

T. J. YOUNG.  
Counting Machine.

No. 34,665.

Patented March 11, 1862.

Fig. 3.

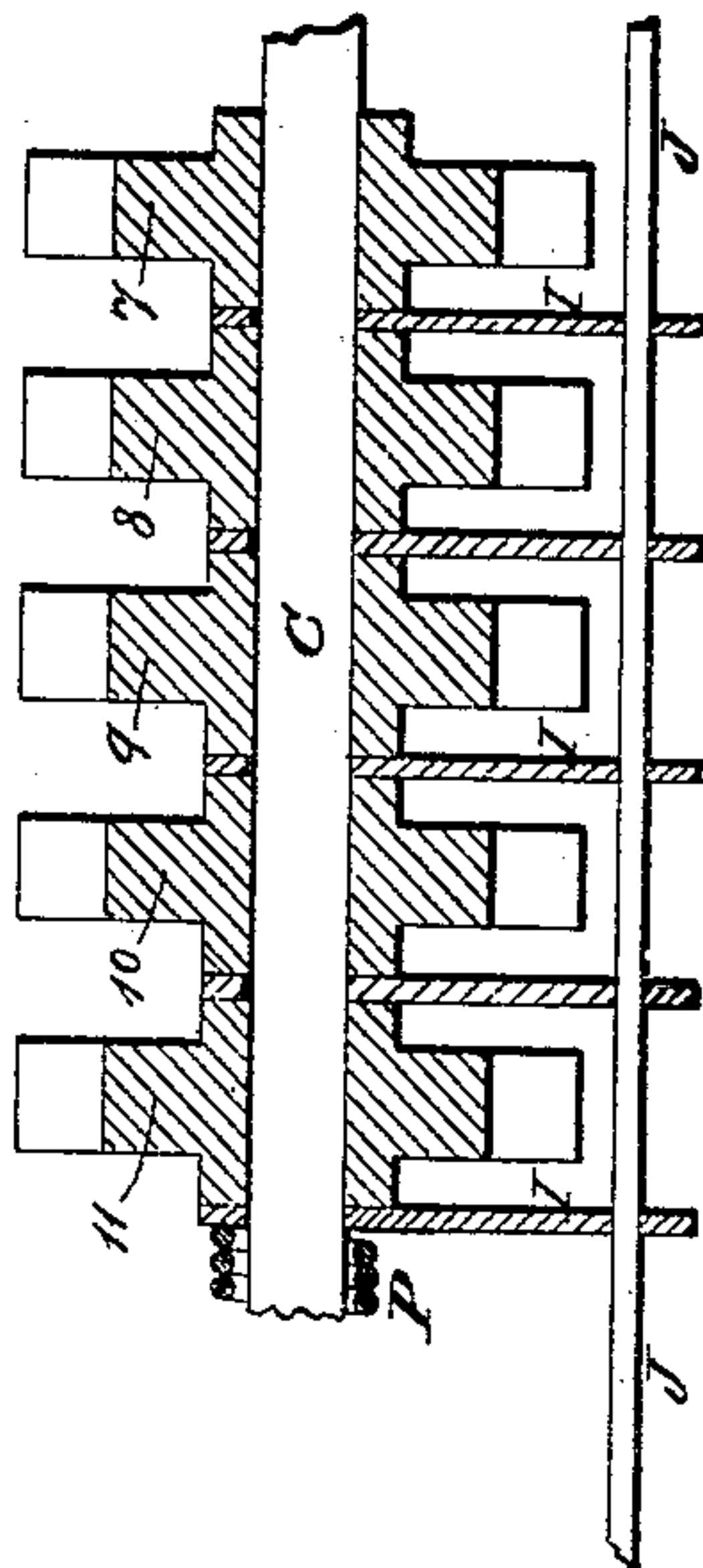


Fig. 1.

