

No. 664,484.

Patented Dec. 25, 1900.

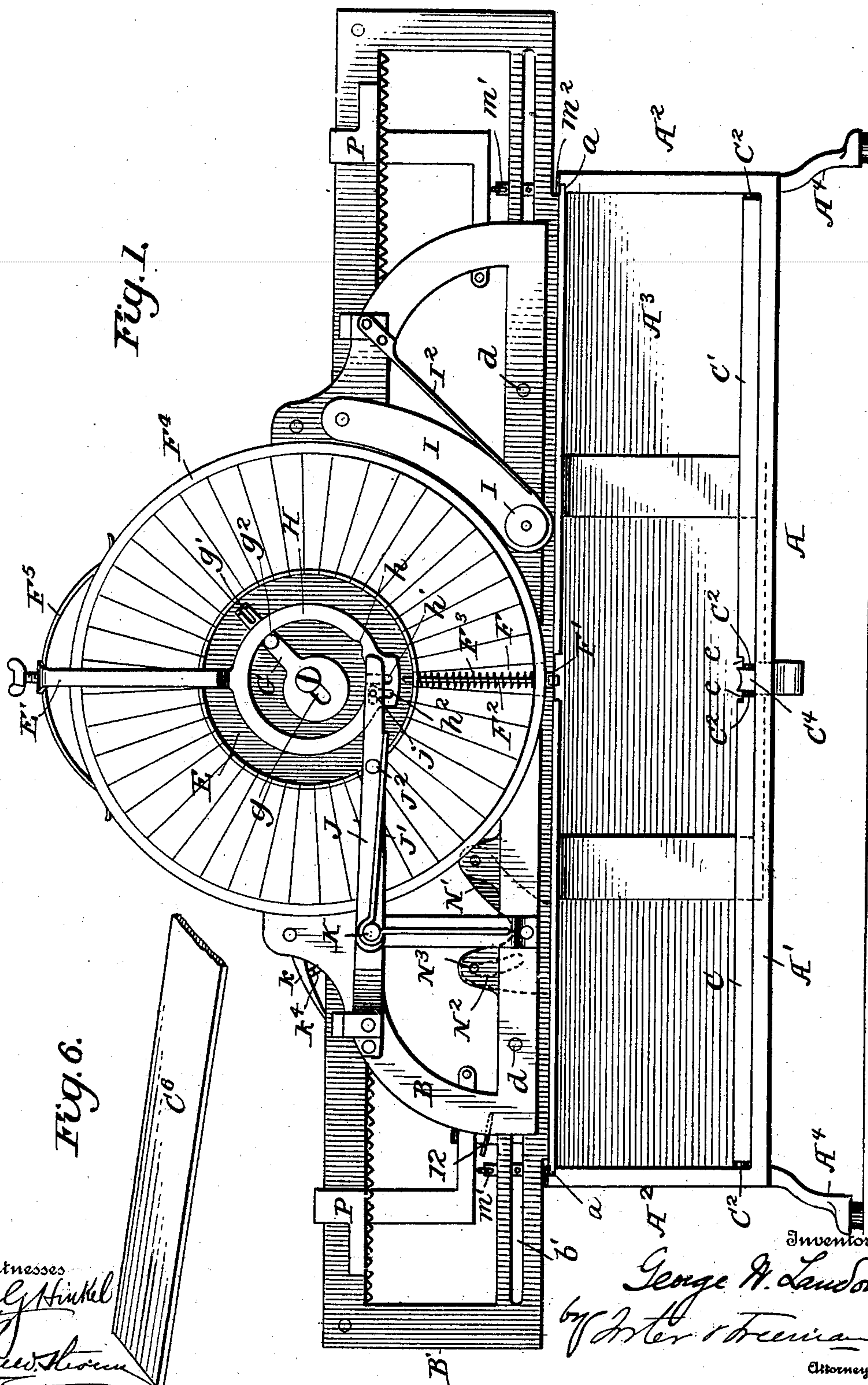
G. W. LANDON.

TYPE WRITER.

(Application filed July 6, 1897.)

(No Model.)

