

W. HAINER.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 25, 1909.

978,369.

Patented Dec. 13, 1910.

4 SHEETS—SHEET 1.

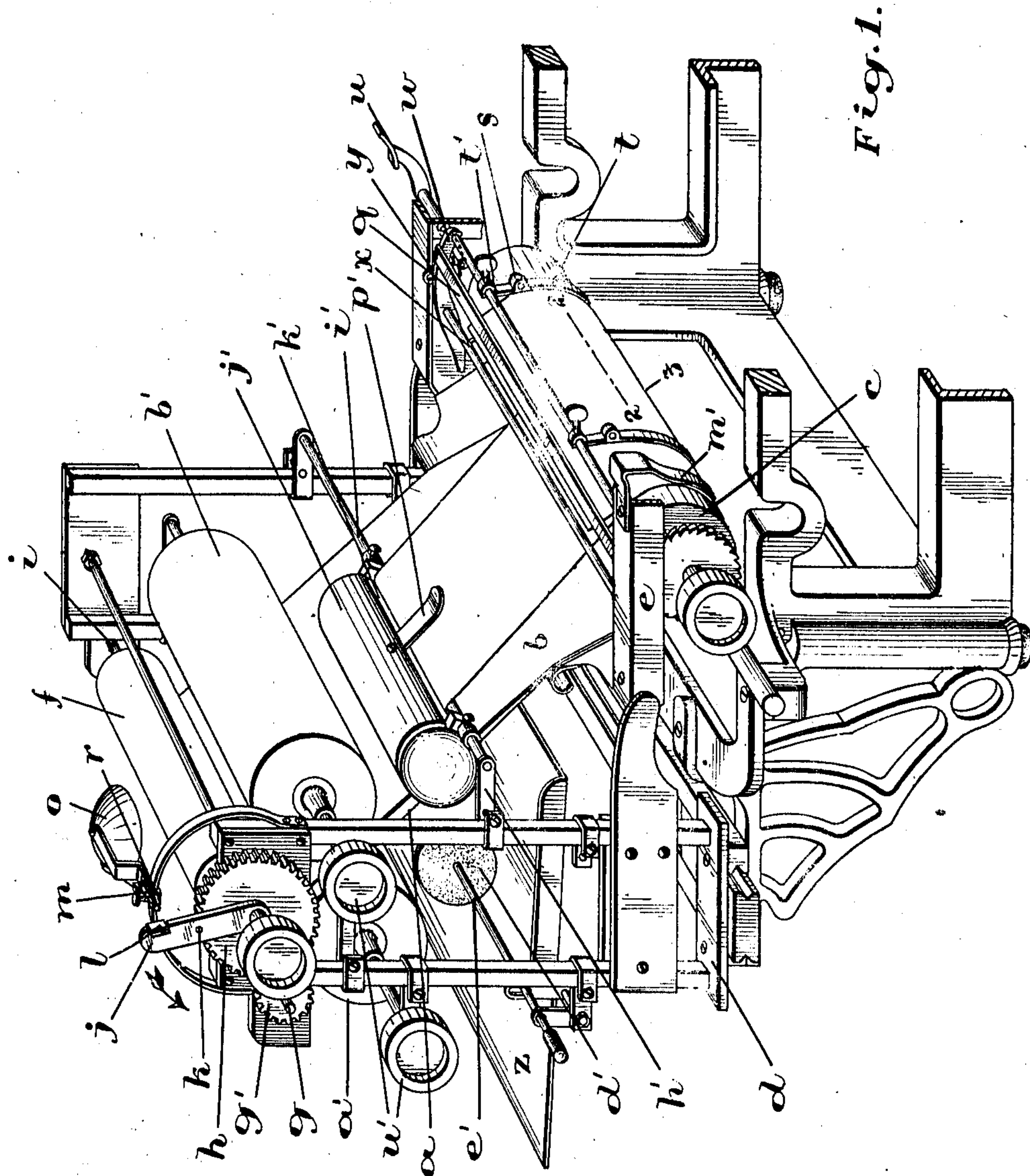


Fig. 1.

Witnesses.

H. L. Trimble.
Oliver Bateman

Inventor.

