No. 858,409. PATENTED JULY 2, 1907.

T. L. MOORE.

AUTOGRAPHIC REGISTER.

APPLICATION FILED JUNE 4, 1906.

3 SHEETS—SHEET 1.

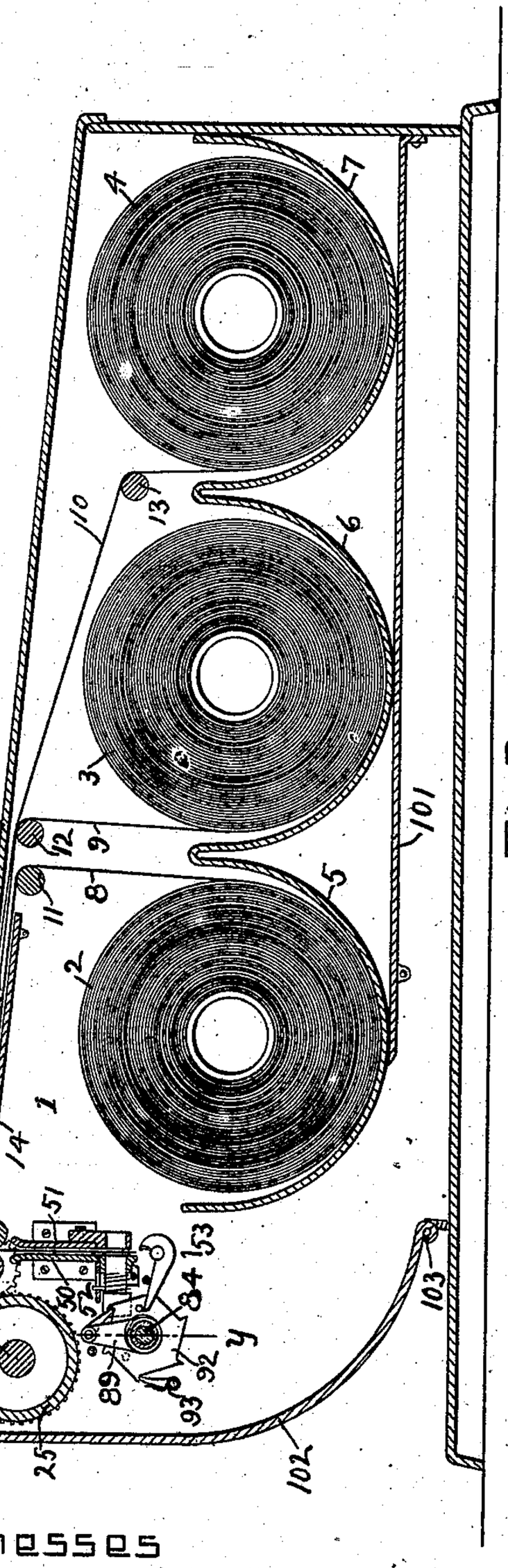

Fig. 1.

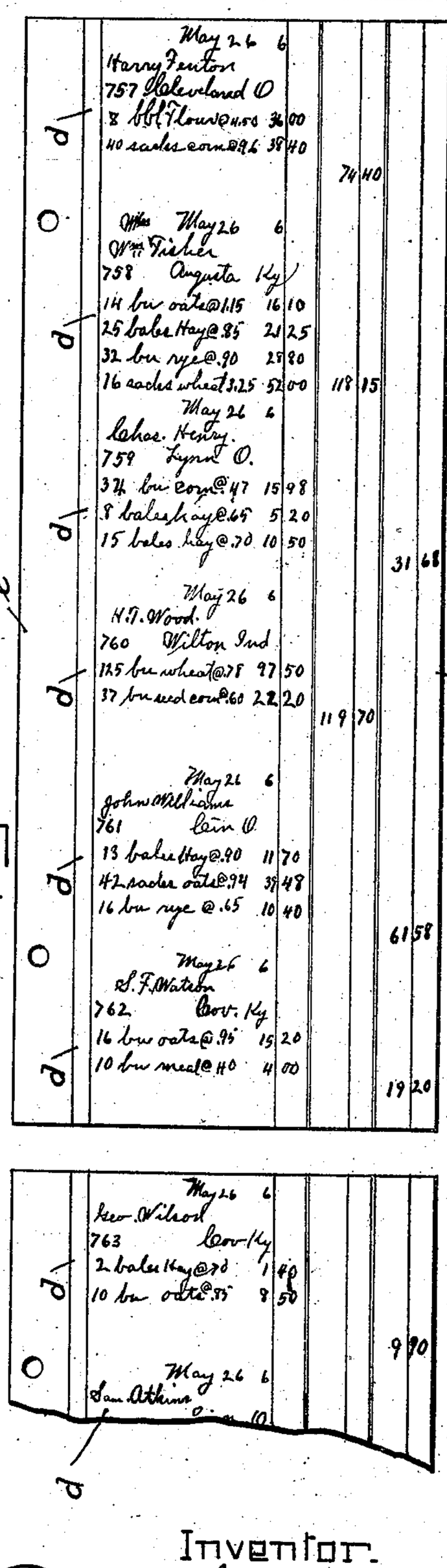

Fig. 9.

Witnesses
Homer Bradford.
Cordelia O'Hearn

Inventor.
Thomas L. Moore,
by R. S. Herbold,
His Attorney.

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3 SHEETS—SHEET 2.

Fig. 2.

