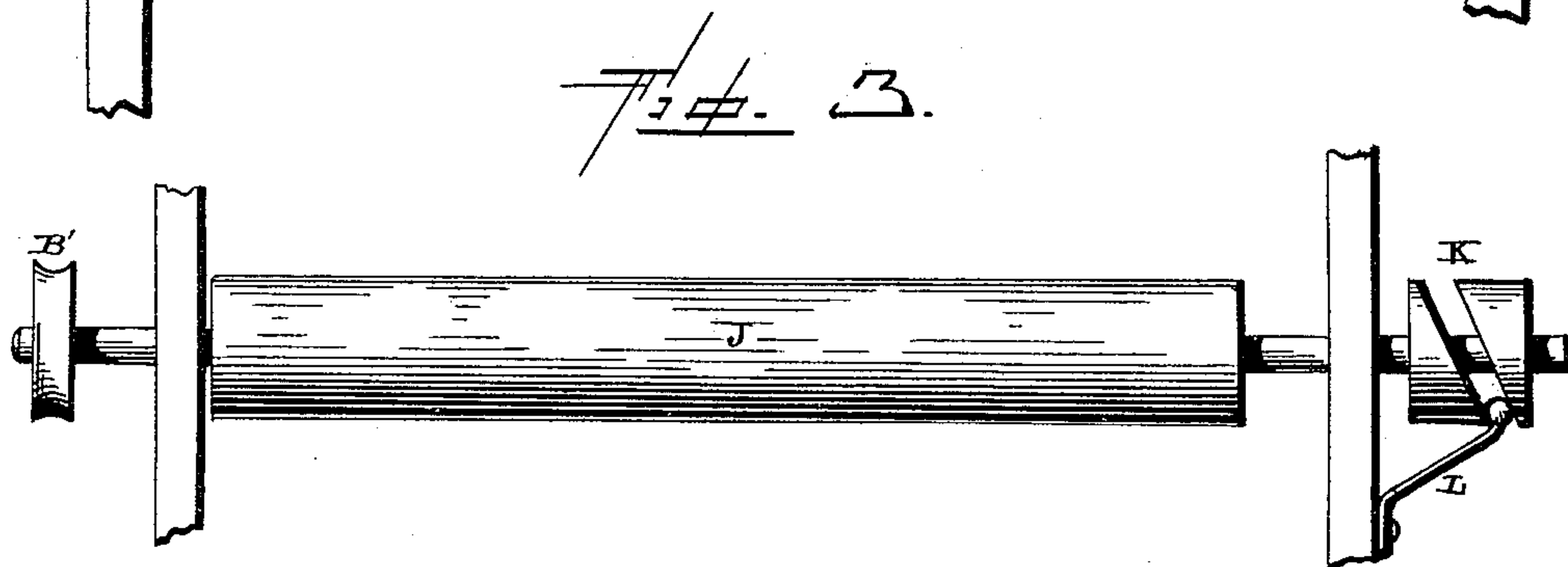
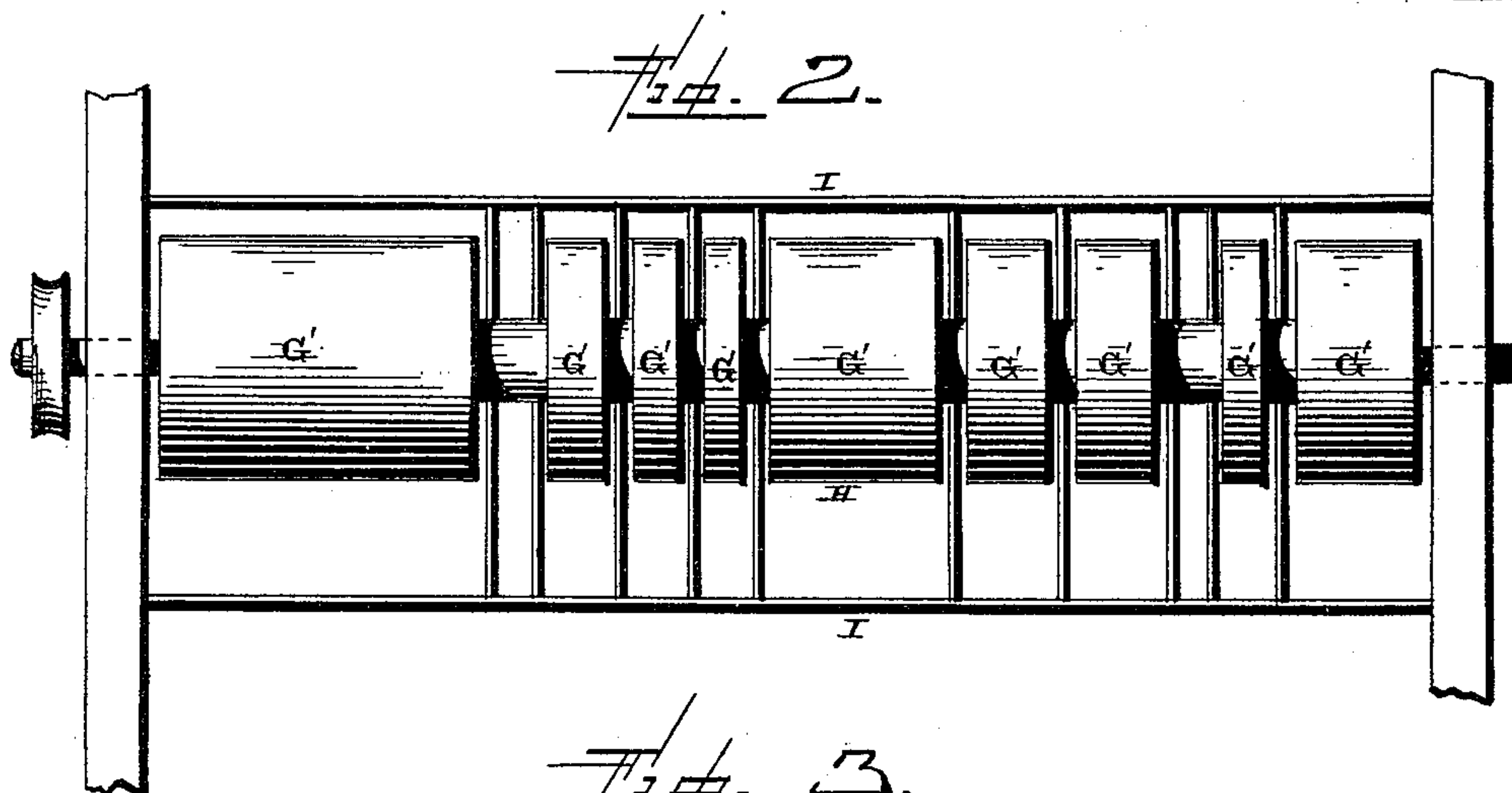
