

(No Model.)

C. DE LEON.
NUMBERING MACHINE.

No. 571,487.

Patented Nov. 17, 1896.

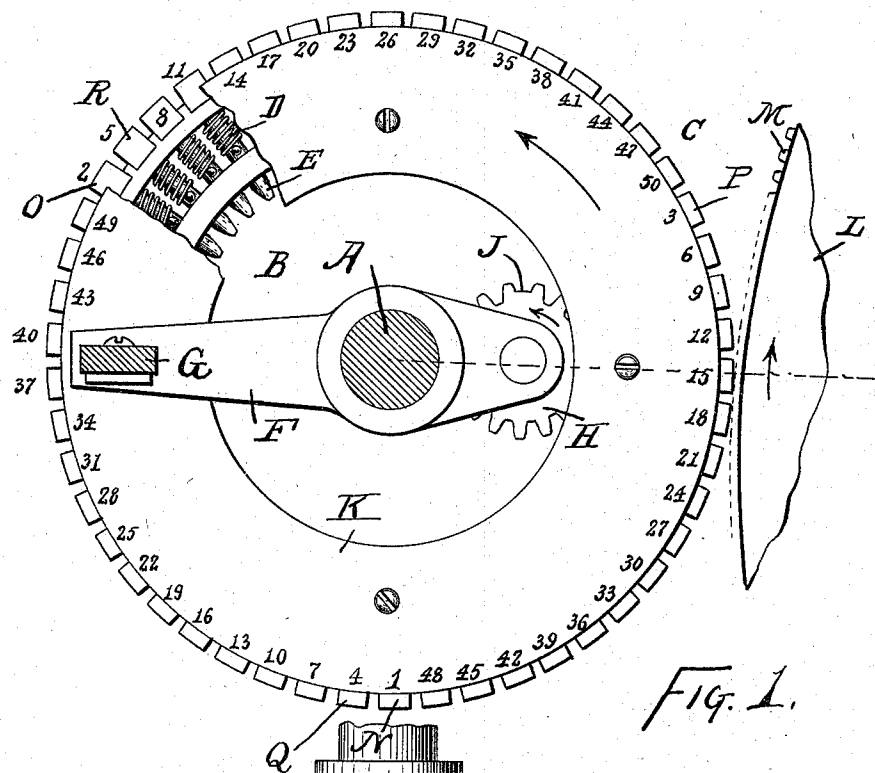


Fig. 1.

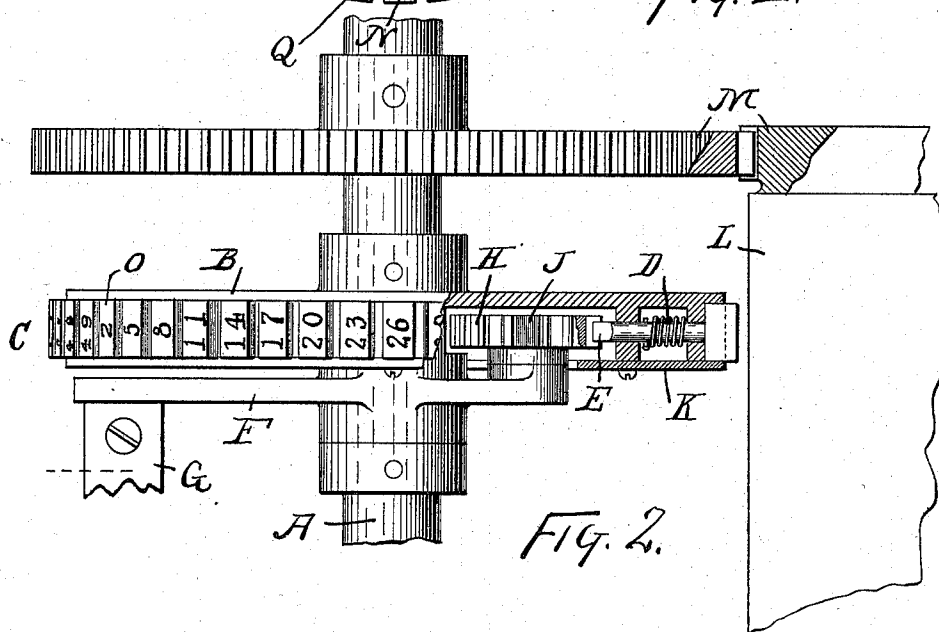


Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

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NUMBERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 571,487, dated November 17, 1896.

Application filed October 14, 1895. Renewed October 19, 1896. Serial No. 609,369. (No model.)

To all whom it may concern:

Be it known that I, CARLOS DE LEON, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in

5 Numbering-Machines, of which the following is a specification.

This invention pertains to improvements in machines for impressing consecutive numbers upon paper or other material.

10 My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a device exemplifying my invention; and Fig. 2, a plan of the same, portions appearing in horizontal section.