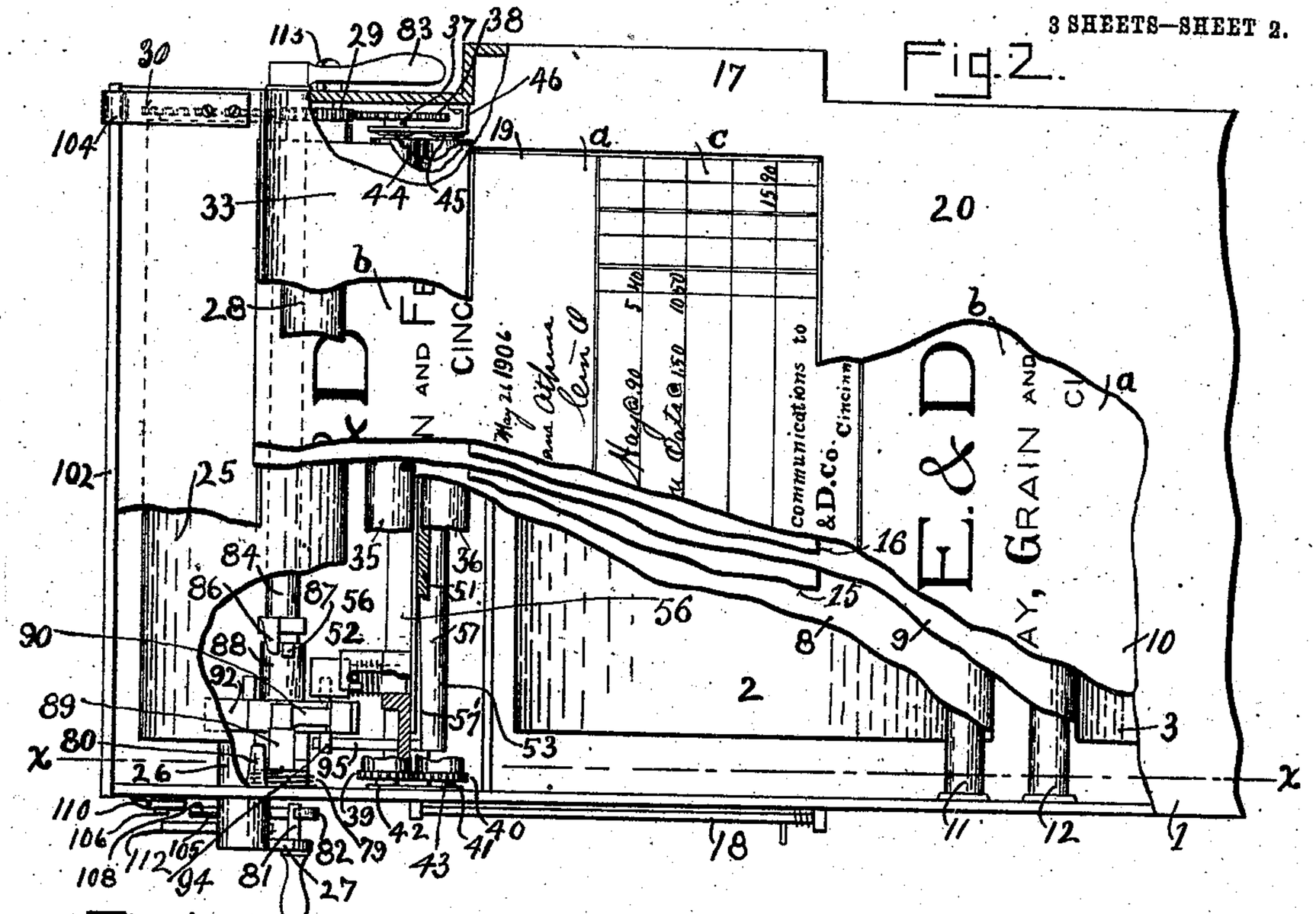


Fig. 4.

