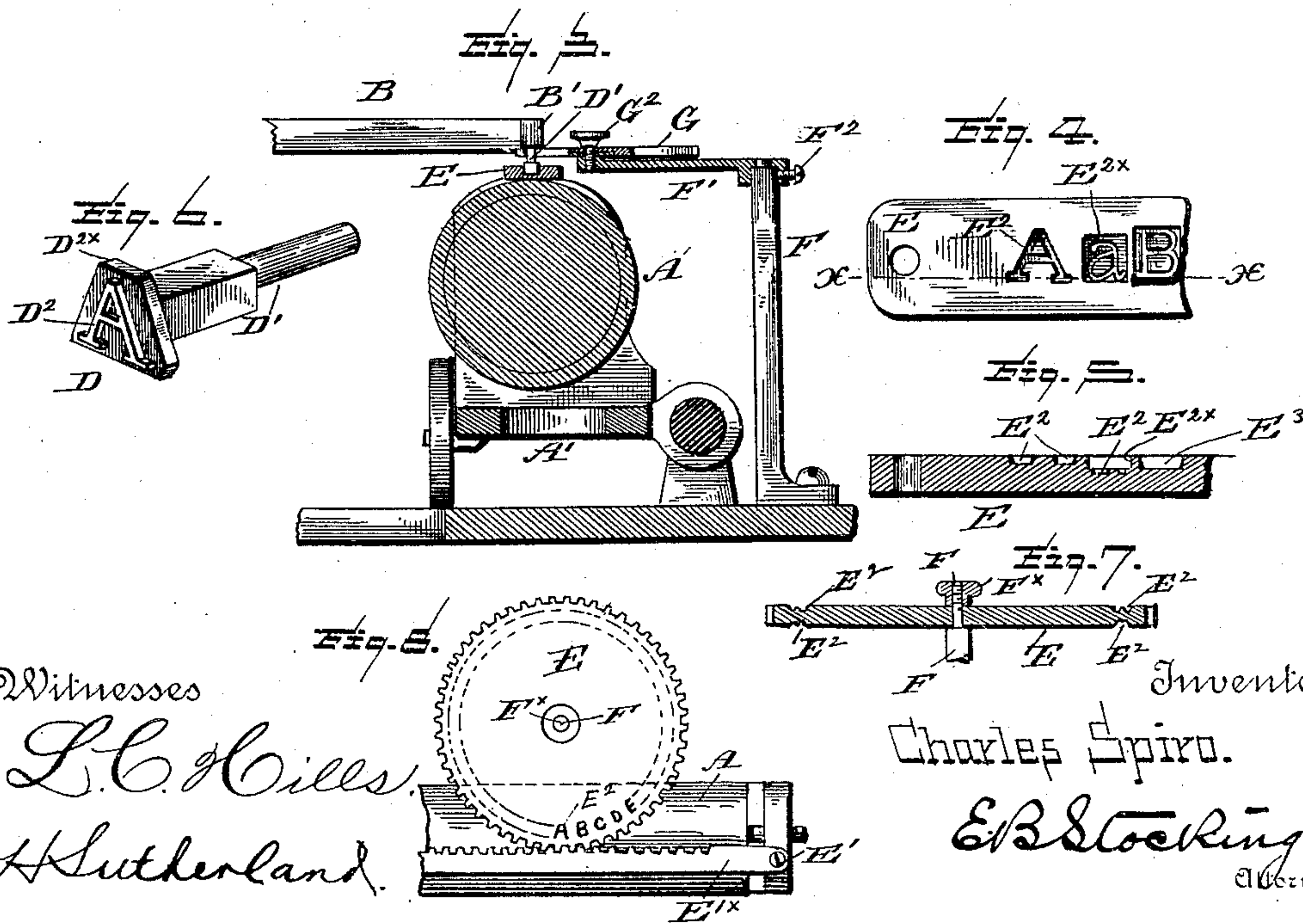
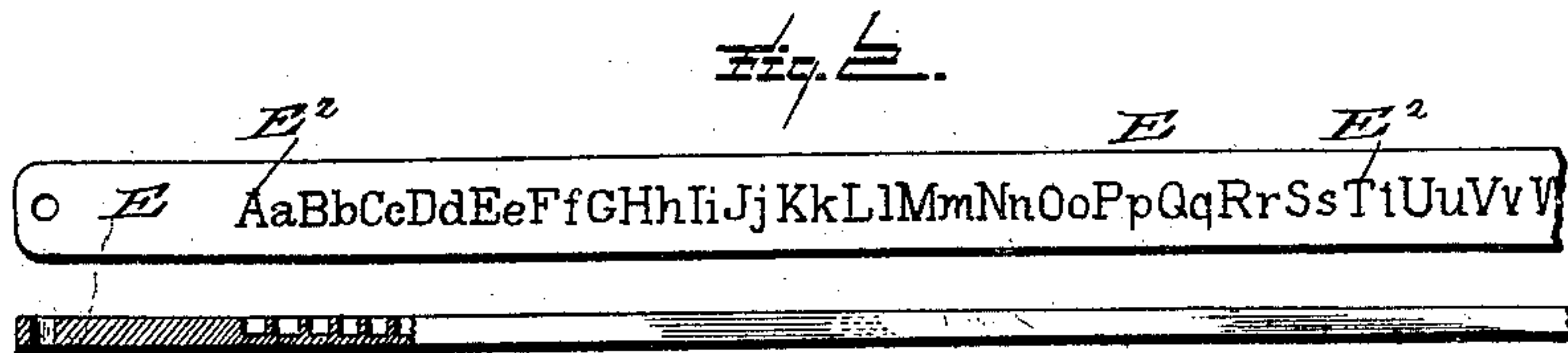
