

(No Model.)

2 Sheets—Sheet 1.

C. L. TRAVIS.

ATTACHMENT FOR TYPE WRITING MACHINES.

No. 427,715.

Patented May 13, 1890.

Fig. 1.

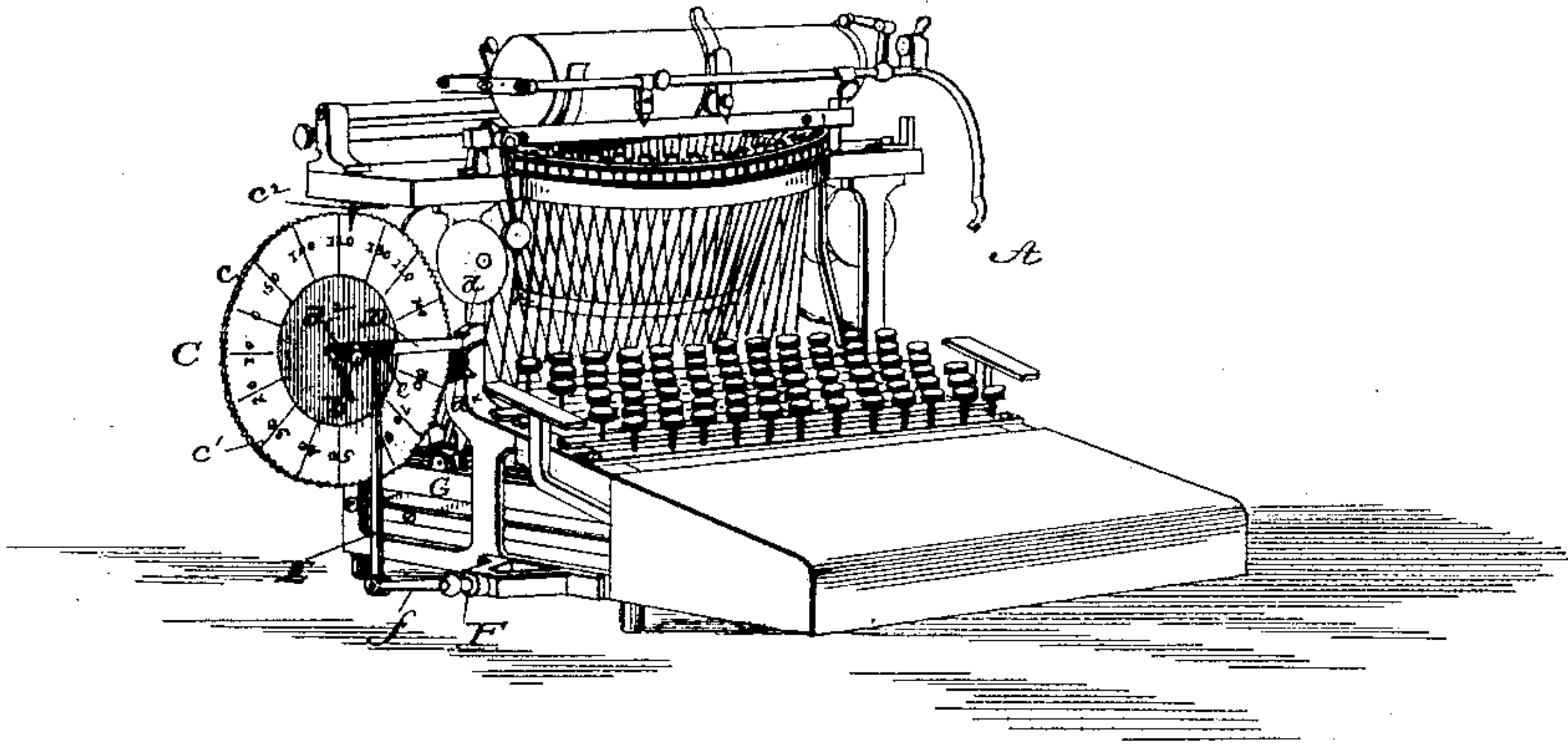


Fig. 2.

