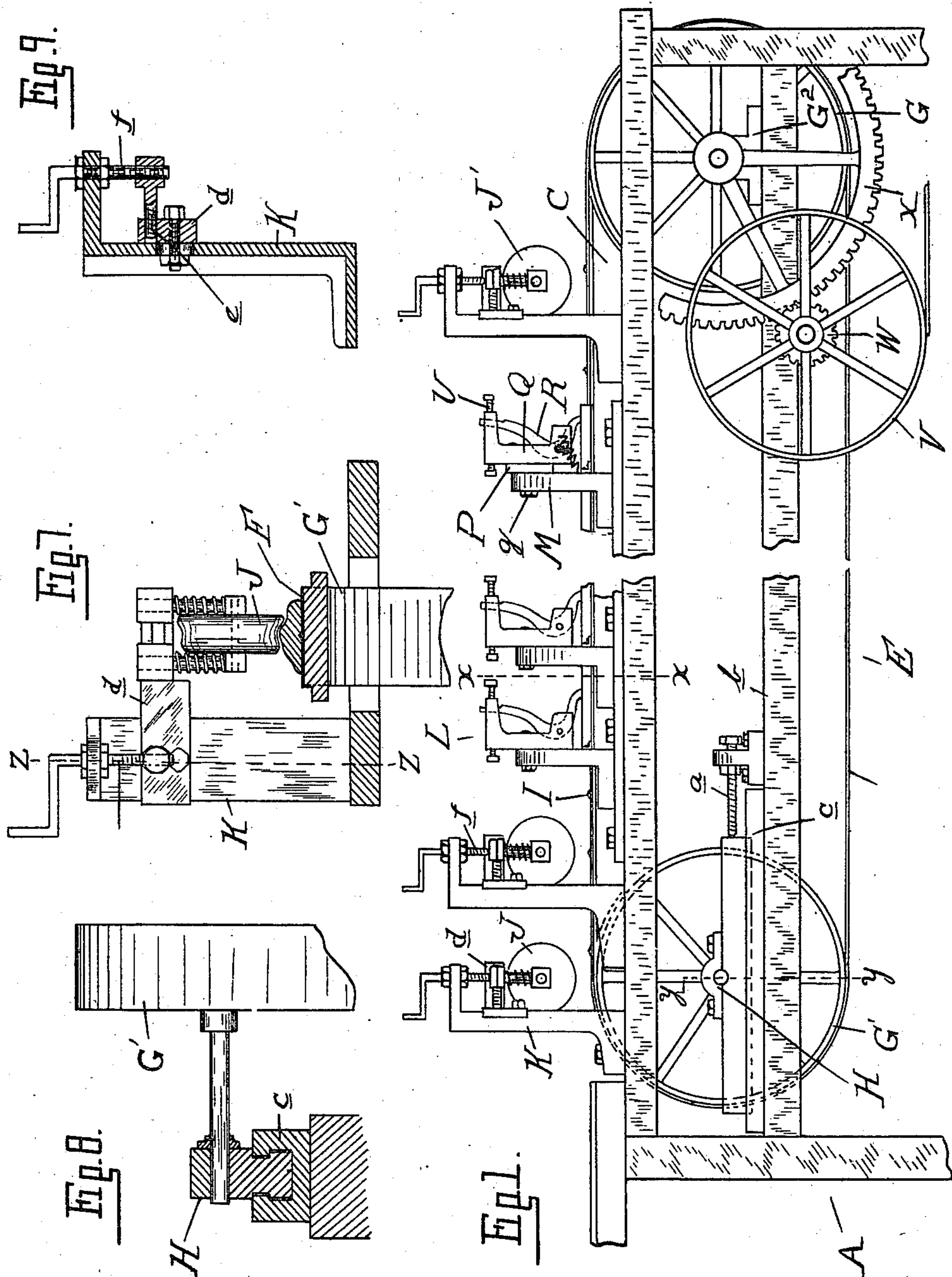


J. J. MURDOCH.  
BURNISHING MACHINE.  
APPLICATION FILED MAR. 27, 1909.

975,886.

