

No. 640,899.

Patented Jan. 9, 1900.

G. B. FRENCH.
INDICATOR.

(Application filed May 17, 1899.)

3 Sheets—Sheet 1.

(No Model.)

Fig. 1.

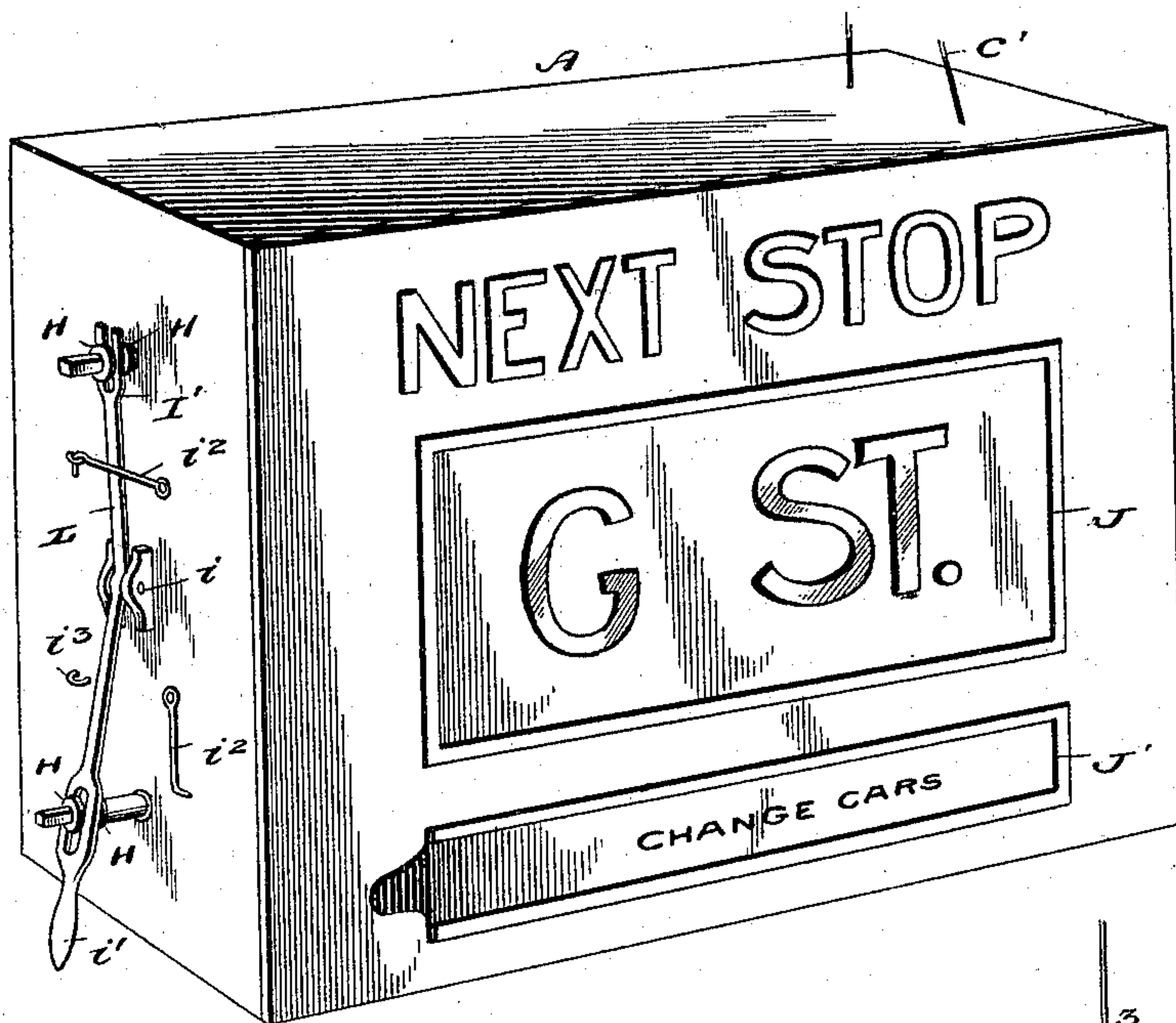
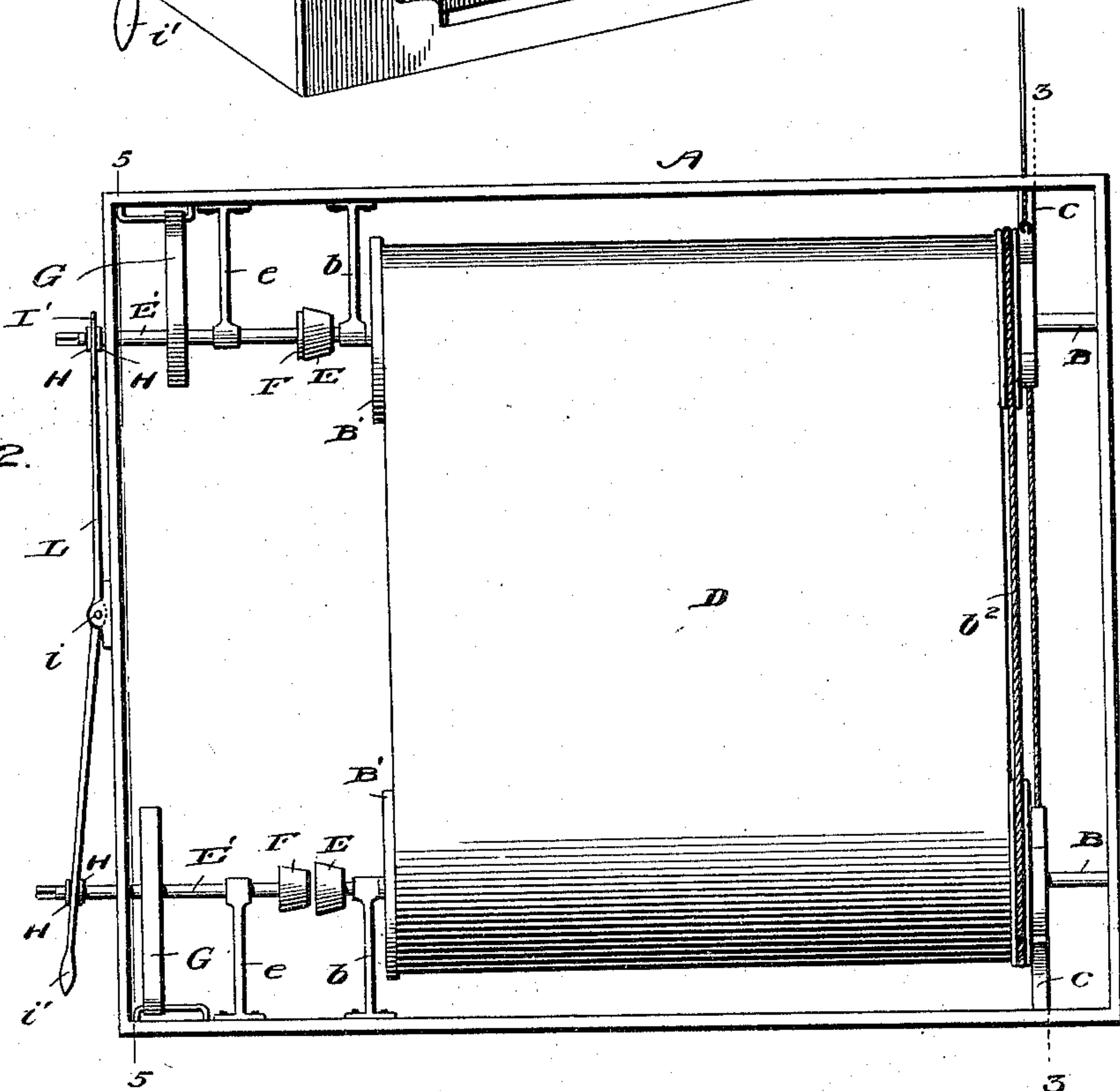


