

No. 846,671.

PATENTED MAR. 12, 1907.

C. D. KING & A. H. MILSTEAD.
TYPE WRITER ATTACHMENT.

APPLICATION FILED MAY 5, 1906.

4 SHEETS—SHEET 1.

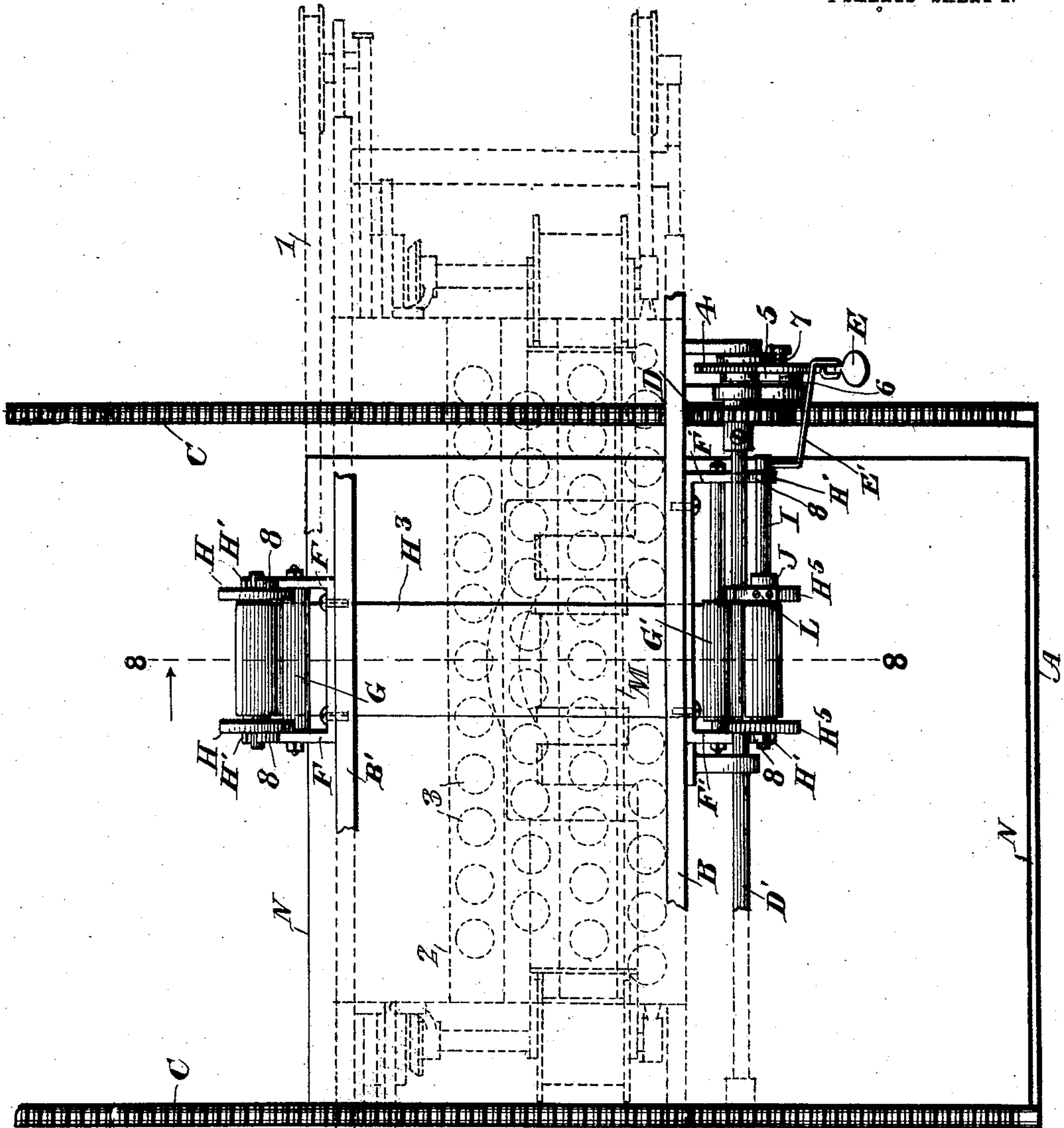


Fig. 1.

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4 SHEETS—SHEET 2.

Fig. 2.