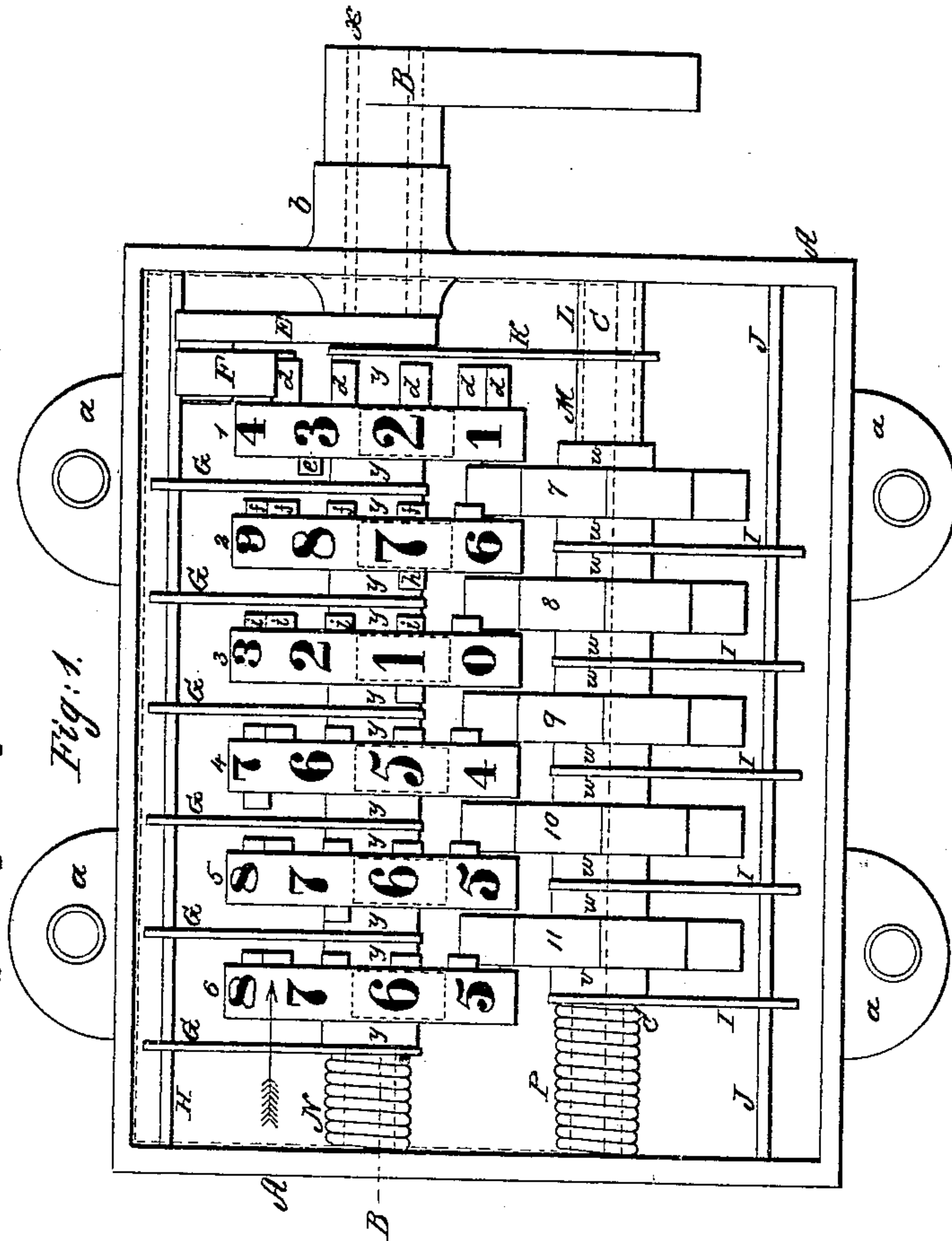
