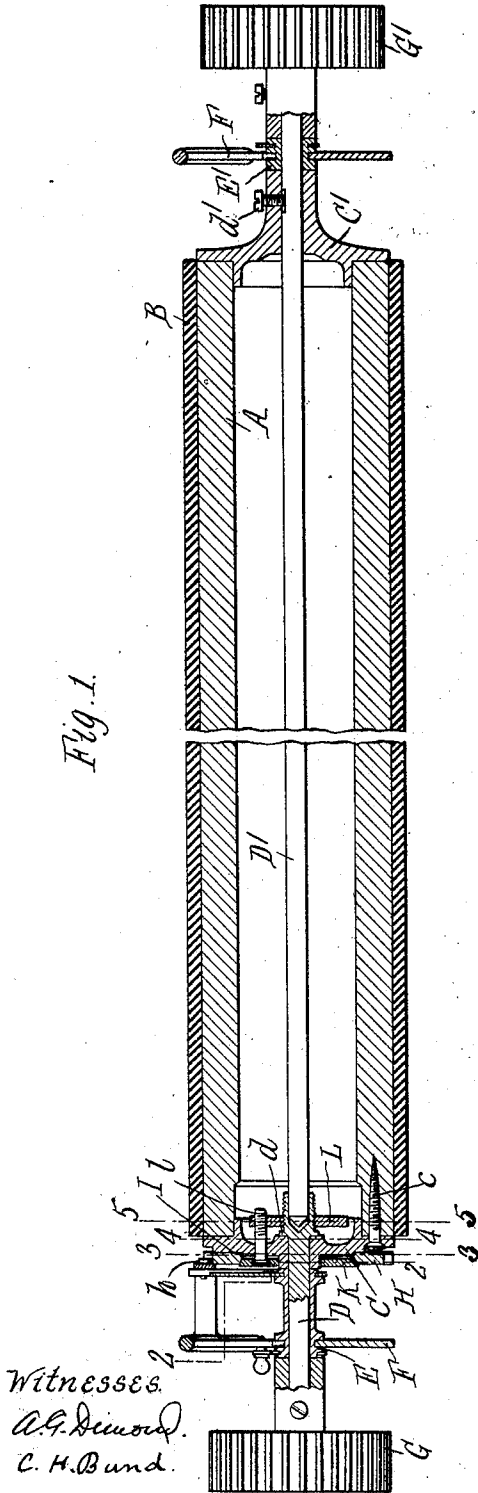


O. C. KAVLE.
FRACTIONAL LINE SPACING MECHANISM.
APPLICATION FILED SEPT. 2, 1909.

1,058,756.

Patented Apr. 15, 1913.

Fig. 1.



Witnesses.
A. G. Diamond.
C. H. Band.

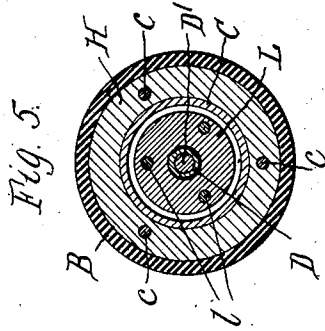


Fig. 5.

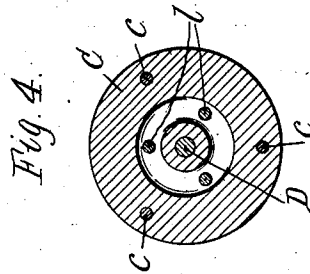


Fig. 4.

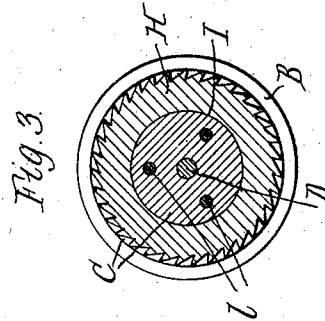


Fig. 3.

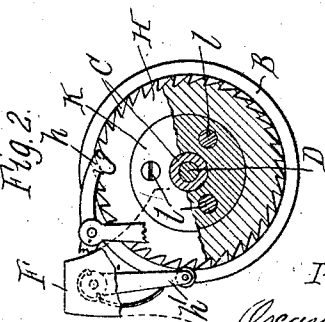


Fig. 2.

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UNITED STATES PATENT OFFICE.

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FRACTIONAL-LINE-SPACING MECHANISM.

1,058,756.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed September 2, 1909. Serial No. 515,845.