4 Sheets—Sheet 1.



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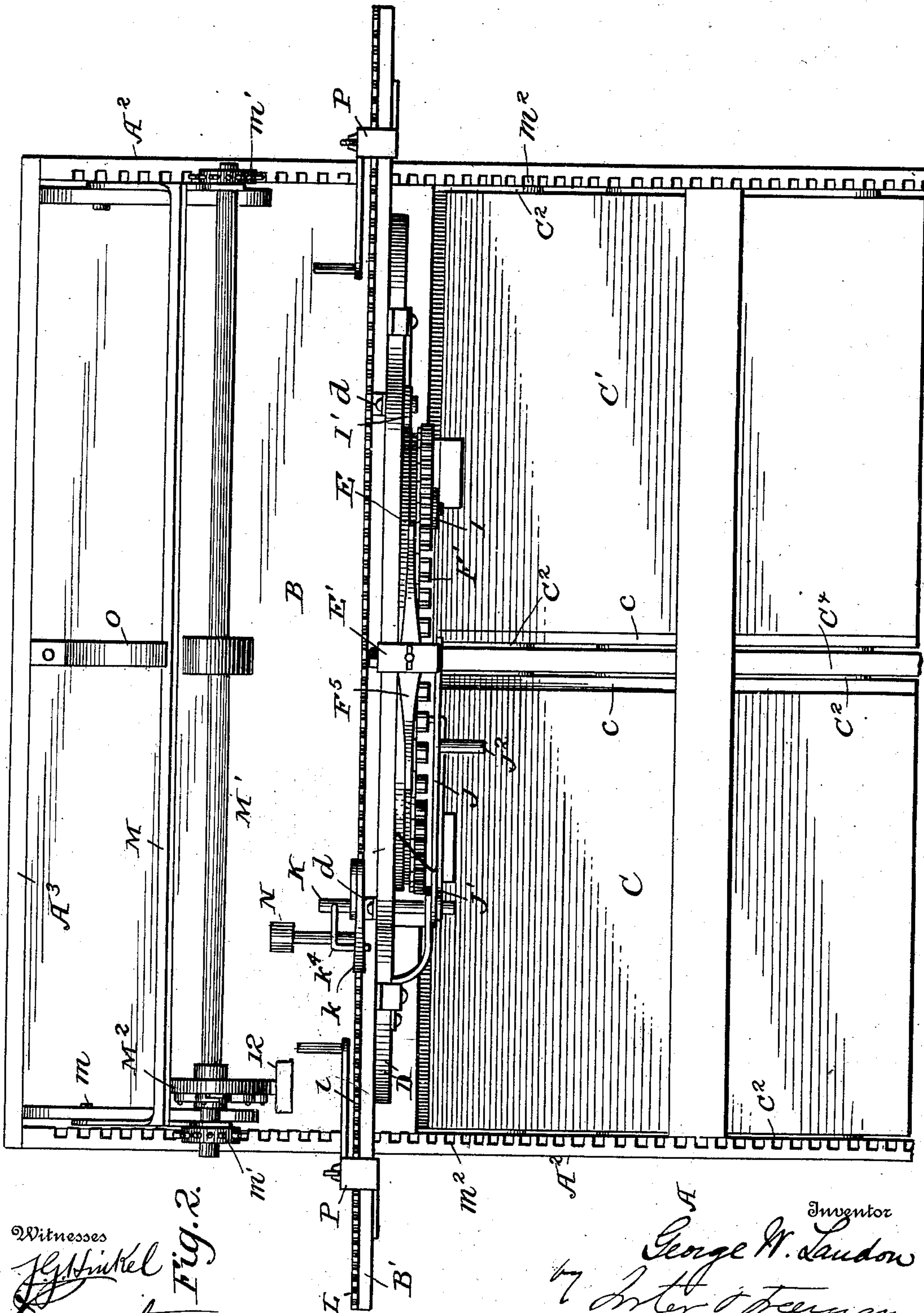


Fig. 2.

