

G. H. MORGAN.
TYPE-WHEEL.

No. 171,408.

Patented Dec. 21, 1875.

Fig. 2.

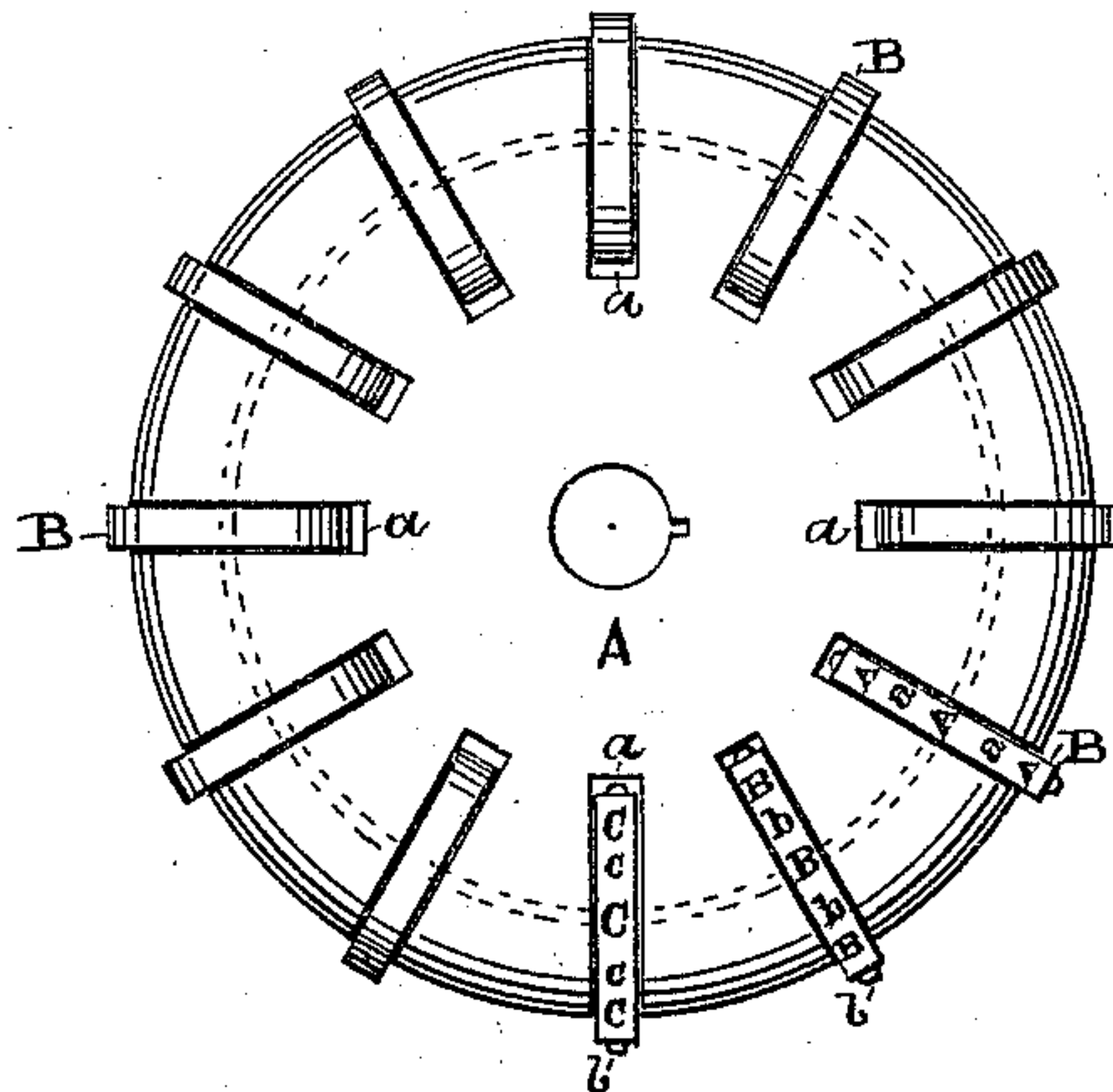


Fig. 3.