Whitfield Hainer
by C. H. Riches
Atty

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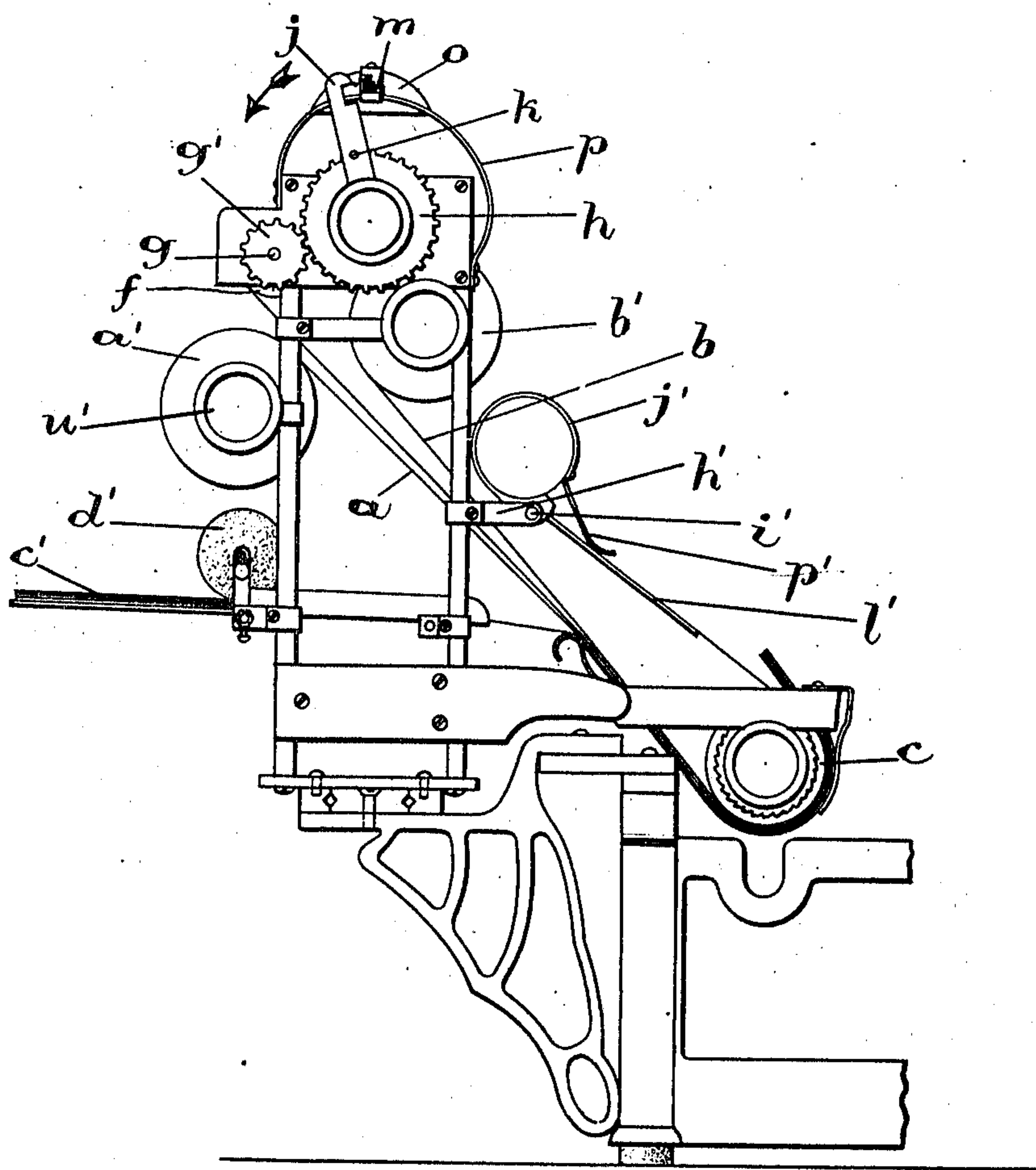


Fig. 2.

Witnesses.

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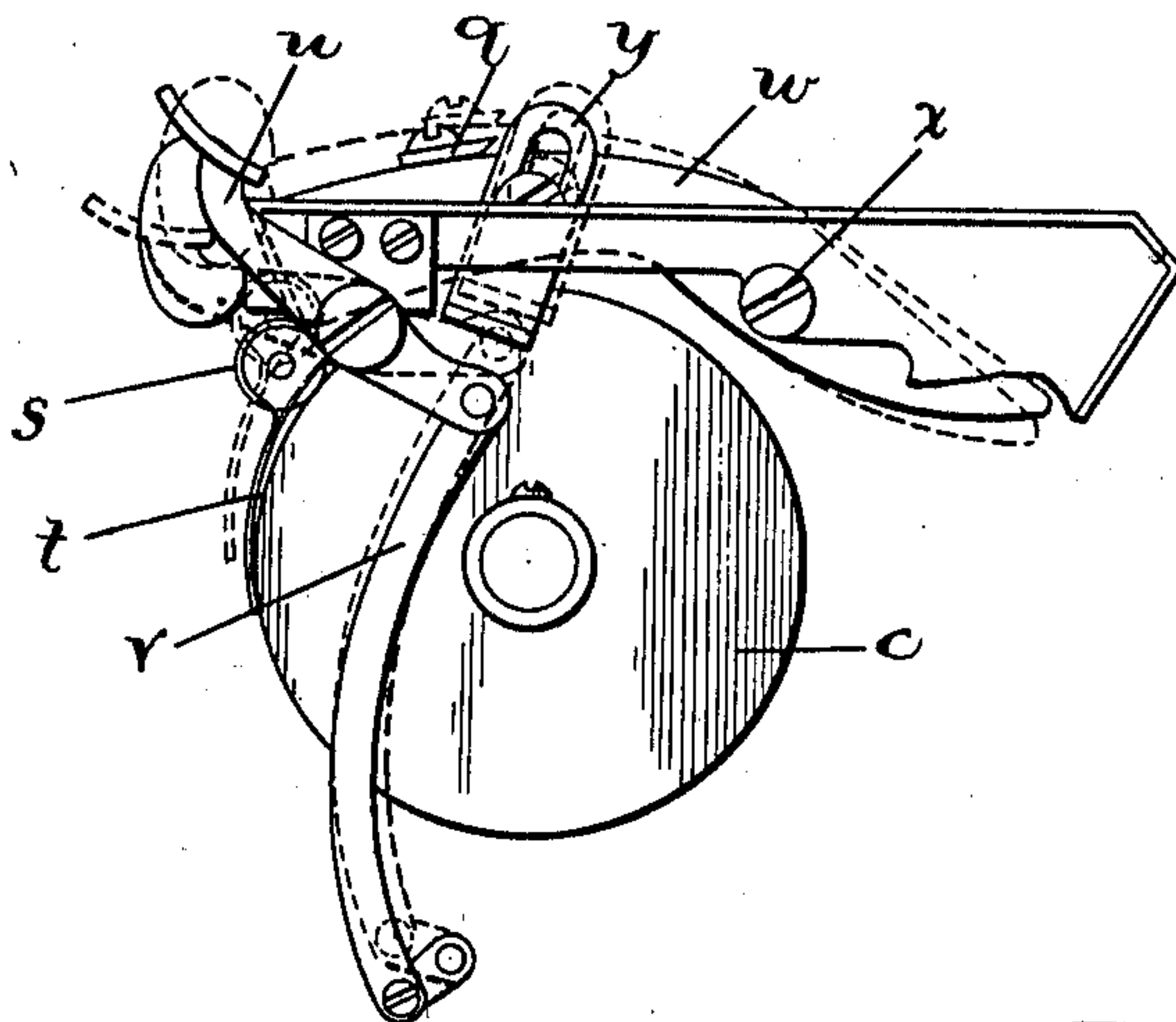


