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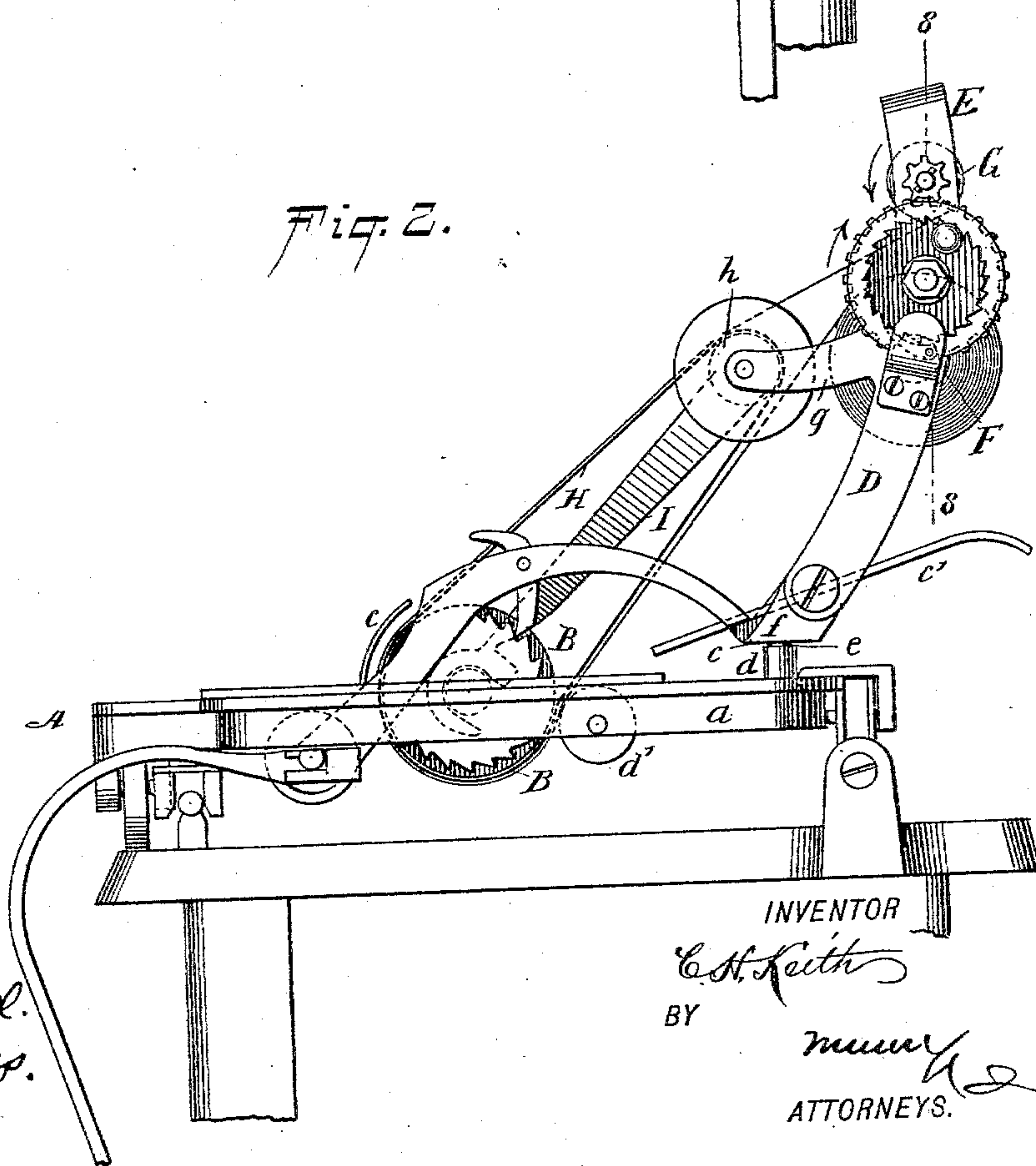
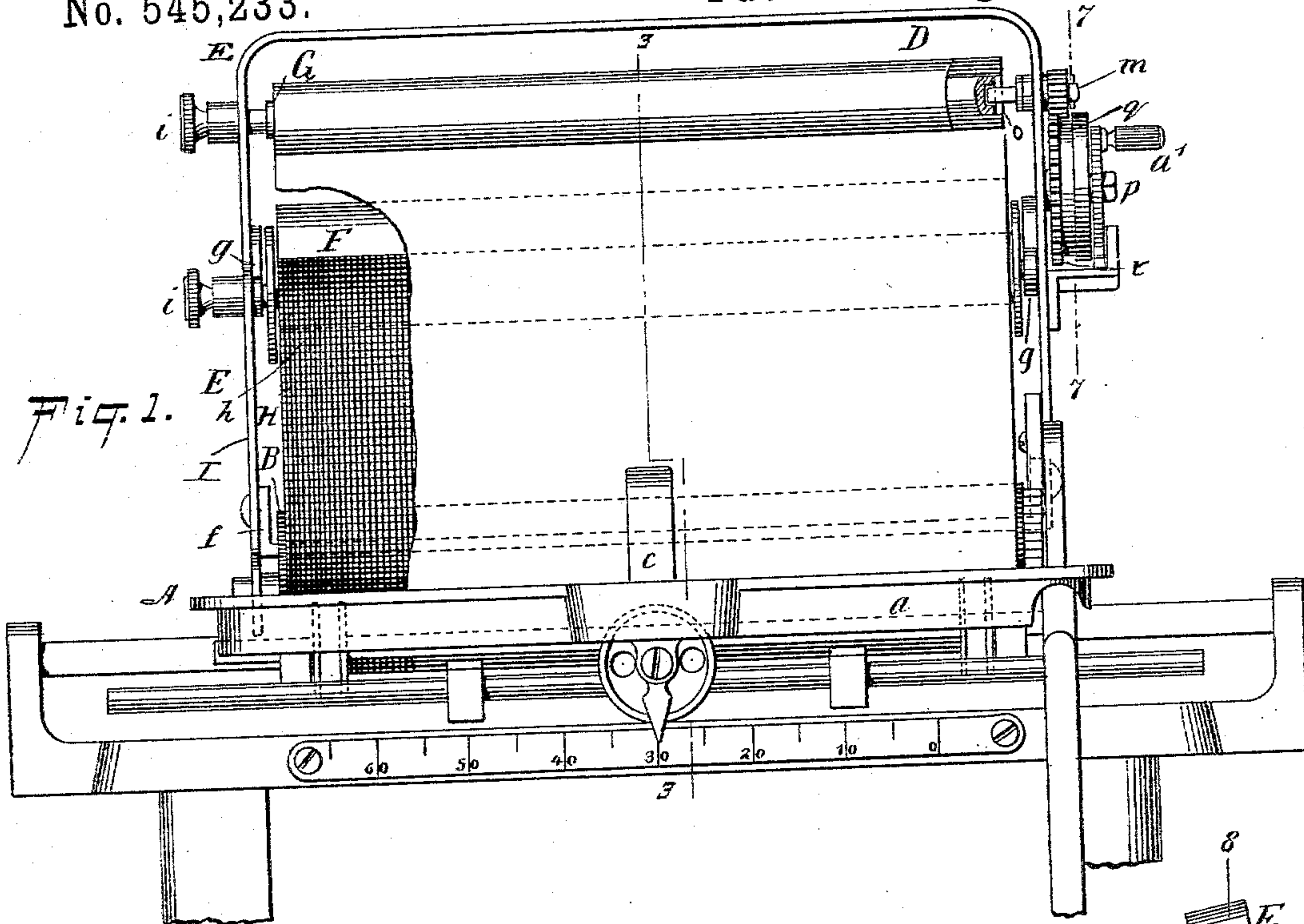
2 Sheets—Sheet 1.