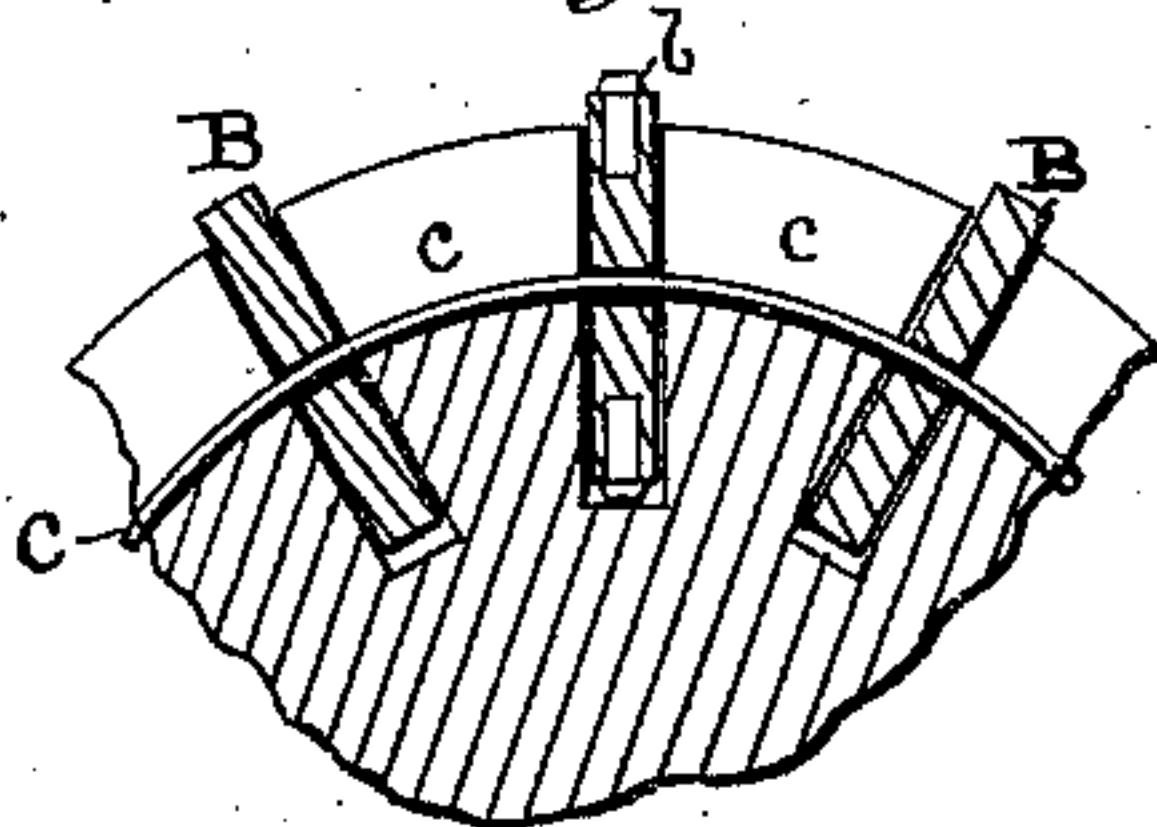


Fig. 4.

