

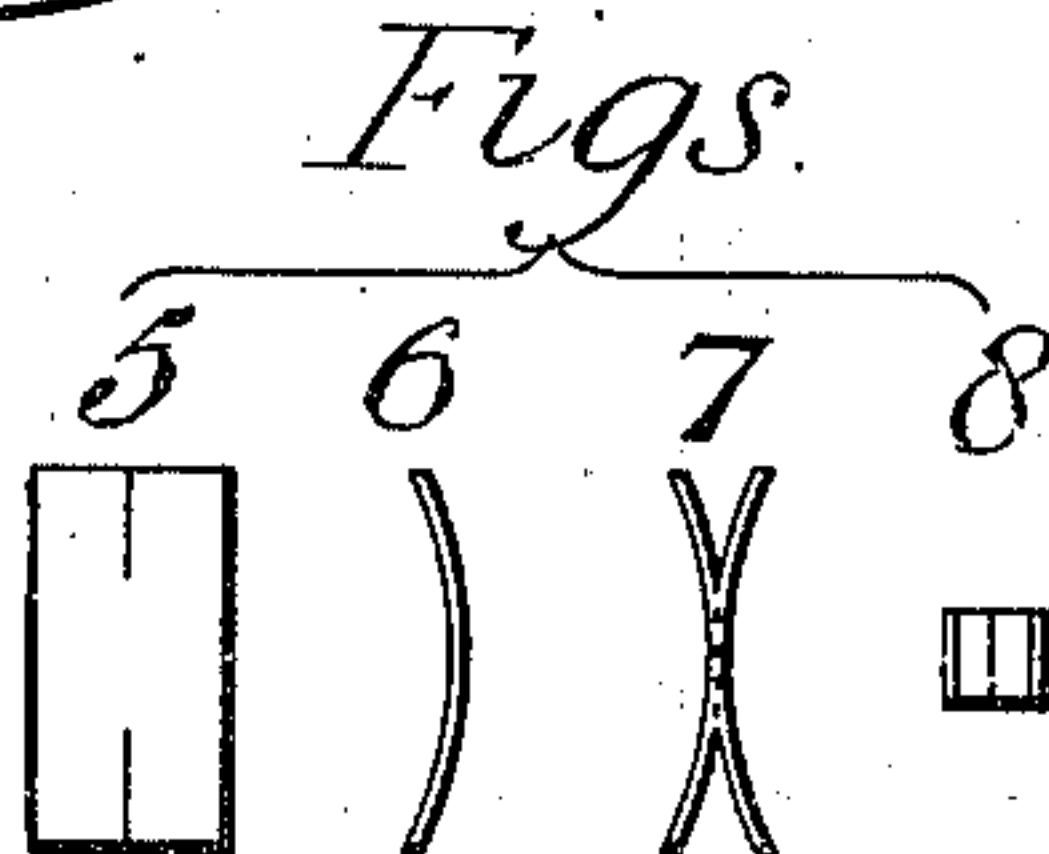
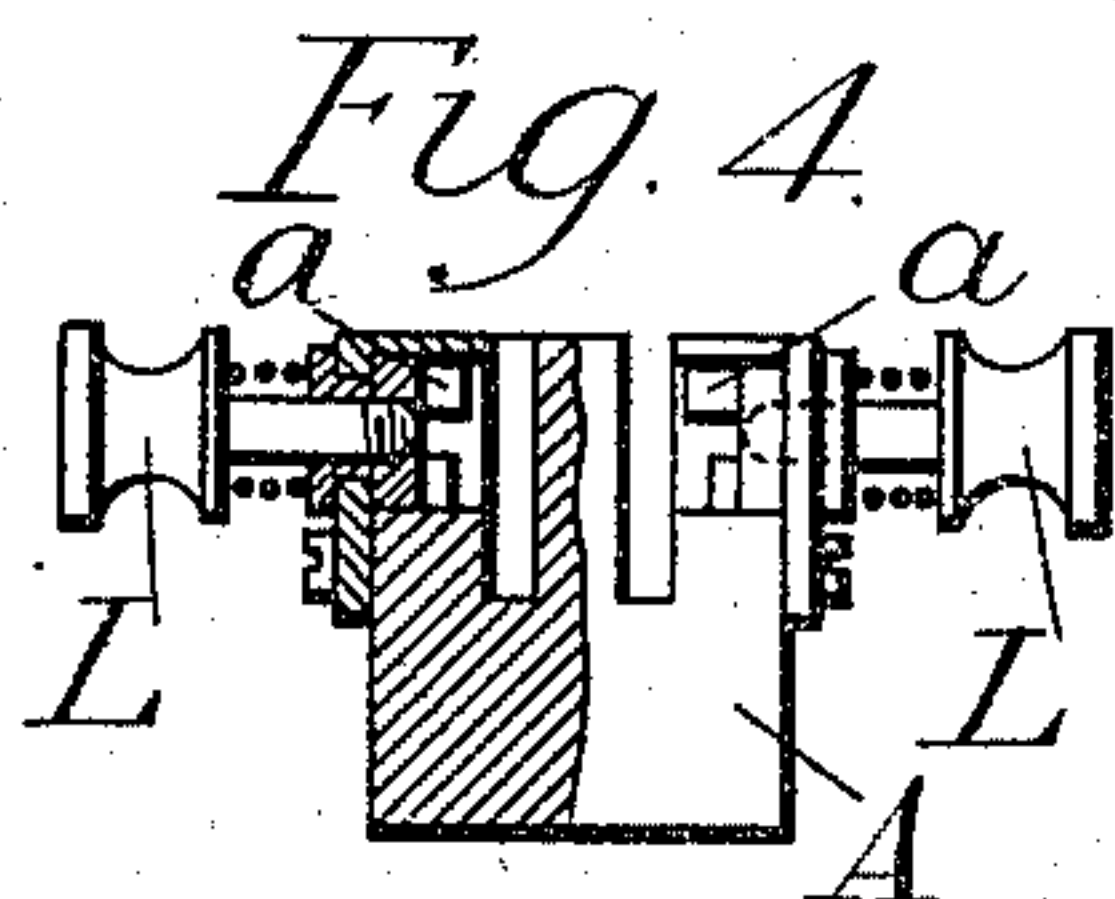
