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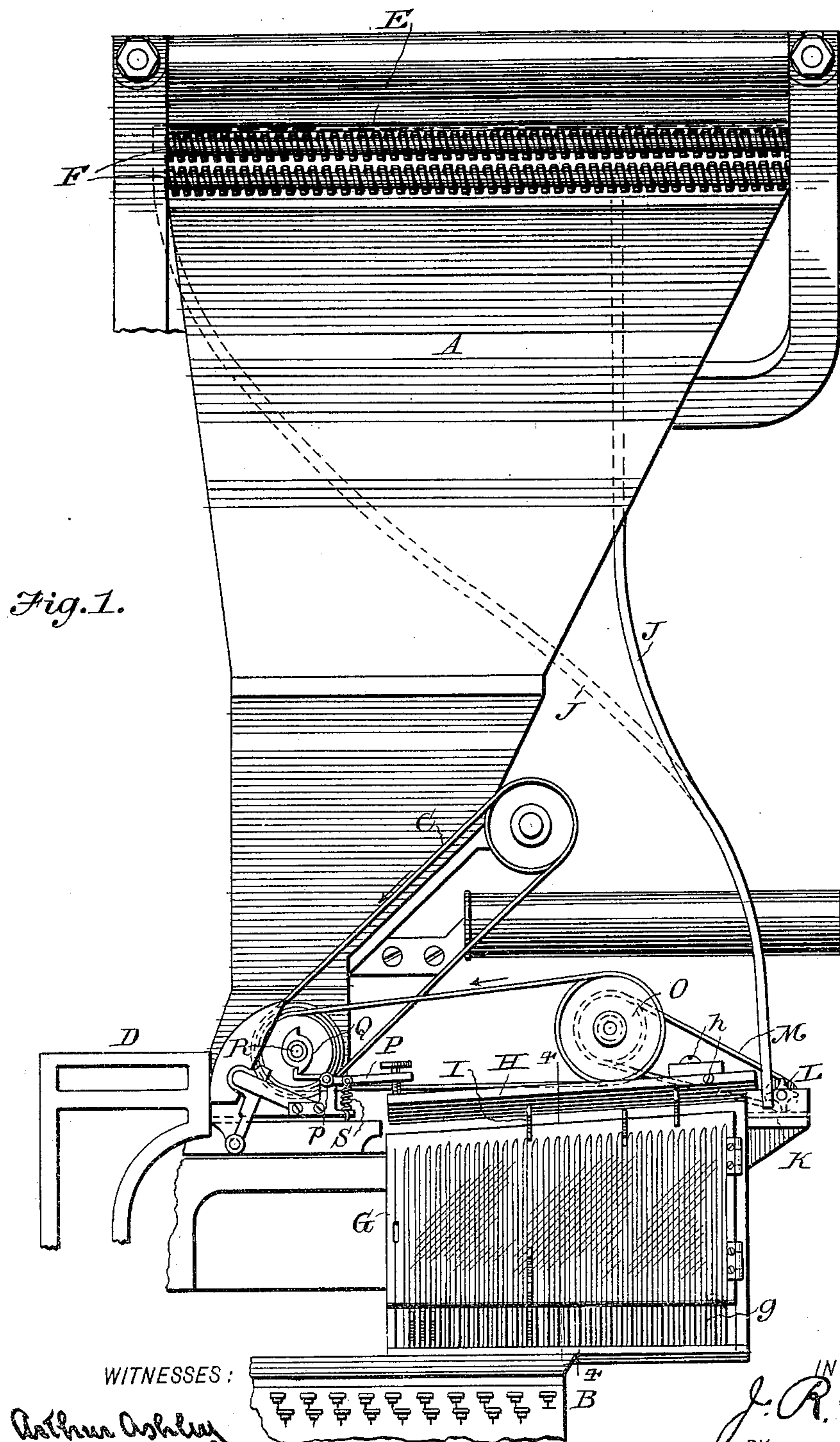
Patented Dec. 26, 1899.