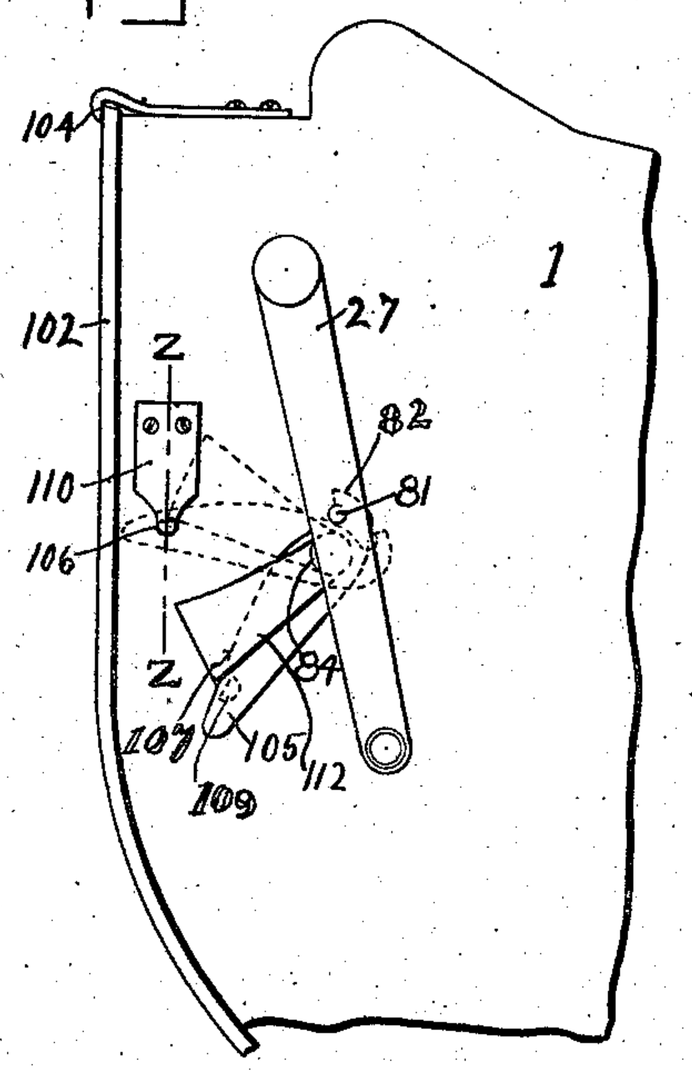
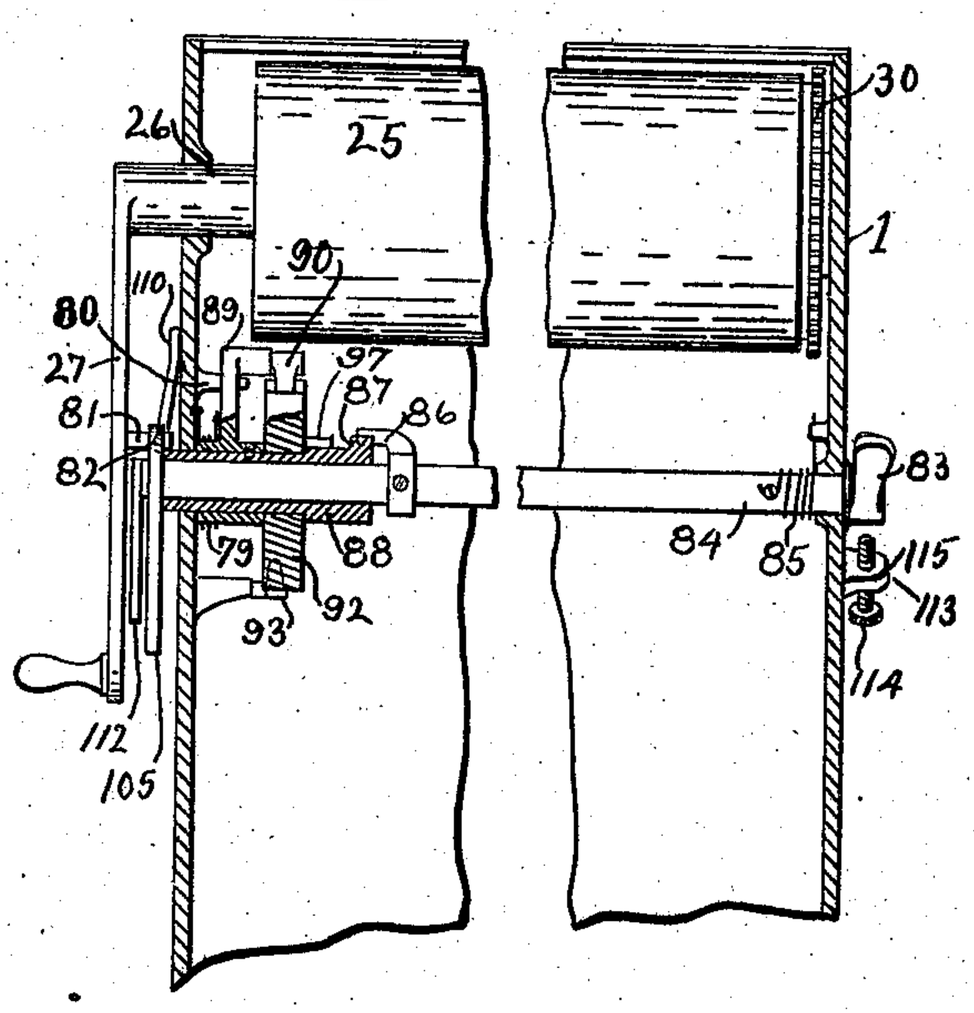


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 5.