Fig. 3.

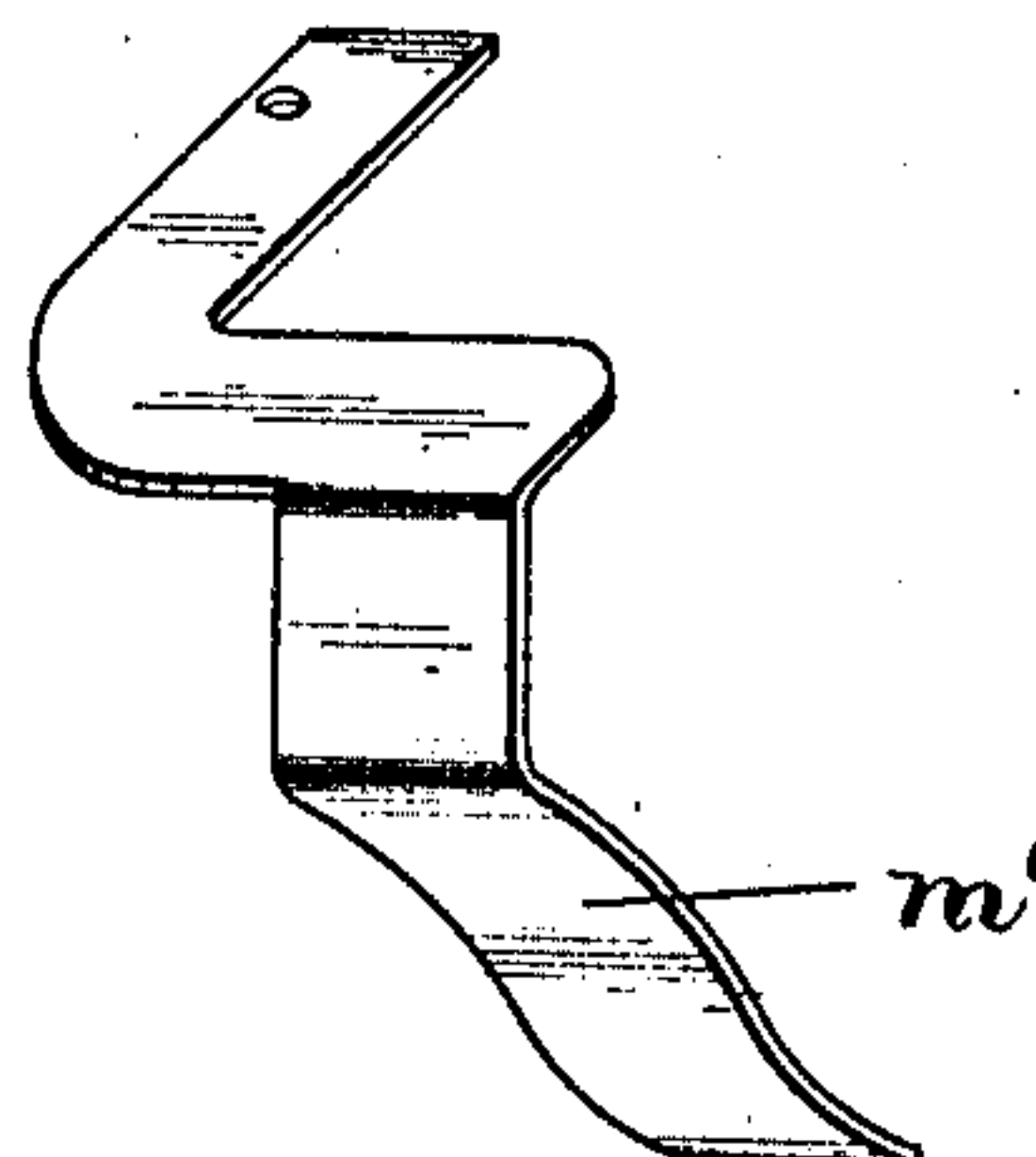


Fig. 4.