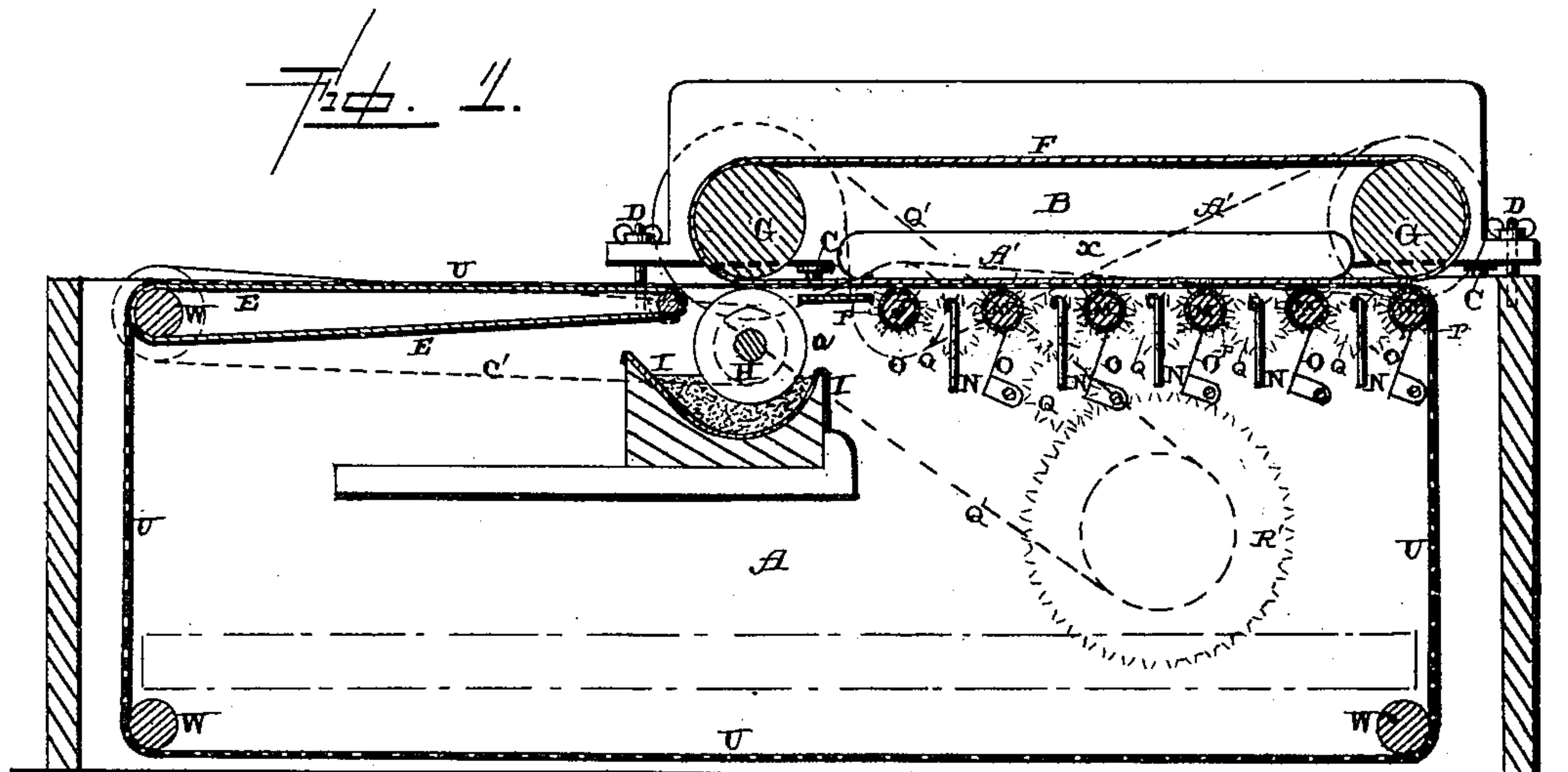