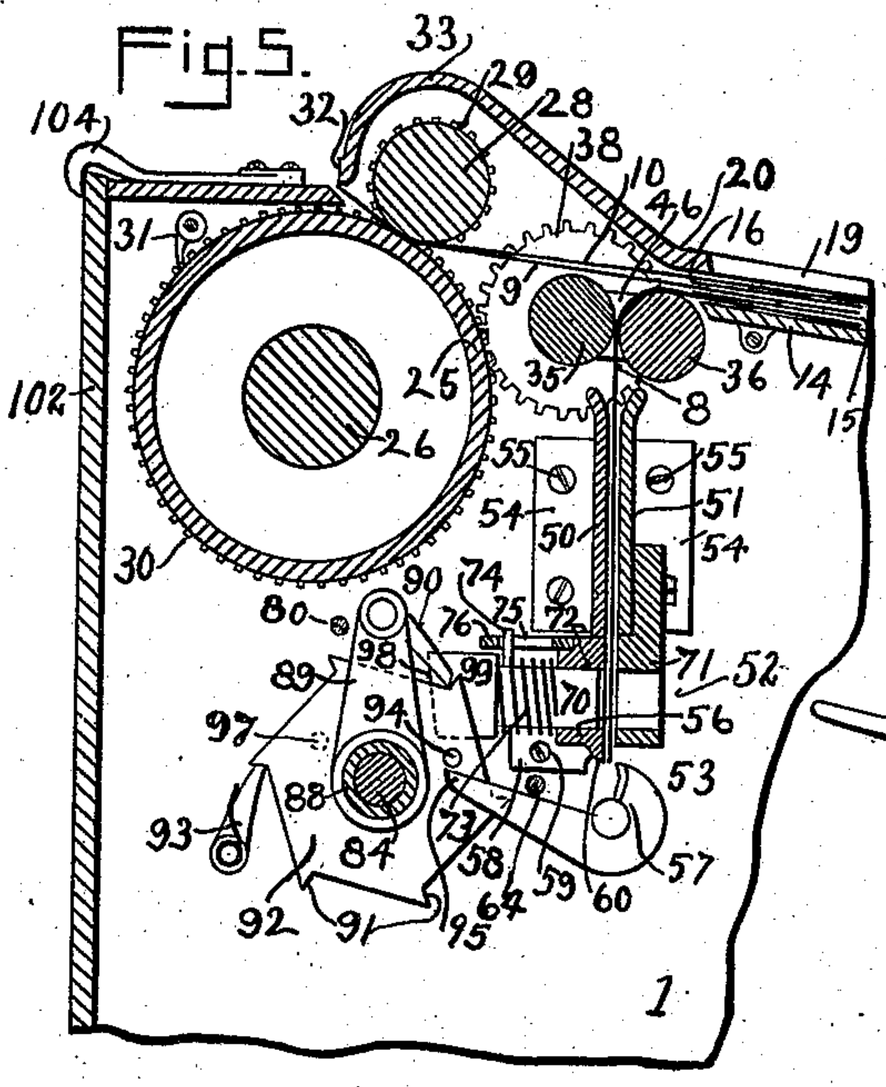


Fig. 7.

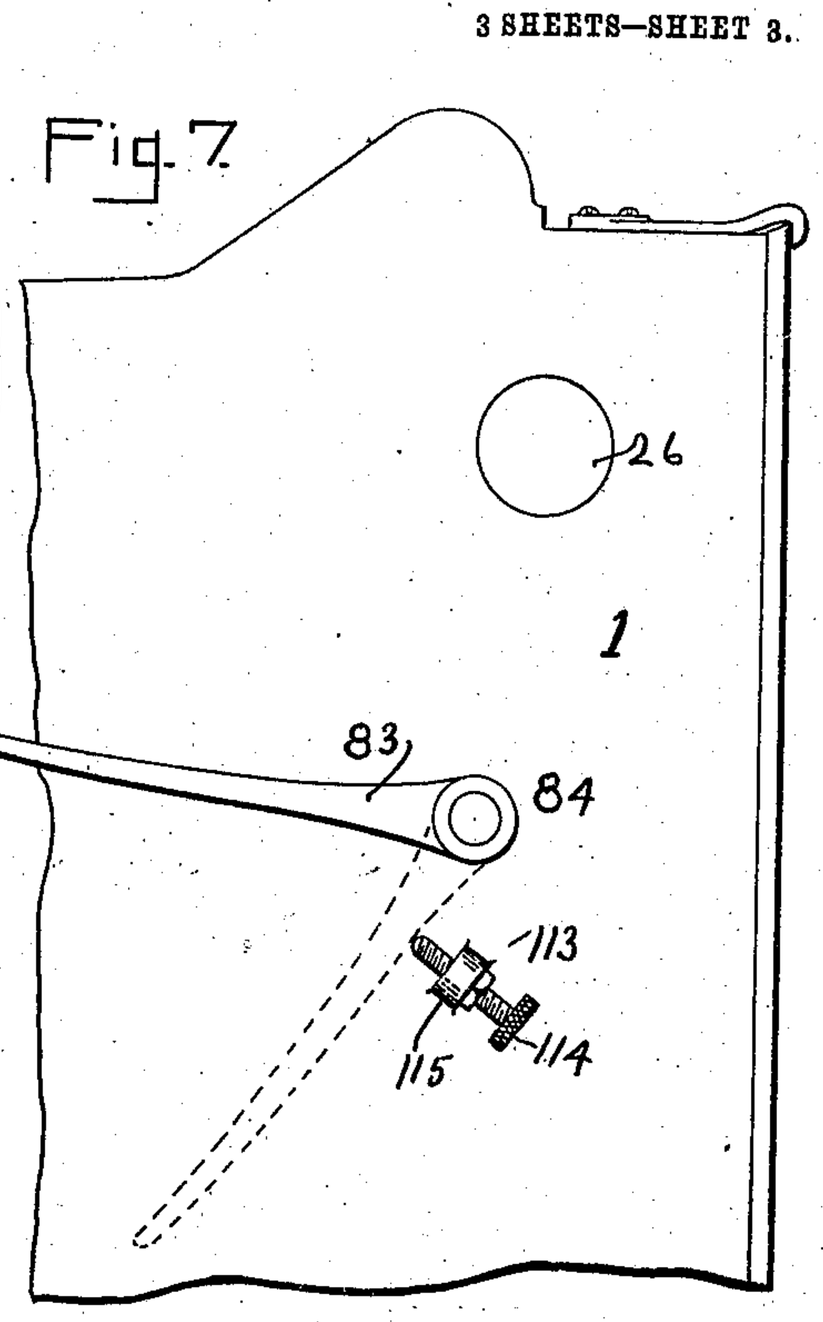


Fig. 6.