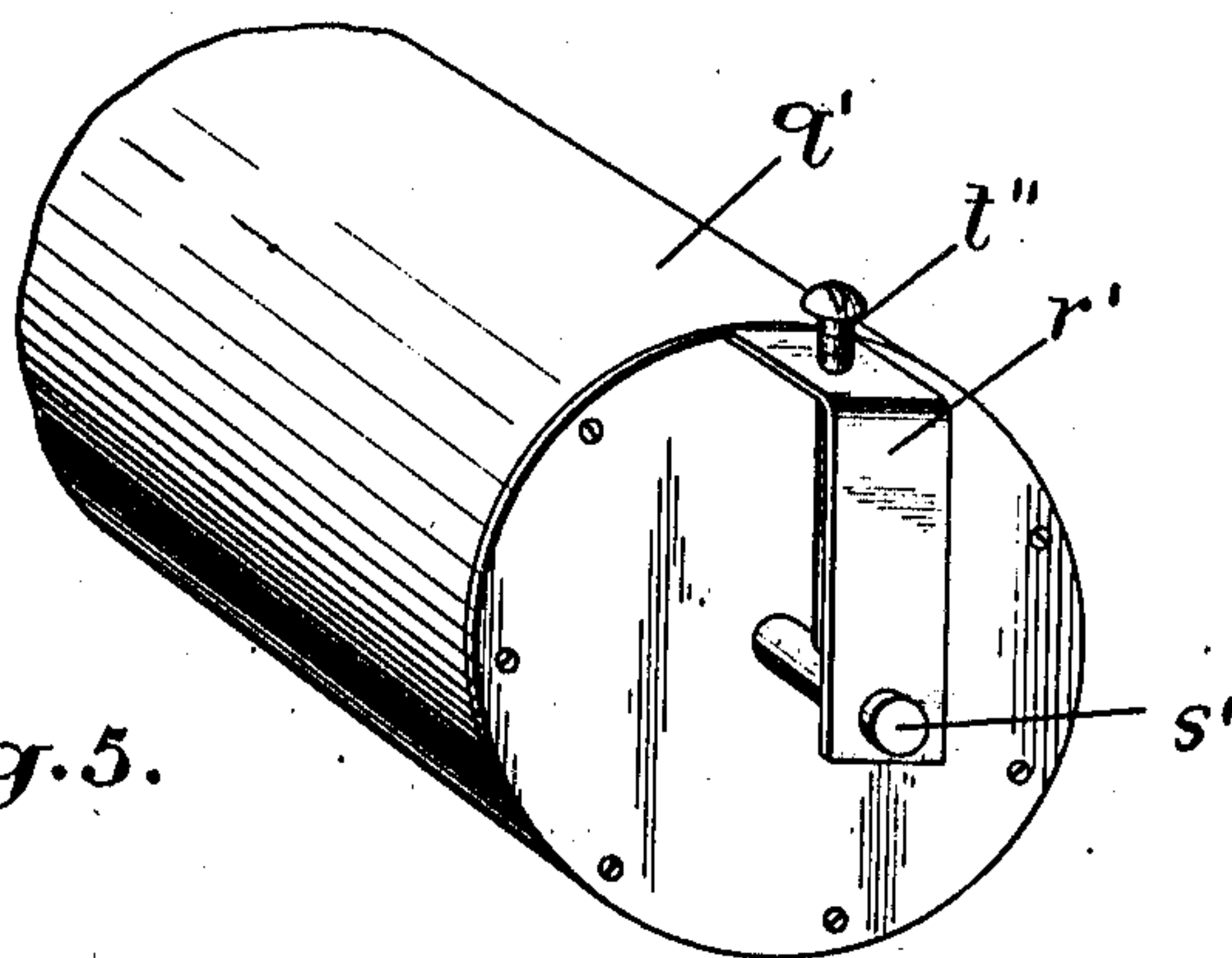


Fig. 5.

Witnesses.

H. L. Trimble
Oliver Bateman

Inventor.