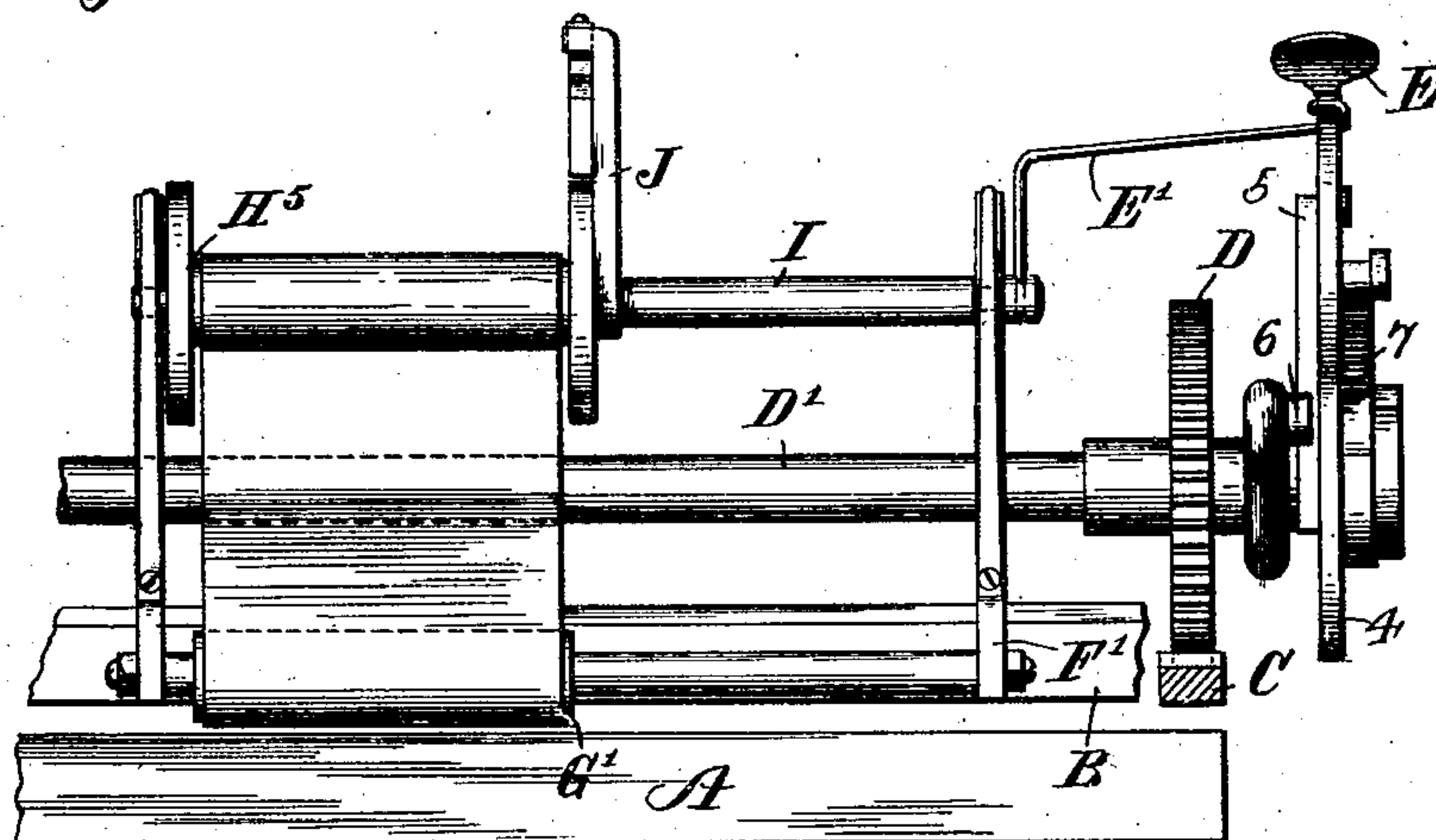


Fig. 6.

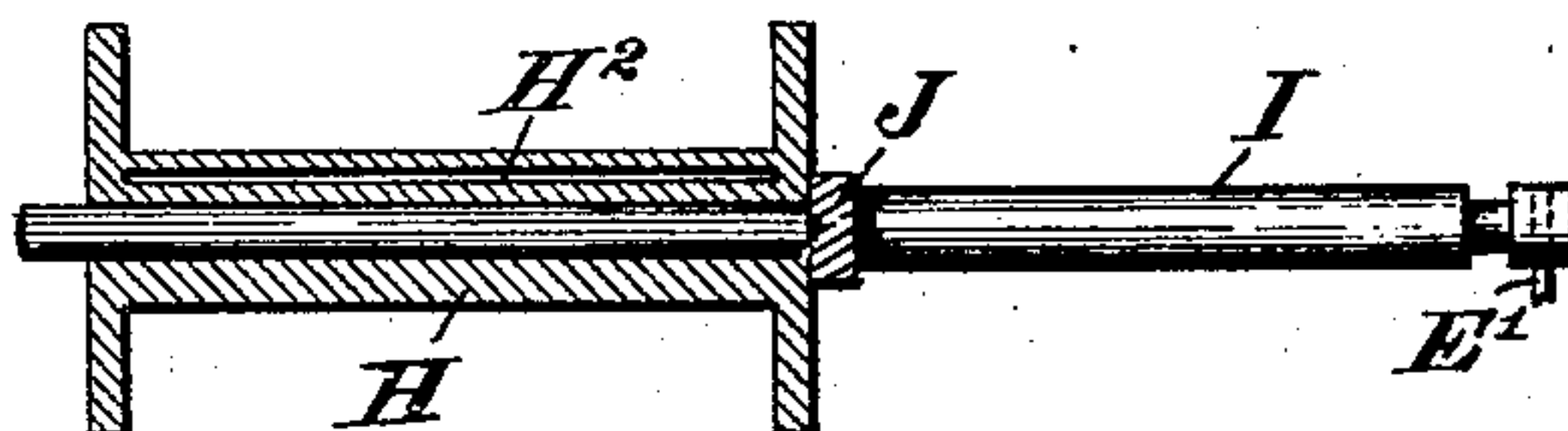


Fig. 5.