Fig. 2.



Witnesses:

W. J. Donahue
Herbert W. Lawson

Inventor

George B. French.

BY *Edson Bros.*
Attys.

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G. B. FRENCH.
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3 Sheets—Sheet 2.

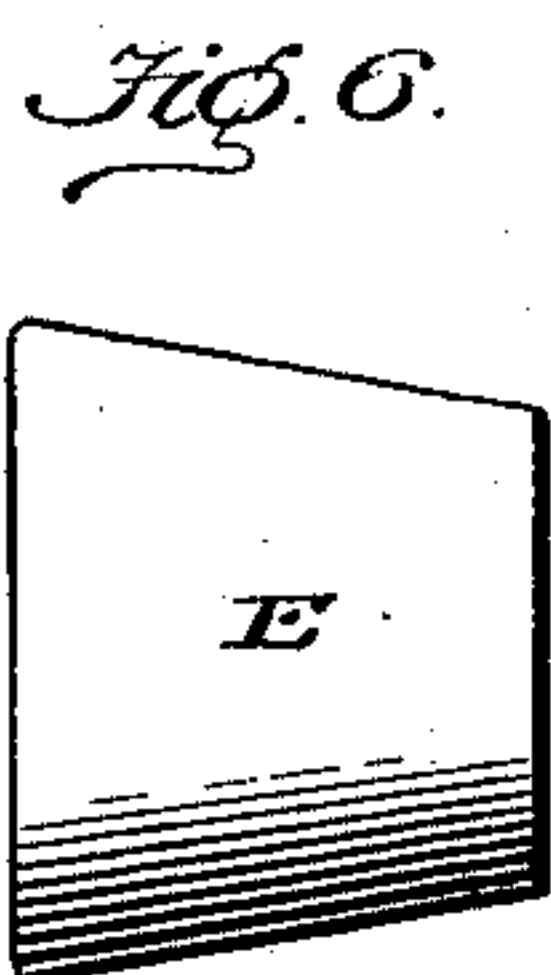
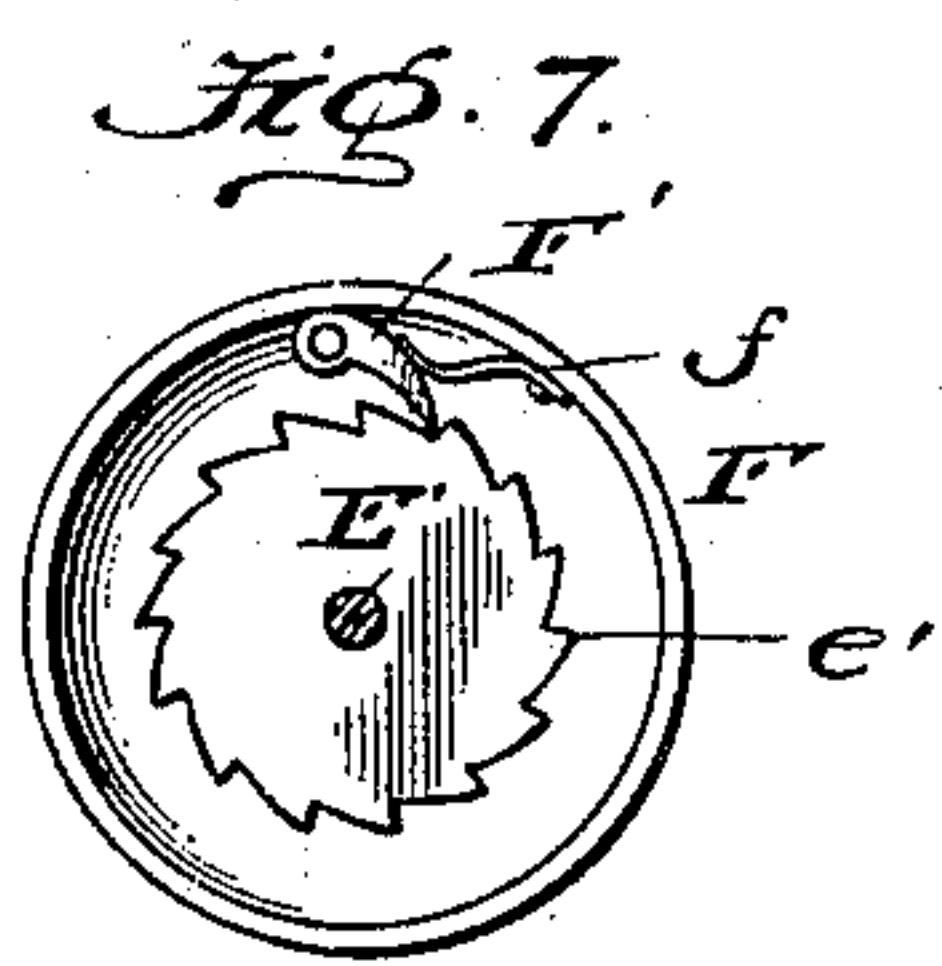