Patented Nov. 15, 1910.

2 SHEETS-SHEET 1.



Witnesses  
W. B. Ford  
H. B. Ukenap

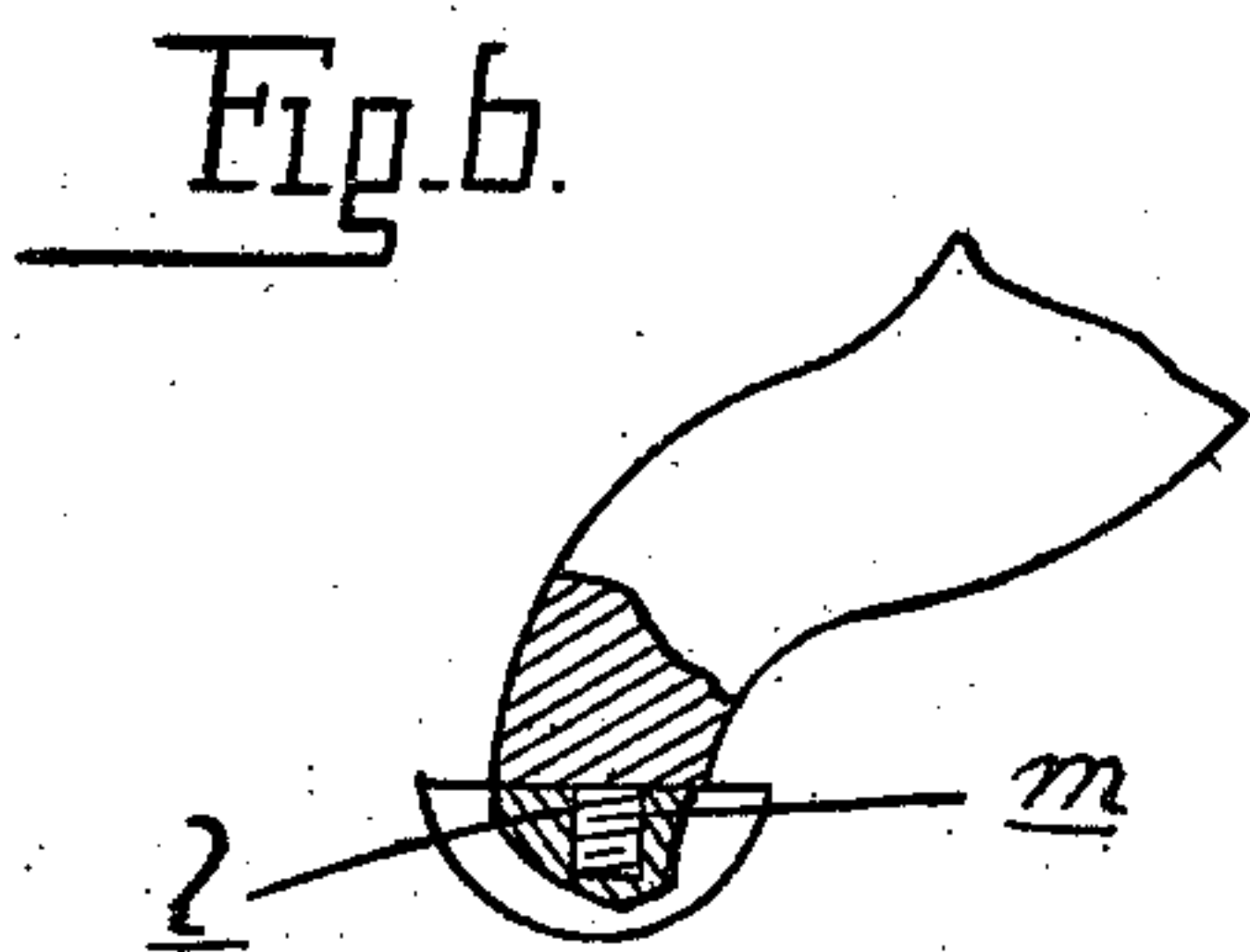
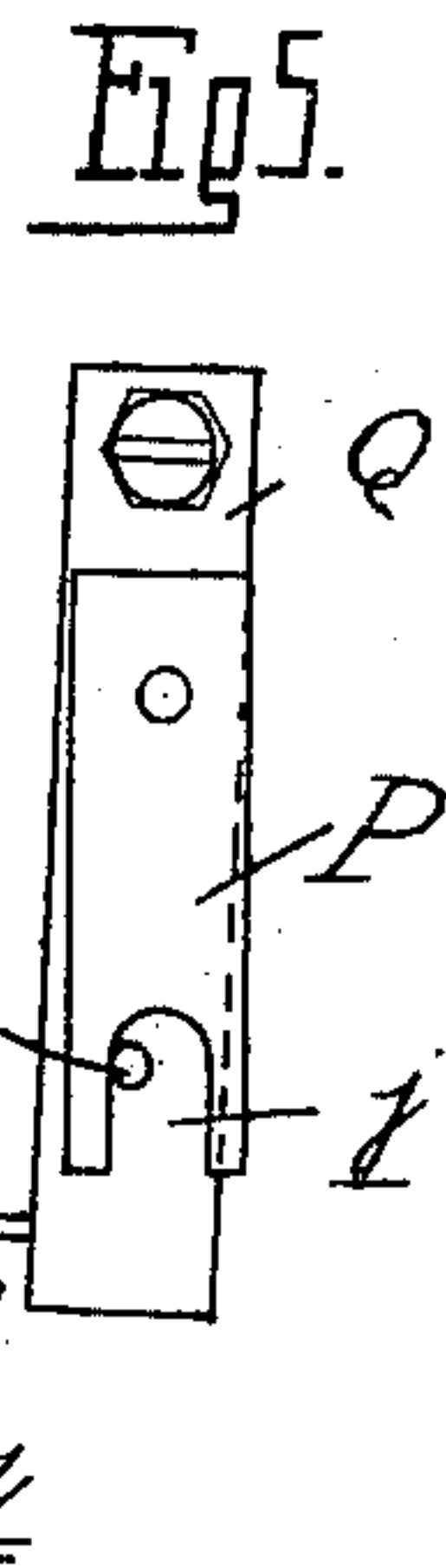