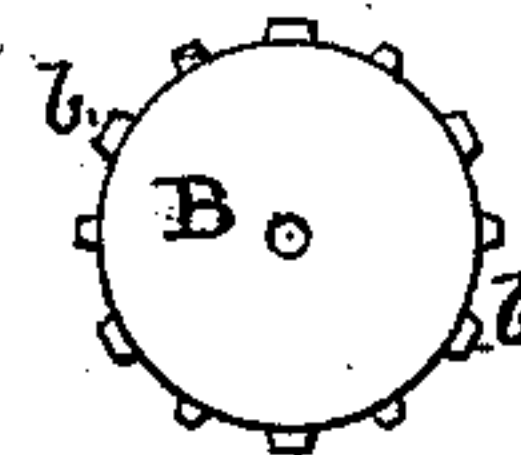
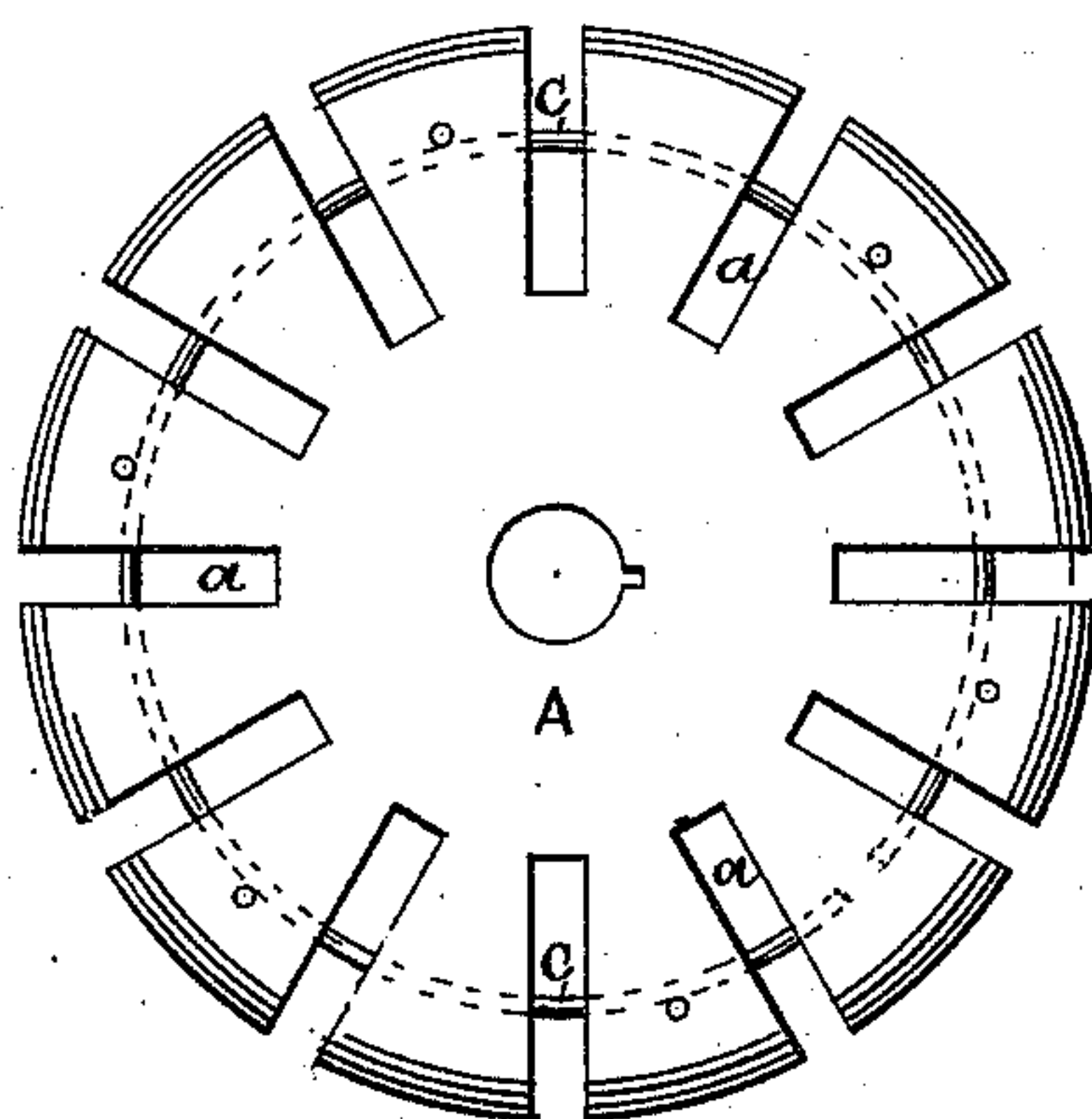


Fig. 1.



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Fig. 6.

