

Patented Feb. 27, 1900.

(Application filed Aug. 11, 1899.)

(No Model.)

2 Sheets—Sheet 1.

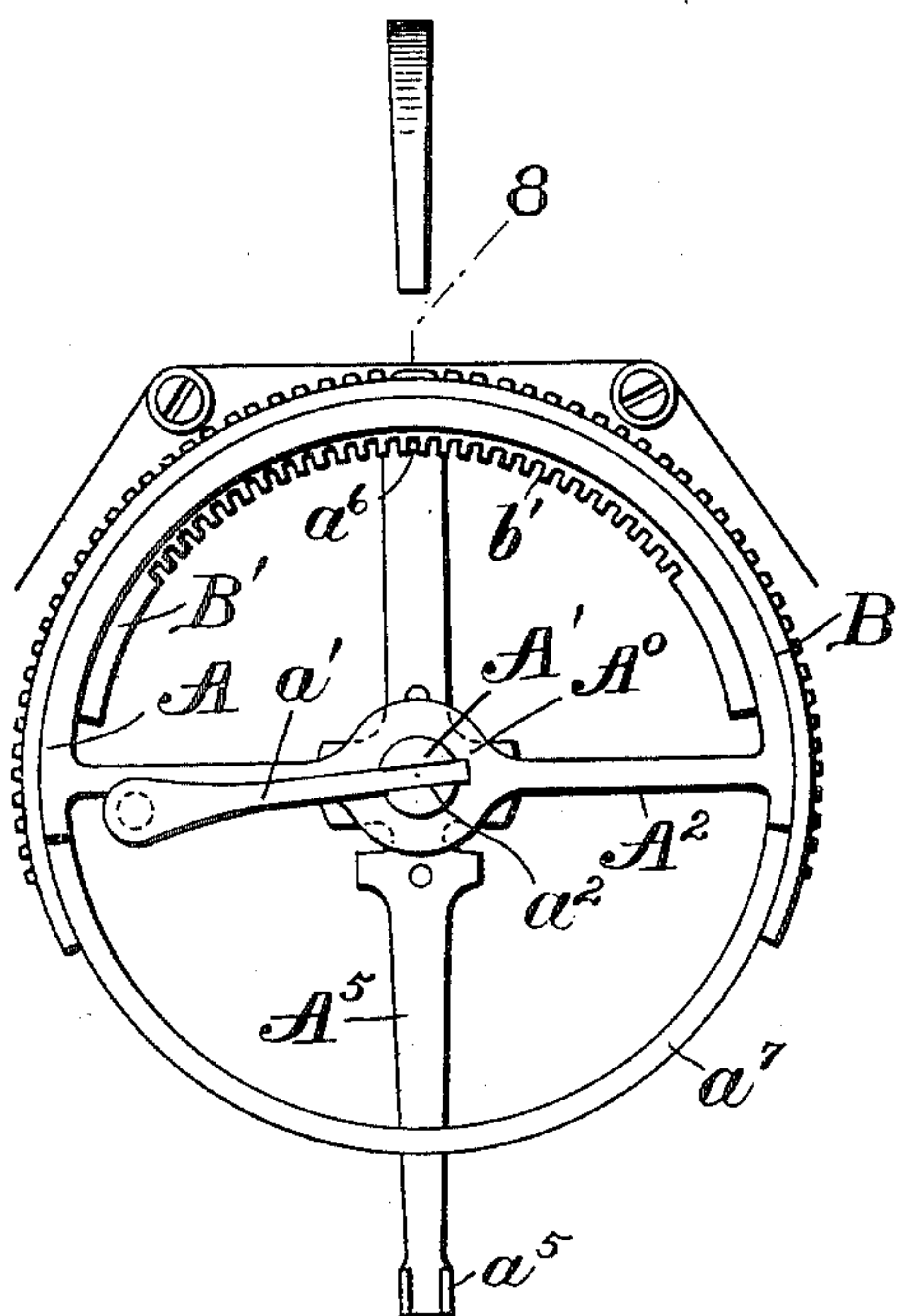


Fig. 2.