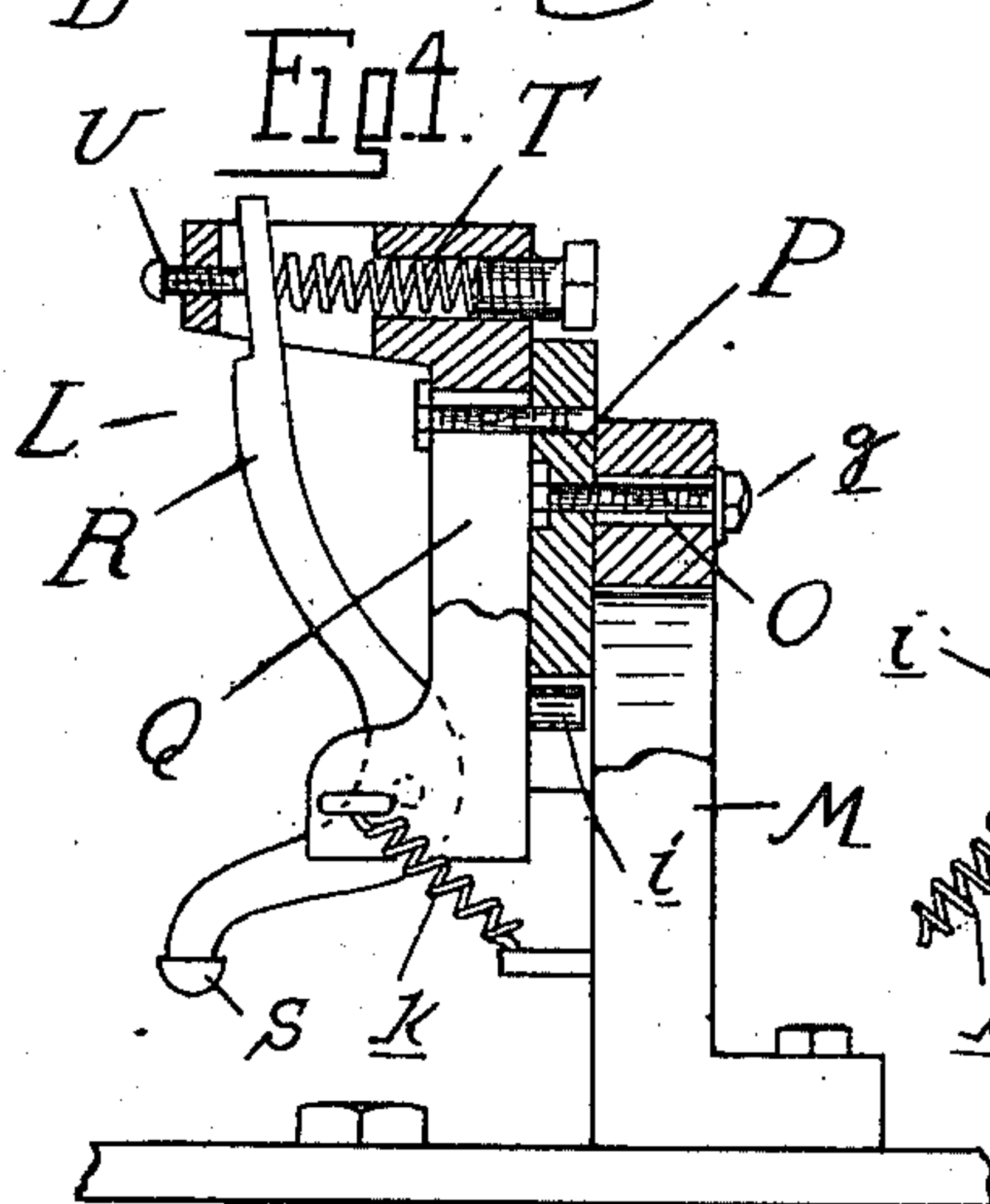
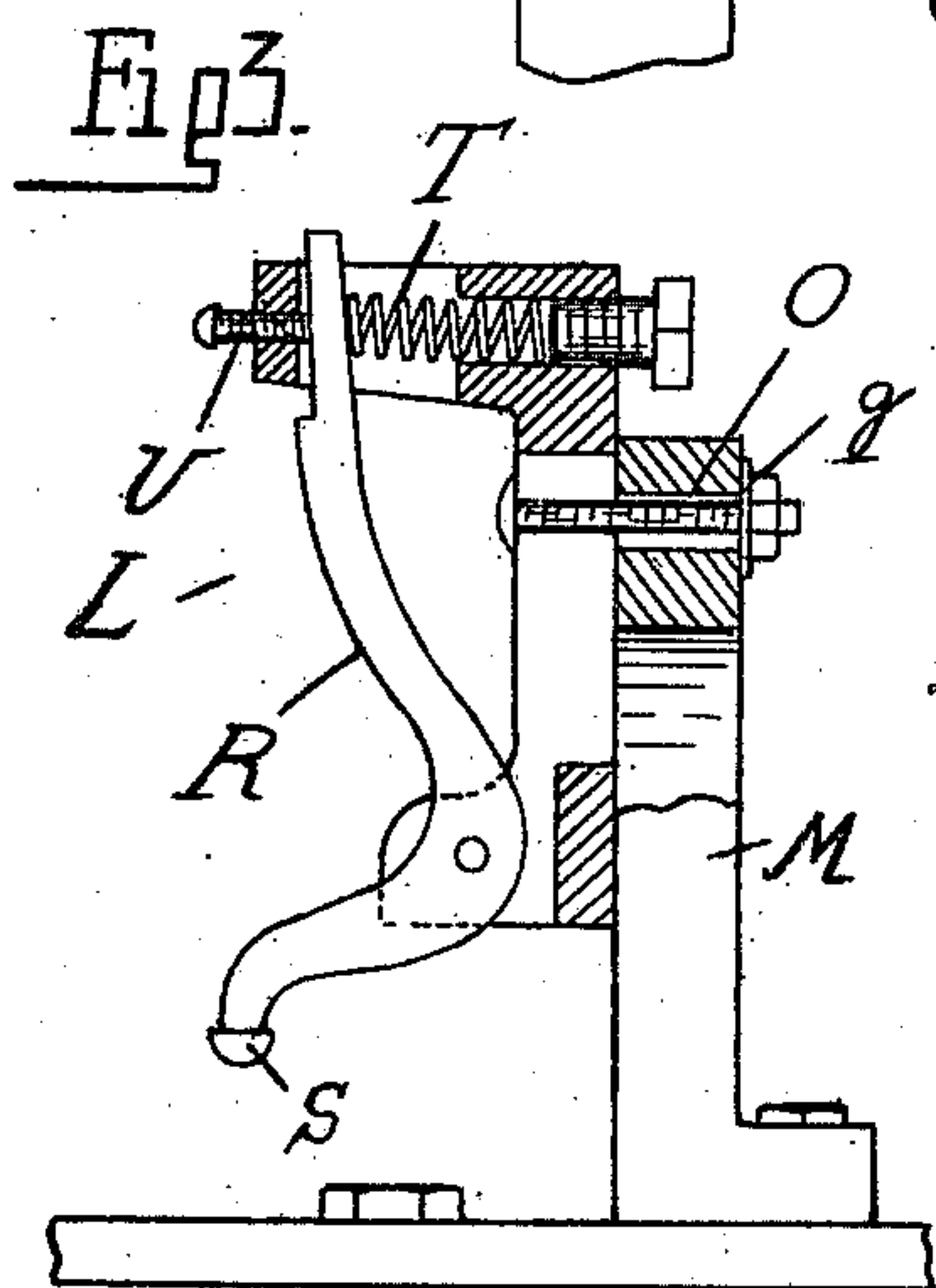
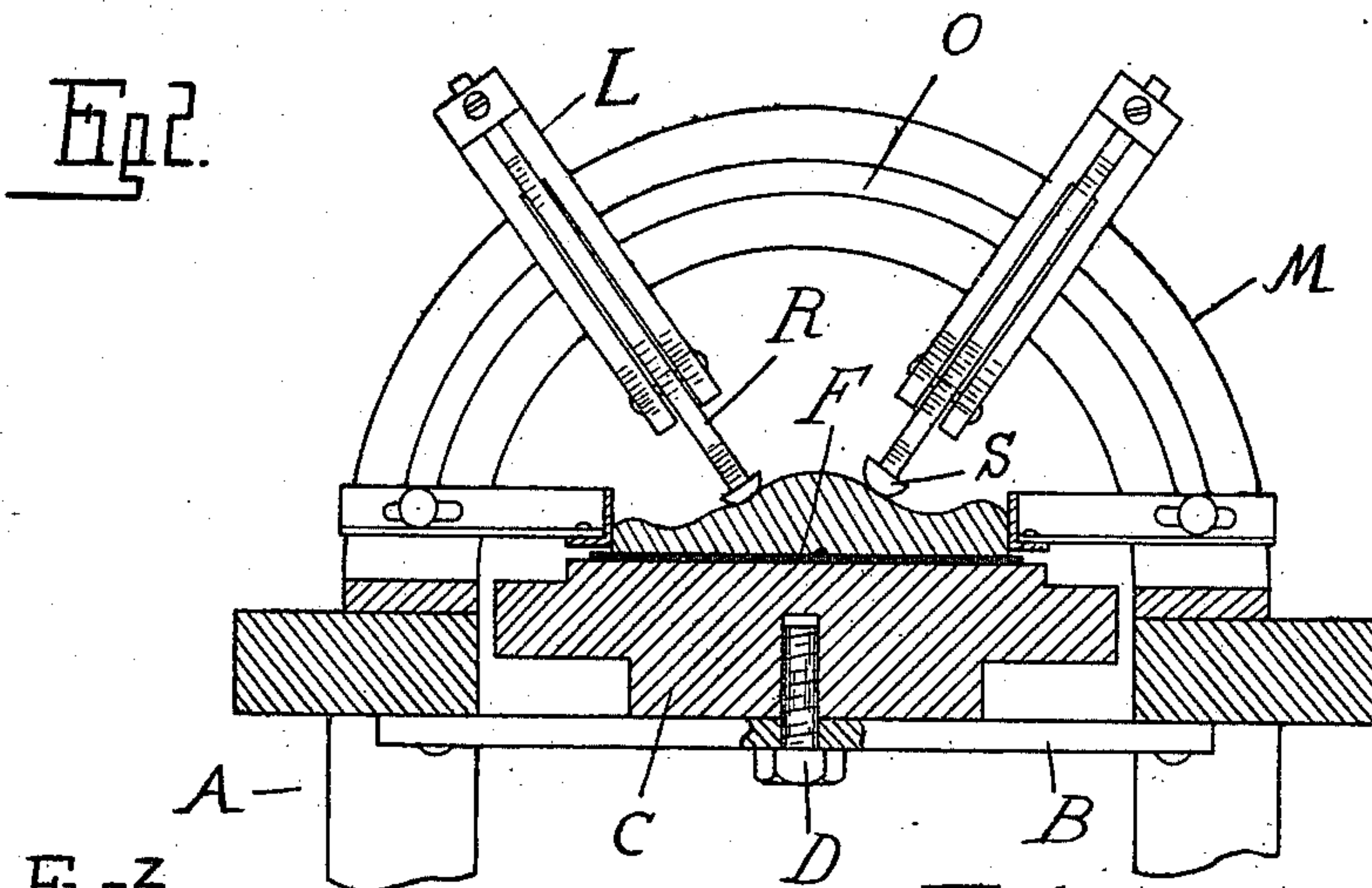
Inventor  
James J. Murdoch  
By *Whittemore* *Hubert* *Whittemore*  
Attys