C. H. KEITH.

COPYING ATTACHMENT FOR TYPE WRITING MACHINES.

No. 545,233.

Patented Aug. 27, 1895.



WITNESSES:

William Goebel.
G. M. Hopkins.

INVENTOR

C. H. Keith

BY

Mumy & Co.
ATTORNEYS.

(No Model.)

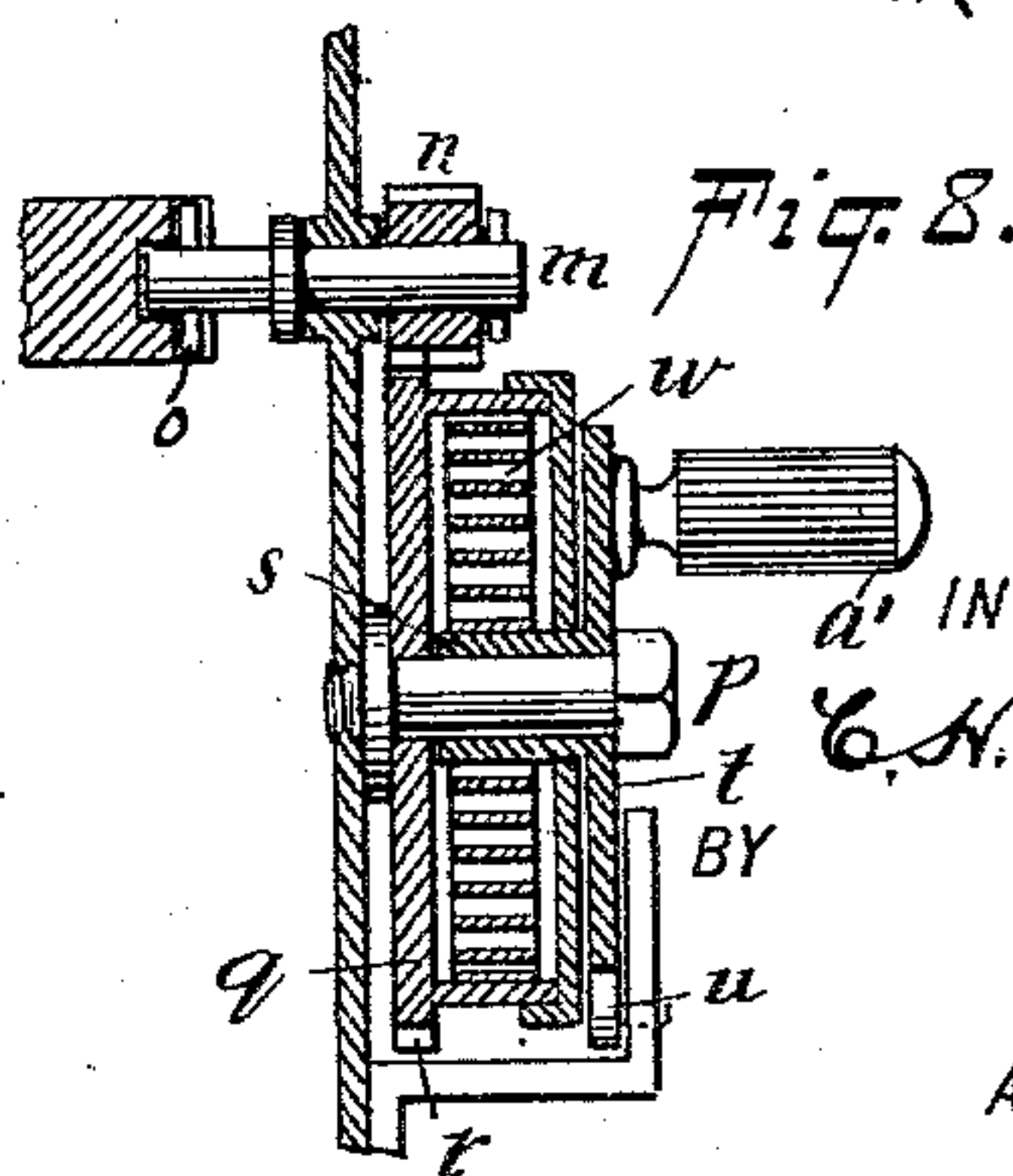
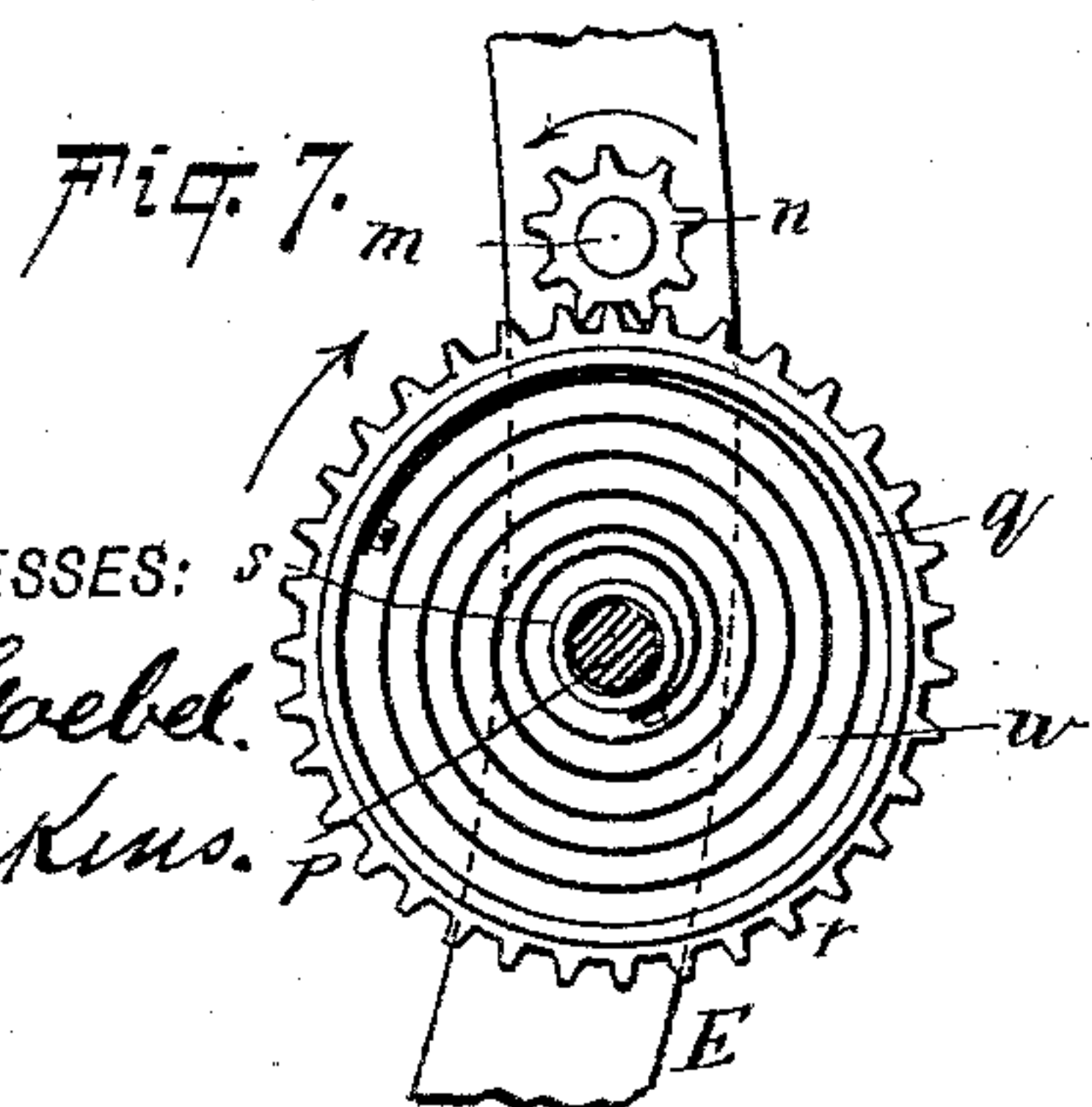