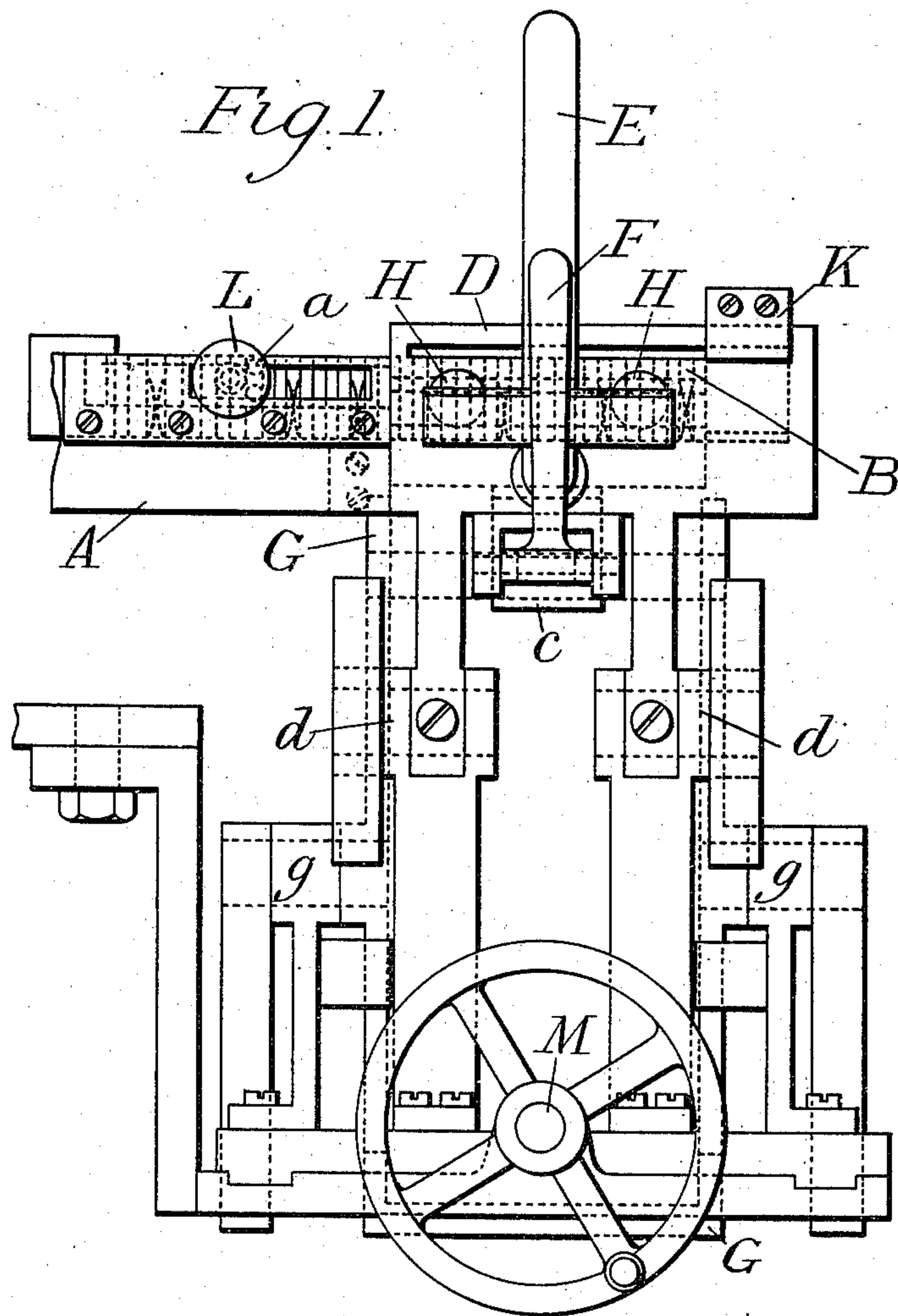
(No Model.)