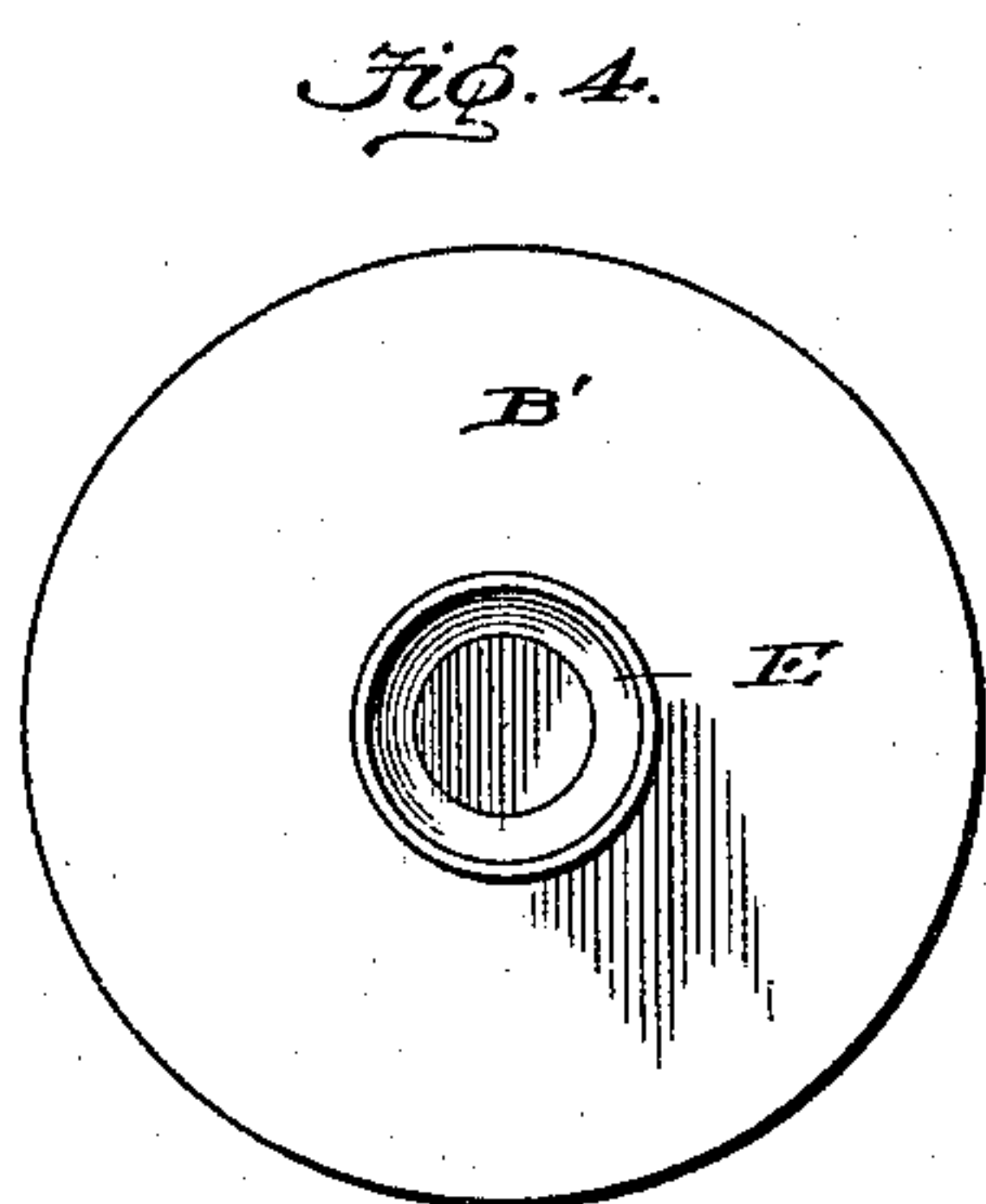
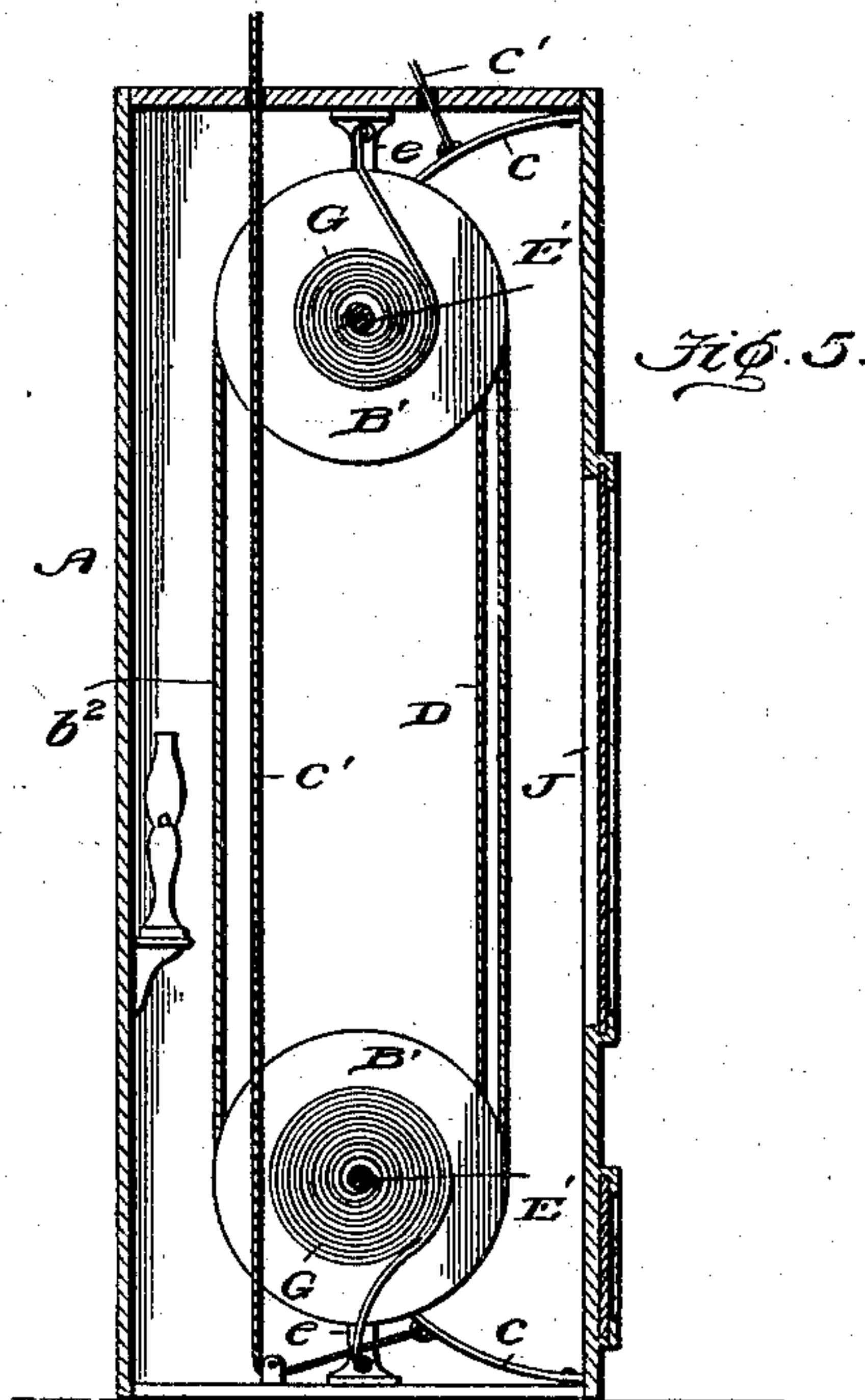
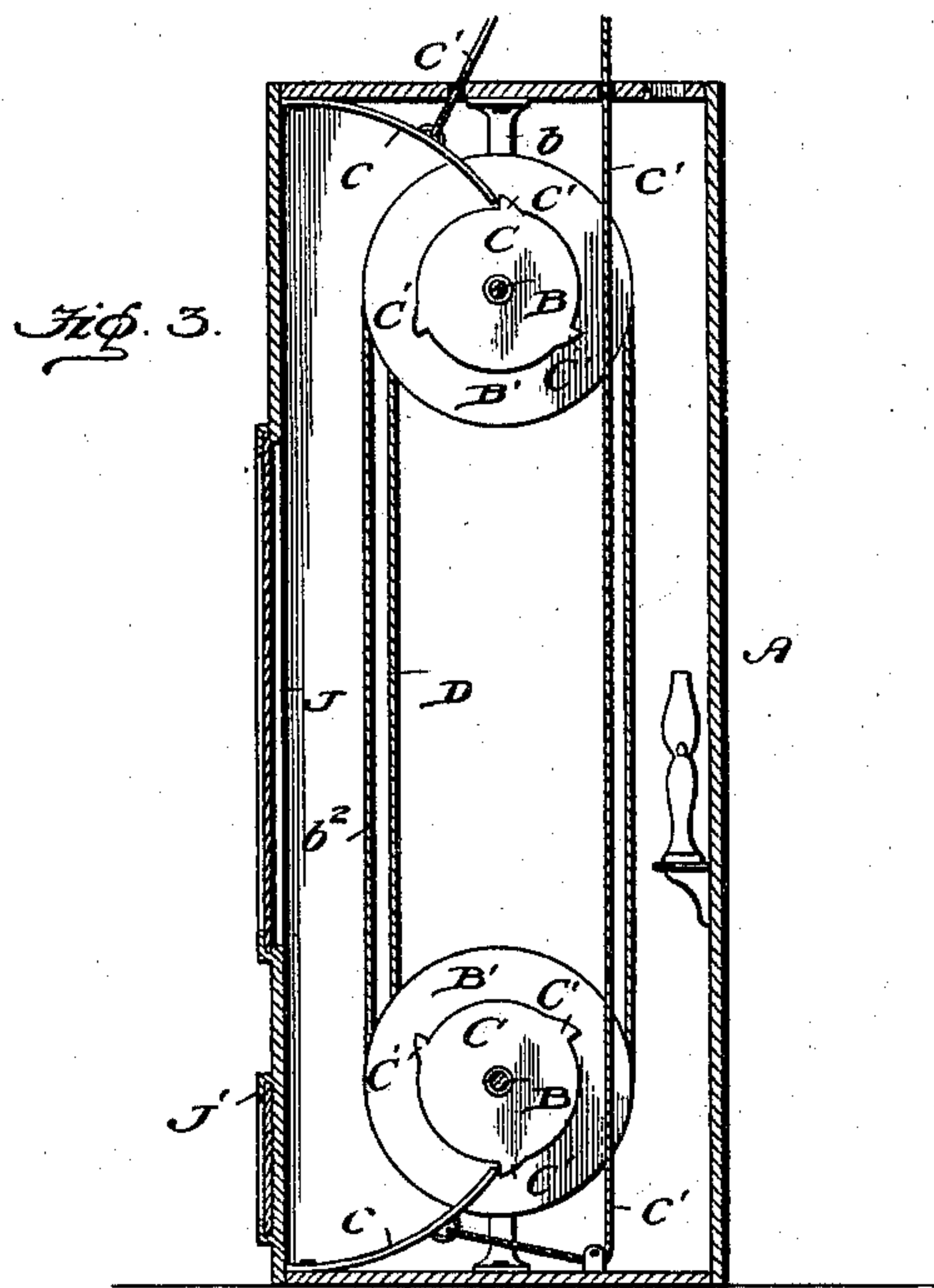
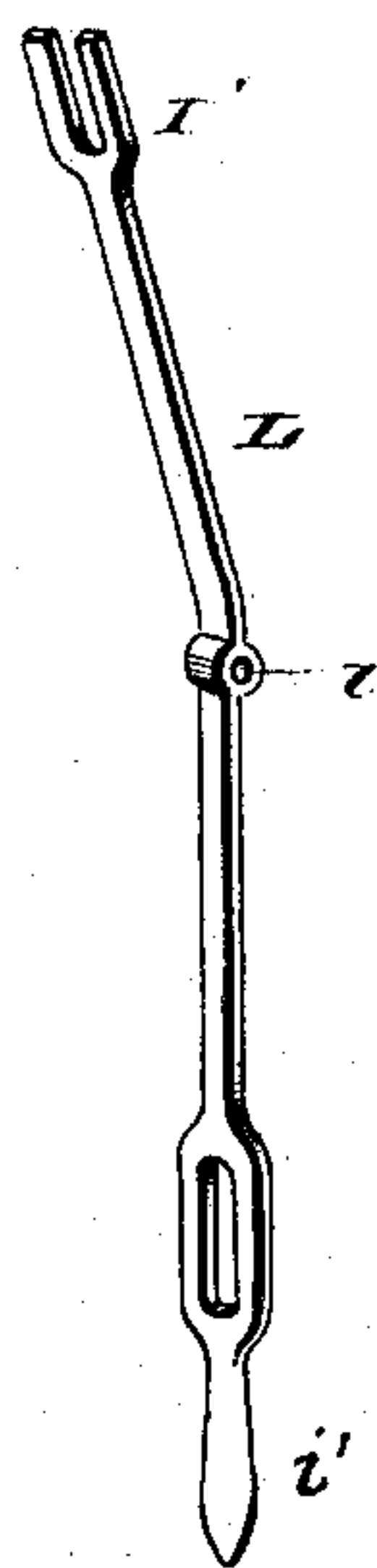