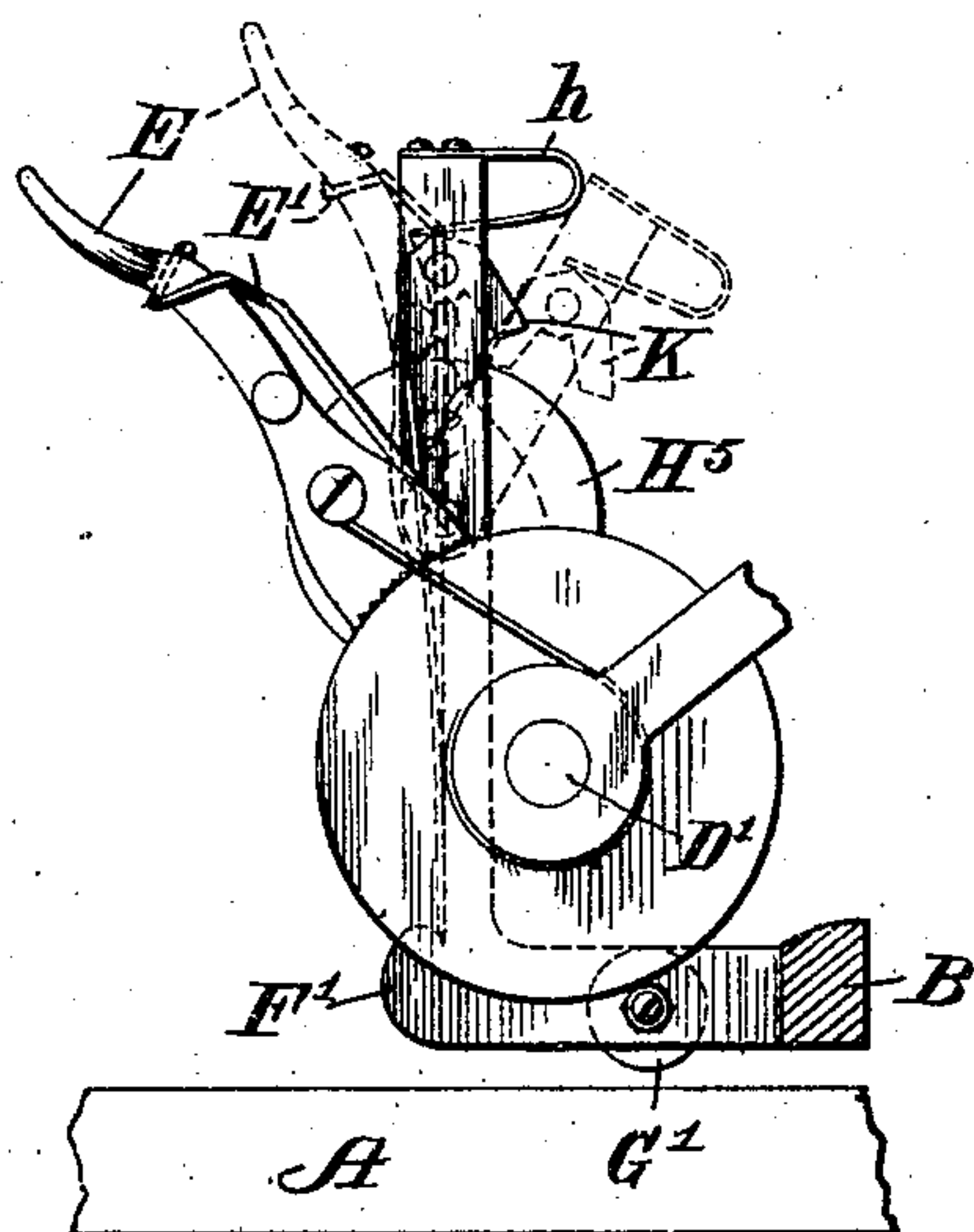
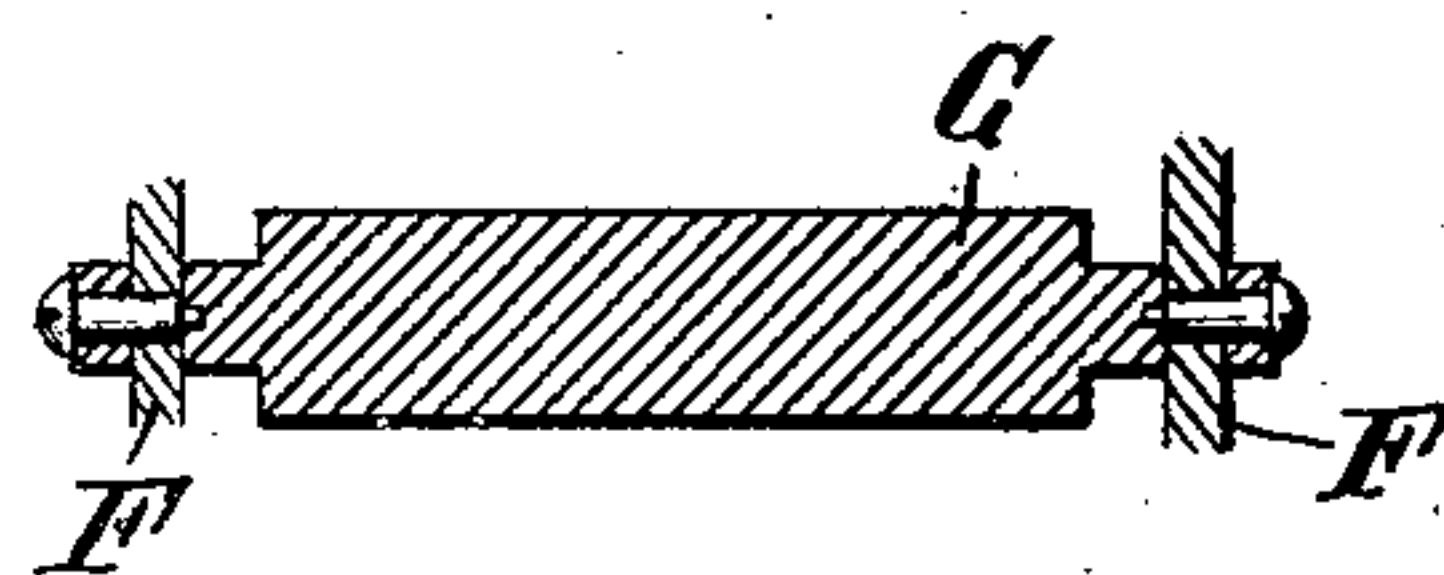


Fig. 7.