3 Sheets—Sheet 1.

C. F. HILDER.  
TYPE JUSTIFYING MECHANISM.

No. 565,749.

Patented Aug. 11, 1896.



Witnesses,  
Thos. A. Linn  
Robert Everett.

Inventor:  
Charles F. Hilder.  
By James L. Norris.  
Atty.

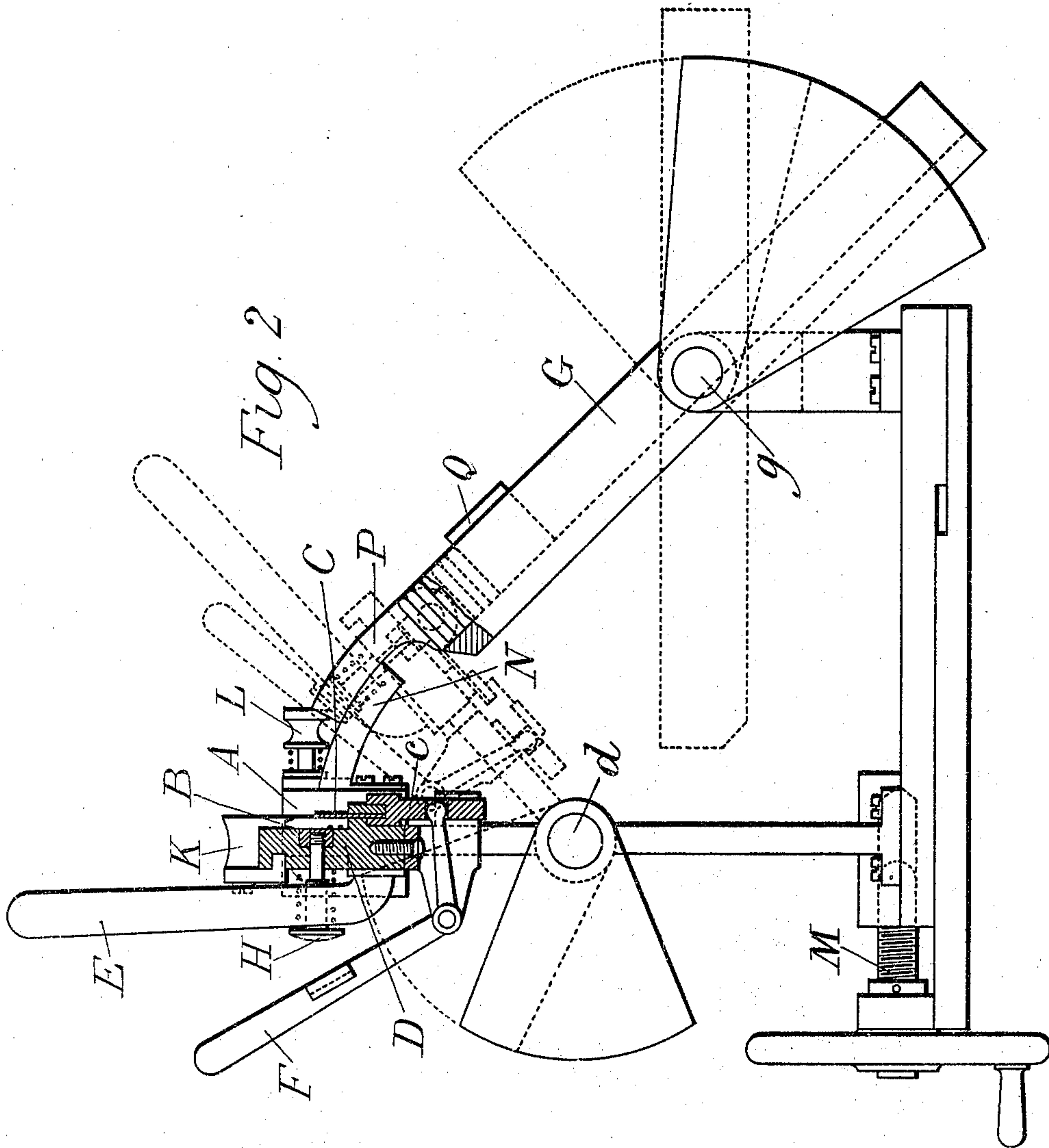
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C. F. HILDER.  
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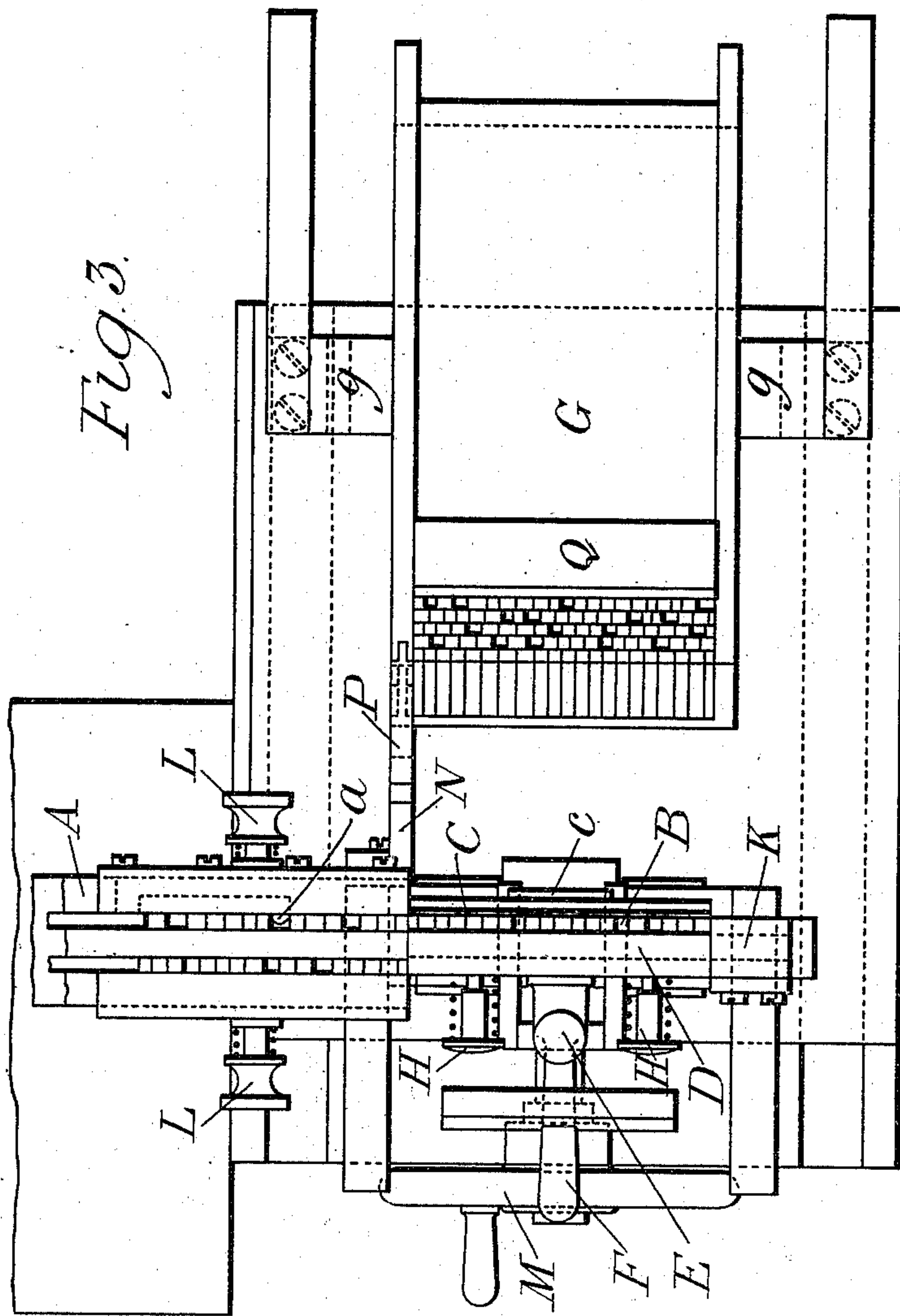
(No Model.)