Fig. 8.



Witnesses:

Wm. E. Ashie
Herbert Lawson

Inventor
George B. French.

By *Edson B. French*
Att'y.

No. 640,899.

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G. B. FRENCH.
INDICATOR.

(Application filed May 17, 1899.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 9.

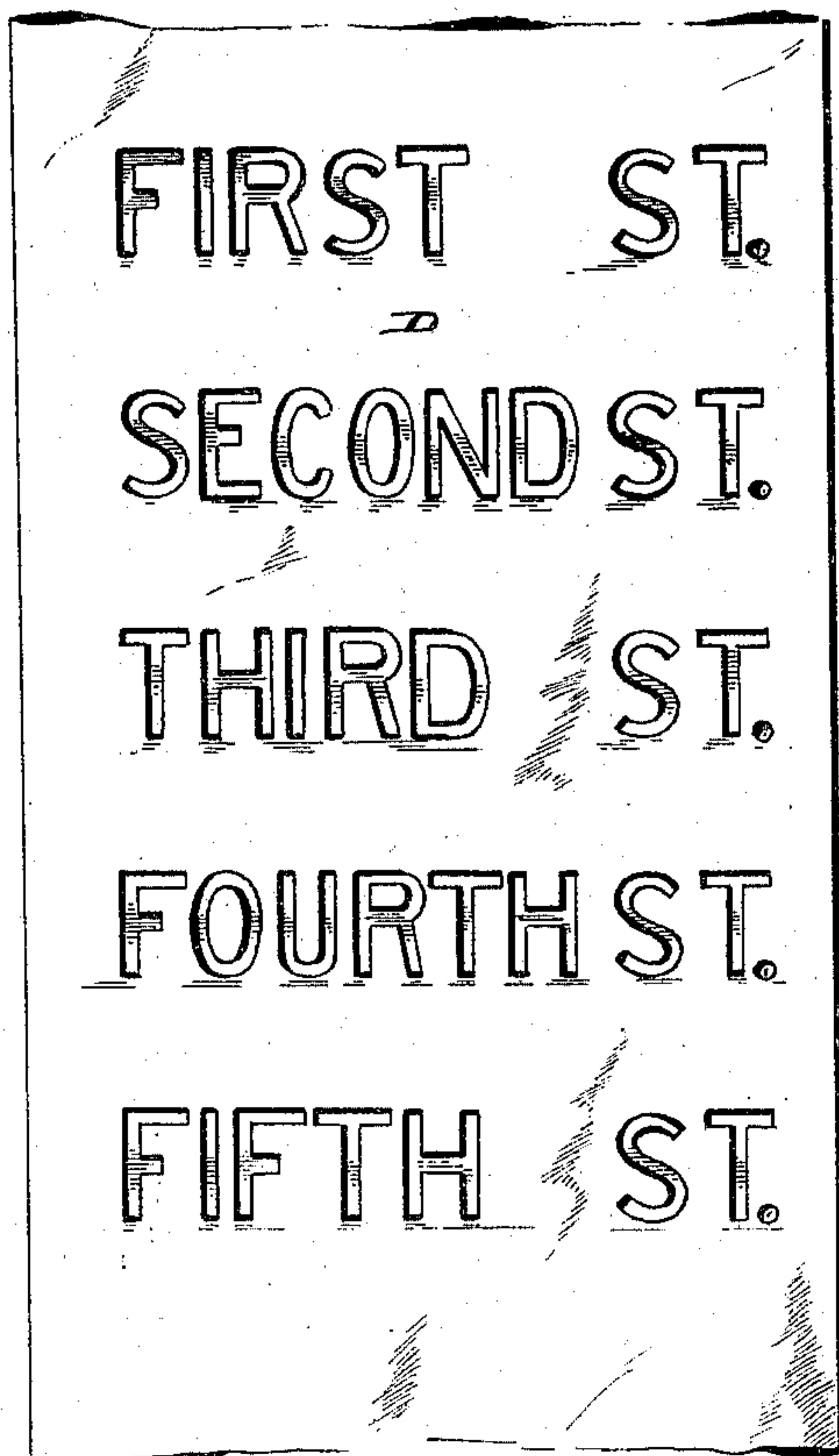


Fig. 10.

