

(Model.)

E. L. HUTCHINSON.

AUTOMATIC TELEGRAPHIC TRANSMITTER.

No. 254,977

Patented Mar. 14, 1882.

Fig. 1.

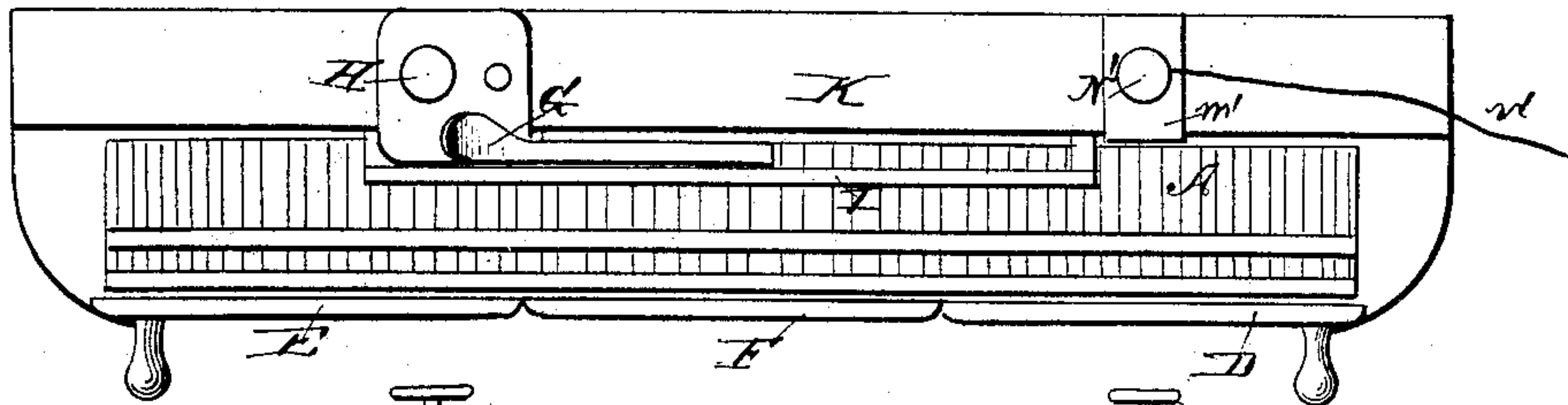


Fig. 2.