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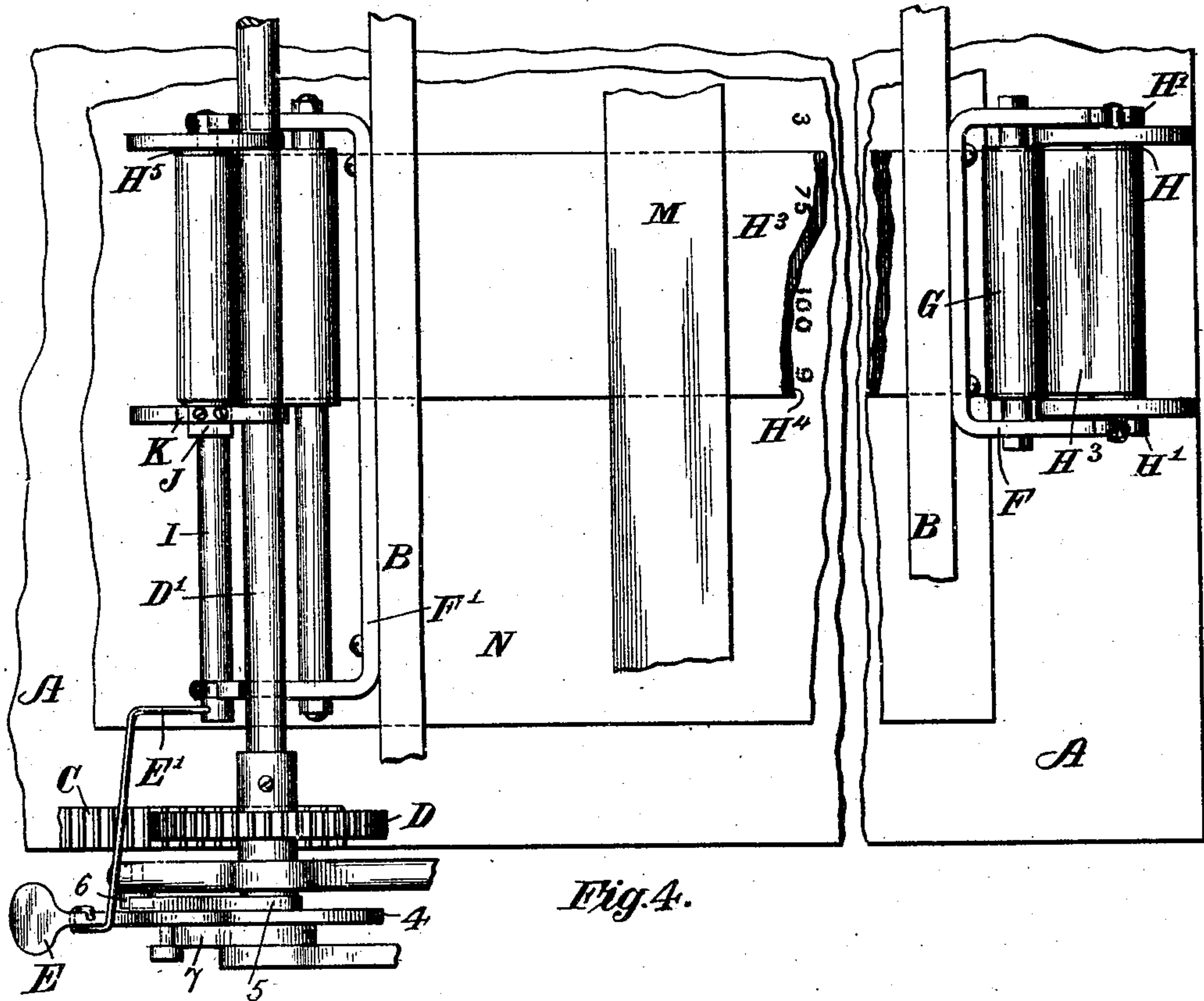
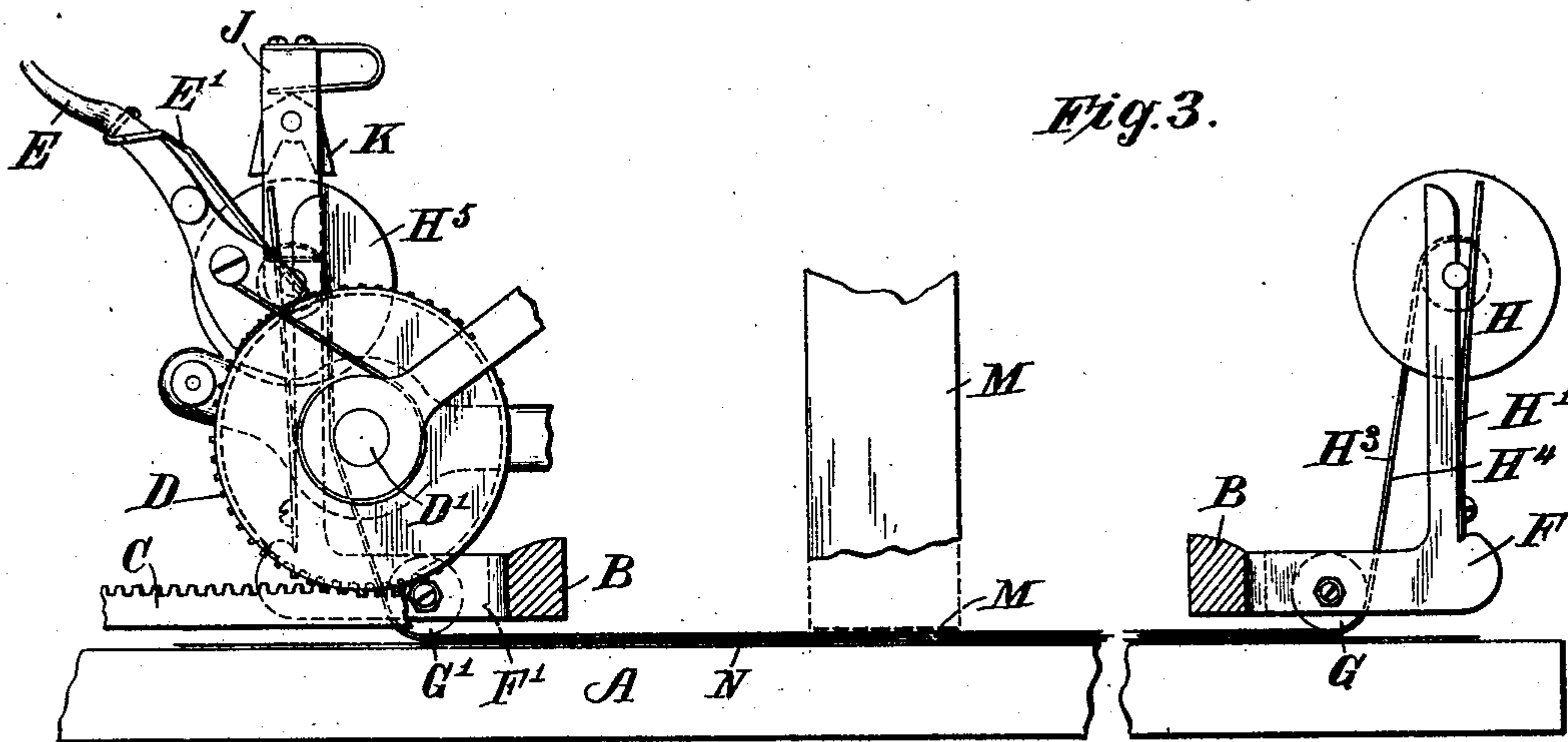
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