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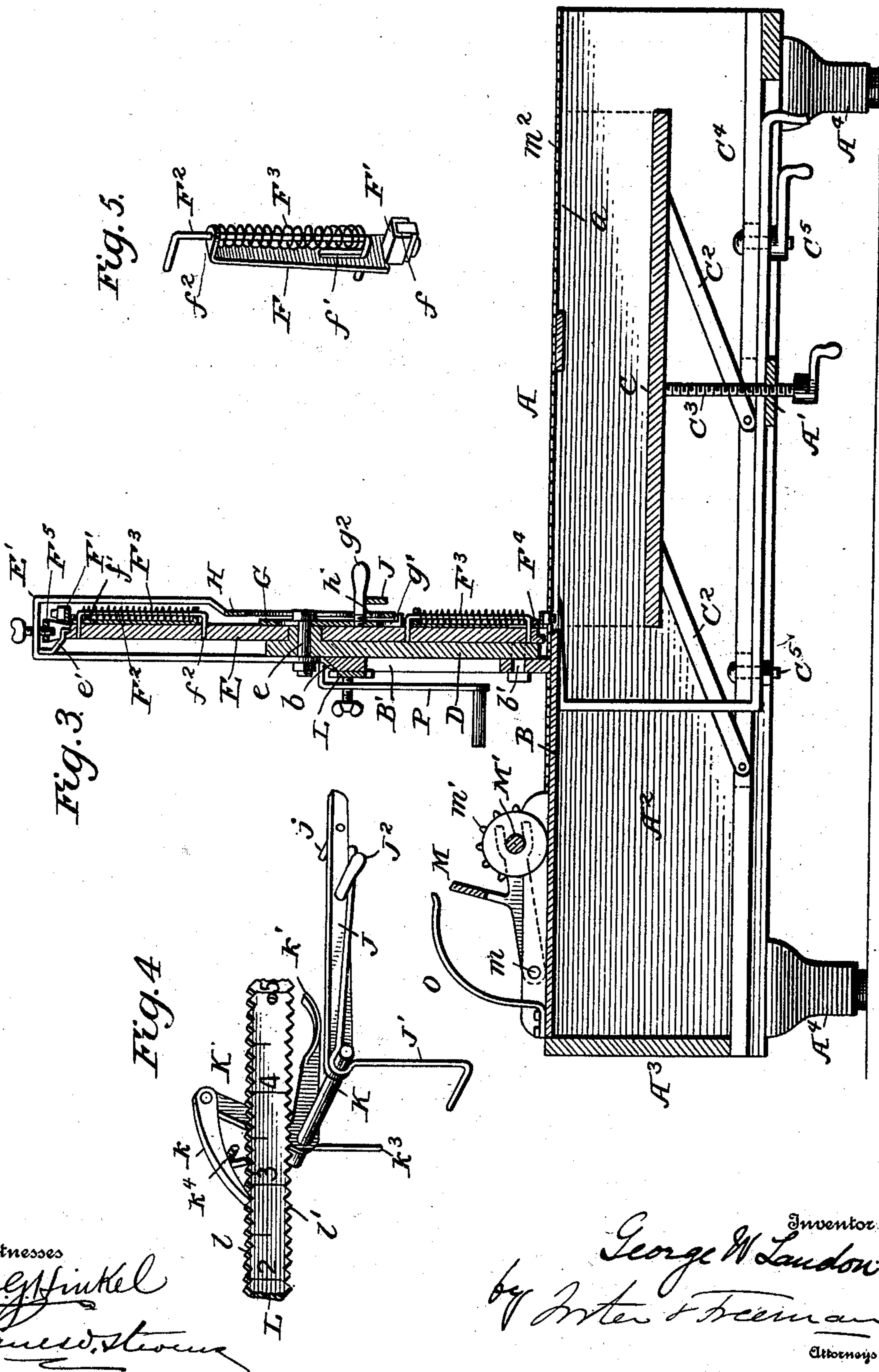
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