substantially as and for the purposes specified.

5. In combination, the barrel having edge teeth D , and the cutting means E , E^2 , and E^3 , E^8 , the shanks E^9 of these parts having slots, offsets on the barrel on which these means are located, and other cutting means as G , G , whose shanks are duly slotted, and screws, or the like through the slots, for connecting such means to the barrel, substantially as and for the purposes specified.

GEORGE DILLMAN.

Attest:

HATTIE DAVIDSON,
E. W. McMILLEN.