3 Sheets—Sheet 3.

C. F. HILDER.  
TYPE JUSTIFYING MECHANISM.

No. 565,749.

Patented Aug. 11, 1896.



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*Inventor:*  
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# UNITED STATES PATENT OFFICE.

CHARLES F. HILDER, OF LONDON, ENGLAND.

## TYPE-JUSTIFYING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 565,749, dated August 11, 1896.

Application filed August 15, 1895. Serial No. 559,375. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES FREDERICK HILDER, mechanician, a citizen of England, residing at Brompton House, Hampton, London, in the county of Middlesex, England, have invented certain new and useful Apparatus for Facilitating the Justifying of Lines of Types Composed by Machinery, of which the following is a specification.

My invention relates to apparatus whereby the justifying of lines of types composed by machinery is facilitated. It is to be understood that the types as they are composed are pushed successively into a trough or groove which may be many times the length of the justified line. In order to economize time, I preferably provide two of these troughs side by side, forming them as parallel grooves in a bar of metal, by moving which laterally either groove can be brought to face the discharging-mouth of the composing-machine. While the one is being charged with types the other can have its types divided into justified lines, and so on alternately.

For facilitating the justifying operation I use in the composing-machine specially-constructed elastic space-types, which normally are thicker than spaces usually are, but which can be compressed to a smaller thickness. In dividing off lines of type composed with these spaces I remove from the groove, in the manner hereinafter described, a number of the types and spaces which occupy a length greater than that of the line, and then compress this into a movable trough, which is of the proper length, and from which I transfer the line thus mechanically justified into a suitable galley, as I shall describe, referring to the accompanying drawings.

Figure 1 is a front view, Fig. 2 is a side view partly in section, and Fig. 3 is a plan, of apparatus according to my invention for justifying lines of type and transferring them to a galley. Fig. 4 is a part section and part end view of the two type-grooves. Figs. 5, 6, 7, and 8 illustrate the construction of the elastic space-types.

A is the bar, having two parallel grooves, one of which (that on the right hand) has been filled by the composing-machine with types and spaces. Near the mouth of each of the grooves in A there is a push-button L, at-

tached to a piece which is fitted to slide in a slot formed in the side of A. The sliding piece has at its upper part a projection *a*, which is usually held back by a spring arranged between the shoulder of the button L and a washer on the stem of L, which slides along the side of A, but which by pushing in the button L can be made to project over a space between the two types that are separated by the space.

B is a short trough formed in a recess on the side of a block D, between that and a rule or thin bar C, held in a sliding piece *c*, which, by means of a lever-handle F, can be slid down, leaving one side of the line of types in trough B exposed. The block D is pivoted on horizontal trunnions *d* below, so that by means of a handle E it can be turned through a circular arc to the position indicated by the dotted lines in Fig. 2.

G is a galley pivoted on a horizontal axis *g*, so that it can take an inclined position, as shown, or can be turned down to the horizontal position indicated by dotted lines in Fig. 2. Both the block D and the galley G are suitably counterpoised.

The bearings for the trunnions *d* and the axis *g* are formed in a frame which can be slid to and fro by turning a setting-screw M.

Referring to Figs. 5, 6, 7, and 8, the elastic space-type is made by taking a rectangular piece of thin sheet elastic metal, such as steel, cutting a slit from each end less than half-way, so as to leave a little metal in the middle, as shown in Fig. 5, bending the metal, as shown in Fig. 6, either before or after the slitting, then folding the one side over the other, bending the ligament of metal in the middle, thus forming the elastic space shown in side view in Fig. 7 and in plan in Fig. 8, consisting of the two thicknesses of sheet metal held together at the middle with their upper and lower limbs spreading apart.