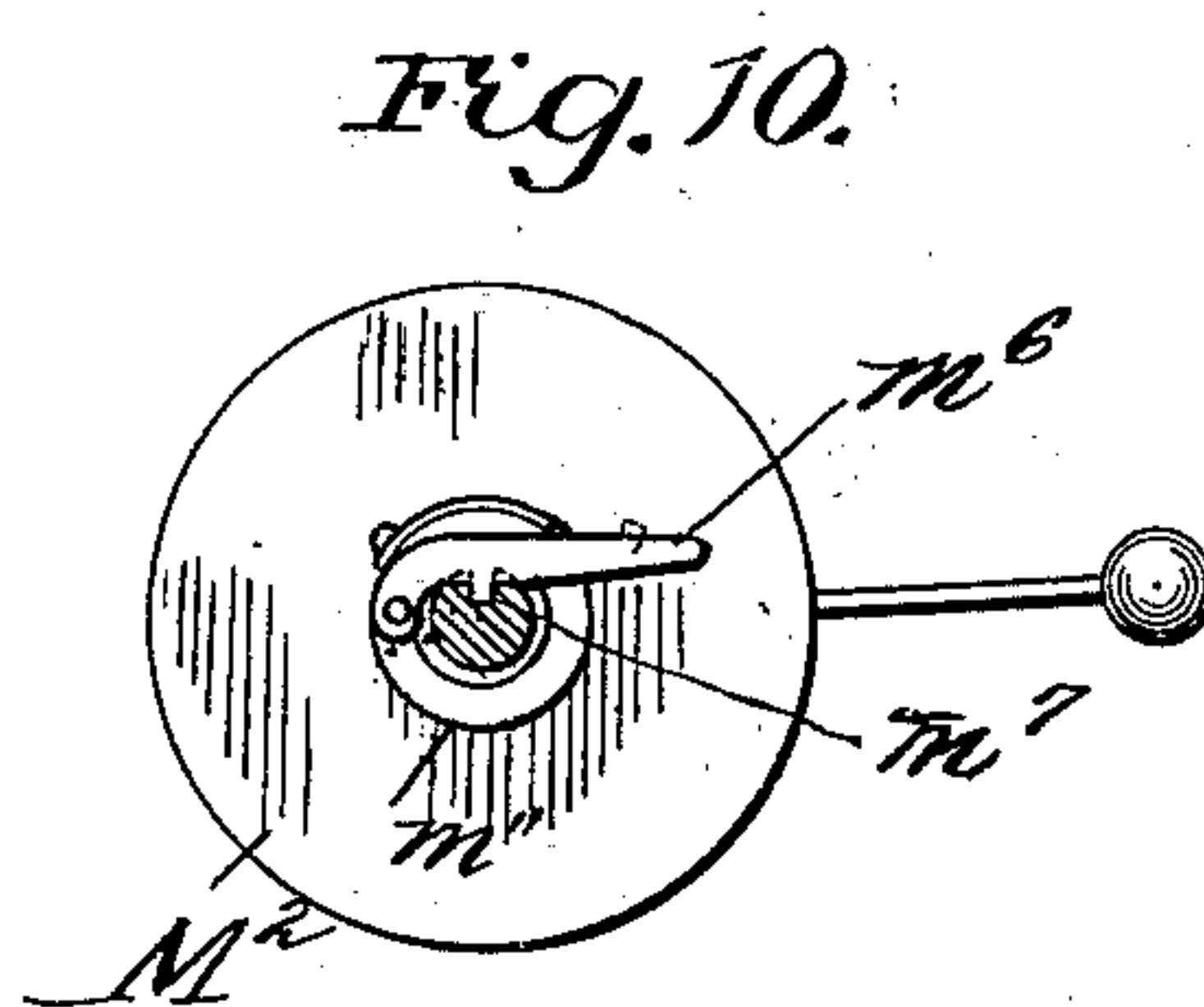
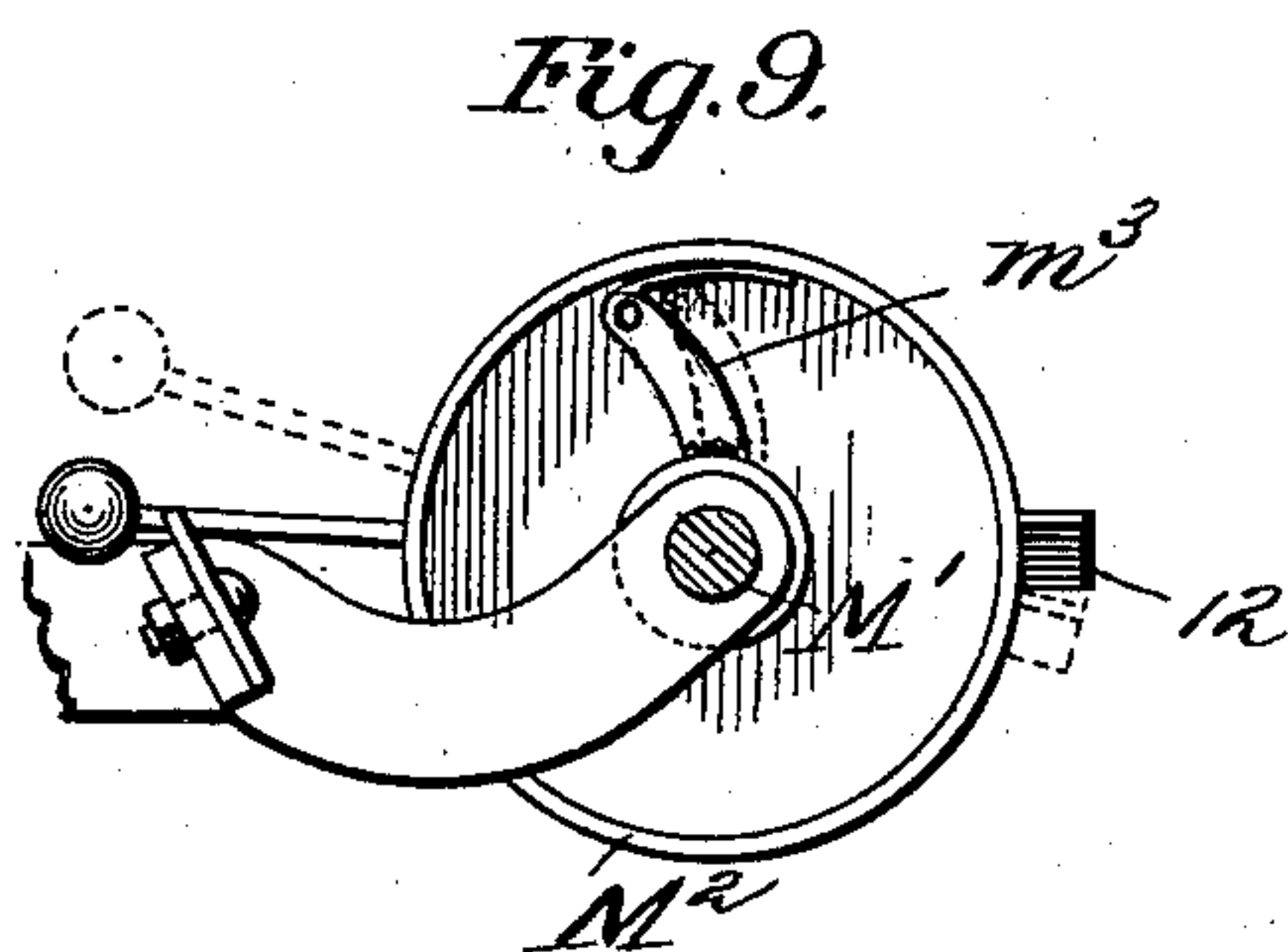
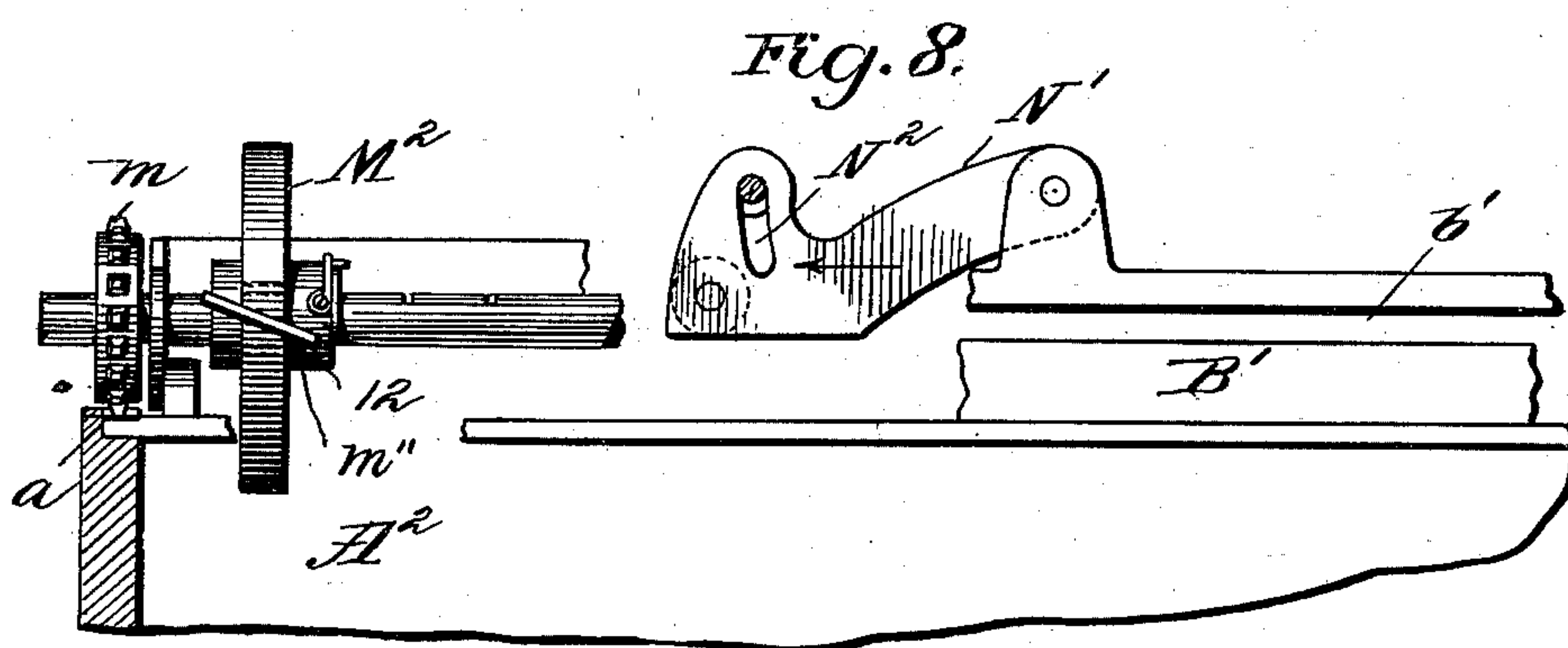