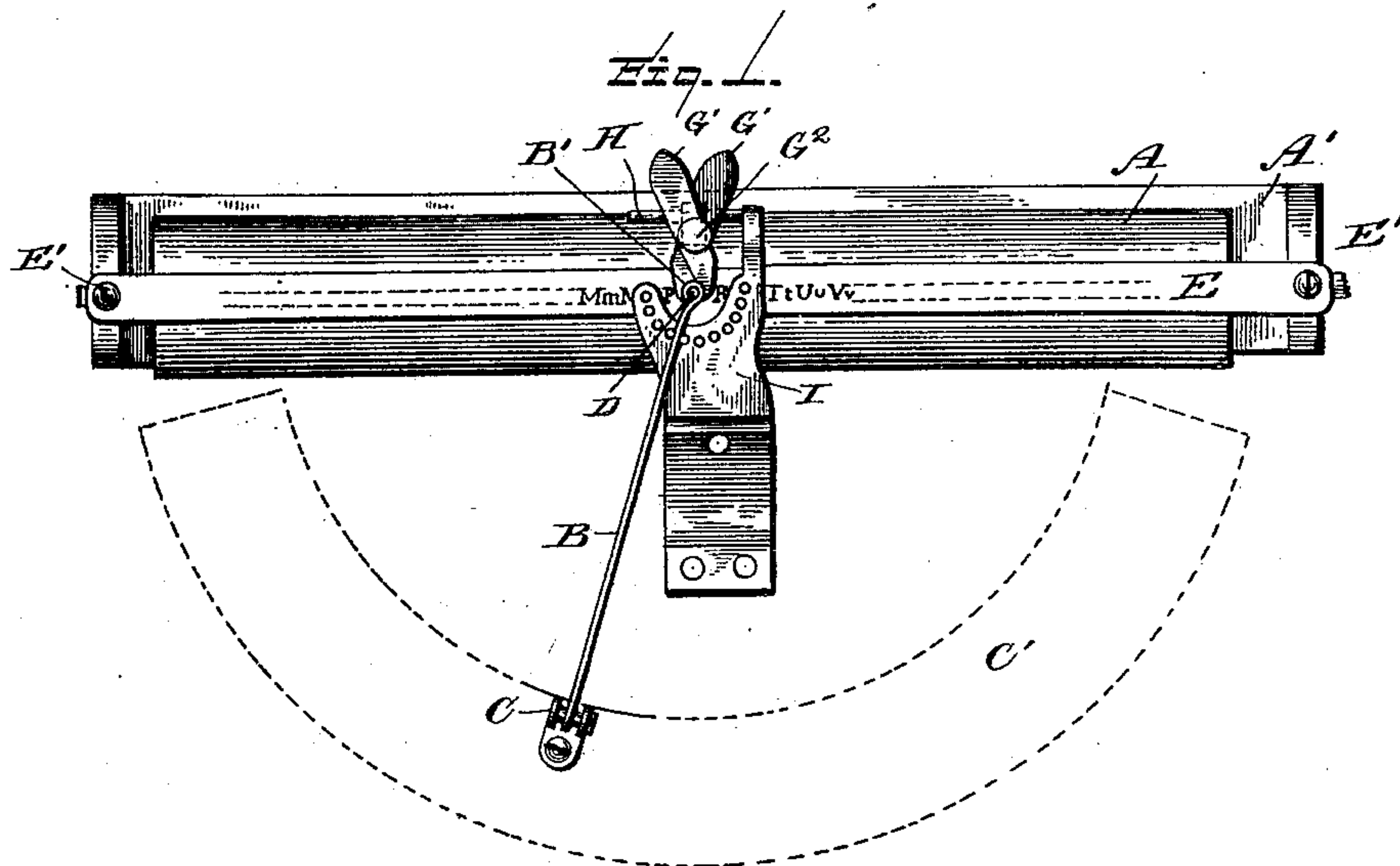