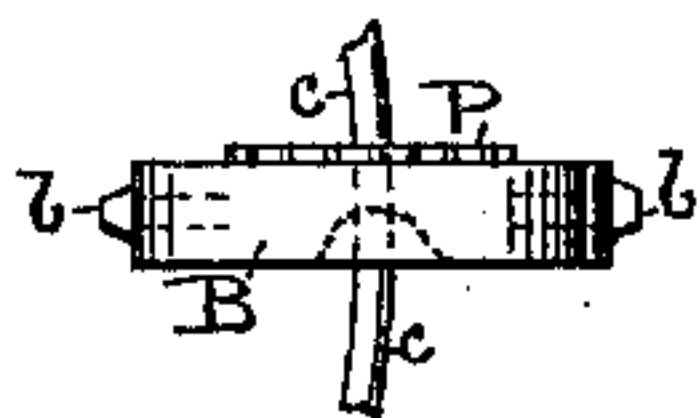


Fig. 7.

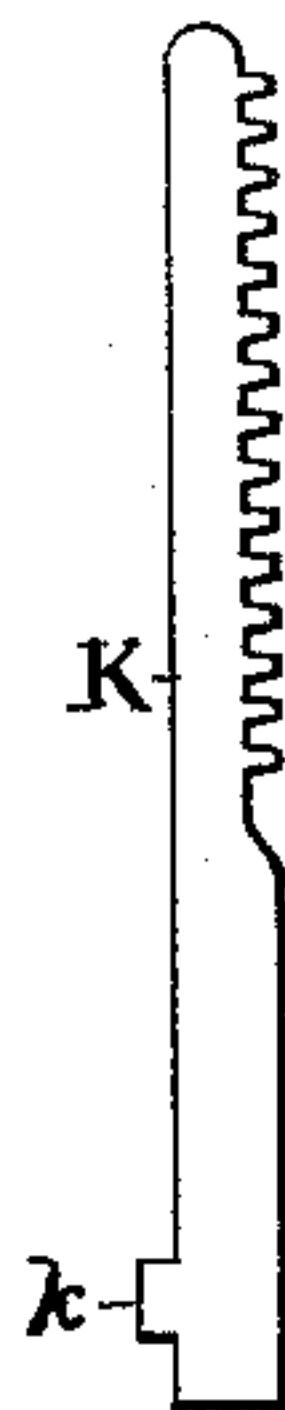
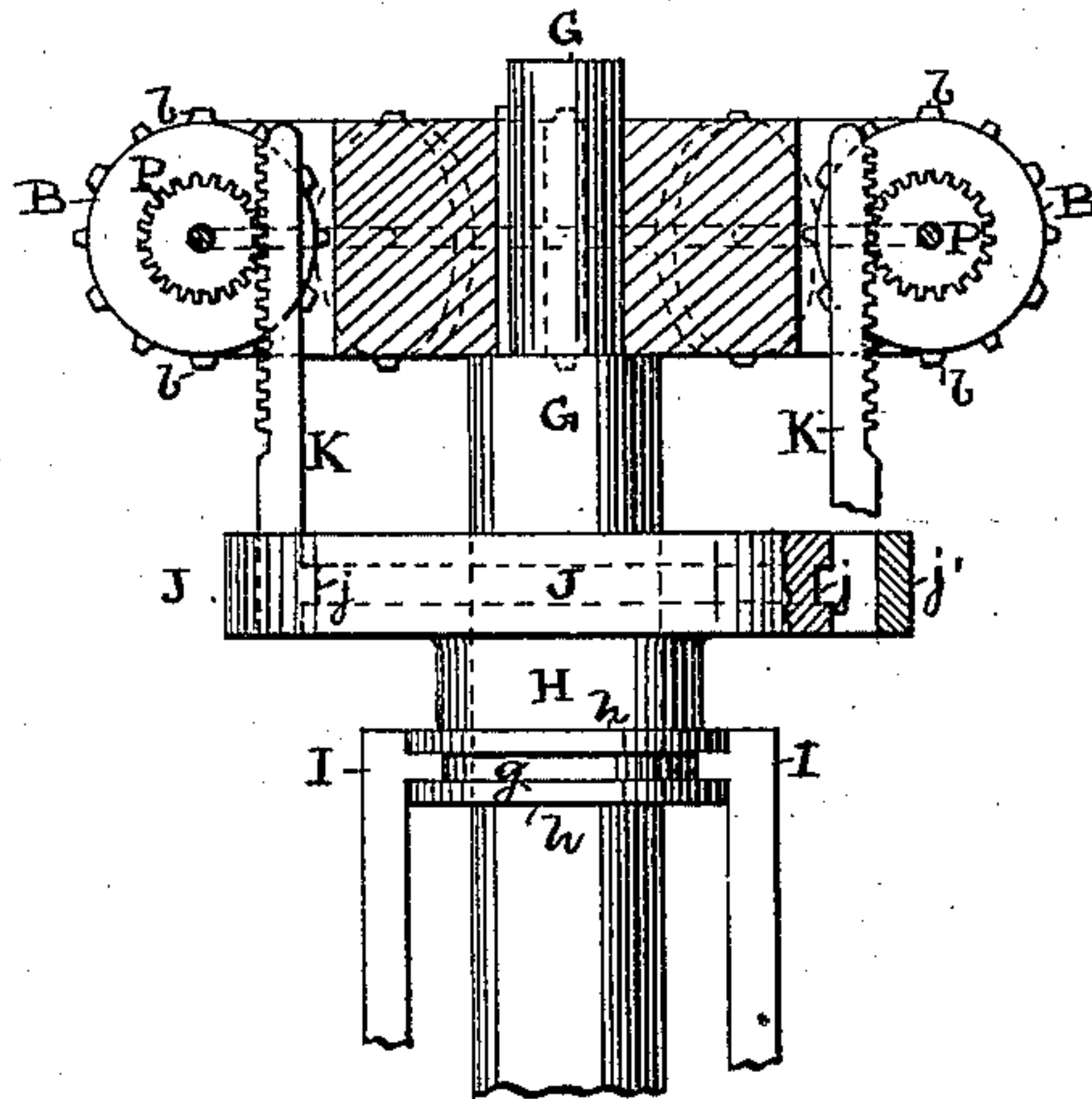