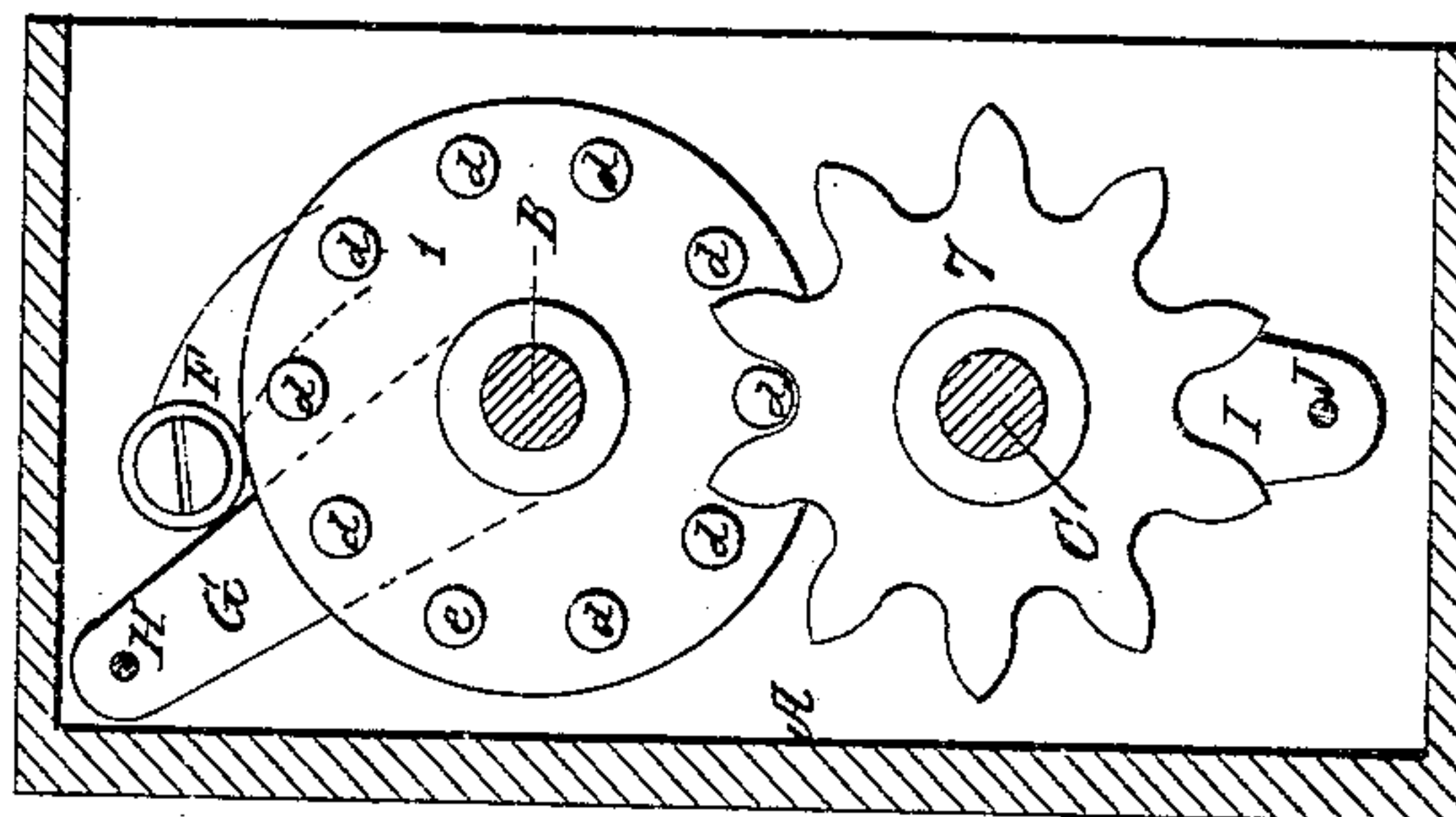


