

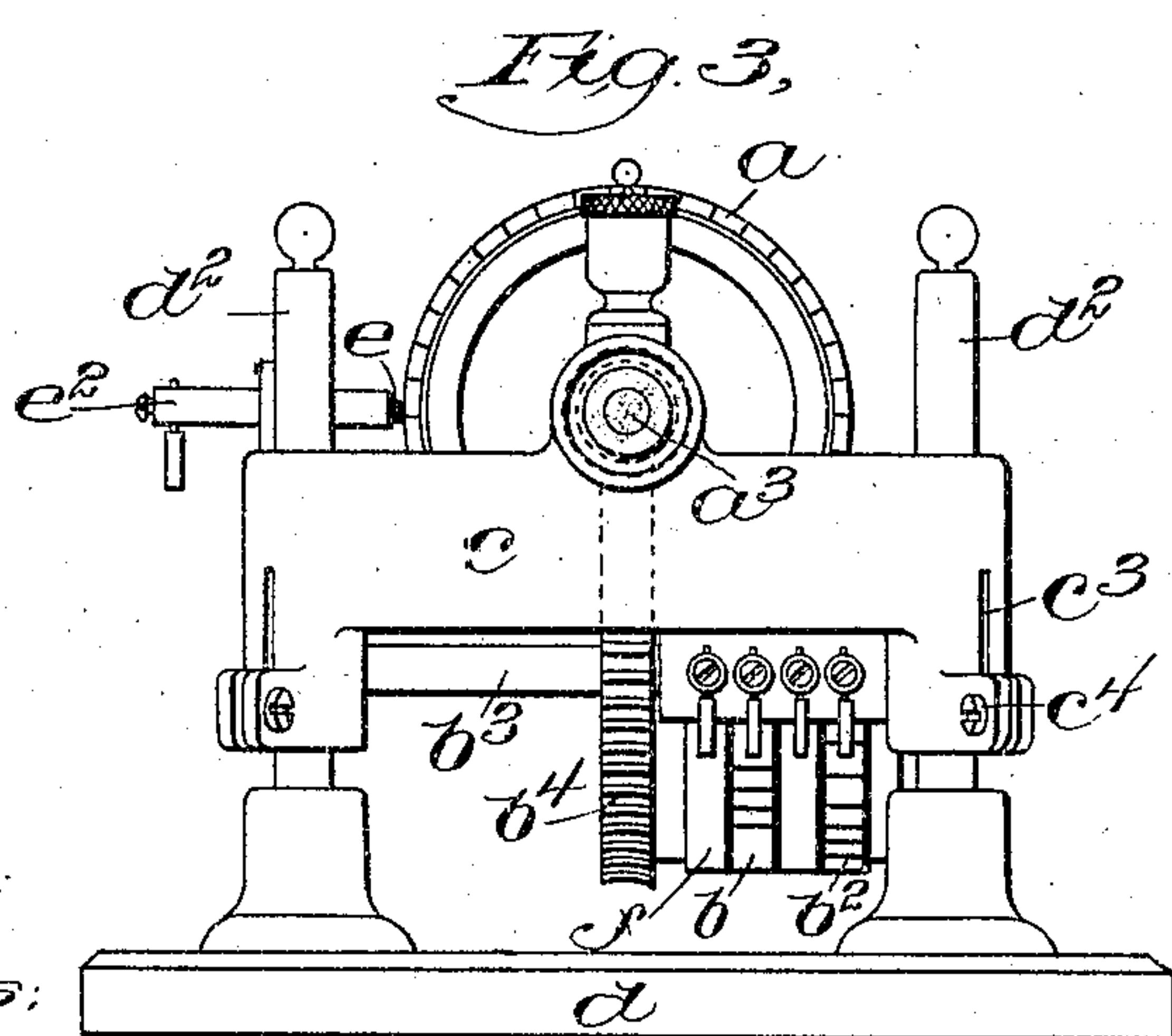