ON LINE X-X

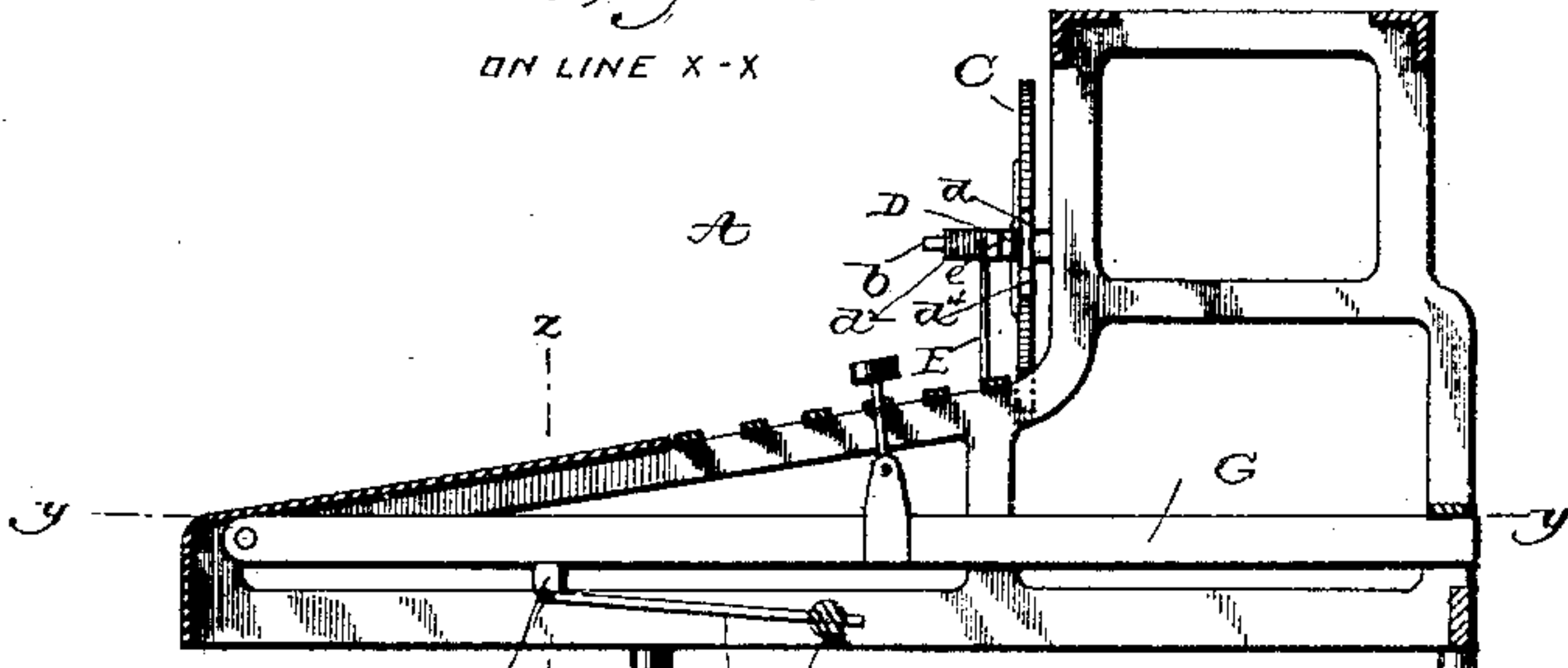