J. J. MURDOCH.  
BURNISHING MACHINE.  
APPLICATION FILED MAR. 27, 1909.

975,886.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 2.



Witnesses  
*W. D. Ford*  
*W. B. Knapp*

Inventor  
James J. Murdoch.  
By *Whittemore* *Whittemore*  
*Attys*



# UNITED STATES PATENT OFFICE.

JAMES J. MURDOCH, OF DETROIT, MICHIGAN, ASSIGNOR TO DWIGHT LUMBER COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

## BURNISHING-MACHINE.

975,886.

Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed March 27, 1909. Serial No. 486,218.

*To all whom it may concern:*

Be it known that I, JAMES J. MURDOCH, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Burnishing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to a burnishing machine, especially designed in the present instance for burnishing molding, and has for its primary object the production of mechanism of this character capable of producing as nearly as possible the effect of hand burnishing at a greatly reduced cost of labor and without injury to the article to be burnished.

With this object in view, the invention consists in the novel construction of the burnishing machine, in the peculiar arrangement and combination of its parts, and in various details of construction as hereinafter set forth.

In the drawings,—Figure 1 is a side elevation of my improved burnishing machine; Fig. 2 is a section on line  $x-x$  of Fig. 1; Figs. 3 and 4 are enlarged detached views of the burnishing implements and their supports; Fig. 5 is a rear elevation of the burnisher holder and support shown in Fig. 4; Fig. 6 is an enlarged sectional view, illustrating the means for connecting the burnisher proper to the rocker or supporting arm; Fig. 7 is an enlarged sectional elevation, showing the mechanism for affixing the article to the carrier; Fig. 8 is a section taken on line  $y-y$  of Fig. 1; and Fig. 9 is a section taken on line  $z-z$  of Fig. 7.

In the drawings thus briefly described, A designates the supporting frame of the machine, provided with a plurality of cross bars B on which is mounted the machine bed C, and suitably secured by bolts as D.