J. R. ROGERS.
LINOTYPE MACHINE.

(Application filed Nov. 25, 1898.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES :

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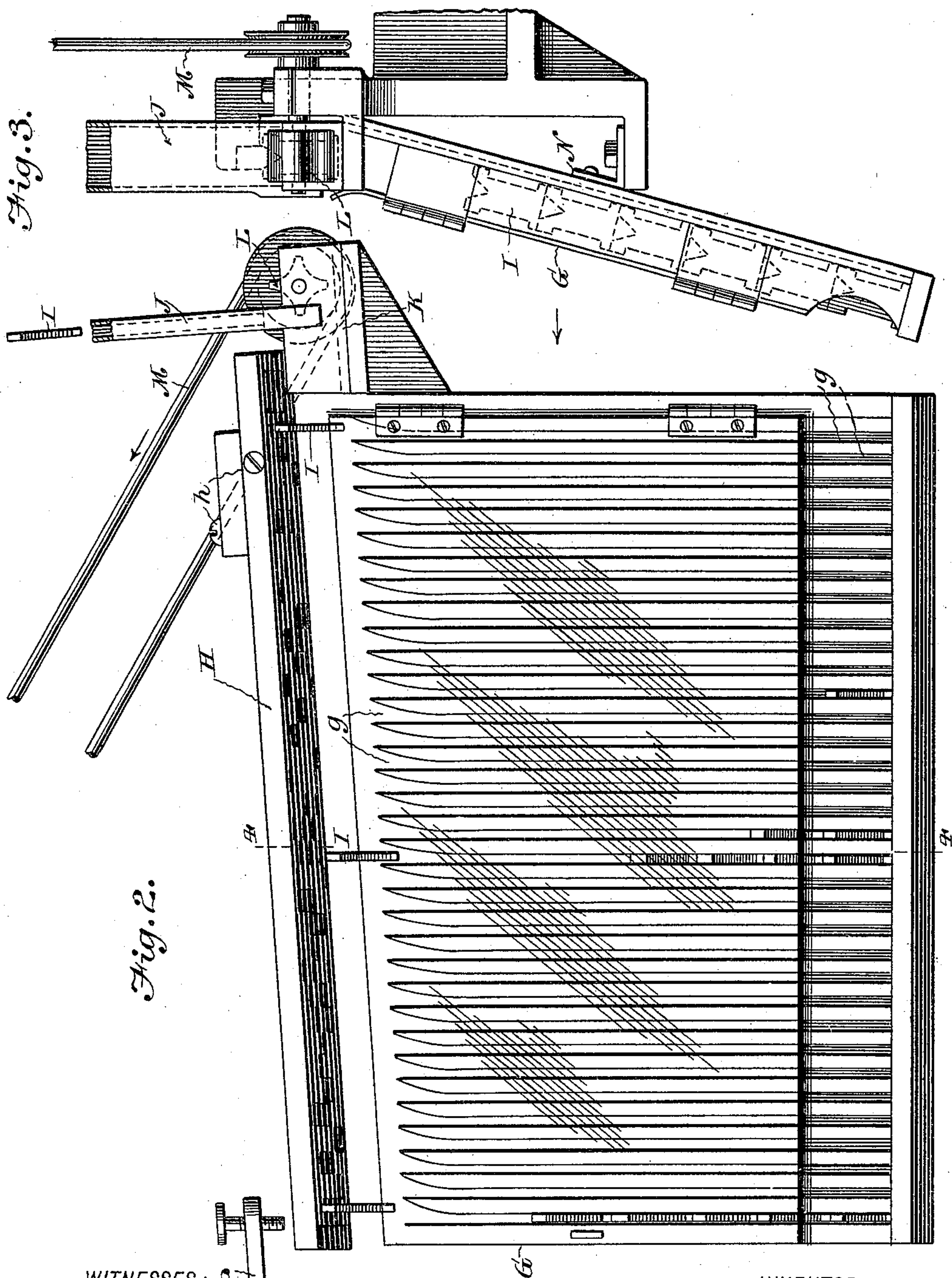
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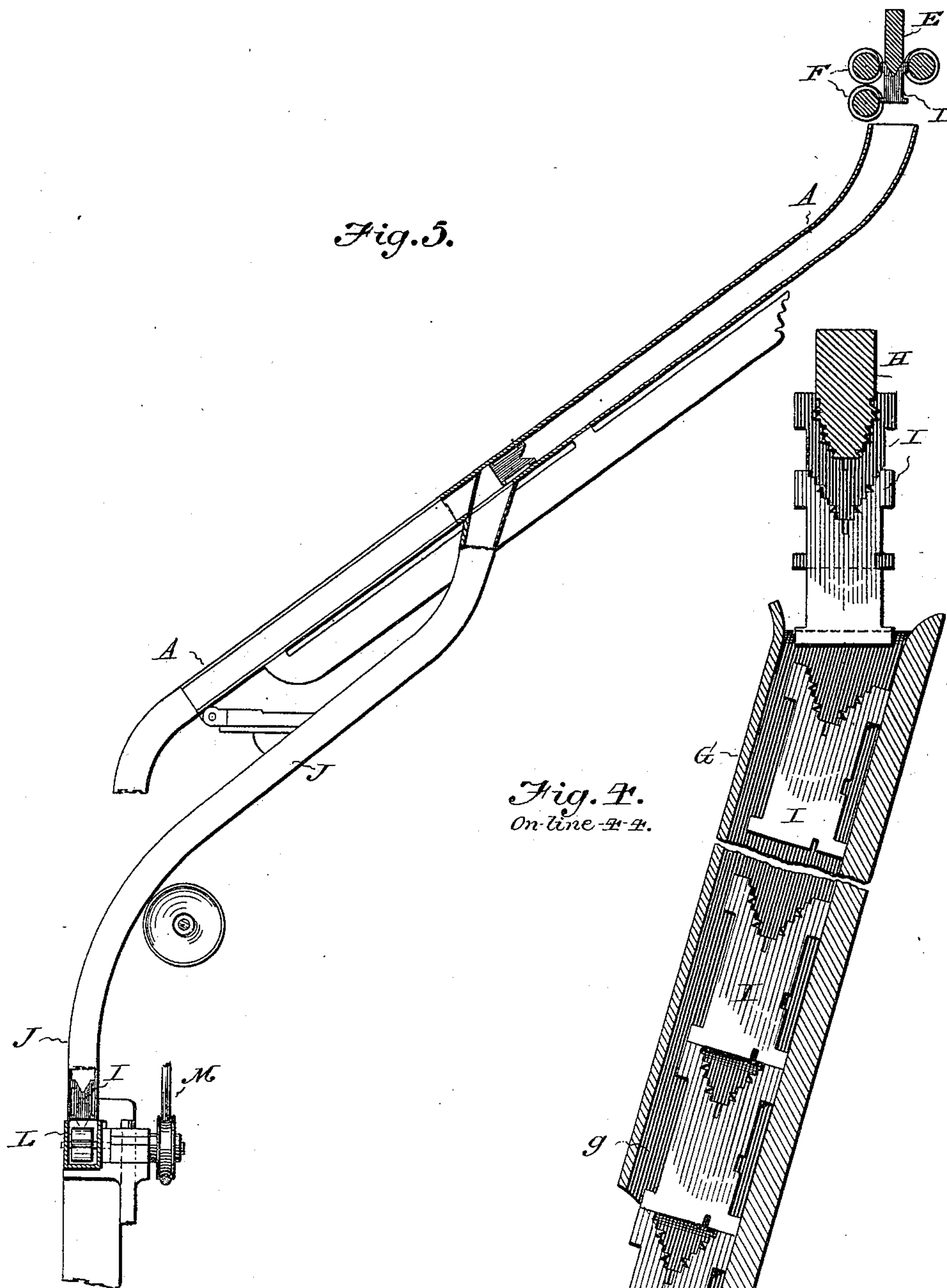
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