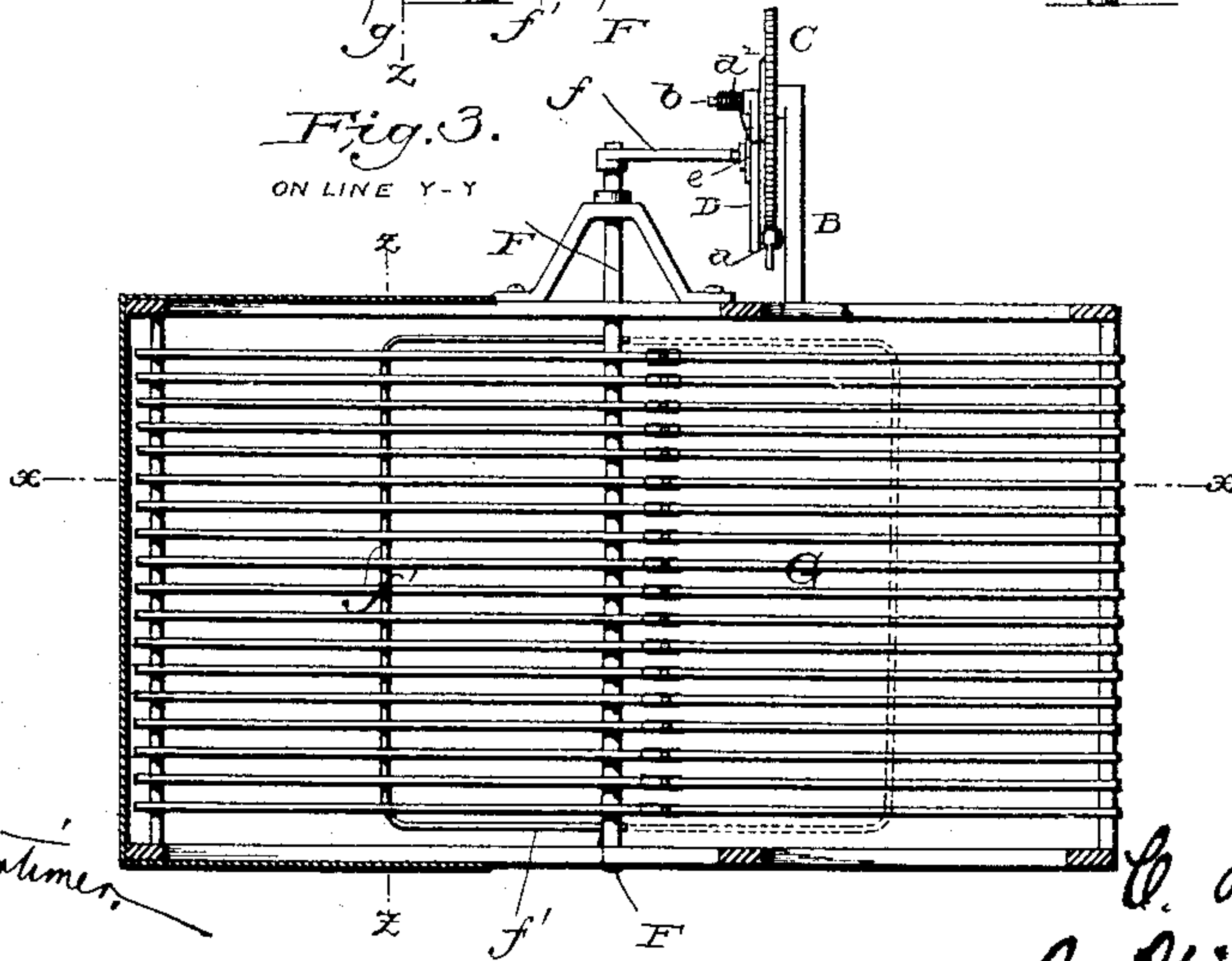