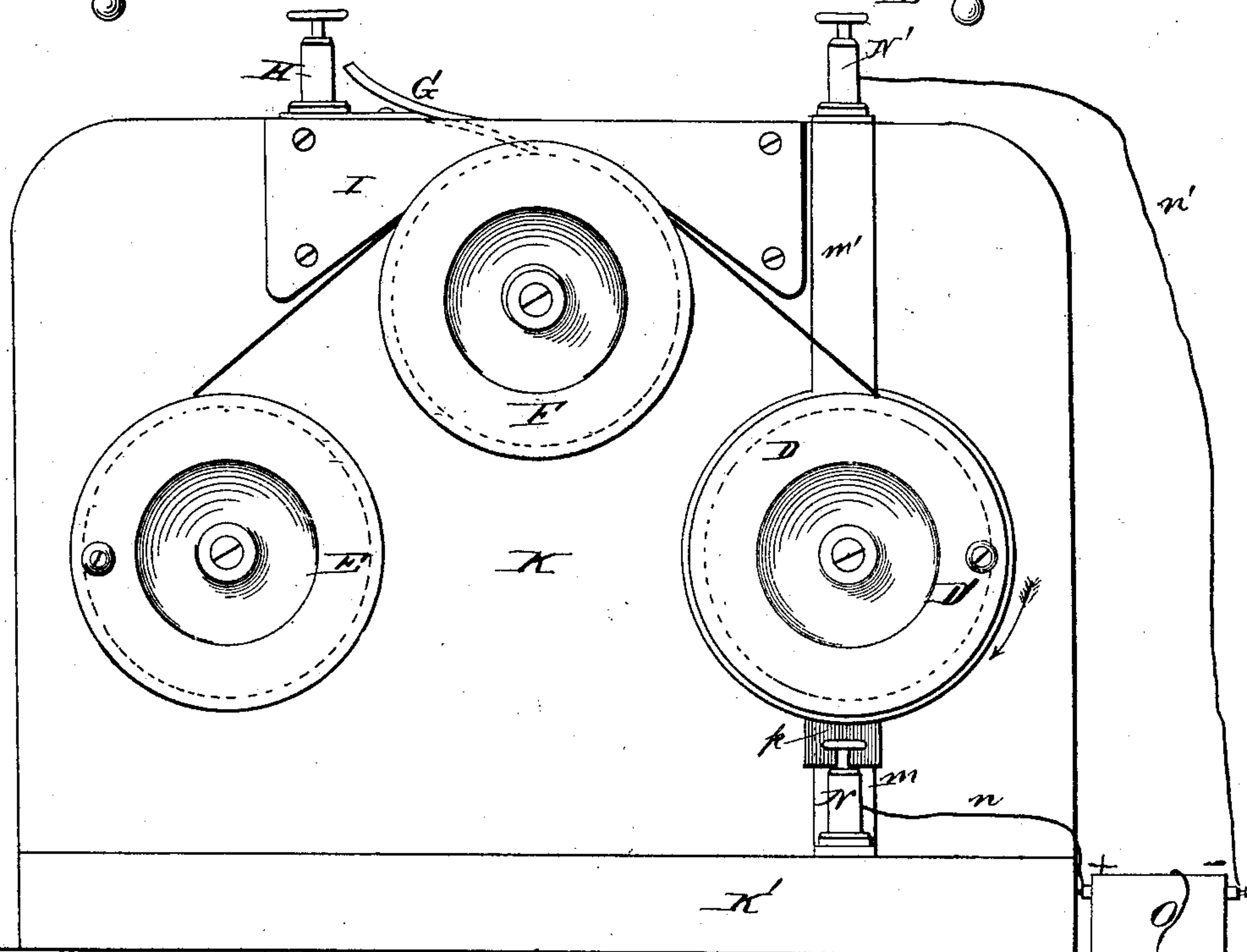


Fig. 3.