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE H. MORGAN, OF URICHSVILLE, OHIO.

IMPROVEMENT IN TYPE-WHEELS.

Specification forming part of Letters Patent No. **171,408**, dated December 21, 1875; application filed November 2, 1875.

To all whom it may concern:

Be it known that I, GEORGE H. MORGAN, of Urichsville, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Type-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to type-carrying devices for printing-telegraphs, type-writing machines, and other like mechanical writing and printing machines.

The invention consists in the use of a number of type-carriers, which may be circular, elliptical, polygonal, or of any suitable form, and pivoted or journaled in a wheel or disk, which is made to revolve, the type-carriers being capable of adjustment in a direction transverse or at an angle to the plane of motion of the revolving wheel. The type is set into the face or periphery of the type-carriers, so as to project sufficiently beyond the face or sides (either or both) of the revolving wheel to receive the blow of the printing hammer or platen; and the type-carriers may be provided with different varieties and forms of type, each having one letter of each variety of type and punctuation-marks, as desired.

The arrangement of the type on the carriers can, of course, be varied as occasion requires.

By means of this device, providing the type-carriers with varieties of type and other appliances used in the art of printing, I am enabled to write or print the complete text of any language composed of letters without requiring to set up the type in a form, thereby obviating the use of different fonts of free or separate type, the composing-stick, the forms, and all the paraphernalia of the printing-office now in use, and in a measure dispensing with the use of the printing-press itself, the proof, as printed or written by a machine provided with my type-carriers, being capable of reproduction by the lithographic processes now in use.

In the accompanying drawings, Sheet 1, Figure 1 is a view of the revolving wheel, having radial slots or grooves for the recep-

tion of the type-carriers. Fig. 2 is a view of the wheel with the type-carriers shown in position. Fig. 3 is a sectional view of part of the wheel with the type-carriers in position, and Fig. 4 is an elevation of one of the type-carriers detached from the wheel.

Referring to the parts by letters, A represents a wheel, which may be made to revolve in a vertical, horizontal, or inclined plane, according as best suited for operation in the writing or printing machine in which it may be used. Radial slots or grooves *a* are formed in the wheel for the reception of the type-carriers B, and the latter are pivoted or journaled in the slots by means of a split ring, C, or wire, bent into circular form and secured within an annular groove, *c*, in the wheel A.