JOHN R. ROGERS, OF NEW YORK, N. Y., ASSIGNOR TO THE MERGENTHALER
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LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 640,032, dated December 26, 1899.

Application filed November 25, 1898. Serial No. 697,417. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. ROGERS, of New York, (Brooklyn,) county of Kings, and State of New York, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

My invention has reference to a supplemental distributor and magazine for use in connection with the well-known Mergenthaler linotype-machine represented in Letters Patent of the United States, dated March 24, 1896, No. 557,000.

In the commercial linotype there are ninety finger-keys, representing the characters of a corresponding series of type-matrices stored in a magazine. The operation of the keys effects the release of the corresponding matrices, which descend successively from the lower end of the magazine into a common line, which is completed by the addition of spaces and then transferred to the face of a mold in which the slug or linotype is cast, cameo characters being produced on its edge by the matrices. After this casting action the line of matrices is lifted into the top of the machine and the matrices are returned individually through a distributing mechanism into the upper ends of the appropriate magazine-channels.

In practice it is frequently found desirable to use matrices representing additional characters, or characters which are not represented in the keyboard.

The object of my invention is to provide a simple mechanism, readily attachable to existing machines, by means of which the extra matrices, after being inserted into the composed line, may be automatically distributed into the appropriate channels of the supplemental magazine. To this end I provide a small magazine adapted to be seated on or above the keyboard of the machine or in other suitable position, and above this I arrange a distributor-bar and a conductor by which the extra or supplemental matrices, commonly known as "sorts-matrices," are delivered automatically from the main distributor to the secondary distributor, which in turn delivers them to the supplemental magazine. I preferably construct my supplement-

tal magazine with vertical channels each adapted to receive a number of matrices standing one on top of another, the lower ends of the channels being open, so that the desired matrices may be readily selected and withdrawn by hand, one at a time, for insertion into the line in course of composition. As a means of distributing to this supplemental magazine I preferably employ a sustaining-bar, toothed after the manner of the Mergenthaler distributor represented in Letters Patent No. 347,629, dated August 17, 1886, and inclined to facilitate the travel of the matrices downward thereon, preferably using in connection therewith a tappet or equivalent device to cause a vibration of the bar, in order that the matrices may descend by gravity thereover. In order to insure the delivery of the matrices to this bar as they descend successively through the conductor from the top of the machine, I make use of a rotary star-wheel or equivalent device.

In the accompanying drawings I have represented my device as applied to a Mergenthaler machine, the illustration being limited to such parts of the machine as are necessary to an understanding of my invention. It is to be understood that in all other respects the machine may be of ordinary construction.

Figure 1 is a front elevation showing my improvements applied to a commercial linotype. Fig. 2 is a front elevation of the magazine and distributor on a large scale. Fig. 3 is an elevation of the same looking from the right in the direction indicated by the arrow in Fig. 2. Fig. 4 is a cross-section on the correspondingly-numbered line of Figs. 1 and 2, illustrating the construction of the magazine and the manner in which matrices are delivered thereto and removed therefrom. Fig. 5 is a vertical cross-section through the main distributor on the correspondingly-numbered line of Fig. 1, showing the manner in which the sorts-matrices are delivered into the conductor leading to the secondary distributor.

Referring to the drawings, A represents the magazine of an ordinary linotype-machine, and B the keyboard, from which connections extend to the mouth of the magazine for selecting and delivering the matrices.

C is an inclined traveling belt upon which the matrices fall from the magazine and by which they are delivered successively into the assembling-elevator D.

5 E represents the toothed distributor-bar, lying horizontally above the magazine and receiving from an elevating mechanism the matrices which are carried along the bar by the screws F until they are released and permitted to fall into the magazine-channels.

The foregoing parts are all constructed and operated in the usual manner.

15 Passing now to my invention, G represents my secondary or supplemental magazine constructed with a series of vertical channels *g*, each adapted to receive a column of matrices standing on end one above another. These channels are open at the upper end in order that the matrices may readily fall into them.

20 At the lower end they are left open and the partitions indented, as shown in Figs. 1, 3, and 4, in such manner as to expose the front edge of the bottom matrix and admit of its being readily withdrawn by the fingers for insertion into the line of composition.

25 In order to prevent the accidental escape of the matrices, the magazine is preferably given a slight inclination backward, as shown in Figs. 3 and 4. It may be connected to the frame of the machine by a bracket-plate N, as shown in Fig. 3, or seated on top of the keyboard or sustained in any other manner, the only requirement being that it shall stand in such position that the operator at the keyboard may readily remove the matrices.

30 H represents the inclined distributor-bar, lying above the top of the secondary magazine and secured at one end to the frame of the machine or other support by screws *h*. This bar is inclined downward to the left and has its lower V-shaped edge provided with groups of longitudinal distributing-teeth, permuted or varied in arrangement at different points in its length after the manner described in the Mergenthaler patent, No. 347,629, above referred to.