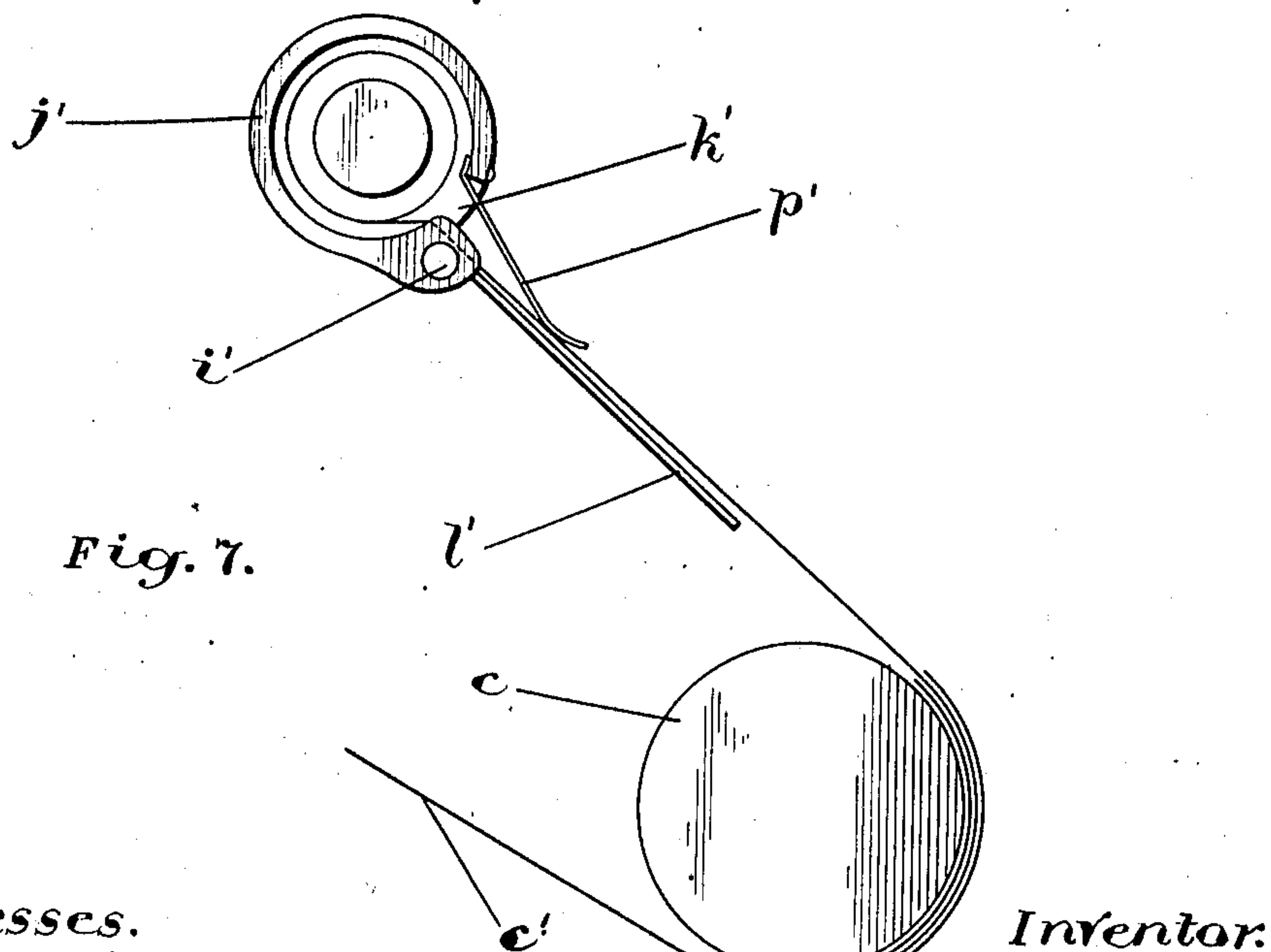
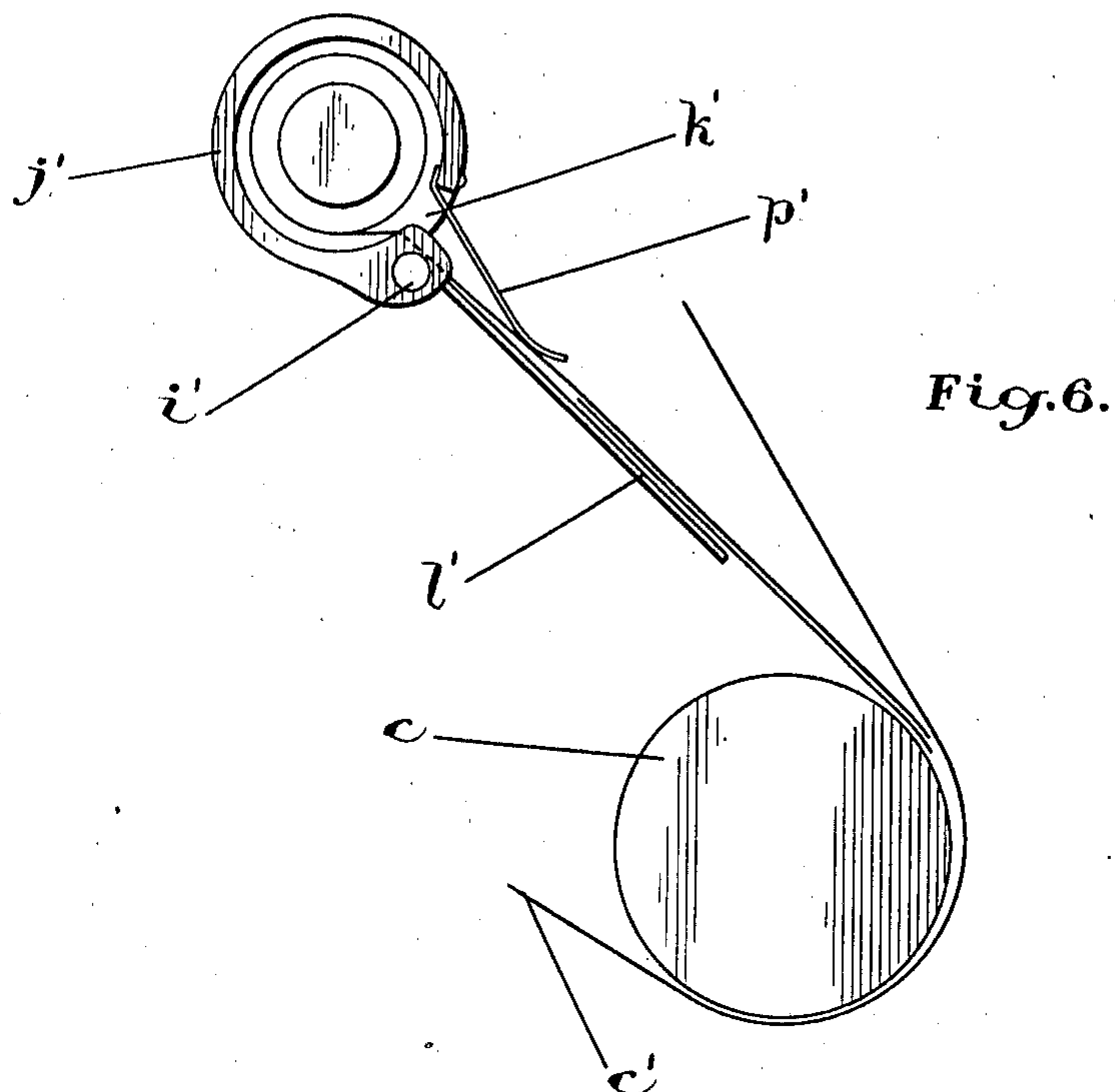
Whitfield Hainer
by C. H. Rucker
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4 SHEETS—SHEET 4.



