J. C. DOANE.

TYPE WRITING MACHINE.

APPLICATION FILED MAY 1, 1909.

928,856. Patented July 20, 1909.

FIG. 1.

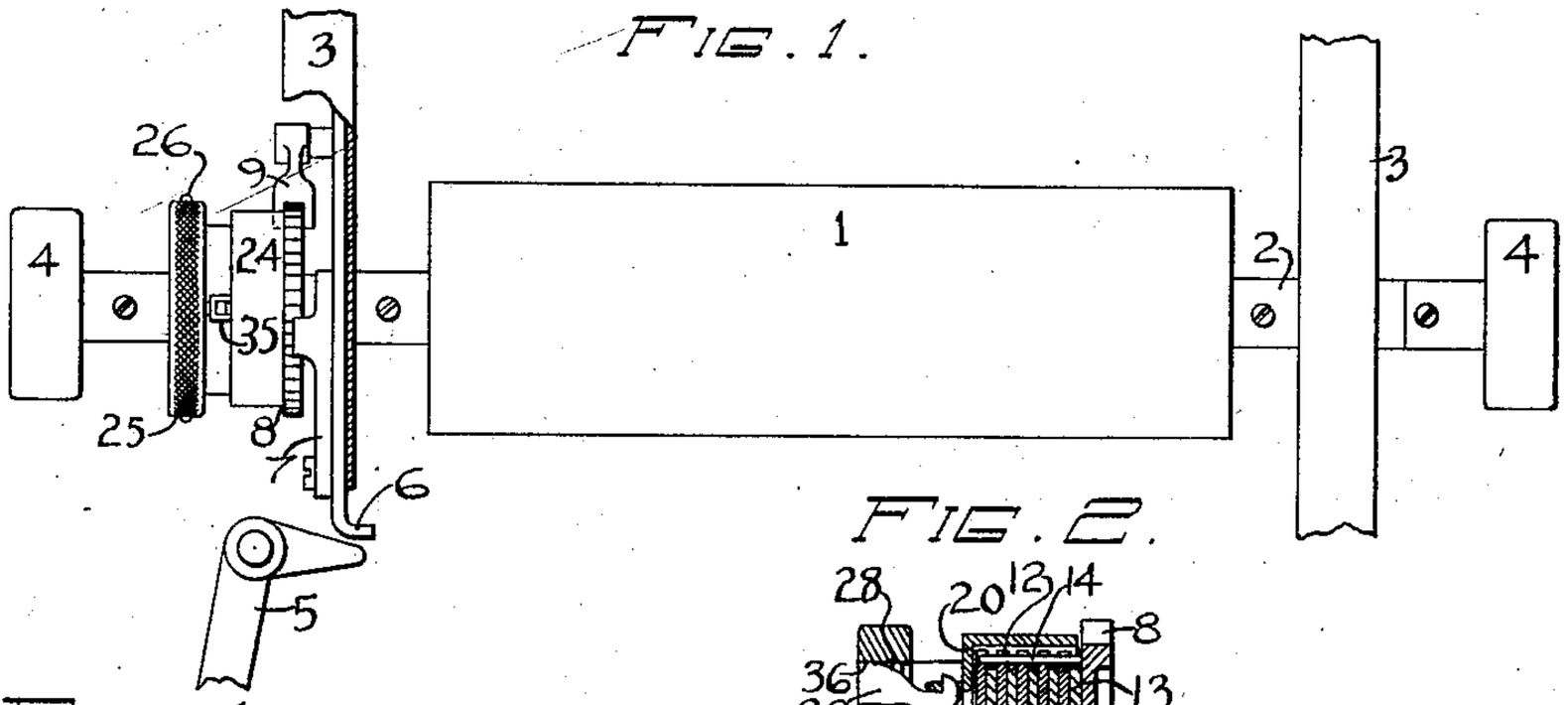


FIG. 2.

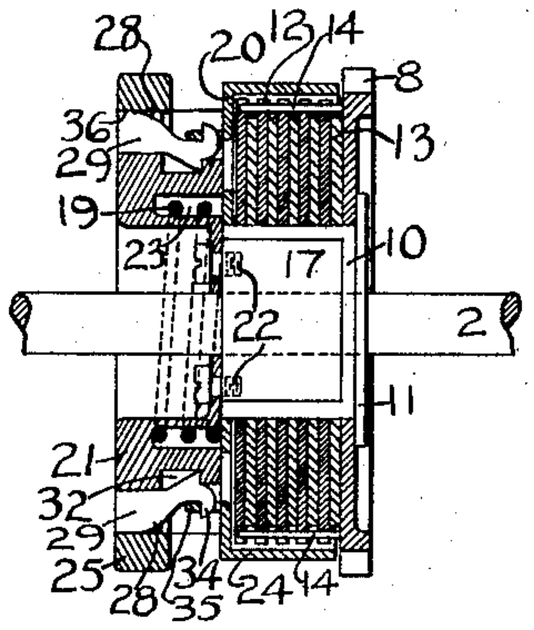


FIG. 4.