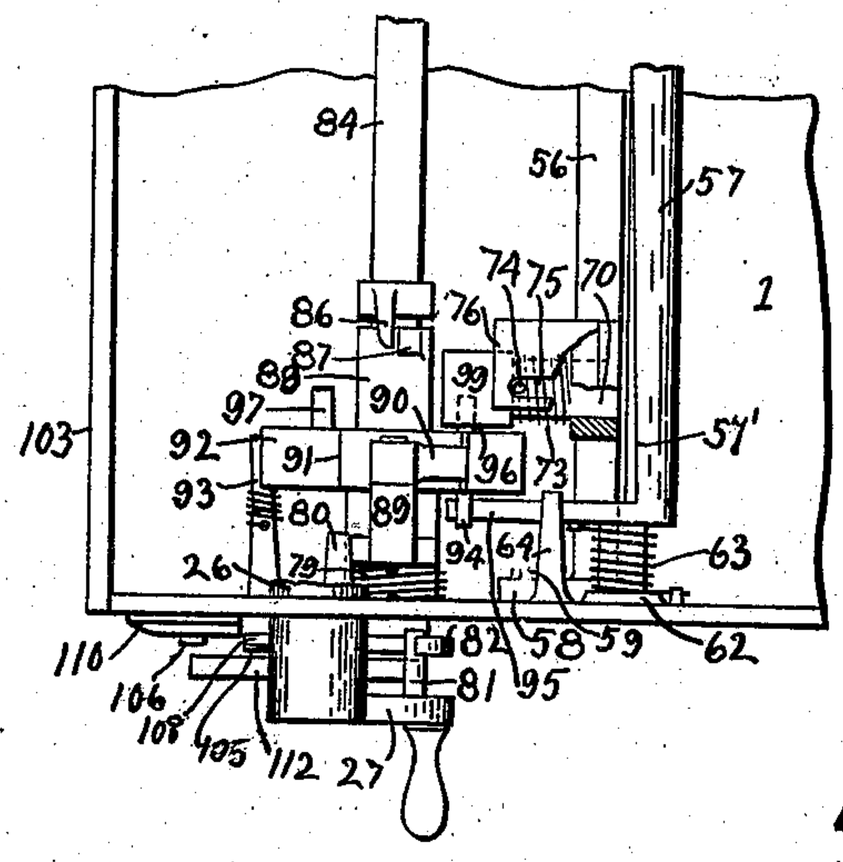


Fig. 8.

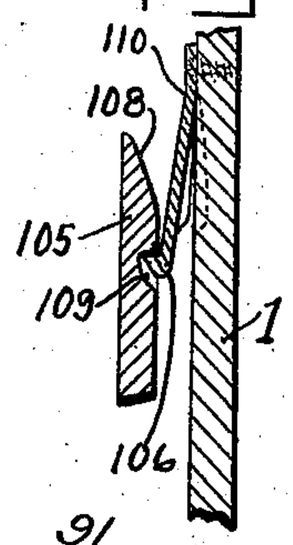


Fig. 11.

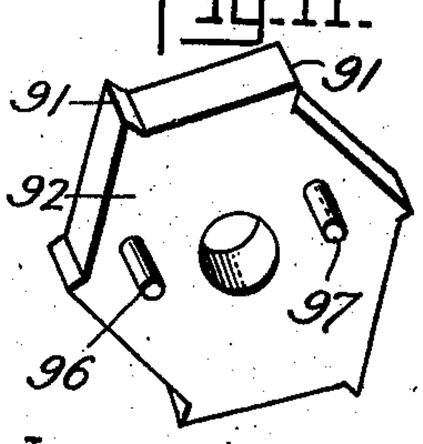
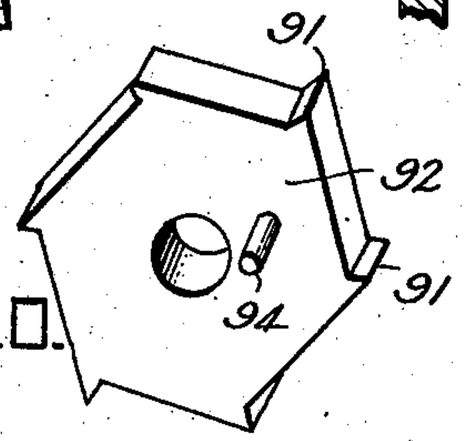


Fig. 10.



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Inventor.
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by A. F. Hurlbert
His Attorney.

UNITED STATES PATENT OFFICE.

THOMAS L. MOORE, OF CINCINNATI, OHIO.

AUTOGRAPHIC REGISTER.

No. 858,409. Specification of Letters Patent. Patented July 2, 1907.

Application filed June 4, 1906. Serial No. 320,063.

To all whom it may concern:

Be it known that I, THOMAS L. MOORE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Autographic Registers, of which the following is a specification.

