

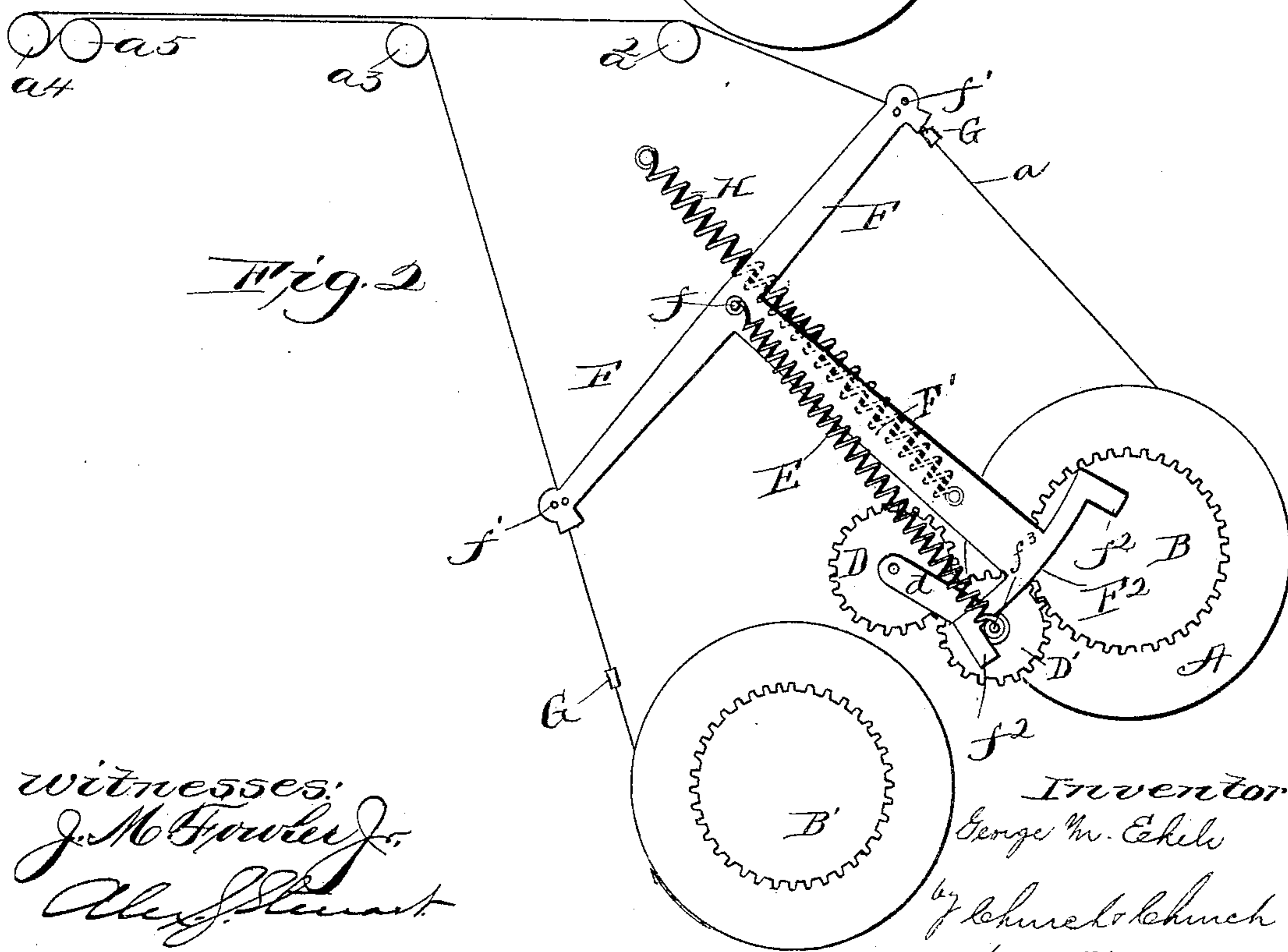