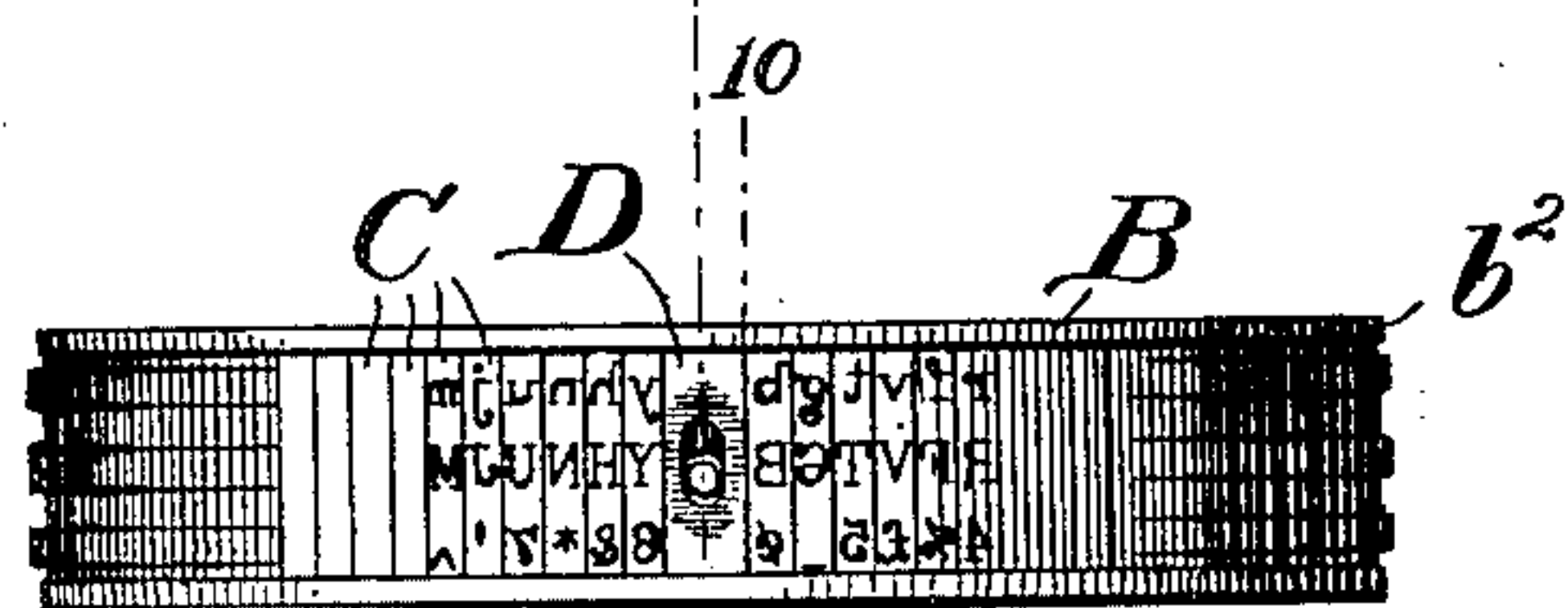
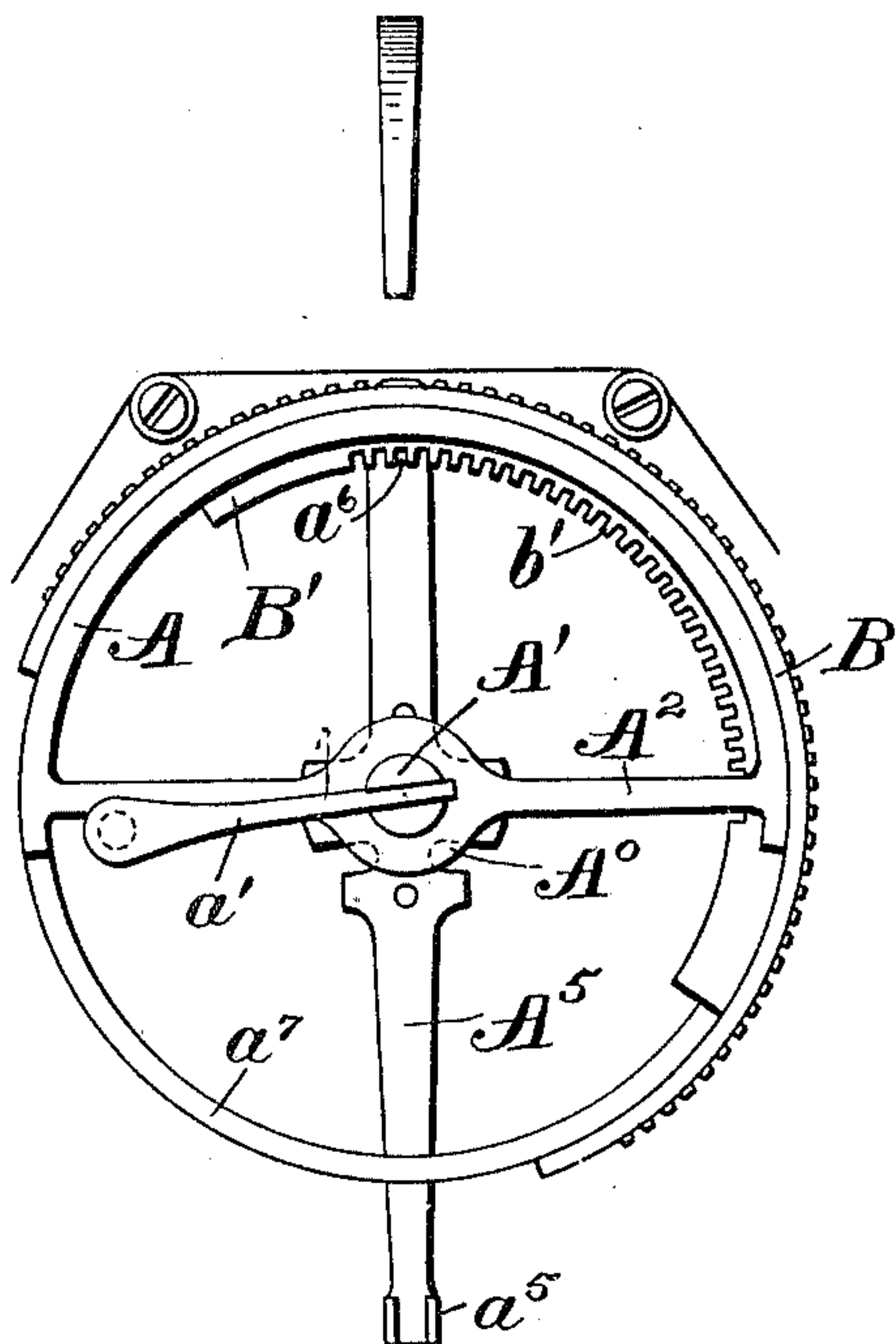
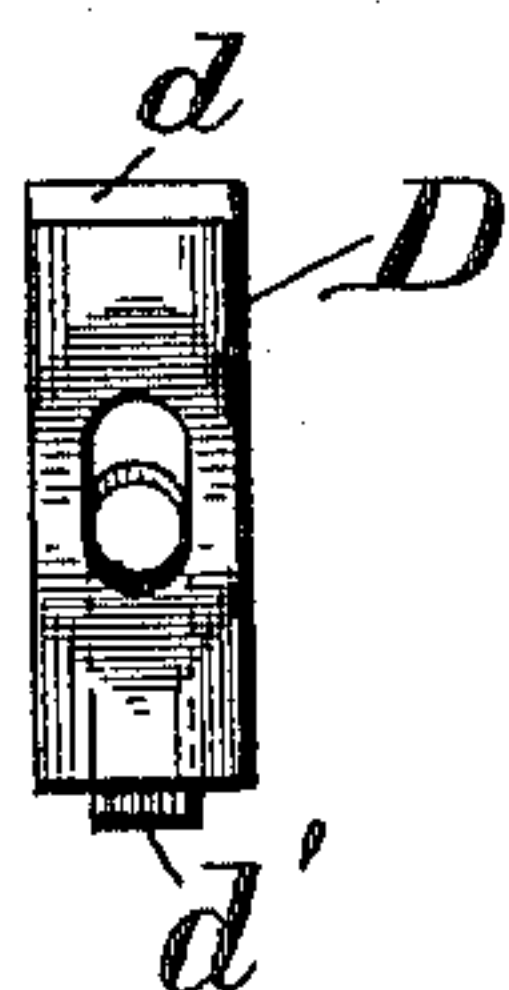