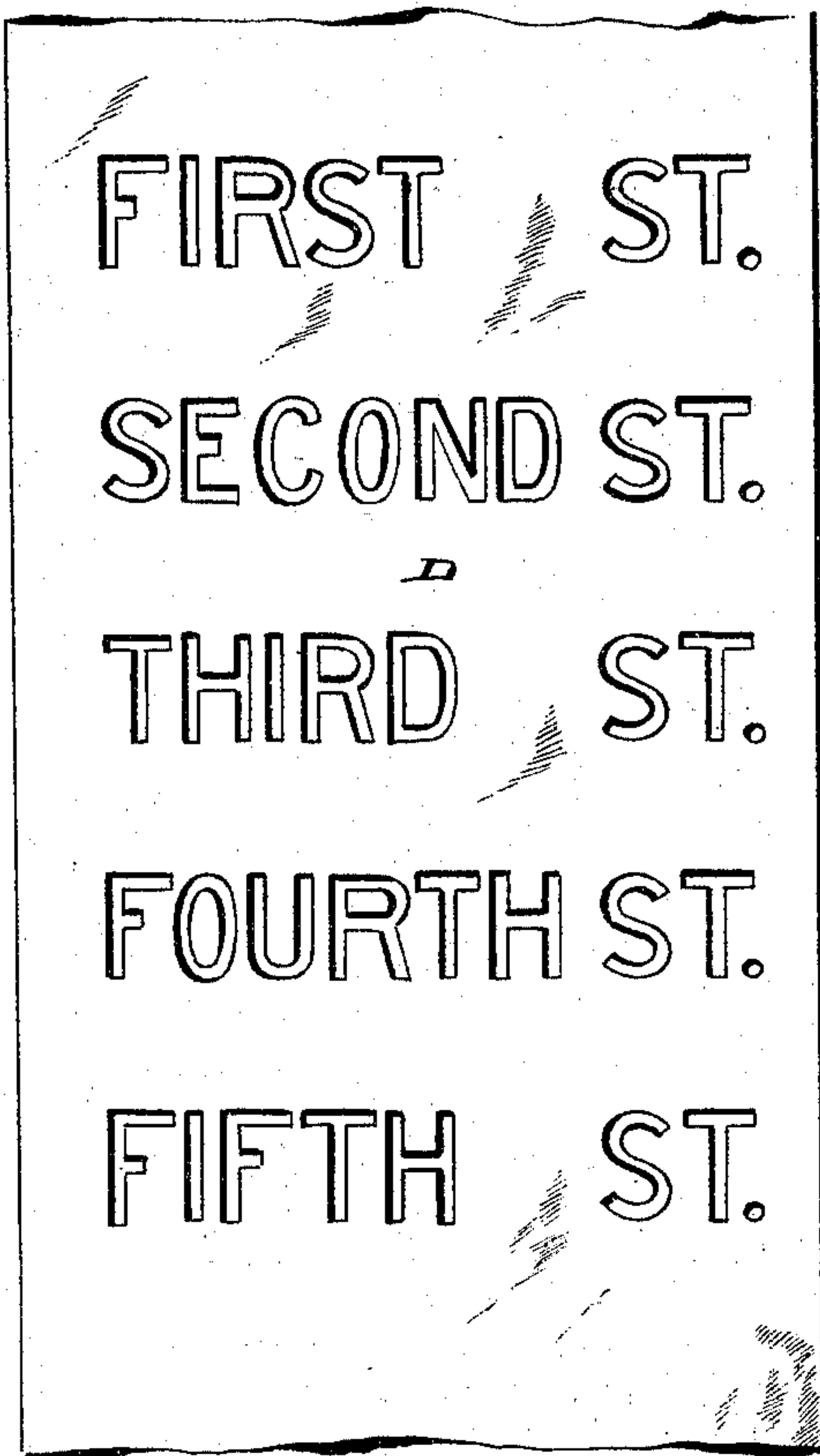


Fig. 11.

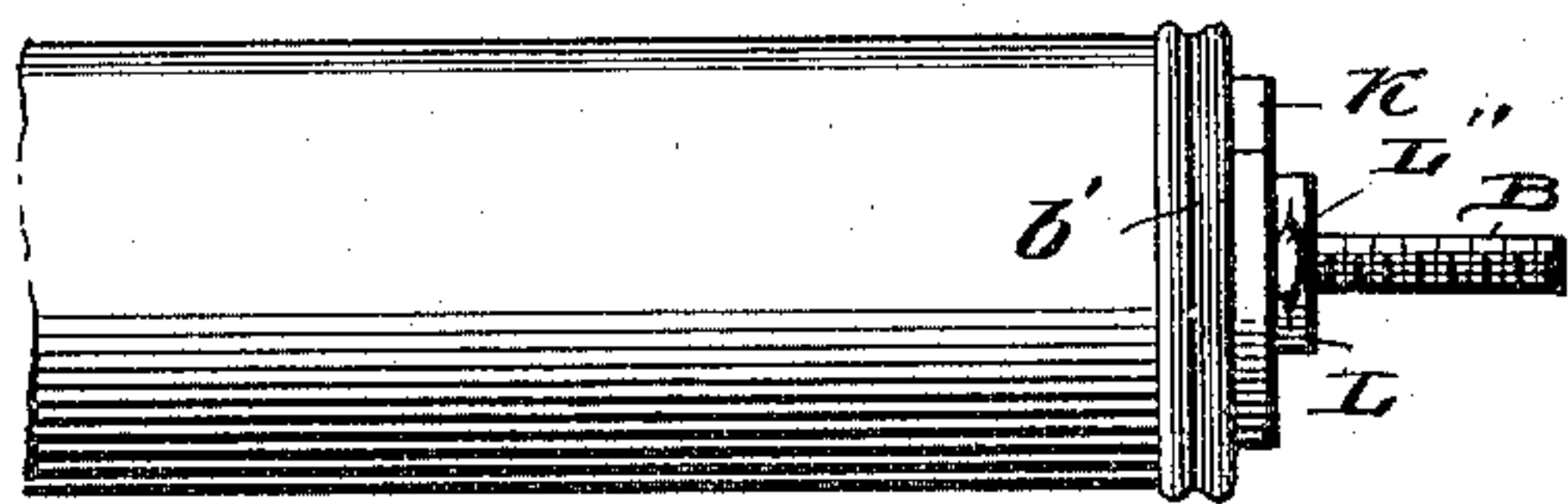
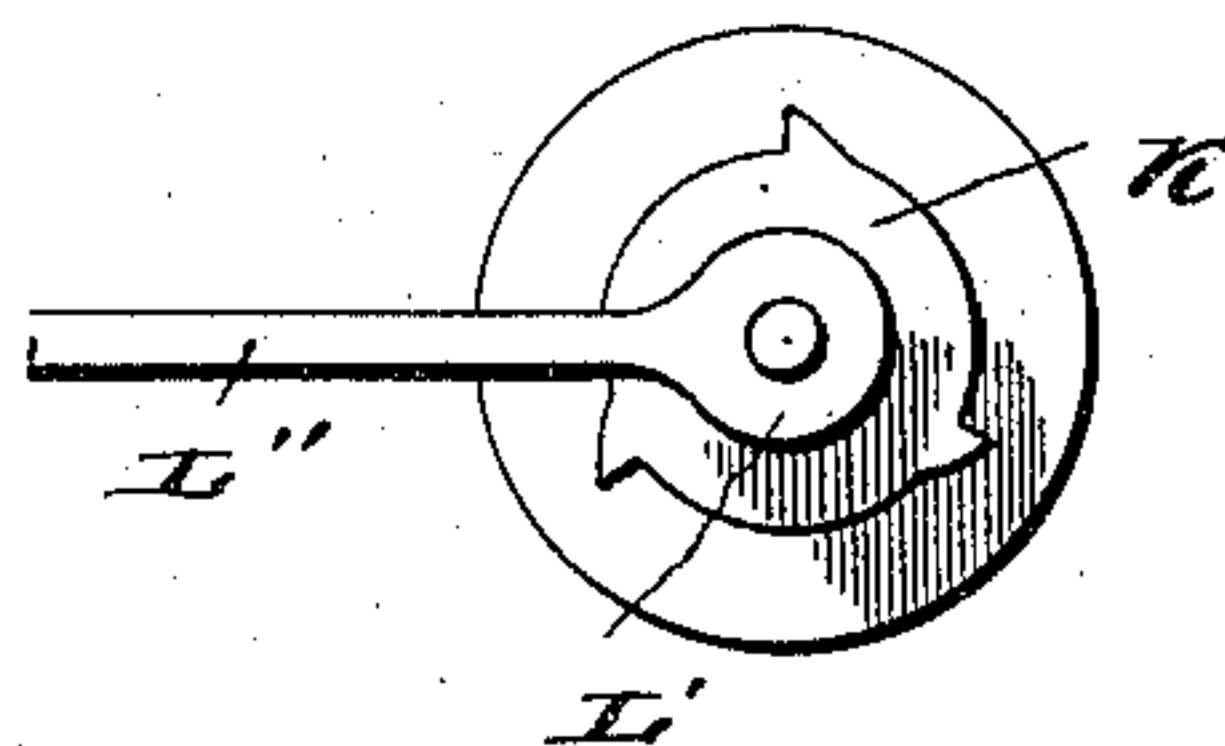


Fig. 12.



