O. RUTISHAUSER.

DEVICE FOR AUTOMATICALLY REVERSING THE TRAVEL OF TYPE WRITER RIBBONS.

APPLICATION FILED AUG. 21, 1908.

936,257. Patented Oct. 5, 1909.

Fig. 1

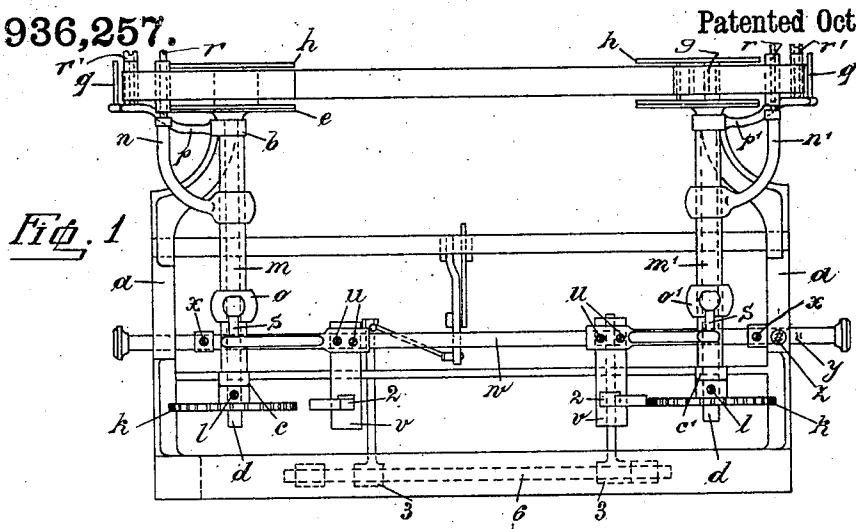
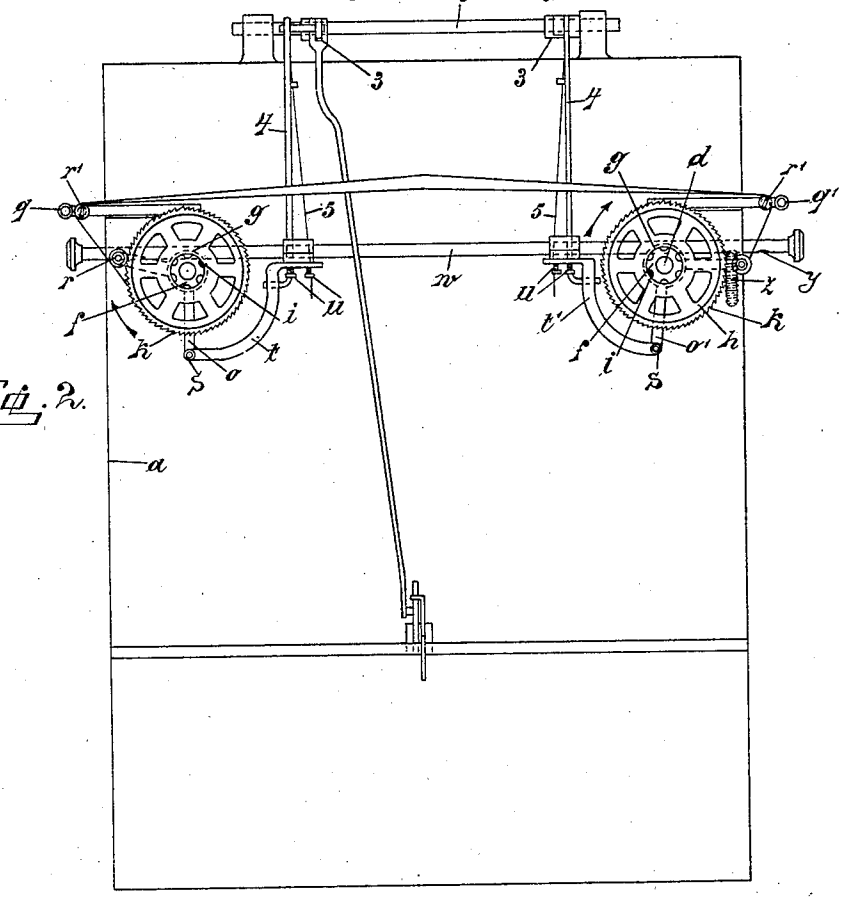


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

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DEVICE FOR AUTOMATICALLY REVERSING THE TRAVEL OF TYPE-WRITER RIBBONS.

936,257.

Specification of Letters Patent. Patented Oct. 5, 1909.

Application filed August 21, 1908. Serial No. 449,694.