Fig. 3.

ON LINE Y-Y



Witnesses

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Fig. 4.
ON LINE Z-Z

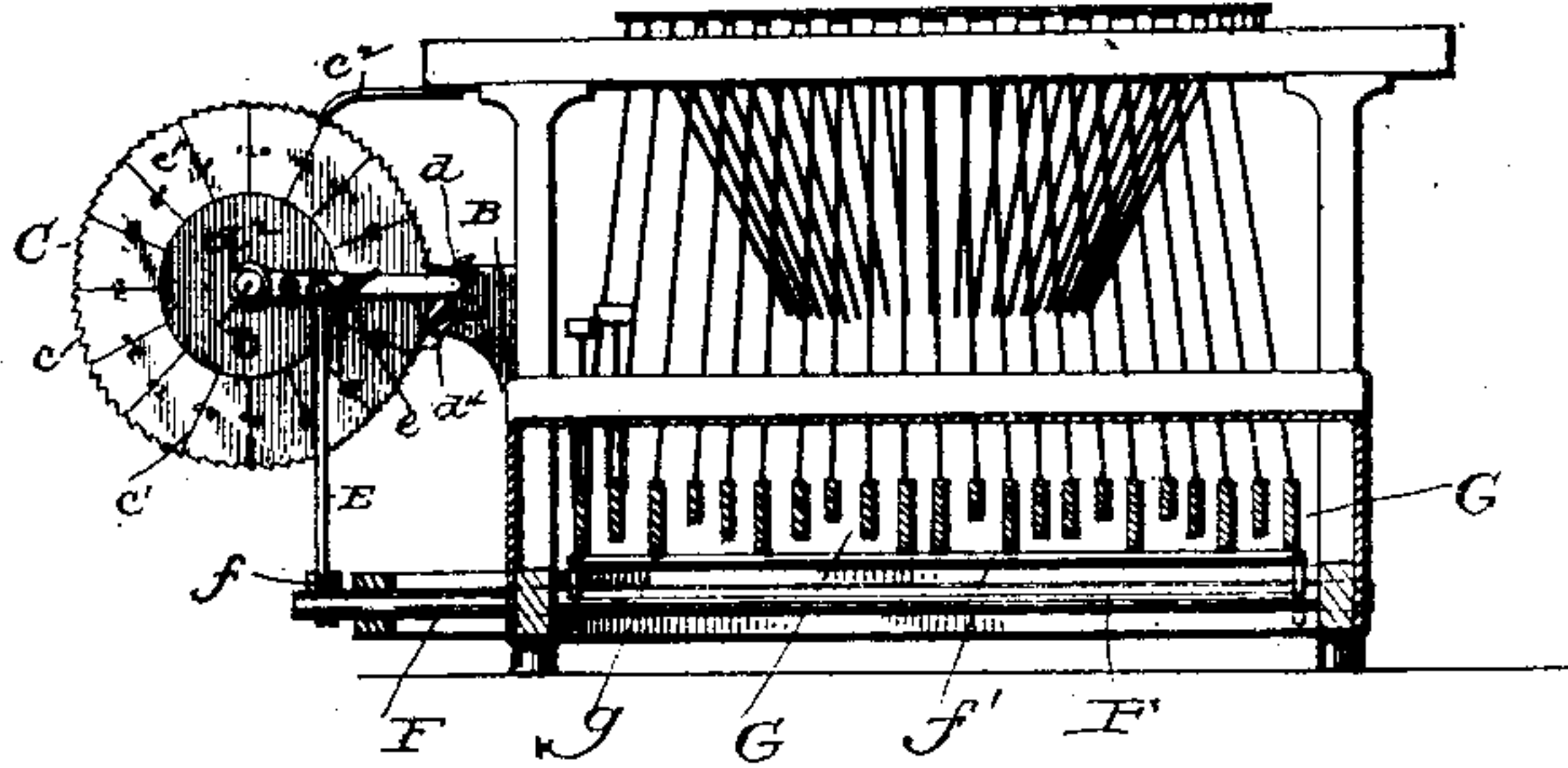


Fig. 5.

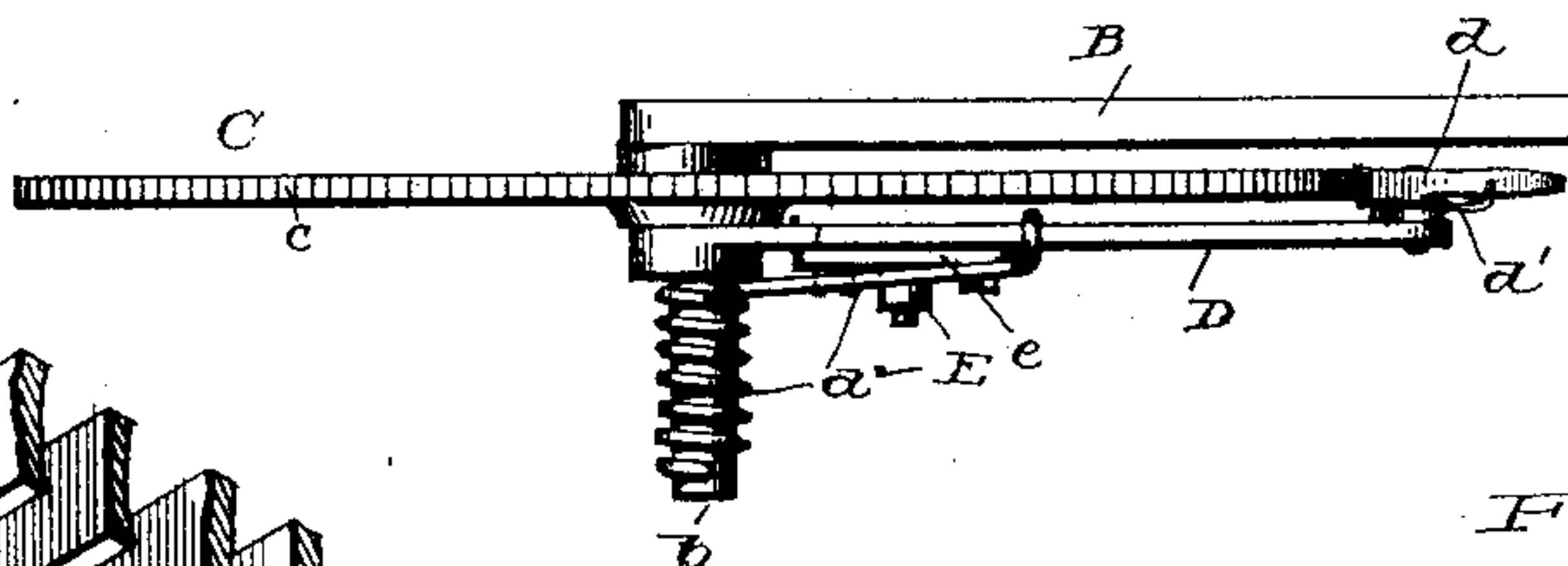


Fig. 7.