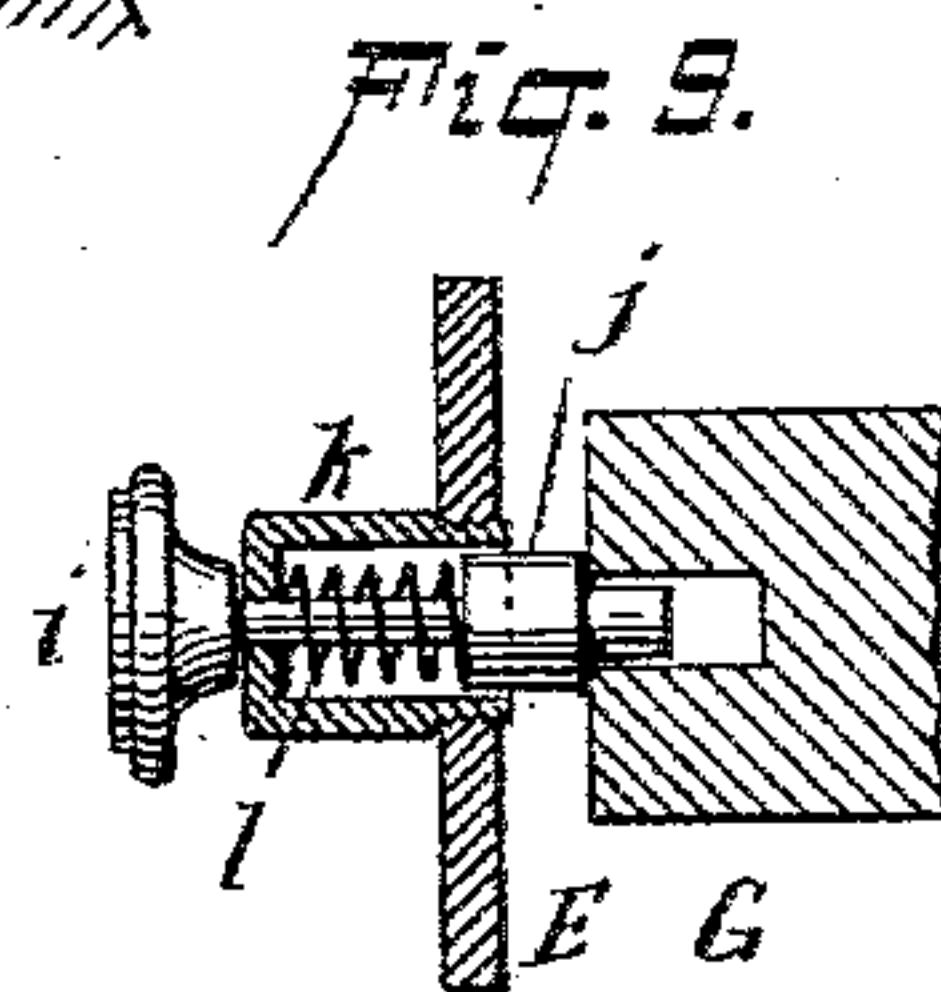
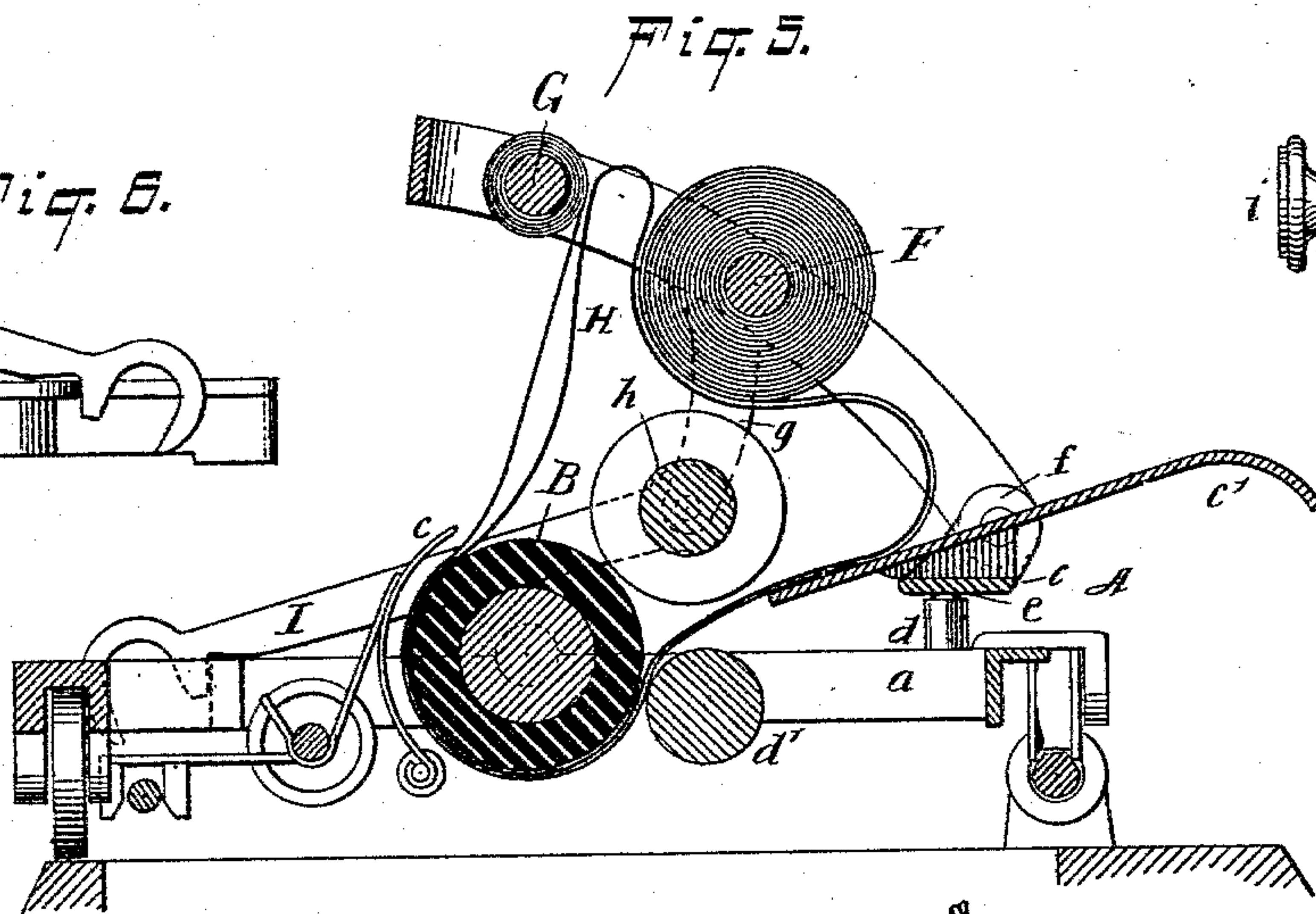
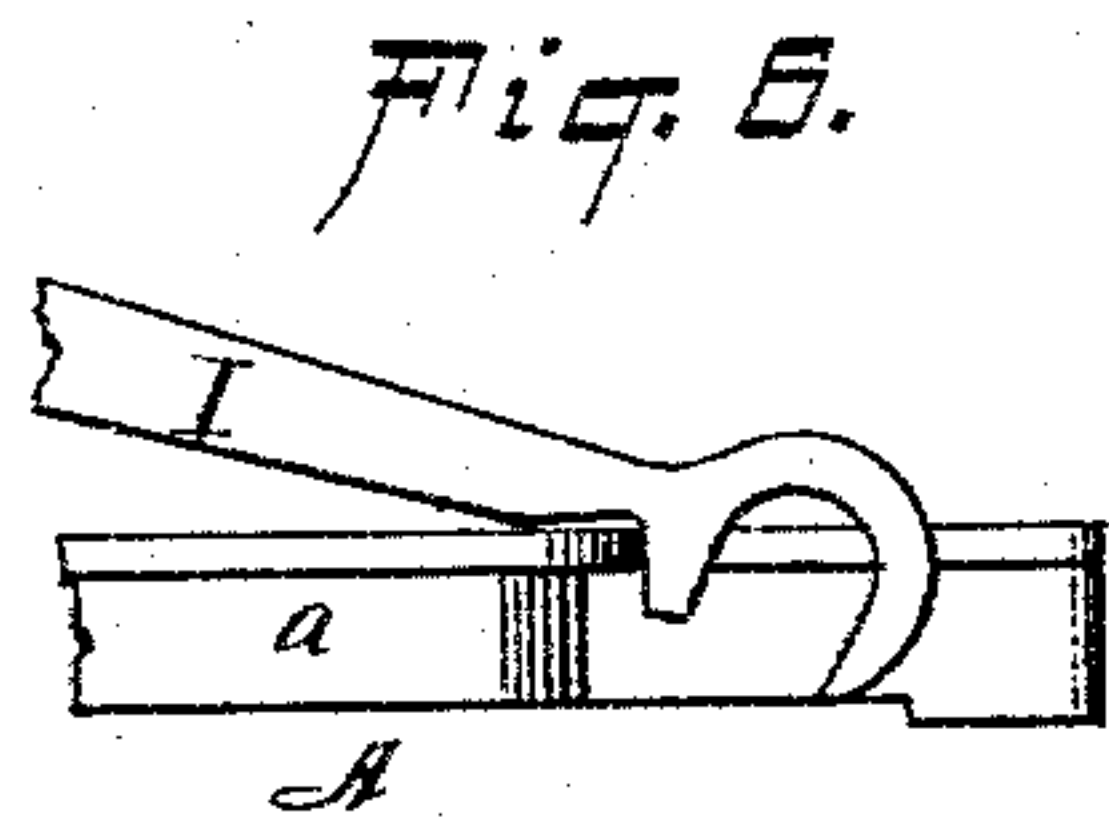