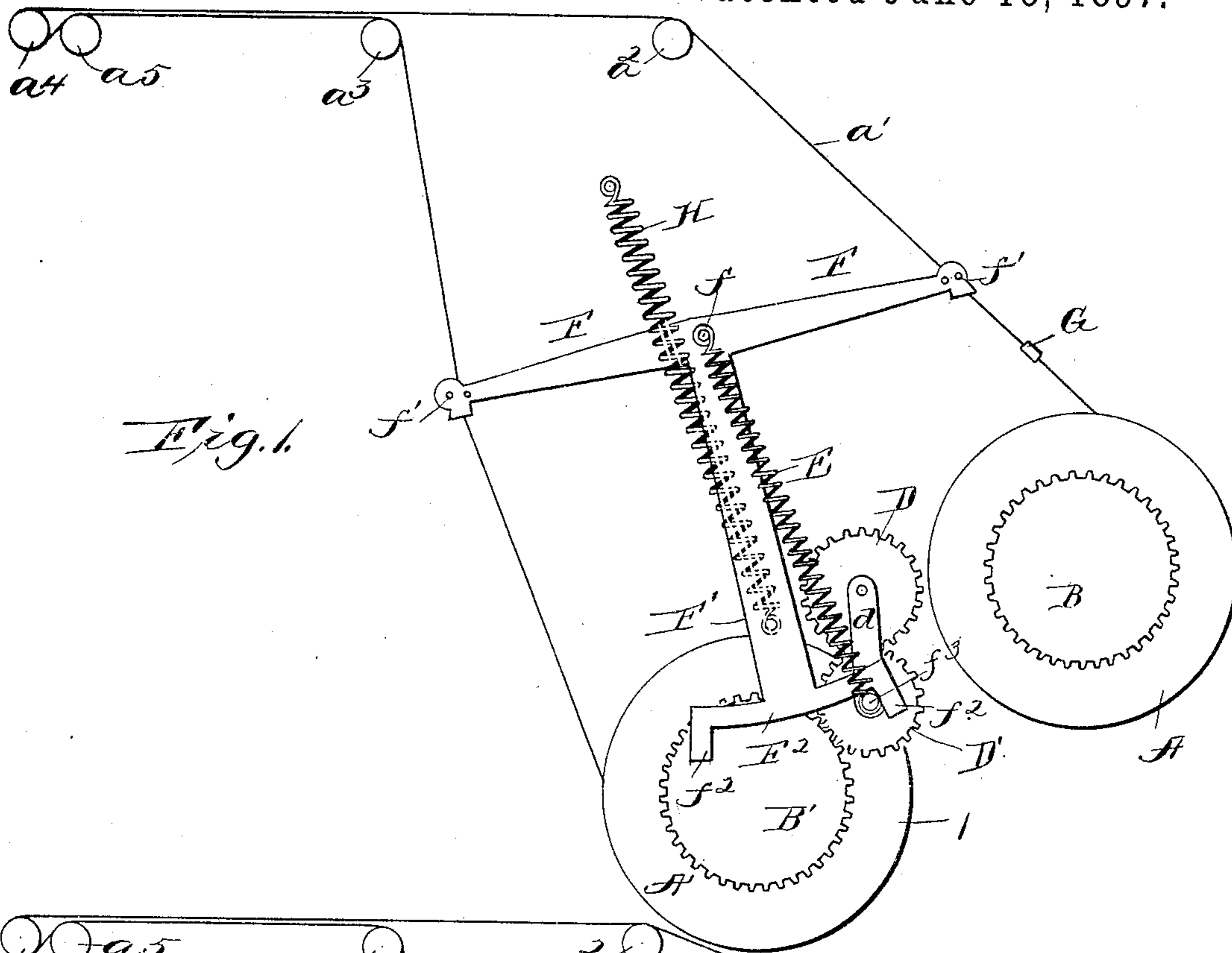
(No Model.)