Witnesses:

Wm. O. Ashlee
Herbert D. Lawson

Inventor
George B. French.

By *Edson Bros.*
Attys.

UNITED STATES PATENT OFFICE.

GEORGE B. FRENCH, OF FREMONT, NEBRASKA.

INDICATOR.

SPECIFICATION forming part of Letters Patent No. 640,899, dated January 9, 1900.

Application filed May 17, 1899. Serial No. 717,193. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. FRENCH, a citizen of the United States, residing at Fremont, in the county of Dodge and State of Nebraska, have invented certain new and useful Improvements in Indicators; and I 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.

My invention relates to an improvement in indicators for railway and street cars and other similar vehicles. Its object is to provide a device which will indicate both at night and day the location of the vehicle and the station or street at which the next stop is to be made in ample time to avoid confusion, &c. It may also be employed to indicate to passengers the station where a change of cars is to be made and the towns, stations, streets, or sections, &c., which may be reached by the train or car to which the change is made.

The primary object of my invention is to keep the passengers constantly informed as to the progress of the journey and the locality of the vehicle, and thereby avoid confusion, anxiety, accidents, and mistakes on the part of the passengers and annoyance and useless trouble and labor for the conductor and other employees.

To these ends my invention consists of a case or frame which may be rigidly secured at a prominent place within the vehicle and is entirely or partially inclosed and preferably provided at its ends with doors or slides whereby access may be obtained to the mechanism and the same regulated, inspected, and kept in order. The front face of the case is preferably slotted, and above said slots may be printed or painted matter, as the words "Next station," or "Next stop," while below the slots are arranged grooves for the reception of changeable printed or painted signs, upon which may be exposed any desired information in connection with the scroll hereinafter described—as, for instance, the words "Miles from Chicago," or "Miles to Detroit," or "Change cars for Annapolis." The mechanism contained within this case consists of two hollow cylinders—one in the upper and one in the lower portion of the case—said cyl-

inders secured to and carried by two countershafts journaled at one end in the case and at the other end in hangers supported by the case. These cylinders revolve together synchronously and in either desired direction. They carry a scroll of desired material, upon which is stamped or painted in proper order and at regular intervals the information to be given thereby. This scroll is preferably of translucent material, and the letters and figures, &c., thereon may be of material which is impervious to light. If desired, however, the letters, figures, &c., may be cut out of a scroll formed of a material impervious to light, and in such case some light translucent material contrasting strongly in color with the body of the scroll must be placed over the apertures formed by said letters and figures, whereby they may be readily distinguished. Upon one end of each cylinder is provided a flange having angular teeth at regular intervals thereon for the purpose hereinafter described. These flanges are also adapted to carry an endless cord or chain whereby motion is imparted simultaneously from one cylinder to the other. Upon the ends of the shafts projecting through the hangers before referred to are rigidly secured friction-caps which are adapted to receive cones attached to the main shafts, which thereby impart motion to the cylinders. The surfaces of these caps and cones may, if desired, be slightly corrugated or ribbed, thereby insuring impartation of movement to the cylinders when the cones are seated. These cylinders are placed such a distance apart as to leave sufficient space therebetween to permit an artificial light which is placed in the rear portion of the case midway between said cylinders to throw its rays directly upon the rear exposed surface of the scroll, and thereby make legible the letters and figures thereon.

In line with the standards which carry the cylinder-shafts and attached to one end of the case are standards which carry the main or driving shafts. These standards are of such length as to hold the said driving-shafts on a line with the cylinder-shafts at all times, and loosely mounted upon the inner ends of the main shafts are friction-cones, each provided with a ratchet and spring, which, together with a ratchet-wheel rigidly fixed to

and revolving with the main or driving shafts, permit the same to turn in but one direction.

A coiled band-spring is rigidly secured at each end to a driving-shaft and the case, respectively, and they are both so arranged that when they are placed under tension they will transmit motion to their shafts reversely and alternately to each other. While one main shaft is coupled the other is uncoupled, thus permitting both cylinders to revolve together in one direction and causing the scroll to wind upon one cylinder and unwind from the other, thereby automatically exposing the desired section of the roll whenever the coupled counter-shaft and cylinder are released from the hold of their spring-detent. Each band-spring is placed alternately in tension when its shaft is coupled by means of a key or crank on the exposed end of the main shaft. The driving-shafts are coupled and uncoupled to their respective cylinder-shafts by means of a lever, as will be hereinafter more fully described. This lever can be placed either within or outside the case, and if within the case may be operated by straps or cords fastened thereto and depending through apertures in the case.

In the accompanying drawings, showing the preferred form of my invention, Figure 1 is a perspective view thereof. Fig. 2 is a front elevation with the face removed. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is an end view of a cylinder and its cup. Fig. 5 is a section on line 5 5, Fig. 2. Fig. 6 is a side elevation of a friction-cone. Fig. 7 is an enlarged end view showing the ratchet thereon. Fig. 8 is a detail view of the shifting lever for the main shaft. Figs. 9 and 10 are different forms of scrolls. Fig. 11 is an elevation of a modified construction, showing the toothed wheel clamped against the cylinder; and Fig. 12 is an end view thereof.

In said drawings, in which like letters of reference denote corresponding parts, A is the case, within one side of which are mounted the ends of shafts B, upon each of which is mounted a cylinder B'. The opposite ends of these shafts are journaled in standards b, preferably secured to the top and bottom of the case. Each cylinder B' is preferably provided at its outer end with a groove b', adapted to receive a cord b² or other similar device, whereby motion may be imparted synchronously and in the same direction from one cylinder to the other. Each cylinder B' is also provided with a toothed rim C, the teeth C' placed at regular intervals and adapted to normally abut against spring-detents c, secured to the casing A, as shown, and adapted to be operated by means of cords c' or other suitable means, these detents and teeth controlling the forward movement of the cylinders. Upon the cylinders B' is secured a scroll D of any desired form. This scroll may be formed of suitable translucent material having data printed or otherwise placed thereon at suitable intervals, or the scroll may be impervious to light and

said data may be formed of letters, &c., cut therein and having a backing of translucent material. Upon the inner end of each cylinder-shaft B is secured a friction-cup E, provided with either a plane or uneven inner surface. On a line with each of these cups E and mounted in standards e are the main or driving shafts E'. The outer portions of these shafts are slidably mounted in the walls of case A, while their inner ends are each provided with a friction-cone F. These cones are loosely mounted upon the shafts and are each provided, preferably upon their inner ends, with a pawl F', adapted to engage with teeth e' upon the said shaft E', said ratchet held in normal position by means of a spring f, as shown.

