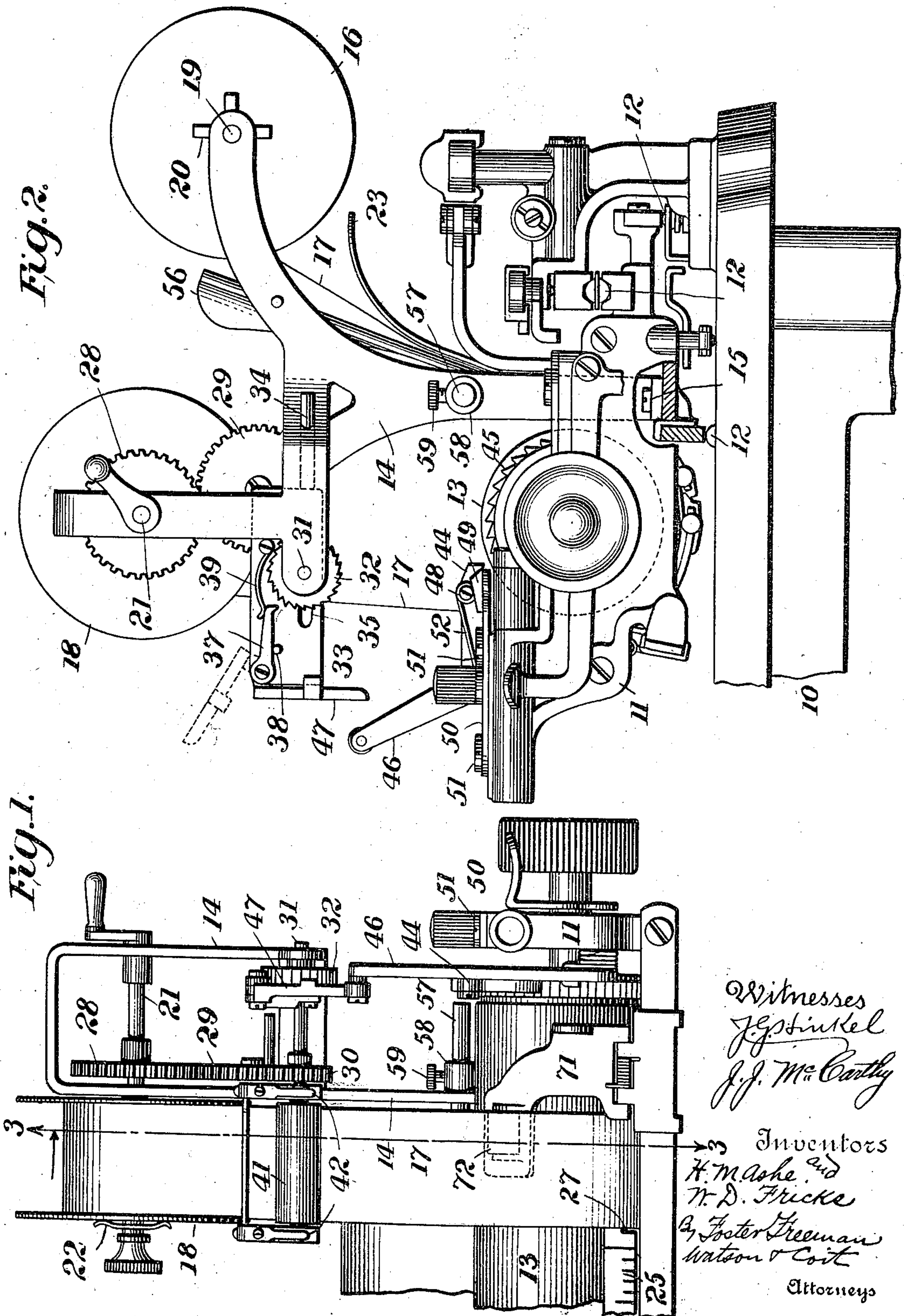


H. M. ASHE & W. D. FRICKS.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 21, 1908.

989,889.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.