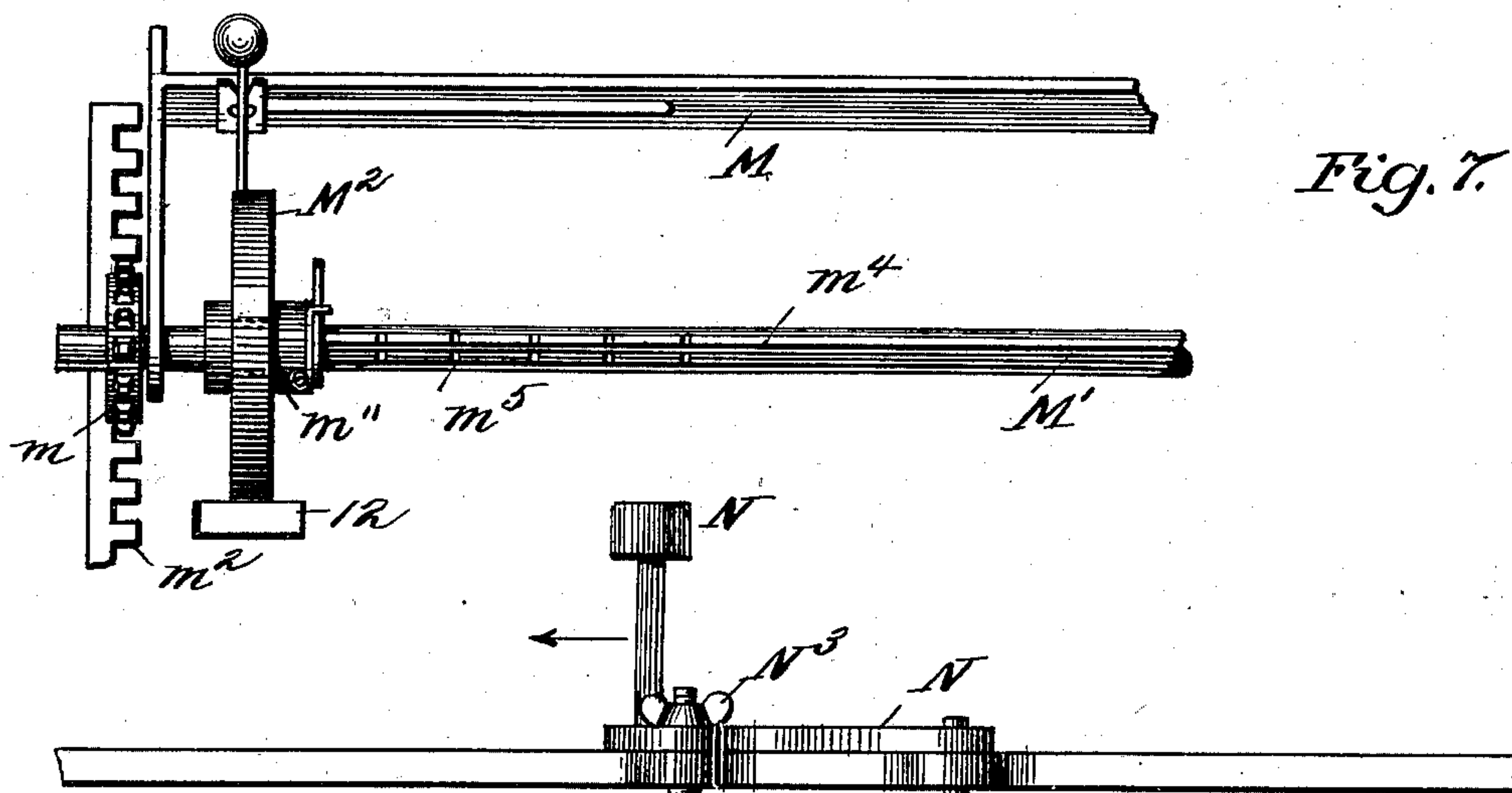
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(Application filed July 6, 1897.)