Upon each shaft E' is a band G, one end of which is rigidly secured thereto, while the opposite end is preferably slidably secured to the case A or standards mounted thereon.

Near the outer ends of each of the driving-shafts E' are formed or secured two collars H, between which is loosely mounted a forked or oval end I' of a lever L. Said lever is preferably of the form shown, pivoted at the center, as at i, and provided at its lower end with a handle i'. Hooks i² may also be provided for the purpose hereinafter described.

Within the face of the case A is a slot J, through which the data upon the scroll D is exposed, and suitable matter may be printed or painted upon the face directly above this slot—as, for instance, the words "Next station" or "Next stop." Below the slot J the face of the case A is grooved, as at J', to receive a detachable strip having matter thereon, as "Miles from Chicago" or "Miles from Washington." This strip may be changed, so as to indicate any proper subject-matter in connection with the data to be exposed on the scroll.

In view of the fact that the diameter of the cylinders gradually increases as the scroll is wound about them it is obvious that the relation of the matter upon said scroll to the slot through which it should appear will constantly change unless some means is provided whereby this objection may be overcome. Numerous means may be employed for this purpose—such, for example, as by placing the subject-matter upon rolls at such a distance apart and the slot J of such height that the matter will appear therein at all times, although its position in relation to the edges of said slot will constantly change. I, however, preferably so construct my device as to permit the matter upon the scroll to be set in proper position, as required. This mechanism I have illustrated in Figs. 11 and 12. In said figures the toothed wheel K is not rigidly attached to the cylinders, as are the rims C, heretofore described; but each is loosely mounted upon a shaft B. A nut L' is mounted upon the said shaft B and adapted to screw against the said rim K, and thereby clamp the same against the end of its cylinder B'. This

nut may be operated by means of a lever L'', secured thereto. By this construction when the matter upon the scroll begins to become obscured behind the edge of the slot J the cylinder B' is turned backward until the matter upon the scroll carried thereby is in proper relation to the slot J. The nut L is then loosened by means of the lever L'', and the toothed rim or wheel K is turned forward until one of its teeth engages with the detent. The nut L' is then quickly turned against said wheel K, forcing it tightly against the cylinder, which is then ready to be operated, as before.

In operation, assuming that the scroll D has reached the limit of its movement in one direction and it is wound upon the lower cylinder, when it is desired to reverse the operation of the mechanism and cause the scroll to unwind from the lower roll onto the upper one, the lower hook i^2 is detached from its staple i^3 , and the lever I can then be grasped by its handle i' and thrown outward. Such movement will cause the lower forked end I' to bear upon the outer collar H upon the end of the lower driving-shaft and will cause said shaft to slide outward, thereby withdrawing the friction-cone F at the inner end thereof from its cup E. At the same time the upper forked end I' of lever I will bear upon the inner collar H upon the upper driving-shaft and force the same inward, causing its cone F to bind within the upper friction-cup E. The upper hook i^2 can then be used to lock the upper portion of the lever I against the case, and thereby hold the upper cone and cup in engagement. A crank or other suitable key K may then be applied to the end of the upper shaft and the same turned opposite to the direction in which it is to travel. This winding will tighten the band-spring G upon the shaft, the pawl F' permitting the said shaft to move backward within the cone F thereon, but not forward. The spring stop or detent c, engaging with the teeth C' at the outer end of the upper cylinder, will of course prevent the turning of said cylinder and the friction-cup E, with which the cone F engages. The cord c', which is secured to the detents c, extends upward through the casing to any suitable point or points within the vehicle and upon being pulled will instantly release the teeth C', engaging therewith. The band-spring G will immediately cause the upper cylinder to revolve until such movement is stopped by the engagement of its detent with the next tooth thereon, motion being imparted to the lower roll from the upper one through the cord or chain b^2 and such movement of the cylinders causing the scroll to partially unwind from the lower roll and wind upon the upper one. In this manner the subject-matter upon the scroll will be brought to view through the slot in regular order, the same being readily operated by the conductor or other person by simply pulling the cord c' at the proper time. At night a light may be

placed within the case A to the rear of the scroll and intermediate the cylinders, thereby plainly revealing the matter directly back of the slot J.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an indicator of the character described, the combination, with the case, of the cylinder-shafts mounted therein; cylinders secured directly to the shafts; a scroll secured to the cylinders; teeth at one end of the cylinders; detents normally engaging said teeth and means for alternately operating said cylinders, substantially as described.

2. In an indicator of the character described, the combination with the case; of the shafts therein; cylinders secured directly to the shafts; a scroll secured to the cylinders; teeth upon one end of each cylinder; a spring-detent normally engaging with the teeth; means for releasing said teeth; and means for automatically and alternately imparting motion to said cylinders, substantially as described.

3. In an indicator of the character described, the combination, with the case, of the shafts, cylinders secured directly to said shafts; a scroll secured to the cylinders; driving-shafts mounted in the case outside, and on a line with the center of said cylinders, and capable of longitudinal movement; means for automatically revolving said shafts; and a lever for throwing the inner ends of said shafts alternately into frictional contact with the cylinders, substantially as described.

4. In an indicator of the character described, the combination with the case, of the shafts, cylinders secured directly to said shafts; friction-cups secured to the inner ends of said cylinders; driving-shafts also mounted in said casings and outside, and on a line with the center of said cups; friction-cones upon the inner ends of said shafts; means mounted on said driving-shafts for imparting motion to the cones, and means for throwing said cones into frictional contact with their cups, alternately, substantially as described.

5. In an indicator of the character described, the combination with the case, of the shafts, cylinders secured directly to said shafts; friction-cups secured to the inner ends of said cylinders; driving-shafts also mounted in said case and on a line with the center of the cups; a friction-cone on the inner end of each driving-shaft and movable in but one direction thereon, a spring mounted on each of said shafts for imparting motion thereto;

and a lever for throwing the cones of each of the shafts into frictional contact with said cups, alternately, substantially as described.

5 6. In an indicator of the character described, the combination with the case, of the cylinders mounted therein; teeth upon one end of each of said cylinders; spring-detents normally engaging with said teeth; means for withdrawing them from engage-
10 ment therewith; friction-cups secured to the inner ends of said cylinders; driving-shafts also mounted within the case and having longitudinal movement therein; a cone mount-

ed on the inner end of each driving-shaft; a pawl on each cone engaging with teeth upon 15 the shaft thereof; a spring mounted on each shaft for imparting motion thereto; and means for throwing said cones, alternately, into frictional contact with their respective cups, substantially as described. 20

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

GEORGE B. FRENCH.

Witnesses:

A. K. DAME,
EDNA BRUGH.