G. M. ECKELS.

TYPE WRITING MACHINE RIBBON MECHANISM.

No. 584,497.

Patented June 15, 1897.



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UNITED STATES PATENT OFFICE.

GEORGE M. ECKELS, OF CHICAGO, ILLINOIS.

TYPE-WRITING-MACHINE-RIBBON MECHANISM.

SPECIFICATION forming part of Letters Patent No. 584,497, dated June 15, 1897.

Application filed February 19, 1896. Renewed May 15, 1897. Serial No. 636,817. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. ECKELS, of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Ribbon-Movements for Type-Writers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in mechanism for winding the ribbon on type-writers, and has for its object to provide a mechanism which will automatically reverse the direction of movement of the ribbon when it has been run its full length in either direction.

The invention consists, broadly, in interposing a shifting connection between the drive-gear and ribbon-winding spools with a spring-operated trip for shifting said connection, so as to throw either one or the other of the spools in train with the driving-gear, with means for initiating the movement of the trip by stops or equivalent on the ribbon; and, further, the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be hereinafter described, and pointed out particularly in the appended claims.

In the accompanying drawings, Figure 1 illustrates diagrammatically or in plan the mechanical elements used in carrying my invention into practice on a type-writer, such as described, for instance, in my prior patent, No. 544,571. Fig. 2 is a similar view showing the mechanism in the opposite position of adjustment to that shown in Fig. 1.

Like letters of reference in both figures indicate the same parts.

I have not deemed it necessary to illustrate herein either the type-writer mechanism, including the keyboard and printing mechanism, or the supporting-framing for the mechanism constituting the working parts of my present device. Suffice it to say that this mechanism is designed, primarily, for use in connection with a type-writer such as is described in my before-mentioned patent, and

the printing is done through a double thickness of the ribbon at the point marked *a*, but it will be understood that the invention may be applied to the ribbon-movements of any of the ordinary type-writers now on the market in which spools are used with a long ribbon adapted to be wound first on one spool and then on the other.

In the drawings I have illustrated the two spools (lettered A and A', respectively) upon which the ribbon is adapted to be wound as located in juxtaposition and as having the gear-wheels B B' for driving them directly connected with the spool, although it will be understood by those skilled in the art that the spools may be separated any desired distance and shafts or trains of gearing used for securing their retention, but for the purposes mentioned the arrangement shown is preferred, and from these spools A A' the ribbon *a'* is carried over guide-rollers *a² a³*, from which rollers it is carried in parallel lines or in contact to a point beyond the printing-point, where it passes around guide-rollers *a⁴ a⁵*. The ribbon hence travels from one spool past the printing-point in both directions before the other spool, and the printing is done through a double thickness of the ribbon.

The prime driving mechanism for the ribbon spool is a gear-wheel D, driven from the carriage or keyboard mechanism in any suitable manner (not shown herein) and adapted to be put in mesh with either one of the spool-driving wheels B' B' by a shifting gear D', mounted in arms *d*, journaled on a center coincident with the driving gear-wheel D. The shifting gear-wheel D' is consequently always in mesh with the wheel D and may be moved into mesh with either one of the spool-driving gear-wheels B' B', and in order that it may be held in its position of adjustment in mesh with either one or the other of these wheels B or B', I provide a retaining-spring E, which is suitably supported at one end beyond the axis of wheel D—at the point *f*, for instance—and at the opposite end is connected with the arms *d*. The motion of the shifting wheel, it will now be seen, causes this spring to move across the center or axis upon which the arms

d turn, and as a consequence when the shifting gear is set in either of its positions of adjustment this spring E tends to hold it there. It is only necessary now to provide a mechanism for tripping this shifting gear by the movement of the ribbon when it has nearly reached the end of its travel in one direction or the other, and this I accomplish by a trip mechanism consisting of a T-lever having arms F, pivoted at f and formed with guide eyes or slots f' in its ends, through which the ribbon is adapted to pass and with which stops or enlargements G, located on the ribbon a short distance from either end of the same, are adapted to engage to shift the lever in one direction or the other, according to the direction of movement of the ribbon.