The end of the bar A has projecting from it a segmental guard N, and the side of the galley G has pivoted to it, near its end, another segmental guard P, which overlies N. The trough B has at its end a block or follower K, which can be set in position to determine the length of line held in the trough. The galley G has a block or follower Q, which can slide between the sides of the galley, but



has suitable springs at its ends causing friction sufficient to prevent it from sliding down subject to the weight of the types above it.

The apparatus operates as follows: By means of the screw M the frame carrying the trunnions of D is moved so as to bring the end of the short trough B into exact coincidence with the end of the groove of A which is to be emptied of its types. A number of types are advanced by a follower advanced by cords and weights, as usual, or otherwise, so as to fill the short trough B. The operator then moves the button along the slot of A till its projection *a* comes to a space at a little distance from the end of A. He presses the button, thus pushing *a* over the space between the two types which it separates. He then slides the button along the slot, thus pushing into the trough B a few more types and compressing the spaces already in the trough, thus charging it with a justified line of the proper length. By means of the handle E the operator moves the block D over to the dotted position, and just as the rule C reaches the end of the galley G he presses the handle F, thereby lowering the rule C, whereupon he pushes the line of type into the galley by pressing a spring-button H. During the movement of the block D the line of types contained in its trough B is prevented from expanding so as to extrude types at its ends by passing along the guards N and P, which cover the end of the trough. When the galley G is filled with justified lines of type, it can be turned down to its horizontal position and the types can be transferred from it to a form.

Although I have shown two grooves in the bar A, obviously there might be only a single groove, constituting a trough which when emptied can be removed, another filled with types being put in its place.

Having thus described the nature of my said invention and the best means I know for carrying the same into practical effect, I claim—

1. An elastic spacer for justifying a mechanically-composed line of type, consisting of a thin sheet-metal plate slitted in its opposite ends, folded upon itself on a line coincident with the slits and having the extremities of the folded portions spread apart, as shown and described.

2. The combination of a pivoted galley, a longitudinally-slotted bar having a type-line groove, a pivoted block having a trough adapted to register with the type-line groove of the bar, a button movable in the longitudinally-slotted part of said bar and provided with means for engaging and moving type from the groove of the bar into the pivoted trough, a slidable rule forming one side of the trough, a handle for sliding the rule, a handle for swinging the pivoted block to and from the galley, and a device for pressing the type-line in the trough into the galley, substantially as described.

3. The combination in a type-justifier, of a galley, a longitudinally-slotted bar having a type-line groove, a pivoted block adapted to swing to and from the galley and having an attached type-line trough, a spring-pressed push-button movable in the longitudinally-slotted part of the bar and provided with means for engaging and moving the type from the groove of said bar into said trough, a slidable rule forming one side of the trough, means for sliding the rule to open one side of the trough, means for swinging the pivoted block to and from the galley, and means for pressing the justified type-line from the trough into the galley, substantially as described.

4. The combination in a type-justifier, of a pivoted galley, a longitudinally-slotted bar having a type-line groove, a pivoted block provided with an attached line-trough, a push-button movable in the longitudinally-slotted part of the bar and provided with means for engaging and moving type from the groove of said bar into said trough, a slidable rule forming one side of the trough, a handle for sliding the rule to open and close one side of the trough, a handle for swinging the pivoted block to and from the galley, and a push-button carried by the trough for pressing the justified line of type therefrom into the galley when the rule is moved to open one side of the trough, substantially as described.

5. The combination in a type-justifier, of a pivoted counterpoised galley G having a segmental guard P, a longitudinally-slotted bar A having a type-line groove and a segmental guard N adapted to coöperate with the segmental guard on the galley, a pivoted, counterpoised block D, having an attached line-trough B, means for moving type from the groove of the bar into said trough, a slidable rule C forming one side of the trough, means for sliding the rule, means for swinging the pivoted block, and means for pressing the justified line of type in the trough into the galley, substantially as described.

6. The combination in a type-justifier, of a galley, a bar having a type-line groove, a pivoted block having an attached line-trough and movable to and from the galley, means for moving type from the groove of said bar into the said trough, a slidable rule forming one side of the trough, a handle for sliding the rule, a handle for swinging the block to and from the galley, and means for pressing the justified line of type from the pivoted trough into the galley, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of August, A. D. 1895.

CHARLES F. HILDER.

Witnesses:

GEO. J. B. FRANKLIN,  
WALTER J. SKERTEN.