Fig. 3. 8¹⁰



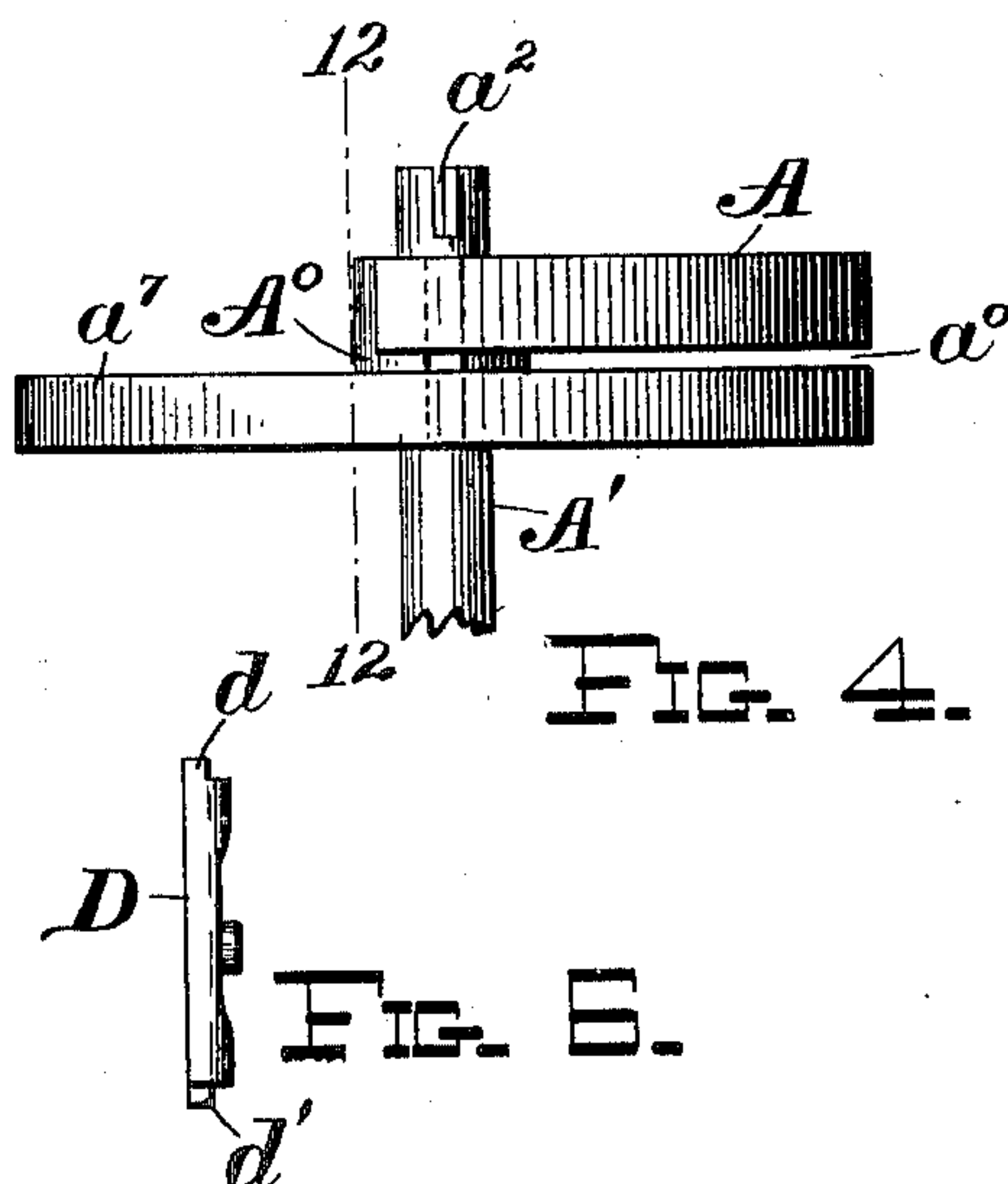


FIG. 4.

FIG. 3.

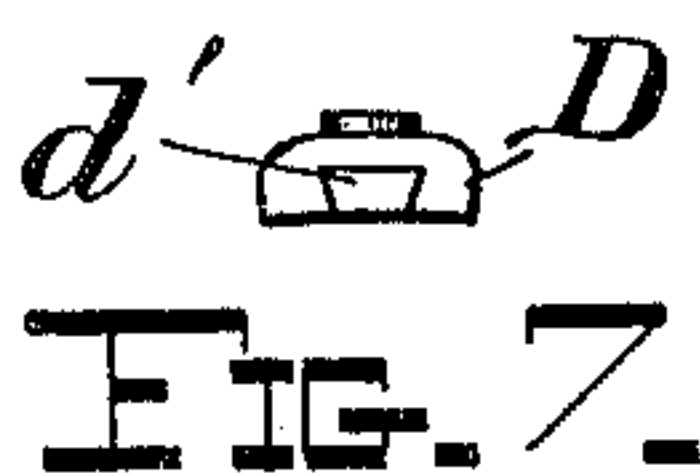


FIG. 7

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No. 644,166.

Patented Feb. 27, 1900.

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CRYPTOGRAPHIC TYPE WRITING MACHINE.

(Application filed Aug. 11, 1899.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 8.