Witnesses
J. J. Stinkell
J. J. McCarthy

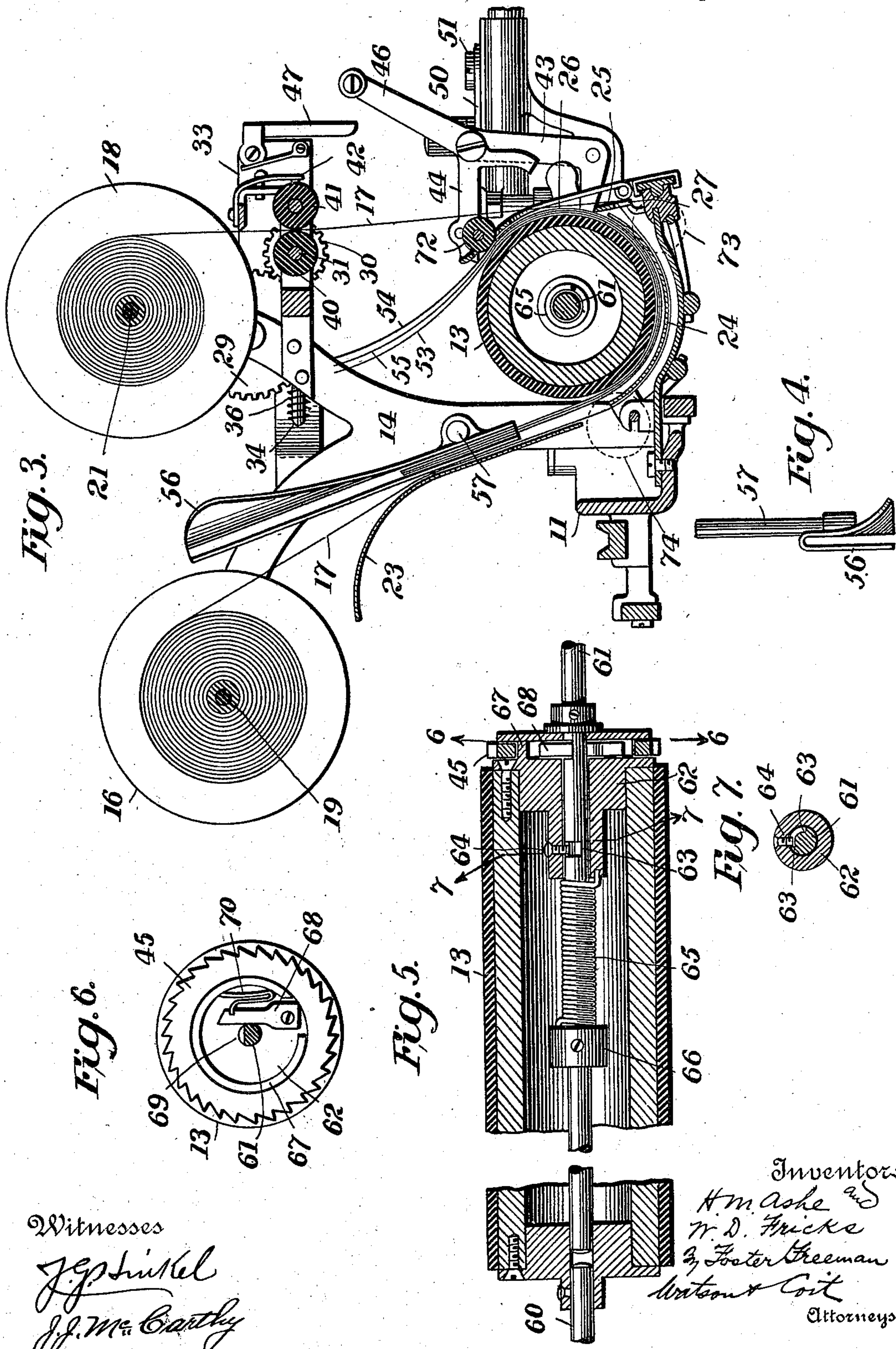
Inventors
H. M. Ashe and
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UNITED STATES PATENT OFFICE.

HARRY M. ASHE AND WILLIAM D. FRICKS, OF ATLANTA, GEORGIA, ASSIGNORS, BY
MESNE ASSIGNMENTS, TO UNDERWOOD TYPEWRITER CO., OF NEW YORK, N. Y., A
CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

989,889.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed January 21, 1908. Serial No. 412,029.