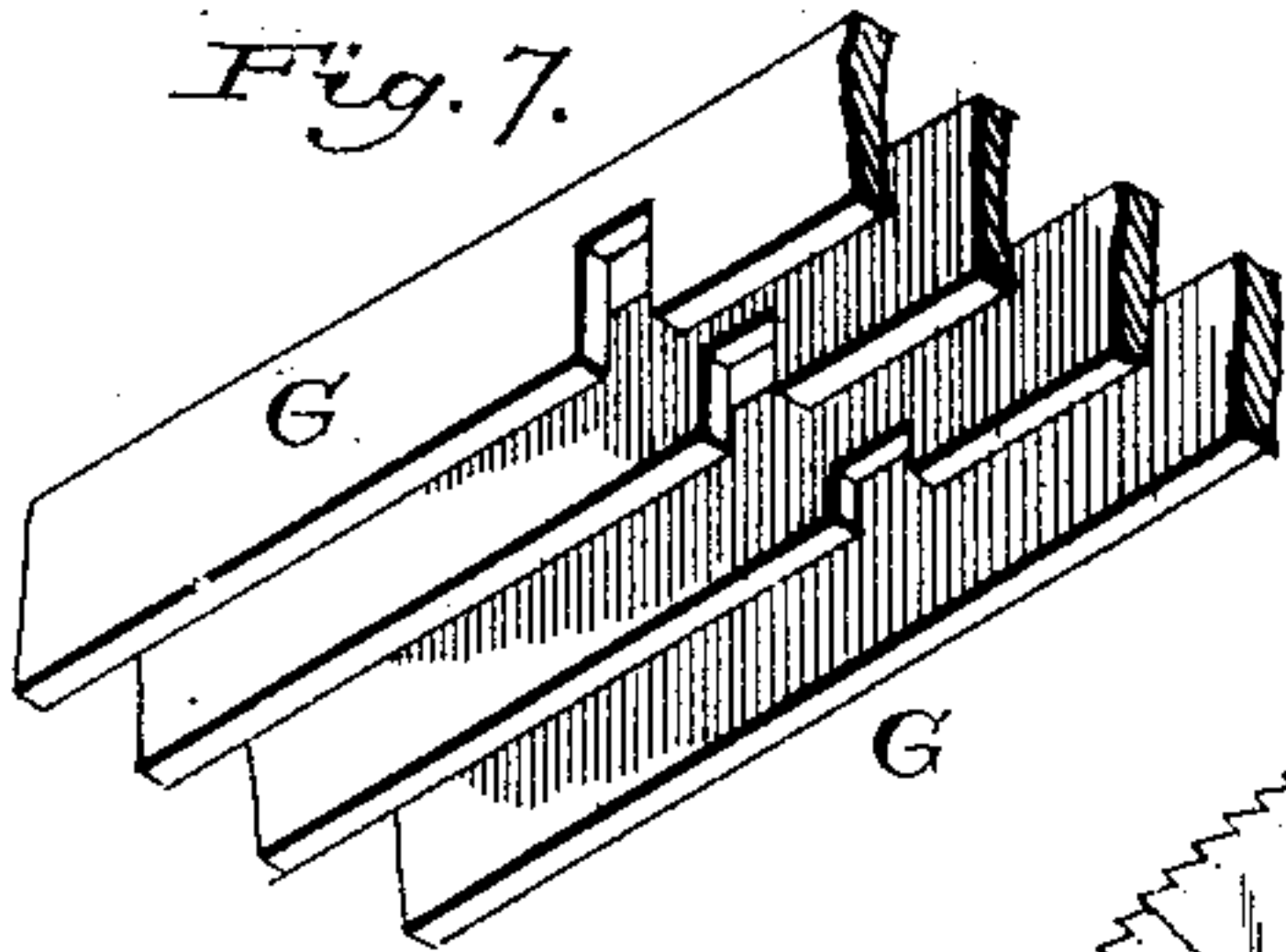


Fig. 6.