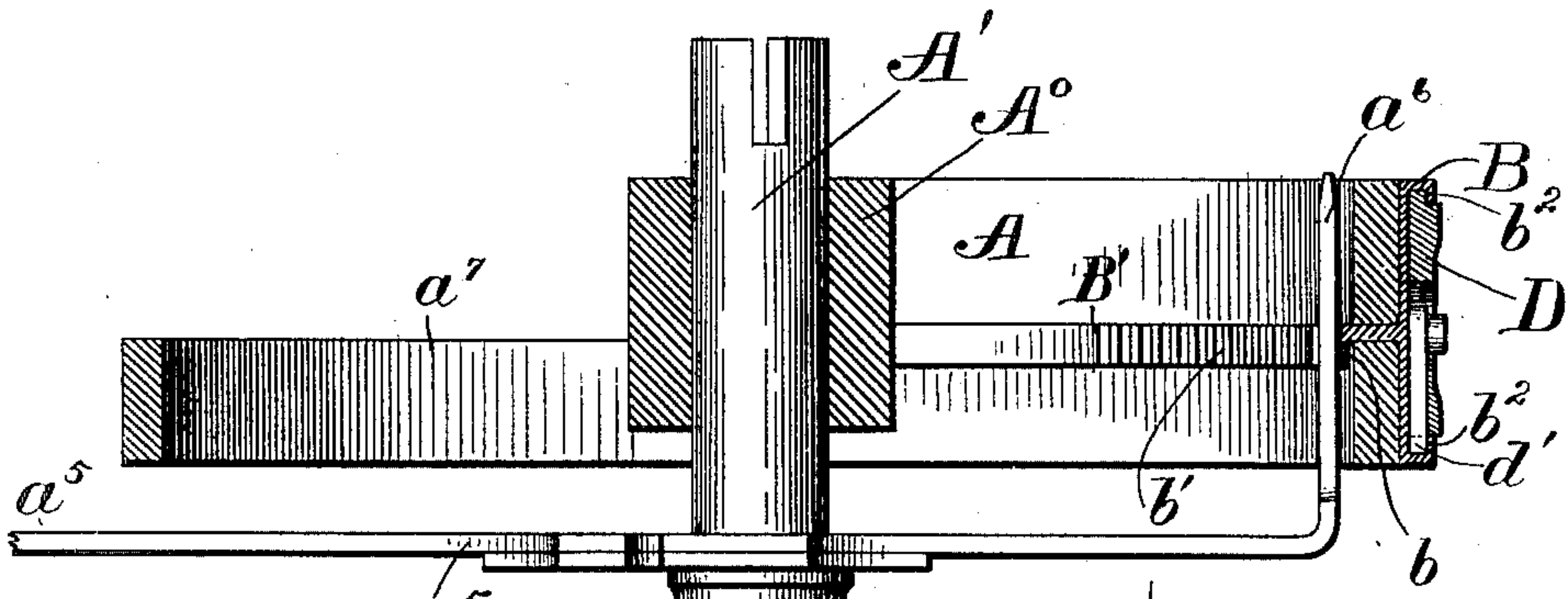


FIG. 14.

FIG. 12.