Witnesses.

A. L. Vignoble.
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UNITED STATES PATENT OFFICE.

WHITFIELD HAINER, OF TORONTO, ONTARIO, CANADA.

TYPE-WRITING MACHINE.

978,369.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed May 25, 1909. Serial No. 498,207.

To all whom it may concern:

Be it known that I, WHITFIELD HAINER, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Type-Writing Machines; and I hereby declare that the following is a full, clear, and exact description of the same.

Type writing machines for manifolding purposes are now provided with auxiliary carriages from which the "carbon" and the paper for the original and impression copies are intermittently fed in continuous strips from the carbon and paper rolls to the platens of the main carriages. In certain of these machines provision is made for the withdrawal of the "carbon" from between the original and impression copies before the written part is severed from the unwritten part of the continuous strip or strips, but the means by which this withdrawal is effected have no provision for correctly and positively returning the free end of the "carbon" to a fixed zero position, a necessary provision to prevent the "carbon" being severed with the paper or withdrawn from an impression position.

One of the features of the present invention relates to a means by which the free end of the "carbon" can be correctly returned to a fixed zero position preferably between the line of severance and the place where the platen receives the impact of the type and this part of the invention is carried out by providing the shaft of the carbon roll with a pinion meshing with a spur wheel and revolving in one direction as the "carbon" is intermittently fed to the platen by the spacing of the lines, and providing the spur wheel with a circumferentially adjustable arm operating an audible alarm when the spur wheel has completed a revolution or a predetermined part of a revolution so that the spur wheel and pinion can then be turned in the opposite direction for the re-winding of the "carbon" until the reverse revolution of the spur wheel is arrested by the adjustable arm engaging a fixed stop. It is advisable however, before the "carbon" can be withdrawn from between the original and impression copies, to provide for the removal of the pressure exerted against the paper by the feed roll and "paper fingers," the removal of this pressure being accomplished by the releasing lever, which when actuated to release the pressure of the feed

roll, will move the paper fingers out of contact with the paper, or position them so that they will exert no pressure thereon.

The invention also relates to a means whereby loose sheets, piled on a support forming part of the auxiliary carriage, may be fed to the platen by a manually operated feeder, either unitedly with the feeding of the paper strips or independently thereof.

The invention further relates to a means by which an impression copy may be simultaneously made on an envelop of the name and address written on the original copy, this means consisting of a supplemental carbon roll mounted in the auxiliary carriage and from which the carbon is fed between the platen and the adjacent strip or sheet of paper and automatically withdrawn therefrom when the address has been written.

For an understanding of the invention reference is to be had to the following description and to the accompanying drawings in which—

Figure 1, is a perspective view of part of a type writing machine showing the main carriage, the auxiliary carriage and the arrangement of the "carbon" and paper rolls and the manner in which the "carbon" and paper are fed to the platen of the main carriage. Fig. 2, is an end elevation of the construction shown in Fig. 1. Fig. 3, is an end elevation of the platen showing the releasing lever and the means actuated by the releasing lever for removing the pressure of the feed roll and paper fingers from the paper. Fig. 4, is a perspective view of the envelop guide attached to the main carriage. Fig. 5, is a perspective view of part of one of the rolls upon which the "carbon" or paper is wound, and Figs. 6 and 7, are diagrammatic views showing the position of the envelop with respect to the platen when being inserted, addressed and ejected.

Like characters of reference refer to like parts throughout the specification and drawings.