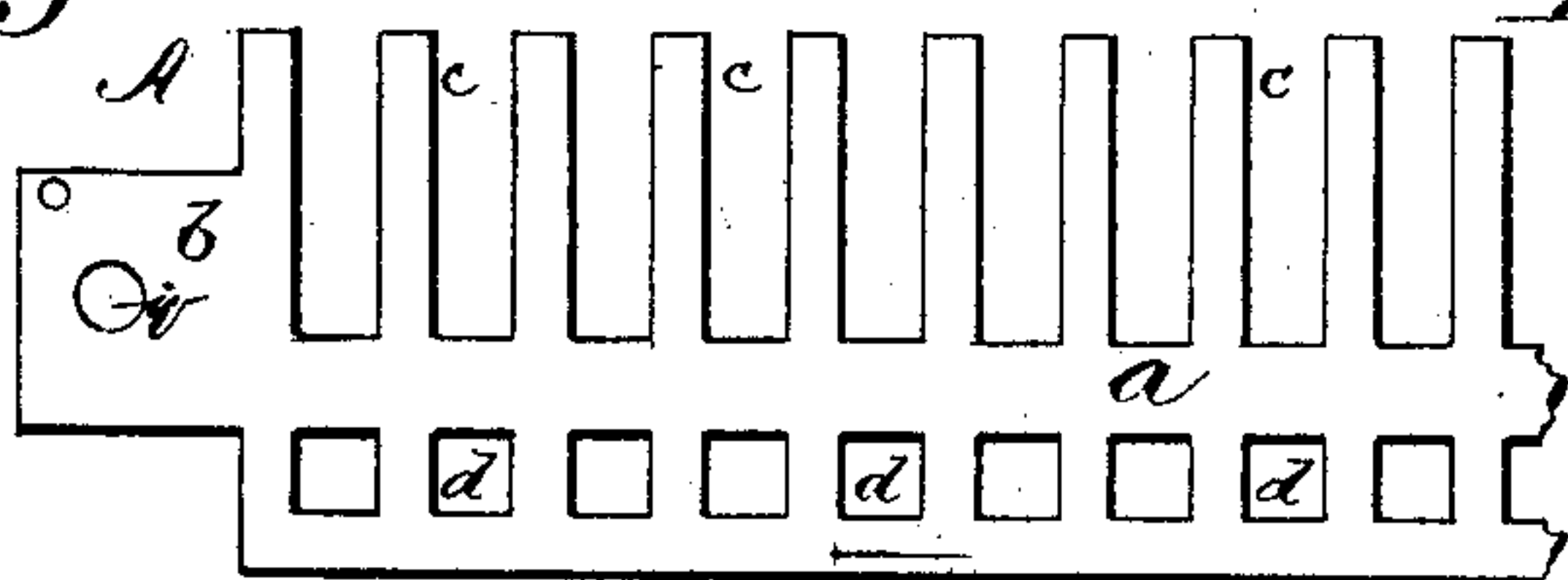


Fig. 4.

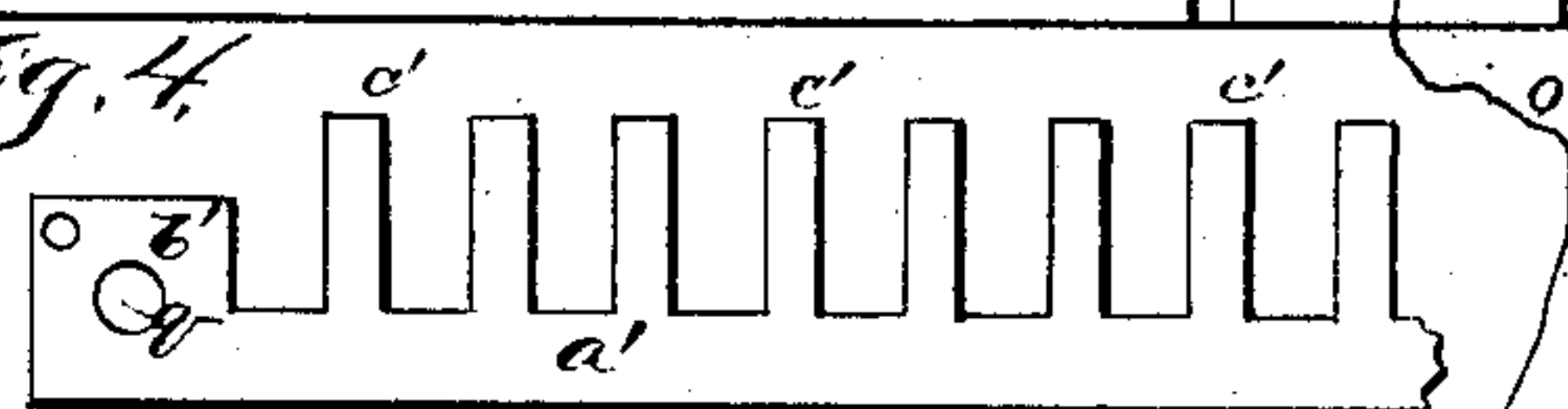


Fig. 5.

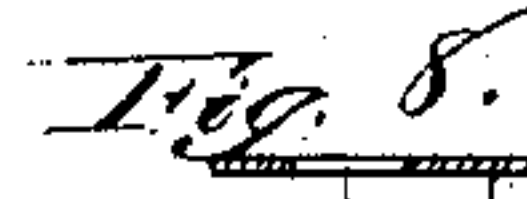


Fig. 6.