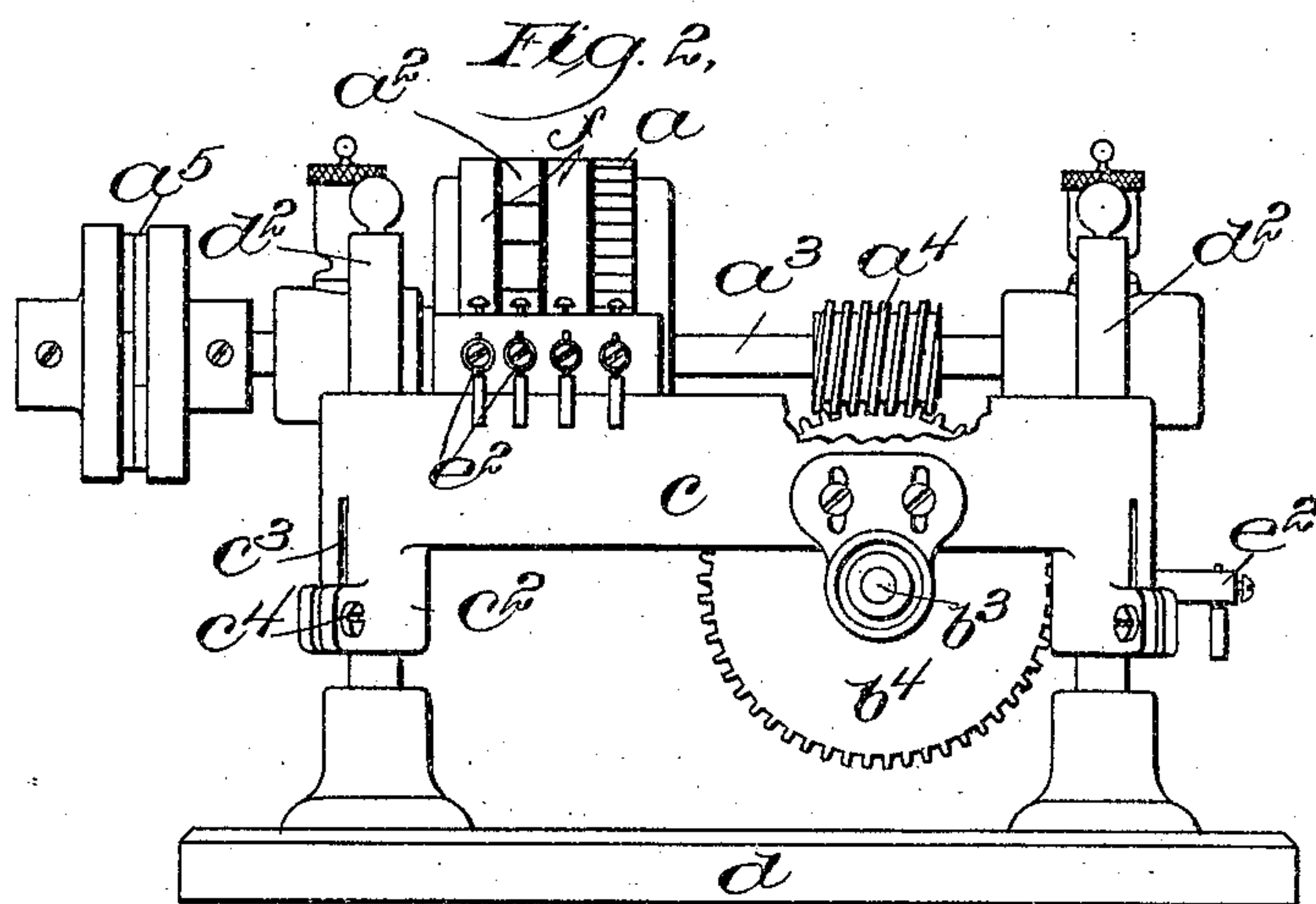