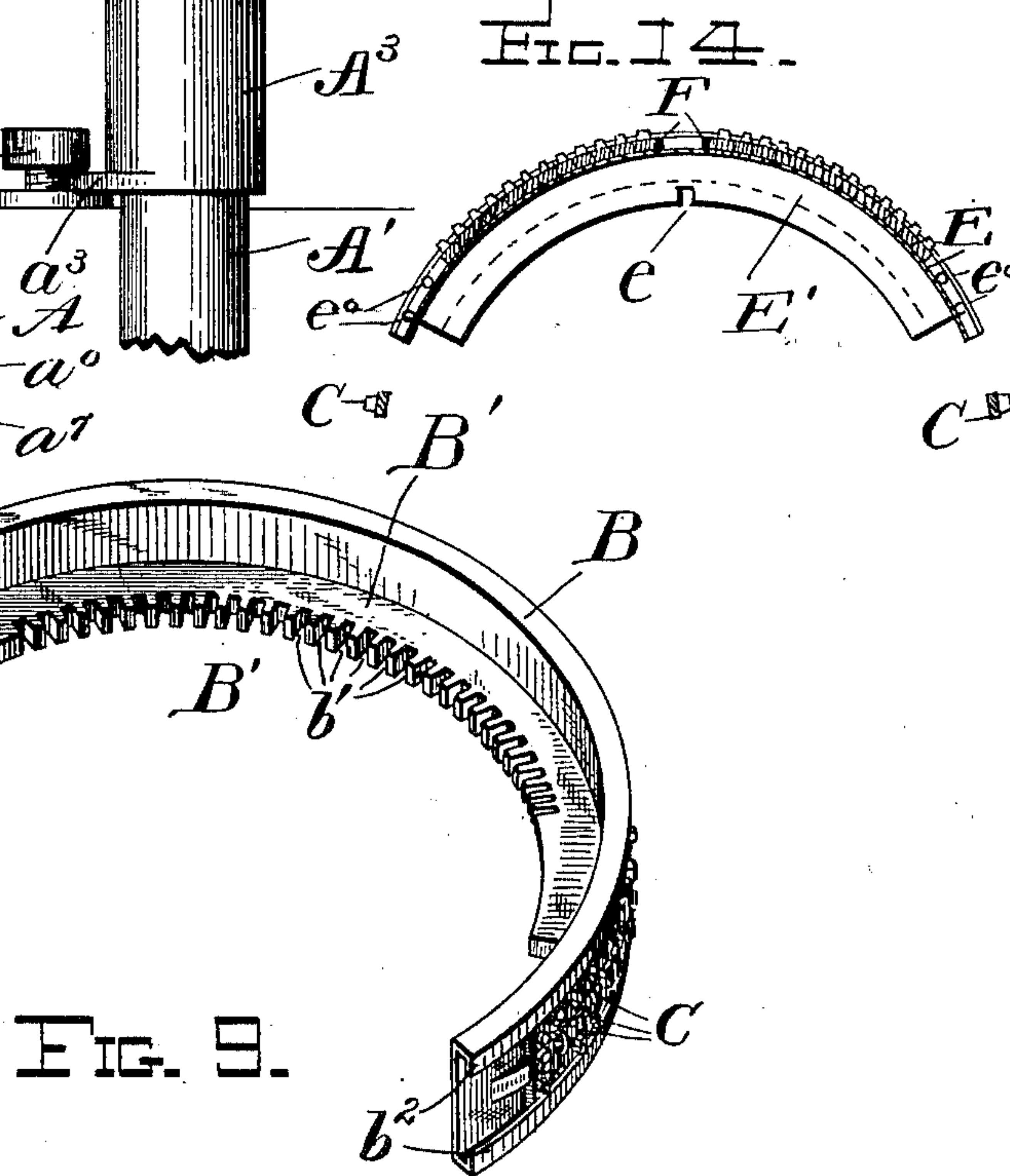
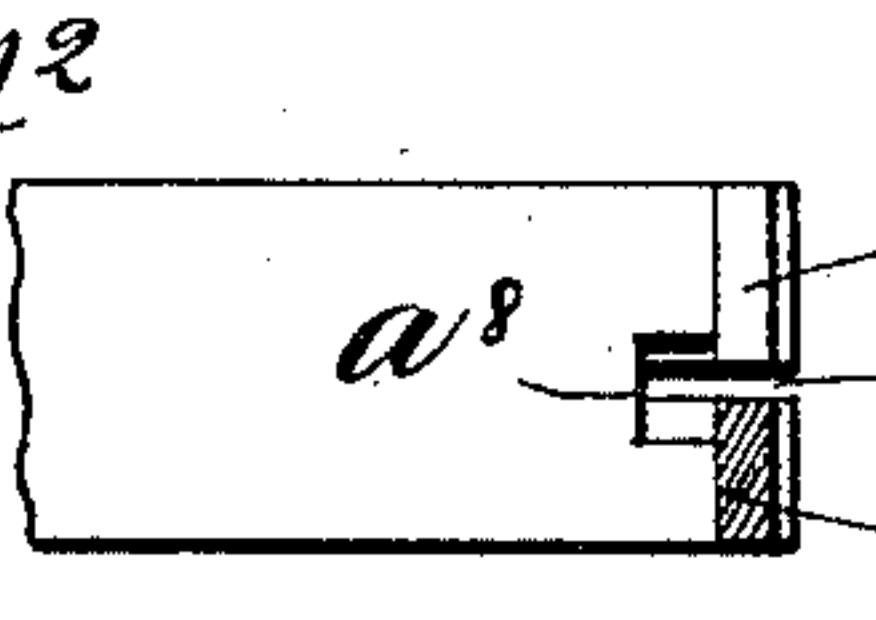
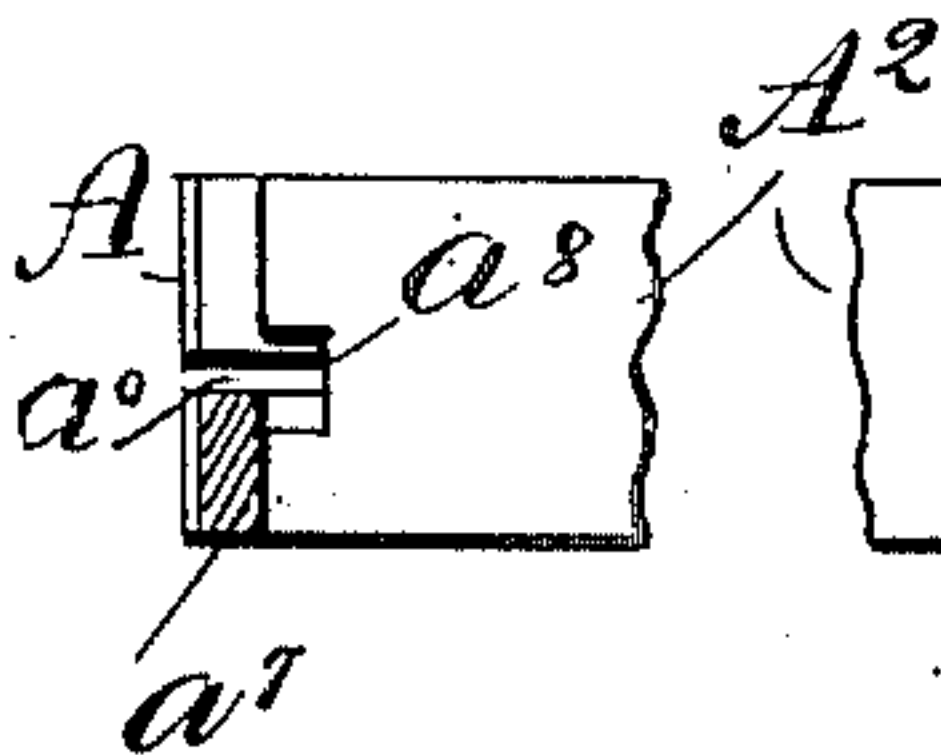


FIG. 13.

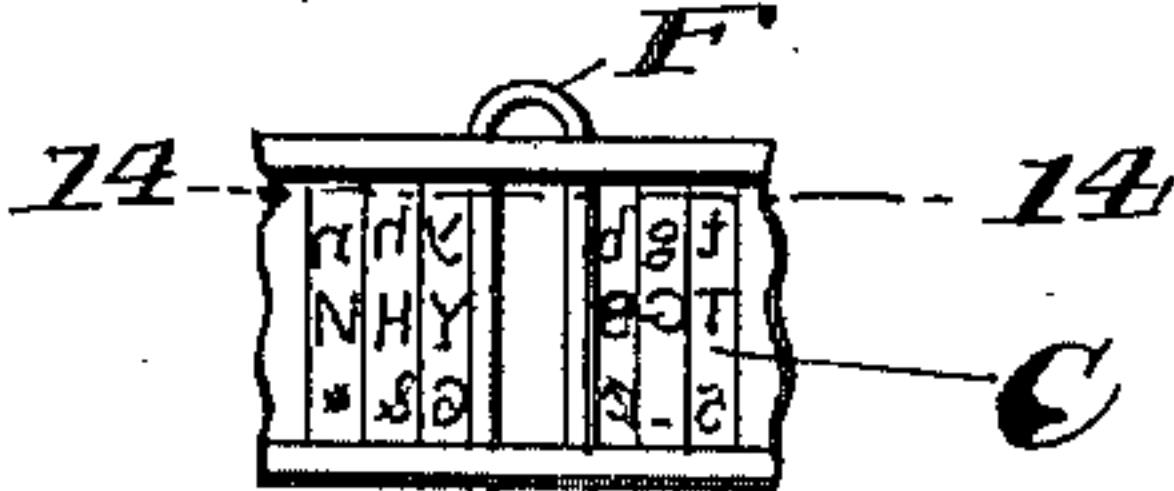


FIG. 9.