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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

GEORGE W. LANDON, OF KENT, INDIANA.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 664,484, dated December 25, 1900.

Application filed July 6, 1897; Serial No. 643,567. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LANDON, a citizen of the United States, residing at Kent, in the county of Jefferson and State of Indiana, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

My invention relates to type-writers, and has for its object to provide a simple, cheap, and effective construction of type-writer which is adapted to write on plain sheets of paper, and more particularly adapted for writing on open books; and my invention consists in the various features of construction and arrangement of the parts having the general mode of operation, substantially as hereinafter more particularly set forth.

Referring to the accompanying drawings, wherein I have illustrated a preferred embodiment of my invention, Figure 1 is a front elevation showing the general features of construction and arrangement of the machine. Fig. 2 is a plan view thereof. Fig. 3 is a central vertical longitudinal sectional view of the machine. Fig. 4 is a perspective view of the letter-spacing devices. Figs. 5 and 6 are detail views. Fig. 7 is a detail plan view of the line-spacing mechanism, parts being broken away. Fig. 8 is a detail side view of the same. Fig. 9 is a detail side view of one side of the friction-clutch, the shaft upon which said clutch is mounted being shown in section; and Fig. 10 is a similar view of the opposite side of the clutch.

While, as above indicated, my improved type-writer is adapted to write on flat sheets of paper, it is also adapted and is more specially intended for use in writing on books, and I will now proceed to describe the embodiment of my invention shown in the drawings.

The main frame A of the machine may be suitably constructed of any desired material and of any particular shape and comprises, as shown in the present instance, a base or cross piece or pieces A', side pieces A², and an end piece A³, while the whole is supported on suitable feet A⁴. This frame, as shown, is substantially rectangular in shape and supports the main carriage B, the latter being arranged in the present instance to slide in grooves a. This carriage carries the print-

ing-wheel and adjunctive devices, together with means for moving the carriage longitudinally in the frame to make the line-spaces, as more particularly pointed out hereinafter.

The material on which the writing is to be made is supported on an adjustable table mounted in the main frame, and this table is shown as comprising two parts C C', connected to the frame in any suitable manner, as by the hinges C² C², there being preferably four to each table, (all of which are not shown in the drawings,) so that each section of the table can be adjusted independently of the other to suit the thickness of the book as it is being printed. Some means must be used for supporting each table-section in its proper elevated position, and I have shown screws C³, passing through the base or cross piece A' of the frame. Extending between the sections of the table is a gage C⁴, which is secured to the frame A by threaded bolts and nuts C⁵ and is adapted to support the back of a book when the sections are in their lowered position and in the same horizontal plane, and each of the sections of the table is rabbeted, as at c, to receive a filling-piece C⁶ to make a flat table when printing on single sheets. When it is desired to insert the filling-piece C⁶, the sections of the table are elevated above the base of the frame and above the gage C⁴ and brought to the same horizontal plane. It will thus be seen that the table may be adjusted to any desired height and arranged to have a flat continuous surface on which to lay the sheets of paper or other material when they are being printed, or either of the sections of the table can be adjusted to the desired height to support the book in proper alinement for printing, and it will be understood that these sections will be adjusted according to whether the first part or last part or other portion of the book is being printed at any particular time. This arrangement of table is useful in connection with the remaining portions of my improved device; but it is obvious that it can be used with other forms of printing-wheels and carriages adapted to cooperate with it.

The carriage B is provided with an upright frame-like front portion B', the upper edge of which is shown beveled, as at b, to facili-

tate the adjustment of the machine to suit different lengths of line.

Mounted to slide longitudinally on the upright front of the carriage B and laterally with respect to the line of movement of the carriage is a type-wheel carriage D, it being connected thereto by any suitable means, as by the bolts or projections d d , engaging a slot b' in the upright front portion. Mounted on this type-wheel carriage is a wheel E, being supported on a bearing or stud e , and this wheel carries the printing-type, and in order to properly support and steady the wheel I use a guard E' , having a rabbet e' , in which the edge of the wheel moves.

The type proper are mounted in type-holders, and these are in turn mounted on the face of the wheel E, the holders being sector-shaped, as best shown in Figs. 3 and 5, and being arranged around the wheel and being of any desired number, according to the character of the printing to be done. Thus the sectors F carry the type-holders F' , which latter are provided at their outer ends with recesses f to receive the type proper, and the upper portions are secured to the type-wheel by guiding-staples F^2 , one portion of the staple passing through the slot f' in the body of the holder, the upper end of the holder being bent at f^2 to embrace the staple, and a spring F^3 being interposed between the upper end of the type-holder and the lower portion of the staple to hold the holder in its normal position to permit it to be depressed or extended outward for the purpose of printing in the manner hereinafter set forth. Suitable indicating-letters are placed on the inside of the wheel, corresponding with the character of each particular type, and in order to keep the type-holders in proper alinement on the wheel I preferably use a ring F^4 , which passes outside the lower portion of the staple, above the type-holder and between the staple and the type-holder, and this ring bears against all of the type-holders and keeps them in place. The type being thus arranged on the face of the wheel, some means must be provided for selecting the desired type and bringing it into printing position, and I have shown as mounted on the stud or pivot e an arm or sweep G, having a slot g , permitting it to move in and out on its stud, and at its outer end having a recess g' , adapted to embrace a staple securing a type-holder and permitting it to be slid outward to extend the particular type-holder, so that its type will project beyond the periphery of the wheel. In order to facilitate this movement, the sweep is provided with a handle g^2 , and there is arranged in front of the wheel a circular guide H, in this instance supported from the guard-piece E' back of the carriage B, and this guide limits the movement of the sweep, the handle bearing on the inner periphery of the guide. Thus when it is desired to select any particular letter the sweep is brought opposite the indicated letter on the wheel and

then moved longitudinally on its pivot until its notched portion g' engages the staple of the desired letter, and the sweep and wheel are turned to bring the letter into printing position. As it moves into printing position the handle g^2 of the sweep comes opposite a notch h in the guide H, and this permits the type to be projected sufficiently to come in contact with the inking-wheel I and receive a proper quantity of ink. A further movement of the sweep brings the type into printing position opposite the notch h' in the guide H, when the sweep and type are depressed, making the impression, the notch h' serving as a guide for the type-carrier and sweep and limiting its movement. When the sweep is released, the spring F^3 retracts the type, forcing the sweep inward to its normal position, when it can be moved around to engage the next letter desired, and the same operations are repeated.