35 The extra or sorts matrices I, having their upper ends notched to straddle the distributor-bars E and H, are provided in the notched end with distributor-teeth on the Mergenthaler system, the arrangement of teeth being such that all of the matrices will remain in suspension on the main distributor-bar E until they reach a common delivery-point and so that they will in like manner remain in suspension from the secondary distributor-bar H until they reach the different points at which they fall into their appropriate channels in the secondary magazine.

40 J represents a tube or conductor leading from the point at which the sorts-matrices leave the main distributor, as shown in Figs. 1 and 5, downward to a point opposite the right-hand end of the secondary distributor H.

45 The matrices descend successively through this conductor, are arrested by an underlying plate or support K, and are pushed forward

to the left by a rotating star-wheel L, so that they engage at their upper ends successively with the distributor-bar H, as clearly shown in Figs. 1, 2, and 4. This star-wheel may be of the form ordinarily used in the composing mechanism of the Mergenthaler machine or of any other appropriate form, or it may be replaced by any equivalent device known in the art for pushing the matrices successively into engagement with the distributor. The star-wheel is mounted on a horizontal spindle, bearing a pulley, driven by a belt M from the pulley O on the shaft of a wheel forming part of the ordinary machine.

50 If the distributor-bar H is given sufficient inclination the slight vibration received from the main frame will cause the matrices to travel downward by gravity; but in order to insure their travel at the proper speed I propose to impart to the bar H a vibratory or tremulous movement by any suitable means. I recommend for this purpose a tappet or striker P, pivoted to the frame at *p* and acted upon by a toothed eccentric Q, mounted on the shaft R, forming part of the ordinary machine. As the shaft rotates it will cause the end of the tappet to be lifted and released, so that it will strike lightly on the free end of the distributor-bar, which is jarred and vibrated sufficiently to cause a uniform and certain travel of the matrices. A spring S is preferably arranged to draw the tappet downward, as shown, in order to increase its percussive effect. It will be obvious to the skilled mechanic that the means for imparting movement to the distributor-bar may be widely varied without departing from the scope of my invention, the only requirement being that the bar shall be moved rapidly in any direction which will cause the matrices to descend thereover.

55 In order that the matrices may be properly distributed and that one may not be carried beyond the proper point by another, it is desirable to maintain the separation between the matrices hanging from the distributor-bar. To this end I make the inclination of the distributor-bar so slight that the matrices will not slide forward or downward under the influence of gravity alone, their advance along the bar depending on its vibration. With the bar inclined at the slight angle shown it is found that the matrices will advance slowly but steadily along the vibratory or tremulous bar, moving with certainty but at moderate speed and maintaining practically the separation or distance between them with which they start along the bar. In this respect my distributor is to be clearly distinguished from one in which the steep inclination causes the matrices to slide rapidly downward and forward.

60 The operation of my attachment is as follows: The sorts-matrices having been inserted in the composed line will in the regular course of operations be lifted with the other matrices to the main distributor E. Instead of

being delivered into the main magazine they will pass along the distributor to the common point of delivery, where they will escape into the conductor J. Descending through this conductor they will be acted upon by the star-wheel L and carried into engagement with the secondary distributor H. Hanging from this distributor they will pass to the left until they arrive over their respective channels in the secondary magazine. At these points the relation of the teeth of the matrices to those on the bar will be such that the matrices, receiving no further support from the bar, will fall into the channels of the magazine.

It will of course be understood that in connection with the secondary distributor I may use a magazine of any appropriate form to hold the sorts-matrices and that the distributor overlying the secondary magazine may be modified in construction, provided it serves to receive the matrices which are carried past the main magazine and deliver them properly to the second magazine.

It will be observed that in my mechanism the two distributors lie parallel with each other, or practically so. This is advantageous in that it permits the machine to be made of minimum width and also in that it brings the secondary magazine within convenient reach of the operator.

The use of a secondary distributor forming a continuation of the main distributor necessarily increases the width of the machine to an objectionable extent and gives rise to difficulties which need not be enumerated.