To all whom it may concern:

Be it known that I, OSCAR C. KAVLE, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Fractional-Line-Spacing Mechanisms, of which the following is a specification.

This invention relates to fractional line spacing mechanisms for typewriting and other machines having a rotatable platen, and has for one of its objects to produce efficient and practical means of simple and inexpensive construction whereby the wheel, which is operated by the line space mechanism for turning the platen to feed the paper regular line space distances, can be readily released from the platen to allow the platen to be rotatively adjusted for writing between the lines or for any other purpose, and again securely locked to the platen.

Other objects of the invention are to so construct the parts that the line space wheel, when released from the platen, will serve as a friction brake to frictionally oppose the rotation of the platen; also to accomplish the before mentioned objects without increasing the dimensions of the platen or carriage, and by means inclosed substantially wholly within the platen; also to avoid the use of the usual brake-operating lever or other projecting parts; and also to otherwise improve line spacing mechanisms as hereinafter described and set forth in the claims.

In the accompanying drawings: Figure 1 is a longitudinal sectional elevation of a portion of the carriage and the platen of a typewriting machine embodying the invention. Fig. 2 is a broken end elevation thereof partly in section in line 2-2, Fig. 1. Figs. 3, 4 and 5 are cross sections of the platen in lines 3-3, 4-4 and 5-5, respectively.

Like reference characters refer to like parts in the several figures.

The platen may be of any suitable construction, but preferably consists of the usual hollow wooden core A, rubber covering B, and end plates C and C' secured by screws c or otherwise to the opposite ends of the wooden core, and is supported by a shaft, preferably consisting of two sections D D', which extends through the platen and is

journalled in bearings E and E' on the ends 55 F of the carriage.

One section of the platen shaft, the left-hand section D in the construction shown, has an enlarged inner end with a cavity in which the inner end of the other section is 60 loosely seated, or is otherwise suitably arranged so that it is capable of being turned relative to the other shaft section. The shaft section D passes loosely through a central hole in the end plate C and is provided 65 with a fixed flange d, between which and the adjacent bearing E the platen end plate is confined from lengthwise movement on the shaft. The other shaft section passes through the other end plate C' which is se- 70 cured thereto by a set screw d' or other means.

The shaft bearings E and E' preferably consist of sleeves removably retained in any suitable manner in open seats in the ends of 75 the carriage so as to permit the shaft and platen to be readily removed from the carriage.

G and G' represent finger wheels which are suitably secured respectively to the outer 80 ends of the shaft sections D D' and bear against the bearing sleeves E and E' to prevent the shaft from shifting endwise in its bearings.

H represents a line space ratchet wheel at 85 the left-hand end of the platen and adapted to be rotated by the feed pawl h of a line spacing mechanism, which may be of ordinary construction, for turning the platen to feed the paper regular line space distances. 90 h' indicates an ordinary detent mounted on the carriage and engaging the toothed edge of the line space wheel for holding the platen in the positions to which it is turned by the line space pawl. 95

The line space wheel is adapted to be locked to the platen for turning the platen by the line space mechanism, and to be released to allow the platen to be rotatively adjusted independently of the line space 100 wheel. Preferably the wheel is rotatively mounted on an annular shoulder I on the platen end plate C and is held thereon with its inner face bearing against a flat annular face of the end plate by a holding ring or 105 cone K which is slidable axially on a central boss on the end plate and has a conical outer edge which engages a corresponding conical

face or edge surrounding the central hole of the line space wheel. Screws *l* passing through holes in the end plate C connect the cone K to a plate or nut L which is located inside of the platen and has a screw-threaded engagement with the inner end of the left-hand shaft section D. The cone K and nut L are caused to turn with the platen at all times, by the connecting screws *l* passing through the end plate, but clearances are left between the cone and the end plate and also between the nut and the flange *d* on the shaft section D so that the cone and nut can be moved axially.