A carrier E is employed for conveying the article or articles to be burnished beneath the burnishing implements, and in this instance I have shown the carrier as an endless metallic band F running upon band wheels G G' mounted respectively in fixed and adjustable bearings G<sup>2</sup> and H on the framework. The carrier as shown is so associated with the bed as to travel thereover

longitudinally of the machine and to engage the bed so as to form a rigid support for the article. Any preferred mechanism may be employed for effecting a relative adjustment between the band wheels for the purpose of taking up slack, the means usually employed however comprising a pair of screw-bolts  $a$  mounted upon the side sills  $b$  of the framework, the complementary bearings H, and a pair of guides  $c$  in which the bearings are adapted to slide, these screw-bolts extending in operative relation to the bearing in the manner indicated in Fig. 1.

Means are provided for holding the article to be burnished upon the traveling band, and where the article is a molding the preferred retaining means are in the form of spurs, I, which may be struck up from the band body and are adapted to be forced within the molding, thereby retaining the same in proper position to be operated upon by the burnishers.

At the rear of the machine I employ one or more spring-actuated presser rolls, such as J, adapted to bear against the article to be burnished only to an extent as to press the same upon the band spurs and thereby fix the article upon the carrier. The wheel is preferably mounted upon a plate  $d$  arranged upon a suitable standard K upon the framework for vertical adjustment. The adjusting mechanism for raising and lowering the wheel in relation to the article comprises a bolt  $e$  engaging the plate  $d$ , and a vertical crank-screw  $f$  that serves on rotation to effect the desired adjustment.

Mounted upon the machine bed over the traveling carrier described and in advance of the presser wheel or wheels are the burnishers L, of such number as to operate upon all the surface of the article that is to be finished. Preferably, the burnishers are arranged in a number of sets, and each set upon a suitable support that is detachably mounted upon the framework. By this arrangement and construction I am enabled to properly position upon the several supports the burnishers necessary to operate upon a standard pattern, as for instance a standard form of molding, and to remove the burnishers upon the frames or supports for a different pattern, so that when the same standard form of article is again to



be burnished the supports may merely be replaced in their original positions, thereby dispensing with the necessity of re-setting the individual burnishing implements.

5 The supports referred to are preferably in the form of arched members or frames M adapted to be bolted to the framework, as indicated in Fig. 1, the arched portions extending across the traveling carrier. The  
10 arched section is slotted longitudinally, as at O, and mounted therein for transverse adjustment are one or more plates P, a suitable clamping bolt *g* serving as the adjustable connection. Pivoted upon each of the  
15 plates P for slight lateral rocking movement is a support, as Q, and pivoted within the lower end of the support is a rock arm R, the lower end of which carries a burnisher proper S which may be of any suitable type, as for instance a block of polished  
20 steel having a preferably convex burnishing surface. The rock arm described is normally held in its extreme downward position by a spring T, and the limit of the downward movement of this arm is regulated by a set-screw U. The lateral rocking  
25 movement of the support Q is in turn limited by a pin *i* upon the support which engages a recess *j* in the member P. *k* is a spring connected to the section M and to the member Q, and serves to hold the rock arm in one extreme position in its lateral movement.

The burnisher described and its support is  
35 designed more especially for use where the burnisher proper is to act on a concave surface, as indicated in Fig. 2, the forward and rearward rocking movement of the arm permitting the burnisher to rise and fall as it  
40 travels over the work according to any variations in thickness, while lateral movement permits the burnisher to travel sideways to compensate for any irregularities in the groove.

45 The preferable connection between the burnisher proper and the rock arm is shown in Fig. 6, the burnisher having a socket *l* formed therein, and the arm being provided with a threaded extension *m* which engages  
50 the socket.

In instances where the article to be burnished is a convex surface, provision for lateral rocking movement of the burnisher is not required, and accordingly the block P  
55 and the means for permitting relative transverse movement between the block and support Q may be omitted. Such a construction is shown in Fig. 3. In most instances, however, it is desirable to provide for an  
60 angular as well as a lateral adjustment of the burnishing implement in relation to the work, and for this reason the bolt *g* which permits such adjustment is employed.