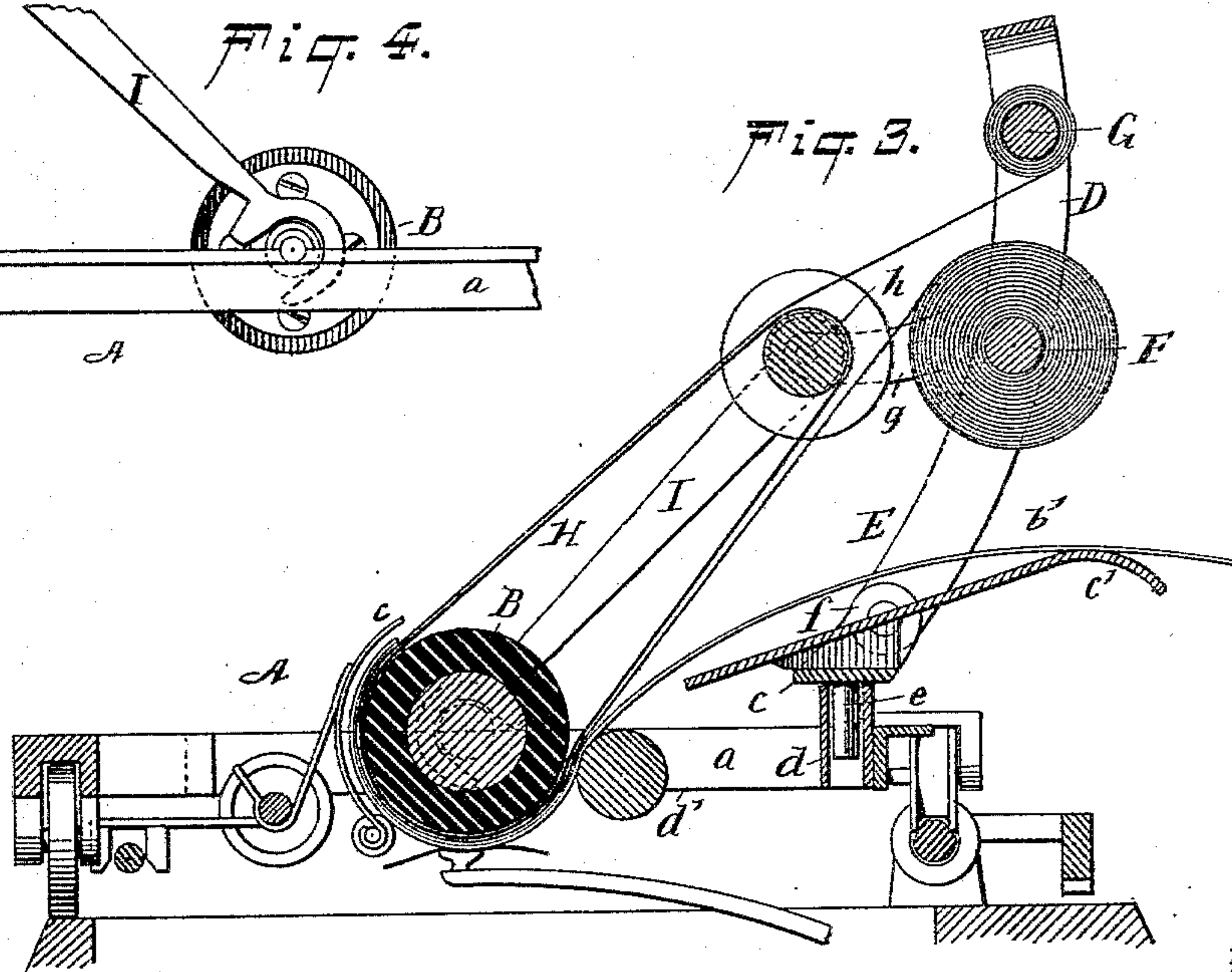
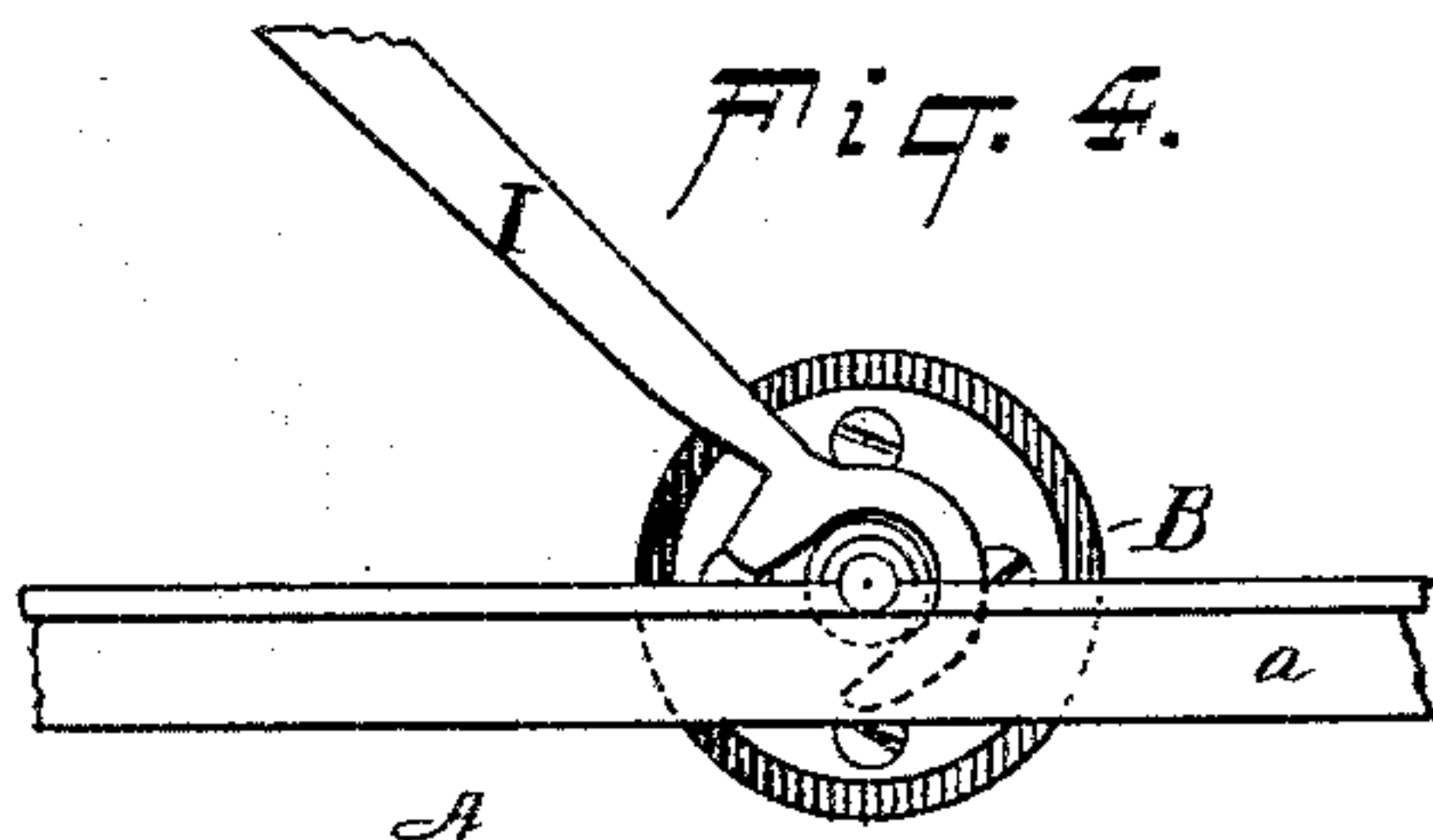
2 Sheets—Sheet 2.