(No Model.)

C. SPIRO.  
ALIGNER FOR TYPE WRITING MACHINES.

No. 410,743.

Patented Sept. 10, 1889.



Witnesses  
L. C. Hills.  
H. Sutherland.

Inventor  
Charles Spiro.  
E. B. Stocking  
Attorney



# UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y.

## ALIGNER FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 410,743, dated September 10, 1889.

Application filed January 24, 1889. Serial No. 297,347. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Aligners for Type-Writing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has relation to means for aligning type-writing machines, the principal feature of the invention being to provide a matrix of the type to be aligned, which matrix can be applied to a machine temporarily.  
15 Matrices on a plate or bar may be applied to the machine so as to partake of the movement of the platen and be presented successively at the printing-point, and thereby serve to align the type of the machine.  
20 Heretofore aligning devices have involved the principle of a guide fixedly mounted on the machine at the printing-point, so that each type in approaching the printing-point is bodily directed by said guide, and when  
25 therein the type-bar bracket is secured, so that thereafter when the guide is removed the bar will bring the type to the printing-point. Aligning devices embodying this principle of operation effect the alignment through the  
30 medium of the body or shank of the type without regard to the actual printing-surface of the type, whereas in my invention the actual printing-surface is the part which is employed to determine the alignment of the  
35 type. By reason of the usual arrangement of the type-bars (whereby they all converge in operation to the printing-point) the printing-surfaces of the various types are arranged at various angles with relation to the longitudinal median line of the type-bars upon  
40 which they are mounted or by which they are carried. In this usual arrangement the type on the central bar of a series is disposed with its vertical median line substantially agreeing  
45 with the median line of the bar which carries it, while the type on bars at either side of the central bar are arranged angularly with relation to the median line of the bar, those at one side at an opposite angle to those at the  
50 other side. The necessity of this arrangement lies in the fact that each type must be

so arranged on the bar as to give a vertically-true impression at the printing-point. Aside from this requisite in the arrangement of each type on or in its bar, my invention, in 55 certain modifications, includes in its uses and purposes the alignment of the types with regard to the spaces between the impression thereof, and also with regard to the straightness of a printed line produced thereby. 60

The object of my invention, therefore, may be considered as being the provision of type-matrices and suitable mechanical devices for accomplishing the various alignments specified, so that the labor which is employed may 65 be as to the degree of skill required ordinary in contradistinction to the higher grade of skill heretofore required in alignment during the manufacture and repair of machines.