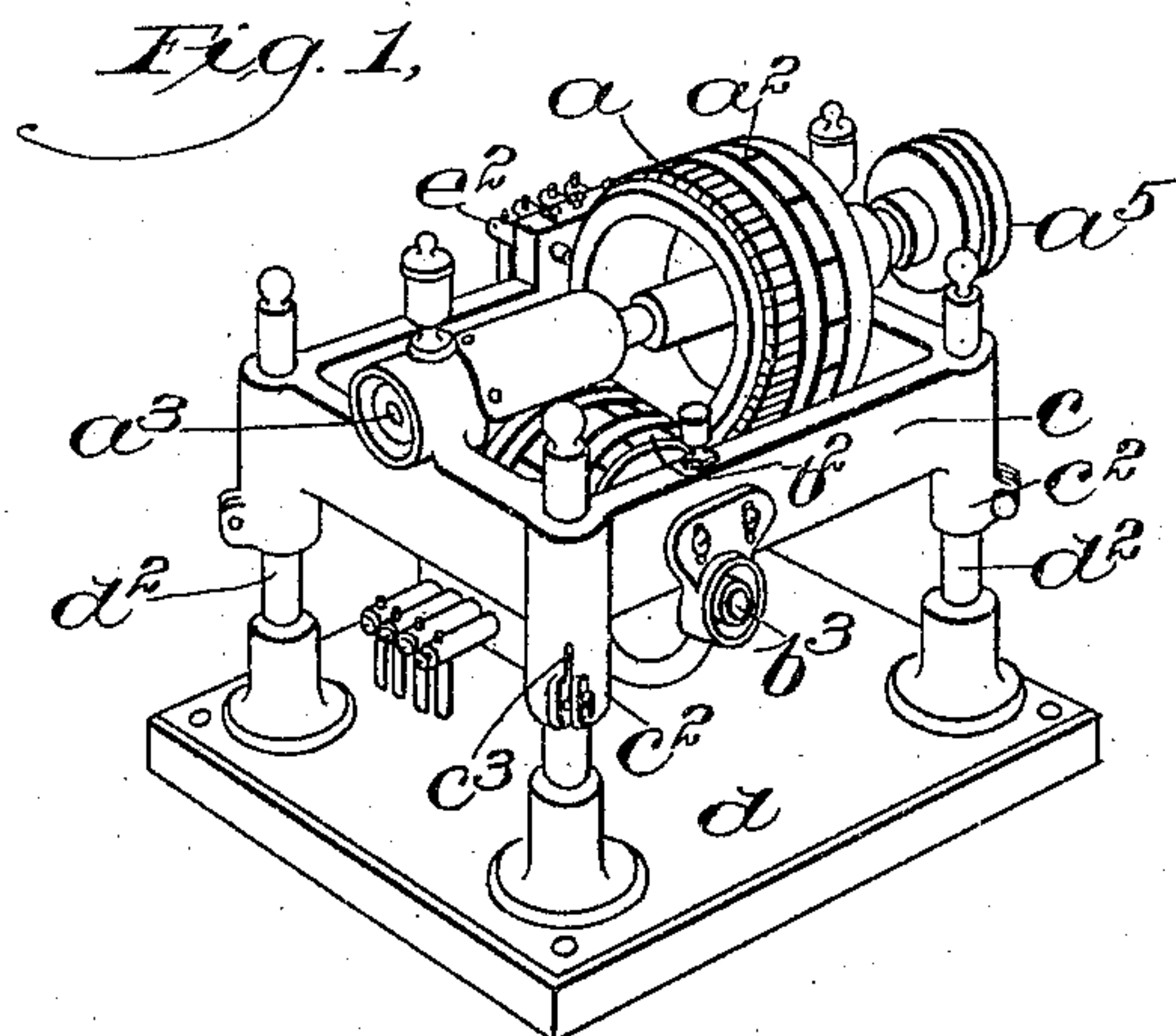
No. 773,187.