In order to hold the type-wheel E normally stationary, I find it convenient to employ a brake F^5 , which is mounted on the guard E' and bears on the wheel E. So, also, in practice I mount the inking-wheel I on a pivoted arm I' and provide a spring I^2 , which normally holds the inking-wheel I in operative position, but permits it to yield when struck by the type.

As each type is impressed on the paper it is necessary to provide means for moving the type-wheel forward into a position to impress the next succeeding letter or to make what is commonly known as a "letter-space," and to do this I arrange a lever J on the type-wheel carriage, which lever projects in front of the guide H and is connected therewith by a stud j , sliding loosely in a slot h^2 in said guide, while its free end projects in front of the recess h' . This lever is maintained in this position normally by a spring J' ; but when the sweep is moved downward to make the impression with the type the handle g^2 thereof engages the lever J, rocking the shaft K, to which it is connected. Mounted on this shaft is an arm K' , carrying a pawl k , engaging the teeth l of a rack L, secured to the front portion B' of the main carriage, the said rack being conveniently marked with any scale, as "1," "2," "3," &c. Also mounted on the shaft K is a clutch-pawl k' , engaging the teeth l' of said rack. As the lever J is depressed the pawl k is moved to the right (see Fig. 4) one notch, and when the sweep is released the spring J' retracts the lever J, operating the rock-shaft K and forcing the type-wheel carriage on which the shaft is mounted one step to the right, ready to impress the next letter, and the clutch-pawl k' engages the next tooth l' to hold the carriage in position. It will thus be seen that the act of making the impression puts the spring J' under tension, so that when the sweep is released the spring automatically retracting feeds the type-wheel carriage one step in advance. The lever J is also provided with a handle J^2 , by means of

which the type-carriage can be fed step by step to make the word-space without the necessity of operating the sweep and depressing a type-holder. This knob also serves to depress the lever J, so that the type-carriage can be moved back to position to commence a new line on the page, and it will be seen that when the lever is depressed the pawls k and k' are disengaged from the teeth of the rack and the carriage can be slid back or forth, as desired.

Having provided for the printing, the type-space, and the word-space, it is necessary to provide for making the line-space, and in the construction illustrated I have shown the main carriage B as provided with a pivoted head-block M, hinged at m at each end to the base and carrying a shaft M' , on which are mounted the pinions m' , which are arranged to engage the racks m^2 , secured to the side pieces A^2 of the main frame A. It is evident that if the shaft M' is rotated the pinions m' , engaging the racks m^2 , will propel the main carriage forward to make the desired space, and in order that this can be done I fix upon the shaft M' a collar m'' , upon which is mounted to rotate freely in one direction a friction or clutch wheel M^2 , provided at one side with a spring-pawl m^3 , which engages and is adapted to rotate the collar m'' and shaft when the wheel is moved in one direction, but to slip on the collar when moved in the opposite direction. This wheel is shown in the present instance as being operated by an inclined flight 12 on the edge of the wheel. This clutch-wheel is adjustably mounted on its bearings, so that it can be moved laterally on the shaft and adjusted in position according to the length of the line of printing being made. Thus, for instance, if the printing is on one page only of the book this wheel is adjusted so that the carriage need not be brought back clear across the adjacent page, but only to the beginning of the page being operated on, and the reason for this is that the wheel M^2 is operated automatically by the return movement of the type-wheel carriage. As a convenient means of adjusting the clutch-wheel and for holding it in its adjusted position the shaft M' is formed with a longitudinal groove m^4 and at separated points with transverse recesses m^5 , which intersect the groove m^4 , and adapted to engage the recesses m^5 is a spring-pressed clip m^6 , pivoted to one side of the collar m'' , the said clip being formed with a projection m^7 , adapted to engage the groove m^4 and maintain the relative positions of the collar and its shaft M' . In order to operate this wheel M^2 , there is mounted on the type-wheel carriage a roller N, and this roller is preferably carried in an arm or bracket N' , pivoted to the back face of the carriage D, and is adjustable thereon by means of the slot N^2 and a suitable thumb-screw N^3 . In this way the position of the roller N can be adjusted so that any desired amount of line-space can be produced by each

return movement of the type-carriage, the roller N striking the inclined flight 12 at different points and depressing it more or less, thereby rotating the clutch-wheel M^2 , and with it the collar m'' and the shaft M' , the required distance to move the main carriage to make the desired line-space, and a weight causes the wheel to retract independently of the collar and shaft. I thus obtain a universal or variable line-space feed that can be made to correspond with the space between the lines of ruled paper when such is used or may be otherwise adjusted, as desired.