It is the object of my invention to provide autographic registers with means for moving a record-strip less distances than the movement of the billing or transitory strip or strips, further to provide means whereby the record-strip may be divided into given lengths suitable for subsequent binding, further, in providing means for perforating the same for the purpose of binding, further, in providing means whereby said dividing and perforating means may be operated in sequence with the operation of advancing said strips, and, further, in providing means for controlling said dividing and perforating means; and the invention will be readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is a vertical longitudinal section of my improved device, taken on a line corresponding to the line *x*—*x* of Fig. 2. Fig. 2 is a plan view of the same, partly broken away for better illustration of parts. Fig. 3 is a vertical section of my improved device on the line *y* of Fig. 1, partly broken away. Fig. 4 is a detail in side elevation showing the arresting means for the crank-arm. Fig. 5 is an enlarged view of the head-end of the machine, partly broken away, shown in section on the line *x*—*x* of Fig. 2. Fig. 6 is a plan view of the same with the upper works removed. Fig. 7 is a detail in side elevation showing the stop for the tripping or cutting lever. Fig. 8 is a detail in section on the line *z*—*z* of Fig. 4 showing the catch for the stop-lever, with the latter in arrested position; Fig. 9 is a plan view showing the record strip broken away, having its end severed into a perforated sheet of completed record entries. Fig. 10 is a perspective view of the ratchet-wheel showing the pin thereon for operating the severing device; and, Fig. 11 is a similar view of said ratchet-wheel from its other side showing the pins thereon for operating the perforating tool.

My improved device is valuable in connection with the system for keeping accounts shown, described and claimed in my application for Letters Patent of the United States, filed March 5, 1906, Serial No. 304,303, and which also shows a machine embodying some of the features of my invention, not however claimed in said application, and to which application reference is respectfully made.

1 represents the casing of the machine in which a suitable number of rolls may be supported. I have shown three of these rolls respectively at 2, 3 and 4, resting in troughs 5, 6 and 7, with which they have frictional engagement for giving the strands of said rolls proper tension. The roll 2 represents the roll of the record strand or strip 8, the roll 3 represents the roll of the duplicate strand or strip 9, and the roll 4 represents the roll of the billing strand or strip 10. These strands are respectively guided over rods 11, 12 and 13.

The billing strip is usually composed of a series of bill-heads, as see the bill-heads indicated at *a*, following one another on the strip, the bill-heads having printed headings *b* at the top thereof, followed by an autographic entry-space *c*, the heading of the bill-head being unused for the purpose of autographic entries thereon, and in the form shown representing about one-half of the length of the bill-head, so that the available space on the respective bill-heads for autographic entries is about one-half of the length of the bill-head. The headings and autographic entry-spaces alternate on the billing-strip.

14 represents the table.

15 and 16 represent carbon or other suitable manifold or copying strips placed between the respective strips coming from the rolls.

17 is a holder for the carbon strips, and 18 a clamp therefor.

19 is an opening in the cover 20 of the casing. There is but a single table and all the entries are made through said opening on said table. When a bill for a customer is made out, it is written in the autographic entry-space of the bill-head at the time exposed by said opening above said table, the customer receiving this original bill or entry. An exact duplicate of said bill is simultaneously made on the duplicate strand and on the record-strand at the places then under said autographic entry-space exposed by said opening and located above said table. The bill and duplicate are then severed and delivered to the customer, the record-entry, containing the exact duplicate of the bill, remaining in the machine.

It is my purpose further to advance the record-strip less distances than the advance imparted to the billing and duplicate strips. The object of this is to enable as many entries as possible to be placed on the record-strip without intermediate blank spaces, as indicated in Fig. 9 in which *d* represent the separate record entries. It is my purpose to advance the record-strip for the distance only represented by the available length for entries on the bill-heads, and in the form shown, I advance the record-strip one-half the distance of the advance imparted to the bill-head strip and its duplicate.

25 is a feed-roll with the shaft 26 of which a crank-arm or handle 27 connects for advancing the same.

28 is an upper feed-roll, between which and the feed-roll 25 the billing-strip and the duplicate strip are advanced the full length of the bill-head at each advance of said strips. The roll 28 carries a gear 29 meshing with a gear 30 on the crank-shaft. A pawl 31 engages the gear 30 for preventing retraction of said feed-rolls. The billing and duplicate strips are then severed by being

sheared against the knife 32 on the hood 33 of the feed-roll 28. The feed-roll 28 is held toward the feed-roll 25 under spring pressure and is provided with suitable means for raising the same for the insertion of the strips between the rolls in ordinary manner, not shown because well known.

35 36 are feed-rolls for the record-strip. These feed-rolls are operated from the gear 30 by providing the reduced journal-end 37 of the feed-roll 35 with a gear 38, which meshes with gear 30 and is located at one end of said feed-roll. At the other end of said feed-roll it has a gear 39 which meshes with a gear 40 on the reduced journal-end 41 of the feed-roll 36. The feed-rolls 35 36 at one end have their journals in bearings 42 43 in the casing and at their other end have their journals in bearings 44 45 in a bracket 46 secured to the casing. This bracket is provided for clearance for the gear 38. These feed-rolls 35 36 are so geared in proportion to the feed-roll 25, as to advance the record strip one-half of the circumferential travel of the roll 25 for advancing the record-strip one-half the distance of the advance imparted to the billing and duplicate strips by said rolls 25 and 28.

The record-strip is guided between plates 50 51 to a perforating tool 52 and a severing tool 53, forming cutting tools. The plates are suitably secured to the casing as by having flanges 54 through which bolts 55 pass into the casing.

The severing tool preferably comprises a stationary knife-bar 56 with which a pivoted knife-bar 57 co-acts for severing the sheet of completed entries, shown as *e*, ready to be bound into book form. The stationary knife-bar has a flange 58 at each end by which it is secured to the casing by means of bolts 59. The cutting edge of the stationary knife-bar is preferably provided at the bottom of a downwardly projecting lip 60 and the cutting edge of the pivoted knife-bar is preferably arranged at an angle to its pivotal axis (see 57′ Figs. 2 and 6) for the purpose of severing the sheet with a shear cut. The pivoted knife-bar is journaled at each end in a bearing 62 in the casing. A spring 63 normally retracts the pivoted knife-bar against a stop 64 on the casing.