The body of the T-lever, (lettered F',) projecting at right angles from the center of the arm F, is provided at its ends with lateral extensions F^2 , having shoulders f^2 thereon adapted to strike a pin or projection f^3 on the arms d of the shifting gear D'. The T-lever is adapted to be held at one extreme or the other of its movement by a spring H, which is suitably connected to the lever at one end and to a fixed support at the opposite end and adapted to move across the center or axis of the lever, as heretofore explained in connection with the spring E and arms d .

The object in providing the lateral extensions F^2 is to enable the shoulders f^2 to be separated a sufficient distance to insure the shifting gear remaining in mesh and maintaining the movement of the ribbon until the trip-lever F F' is moved a sufficient distance to throw the spring across its center of motion, when the spring H, being superior in strength to the spring E, will at once throw or snap the arms d and shifting gear D' out of mesh with the gear on one side and into mesh with the gear on the opposite side, causing the motion of the ribbon to be instantly reversed without any attention whatever on the part of the operator. These reverse movements will be kept up indefinitely in the direction, and consequently the ribbon having been once adjusted on the machine needs no more attention on the part of the operator until it is worn out and requires renewal.

Having thus described my invention, what I claim as new is—

1. In a reversing-gear for type-writer ribbons, the combination with the spools, the independent gears for rotating the same, a driving mechanism, a shifting gear, driven by said driving-gear, of a ribbon-controlled spring-actuated trip for throwing said shifting gear in gear with one or the other of the spool-gears; substantially as described.

2. In a reversing-gear for type-writer ribbons the combination with the spools, the independent gears for rotating the same, a driving mechanism and a pivoted shifting connection interposed between said driving

mechanism and spool-rotating gears whereby either of said spool-rotating gears and the driving mechanism may be put in train, of a spring-actuated ribbon-controlled trip for operating the shifting connection; substantially as described.

3. In a reversing-gear for type-writers, the combination with the ribbon-spool-driving mechanism, an oscillating shifting connection interposed between the driving connection and ribbon-spools, a spring controlling said shifting connection and adapted to move across the center of oscillation of the movable member and hold it at the extremes of its movement and a ribbon-controlled trip for operating said shifting connection; substantially as described.

4. In a reversing-gear for type-writers, the combination with the ribbon-spools, a driving mechanism, a shifting connection interposed between the driving mechanism and ribbon-spools, a spring-retainer for holding said shifting connection in train between the driving mechanism and one of the ribbon-spools, of a pivoted trip for operating said shifting connection, a spring for holding said trip at either extreme of its movement and stops on the ribbon for actuating the trip; substantially as described.

5. In a reversing mechanism for type-writer ribbons, the combination with the ribbon-spools, the driving mechanism, a shifting connection interposed between the driving mechanism and ribbon-spools, of a pivoted trip for actuating said shifting connection, an actuating-spring for said trip working across its pivotal center and stops on the ribbon cooperating with the trip to actuate its movement in either direction; substantially as described.

6. In a reversing mechanism for type-writer ribbons, the combination with the ribbon-spools, the driving mechanism therefor and a shifting connection interposed between said driving mechanism and ribbon-spool, of a pivoted trip having independent separated shoulders for cooperating with the shifting connection to throw either one of the ribbon-spools into engagement with the driving mechanism, a spring for actuating said trip working across its pivotal center and stops on the ribbon cooperating with the trip to actuate its movement whereby the shoulders on the trip are not thrown into engagement with the shifting connection until the spring becomes operated; substantially as described.

7. In a reversing mechanism for type-writer ribbons, the combination with the ribbon-spools, gear-wheels connected therewith, a driving-gear, a shifting gear in mesh with the driving-gear and supported in arms turning on a center coincident with the axis of the driving-gear and a spring working across said center for holding the shifting gear in one or the other of its positions of adjustment, of a pivoted T-lever, trip-shoulders on the body of said trip for cooperating with the shifting-

gear-supporting arms, and a spring working across the axis of the trip and operating to complete the movement of the same in each direction, guides on the oppositely-extending
5 arms of the trip through which the ribbon passes and stops on the ribbon coöperating with said guides to initiate the movement of

the trip in each direction; substantially as described.

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Witnesses:

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