When it is desired to return the main carriage to its normal position, the pivoted head-block M may be raised and engage the stop O, which will disengage the pinions m' from their racks, and the carriage may be adjusted as desired. So, also, I provide adjustable stops P on the front portion B' of the carriage to determine the length of the lines by limiting the return movement of the type-wheel carriage D, the said stops being adapted to be engaged by an arm k^3 on the rock-shaft K when the carriage arrives at either terminal of its movement, the stops and cooperating parts being so arranged that when the carriage reaches the right-hand side of the frame, or, in other words, when the end of a line is reached, the pawl k is lifted by an arm k^4 of the arm k^3 out of engagement with the rack L, and when the carriage is shifted back to its initial position the arm k^3 is engaged by the stop P and the pawl again thrown into engagement with the rack. This latter operation of course takes place after the spacing has been effected.

With this general description of the construction and arrangement of my device its operation will be largely understood and need not be detailed herein, and it will be seen that my device can be used for printing on single sheets of paper or books with equal facility and that the book or paper being in proper position the sweep is moved to engage the type-holder carrying the desired type. The wheel is then moved around to printing position, the type being inked in the passage and then pressed downward to make the impression on the paper. This act operates the lever controlling the feed, setting it in position, so that when the lever is released the type-carriage will be moved to make the type-space ready for the next impression.

The space between the words can be made by moving the same lever and the type-wheel carriage returned to its normal position by its aid. This return of the type-carriage automatically depresses the inclined flight connected with the clutch and rotates the shaft, carrying the pinions engaging the racks on the main frame and feeds the main carriage forward the desired distance to make the line-space, and the parts are in adjustment for further operation.

All the parts are simple of construction, can be readily made and adjusted, and the

whole constitutes a relatively inexpensive type-writer capable of extended use under different circumstances.

What I claim is—

- 5 1. In a type-writer, the combination with a rotatable type-wheel provided with a series of movable type-holders and a rotatable sweep adapted to engage any one of the type-holders to rotate the type-wheel and to be moved
10 longitudinally independently of the type-wheel to actuate the type-holders to carry the type into contact with the paper, substantially as described.
- 15 2. In a type-writer, a type-wheel having on its face a series of type-holders, a rotatable and longitudinally-movable sweep adapted to engage the type and bring the wheel into position, and a guide for preventing the longitudinal movement of the sweep except at
20 predetermined points, substantially as described.
- 25 3. In a type-writer, a type-wheel having a series of type-holders on its face, a sweep arranged to engage the type and bring the wheel into printing position, a guide having notches controlling the movement of the sweep, and an inking-wheel arranged adjacent to the type-wheel, the guide being arranged to permit the movement of the type to impinge on
30 the inking-wheel substantially as described.
- 35 4. In a type-writer, a type-wheel having a series of type-holders mounted on its face, staples securing said type-holders, and a sweep arranged to engage the staples to move the wheel to printing position and to engage the type-holders to make the impression, substantially as described.
- 40 5. In a type-writer, a type-wheel having a series of type-holders on its face, staples securing the holders in position, a sweep having a notch to engage the staples to move the wheel into printing position and to engage the type-holders to make the impression, and a guide controlling the movements of the
45 sweep, substantially as described.
- 50 6. In a type-writer, the combination with a type-wheel having a series of type-holders on its face, of staples for securing the holders in position, a sweep longitudinally movable on its axis arranged to engage the staples to move the type-wheel into position, and a guide controlling the movement of the sweep, said guide having a notch permitting the sweep to be moved to make the impression, substantially as described.
- 55 7. In a type-writer, the combination with a support for the material to be printed upon, of a type-wheel having type on its face, a rotatable and depressible sweep for bringing
60 the type into position, and for moving them

into contact with the material to be printed upon, a guide controlling the sweep constructed to permit the depression of the sweep at a predetermined point, a lever arranged adjacent the guide adapted to be engaged by
65 the sweep when it is depressed and feeding mechanism connected with the lever for moving the wheel laterally relative to the support to make the type-space, substantially as described.

8. In a type-writer, the combination with a type-wheel carrying type on its face, of a sweep for bringing the type into printing position, a guide for said sweep, a notch in the guide controlling the movement of the sweep,
75 a spring-actuated lever arranged adjacent to said notch whereby the lever can be operated and the spring put under tension, and feeding devices operated by said spring-actuated lever, substantially as described.

9. In a type-writer, the combination with a type-wheel carrying the type, of a feeding device comprising a rock-shaft, a spring-actuated lever connected thereto, pawls on the rock-shaft, a rack on the frame, and means
85 for moving the lever when the impression is made whereby the act of making the impression puts the lever under tension and permits it to operate to feed the type-wheel, substantially as described.

10. In a type-writer, the combination with the type-wheel carriage, of a main carriage, a shaft mounted on the main carriage having pinions engaging a rack on the frame, a clutch also on the shaft, and connections between
95 the type-wheel carriage and clutch whereby the main carriage is moved a line-space when the type-wheel carriage is retracted, substantially as described.

11. The combination with the main carriage, of a shaft mounted thereon having pinions engaging a rack on the frame, a clutch on the shaft, an inclined flight connected to the clutch to move the type-carriage, and devices on the type-carriage to engage the inclined flight for moving the main carriage,
100 substantially as described.

12. The combination with the frame, of a table comprising separated independently-adjustable sections, each adapted to support
110 one portion of a book, and a filling-piece for closing the space between the sections, substantially as described.

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

GEORGE W. LANDON.

Witnesses:

RICHARD TEMPERLY,
DAVID WHEATE.