To all whom it may concern:

Be it known that we, HARRY M. ASHE, subject of the King of Great Britain, and WILLIAM D. FRICKS, citizen of the United States, respectively, and residents of Atlanta, Fulton county, State of Georgia, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

10 The object of the present invention is to provide means for obtaining a copy on a single sheet or strip of paper of a part of each of the entries made on separate sheets of paper which are successively inserted in
15 and removed from the machine. For instance, it is customary in certain systems of bookkeeping to enter upon the monthly statement of customers from day to day the items chargeable against them, instead of
20 entering these items in a ledger and then preparing the statements from the ledger. In carrying out this system with our improved typewriter, the original statement, which goes to the customer, and a copy, are
25 placed in the machine with a carbon-sheet between, as is usual in making carbon duplicates. In addition we provide a third strip of paper, which is preferably in the form of a ribbon, and upon which the amounts of the
30 items charged to the several customers are entered in a column. By summing up this column at the end of the day, the total of all charges for the day is obtained. The strip upon which the totals are made, which may
35 be termed a "tally" sheet, is preferably provided with a writing surface on one side and a carbon surface on the other, so that while the impressions are being produced by the typewriter ribbon on the front of the tally
40 sheet carbon impressions are produced on the statement at the back or between the tally sheet and the platen.

The various improvements comprised in the present invention will be described in
45 connection with the accompanying drawing, illustrating the same, in which,

50 Figure 1 is a front view of the right end of a typewriter carriage in which the invention is embodied; Fig. 2 is an end elevation of the same; Fig. 3 is a section on the line 3—3 of Fig. 1 looking in the direction indicated by the arrow; Fig. 4 is a plan view of the paper guide; Fig. 5 is a central section through the platen; Fig. 6 is a section on the

line 6—6 Fig. 5; Fig. 7 is a section on the 55 line 7—7 Fig. 5.

Our invention can be applied to typewriting machines without materially modifying their construction and without interfering, with the ordinary operation of such machines. In the present instance we have 60 illustrated the invention as applied to the well known L. C. Smith & Bros. typewriter and we have applied the invention without altering or modifying this typewriter excepting in one or two slight particulars which will be hereinafter pointed out. 65

Referring to the drawing, 10 indicates the frame of the typewriter, 11 the carriage, which runs on ball bearings 12, and 13 the 70 platen. A frame or standard 14 is suitably connected to the right end of the carriage, as by a screw 15 and upon this frame are supported the majority of the working parts constituting the present invention. On one 75 arm of the frame is the supply spool 16 for the tally strip 17 and on another arm is mounted the receiving spool 18. The supply spool is mounted on a suitable shaft 19 and its movement is checked or retarded by a friction spring 20 which is interposed between 80 the spool and the frame 14. The receiving spool 18 is frictionally connected with a drive shaft 21 by means of a suitable spring 22, which may be similar to the spring 20. 85

The tally strip is carried around the platen without contact with it excepting that it is directed close to the platen at the printing line and may, if desired, contact with it at this line. Referring to Fig. 3 it will be 90 seen that the tally strip 17 is directed downward from the supply spool over the paper table 23 and underneath the usual shield 24. It is thence preferably carried around the scale bar 25 and directly from said scale bar 95 through the tally strip feed rolls to the receiving spool 18, passing close to the platen at the printing line 26. To avoid carrying the strip about an acute angle the scale bar 25 is preferably cut away to some extent, as 100 illustrated at 27, Fig. 3.

We provide means for feeding the tally strip to space between lines of printing as follows: Referring to Figs. 1, 2 and 3 a train of gears 28, 29 and 30 connect the receiving 105 spool shaft 21 with a feed shaft 31 carrying a ratchet wheel 32, the shaft 31 being mounted in suitable bearings in the

tally strip frame 14. A slide 33 is mounted to reciprocate on the tally strip frame adjacent to the ratchet wheel 32. As shown, the slide 33 is sustained and guided by a rod 34 which passes through an opening in the frame 14 and by the shaft 31 which passes through a slot 35 in the slide. The slide is normally held in its forward position by a spring 36. Upon the slide 33 is a pawl 37 arranged to cooperate with the ratchet wheel 32, the said pawl being normally held against a pin 38 by a spring 39. It will be seen that when the slide 33 is pushed rearward the pawl 37 will engage the ratchet wheel 32 and turn the shaft 31, thereby rotating the tally feed rolls 40, 41, the former of which is fast on the shaft 31 while the latter is freely mounted on a pin or shaft connected with the frame 14. The feed rolls 40, 41, are preferably made of rubber or other elastic material similar to the material used in the paper feed rolls of typewriting machines. Through the gears 28, 29, and 30, the receiving spool is rotated to wind the tally strip as it is fed upward by the rolls 40, 41. The gears are so proportioned that the spool shaft 21 is rotated somewhat faster than is necessary to wind up the strip, the spring 22 permitting the spool to slip on the shaft. In this way the strip is wound as fast as it is delivered by the feed rolls, whether the amount of strip on the spool is much or little. It will be obvious that as the amount of strip on the spool grows the tendency will be to wind the strip faster. As shown the feed roll 41 is pressed against the feed roll 40 by springs 42.