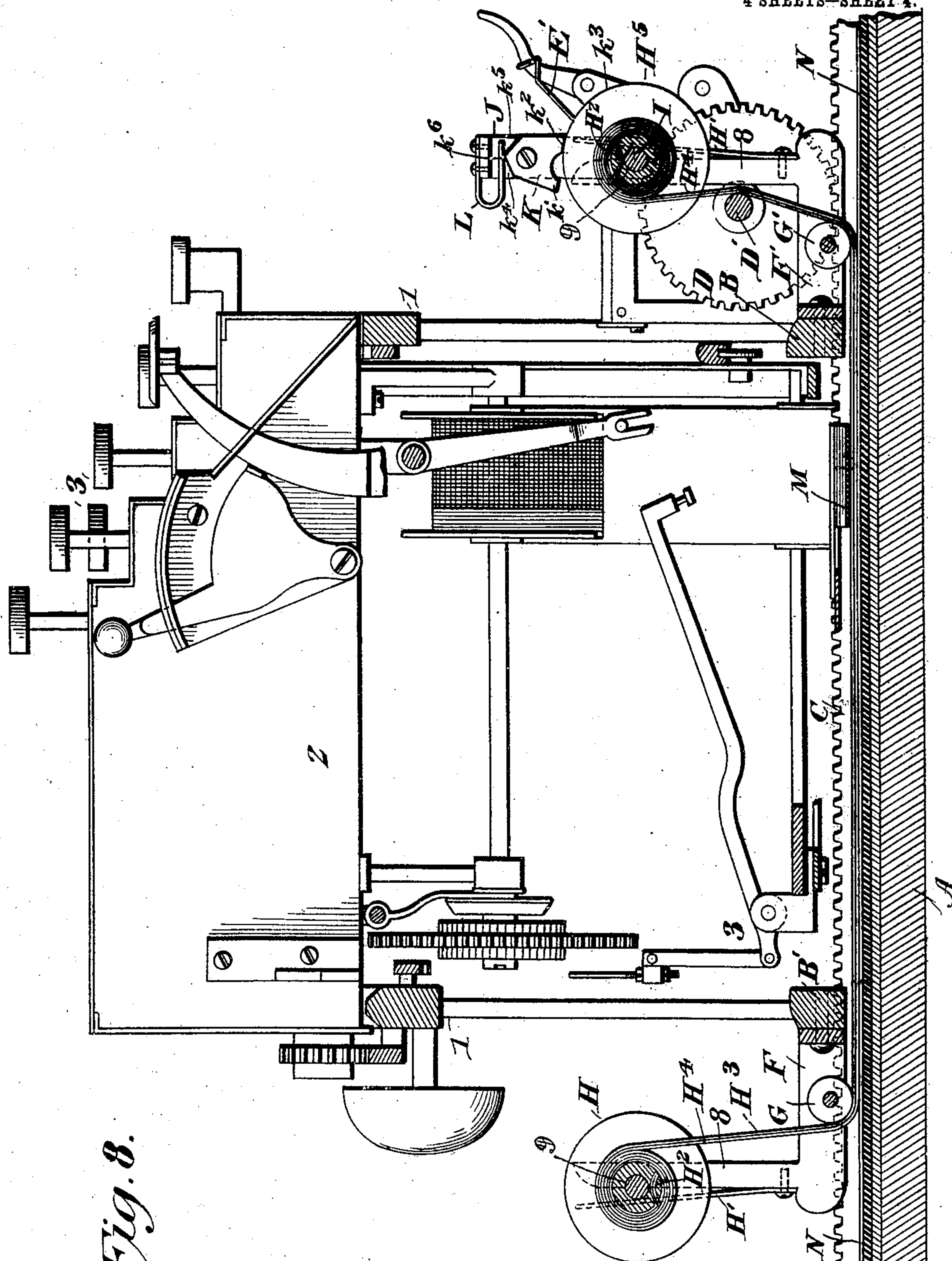


Fig. 8.

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UNITED STATES PATENT OFFICE.

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TYPE-WRITER ATTACHMENT.

No. 846,671.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed May 5, 1905. Serial No. 258,925.

To all whom it may concern:

Be it known that we, CLARENCE D. KING and ANDREW H. MILSTEAD, citizens of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Type-Writer Attachments, of which the following is a specification.

This invention relates to a manifolding attachment for type-writing machines, and more particularly for machines of that class known as "flat-platen" or "book" type-writers, which are usually characterized by a stationary flat platen over which is disposed a machine-frame movable longitudinally of the platen to line-space the writing accomplished by printing mechanism mounted on a carriage which travels transversely of the platen on the machine-frame to letter-space the writing.

Machines of this character are employed largely for commercial billing and analogous uses; and the object of our invention, stated generally, is to provide means whereby a tally of certain data will be printed on a tally sheet or strip simultaneously with the printing of such data on the bill or other primary work element.

Another object is to provide for the convenient storing of the tally-sheet in a manner to facilitate the removal of the printed portion thereof from the machine when desired.

A still further object of the invention is to avoid the necessity for extending the tally-sheet the full length of the work-sheet by mounting the tally-sheet on the frame of the type-writer and by providing for the automatic line-spacing of the tally-sheet past the printing-point of the machine as the machine is line-spaced relative to the work-sheet on the platen.

Subordinate objects of the invention will appear more fully hereinafter as the necessity for their accomplishment appears during the development of the succeeding description of the illustrated structure.

In the accompanying drawings, Figure 1 is a plan view of a Fisher type-writer equipped in accordance with our invention, the work and tally sheets, the platen, and a portion of the machine structure being shown in full lines and the remainder of the structure being indicated in dotted lines. Fig. 2 is a front

elevation of a portion of the type-writer equipped with a tally-sheet. Fig. 3 is a sectional view of a portion of the type-writer, showing the tally-sheet attachment in elevation. Fig. 4 is a plan view of the subject-matter shown in Fig. 2. Fig. 5 is a sectional elevation designed particularly to show the arrangement whereby the line-spacing lever of the type-writer serves to space the machine over the platen and to space the tally-sheet past the printing-point. Fig. 6 is a detail sectional view of the rear tally-sheet holder or spool and its shaft. Fig. 7 is a detail sectional view of the rear guide-roll for the tally-sheet, and Fig. 8 is a sectional view on the line 8 8 of Fig. 1.

Referring to the reference characters on the drawings, A indicates the stationary flat platen of the ordinary Fisher type-writer of commerce. Along the opposite longitudinal edges of this platen are disposed tracks or guides C, upon which is mounted to travel longitudinally of the platen a type-writing machine including, as usual, the machine-frame 1, upon which is mounted to travel transversely of the platen a carriage 2, supporting key-operated type-writing or printing mechanism 3, which is thus line-spaced over the platen by the machine-frame and letter-spaced by the movement of the carriage. The usual inking-ribbon M is mounted on the carriage 2 and extends under the type-basket, so that when the type descends to the platen in a manner well understood in the art the ribbon is interposed between the type and the primary work-sheet or bill N, retained in a flat spread-out condition upon the platen A.