Other objects and advantages of the invention will appear in the following description, and the novel features will be particularly pointed out in the claims. 70

Referring to the drawings, Figure 1 is a plan of a platen and carriage-frame of a 75 type-writer, the type-bar bracket-plate being shown in dotted lines. Fig. 2 is a plan and side elevation, partly in section, of the matrix-bar. Fig. 3 is a vertical transverse section of a carriage and platen of a type-writer and of 80 the matrix-bar, with the portion of a type-bar and other devices in side elevation. Fig. 4 is a plan, on an enlarged scale, of a portion of the matrix-bar. Fig. 5 is a section on the line *x* of Fig. 4. Fig. 6 is an enlarged perspective of a type. Fig. 7 is a diametrical 85 vertical section of a matrix-disk, and Fig. 8 is a plan showing one manner of connecting the matrix-disk to a machine.

Like letters of reference indicate like parts 90 in all the figures of the drawings.

A represents the platen of a type-writing machine, which is of the usual construction and mounted in the carriage-frame A' in the usual manner. 95

B represents the type-bar, and C the type-bar bracket, which may be of any usual construction and mounted upon any suitable base C'.

D represents the type, which is secured to 100 the type-bar B in this instance by inserting its shank D' into a socket B', formed by bend-



ing the end of the type-bar. Any suitable or well-known mechanical connection of the type with the bar may be employed.

E represents what I have designated as a  
5 "matrix-plate," which may be in bar, disk, or other form, which is preferably connected with or mounted (by means of screws E' or otherwise) upon the carriage, so as to partake of the step-by-step movement of the carriage,  
10 whereby different portions of the matrix bar or disk may be successively brought to the printing-point of the machine. The matrix bar or disk is provided on one side (or it may be both sides) with matrices of each type in  
15 the machine arranged in their natural or any other desired succession. As shown, the matrices E<sup>2</sup> of the capital and lower-case letters follow each other in their natural succession. Each matrix is preferably that of the  
20 printing-surface portion of the type, or it may include in addition to said portion the body of the type immediately adjacent to the printing-surface portion, as shown at E<sup>2x</sup>, Figs. 4 and 5.

I am aware that the term "printing-surface" generally indicates that portion of the type only on which ink is deposited and from which ink is transferred to the paper or other material on which an impression of the type  
30 is made. By the term "printing-surface portion" of a type I mean not only the printing-surface proper, but the material of the type which projects from its body proper and which possesses a form approximately agreeing  
35 with the printing-surface. I include in the term "body" the portion from which the printing-surface portion projects, and this body may be of uniform size or reduced to spindle form.

Referring to Fig. 6, the type D has the printing-surface portion D<sup>2</sup> projecting from the body D<sup>2x</sup>, which body terminates in the spindle D'. Now, the peculiar characteristic of my invention lies in the fact that the align-  
45 ment of the type is controlled by contact with its printing-surface portion, and, if desired, by said portion and its body. In the first case the matrix-bar is provided with matrices E<sup>2</sup> conforming to the printing-surface portion of the type only. In the other case the bar is  
50 provided with a matrix E<sup>2x</sup> for the body D<sup>2x</sup> of the type. So far as the employment of a matrix-bar mounted on or capable of partaking of the step-by-step movement of the carriage is concerned it may be adapted for the  
55 purpose in view by being provided with matrices adapted to receive the body D<sup>2x</sup> only of the type. In this case all of the types employed should have a uniform body and have their printing-surface portions disposed thereon in accordance with the requirements of the case, such as the relative position of the bar in the curved series of the machine to which said type is secured. This form of  
60 matrix is illustrated at E<sup>3</sup>, Fig. 5, and in sectional portion of Fig. 2. Notwithstanding this apparent modification in the form of the

matrix, my preferred form is a matrix which receives the printing-surface portion only of the type.

In Figs. 7 and 8 the matrices are illustrated as being formed in or on a disk and on either or both surfaces thereof. This disk is mounted on a standard, as F, and retained thereon by a thumb-nut F<sup>x</sup>, and is provided with mar-  
70 ginal teeth to mesh with a rack-bar E'<sup>x</sup>, secured to the carriage by screws E', so that the disk shall partake of the step-by-step movement of the carriage, and thus present suc-  
75 cessive matrices at the printing-point. Mechanical skill will suggest various arrangement of mechanisms for giving the matrix bar or disk the required movement, or said movement may be given to it by hand. It is  
80 apparent, also, that the matrix for each type may be formed on a separate piece and presented in any desired manner and by any desired mechanism to the printing-point; but for apparent reasons I prefer to have the ma-  
85 trices formed in series in or on one part or plate, whether it be a bar, disk, or other form.