On a bell crank 43 is carried the usual line feed pawl 44 which cooperates with the ratchet wheel 45 to turn the platen 13 to space between lines. The pawl 44 may be reciprocated to and from the ratchet wheel by any suitable mechanism. As shown the pawl 44 is identical with that used on the typewriting machine referred to, with the exception that it is provided with an upwardly extending arm 46 which is adapted to engage a finger 47 depending from the slide 33. The finger 47 is preferably hinged to the slide so that it may be thrown up out of the path of the arm 46, as indicated in dotted lines in Fig. 2. As is customary in typewriting machines, the pawl 44 is arranged to turn the ratchet wheel 45 different distances, according to the line spacing desired. As shown, a pin 48 on the pawl 44 normally rests on the flange 49 carried by a slide 50. The slide 50 is adjustable to and from the platen. When moved toward the platen it prevents the pawl 44 from dropping into engagement with the ratchet tooth until the travel of the pawl is nearly completed, with the result that the platen is moved but one tooth of the ratchet wheel. The slide 50 may be withdrawn to effect the

turning of the platen one, two, or more teeth of the ratchet wheel, as may be desired. The slide 50 is held in any desired adjustment by screws 51. The pawl 44 is normally urged toward the platen by a spring 52.

By reference to Figs. 2 and 3, it will be seen that when the finger 47 is down the tally strip feeding devices will be operated each time that the platen turning devices are operated and that the tally strip will be moved a uniform amount each time regardless of the amount that the platen is turned. In other words, the adjustment of the line space controlling slide 50 does not affect the extent of movement of the arm 46, and therefore does not affect the feed of the tally strip. This is important as it is desirable to feed the tally strip uniform amounts at all times regardless of the line spacing movements of the platen. We are enabled to feed the tally strip and the bills or other papers upon the platen different amounts by reason of the fact that the tally strip is independent throughout of the other papers in the machine and is not necessarily movable with them.

Any desired number of sheets of paper, such as bills, vouchers, and the like, with interposed carbon sheets, may be used in connection with our tally strip attachment. As shown in the drawing, two paper sheets 53, 54, and an interposed carbon sheet 55 are inserted in the machine in the ordinary way for producing duplicate copies. The right ends of these sheets extend under the tally strip to any desired extent so that the totals, or any other figures which are printed at the right ends of the sheets will also be printed on the tally strip. It will be understood that to effect the printing of the figures on the outer sheet 54, the inner surface of the tally sheet is coated with carbon or other suitable marking substance. The sheets 53, 54, 55, are inserted in the machine and fed with the platen to space between lines in the ordinary manner, with the exception that we provide an adjustable paper guide 56 to locate the right margins of the sheets properly under the tally strip and to assist in inserting the paper in the machine. As shown, the guide 56 is a folded sheet metal construction substantially U-shaped in cross section having its rear lip straight and its forward lip flared at the upper end. The guide is secured to a rod 57 which is adjustably secured to a hub or collar 58 on the frame 14. By means of a clamping screw 59 the paper guide may be adjusted to the right or left and the right hand margins of the papers are thus made to register properly with the tally strip.

It will be seen that by means of a single paper guide of the form just described, the right-hand margins of papers will be maintained in alinement with the corresponding

margins of the tally strip. With this improved guide it is unnecessary to provide any means for guiding the left-hand margins and by reason of the particular cross sectional form of the guide any bending or curving of the paper at the guiding edge is prevented. Another advantage of the present construction is that as the guide is attached to and carried directly by the carriage frame, it leaves the paper shelf entirely free and unobstructed.