By holding the right-hand finger wheel stationary and turning the left-hand wheel to partly unscrew the shaft section D from the nut L, the cone is drawn inwardly and forces the line space wheel against the end plate C so as to frictionally lock the line space wheel securely to the platen, as shown in Fig. 1, when the platen will be turned with the line space wheel by the line space mechanism. If the left-hand finger wheel is turned to screw the shaft section D partly into the nut, the friction between the line space wheel and the platen will be relieved sufficiently to permit the line space wheel to be held stationary by its detent *h'* while the platen can then be turned independently of the line space wheel by means of the right-hand finger wheel for adjusting the platen to print between the lines. If desired, the line space wheel can be relocked to the platen while the latter is held in the position to which it is thus adjusted, and the platen can then be moved regular line space distances from this new position by operating the line space mechanism in the usual manner; but if it be desired to continue fractional line spacing the line space wheel is left unlocked and the platen is turned by the right-hand finger wheel. When the platen is thus turned independently of the line space wheel the latter is pressed against the cone K by the detent *h'* and acts as a friction brake to frictionally oppose the rotation of the platen and hold it against accidental movement in the position to which it is adjusted.

The detent is never thrown out of action in the use of the machine and the usual friction brake and the lever for actuating it and throwing the detent into and out of action are not required. The described construction has the further advantage that when the platen is released from the line space wheel and again secured to it in a new relation, the type strike in new lines on the platen so that the wear is more evenly distributed over the surface of the platen and the life thereof is accordingly lengthened.

The line space wheel could be mounted in other ways to permit the rotation of the platen independently thereof, and other

means located within the platen and having an operating device extending outside of the platen could be used for locking and releasing the line space wheel.

I claim as my invention:

1. The combination with a rotatable platen, of a line space wheel mounted at one end of the platen to turn relative to the platen, a cone which is movable axially for locking the line space wheel to the platen to turn the platen, and means including a divided platen shaft located partially inside of the platen and having an external operating device arranged to rotate about the axis of the platen for operating said cone, substantially as set forth.

2. The combination with a rotatable platen, of a line space wheel loosely mounted on one end of the platen, an axially movable cone arranged at the outer side of the line space wheel, a screw device located inside of the platen for forcing said cone toward the platen to frictionally lock the line space wheel to the platen, and an external rotatable handle for operating said screw device, substantially as set forth.

3. The combination with a rotatable platen, of a line space wheel mounted at one end of the platen to turn relative to the platen, a friction device arranged at the outer side of the wheel for locking the wheel to the platen, and a screw-actuated device located inside of the platen and connected to said locking device by parts passing through the end of the platen, and a screw located in the platen and having an operating part extending out of the platen for actuating said screw-actuated device, substantially as set forth.

4. The combination with a rotatable platen, of a supporting shaft therefor composed of sections one of which is rotatable relative to the other and to the platen, a line space wheel loosely mounted at one end of the platen, a nut located in the platen and having a screw connection with said rotatable shaft section, and means actuated by said nut for frictionally locking the line space wheel to the platen, substantially as set forth.

5. The combination with a rotatable platen having an external annular shoulder at one end and a boss concentric therewith, of a line space wheel loosely mounted on said shoulder, an external locking device for said wheel movable toward and from said wheel on said boss, means located inside of the platen for forcing said locking device toward the platen to lock the line space wheel thereto, and an external operating device for said means, substantially as set forth.

6. The combination with a rotatable platen having an annular face at one end, of a line space wheel bearing at one side

against said face, a friction cone seated in a cavity in the opposite side of said line space wheel, a screw device located inside of the platen for forcing the cone into the cavity in the line space wheel to frictionally lock said wheel against said annular face of the platen, and an external operating handle for said screw device, substantially as set forth.

7. The combination with a rotatable platen, of a line space wheel mounted at one end of the platen to turn relative thereto, a sectional platen shaft comprising a section which is secured to the platen and a section which is rotatable relative to the platen and is provided inside of the platen with a screw-threaded portion, a nut mounted in the platen and engaging said threaded portion of the shaft, and a device arranged outside of the platen and connected to said nut for locking said line space wheel to the platen, substantially as set forth.

8. The combination with a rotatable

platen, of a line space wheel mounted at one end of the platen to turn relative thereto, a sectional platen shaft comprising a section which is secured to the platen and a section which is rotatable relative to the platen and is provided inside of the platen with a screw-threaded portion, finger wheels secured to the outer ends of said shaft sections, a nut mounted in the platen but engaging said threaded portion of the shaft, and a friction device arranged at the outer side of said line space wheel and connected to said nut whereby it is moved to lock said line space wheel to the platen and release the wheel by turning said rotatable shaft section, substantially as set forth.

Witness my hand, this 30th day of August, 1909.

OSCAR C. KAVLE.

Witnesses:

CHESTER U. REID,
OTTO A. SABILLY.