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No. 545,233.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES H. KEITH, OF NEW YORK, N. Y.

COPYING ATTACHMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 545,233, dated August 27, 1895.

Application filed September 20, 1894. Serial No. 523,657. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. KEITH, of New York city, in the county and State of New York, have invented a new and Improved Copying Attachment for Type-Writing Machines, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front elevation with parts broken away to show internal construction. Fig. 2 is an end elevation. Fig. 3 is a vertical transverse section taken on line 3 3 in Fig. 1. Fig. 4 is a detail view of the fastening device. Fig. 5 is a vertical transverse section showing the attachment folded to admit of closing the table or desk. Fig. 6 is a detail view of the hook-brace. Fig. 7 is an enlarged section of the take-up-roller-actuating mechanism, taken on line 7 7 in Fig. 1. Fig. 8 is an enlarged vertical transverse section of the same mechanism, the section being taken on line 8 8 in Fig. 2; and Fig. 9 is an enlarged detail view of the spring-pressed bolts.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to provide a simple attachment for type-writing machines for continuously copying matter written on the machine, thereby producing an exact duplicate of the work done.

My invention consists in a frame applicable to the carriage of a type-writing machine, having a brace for holding it in the position of use, and provided with a roller for receiving either a duplicating-belt of carbon paper extending around the platen-roller of the type-writing machine or a belt saturated with copying compound, a supply-roller to be filled with the copying-paper, a receiving-roller for receiving copy-paper after the impressions are made upon it, and spring-actuated mechanism for turning the receiving-roller and causing it to automatically take up the copy-paper as it is carried forward by the platen-roller in the regular operation of spacing the lines, all as will be hereinafter more fully described.

The carriage A, to which my improvement is applied, consists of a frame *a*, carrying the platen-roller B and feed-lever C for turning the roller B, the guide-roller *b*, and concave guard-plate *c*. The carriage A is supported on wheels which rest on the pivotal rod of

the carriage and upon the top of the machine-frame. The parts thus far described are parts of a well-known type-writing machine and form no part of my present invention, except in so far as they enter into combination with it.

In upright sleeves *d*, attached to the rear bar of the frame *a*, are inserted studs *e e*, which project from the bar C' and hold the attachment in the position of use. The ends of the bar C' are turned upwardly at right angles, forming ears *f*, which are rearwardly inclined, and to which are pivoted the ends of the angle bar D. The said bar D, which is bent twice at right angles, forms, together with the bar C', a rectangular frame E, supporting the rollers F G in the manner presently to be described. The ends of the frame E are curved, so that they are convex toward the rear of the machine and concave toward the front.

Each end piece of the frame E is provided with an arm *g*, projecting forward. In the ends of these arms are journaled the pivots of the guide-roller *h*. The said guide-roller *h* is provided with flanges at its ends for retaining in place on the roller the endless belt H of carbon paper, which also extends around the platen-roller B. One end of each roller *h* F G is held in the position of use by a spring-pressed bolt *i*. (Shown in detail in Fig. 9.) The bolt is provided with a boss *j*, which loosely fits the tube K, and on the bolt, between the boss *j* and the closed end of the tube, is placed a spiral spring *l*, which presses the bolt outward. The projecting end of the bolt fits into a hole in the end of the roller.