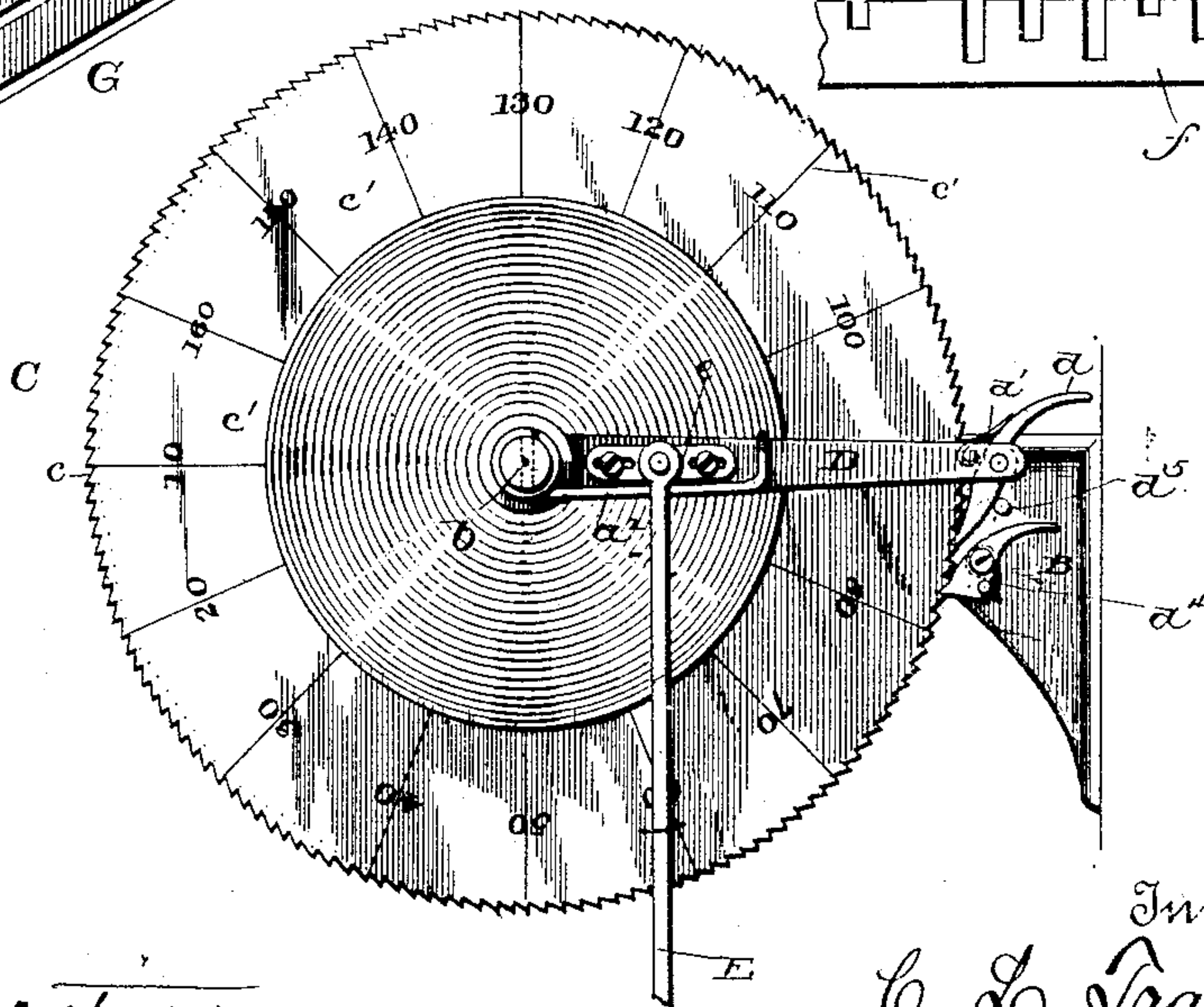
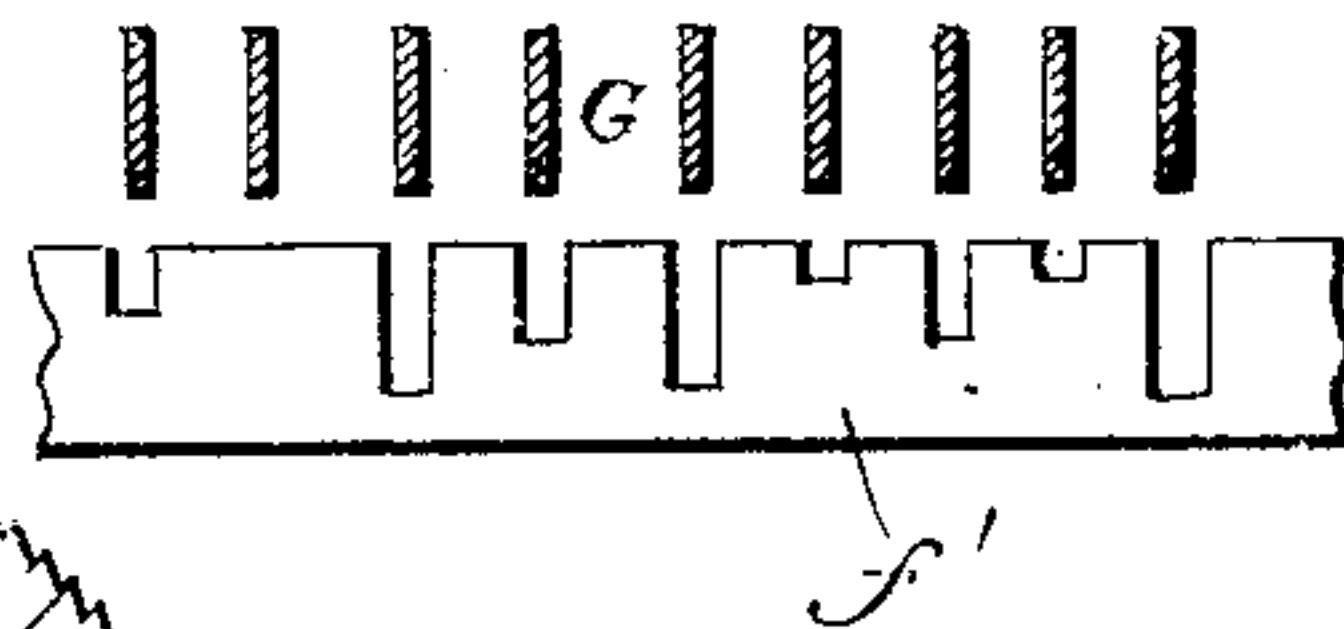