Any form of mechanism may be used for  
65 driving the carrier, and I have here shown

for that purpose a pulley V journaled in suitable bearings in the framework and carrying a pinion W which is adapted to mesh with the gear X upon either of the band wheels, as for instance G.

In the operation of the machine, the molding is fed to the rear end of the endless carrier by hand, the forward end of the molding being projected beneath the presser wheel J and by it impressed on the projections on the carrier band. The molding being thus fixed upon the carrier, it is conveyed along the machine beneath the several burnishing implements, which as previously stated are so arranged as to act on  
70 the entire surface to be burnished. By this construction of mechanism it will be seen that no pressure, except that exerted by the burnishing implement, is applied to the surface of the article, so that all danger of  
75 marring or defacing the finishing is obviated. Furthermore, by reason of the number of the burnishers employed and their peculiar mountings, which permit them to be so adjusted as to act upon the entire surface, not only is the hand-polishing effect  
80 attained, but the labor is reduced very materially.

In some instances it may be desired, after the molding has been run through the machine in a forward direction, to reverse its travel, and for this purpose I provide a presser wheel J' at the front end of the machine, which may be used to apply the molding to the carrier in the same manner as the  
85 presser wheel J previously described. Only one or one set of said presser wheels at one end of the machine, however, is employed at a time.

What I claim as my invention is,—

1. In a burnishing machine, the combination with a bed, of an arched support thereon, an endless carrier arranged for travel over the bed beneath the support, and a burnisher mounted upon the support and adjustable longitudinally thereof transversely of the bed.

2. In a burnishing machine, the combination with a support, of an endless metallic band arranged for travel thereover and having a plurality of projections extending from the band body adapted to engage and feed the work, and burnishing means in operative relation to the band.

3. In a burnishing machine, the combination with a bed, of a carrier arranged for travel thereover, retaining means upon the carrier for the article to be burnished, mechanism for engaging the article with the retaining means, and burnishing means in operative relation to the carrier.

4. In a burnishing machine, the combination with a bed, of an endless carrier arranged for travel thereover, a plurality of projections upon the carrier adapted to en-

70

75

80

85

90

95

100

105

110

115

120

125

130



gage and retain the article, and a resilient pressing member in operative relation to the carrier for effecting the said engagement.

5 5. In a burnishing machine, the combination with a carrier, of a support in operative relation thereto, a member mounted upon the support for lateral adjustment relative to the carrier, a second supporting member pivoted upon the first-mentioned support for lateral swinging movement, and  
10 a burnishing implement carried by said last-mentioned member.

15 6. In a burnishing machine, the combination with a carrier, of a support in operative relation thereto, a member pivoted to the support for rocking movement transverse to the carrier, means for limiting said rocking movement, and a burnishing implement carried by said member.

20 7. In a burnishing machine, the combination with an endless carrier, of a support in operative relation thereto, a rock arm upon the support, and a burnishing implement having a stud and socket engagement with  
25 the rock arm.

8. In a burnishing machine, the combination with a support, of a member adjustably secured to said support, the connection between said support and the member permitting of a limited lateral rocking move-

ment of the latter, a spring-pressed rock arm carried by said member, and means for limiting the rocking movement of the arm.

9. In a burnishing machine, the combination with a bed, of an endless carrier arranged for travel thereover, retaining means upon the carrier, and a spring-pressed roller for pressing the article into engagement with said retaining means. 35

10. In a burnishing machine, the combination with a bed, of an arched support thereon, a traveling carrier arranged for movement over the bed beneath the support, and a burnisher mounted upon the support and adjustable longitudinally thereof transversely of the bed. 45

11. In a burnishing machine, the combination with a bed, of a support thereon provided with an arched guideway extending longitudinally thereof transversely of the bed, a burnisher mounted upon the support and adjustably engaging said guideway, and means for feeding articles over the bed. 50

In testimony whereof I affix my signature in presence of two witnesses.

JAMES J. MURDOCH.

Witnesses:

NELLIE KINSELLA,  
JAMES P. BARRY.