In the specification the term "carbon" is used to designate carbon paper, carbon cloth, or any similar flexible material holding color in solution or covered with a coating of the same, suitable for making an impression copy of the type written matter written on an underlying sheet.

The strips of paper *a* and *b* are continuously fed to the platen *c* from the rolls *a'* *b'* mounted in the auxiliary carriage *d*,

connected to and unitedly movable with the main carriage *e* and mounted in the auxiliary carriage *d* is a carbon roll *f*, from which the "carbon" is fed between the paper strips *a* and *b*. The shaft *g* of the carbon roll *f* extends beyond the auxiliary carriage and is provided with a pinion *g'* meshing with the spur wheel *h* mounted on a shaft or stud *i* journaled in the auxiliary carriage *d*. The shaft or stud *i* projects beyond the outer face of the spur wheel *h* and is provided with a loosely mounted arm *j* having lateral movement with relation to the side face of the spur wheel and rotary movement on the shaft or stud, and projecting from the arm *j* is a pin *k* engaging with the teeth of the spur wheel *h*. The lateral movement of the arm *j* permits of the pin *k* being disengaged from and reengaged with the spur wheel teeth and the rotary movement of the arm permits it to be positioned to engage between any selected teeth. The engagement of the pin *k* with the teeth of the spur wheel causes the arm to revolve unitedly with the latter so that during the revolution of the spur wheel in one direction, the lug *l* projecting from the arm *j* will actuate the striking mechanism *m* of the alarm bell *o* to announce the completion of the strip of written matter. The arm *j* when the spur wheel is revolved in the opposite direction engages with the projecting end of the shaft *g* and arrests the revolution of the spur wheel. For convenience the alarm bell *o* and the striking mechanism *m* are adjustably connected to and supported by a curved band *p* attached to the auxiliary carriage adjacent to the spur wheel, the adjustment of the alarm bell permitting the length of written matter to be varied.

In the use of the device above described, the paper strips *a* and *b* are fed from the rolls *a'* and *b'* to the platen *c* with the "carbon" from the carbon roll *f* between them. When the free end of the "carbon" reaches the zero position indicated by dotted line 2—2 (see Fig. 1) preferably located between the knife *q* and the place 3 where the platen receives the impact of the type, the arm *j* is moved laterally to disengage the pin *k* from the teeth of the spur wheel *h* and is then turned in the direction indicated by arrow until it engages with the shaft *g*, the latter forming a fixed stop to arrest the revolution of the arm in that direction, the pin *k* being then permitted to reengage with the teeth of the spur wheel. The paper strips *a* and *b* and the carbon are then intermittently advanced by the spacing of the lines, and the advancement of the "carbon" causes the revolution of the shaft *g* and the pinion *g'*. The pinion *g'* meshing with the spur wheel *h* causes the latter to revolve in the opposite direction to that indicated by arrow, and carry with it the pin

k and the arm *j* until the lug *l* of the arm *j* engages with the striking mechanism *m* of the alarm bell, announcing the line where the strip or strips of written matter are to be severed. The arm *j* and spur wheel *h* are then turned in the direction indicated by arrow to rewind the "carbon" on the roll *f* and withdraw the "carbon" from between the original and impression copies until its free end is returned to the zero position 2—2. The travel of the arm *j* and spur wheel *h* in the direction indicated by arrow is exactly the same as the travel of the arm and spur wheel in the opposite direction, consequently the same quantity of "carbon" is rewound on the roll *f* as is unwound from it by the advancement of the carbon during the spacing of the lines. The free end of the "carbon" is thus returned at each operation of the arm *j*, to the same zero position which being below the knife *q* does not come within the line of severance when the written part is being removed from the unwritten part of the strips *a b*, consequently no waste of "carbon" can occur, and the "carbon" is always in position for use for impression purposes. It is necessary, or at least it is advisable, to have the length of written matter of uniform size, and it is for this reason that the bell is actuated by the arm *j* when the spur wheel has completed a revolution or a predetermined part of a revolution, the arm being advanced toward the bell by the revolution of the pinion *g'* and spur wheel *h* caused by the advancement of the carbon during the spacing of the lines. To vary the length of the written matter, the bell *o* is adjustable on the curved band *p*, and is provided with a clamp *r* by means of which it can be locked in any adjusted position thereon. Before the "carbon" can be conveniently returned to its zero position the pressure of the feed roll *s* and paper fingers *t* from the paper should be released, and this release is effected in the usual way by the releasing lever *u* and link *v*.

The paper fingers *t* are adjustably connected to a rod *t'* supported by arms *w* rockable from the shaft *x* mounted in the main carriage *e*, one of the arms *w* being provided with an adjustable lug *y* engaged by the usual releasing lever *u* when operated to remove the pressure of the usual feed roll against the paper. The actuation of the releasing lever *u* to release the feed roll raises the lug *y*, the arms *w* and rod *t'* the rod *t'* lifting the paper fingers *t* away from the platen so that they will release their pressure against the paper. When the feed roll and paper fingers have been moved out of contact with the paper, the arm *j* is turned in the direction indicated by arrow until it engages the shaft *g* which arrests its movement in that direction. The free end of the "carbon" is then at the zero position,

and the releasing lever and the parts actuated thereby may then return to their normal position, the paper being severed either prior, subsequent to, or coincident with the return of these last named parts.