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 427,715, dated May 13, 1890.

Application filed January 30, 1889. Serial No. 298,071. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. TRAVIS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Attachments for Type-Writing Machines, of which the following is a specification.

At the present day there are in common use various matrix-making or stereotyping machines which form characters of different lengths, and which have a variable paper-feed for advancing the paper different distances, according to the width of the particular characters which may be printed. In these machines the widths of the various characters are multiples of a common unit.

The aim of my invention is to provide for the use of operators on the matrix-machine type-written copy which will "justify" when reproduced line for line on said machines. I seek to accomplish the preparation of this copy by type-writing machines such as are now in general use, having a uniform or equal paper-feed for all the characters printed, so that I may avoid the construction of special machines for the purpose. To this end I combine with an ordinary type-writer an indicator or counter adapted to advance for each character printed a number of units representing the width of the corresponding character in the matrix-machine. Thus the operator on the type-writer is enabled to determine when he has printed the characters necessary to fill a line on the matrix-machine. He is thereby enabled to produce "copy" which will, although not in itself justified, produce justified matter on the second machine. The essential feature of my invention resides in the combination of a writing-machine having uniform feed or characters of uniform width with an indicator having a variable feed corresponding with characters of different widths.

My improvement is applicable to any and all type-writing machines in which there is a series of finger-key levers.

For purposes of illustration I have represented my improvement as applied to an ordinary caligraph, which is in all other re-

spects of ordinary construction, and which need not, therefore, be illustrated or described, except as regards its parts which directly co-operate with my indicator.

In the accompanying drawings, Figure 1 is a perspective view of a caligraph having my improvement applied. Fig. 2 is a longitudinal vertical section of the same on the line x x of Fig. 3. Fig. 3 is a horizontal section on the line y y of Fig. 2, the indicator being shown in top plan view. Fig. 4 is a cross-section on the line z z of Figs. 2 and 3. Fig. 5 is a top plan view, and Fig. 6 a front elevation, of the indicator-wheel and the parts immediately connected therewith. Figs. 7 and 8 are views showing modifications.

In carrying my invention into effect I provide an ordinary caligraph or other type-writer A, and to its frame, at any suitable point, I rigidly attach an arm or bracket B, having at its outer end a stud or journal b . On this journal I mount a revolving indicator wheel or disk C, provided at its periphery with a series of ratchet-teeth c , and on its face with a series of suitably-numbered graduations c' , each representing a unit of space. These numbers are read in connection with a pointer or indicator c^2 , which I attach rigidly to the frame of the machine in any suitable manner.

On the journal of the indicator-wheel I mount an arm D, carrying at its outer end a pawl d , urged by a spring d' into engagement with the teeth of the wheel. The pawl rides freely over the teeth as the arm is raised, but, engaging therewith, turns the wheel as the arm descends. A helical spring d^2 , encircling the journal of the wheel and fixed thereto at one end, is projected at the opposite end to bear on top of the arm D for the purpose of depressing the same to effect the rotation of the wheel. This spring serves also to maintain a moderate friction between the parts, so as to prevent them from moving accidentally.

A retrograde motion of the wheel is prevented by means of a spring-actuated pawl d^1 , pivoted to the bracket or other suitable support. A fixed stud d^3 (see Fig. 6) serves, as the pawl-carrying arm descends, to en-

counter the pawl and arrest its downward motion, at the same time forcing the pawl between the teeth of the wheel, so that it serves as a stop to prevent the wheel from racing or being carried ahead by its momentum.