FIG. 10.

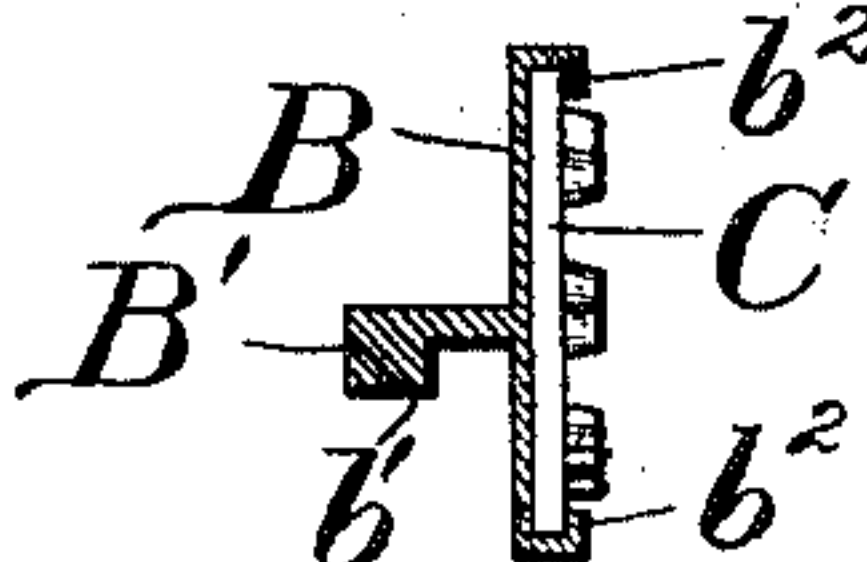


FIG. 11.



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CRYPTOGRAPHIC TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 644,166, dated February 27, 1900.

Application filed August 11, 1899. Serial No. 726,925. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. FRERET, Jr., and HARRY S. LEWIS, citizens of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Cryptographic Attachments for Type-Writing Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in type-writing machines, and particularly to certain improvements for facilitating cryptographic writing by such machines and the transposition by the same machine of cryptographic writing into intelligible words and sentences.

Our invention consists in a type bar or segment constructed so as to be adjusted with respect to its carrying-stem and locked irrespective of the keyboard, and certain novel features hereinafter described and claimed.

Our invention will be understood by reference to the accompanying drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a top plan view of one form of our invention in which the type bar or segment is set for intelligible writing. Fig. 2 is a similar view in which the type bar or segment is shown as adjusted for cryptographic writing. Fig. 3 represents an elevation of the type bar or segment, showing the movable type-section. Fig. 4 is an elevation of the "anvil" or carrier upon which the segmental type-bar may be adjustably mounted. Fig. 5 is an enlarged detail elevation of the removable and adjustable type-spacer shown in Fig. 3. Fig. 6 is an edge view of said type-spacer. Fig. 7 is a bottom end view of the same. Fig. 8 is an enlarged sectional view of the type bar or segment and its carrier, taken on the line 8 8 in Figs. 1 and 3. Fig. 9 is an enlarged perspective view of the type bar or segment carrying the sectional adjustable type, such as shown in Fig. 3. Fig. 10 is a sectional view taken on the line 10 10 in Fig. 3, somewhat enlarged. Fig. 11 is a face view of one of the sectional type-pieces. Fig. 12 is a sec-

tional view taken on the line 12 12 in Fig. 4, showing passage for the rib on the type-bar. Fig. 13 is a fragmentary face view of a portion of the segmental type-bar, showing a modified form of type-spacer. Fig. 14 is a sectional view of a modified form of type-bar in which only one set of type is used, the section being taken on the line 14 14 in Fig. 13.

In all type-writing machines wherein is used a bar, cylinder, or wheel carrying the type provision is made for so moving the said type bar, cylinder, or wheel when each separate type-key is struck that the type corresponding with the key struck is brought into alignment for producing its impression upon the paper. In type-writing machines of this character as used for ordinary writing the type bar, cylinder, or wheel has one set adjustment when the machine is at rest, from which it is moved upon the depression of any certain type-key to the position which will bring the corresponding type into position for printing upon the paper. In all such cases the movement of the type bar, cylinder, or wheel follows a predetermined adjustment of the mechanism which causes such movement, the type having such a fixed arrangement upon the type bar, cylinder, or wheel that when any one key is struck the corresponding type will always be presented to its printing position.

Our invention, while it utilizes the ordinary function of the mechanism for moving the type-carrier, whether it be a bar, cylinder, or wheel, for presenting the type successively to the printing position, provides means for varying the positions of the type with respect to their ordinary fixed positions, so that while the operation of the machine is the same a different effect with respect to the arrangement of characters therein is produced. This result may be produced either by means of a carrier having a set of fixed type (fixed with respect to each other and said carrier having a single adjustment) having an arrangement at variance to the arrangement for intelligible writing or by means of a carrier having one or more adjustable sets of type. In the former case a separate carrier becomes necessary for each combination of characters desired to be written, whether as cipher or as intelligible words. In the latter case a single

carrier, with appropriate adjustment of the type therein, may be used for producing any possible unintelligible or intelligible combination of characters.

5 Referring to Figs. 1 to 11, wherein are shown views illustrating the construction of type-carrier provided with a double set of separately formed and adjustable type-pieces, the said carrier itself being also adjustable upon
10 the anvil, A represents the fixed anvil or carrier support, which is rigidly mounted upon the rod or standard A'. The said anvil A and its standard A' when mounted in the machines have no rotary motion, but are capable of an axial movement for the purpose
15 of presenting the various banks of type to the printing position. The anvil or carrier support is preferably in the form of a ring provided with a cross-arm A², having a central boss A⁰, through which passes and in which is fixed the standard A', as seen most clearly in Fig. 8. The ring A is cut away for about half its width along one side thereof,
20 as seen in Figs. 1, 2, 4, and 8, and is provided with a slot a⁰, which extends the whole length of the wider portion of the ring, communicating with both ends of the cut-away portion. The said ring and its standard A' are held against rotation by means of a key a', which
25 engages an axial slot a² in the upper end of the said standard A'.