In the drawings, A indicates the axis or shaft of the numbering-wheel; B, the disk or body of the numbering-wheel; C, the series of numbering-type in the periphery thereof and adapted for a slight radial motion outwardly, these type bearing their impressing characters upon their outer surfaces, the

25 numbers being arranged in a peculiar series, as indicated by the numerals in the drawings and as hereinafter more fully explained, the type in the illustration comprehending a series numbered from one to fifty, but

30 not arranged consecutively, the exemplifying structure being designed for consecutive numbering up to and including fifty, it being practical, however, to embody the principle in numbering series having a higher maximum limit; D, springs on the several type

35 holding the type inwardly, so that their impressing-faces form a circle concentric with the axis of the numbering-wheel; E, a circle of gear-teeth carried by the numbering-disk and forming an internal gear adapted to drive

40 a pinion, the teeth in the exemplification being formed directly by the inner ends of the type, each type therefore forming also a gear-tooth; F, an arm mounted alongside the numbering-wheel, the illustration showing this

45 arm as being mounted on the axis of the numbering-wheel; G, a fixed support engaged by the arm F to prevent the arm turning; H, a pinion mounted on arm F, its teeth engaging

50 the teeth E, so that as the numbering-wheel is turned the pinion is forced to turn, the pin-

ion in the exemplification having seventeen teeth to engage with the series of fifty teeth E; J, one shallow tooth-space in the pinion H, which tooth-space, when it engages a tooth

55 E, will not accommodate that tooth in normal position, but will force the tooth and type radially outwardly; K, a face-plate on the numbering-wheel to cover and protect the spring D; L, an impression-cylinder with

60 which the type are to cooperate, the material to be printed or impressed to pass between the periphery of the impression-cylinder and the periphery of the numbering-wheel, the surface of the impression-cylinder standing

65 away from the normal circle of the type, but in such relation that a type projected by the shallow tooth-space J will be properly impressed at the impression-cylinder, and M

70 gearing connecting the impression-cylinder and the numbering-wheel, so as to cause them to turn together when power is applied either to the numbering-wheel or to the impression-cylinder, the gearing to be in such proportion

75 that the periphery of the impression-cylinder will move at the speed of the circumference of a circle whose radius is represented by a type when projected outwardly by the shallow tooth-space J.

It will be noticed in Fig. 1 that the type

80 stand away from the impression-cylinder, under which conditions paper passing between the numbering-wheel and impression-cylinder will not be affected by the type. Assume the numbering-wheel to turn in the

85 direction of the arrow. This results in the turning of pinion H. If all the teeth of the pinion were normal, then the pinion would turn idly and no type would be projected; but in the course of rotation of the pinion its

90 shallow tooth-space J will come into action upon one of the teeth E and that tooth and its type will be projected radially toward the impression-cylinder and make the impression of its character. With the parts in the position shown in Fig. 1, and with the numbering-wheel turning in the direction of the

95 arrow, the shallow tooth-space J will come into action and be effective when type N comes directly opposite the impression-cylinder. This type N is No. 1 of the series and

100 bears that character upon its impressing-face

and would impress that number at the impression-cylinder. The type after impression at once returns to normal position by the action of its spring, and the pinion and the numbering-wheel again become idle rotating parts; but when the numbering-wheel shall have passed seventeen more teeth the shallow tooth-space J will again become effective and another impression will be made. This effect will happen at tooth and type O, which is No. 2 of the series, the impressing effect occurring again when another seventeen teeth shall have been passed, thus bringing type P to the active point. Type P is the third type of the series. The effect will occur again when seventeen more teeth shall have been passed, and if this should again bring type N into action the number "1" would be again impressed, and the device would then simply reproduce the numbers "1," "2," "3," and "3" would represent the maximum value of the numbering series. In short if the number of teeth at E were a multiple of the number of teeth in the pinion then the capacity of the device would be very limited; but the number of teeth at E is not a multiple of the number of teeth in the pinion, but, on the contrary, the proportion is such that upon the completion of the first turn of the numbering-wheel the shallow tooth-space J, instead of again attacking tooth N, attacks tooth Q, which is next beyond it, and this tooth and type represents No. 4 in the series, and the next attacked will be tooth and type R, next beyond type O, this type R being No. 5 of the series, and so on and on until the fifty teeth and type have been acted on, successively, in their proper order as to character, but not successively as to their order of position in the numbering-wheel.

It will be obvious, upon analysis of the principle of the device, that teeth E, considered merely as teeth, form a simple gear by means of which the numbering-wheel drives the pinion H, and it will also be obvi-

ous that the shallow tooth-space J is virtually a simple radial projection from the pinion which will push outwardly upon an engaged type, the pinion thus alone forming the dual agent for protruding the type and for determining the time of protrusion. The numbering-wheel therefore carries teeth to drive the pinion, and the pinion carries a projection to push out one type at a time. In the exemplification the teeth E are formed directly upon the type and the projection of the pinion is formed in one of the tooth-spaces of the pinion, the types thus in themselves forming the dual agent by which the pinion is turned and the turning of the pinion made effective in protruding the types.

The numbering-wheel may be made as large as desired, and thus receive a numbering series of type of high terminal value. Arm F and support G are simply expedients for holding the axis of the pinion in fixed position. It should perhaps be added that the character of the printing desired will largely control certain details of construction or provision. Thus for doing the printing in pigment ordinary inking apparatus may be employed in connection with the type, or an inking-ribbon may be employed, or for mere impressing or embossing steel type may be employed.

I claim as my invention—

In a numbering-machine having a disk carrying radially-movable types protruded by the action of a pinion geared to the disk, the combination, substantially as set forth, of types having gear-teeth on their inner ends to form the gear element of the disk, and a pinion having teeth meshing with the teeth formed on said types and having an abnormally shallow tooth-space.

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Witnesses:

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