Fig. 2.



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Charles E. Foster.  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

THOMAS J. YOUNG, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
HIMSELF AND JOHN ELDER.

## IMPROVEMENT IN COUNTING-MACHINES.

Specification forming part of Letters Patent No. 34,665, dated March 11, 1862.

*To all whom it may concern:*

Be it known that I, THOMAS J. YOUNG, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Counting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to mechanism for counting the number of strokes made by an engine; and it consists of a series of numbering-wheels having projections and a series of cog-wheels with separating-plates, the said wheels and plates being acted on by springs or their equivalents in the manner described hereinafter, so as to cause sufficient friction to hold the numbering-wheels in the position to which they have been moved, and so as to prevent the movement of one wheel from disturbing or prematurely moving the adjacent wheel.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a front view of my improved counting-machine with the face-plate removed; Fig. 2, a transverse section, and Fig. 3 a detached sectional view, of part of the machine.

Similar letters and figures refer to similar parts throughout the several views.

A is the outer box-shaped casing of the machine, and is provided with suitable lugs *a a* for attachment to the engine, the strokes of which the machine is intended to count. Two longitudinal shafts B and C are permanently secured within the casing, and to the upper shaft B are hung loosely the numbering-wheels 1, 2, 3, 4, 5, and 6, a number of cog-wheels 7, 8, 9, 10, and 11 being hung loosely to the lower shaft C. A hollow spindle *x*, for admitting one end of the shaft B, passes through and turns in a projection *b* on one end of the casing A, and to this hollow spindle is secured an arm D, which is so connected to any moving part of the engine as to receive a vibrating motion, an arm E being secured to the same hollow spindle inside the casing. To this arm E is hung a pawl F,

so formed and so arranged as to bear against one of the ten projections *d* on one side of the first numbering-wheel 1, an adjacent projection serving to keep the pawl from falling below a given position. On the opposite side of the first numbering-wheel 1 is a single projection *e*, which is so situated as to catch against the teeth in the cog-wheel 7, into which gear the ten projections *f* on one side of the second numbering-wheel 2, on the opposite side of which is a single projection *h* for catching against the teeth of the cog-wheel 8, into which engages the projections *i i* on the third numbering-wheel 3. In like manner a movement is communicated from the third numbering-wheel to the fourth through the cog-wheel 9, and from the fourth to the fifth through the cog-wheel 10, and from the fifth to the sixth through the cog-wheel 11, and so on throughout the series, whatever number of wheels may be used.

Each numbering-wheel consists of a metal disk, to the edge of which a metal ring is fitted snugly, but so as to admit of being moved when adjustment is necessary. On the rings are marked the numerals, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, and to the casing is secured a cover or lid in which is a series of oblong slots, (shown by red lines, Fig. 1,) one slot being directly opposite to the periphery of each of the numbering-wheels, and being of such dimensions that one number only on each wheel can be seen through the cover of the casing at one time.

In adjusting the numbering-wheels in the first instance they must occupy such a position that the zero-mark of the whole of the wheels will appear through the openings in the cover. As there are ten projections *d* on the first numbering-wheel for the pawl F to act on and but one projection *e* on the same wheel to act on the teeth of the wheel 7, it will be evident that the latter wheel will not move until the completion of the tenth vibration of the arm D, when the said wheel 7 will move to the extent of one-tenth of its circumference and communicate a similar movement to the second numbering-wheel, which, together with the first wheel, will present the figure 10 to view through the cover. When the second numbering-wheel has thus been moved to the extent of one complete revolu-



tion, it will have communicated to the cog-wheel 8, and consequently to the third numbering-wheel, a movement to the extent of one-tenth of a revolution, in which case the numbering-wheels 1, 2, and 3 will together present the figure 100 to view, showing that the arm D has made one hundred complete vibrations, and that the engine to which the arm is connected has made a similar number of strokes. As the arm D continues to vibrate, the numbering operation will be continued until the figures representing nine hundred and ninety-nine thousand nine hundred and ninety-nine are exposed to view, when the numbering capacity of a machine with six numbering-wheels will be exhausted. Its capacity, however, may be increased by adding other wheels.

It will be observed that on each side of each numbering-wheel there is a central hub *y*, and that the hub of one wheel is separated from that of the adjacent wheel by a plate G, the whole of these plates being hung loosely to a rod H, secured within the casing A. In like manner the hub *w* of each of the cog-wheels 7 8 9, &c., is separated by a plate I from the hub of the adjacent cog-wheel, the whole of these plates fitting loosely over a rod J, secured to the casing.

A plate K fits loosely over the two shafts B and C and bears against the arm E and against a collar L on the shaft C, the outer hub of the first numbering-wheel bearing against this plate, and the outer hub of the first cog-wheel 7 bearing against a loose collar M, which bears against the said plate K.

A coiled spring N surrounds one end of the shaft B, and being confined by the end of the casing serves to force the whole of the plates

G and the numbering-wheels in the direction of the arrow, the force of the spring being resisted by the plate K. In like manner a spiral spring P surrounding one end of the shaft C serves to press the whole of the plates I and the cog-wheels in the direction of the arrow, the pressure of the spring being resisted by the same plate K. The springs thus serve not only to maintain the plates and wheels in their proper relative position, but to create sufficient friction between the plates and the hubs of the wheels to prevent the latter from being turned beyond the point desired for a proper exhibition of their figures through the openings in the cover, while the plates themselves, being rendered by the rods H and J incapable of turning on the shaft, serve as washers to prevent the movement of one wheel from disturbing and prematurely moving the adjacent wheel.

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

The numbering-wheels 1 2 3, &c., with their projections and the plates G G, in combination with the cog-wheels 7 8 9, &c., and the plates I, when the said plates G and I are prevented from turning by the rods H and J, or their equivalents, and when the whole of the plates and wheels are acted on by the spiral springs or their equivalents, as and for the purpose herein set forth.

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

THOMAS J. YOUNG.

Witnesses:

HENRY HOWSON,  
JOHN WHITE.