A⁵ represents an arm which is pivotally mounted about the standard A' and is secured to a sleeve A³, through which passes
35 loosely the said standard A'. The said sleeve is provided with a lug a³ at its bottom end, which engages beneath a headed screw A⁴ and allows the sleeve A³ and the arm A⁵ a rotary movement about the standard A', but prevents any vertical movement thereof when
40 the said standard A' is moved in the direction of its axis. This arm A⁵ is operated at one end a⁵ by mechanism coöperating with the keyboard, (not shown,) and the opposite end is provided with an upward extension a⁶ at right
45 angles for engaging the type-carrier. This upward extension a⁶ of the pivoted arm A⁵ should be of elastic metal to allow of its ready adjustment in the notches of the type-carrier.

50 B represents the type-carrier, which is shown in the shape of a segmental bar. This consists of a bar of thin metal in the form of a segment of a circle, provided upon its interior with a thin notched rib B', the notches
55 b' being radially disposed with respect to the center of a circle of which the said bar represents a segment. The rib B' is provided upon its inner edge with a flange or enlargement b. The length of the rib B' is somewhat
60 less than the length of the cut-away portion of the carrier-ring A, so that when the bar B is applied to the cut-away portion of the ring A the rib B' will rest upon the upper edge a⁷ of the said cut-away portion, and when the
65 said segmental bar B is turned the said rib will enter the slot a⁰ in the wider portion of the said ring, and the said bar B may be

turned about the said ring, the flange b on the said rib serving to retain the said bar in position upon the said ring. The ends of the
70 cross-arm A² are slotted, as seen at a⁸ in Fig. 12, for the passage of the notched rib B' and its retaining-flange b. The segmental bar B after being placed in its position upon the carrier-ring in the manner described may now
75 be adjusted and set to any desired position upon the said carrier-ring A and locked in such position by means of the upright extension a⁶ upon the pivoted arm A⁵. The number of notches b' formed upon the rib B' corresponds with the number of type-sections in
80 what might be called the "intermediate" set of type which is used with this form of type-bar, and these notches are arranged in radii corresponding to the positions of these type
85 characters. The intermediate set of type carried by the bar B is so arranged as to produce intelligible writing when the locking-arm a⁶ is adjusted to the center one of the notches b'. The type of the intermediate set
90 are arranged upon separate sections C, as shown most clearly in Fig. 3. These sections are fitted upon the outer face of the type-bar, being retained thereon by flanges b², extending from the edges of the said bar partially
95 over the face thereof and forming between them a slideway within which the said type-sections C, each carrying a single vertical series of type, may be securely held and adjustment thereof allowed. When in the po-
100 sition for intelligible writing, this group of sections which compose the intermediate set of type is divided in two equal divisions, the one to the right and the other to the left of the center of the bar, by means of an ad-
105 justable spacer D, which is shown in detail in Figs. 5, 6, and 7 and consists of a piece of wood or metal of the proper size having a reduced end d, arranged to fit beneath one of the flanges b² on the type-bar B, and having
110 a movable catch or bolt d', arranged when projected to engage beneath the opposite flange b² on the said type-bar when the said spacer is applied thereto.

In the arrangement for intelligible writing
115 the spacer is set opposite the central notch in the rib B', in which is engaged the locking-arm a⁶, as hereinbefore described. This intermediate set of type-sections when adjusted as just described is the equivalent of a solid
120 bar of type such as would be used for intelligible writing, and in such arrangement intelligible writing may be produced by the usual manipulation of the keyboard. The other set of type characters come into use only in
125 writing cipher and may be called hereinafter "cipher" set. Its arrangement is as follows: The set is divided into two parts, corresponding exactly as to the arrangement of the characters with the right and left hand divisions,
130 respectively, of the intermediate set, as the latter is used for intelligible writing, and that division of the cipher set of type corresponding to the right-hand division of the interme-

diate set is arranged as a continuation of the
 left-hand division of the intermediate set,
 while, on the other hand, that division of the
 cipher set corresponding to the left-hand di-
 vision of the intermediate set is arranged as
 a continuation of the right-hand division of
 the intermediate set. Thus, beginning with
 the end type character of the left division of
 the intermediate set, the type characters on
 that side are continued along the bar, follow-
 ing the order of arrangement of the type
 characters of the right division, starting with
 its outer end character and stopping with its
 character next to the spacer D, which repre-
 sents the center of the set, and, conversely,
 beginning with the end type character of the
 right division of the intermediate set, the
 type characters are continued along the bar
 on that side, following the order of arrange-
 ment of the type characters of the left di-
 vision of the intermediate set, starting with
 its outer end type character and stopping
 with its type character next to the spacer D.

The type characters of the two divisions of
 the cipher set may be formed in separate sec-
 tions similar to the sections C, composing the
 intermediate set, or, if preferred, the type
 characters of each of the two divisions of the
 cipher set may be formed in a single solid
 group after the manner in which type-bars of
 this character are usually formed, inasmuch
 as the operating center of the type-bar, as
 represented by the notch in the rib B', into
 which the locking-arm a^6 is engaged, will
 never be shifted farther to the one side or
 the other of its normal center than the posi-
 tion corresponding with either of the end
 type of the intermediate set, which also rep-
 resent the limit of adjustment of the spacer
 D. As will be seen, this limit of adjustment
 will allow the bringing into action of as many
 of the type characters in either of the two
 divisions of the cipher set as may be desired.
 For intelligible writing the spacer is adjusted
 to the central position of the intermediate
 set, and the locking-arm a^6 , which represents
 the operating center of the type-bar, is ad-
 justed to the central notch in the series of
 notches b' , as hereinbefore described.