PATENTED OCT. 25, 1904.

D. M. BLISS.
TELEPHONE SIGNALING DEVICE.

APPLICATION FILED SEPT. 19, 1902.

NO MODEL.



Witnesses:

Jas. J. Maloney
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UNITED STATES PATENT OFFICE.

DONALD M. BLISS, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO HOLTZER-CABOT ELECTRIC COMPANY, OF BROOKLINE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

TELEPHONE SIGNALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 773,187, dated October 25, 1904.

Application filed September 19, 1902. Serial No. 124,090. (No model.)

To all whom it may concern:

Be it known that I, DONALD M. BLISS, a citizen of Canada, residing in Brookline, county of Norfolk, and State of Massachusetts, have
 5 invented an Improvement in Telephone Signaling Devices, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 The present invention relates to a signaling or testing device for telephone systems, and is embodied in a self-contained apparatus adapted to be connected with a suitable motor to operate it, the object of the invention being to obtain a device of this kind which can
 15 be readily installed. These devices consist of traveling circuit-interrupters adapted to operate at different rates of speed for the purpose of giving different signals, and it has heretofore been customary to install the various parts
 20 in each system so as to adapt the device to the motor and circuits in use. In accordance with the present invention, on the other hand, the instrument can be furnished as a
 25 unit, being provided with all the adjustments which are necessary to connect the operating parts with any suitable motor and with binding-posts for the necessary circuit connections, there being no need, therefore, of building up
 30 a special instrument at each plant.

To these ends the apparatus embodying the invention consists of a frame provided with bearings for the traveling members and gears connecting said members, the said frame being
 35 adjustable upon a suitable support or standard, while one of the shafts is provided with a flexible coupling or similar device adapted to be connected to the shaft of a suitable motor. By the adjustment of the frame,
 40 therefore, the driving-shaft of the instrument can be brought into alinement with the driving-shaft of the motor and coupled thereto, the device being also provided with suitable binding-posts for connecting the circuit-con-
 45 ductors.

Figure 1 is a view in perspective of an instrument embodying the invention. Fig. 2

is a side elevation of the same, and Fig. 3 an end elevation.

The signaling devices are shown as commu- 50
 tators a a^2 and b b^2 , mounted, respectively, on the shafts a^3 and b^3 , which shafts are suitably geared together, so that when one is driven the other will rotate at a different rate of
 55 speed, the bearings for said shafts being mounted in a frame c . The said frame c is supported upon a base d and is vertically adjustable with relation to said base, being shown as supported upon four posts d^2 , the frame hav-
 60 ing sleeves e^2 , which fit the said posts, the said sleeves being split, as indicated at e^3 , and provided with clamping-screws e^4 . Each of the commutators is supplemented by an un-
 broken contact member f , while the segments of the commutators on the same shaft differ in
 65 length, so that two different signals can be obtained through the commutators on each shaft. To cooperate with the commutators, the frame is provided with brushes e , having binding-
 70 posts e^2 to receive the terminals of the conductors, and the two shafts are suitably geared together, the shaft a^3 being herein shown as provided with a worm a^4 , which meshes with
 a worm-gear b^4 on the shaft b^3 .

As herein shown, the bearings for the shaft 75
 b^3 are adjustable with relation to the frame c so that the gears can be brought into proper relation to each other without difficulty. As herein shown, the shaft a^3 is utilized as a driv-
 80 ing-shaft and is provided with a flexible covering a^5 of any suitable kind, whereby it can be directly connected with the shaft of the motor, the frame c being vertically adjust-
 85 able until the said shaft a^3 is in alinement with the motor-shaft. In this instance the shaft a^3 is the high-speed shaft, the commutator-segments a being comparatively narrow, so
 as to give breaks in the circuit of high frequency, the segments a^2 being comparatively
 90 wide, so as to give another signal controlled by breaks in the circuit of lower frequency. It is, however, immaterial which shaft is used as the driving-shaft or what power is used to drive it. With an electric motor, however,

the speed is usually high, and a direct connection with the high-speed shaft is most practicable. The gear connection between the shafts is such that the shaft b^3 will rotate much
5 slower than the other, so that the commutators thereon will control signals depending upon breaks of still less frequency, there being in the construction shown four signals of different characteristics produced by the machine. It is, however, obviously not essential that the machine should be limited to this number of signals, since the number of commutators might be increased or more shafts added differently geared, if desired.
15 It will be seen from the foregoing description that the device embodying the invention is complete in itself and ready to be installed in any telephone system, it being necessary only to adjust the frame to correspond to the
20 motor which is used and to make the connections with the conductors of the circuit. This obviates the necessity of making a special in-

strument for every system, and therefore simplifies the instalment of the signaling devices in connection with the switchboard. 25

I claim—

In a telephone signaling device, circuit-interrupters mounted on rotatable shafts; speed-changing gears connecting said shafts; a frame provided with bearings for the said shafts; 30 means for coupling one of said shafts to a motor; a support for the frame; and means for vertically adjusting said frame on said support to bring the coupling-shaft into alignment with the motor-shaft, substantially as 35 described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DONALD M. BLISS.

Witnesses:

HENRY J. LIVERMORE,
NANCY P. FORD.