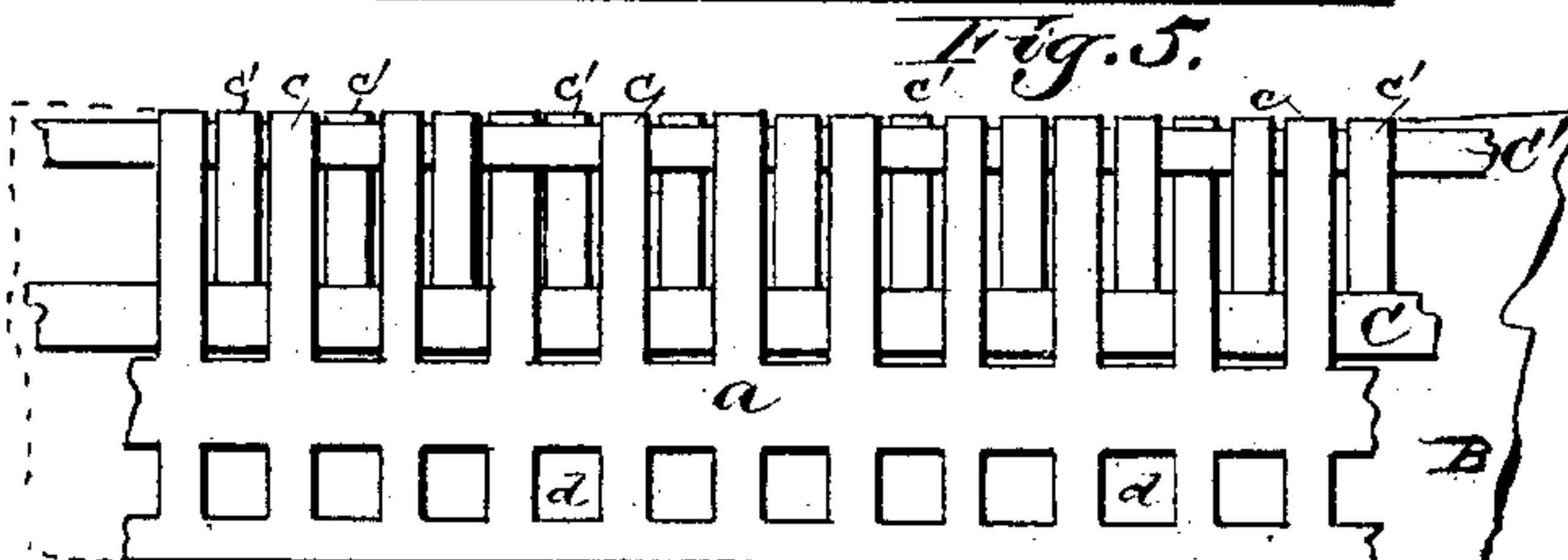
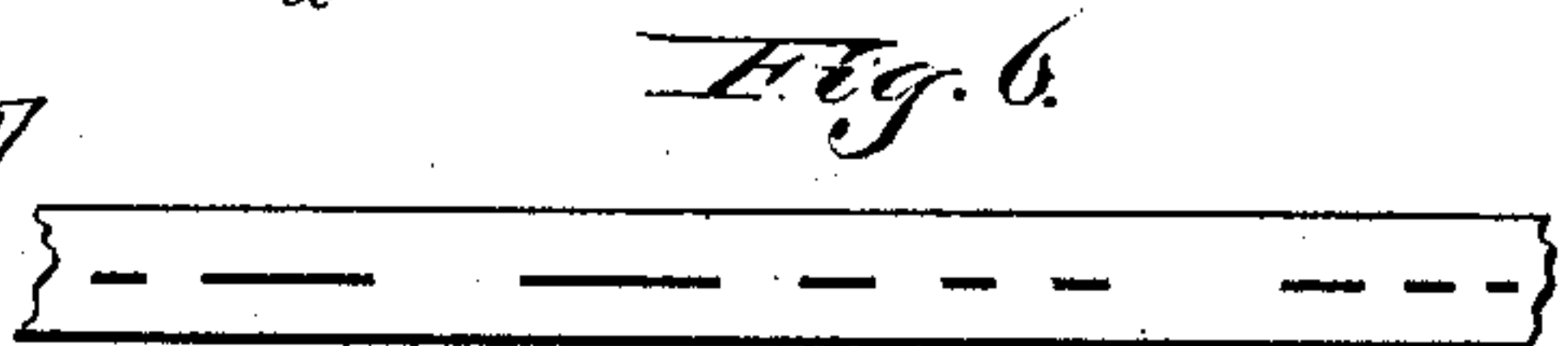