(No Model.)

C. LANDOLT.
BRONZING MACHINE.

No. 405,894.

Patented June 25, 1889.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHRISTIAN LANDOLT, OF LOUISVILLE, KENTUCKY.

BRONZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,894, dated June 25, 1889.

Application filed May 31, 1888. Serial No. 275,545. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN LANDOLT, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and
5 useful Improvements in Bronzing-Machines; 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 pertains to make and use it,
10 reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in bronzing-machines; and the objects of my invention are to apply the bronze from beneath
15 to the printed paper and to regulate the amount of pressure of the belt upon the work by making the upper frame adjustable in relation to the lower one.

20 Figure 1 is a vertical longitudinal section of a machine which embodies my invention. Fig. 2 is a plan view of the bronzing-roller and the fountain in which it is placed. Fig. 3 is a detached view showing the reciprocating
25 mechanism for the rubbing-roller.

A represents the lower portion of the frame and B the upper portion. In the top edge of the frame A are placed the set-screws C, and
30 passing through the ends of the frame B are the set-screws D, by means of which the frame B is secured to the frame A and held rigidly in contact with the set-screws C, so as to regulate the amount of pressure which shall be
35 applied to the printed work as it passes through the machine to be bronzed, polished, and cleaned. The printed work is delivered face downward directly from the printing-machine upon the endless apron E, which is located at one end of the frame A, and which carries the work forward to the endless belt F,
40 which passes around the two large rollers G, journaled in the upper frame B. This belt F is used when the endless stencil U, as will be more fully described hereinafter, is not used.
45 When the stencil U is used, the belt F becomes inoperative, because it is covered by the stencil, and the work is then delivered directly upon the stencil instead of upon the belt. This endless belt F moves the work forward and carries it through the machine. As
50 the printed work leaves the endless belt E it

passes between the belt F and the removable bronzing-roller H, which is journaled in suitable bearings in the frame A, and which has its lower edge to revolve in the bronzing-
55 fountain I. This roller is covered with plush, and may either be made in one continuous roll, or it may be divided into a number of sections G', which are interchangeable upon their shaft, and which will then revolve in
60 separate pockets or chambers in the fountain I. When this roller is made into different sections G' and the fountain I is divided by partitions into separate compartments, different colors of bronze may be applied to the
65 printed work at the same time and the width of each color of bronze can be controlled at will. As these sections G' are interchangeable upon their shaft, the width or particular place at which each color shall be ap-
70 plied can be regulated at will. The printed sheets in passing between the rollers G. H are pressed against the endless belt F, and this belt and rollers M carry the sheets along until they pass out in the rear. The
75 cleaning-rollers M are placed in close contact with each other, and all of them being made to revolve in the same direction there is no possibility of the sheets falling down in between them, for each roller carries the end
80 of each advancing sheet forward until it is caught by the next one. These rollers press the sheets upward against the endless belt, which moves slower than the cleaning-rollers, and hence the cleaning-rollers have ample
85 time to clean each sheet. Between the rollers H. J, when they are placed too far apart to readily carry the paper from one to the other, is a suitable support a, over which the paper passes and which serves to keep the ends of
90 the printed sheets from dropping down behind the roller H. When the rollers are placed near together no support is necessary.