It will now be seen that when manufacturing machines, and for the purpose not only of aligning the type and type-bars thereof, but also for the purpose of connecting the types  
90 to the bars, it is only necessary after the matrix plate, bar, or disk has been mounted upon or connected with the carriage of the machine to insert the printing-surface portion of the type into its proper matrix, and  
95 to bring the free end of the proper type-bar (if desired, by a depression of the proper key of the machine) over the type and introduce the spindle D' of the type into the socket of the bar, and to secure the same by a drop of solder  
100 or other means. At the same time this is done the type-bar bracket C may be secured to its proper base, whereby the bar itself is aligned. To facilitate this operation, I have  
105 illustrated one of the many forms of a type-holding device which may be employed. In this instance and in the use of this and other equivalent devices a standard F is temporarily secured to the carriage, and on the  
110 standard is mounted an arm F', Fig. 3, on which is arranged a type-holding clamp G of any suitable form. In this instance the clamp consists of two blades pivotally mounted on the arm F' by a thumb-screw G<sup>2</sup>, so that when the blades embrace the spindle D' of a type  
115 they may be securely held in position by tightening the screw G<sup>2</sup>.

Another means of supporting the type-holding clamp is shown in Fig. 1, which means involve the ink-ribbon-guide rod II, project-  
120 ing from the bar lock plates I in the machine when these parts are present. The arm F' in this instance is perforated laterally to embrace the rod II instead of vertically to embrace the standard F, as shown in Fig. 3, and  
125 a binding-screw F<sup>2</sup> is employed to bind the same in a desired position opposite the printing-point of the machine.

It is apparent that when the matrix-bar is



used in machines which print upon the under side of the platen said matrix-plate can be mounted on the carriage to perform its function, and that any suitable type-holding clamp can, if desired, be used in connection therewith, and I deem it proper to state that my invention comprehends any ordinary or skillful adaptation of the same in this class of machines.

10 The distance apart at which the matrices  $E^2$  of the bar E may be made is a matter of judgment; but there is a material advantage in gaging that distance in accordance with the distance that the carriage travels in  
15 each step-by-step movement. Therefore I space the matrices apart, equaling the distance the carriage travels at each step. This distance may be from one tooth to another of the carriage of a rack-bar. In cases where  
20 the normal movement of the carriage is more than a single tooth of the rack-bar then the matrices are spaced with regard to the movement of the carriage independent of the number of teeth in the rack-bar passed by the es-  
25 capement employed.

Having described my invention, what I claim is—

1. An aligner for the type of a type-writing machine, consisting of a matrix of the type  
30 to be aligned.

2. An aligner for the type of a type-writing machine, consisting of a matrix of the type to be aligned, combined with the matrix-supporting devices, substantially as specified.

35 3. An aligner for the type of a type-writing machine, consisting of a plate provided with matrices of the type to be aligned, substantially as specified.

4. An aligner for the type of a type-writing machine, consisting of a plate provided with  
40 matrices of the several type to be aligned, adapted for connection with the carriage of the machine, substantially as specified.

5. An aligning-bar for type-writing machines, provided with matrices of the printing-  
45 surface portions of the type, substantially as specified.

6. The combination, with the carriage of a type-writing machine, of an aligner for the type, consisting of a bar provided with type-  
50 matrices, substantially as specified.

7. The combination, with the carriage of a type-writing machine, of an aligner for the type, consisting of a matrix-bar mounted thereon and a type-holding clamp, substan-  
55 tially as specified.

8. The combination, with the carriage of a type-writing machine, of an aligner for the type, consisting of a matrix-bar having type-  
60 matrices arranged in a line thereon and spaced in accordance with the step-by-step movement of the carriage, substantially as specified.

9. A type-holding clamp provided with a screw-pivot for binding the jaws of the clamp  
65 in position to retain a type, in combination with an aligner consisting of a bar provided with matrices of the type to be aligned, substantially as specified.

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

CHARLES SPIRO,

Witnesses:  
G. SPIRO,  
L. JAPHA.