The auxiliary carriage is provided with a support *z* for loose leaves *c'* which are fed to the platen by a feeding disk *d'*, either independently of, or unitedly with, the paper strips *a b*. The feeding disk *d'* is provided with a spindle *e'* by which it is rotated to feed the loose sheets successively to the platen, the disk engaging the topmost sheet only during its rotation.

The auxiliary carriage *d* is provided with brackets *h'* in which is mounted a shaft *i'* supporting the carbon holder *j'* for envelop addressing purposes. The carbon holder is of a cylindrical character, provided with a slot *k'*, immediately above the shaft *i'* for the passage of the carbon. Projecting from the carbon holder *j'*, immediately below the slot *k'* is a plate *l'*, over which the carbon passes.

To address an envelop, the paper for the original and impression copies is advanced beyond the platen a distance substantially equal to the width of the envelop as shown in Fig. 6. The envelop is then inserted between the paper for the last impression copy and the platen and the "carbon" for addressing the envelop is inserted between the envelop and the last impression copy. The revolution of the platen is then reversed until the paper and the envelop are restored to the position where the address is to be written, the reversal of the platen reversing with it the envelop and the paper for the original and impression copies as shown in Fig. 7. The writing of the name and address on the original copy causes an impression to be made upon the envelop by means of the "carbon" from the carbon holder *j*. The advancement of the original paper by the spacing of the lines causes a corresponding advancement of the envelop, and when the latter is clear of the platen the carbon holder *j'* turns by gravity and raises the plate *l'*, lifting the envelop and the "carbon" for addressing the envelop into a position clear of the platen, and holds them in that position until removed from the type writing machine.

As shown in Fig. 1, of the drawings, the carbon holder operates by gravity, the weight of the carbon holder being so disposed with regard to the shaft *i'*, that it drops into a position below the shaft when the envelop and "carbon" are relieved of the pressure of the platen and the paper strips, but the carbon holder may be actuated by other means within the scope of the appended claims, without departing from the nature of the invention.

The carbon holder *j'* is provided with a spring clip *p'* holding the "carbon" against the plate *l'* and preventing it being unwound from the carbon roll within the carbon holder except when sufficient strain is applied for that purpose. One end of the carbon holder *j'* is open to receive the roll of "carbon" and the slot *k* communicates with the open end to enable the "carbon" to be introduced into the holder in a partly unrolled condition.

When the envelop is of a length that its end will project beyond the paper strips *a b*, the main carriage *e* may be provided with an envelop guide *m'* such as shown in Fig. 4, and which is attached to the main carriage as shown in Fig. 1, and holds the projecting end of the envelop against the platen.

The spool ends *q'* for the paper rolls *a' b'* and carbon roll *f* are provided with clips *r'* which engage the shafts *s'* supporting the rolls *a' b'* and *f*, the clips *r'* being provided with set screws *t''* by which the clips are locked to the shafts so that the spool ends will unitedly revolve therewith when the paper or "carbon" is being rewound upon the spools through the agency of the knobs *u'*.

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

1. In an attachment to type writing machines in combination, a carbon supply roll from which the carbon is intermittently fed by the spacing of the lines, an adjustable signal, means moved by the carbon supply roll for actuating the signal, means for rewinding the carbon on the carbon supply roll, and means arresting the rewinding of the carbon to correctly return its free end to a fixed zero position at each rewinding.

2. In an attachment to typewriting machines in combination, a carbon supply roll from which the carbon is intermittently fed by the spacing of the lines, a pinion rotated by the carbon supply roll, a spur wheel meshing with the pinion, and adjustable means to arrest the revolution of the spur wheel and pinion when the predetermined quantity of carbon has been rewound on the carbon supply roll.

3. In an attachment to typewriting machines in combination, a carbon supply roll from which the carbon is intermittently fed by the spacing of the lines, a pinion rotated by the carbon supply roll, a spur wheel meshing with the pinion, an arm adjustably connected to the spur wheel and revoluble with it, an alarm actuated by the arm as the spur wheel revolves in one direction, and a stop to engage with the arm and arrest the revolution of the spur wheel when it is turned in the opposite direction.

4. In an attachment to a typewriting machine, a shaft, two arms rockably supported

thereby, a rod connecting the rockable arms, paper fingers adjustably mounted on the connecting rod, an adjustable lug for one of the rockable arms, and a releasing lever engaging the adjustable lug to actuate the rockable arms and paper fingers.

5
10 5. In a typewriting machine in combination, a carriage, and a carbon holder turnable in one direction by the feeding of carbon to the platen and automatically turnable in the opposite direction when the carbon is released by the platen, a carbon supporting plate for the carbon holder to lift the carbon from an impression position, and

means for rockably holding the carbon holder. 15

6. In an attachment to type writing machines in combination, an auxiliary carriage, a holder for envelop addressing carbon oscillatingly mounted in the auxiliary carriage, a carbon supporting plate for the holder, and a spring clip to bind the carbon against the plate. 20

Toronto, May 4th, 1909.

WHITFIELD HAINER.

Signed in the presence of—

C. H. RICHES,

H. L. TRIMBLE.