The end of the roller *h* opposite that supported by the bolt *i* has a bearing in the arm *g*, and the end of the roller F opposite that receiving the bolt I' has a bearing in the opposite side of the frame E, while the corresponding end of the roller G is bored axially and provided with a transverse slot for receiving the projecting end of the shaft *m*, journaled in the side of the frame E and carrying at the outside of the frame the pinion *n*. A transverse pin *o* in the shaft *m* fits into the transverse slot of the roller G.

Upon a stud *p*, projecting from the frame E, is journaled a drum *q*, provided with a toothed-rim *r*, which engages the pinion *n*. On the stud *p* is also journaled a sleeve *s*, which ex-

tends into the drum *q*, and is provided outside of the drum with a ratchet-wheel *t*, engaged by a spring-pressed pawl *u*, pivoted to the bracket *v*, projecting from the frame *E*. In the drum *q* is placed a volute spring *w*, one end of which is attached to the drum, while the other end is fastened to the sleeve *s*. A crank-handle *a'* is inserted in the ratchet-wheel for convenience in winding the spring *w*. The spring *w* revolves the roller *G* as the copying-paper is used and passed forward in the regular operation of the machine. The spring is not long enough to wind a long strip of paper; but the spring may be rewound occasionally to insure a constant action of the spring, the inner end of the spring *w*, which is attached to the sleeve *s*, being held in a fixed position by the engagement of the pawl *u* with the ratchet-wheel *t*. The outer end of the spring which is attached to the rim *r* tends to revolve the drum of which the rim is a part, and the teeth of the rim being in engagement with the pinion *n* on the shaft *m* tend to make the said shaft turn in the direction required for winding up the copy-paper on the roller *G*, so that as the copy-paper and the paper upon which the first copy is written are moved forward the copy will be automatically wound upon the roller *G*. When the tension of the spring *w* becomes reduced, the sleeve *s*, with its ratchet-wheel *t*, is turned by means of the crank *a'*, thereby again winding the spring on the sleeve *s*. The pawl *u*, by engagement with the ratchet-wheel *t*, retains the spring *w* under pressure. Thus it will be seen that by occasionally turning the crank *a'* the spring *w* will be kept wound and in condition to turn the roller *G* and take up the copy-paper as fast as may be required.

The frame *E* is held in the position of use by a hook-brace *I*, pivoted on the bolt-casing *k*, projecting from the arm *g*, with the hook at its free end in engagement with the journal-box of the platen-roller *B*. When the hook is disengaged from the journal-box, the attachment may be folded, as shown in Fig. 5.

When the parts are in the position of use, as shown in Fig. 3, the paper sheet *b'*, on which the writing is to be done, is passed over the paper-guide *c'*, over the roller *d'*, and under the platen-roller *B* in the usual way, making contact with the strip of copying-paper passing from the roller *F* around the platen-roller *B* and carbon paper thereon, thence to the roller *G*. The spring *w* having been placed under tension by turning the crank *a'*, the machine is ready for operation and writing proceeds as usual. The blow which makes the impression on the paper *b'* also presses the copying-paper against the carbon paper and produces an impression which is seen through

the copying-paper and may be read without difficulty. Whenever the platen-roller is turned forward for a new line the spring-actuated roller *G* automatically winds up the copying-paper. The crank-handle *a'* is turned from time to time to keep the spring *w* under tension.

At the close of the day's business or at any other convenient time the roller *G* is removed by withdrawing the bolt *i*, and the copies are unrolled, cut apart, and pasted in a letter-book or attached to the letters answered or otherwise filed away.

To prepare the device for a new series of copies it is only necessary to attach the end of the copying-paper to the roller *G* by means of mucilage or by simply wrapping it a few times around the roller. It is obvious that a plain sheet of duplicating-paper may be used in lieu of the endless belt; but the latter is more convenient and desirable.

By the term "duplicating-belt" as used herein I mean a belt of any suitable material charged with coloring-matter capable of producing a copy.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a removable copying attachment for type-writing machines, the combination of a paper supply holder, a copy receiver, a carbon paper guide and holder, and means for holding the attachment in position on the machine substantially as shown and described.

2. The combination, with a type-writing machine, of a removable copying attachment comprising an endless duplicating belt passing around the platen roller, and a guide roller for guiding the endless duplicating belt, substantially as described.

3. The combination, with a type-writing machine, of an endless duplicating belt, a roller for guiding the same, a copy paper supply holding roller, and a spring-actuated copy-receiving roller, substantially as described.

4. The combination in a type-writing machine, of a platen roller, a duplicating belt supporting roller, an endless duplicating belt passing around the platen roller, a copy paper holding roller, and a removable spring-actuated copy receiving roller, substantially as described.

5. The combination, with the paper holding and belt supporting rollers, of a jointed frame, and a hooked brace pivotally connected therewith, for holding the frame in the position of use, substantially as described.

CHARLES H. KEITH.

Witnesses:

GEO. M. HOPKINS,
C. SEDGWICK.