The perforator preferably comprises a punch 70 co-acting with a die 71 secured to the plate 51. The punch reciprocates in a bore 72 of the stationary knife-bar. A spring 73 takes about the punch for normally retracting the same. A pin 74 projects from the punch into a slot 75 of a flange 76 of the knife-bar for positioning and limiting the movement of the punch.

I provide means for operating the severing and perforating tools and provide controlling means for such operating mechanism in order to insure proper co-operation between the advancing mechanism for the strips, and the perforating and severing tools. Each advance of the strips is accomplished by a single revolution of the crank-arm 27. At the end of its revolution the crank is temporarily locked against further rotation by being provided with a pin 81 with which a hook 82 engages.

83 is a tripping lever secured to a shaft 84, which shaft is normally retracted by a spring 85. This shaft is provided with a lug 86 which engages with a lug 87 on a sleeve 88 taking loosely about the shaft. This sleeve has secured to it an arm 89 to which a pawl 90 is pivoted, the pawl engaging the teeth 91 of a ratchet-wheel 92 for advancing the latter, the ratchet-wheel being loosely journaled on the sleeve. A locking-pawl 93 prevents retraction of the ratchet-wheel. A pin 94 is secured at a given point to one side of the ratchet-wheel (see Figs. 2, 5 and 6) and engages an arm 95 of the pivoted knife-bar 57 for swinging the latter upon its pivots and causing cutting engagement between the knife-bars. At its other side the ratchet-wheel, at suitable points about its face, is provided with pins 96 97 (see Fig. 6) for engaging the rear face 98 (see Fig. 5) of the square heel 99 of the punch 70 for forcing the punch into the die 71, said punch being normally retracted by the spring 73. The pin 96 occupies the same position on one side of the wheel 92 that the pin 94 does on the other side of said wheel.

In the form shown the ratchet-wheel is provided with six teeth so that the record-strip will be advanced six times between following operations of the severing tool, thereby severing the strip into sheets, each of which is provided with six entries. The perforating tool is arranged to operate twice between each pair of operations of the severing tool, thereby providing the sheets with two perforations each. This sequence may of course be changed without departing from the spirit of my invention. It will also be noted that the severing and perforating tools act while the record-strip is at rest, thus insuring accuracy in the operation.

From the severing tool the record-strip passes into a record-chamber 101, and when severed into sheets, the sheets rest one upon the other in said record-chamber. The purpose of having the downwardly projecting lip 60 on the stationary knife-bar is to provide a stop against the return of the edge of the separated sheet into the path of the cut edge of the advancing strip so as to insure the record-strips lying one upon the other in the record-chamber or compartment. This compartment is accessible by means of a door 102 pivoted at 103 and secured in place by catches 104.

The hook 82 which engages with the pin 81 of the crank-arm for arresting the rotation of the latter at the end of each of its rotations, is on a lever 105 which is secured to the sleeve 88. When the tripping lever 83 is depressed, which, through the lugs 86 87, rocks the sleeve 88, the stop-lever 105 is rocked with the sleeve for disengaging the hook thereon from the path of the pin 81, thereby permitting the crank 27 to be turned. The hook 82 normally forms a stop for preventing turning of the feed-rolls for the strand. Upon the rocking of the stop-lever 105 it engages a catch 106 for holding the lever and its hook in disengaged position until approximate completion of the revolution of the crank-arm. While this lever is so held in disengaged position, the pawl 90 also secured to said sleeve, is prevented from making engagement with the next tooth on the ratchet-wheel. This prevents further advance of said ratchet-wheel through the medium of the tripping-lever 83, irrespective of depressions that may be imparted to said tripping-lever, thus preventing accidental or intentional perforation or separation of the record-strip in improper manner. While the stop-lever is thus held in disengaged position the lug 87 on the sleeve 88 is also held in advanced position, which prevents the lug 86 from causing its further advance. The stop-lever 105 is provided with an engaging face 107 with which the pin 81 on the crank-arm engages for

retracting or tripping said stop-lever and bringing its hook into range with said pins (see Fig. 4). This engaging face is preferably curved so that the retraction of the stop-lever may be comparatively gradual and the pivot of said lever is preferably placed adjacent said hook so that the travel of the crank-arm between the retracting of the lever and engagement of the hook may be slight. This curve is preferably so described that the pin 81 shall make continual engagement therewith from the time it makes contact therewith until it engages the hook 82.

The stop-lever has an inclined face 108 which engages the catch 106, the catch snapping into a recess 109 in the rear face of the stop-lever. The catch is on a spring-plate 110 with which the pin 81 engages just prior to engagement of said pin with the engaging face 107 for retracting said catch.

The operator is supposed, as soon as the tripping lever 83 has been depressed, to release said tripping lever. If not so released there is danger of its being retracted with a jar when the crank-arm retracts the stop-lever 105. In order to prevent jarring of the parts of the controlling mechanism, I prefer to attach a stop-arm 112 to the tripping shaft 84, which arm, when the tripping lever is depressed, extends into line with the pin of the crank-arm for engaging with said pin just prior to the engagement of said pin with the stop-lever, thereby preventing the further advance of the crank-arm until the release of the tripping lever, upon which release the tripping lever retracts into normal position through the medium of the spring 85, thereby simultaneously throwing the stop-arm 112 out of the path of the pin on the crank-arm. In order to regulate the thrust of the ratchet-wheel at each depression of the tripping-lever I provide a stop 113 for the latter consisting of a set-screw 114 adjustable in a lug 115 on the casing, the tripping-lever being adapted to engage the set-screw when depressed.