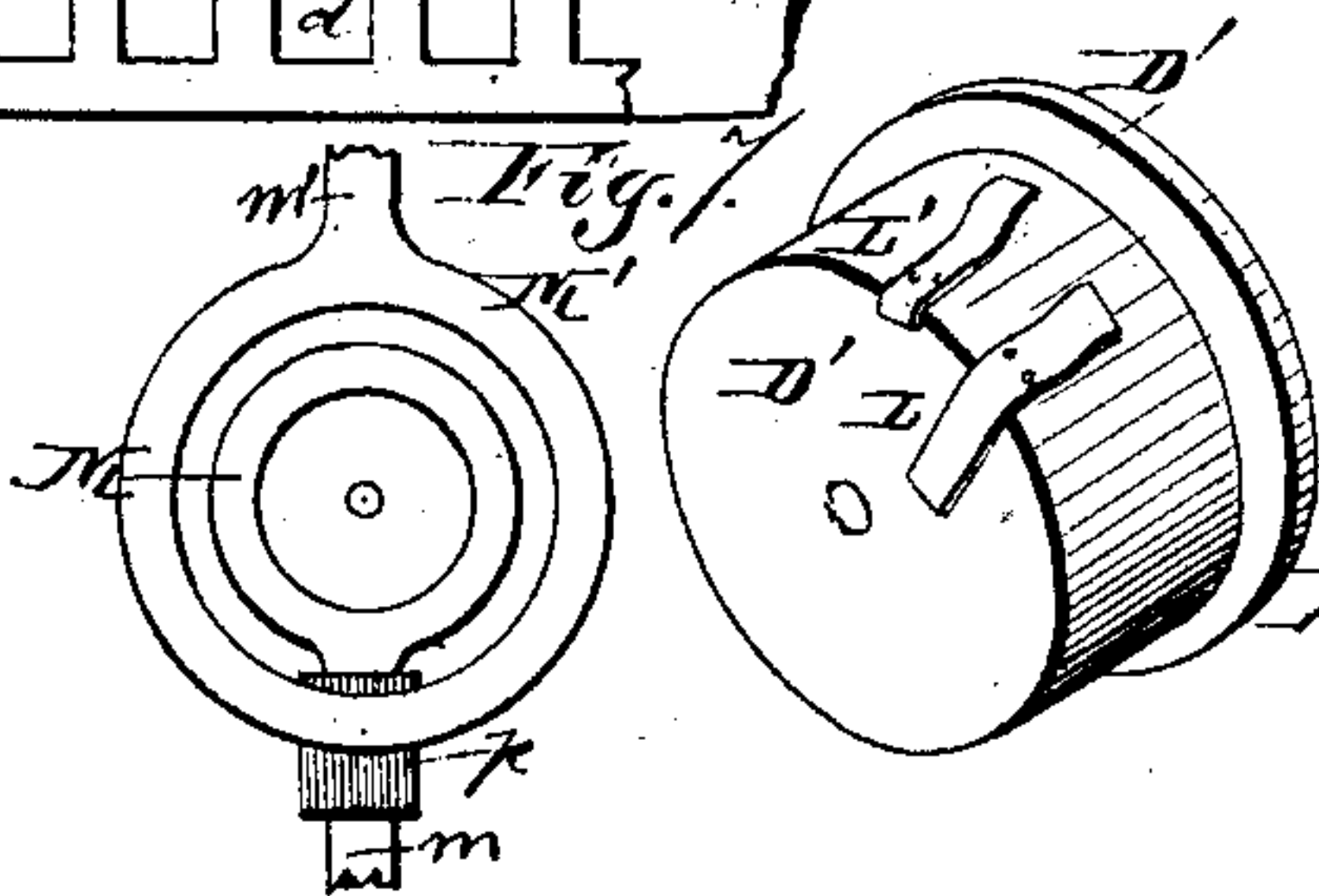