For writing in cipher the spacer D is re-
 moved from its central position and adjusted
 as many spaces to the right or to the left in the
 intermediate set of type as desired, the mov-
 able type-sections C, intervening between the
 center of the bar and the position to which it is
 desired to adjust the spacer, being slid along
 toward the center by means of any suitable
 instrument, and the vacancy left by the spacer
 is thus filled. The locking-bar a^6 is then ad-
 justed to the notch corresponding to the po-
 sition occupied by the spacer D as so adjust-
 ed, and the operating center of the type-bar
 is thus shifted to the desired position for
 cipher-writing. Manipulation of the key-
 board in the usual manner produces not intel-
 ligible writing, but unintelligible combina-
 tions of characters, due to the shifted posi-

tion of the operating center of the type-bar.
 In transposing these unintelligible combina-
 tions of characters the type-sections are shift-
 ed first to their normal position for intelli-
 gible writing, and then, knowing the number of
 spaces covered by the original adjustment,
 the spacer is set at a position as many spaces
 to the other side of the normal center of the
 bar as it was adjusted in producing the unin-
 telligible message. If now the keyboard be
 manipulated, following the characters of the
 unintelligible message in succession as they
 appear, the result will be an intelligible writ-
 ing which corresponds to the keys originally
 struck.

Instead of using two sets of type, as here-
 inbefore described, we may accomplish the
 same result by means of a single set of sec-
 tional adjustable type carried by the type-
 bar. Such a construction is illustrated in
 Fig. 14, wherein the type-bar E is shorter than
 the type-bar shown in Figs. 1, 2, and 9, the
 said type-bar E being of such length as to ac-
 commodate but a single set of type. In such
 a construction the type-sections C are ar-
 ranged so as to be shifted from one end of the
 bar to the other in adjusting the said type-
 sections for cipher writing or transposing.
 This type-bar has a single adjustment, in
 which the locking-arm a^6 engages in the notch
 e upon the rib E' of the type-bar. The type-
 sections are spaced at the center of the bar
 by means of a spacer, which may be similar
 to that shown in Figs. 5, 6, and 7, and here-
 inbefore described, or may be of such a con-
 struction as is shown in Fig. 13, wherein F
 represents a spring-wire device, bent into an
 inverted elongated U shape, which is insert-
 ed through openings in the flanges upon the
 type-bar at the central point of the said bar.

Similar spring devices F are used at the ends
 of the type-bar for retaining the type thereon,
 these retainers being inserted through open-
 ings e^0 . (Shown in Fig. 14.) In using this
 form of type-bar the type thereon have one
 predetermined arrangement for intelligible
 writing, and in adjusting the type for writing
 cipher the type-sections are adjusted from
 one end of the bar toward the other the de-
 sired number of spaces, and in accomplish-
 ing this a corresponding number of type-sec-
 tions are removed from one end of the type-
 bar and successively inserted at the other end
 thereof, the result being the same as if the
 type-bar were in the form of a continuous
 cylinder or circle and the type simply moved
 along in the desired direction. In transpos-
 ing the cipher message produced by a type-
 bar having an adjustment of this sort the
 type are similarly adjusted, though in an in-
 verse manner and to an equal extent from
 the normal position.

It will be obvious that the principle in-
 volved in our invention may be applied to
 any type-writing machines in which the type
 characters are carried ordinarily in the form
 of a solid group, as is the case with many

different makes of type-writing machines now commonly used, and instead of the type-carrier being in the form of a segment, as herein described, and shown in the drawings, the type-carrier may be in the form of a straight bar having a normal adjustment for intelligible writing and made adaptable for cipher writing and transposing by an arrangement of sectional type characters similar to that hereinbefore described. The type-carrier may just as well for the purposes of our invention be in the form of a cylinder or wheel, in which case the sectional type characters would also have a normal adjustment for ordinary writing and an adjustment about the periphery of the cylinder or wheel for cipher writing and transposing. We therefore do not wish to limit ourselves to the details of construction nor to the precise embodiment of our invention hereinbefore described, and shown in the accompanying drawings, as many modifications and adaptations thereof other than those hereinbefore specifically shown and referred to might be used without departing from the spirit of our invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a type-writing machine, the combination with a type-carrier; of a set of sectional printing-type arranged adjustably in said carrier, and a device for separating the group of type into divisions, substantially as described.

2. In a type-writing machine, the combination with the type-carrier; of a set of sectional printing-type mounted therein and relatively adjustable; of a spacing device adjustably mounted in the carrier arranged to separate the group of type into divisions, substantially as described.

3. In a type-writing machine, the combination with a type-carrier; of a set of type arranged in sections adjustable thereon, and having a normal operating adjustment for intelligible writing; means for spacing said type-sections and means for securing the same in any adjustment; substantially as described.

4. In a type-writing machine, the combination with a type-carrier; of a set of sectional type adjustably mounted therein, and having a normal operating center for intelligible writing; a second set of type arranged in two divisions forming continuations of the first-named set, and means for varying the operating center of the type-carrier, substantially as described.

5. In a type-writing machine, the combina-

tion with a type-carrier; of a set of sectional type adjustably mounted thereon; and having a normal operating center for intelligible writing; a second set of type forming a continuation of the first-named set; and means for varying the operating center of the type-carrier; substantially as described.

6. In a type-writing machine, the combination with a type-carrier comprising a bar provided with oppositely-disposed edge flanges; of a series of separate type-sections mounted upon the face of said bar, with their ends engaging beneath the said flanges thereon; means for retaining said sections upon said bar, and means for permitting the adjustment of said sections along the face of the bar, substantially as described.

7. In a type-writing machine, the combination with the type-carrier consisting of a bar having oppositely-disposed edge flanges; of a series of separate type-sections mounted upon the face of the said bar, with their ends engaging beneath said flanges; another set of type also mounted upon the face of the said bar in two separate divisions, forming continuations of the ends of the first set, and means for varying the operating center of the said bar and the type thereon, substantially as described.

8. In a type-writing machine, the combination with a type-carrier provided with a slideway for the type upon its face, and flanges for retaining the type in position; of a series of printing-type in separate sections, comprising a full set, mounted in said slideway upon the face of the bar and adjustable along the said slideway, substantially as described.

9. In a type-writing machine, the combination with a type-carrier provided with a slideway for the type upon its face, and flanges for retaining the type in position; of a series of printing-type in separate sections, comprising a full set, mounted in said slideway upon the face of the bar and adjustable along the said slideway; a second set of type supplementary to the first set, arranged to be brought into position for printing by an adjustment of the carrier, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM A. FRERET, JR.
HARRY S. LEWIS.

Witnesses:

FRANK D. BLACKSTONE,
JOHN CHALMERS WILSON.