The pins 94 96 are opposite each other on opposite sides of the ratchet-wheel 92. Upon release of the arm 105 from its catch 106 the ratchet-arm is retracted by the spring 79, a stop 80 limiting the return movement of said arm.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an autcgraphic register, the combination of means for advancing an upper strand given distances, means for advancing a record-strand less distances, a severing device, and means for operating said severing device upon given advances of said strands and permitting said severing device to remain inoperative throughout a plurality of other successive advances of said strands for severing said record-strand into given lengths comprising a plurality of advances thereof.

2. In an autographic register, the combination of means for advancing an upper strand given distances, means for advancing a record-strand less distances, a severing device, means for operating said severing device upon given advances of said strands and permitting said severing device to remain inoperative throughout a plurality of other successive advances of said strands for severing said record-strand into given lengths comprising a plurality of advances thereof, and means for providing the same with perforations given distances apart.

3. In an autographic register, the combination of means for imparting advances of given length to an upper strand, means for simultaneously imparting advances of substantially less given length to a record-strand, means for severing said record-strand into record-sheets of given lengths comprising a plurality of advances thereof, means for perforating said record-sheets, and means for operating the latter a plurality of times between the operations of said severing means.

4. In an autographic register, the combination of means for imparting advances of given lengths to an upper strand, means for simultaneously imparting advances of substantially less lengths to a record-strand, means for severing said record-strand into record-sheets and perforating the same between the movements of said strands, substantially as described.

5. In an autographic register, the combination with means for advancing a record-strand, a severing device for severing said record-strand into record-sheets, a stop for said advancing means, means for operating said severing device and retracting said stop, and means for moving said stop into normal locking position having operative connection with said advancing means, substantially as described.

6. In an autographic register, the combination with means for imparting advances of given lengths to an upper strand, means for imparting advances of substantially less lengths to a record-strand, of a severing tool for said record-strand, and means for operating the latter comprising an operating shaft and a ratchet-wheel having operative connection with said shaft, said ratchet-wheel having parts thereon making operative connection with said severing device.

7. In an autographic register, the combination with means for imparting advances of given lengths to an upper strand, means for imparting advances of substantially less lengths to a record-strand, of a severing tool for said record-strand, a perforating tool, and means for operating the latter comprising an operating shaft and a ratchet-wheel having operative connection with said shaft, said ratchet-wheel having parts thereon making operative connection with said severing and perforating tools.

8. In an autographic register, the combination with means for advancing an upper strand given distances, means for advancing a record-strand less distances, of a cutting tool for said record-strand, a lever, a shaft therefor, a sleeve taking about said shaft, a ratchet-wheel loosely mounted on said sleeve, a pawl on said sleeve engaging said ratchet-wheel, means for operating said sleeve from said shaft, and means between said ratchet-wheel and cutting tool for operating the latter, substantially as described.

9. In an autographic register, the combination with means for imparting advances of given lengths to an upper strand, means for imparting advances of less lengths to a record-strand, said means comprising a crank-arm, of a cutting tool for said record-strand, a lever, a shaft therefor, a sleeve taking about said shaft, a ratchet-wheel loosely mounted on said sleeve, a pawl on said sleeve engaging said ratchet-wheel, means for operating said sleeve from said shaft, means between said ratchet-wheel and cutting tool for operating the latter, a stop for said crank-arm secured to said sleeve, and a catch for holding said stop in retracted position, said crank-arm having a trip for releasing said catch, substantially as described.

10. In an autographic register, the combination with means for imparting advances of given lengths to an upper strand, means for imparting advances of less lengths to a record-strand, said means comprising a crank-arm, of a cutting tool for said record-strand, a lever, a shaft therefor, a sleeve taking about said shaft, a ratchet-wheel loosely mounted on said sleeve, a pawl on said sleeve engaging said ratchet-wheel, means for operating said sleeve from said shaft, means between said ratchet-wheel and cutting tool for operating the latter, a stop-lever secured to said sleeve, said stop-lever having a stop thereon for said crank-arm, a catch for holding said stop in retracted position, said crank-arm and stop-lever having engaging faces for forcing said stop into the path of travel of said crank-arm, substantially as described.

11. In an autographic register, the combination with means for imparting advances of given lengths to an upper strand, means for imparting advances of less lengths to a record-strand, said means comprising a crank-arm, of a cutting tool for said record-strand, a shaft, a sleeve taking thereabout, a ratchet-wheel loosely mounted on

said sleeve, a ratchet on said sleeve engaging said ratchet-wheel and having operative connection with said shaft, means between said ratchet-wheel and cutting tool for operating the latter, and a stop for said crank-arm secured to said shaft.

12. In an autographic register, the combination with means for advancing an upper strand and a record-strand, said strands respectively forming rolls, supports for said rolls, a casing, and severing means for severing said record-strand into record-sheets, said casing having a compartment under said rolls for said record-sheets.

In testimony whereof, I have subscribed my name hereto in the presence of two subscribing witnesses.

THOMAS L. MOORE.

Witnesses:
CORDELIA O'HEARN,
A. F. HERBSLEB.