Placed just beyond the bronzing-roller H is the rubbing-roller J, which, when only a single
95 color is to be used, is given an endwise reciprocating motion, so as to rub in the bronze and thus make it adhere to the work. In order to cause this roller to reciprocate, a pulley K, having a diagonal groove in its surface, is se-
100 cured to one end of the shaft of the roller, and in this groove the end of the stationary

rod or projection L is made to catch. The pulley K is rigidly secured to the shaft, and as it revolves the shaft is caused to have an endwise reciprocating motion. In case a number of colors of bronze are to be used, then either the part L or the pulley K will be removed, so as to prevent any endwise movement of the roll, which would cause a mixing together of the colors.

Beyond the roller J are placed any number of cleaning and polishing plush-covered rollers M, which are separated from each other by the vertical partitions N, and which have scrapers or other suitable devices O, made to bear against their surfaces for the purpose of rubbing the bronze from the plush and keeping the plush clear and free. These rollers M bear against the under side of the printed work as it is carried forward by the endless belt F, and both clean away the surplus bronze and polish it. The vertical partitions N prevent the bronze being thrown from one roller to another, and thus keep them separate and independent from each other.

Upon the end of each one of the rollers M is placed a cog-wheel P, which engages the idlers Q, which are driven by the cog-wheel R', carrying a pulley. Passing around a pulley secured to the cog-wheel R' is the belt Q', which drives the front roller G, around which the endless belt Q' passes, and the rear roller G receives its motion from a crossed belt A', which extends from the pulley B' upon one end of the roller J. The shaft H, carrying the sections G', receives its motion from a belt C', which passes around the pulley on the upper front roller W, which operates the delivery-belt E. The roller J receives its motion from the idlers Q and the pinions P, which are operated directly by the large cog-wheel R'. The printed work, as it passes from the machine cleaned and polished, falls face downward upon any suitable device placed to receive it, while all the bronze which has been cleaned from its surface drops into a drawer in the bottom of the frame A.

Heretofore a stationary stencil has been used; but in order to do away with the disadvantage of such a device I here use an endless stencil U, which is provided with openings through its surface of any desired shape, size, or length, and which serves to control to what parts of the printed work the bronze shall be applied. While a stencil is used the roller J is not permitted to have an endwise movement. For the purpose of forcing the belt F down upon the work as it passes through

the machine a board or boards x may be placed in the frame A, and which have their lower edges to bear directly upon the belt, so that it cannot spring upward. When it is desired to bronze only a part of a printed sheet, the endless stencil U is used, and in which openings are cut corresponding in size to the letter, lines, or design to be printed upon the printed sheet. The sheet is laid on the stencil in such a manner that the parts selected to be bronzed lie over the openings in the stencil, and through which openings the bronze is applied by the bronzing-roller H or its sections G'. When a stencil is used and different colors are applied at once, as above stated, the roller J will not be made to reciprocate, as it would only rub or mix the colors together. This stencil passes around the three rollers W, placed in different corners of the frame A over the tops of the bronzing-roller, the rubbing-roller J, and the polishing and cleaning rollers M, and the printed matter is moved along between the belt F and its stencil. Both the belt and the stencil are moved in the same direction and at the same rate of speed, while the rollers J and M are made to revolve rapidly, so as to enable them to not only clear away all of the surplus bronze, but polish it and give the work a finished appearance.

Having thus described my invention, I claim—

1. In a bronzing-machine, an endless stencil provided with suitable perforations, in combination with the endless belt F, which serves to carry the printed matter through the machine, and mechanism for operating the stencil and the belt, substantially as shown.

2. The combination, with an endless stencil provided with perforations, of the bronzing-roller, the endless belt F, the rollers for brushing and cleaning the bronze through the openings in the stencil, and suitable operating mechanism for the endless belt, stencil, and rollers, substantially as described.

3. The combination of the upper frame, the pulleys placed therein, the endless belt which passes around the pulleys, and the boards placed inside of the frame for pressing the belt down upon the cleaning and polishing rollers, substantially as described.

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

CHRISTIAN LANDOLT.

Witnesses:

W. F. TOFEL,
DANIEL ZUTT, Jr.