A pitman E is pivoted at its upper end to an adjustable plate e on the arm D, and is connected at its lower end to a crank f, attached to a horizontal rock-shaft F, which is extended through and seated in the base of the machine below the finger-key levers G, by which the type-carrying arms are operated, as usual. The rock-shaft is provided with a bail or arm f', the middle portion of which lies parallel with the shaft and in position to be depressed by the key-levers as they are carried down one at a time to print their respective characters.

On the side of the key-levers I form or secure, as shown in Figs. 2 and 4, projections g, varying in depth, according to the width of the letters printed by the several keys. When any one of the key-levers is depressed, its projection acts upon and depresses the bail f', thereby turning the rock-shaft F, which, through its crank and the intermediate connections, lifts the end of the arm D, causing its pawl d' to ride upward. When the key-lever is released and resumes its original position, the spring d² carries the arm D downward, whereupon the pawl d' turns the indicator-wheel forward. The distance which the wheel is turned is greater or less, according to the depth of the projection g on the lever, these projections being increased, respectively, according to the width of the letters represented by the keys to which they are attached. Projections on the levers representing extremely narrow letters—such as “t,” “l,” and “i”—depress the bail f' but slightly, and consequently the pawl d' rises and advances the indicator-wheel the distance of one tooth only. Levers representing letters of greater width—such as “n” and “u”—have deeper projections, so that the pawl is lifted and turns the wheel a distance of two teeth, indicating on the wheel the consumption of two units of space in the line. Key-levers representing still wider letters have correspondingly deeper projections to cause still greater movement of the wheel.

It is to be understood that the essence of my invention resides in combining with the indicator-wheel its ratchet mechanism and the key-levers, intermediate devices through which the key-levers move the ratchet mechanism different distances, according to the widths of the characters they represent, and it will be manifest to the skilled mechanic that these details may be variously modified.

While it is preferred to have the indicator-wheel turned through the influence of the spring in returning the pawl to its normal position, it is to be understood that the pawl

may be reversed and the wheel turned through the direct application of the force applied to the key-levers.

In Fig. 7 I have illustrated a substitute for the projections on the key-levers. In this form the levers are provided with notches of different depths to receive the rod or bail f'. Those which have the deepest grooves impart to the bail and the indicator their smallest movements.

In the modification shown in Fig. 8 the key-levers are made of uniform depth; but the bail or bar f' is provided with notches of different depths to receive the respective levers.

I do not claim as my invention the combination, with a type-writer having a feed for different characters, of a registering device having an independent variable feed, according to the space required for the different characters in properly-spaced printing, and connections between the type-writer and the variable feed of the registering devices.

I believe myself to be the first to combine with an indicator and the keys of a type-writer intermediate mechanical connections whereby variable motion is positively and mechanically transmitted from the keys to the indicator, so that the power to move the indicator is, in fact, applied by the finger of the operator in depressing the finger-key or printing-key of the type-writer.

Having thus described my invention, what I claim is—

1. In combination with the indicator-wheel, the ratchet mechanism to turn the same, the rock-shaft connected with said mechanism and provided with the arm or bail, and the finger-key levers adapted to depress the bail different distances, respectively, whereby the indicator is caused to show the aggregate width of the printed characters and the spaces between them.

2. In combination with a type-writer having a uniform paper-feed, as usual, an indicator, substantially as shown, combined with its key-levers and other mechanical connections to receive variable action therefrom corresponding with the width of different characters, whereby the machine having a uniform feed is adapted to prepare printed copy which will justify when reproduced on a machine with a variable feed.

3. In combination with a type-writer having a uniform paper-feed, as usual, a supplemental indicator, as shown, combined with its key-levers and other mechanical connections to receive therefrom a variable action corresponding with the widths of different characters printed, whereby the machine having a uniform feed is adapted to prepare printed copy which will justify when reproduced line for line on a machine with variable feed.

4. The type-writer having the key-levers and a uniform feed mechanism, as usual, in combination with the indicator-wheel, the

ratchet mechanism to turn the same, the rock-
shaft connected to the ratchet mechanism, and
the arm or bail on the rock-shaft, said parts
constructed and arranged, substantially as
5 shown, to cause the movement of the bail dif-
ferent distances by different keys.

In testimony whereof I hereunto set my

hand, this 22d day of January, 1889, in the
presence of two attesting witnesses.

CHARLES L. TRAVIS.

Witnesses:

W. W. MORTIMER,

W. R. KENNEDY.