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC TELEGRAPHIC TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 254,977, dated March 14, 1882.

Application filed May 18, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, EDWIN L. HUTCHINSON, of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Telegraphy; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to transmitting devices for use in automatic chemical-telegraph systems, its object being to obviate the enormous waste of material attending the use of the ordinary perforated paper fillets, one of which must be prepared for each message sent, and is worthless after a single use; and, further, to produce a transmitting-fillet more effective in its operation, and upon which the message can be prepared by mechanism much less complex and costly than that now used for perforating fillets of paper.

My invention consists, first, in a novel transmitting-fillet, composing a series of contact plates or pieces, of metal or other electrical conducting material, preferably of hard-rolled brass, on which the message can be prepared or arranged for transmission, and after transmission the fillet restored to its normal condition, being then capable of use again for transmitting other messages, as will be hereinafter more particularly described; second, in a novel apparatus for use in connection with my improved transmitting fillet and for moving the same, so that the contact plates or pieces will come in contact with a suitable style, which forms the terminal of the telegraph-line, and at the same time in electrical connection with one or the other pole of a battery.

In the accompanying drawings, Figure 1 is a top view of my improved transmitting-fillet arranged for use in the apparatus by which it is moved under the style. Fig. 2 is a side elevation of the apparatus with the fillet in place. Figs. 3 and 4 are views of portions of the separate metallic parts of the fillet. Fig. 5 is a view of a portion of a complete fillet, illustrating the manner in which it is prepared for

use. Fig. 6 is a view of a portion of a receiving-fillet of paper with characters thereon of the Morse alphabet. Fig. 7 is a detail view. Fig. 8 is a cross-section through the fillet and the protecting-base.

The transmitting-fillet A, as shown in Fig. 3, is composed of two metallic parts, *a* *a'*. (Shown separately in Figs. 3 and 4, respectively.) These parts I preferably form of hard-rolled sheet-brass. The part *a* consists of a strip of the sheet-brass, having projecting from one edge a series of tongues, *c*, arranged at equal distances apart, and near the other edge of said strip a series of perforations, *d*, for a purpose to be hereinafter explained, and at the end of the strip is a narrow extension, *b*, by which it is secured to one of the manipulating-reels. The other metallic part, *a'*, consists of a similar strip of brass, having projecting from one edge a series of tongues, *c'*, similar to the tongues of the part *a*, but much shorter. These two metallic parts are combined to form a complete fillet by securing them flatwise to a strip of paper, B, (shown in dotted lines in Fig. 5,) the tongues of the strips being left free; but the paper B projects as far as the ends of the plates or pieces for the purpose of protecting them from harm during the transmission of a message and the removal to the composing-machine. The part *a'* is placed under the tongues of the part *a*, between which its own tongues are arranged, while its main portion is separated therefrom by an interposed tape, C, the extensions *b* and *b'* of the two parts being separated by any suitable insulating substance. If the strip *a* is connected with the positive pole of the battery, then all the adjustable conducting-tongues *c* which are attached to said strip are in electrical connection with the positive pole of the battery through the strip *a* as a common conductor for them; and if the strip *a'* is connected to the negative pole of a battery, then all the adjustable conducting-tongues *c'* which are attached to strip *a'* are in electrical connection with the negative pole of the battery through the strip *a'* as a common conductor for them.

The tape C' shown in Fig. 5 is used for main-



taining the tongues in the proper relative positions to form a message, as will be hereinafter explained. When in use the fillet causes electrical currents of alternately-opposite polarity or direction to traverse the line-wire, the part *a* being connected to one pole and the part *a'* to the other pole of a battery, the middle of which is connected to the ground after the usual manner of arranging batteries for use in double-current transmission or sending reversed currents.

It should here be remarked that the series of perforations with which the part *a* is provided have no function in the transmission of a message. Their function is to supply a method or vehicle by which a toothed wheel or equivalent device in the composing-machine can engage with the fillet for the purpose of feeding it along as the message is built up, and relate only to the treatment of the fillet in the composing-machine by which the tongues are arranged to represent messages, and for which I intend making a separate application for Letters Patent on the composing-machine in which the tongues or adjustable conductors of the fillet are arranged to represent messages.

The transmitting apparatus illustrated in Figs. 1 and 2 consists of two suitably-mounted reels, D and E, to which the opposite ends of the transmitting fillet are attached, an intermediate somewhat-elevated friction transmitting drum, F, and a metallic spring-style, G, with its point arranged above said drum and its other end connected to a binding-post, H, for connection with the line.