Referring to Figs. 5, 6 and 7, the platen is provided with a fixed shaft or trunnion 60 and with a shaft 61 which is adapted to rock relatively with the platen. The shaft 61 extends through the right end of the platen and has a bearing at or near the left end thereof and it is adapted to turn in the right head block or plate 62 of the platen. The shaft 61 is provided with shoulders 63 which cooperate with the pin 64 to limit the movement of the shaft, and it is normally held in one extreme position by a spring 65 which is coiled about the shaft and engages the head block 62 and a collar 66 on the shaft. The ratchet wheel 45 is in the form of a ring mounted on an annular flange 67 on the head block 62. Normally the ratchet ring 45 is clamped to the head block 62 by means of a clamping lever 68 which is pivoted to the head block, one end of said lever being normally spring pressed into a recess 69 in the shaft 61 and the other end being pressed against the ring 45. As shown, the spring 70 is utilized for this purpose. By turning the shaft 61 slightly against the tension of the spring 65, the lever 68 is thrown out of the recess 69 and away from the ratchet ring 45, thus freeing the platen from its ratchet. The platen may then be adjusted backward or forward independently of the ratchet, which latter is normally held stationary by the usual holding pawl. These devices which permit of rotating the platen independently of its ratchet wheel are very useful in connection with the tally strip attachment as they permit the statements or other documents which are inserted in the carriage to be adjusted with respect to the printing line to bring any desired line on the paper into position for printing. In many establishments statements are repeatedly placed in the machine to enter items from day to day and it is desirable to be able to adjust the platen so that successive items of printing can be placed on the paper in conformity with preceding items.

The operation of the invention will be understood from the foregoing description and need only be briefly referred to.

It will be understood that the tally strip attachment can be placed on the machine without making any material change in the latter and that the machine can be used for

ordinary purposes, such as correspondence, at any time either with the attachment on or off. The paper guide 56 should be adjusted so as to bring the right margins of the statements or other documents to be printed into proper relation with the tally strip, the object being to secure the printing of the totals or other figures which are to appear on the tally strip in the right positions both on the tally strips and the statements or other papers. When the paper guide is properly adjusted, statements or other documents may be inserted in and removed from the machine as frequently as desired without in any way disturbing the tally strip and all figures printed on the right margins of the said statements, etc. will appear on the tally strip also. The tally strip may be fed forward once either when taking out a paper or when inserting a new one, but it requires no other attention. Preferably the statement is inserted so that the last item is at the writing line of last entry, and then the tally strip and platen is spaced with one operation. We preferably locate one of the usual paper fingers 71 at the right of the platen and the pressure roll 72 on said finger may extend under the tally strip if desired, as shown in Figs. 1 and 3.

It will be noted that the tally strip feeding means can be operated independently of the platen rotating means by simply pushing rearward the slide 33. It is convenient however to operate the tally feeding means automatically each time the platen rotating means are operated and for this purpose the arm 46 is provided on the line feed pawl and the finger 47 on the tally feed slide.

In this application only so much of the typewriting machine has been described as is necessary to a full understanding of the present invention. It has been thought unnecessary for instance to describe in detail the paper feeding devices, which are of ordinary construction. These devices include the paper finger 71 and feed rolls 73, 74, indicated in dotted lines in Fig. 3.

It will be evident that our invention may be embodied in various mechanical forms and we do not therefore desire to be understood as limiting ourselves to the precise construction and arrangement of parts illustrated and described. For instance, the paper guide 56 may in some instances be connected with, or integral with the paper table 23, in which case we would make the paper table adjustable to the right or left in order to adjust the paper for the proper margin.

No claim is made to the particular construction of platen and means connecting the ratchet therewith, hereinbefore described.

By the term "tally strip" herein employed is meant a relatively narrow strip or

ribbon of paper on which only a comparatively short line of writing can be produced and which strip is to be clearly distinguished from a sheet adapted to extend throughout the greater portion of the length of the typewriter platen and on which lines of considerable length, as the details of items of a bill, can be written.

Having described our invention what we claim and desire to secure by Letters-Patent is,

1. In a typewriting machine, the combination of a rotary platen, means cooperating with the platen for feeding a sheet as the platen is rotated, means for rotating the platen, means for supporting a tally strip, means for feeding the tally strip, and a disengageable connection between the platen rotating means and tally strip feeding means whereby the former may be caused to actuate the latter at will.

2. In a typewriting machine, the combination of a rotary platen, means cooperating with the platen for feeding a sheet about the platen as the latter is rotated, means for rotating the platen, means for supporting a tally strip about the platen and over a portion of a sheet engaged by the platen and said feeding means, means for feeding the tally strip, and connections between the platen rotating means and the tally strip feeding means, whereby the latter may be operated by the former.