To all whom it may concern:

Be it known that I, OSCAR RUTISHAUSER, a subject of the Swiss Republic, and resident of St. Gallen, Switzerland, have invented an Improved Device for Automatically Reversing the Travel of Type-Writer Ribbons, of which the following is a specification.

The subject of the present invention is a device for automatically reversing the travel of typewriter ribbons. In this device when the ribbon is completely unwound from one of the reels, the tension of the ribbon acts upon one arm of a right angled lever and moves it, whereby a slide connected to the other arm of the lever is made to change its position. The aim of this device is to effect the transposition of the pawls which drive the reels. A device for automatically reversing the travel of the ribbon has been made known by the German specification No. 184,042, Class 15. g. The device for moving the slide in the latter arrangement does not cause the reversing of the reel drive directly through the slide, as the latter is only used as a connecting link between two devices which are coupled together, one being moved by the ribbon and by the force of the spring driving the slider, while the other causes the alternate engagement and disengagement of the wheels driving the ribbon reels under the influence of the spacing device.

The accompanying drawing shows a form of the present invention, Figure 1 being a front view of the gear for automatically reversing the ribbon, and Fig. 2 a plan of the same.

Spindles *d* are fitted on both sides of the typewriter frame *a*, and are guided in the eyes *b*, b^1 and *c*, c^1. Plates *e* are carried at the upper ends of these spindles, whose cylindrical bosses *f* are provided with five or more grooves *g*. The reels *h* are accurately fitted on the bosses *f* and keys *i* are driven into the grooves *g* so that any turning of the spindles causes the reels to revolve also. At the lower end of the spindle *d*, the small toothed wheel *k* is fitted and fixed to it by a pin *l* driven through boss and spindle.

Between the eyes *b* and *c* and b^1, c^1 respectively, are short lengths of pipe *m* and m^1 respectively. These pieces are revolubly mounted on the spindle *d* and have respectively arms *n* and n^1 and *o* and o^1 attached to them. The first two are so situated that a loose sleeve *r*, seated upon the stops upon the arms, stands level with the reel. There is also another loose sleeve on each side fitted on a pin on arms *p* and p^1 respectively, which are fixed to the machine frame. Pins *q* and q^1 respectively fitted on the same arm serve to prevent the ribbon, which passes between them and the sleeve r^1 from falling down.

The lower arms *o* and o^1 are connected respectively by pins *s* to semicircular pieces *t* and t^1, the other ends of which end in tongue pieces which are connected by screws *u* to the plates *v*. The screws *u* serve also to fasten the plates *v* to the rod *w* which passes through the frame *a*, and lies in bearings in the frame so that it can be accurately adjusted in an axial direction by means of adjusting rings *x*. The rod *w* is also provided with two notches *y* into which a spring mounted at *z* snaps as soon as the rod moves to one side or the other. Shoes 2 are provided in the plates *v*, which serve as guides for the hook shaped ends of the rods 4, which rods are connected to the cranks 3. These shoes are held in place by springs 5 and cause the hooked ends of the rods 4 to engage with the toothed wheels according to the direction of rotation.

The above described apparatus works as follows:—The cranks 3 which are fixed on the shaft 6 are actuated by the keys of the typewriter in the usual manner by means of suitable transmission elements. This motion actuates the rods 4 so that by the engagement and disengagement of one or the other hook, the respective toothed wheel revolves and the ribbon is wound up or unwound. The automatic reversal of the motion of the latter is effected in this way. At the moment when the ribbon on one of the reels is exhausted, the slight jerky movement of said ribbon caused by the tension set up on the other reel causes the arm of the lever previously in contact therewith to be pushed away with its sleeve, and the other arm and sleeve comes into contact with the ribbon. Simultaneously the lower arms which are firmly fastened to the pipe piece are respectively pushed away from, and into contact with, the toothed wheel, and consequently the rod 4 turns the toothed wheels and therefore the reels in the opposite direction. The correct position of the shaft *w* with the guide plates *v* for the rods 4 is insured by a spring which snaps into notches in the shaft, and enables

to engage with the particular toothed wheel.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:—

In typewriters, the device for automatically reversing the travel of the ribbons, comprising in combination, with reels for the ribbon, spindles (*d*) on which said reels are mounted, toothed wheels on said spindles, rods (4) for actuating said toothed wheels, arms revolubly mounted on said spindles, a transversely slidable shaft (*w*), the rods for actuating said toothed wheels being fixed to said shaft (*w*), so that they are disengaged from one toothed wheel and engaged with the other when the shaft (*w*) is moved, means for securing said shaft (*w*) in position after movement, substantially as described and shown.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

OSCAR RUTISHAUSER.

Witnesses:
C. GUBLER,
G. EHRLE.