The letter I indicates a guide-plate, supported by strips parallel with the upper portion of the vertical supporting-board K, upon which the various parts of the apparatus are mounted. This guide-plate I is made of non-conducting material, and its lower edge, at its middle portion, is curved to conform to the periphery of the drum F. It stands intermediately over the peripheral face of said drum, and at a proper distance therefrom to allow the passage of the transmitting-fillet, and hold said fillet snugly to the drum, and prevent its tongues from rising out of place.

The reel D has fixed upon the periphery of its core or drum D' two metallic springs, L and L', the ends of both of which are bent over the inner end of said core, as shown in Fig. 7, the longer spring L standing out a little from the end of said drum and coming in contact with an annular metallic plate, M, fixed to the surface of the board K, and having an extension, *m*, which leads downward to a binding-post, N, arranged upon the base K', which post is connected by a wire, *n*, with the positive pole of the battery O.

The tip of the spring L' comes in contact with an annular metallic plate, M', fixed upon board K concentrically with the plate M, but separated therefrom by an intervening space, and insulated from the extension *m* by an interposed strip, *p*, of insulating material. The

annular plate M' has an extension, *m'*, leading to the top of the board K and connected to a binding-post, N', with the negative pole of the battery O. The middle of the battery is connected with the ground by a wire, *o*.

When the end of the fillet A is attached to the reel D the part *a* is brought in metallic contact with the spring L', and is thus connected with the negative pole of the battery, and the part *a* is placed in metallic contact with the spring L, and is therefore connected with the positive pole of the battery.

The end of the fillet is secured to the drum in any suitable manner, preferably by a pin projecting from the periphery of the drum through coincident perforations *q q* in end extensions of the two parts of the fillet, the pin being of non-conducting material, and the said extensions properly insulated from each other, as before explained. The opposite end of the fillet is to be secured to the reel E in any suitable manner, this reel not being connected with the battery. The part of the fillet A between the two reels passes over the drum F and under the edge of the guide-plate I.

The mode of using the fillet and apparatus as now described is as follows: The two metallic parts *a a'* of the fillet and the separating-tape C, having been permanently secured to the paper strip B, are interwoven between the ends of the respective tongues *cc'* to form a message, those tongues which are to contact with the style being above the tape, and those which are to send no current being below it. Now, supposing the fillet to be wound upon the reel E and its end connected, as before described, with the reel D and the metallic springs thereon, the said reel D being turned by its handle D' in the direction of the arrow, the tongues above the tape C' will come in contact with the point of the style G. When one of the tongues, *c*, touches the style, the positive current will flow from the battery over wire *n'*, binding-post N', extension *m'*, annular plate M', spring L', the metallic part *a*, the tongue *c* in contact with the style G, and over the style to the line, the effect at the other end of the line being the forming of a mark upon the receiving-fillet of the receiving apparatus, any of the well-known forms of which, using a single style, may be used in connection with my improved transmitting-fillet and apparatus. When one of the tongues, *c'*, comes in contact with the style, a negative current flows from the style to the tongue over the part *a'* of the fillet, spring L, annular plate M, its extension *m*, binding-post N *n* to the positive pole of the battery.

In order to record a dot, one of the tongues, *c*, comes in contact with the style and sends a positive current, being immediately followed by a contacting tongue, *c'*, which causes a negative current to traverse the line, clearing it of the previously-sent positive current and preventing tailing on the receiving-fillet, according to the ordinary function of the negative current in such apparatus. The sending of the



negative currents causes blank spaces to be left between the characters, the extent of the space being regulated by the number of negative currents which succeed each other consecutively; or, in making a double space, a negative contact-tongue may be followed by a positive tongue held out of contact with the style by the tape C'.