The frame 1 is advanced step by step over the platen by line-spacing mechanism, which ordinarily includes a spacing-shaft D', extending across the front of the frame 1; pinions D, fixed to the shaft and meshing with the tracks or guides C, which are toothed, as shown; a knurled wheel 4, fixed to the shaft D'; a rocker-arm 5, loose on the shaft; a line-spacing lever or actuator E, pivoted to the free end of the rocker-arm and arranged to engage and rotate the wheel 4; a stop 6, limiting the movement of the actuator, and a retracting-spring 7, which serves to retract the rocker-arm and spacing-lever after each line-spacing operation. This line-spacing mech-

anism is quite ordinary, being exemplified in Patent No. 703,954, issued to R. J. Fisher July 1, 1902.

Coming now to that part of the structure wherein our invention particularly resides, it may be well to state by way of premise that the advent of the Fisher billing-machine has revolutionized commercial billing. It has become quite common for large commercial houses to employ a system which requires the operators of the Fisher billing-machines to keep the running accounts on bill-forms upon which the charges are entered from time to time and which are duplicated, so that at the end of stated periods bills may be sent out without necessity for making them up in accordance with the old system of book-keeping. It is necessary, however, that some check should be placed on the work of the operator, and several ways of accomplishing this end have been suggested. For instance, in Patent No. 705,522 to R. J. Fisher it is proposed to equip the flat platen with a tally-sheet, whereby a tally or record of daily charge-totals or other data may be kept and forwarded to the bookkeeping or other checking department. While that arrangement is entirely effective as far as it goes, the data must be printed on the tally-sheet by an operation separate from that which prints the data on the bill, thus entailing the additional burden of shifting the machine from the bill to the tally-sheet and the printing of the record on the latter. A more serious objection, however, is the possibility of error arising from the fact that while the data may be properly printed on the bill it may be erroneously printed on the tally-sheet. This character of error would be detected, however, by the checking-department, because the tally would not check up properly with the charge-slips, from which the entries are made on the bill. If, however, an amount has been erroneously entered on the bill and correctly entered on the tally, the error could not be caught by the checking-department, because the tally would properly correspond with the total of the charge-slips. Having in mind these various objections to the most effective mechanism heretofore known for keeping tallies, we have devised a simple and effective tally-sheet attachment so constructed and arranged that the tally-record will be produced simultaneously with the production of the record on the bill, thus eliminating the possibility of error arising from the printing of separate records and also obviating the necessity for shifting the machine from the bill to the tally-sheet. To attain this end, the tally-sheet is mounted on and movable with the frame of the typewriter and is so located with reference to the work-sheet that when the printing mechanism is moved to the position to print the data of which a record or tally is to be kept

it will print directly on the tally-sheet, from which the record will be simultaneously transferred to the bill-form or other work-sheet by suitable transfer material.

As shown in the drawings, a pair of brackets F and F' are located, respectively, behind and in front of the machine-frame 1, to the bottom bars B and B' of which they are secured. These brackets F and F' are of approximate U shape in plan, but each is provided with a pair of standards 8, provided with bearings 9, guarded by leaf-springs H'. In the rear bracket F is mounted a tally-sheet holder or carrier in the form of a spool H, upon which the unused portion of the tally-sheet H³ is stored. The trunnions 10 of the spool H are received within the bearings 9 and retained therein by the springs H', which bear upon the trunnions with sufficient force to resist accidental rotation of the spool. From the spool H the tally-sheet H³ is led downwardly and under a guide-roll G, carried by the bracket F and having the lowest point of its periphery disposed adjacent to the writing-surface of the platen A. From the roll G the tally-sheet is led under the frame 1 of the machine and parallel with the writing-surface of the platen to a guide-roll G', mounted in the bracket F' and corresponding to the roll G. From the roll G' the sheet extends upwardly to a second tally-sheet carrier or holder in the form of a receiving-spool H⁵, rotatable on the shaft I, mounted in the bearings 9 of the bracket F' and frictionally retained by the guard-springs H'. It will thus be seen that regardless of the position of the machine-frame on the platen the tally-sheet will always be located opposite the column or columns of which a duplicate record or tally is to be kept, and therefore whenever the printing mechanism is moved to bring the printing-point of the machine in position to print such data a manifold record will be simultaneously obtained with absolute assurance that the record on the tally-sheet will correspond with that printed on the bill.

It will be noted that the line-spacing of the machine with reference to the bill does not in the absence of special provision therefor effect the line-spacing of the tally-sheet, because when the machine is advanced for line-spacing the tally-sheet advances therewith relative to the platen, but does not advance relative to the printing-point of the machine. Therefore it is necessary to line-space the tally-sheet by feeding the latter intermittently from the delivering-spool H to the receiving-spool H⁵, and while this may be accomplished in various ways—as, for instance, by rotating the spool H⁵ by hand—we prefer to provide means whereby the line-spacing of the machine with reference to the platen will automatically effect the line-spacing of the tally-sheet with reference to

the printing mechanism. To attain this end, the shaft I, upon which the receiving-spool H^5 is loosely mounted, as heretofore stated, is provided with a radial arm J, rigid therewith, adjacent to one end of the spool H^5 and carrying a pivoted double dog K, the engaging ends k^1 and k^2 of which are disposed opposite the knurled periphery of one of the flanges k^3 of the spool H^5 . The engaging ends k^1 and k^2 of the double dog K diverge in a manner to present them at opposite sides of a line bisecting the axes of the dog and spool, so that the latter will be prevented from rotating relative to the shaft I in one direction or the other, accordingly as one end or the other of the double dog is disposed in its engaging position. Above its pivot the dog K is formed with relatively inclined faces k^4 and k^5 , forming at their point of convergence an apex k^6 , engaged, as shown in Fig. 3, by a spring L, secured to the outer end of the arm J. The spring L is adapted when resting on the apex k^6 to hold the dog in an intermediate position, both of the engaging ends k^1 and k^2 thereof being out of engagement with the spool H^5 , so that the latter may be rotated by hand, if desired. If, however, the dog K is swung in one direction or the other, it will be retained at either of its extreme limits of movement by the engagement of the spring L with one or the other of the faces k^4 or k^5 . For instance, as shown in Fig. 5, the dog has been swung to cause the end k^1 thereof to engage the spool, in which position it is retained by the spring L, bearing upon the face k^5 at the outer end of the dog. When the dog is in this position, forward movement of the arm J from the position shown in dotted lines in Fig. 5 to the position shown in full lines in said figure will effect a partial rotation of the receiving-spool H^5 to wind a portion of the tally-sheet H^3 thereon, and thus effect the line-spacing of the sheet with reference to the printing mechanism, and the arm J can then return to its normal position without effecting reverse rotation of the spool H^5 , because the spring L will yield sufficiently to allow the dog to move back idly over the flange k^3 of the spool. When, however, the arm J has been restored to its normal position, (shown in dotted lines in Fig. 5,) the dog K will prevent reverse rotation of the spool H^5 in an obvious manner, and therefore that portion of the tally-sheet which extends under the printing mechanism will be held taut, since we have already seen that the rotation of the delivery-roll H is resisted by the springs H^1 .