I believe myself to be the first to combine in a linotype or analogous machine two distinct distributors, lying one in front of or below the other, and the first to combine with a primary distributor arranged to deliver the sorts or extra matrices at a common point means for conducting such matrices by gravity to a secondary distributor, and also the first to combine in one machine a distributing mechanism through which the matrices travel in one direction and a secondary distributor receiving a portion of such matrices and carrying them in the reverse direction; also, the first to employ an inclined toothed distributor-bar of the type herein described and the first to combine with such bar means for imparting motion thereto. I prefer to use the arrangement shown, in which the sorts-matrices travel through the main distributing mechanism before being conducted to the second distributor, for the reason that this arrangement avoids change in the commercial machine; but it is to be understood that the sorts-matrices may be released at the entrance to the main distributor, in which case the conductor J will be extended to the left side of the distributor, as indicated by the dotted lines in Fig. 1, so as to avoid the carrying of the sorts-matrices through the main distributor.

By the term "magazine," as herein employed, is meant a holder or receiver in which

the matrices are assorted and arranged in rows or columns, all matrices bearing the same character being in the same column.

Having described my invention, what I claim is—

1. In a linotype-machine, a magazine, a distributor coöperating therewith, and a corresponding set of matrices, in combination with a second and independent magazine and a distributor therefor, both out of line with those first named, a second set of matrices permuted to correspond with the second distributor, means for conducting the matrices of the second set from the first distributor, and a feed device for delivering said matrices from the conductor to the second distributor.

2. In a linotype-machine, the main elevated magazine, its distributor and a corresponding set of matrices, in combination with a second magazine at a lower level within reach of the operator, an independent distributor and corresponding matrices for the second magazine, a feed device for the second distributor, and means for conducting the matrices of the second set from the first distributor to said feed device.

3. In the linotype-machine, the combination of two distinct and differing distributor-bars, means for feeding the matrices in one direction along the first distributor-bar, means for conducting the matrices which are not distributed thereby to the second distributor-bar, and means for advancing the matrices in a reverse direction along said second bar, whereby the use of the two magazines is permitted without increasing the width of the machine.

4. In a linotype-machine, a distributor through which the matrices pass in one direction, a secondary distributor through which the matrices pass in the reverse direction, means for transferring matrices from the first to the second distributor and matrices each adapted to be distributed by one of the mechanisms only whereby the use of a second magazine directly in front of the operator is permitted.

5. In a linotype-machine, two independent magazines, lying one in front of the other, in combination with a distinct distributor for each magazine and means for delivering all the matrices to the first distributor, and thereafter delivering the matrices which are not distributed thereby to the second distributor.

6. In a linotype-machine, a toothed distributor-bar, having an inclination insufficient to cause the matrices to slide thereover, in combination with means for imparting motion to said bar to insure the slow travel of the matrices thereon whereby the danger of the matrices being carried past the proper points and of their adhering to each other is avoided.

7. In a linotype-machine, the combination of a toothed distributor-bar, having an inclination insufficient to cause the descent of the matrices when the bar is stationary, in

combination with a tappet for imparting vibrations thereto, whereby the matrices are caused to advance slowly along the bar and to maintain their separation during their travel.

5 8. In a linotype-machine, the combination of a toothed distributor-bar, substantially as described, means for delivering the matrices successively in a downward direction to a position opposite the end of said bar, and a
10 pusher device acting against the sides of the matrices to push them into engagement with the bar.

9. In a linotype-machine, the distributor-bar, the rotary pusher-wheel, and a conductor through which the matrices descend successively in front of said wheel.
15

10. In a linotype-machine, a magazine having a series of channels, open at their upper ends to receive the matrices and having at
20 their lower ends openings to permit the removal of individual matrices, in combination with an overlying distributor-bar, means for

guiding the matrices in a downward direction to the end of the distributor, and means for causing the matrices to advance successively 25 upon the distributor, substantially as described and shown.

11. In a linotype-machine and in combination with the ordinary magazine and distributor, a conductor, J, for delivering the sorts- 30 matrices in a downward direction from said distributor, a secondary magazine at the lower end of said conductor, a distributor overlying the secondary magazine, and means for delivering the matrices successively from the 35 lower end of the conductor to the secondary distributor, substantially as described.

In testimony whereof I hereunto set my hand, this 7th day of November, 1898, in the presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:

M. C. RESEK,
JOHN PAULSEN.