In order to record a dash, two or more positive tongues, *c*, follow each other consecutively in contact with the style, or one of the positive tongues, *c*, may be followed by a negative tongue, *c'*, held out of contact with the style by the tape C', so that no current will be sent, but the tailing resulting from the charging of the line, as is well known, will cause a lengthening of the mark upon the recording-fillet. If, then, another positive tongue immediately contacts with the style, the mark caused by the tailing is continued, and may be cut off short by the sending of another negative current, thus giving a clearly-defined ending to the dash, which will cover a space corresponding to three tongues, two positive and an intervening negative, which was held out of contact with the style, and therefore did not clear the line of its charge, which caused the tailing between the two positive impulses. By the proper interweaving of the tape C' between the ends of the tongues *c'* and *c* it will be seen that any arrangement desired may be made for transmitting a message, which will be received in dots and dashes, according to the Morse alphabet, a sample of which is shown upon the receiving-fillet in Fig. 6.

I do not limit myself to paper as the material for the strip upon which the two parts of the fillet are secured, as any suitable pliant non-conducting material may be used. This strip, while holding the two metal parts in proper relation to each other, serves also to insulate the coils of the metal parts from each other when the fillet is wound on the reels, thus preventing short-circuiting. Further, I do not confine myself to any particular manner or devices for attaching the end of the fillet to the reel, so that connection can be made between the two metallic parts of said fillet and the opposite poles of the battery respectively, as it is obvious that various arrangements may be made for this purpose without departing from the principle of my invention.

A fillet for single-current transmission may be constructed according to my invention, in which fillet but one of the metallic tongued parts will be required, connection being made therefrom to a single pole of the battery, and the composing-tape C', as shown in dotted lines in Fig. 4, being used to bring certain tongues in contact with the style and insulate others therefrom. Such a fillet could be used on short lines, where very rapid transmission is not required.

Having now described my invention, what I claim is—

1. A transmitting-fillet for telegraphic pur-

poses, consisting of a series of adjustable conductors connected with a common conductor, but separated from each other by intervening spaces, substantially as described, and for the purpose set forth.

2. A transmitting-fillet for telegraph purposes, consisting of a band or strip of conducting material secured upon a band of non-conducting material, and having projections or tongues separated from each other by intervening spaces and adjustable for arrangement in or out of line with each other, for the purpose of touching or not touching a style under which the fillet is drawn, essentially as described.

3. A flexible transmitting-fillet for telegraphic purposes, consisting of two flexible metallic strips, each having laterally-projecting tongues equally separated by intervening spaces, said strips being secured to a common flexible non-conducting band, with the tongues of one of said metallic strips arranged between those of the other, and means for adjusting the various tongues in or out of line with each other, so that only such as desired may come in contact with a style under which the fillet is drawn.

4. In a transmitting-fillet for telegraphic purposes, the combination, with the two tongued metallic strips and flexible non-conducting base-strip, substantially as described, of the composing-tape arranged to be interwoven between the tongues of said strips, essentially as and for the purpose set forth.

5. In an automatic telegraph transmitting apparatus, the combination, with the transmitting-fillet having the two metallic parts, constructed and adapted for arrangement substantially as described, of the supporting or transmitting drum, the fillet-moving drums, one of which is provided with means for connecting the separate metallic parts of the strips with the opposite poles of the battery, respectively, and a suitable style arranged to come in contact with the fillet in its movements, essentially as set forth.

6. In an automatic telegraphic transmitting apparatus, the combination, with a metallic transmitting-fillet, constructed substantially as described, of the two reels for supporting and moving said fillet, one end of said fillet being electrically connected to a battery by means of intermediate connecting devices operated by one of the drums, the intermediate drum for guiding the same, and the style arranged adjacent to said intermediate drum, substantially as described.

7. The transmitting-fillet composed of a flexible non-metallic strip, a series of separated conducting plates or pieces secured to said strip, and means for preventing such of said plates or pieces as desired from coming in electrical contact with a style in mechanical contact with which the fillet is drawn.

8. The combination, in an automatic transmitting-fillet for telegraphic purposes, of ad-

justable contact plates or tongues, with a flexible non-conducting base or band, to which the tongues are attached, and which projects as far as the ends of the adjustable tongues for  
5 the purpose of protecting said tongues, substantially as described.

In testimony that I claim the foregoing as

my own I affix my signature in presence of two witnesses.

EDWIN I. HUTCHINSON.

Witnesses:

EDWIN BALDWIN,  
ABEL E. BLACKMAR.