The dog K is entirely effective without reference to the second engaging end k^2 ; but the latter is provided so that the spool may be properly rotated to line-space the tally-sheet, no matter in which direction the latter is wound on the spool. For instance, if the tally-sheet is wound on the spool H^5 in a direction the reverse of that shown in Fig. 3

the dog K would be swung so that the end k^2 thereof would engage the flange k^3 , and the feeding movement of the arm J would therefore be from the full-line position in Fig. 5 to the position shown in dotted lines in said figure.

In order to automatically operate the arm J to feed the tally-sheet with reference to the printing mechanism when the machine is advanced relative to the platen for line-spacing, the right-hand end of the shaft I is provided with a crank E' , connected to the line-spacing lever E of the type-writer, so that when said lever is swung forward from the dotted-line position in Fig. 4 to the full-line position there shown the machine will be advanced the distance between two lines of writing, and the shaft I and arm J will be simultaneously rocked to rotate the spool H^5 , and thus line-space the tally-sheet relative to the printing mechanism.

The manner in which the ends of the tally-sheet are retained by the spools is immaterial; but said spools are preferably formed, as shown in Fig. 6, with longitudinal slits H^2 , into which the ends of the strip are threaded. It is likewise immaterial what instrumentality is employed for transferring the record from the tally-sheet to the underlying sheet or bill, since any ordinary or approved method of transference may obviously be utilized. In the drawings, however, we have shown a transfer-sheet H^4 —as, for instance, of carbon-paper—imposed against the under side of the tally-sheet and wound therewith upon the spools.

To summarize briefly, the bill or work-sheet N is imposed upon the flat platen A in the usual manner with that portion thereof which is to receive the data to be tallied underlying the tally-sheet. The matter intended for other portions of the bill will be printed directly thereon; but when the carriage is moved so as to bring the printing-point in position to print the data first mentioned said printing-point will be located above the tally-sheet, and therefore when the machine is operated to print the data—as, for instance, individual charges or charge-totals, or both—the record will be simultaneously produced upon both the tally-sheet and the bill. The operator then depresses the line-spacing lever E in the ordinary manner, which causes the machine to travel to the next line of the bill and also causes the tally-sheet to be advanced across the machine-frame 1 in order to present an unprinted portion of the sheet in position to receive the next entry. Whenever it is desired to remove the printed portion of the tally-sheet from the machine for use by the checking-department, it is simply necessary to tear the strip adjacent to the spool H^5 , remove the shaft I from its bearings, and thus remove the spool H^5 , with the printed tally wound

thereon. The torn end of the unused tally-sheet is then attached to another spool, which is placed on the shaft I. The shaft is then snapped into its bearings, and the machine is ready for use, no material interruption having been occasioned by the removal of the tally-record.

What we claim is—

1. In a type-writing machine, the combination with a flat platen, of a frame mounted to travel thereover, printing mechanism on the frame, and means for retaining a work-sheet which is movable over the platen with the frame and disposed to be written upon by the printing mechanism.

2. In a type-writing machine, the combination with a flat platen, of printing mechanism mounted to travel thereover, and a work-holder movable over the platen with the printing mechanism and retaining the work-sheet which is disposed in position to be printed upon and is movable relative to the printing mechanism for line-spacing.

3. In a type-writing machine, the combination with a flat platen, of a frame mounted to travel thereover and carrying a work-sheet, and printing mechanism mounted on and movable with the frame and disposed to print upon said sheet.

4. In a type-writing machine, the combination with a flat platen, of a support movable thereover and carrying a work-sheet, printing mechanism mounted on the support, and means for advancing said sheet relative to the printing mechanism for line-spacing.

5. In a type-writing machine, the combination with a flat platen, of printing mechanism movable thereover, a work-sheet movable with the printing mechanism, line-spacing mechanism for the machine, and means operated by the said line-spacing mechanism for advancing the work-sheet relative to the printing mechanism.

6. In a type-writing machine, the combination with a flat platen, of a frame mounted to travel thereover, a carriage movable on the frame, printing mechanism mounted on the carriage, and a pair of work-holders carried by the frame and retaining a work-sheet extending between the holders and under the printing mechanism.

7. In a type-writing machine, the combination with a flat platen, a frame mounted to travel thereover, a carriage movable on the frame, and printing mechanism mounted on the carriage, of delivering and receiving members mounted on the frame to support a work-sheet wound upon said members and extending under the printing mechanism, and means for rotating the receiving member to line-space the sheet.

8. In a type-writing machine, the combination with a flat platen, a frame mounted to

travel thereover, a carriage on the frame, and printing mechanism, of delivering and receiving members mounted on the frame and retaining a work-sheet wound upon said members and extending under the printing mechanism, line-spacing mechanism including a line-spacing lever movable to cause the advance of the frame over the platen, means for rotating the receiving member to advance the work-sheet relative to the printing mechanism, and an operative connection between said means and the line-spacing lever.

9. The combination with a type-writer including a platen, printing mechanism, and line-spacing mechanism, of means for retaining a work-sheet opposite the platen and in position to be directly printed upon by the type-writer, delivering and receiving members retaining a narrow tally-sheet extending between said members and located opposite a portion only of the work-sheet to permit the transference of type impressions from one sheet to the other, simultaneously with the printing of that portion of the record of which a tally-record is desired, and means whereby the operation of the line-spacing mechanism of the type-writer will operate the receiving member to advance the tally-sheet in the direction of line-spacing.

10. In a type-writer, the combination with a frame and platen, relatively movable, of means for retaining separate work sheets or webs one on the platen and the other on the frame, and printing mechanism on the frame.