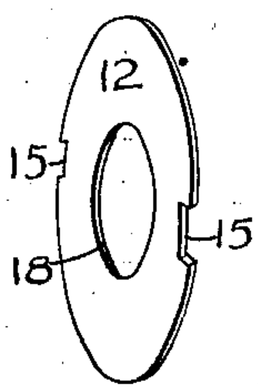


FIG. 6.

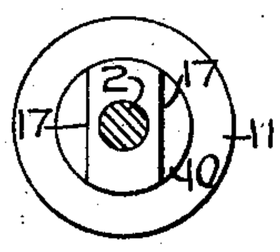


FIG. 5.

FIG. 3.

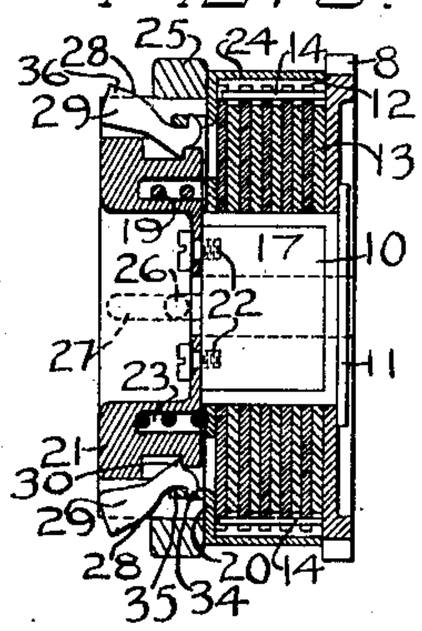
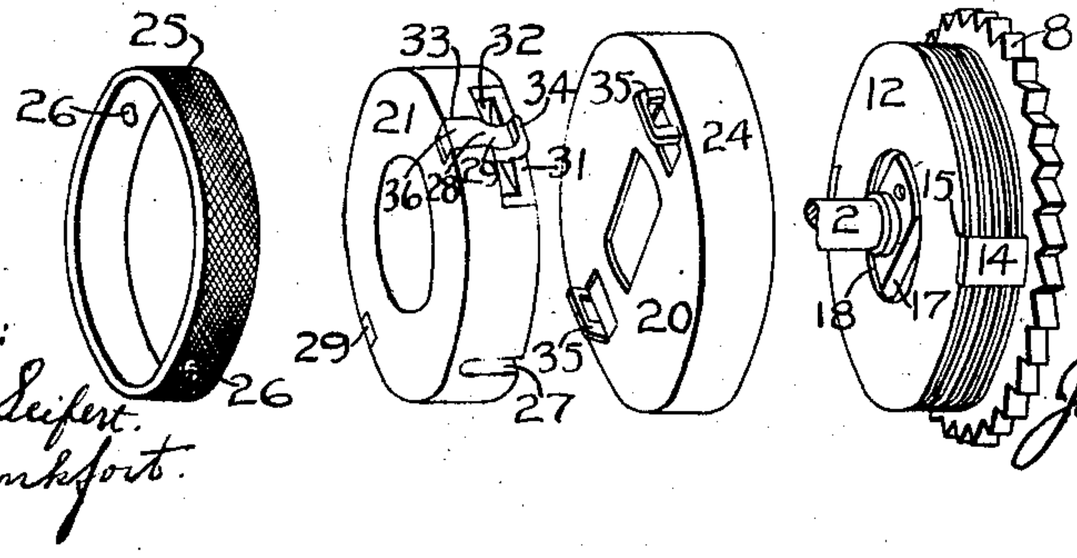


FIG. 7.



WITNESSES:

John V. Seifert.

S. L. Frankfort.

INVENTOR:

John C. Doane,

By D. C. Stickney.

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN C. DOANE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 928,856. Specification of Letters Patent. Patented July 20, 1909.

Application filed May 1, 1909. Serial No. 493,244.

To all whom it may concern:

Be it known that I, JOHN C. DOANE, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to devices for releasably connecting the platen to the line-space wheel of a type-writing machine, to permit the platen to be rotated independently of the line-space wheel.

The principal object of this invention is to provide a simple and durable device of this character readily applicable to existing machines.

In the form of the invention illustrated in the drawings, the line-space wheel is loose upon the platen axle, and a nest of friction plates or washers is employed to bind the line-space wheel to the platen. Friction plates positively connected to the platen are alternated with others that are positively connected to the line-space wheel; and when all the plates are pressed together they serve to lock to connect the line-space wheel to the platen. Pressure is normally applied to the friction plates by means of a spring. A finger-ring is slidably mounted, to operate dogs which release the pressure on the plates, to permit the platen to rotate independently of the line-space wheel. Means are provided to lock the device in the platen-released position.