The type-carriers B shown in the drawings are circular in form; but they may be elliptical or polygonal, or in the form of a segment, or of any desired configuration, so that they are suitable to receive and hold the type *b* in their faces or periphery, the type projecting therefrom and beyond the face or sides of the revolving wheel A, convenient to receive the blow or pressure of the printing hammer or platen.

The wheel A is keyed to a shaft, and made to revolve by power—mechanical or electrical, as the case may be.

The mechanism for printing by means of the hammer or platen need not here be described, as it is well known to those skilled in the art as applicable to printing-telegraph instruments.

In Sheet 2 of the accompanying drawings I have shown a method or device for adjusting or operating the type-carriers, Fig. 5 being a face view of the revolving wheel with the adjusting device attached thereto. Fig. 6 is a detached view of one of the type-carriers provided with a spur-wheel, and Fig. 7 a detached view of one of the rack-bars.

Referring to the parts by letters, G represents the shaft of the revolving wheel A, journaled in suitable bearings. H is a sleeve on the shaft G, having double flanges *h h*, with annular groove *g* between, for the reception of a clutch, I, the latter being provided with a screw or lever for operation. The sleeve H is also provided with a wheel or flange, J, hav-

ing an annular groove, *j*, in its face, and a tire or rim, *j'*. *K* represents a series of rack-bars, corresponding in number to the number of type-carriers in the revolving wheel *A*. The inner ends of these rack-bars are made with a key or projection, *k*, which fits into the annular groove *j* of wheel *J*, and, all being in position, the rim *j'* is secured in place, and holds the rack-bars in position. The other or free ends of the rack-bars are passed into lateral slots formed through the revolving wheel *A* for their reception, and their teeth gear with small spur-wheels *P*, secured centrally to one side of the type-carriers *B*; or the wheels may form part of the type-carriers, as found most convenient.

The operation of this device is as follows: The sleeve *H* with its wheel *J* and the rack-bars will, of course, revolve with the shaft *G*, the sleeve being free to slide back and forth on the shaft, but confined by a longitudinal key on the shaft, so as to insure its revolution with the type-wheel and prevent torsion of the rack-bar. When it is desired to adjust the type-carriers so as to present a different form of type to the operation of the printing-hammer, all that is necessary is to operate the lever or screw, or other device for operating the sleeve *H*, so as to cause the latter to slide upon the shaft backward or forward, thereby, through the connecting rack-bars and spur-wheels, simultaneously turning the type-carriers on their pivots until the required type upon all the carriers comes into printing position, which may be ascertained by having a proper index on the frame of the machine.

I have thus described one method for adjusting the type-carriers; but they may be operated and adjusted by different mechanical devices, which any skilled mechanic may devise or adopt to suit the requirements of the machine to which the type-wheel is to be applied; and I therefore desire it to be distinctly understood that I do not limit myself to the particular mechanism or device shown for op-

erating or adjusting the type-carriers so as to present the required type to the operation of the printing hammer or platen.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A revolving wheel having a series of type-carriers, each carrying a single letter in different styles of type, and each made adjustable to receive a back-and-forth movement at the will of the operator, substantially as and for the purpose set forth.

2. An adjustable type-carrier, *B*, on which is formed or otherwise secured, in different styles or sizes of type, a single alphabetical character, sign, or numeral, either on the side or face of its periphery, substantially as and for the purpose set forth.

3. An adjustable type-carrier, *B*, having a single alphabetical character, sign, or numeral, in different styles or sizes of type, in combination with a revolving wheel, *A*, substantially as and for the purpose specified.

4. A series of adjustable type-carriers, *B*, each having a different single alphabetical character, sign, or numeral, in different styles or sizes of type, in combination with a revolving wheel, *A*, substantially as and for the purpose specified.

5. An adjustable type-carrier, *B*, in combination with a revolving wheel, *A*, and mechanism, substantially as described, for imparting a back-and-forth movement to the former, for the purposes set forth.

6. A series of adjustable type-carriers, *B*, in combination with a revolving wheel, *A*, and mechanism, substantially as described, for adjusting the type-carriers back and forth, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE H. MORGAN.

Witnesses:

D. G. STUART,

JOS. T. K. PLANT.