11. In a type-writer, the combination with a frame and platen, of printing mechanism on the frame, devices for retaining separate work sheets or webs of different widths one opposite the other on the frame and platen, respectively, and each in position to be operated upon directly by the printing mechanism, the frame and platen being relatively movable to space the character printed.

12. The combination with a type-writing machine, of delivering and receiving spools adapted to deliver and receive a work-sheet led opposite the printing mechanism, and line-spacing mechanism including a reversible dog arranged to engage and rotate the receiving-spool in either direction according to the direction in which the work-sheet is wound thereon.

13. The combination with a type-writer including a platen and a frame, relatively movable for line-spacing, and printing mechanism mounted on the frame, of means for retaining separate work-sheets on the platen and frame respectively and in position to be printed upon.

14. The combination with a type-writer including a platen and a frame, relatively movable for line-spacing, and printing mechanism mounted on the frame, of means for retaining separate work-sheets on the platen

and frame respectively and in position to be printed upon, and means for line-spacing the sheet retained on the frame.

15. The combination with a type-writer including a platen and a frame relatively movable for line-spacing and printing mechanism mounted on the frame to print upon a primary work-sheet on the platen, of a pair of holders carried by the frame to retain a tally-sheet extending between the holders and interposed between the platen and printing mechanism, and line-spacing mechanism for effecting relative movement of the platen and printing mechanism to line-space the printing on the primary work-sheet and arranged to advance the tally-sheet for line-spacing.

16. The combination with a type-writer including a platen and printing mechanism, relatively movable, of means for retaining a primary work-sheet on the platen, a pair of holders for a tally-sheet extending between the holders and interposed between the platen and printing mechanism, line-spacing mechanism for the primary work-sheet, and means for advancing the tally-sheet from one holder to the other.

17. The combination with a type-writer including a platen and printing mechanism, relatively movable, of means for retaining a primary work-sheet on the platen, a pair of holders for a tally-sheet extending between the holders and interposed between the platen and printing mechanism, line-spacing mechanism for the primary work-sheet, and means operated by said line-spacing mechanism for advancing the tally-sheet from one holder to the other.

18. The combination with a platen and printing mechanism, relatively movable for letter and line spacing mechanism, a primary work-sheet retained on the platen, line-spacing mechanism arranged to cause relative line-spacing movement of the platen and printing mechanism to line-space the matter printed on the primary sheet, holders retaining a tally-sheet extended over a portion of the primary sheet, and means for operating one of said holders to line-space the tally-sheet.

19. The combination with a type-writer including a platen and printing mechanism, of means for retaining a work-sheet opposite the platen and in position to be directly printed upon by the type-writer, delivering and receiving members retaining a narrow tally-sheet extending between said members and located opposite a portion only of the work-sheet to permit the transference of type impressions from one sheet to the other simultaneously with the printing of that portion of the record of which a tally-record is desired, and line-spacing mechanism operative to advance the tally-sheet from the delivering member to the receiving member

and to effect relative line-spacing movement of the platen and printing mechanism.

20. The combination with a type-writing machine including a platen and printing mechanism mounted to travel thereover, of holders retaining a plurality of work-sheets in position to be printed upon, and line-spacing mechanism operative to cause the printing mechanism to travel relative to the platen and to cause the line-space advance of one of the work-sheets relative to the printing mechanism.

21. The combination with a type-writing machine including a platen and printing mechanism relatively movable for line-spacing, of means for holding work-sheets in position to be printed upon, and line-spacing mechanism operative to effect relative line-spacing movement of the platen and printing mechanism and a line-spacing movement of one of the work-sheets relative to the printing mechanism, said line-spacing mechanism being also operative to effect relative movement of the printing mechanism and platen without advancing said work-sheet relative to the printing mechanism.

22. The combination with a type-writing machine including a platen and printing mechanism, of means for retaining two work-sheets between the platen and printing mechanism, and line-spacing mechanism including a line-space actuator operative to effect line-spacing of the writing on one or both of said sheets.

23. The combination with a type-writing machine including a frame, a carriage movable thereon for letter-spacing, and a platen, of line-spacing mechanism mounted on the frame and operative to advance the outermost sheet of a plurality of sheets interposed between the platen and printing mechanism without advancing the innermost of said sheets.

24. The combination with a type-writing machine including a platen, a frame movable thereover for line-spacing, and printing mechanism mounted on the frame, of means for retaining a work-sheet between the platen and printing mechanism, and line-spacing mechanism common to both the frame and the work-sheet.

25. The combination with a type-writing machine including a platen, a machine-frame movable thereover, and printing mechanism mounted on the frame, of a paper-carrier also mounted on the frame and arranged to deliver a work-sheet between the platen and printing mechanism.

26. The combination with a type-writing machine including a platen, a frame movable thereover, and printing mechanism mounted on the frame, of a work-holder likewise mounted on the frame to engage and hold a work-sheet interposed between the platen

and printing mechanism, said holder being movable to advance the sheet.

27. The combination with a type-writer including a platen, a frame mounted to travel thereover, and printing mechanism mounted on the frame, of paper-holders carried by the frame in front and rear thereof to engage and hold a paper web extended between the platen and printing mechanism.

28. The combination with a type-writing machine, including a platen and printing mechanism, relatively movable, of means for holding work-sheets between the platen and printing mechanism, line-spacing mechanism operative to line-space the writing on both sheets and also operative to effect relative movement of the platen and printing mechanism to line-space the writing on one sheet only.

29. The combination with a type-writing machine including a platen and printing mechanism, of line-spacing mechanism operative to effect line-spacing of the writing on a plurality of work-sheets interposed between the platen and printing mechanism, and also operative to effect line-spacing of the writing on the inner sheet without advancing the

outer sheet relative to the printing mechanism.

30. The combination with a type-writing machine including a frame, a carriage movable thereon, a platen, and printing mechanism relatively movable for letter-spacing, of means for supporting a work-sheet from the frame of the type-writer exclusively and interposed between the platen and printing mechanism.

31. In a type-writing machine, the combination with a flat platen, of printing mechanism movable thereover, means for causing a work-sheet to move with the printing mechanism, line-spacing mechanism for said work-sheet, and means operated by said line-spacing mechanism for causing the printing mechanism to be advanced over the platen.

In testimony whereof we hereby affix our signatures in presence of two subscribing witnesses.

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Witnesses:

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