3. In a typewriting machine, the combination of a rotary platen, means cooperating with the platen for feeding a sheet about the platen as the latter is rotated, means for rotating the platen, means for supporting a tally strip about the platen and over a portion of a sheet engaged by the platen and said feeding means, means for feeding the tally strip, and a disengageable connection between the platen rotating means and the tally strip feeding means, whereby the former may be caused to actuate the tally strip feeding means or can be operated independently thereof.

4. In a typewriting machine, the combination of a rotary platen, means cooperating with the platen for feeding a sheet as the platen is rotated, means for rotating the platen, means for supporting a tally strip, means for feeding the tally strip, and a disengageable connection between the platen rotating means and the tally strip feeding means, including a member permanently connected with an element of the tally strip feeding means and adapted to be adjusted to and from the path of a part moving with a member of the platen rotating means, for the purpose described.

5. In a typewriting machine, the combination with the platen and means for rotating the platen to space between lines, of a tally strip attachment comprising means for

feeding the tally strip, and a finger connected with a member of the tally strip feeding means and adapted to move into and out of the path of a part movable by the platen rotating means.

6. In a typewriting machine, the combination of the platen, the usual platen rotating and paper feeding devices, the shield 24 below the platen, the scale bar 25 in front of the platen, a tally strip extending beneath the shield and scale bar, and means for feeding said strip.

7. In a typewriting machine, the combination of a rotary platen, means for supporting and guiding a sheet about the platen, feed rolls for pressing such sheet against the platen, means for rotating the platen to feed the sheet between the platen and feed rolls to space between lines, means for supporting a tally strip, including supply and receiving spools, means for feeding the tally strip adapted to be actuated by or independently of the platen rotating means, and means for rotating the receiving spool to wind the strip as it comes from the feeding means.

8. In a typewriting machine, the combination of a rotary platen, means for supporting and guiding a sheet about the platen, feed rolls for pressing such sheet against the platen, means for rotating the platen to feed the sheet between the platen and feed rolls to space between lines, means for supporting a tally strip, including supply and receiving spools, means for feeding the tally strip adapted to be actuated by or independently of the platen rotating means, and connections, independent of the tally strip, between said strip feeding means and the receiving spool for rotating the latter to wind the strip on said spool as it comes from the feeding devices.

9. In a typewriting machine, the combination with the carriage and the usual platen and platen rotating means, of a tally strip attachment including a frame supported on the carriage, tally strip feed rolls mounted on said frame, a ratchet wheel connected with one of said rolls, a part movably mounted on said frame and carrying a pawl adapted to cooperate with said ratchet wheel, and a finger movably mounted on said part, the said finger being shiftable into and out of the path of a projection on a moving part of the platen rotating means.

10. In a typewriting machine, the combination with the carriage, the platen and the platen rotating means, of a tally strip attachment comprising means for supporting and feeding a tally strip, and a paper guide supported on said attachment above and in rear of the platen and in alinement with the tally strip for properly positioning the paper with respect to said strip.

11. In a typewriting machine, the combi-

nation with the carriage, the platen and the platen rotating means, of a tally strip attachment comprising means for supporting and feeding a tally strip, and a paper guide adjustably supported on said attachment above and in rear of the platen for positioning the paper with one side edge overlapping the tally strip.

12. In a typewriting machine, the combination with a revoluble platen, a strip winding spool, and a line spacing mechanism common to said platen and said spool, of means for silencing the line-spacing mechanism in respect to said spool.

13. In a typewriting machine, the combination of a revoluble platen, a strip-winding spool, turning means for said platen including a pawl, a ratchet wheel for said spool having a pawl, a lever to operate both pawls, and means to silence said lever with respect to said ratchet wheel and spool.

14. In a typewriting machine, the combination with a revoluble platen, of a strip-winding spool, operating means for said platen including a pawl, a ratchet wheel for said spool having a pawl, a lever to operate both pawls, and means to silence the second

pawl so that it cannot turn the spool at the operation of said lever.

15. In a typewriting machine, the combination with a revoluble platen, of a pair of spools, a tally strip carried upon said spools and looped around the platen and mounted so that bills or main sheets may be inserted between the tally strip and the platen, means to cause the platen and winding spool to rotate simultaneously, and means for silencing the winding means with respect to said spool at will.

16. In a typewriting machine, the combination with a revoluble platen element, of a tally strip winding spool element, and a line spacing mechanism common to both the platen and the winding spool and including a shiftable part for causing one of said elements to be inoperable by said line spacing mechanism.

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

HARRY M. ASHE.

WILLIAM D. FRICKS

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."