In the accompanying drawings, Figure 1 is a view of the platen and platen frame of an Underwood front strike writing machine, with the present improvements applied thereto. Fig. 2 is a view partly in section and partly in outside elevation showing the improved device in the platen released position. Fig. 3 is a view similar to Fig. 2 but showing the device in the platen locked position. Figs. 4 and 5 are perspective views of the friction plates. Fig. 6 is a sectional view of the platen axle and collar. Fig. 7 shows perspective views of a finger-piece or ring, a head, a compression-plate or drum, and a set of friction plates connected to the line-space wheel to rotate therewith.

The usual cylindrical platen 1 is fixed to an axle 2, whereby it is journaled in a platen frame 3, said axle 2 having fixed upon its ends the usual hand wheels 4 for rotating the platen. The platen is rotated by the usual line-spacing mechanism, comprising a lever 5, a slide 6 and a pawl 7, the latter adapted to engage a notched line-space wheel 8, as usual. The line-space wheel is usually engaged by a detent or check spring 9. The line-space wheel is loosely mounted upon a boss or collar 10 fixed upon the platen axle 2, and abuts against a flange or shoulder 11 formed upon one end of said collar. The purpose of mounting the line-space wheel loosely upon said collar is to permit relative rotation between the platen and the line-space wheel.

Connected to the line-space wheel to turn therewith is a set of friction plates or washers 12. Connected to the platen to rotate therewith is another set of friction plates or washers 13. These friction plates are placed in alternation upon the collar or boss 10, so that when all the plates are pressed together, the line-space wheel and platen must turn together, and so that when pressure between said washers or plates is relieved, the platen may be turned while the line-space wheel remains stationary, held by the detent 9. The friction washers 12 are connected to the line-space wheel so as to turn therewith by means of lugs 14 projecting from the side of the line-space wheel parallel with the axle 2, and fitting in recesses 15 provided in opposite edges of said washers. The washers 13 are connected to the platen to rotate therewith by being formed with oblong central perforations 16 to fit closely upon the collar or boss 10, which is cut away on opposite sides to form flats or cheeks 17. The perforations 16 fit this flattened portion of the collar 10. Thus it will be seen that the washers 13 must always rotate with the collar 10, while the washers 12, which have circular perforations 18, may turn freely around said collar 10, together with the line space wheel 8. Normally all of the washers, each of which is movable along the collar 10, are packed or pressed together by a coiled compression spring 19 which is confined between a plate 20 and a head 21 secured by screws 22 to the end of the collar 10 opposite the flange 11; said spring being, for compactness, seated in an annular groove 23 formed in the face of said head. It will be understood that the spring tends constantly to press the friction washers and the line-space wheel against said flange 11. The multiplication of the friction washers multiplies the braking ac-

tion, so that a moderately strong spring is enabled to cause a powerful frictional connection between one set of washers and the other, and hence between the line-space wheel and the platen; the resistance to a relative movement between the line-space wheel and the platen being equal to that produced by friction between any two contiguous faces of the washers, multiplied by double the aggregate number of the washers in the two sets. The pressure plate 20 may be provided with a cylindrical flange 24 to form a drum to inclose the two sets of friction washers.

To release the platen from the control of the line-space wheel, a knurled ring 25 is provided, fitting loosely upon the periphery of the head 21 for a sliding movement thereon in a direction parallel with the axle 2; said ring having opposite pins 26 to project into slots 27 formed in the periphery of the head 21, to prevent displacement or removal of the ring from the head. The ring, in sliding upon said head from the position at Fig. 3 to the position at Fig. 2, engages cam edges 28 formed on a pair of dogs or levers 29, having heels 30, whereby they are fulcrumed upon steps 31 formed in recesses 32 provided in the head 21; said dogs playing in radial recesses 33. Said dogs have toes 34 to catch in eyes 35 projecting from the plate 20, so that in turning from the position at Fig. 3 to that at Fig. 2, the plate is drawn to the left against the tension of spring 19, and therefore the pressure upon the friction washers is relieved, and hence the platen may be turned freely while the line-space wheel remains stationary. The cam edges of the dogs are provided with dwell portions 36, which are engaged by the slip ring 25 at the completion of its movement to the position at Fig. 2, so that the dogs, although acted on by the spring 19, are powerless to turn, and have no tendency to slide the ring back to the position at Fig. 3; thus the ring is locked effectively in the positions shown at Figs. 1 and 2.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a platen and an axle therefor, of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the collar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap plate, and means to cause said cap plate to bind the friction plates together to connect the line-space wheel to the platen.

2. In a typewriting machine, the combination with a platen and an axle therefor of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the collar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap plate, and means to cause said cap plate to bind the friction plates together to connect the line-space wheel to the platen, said binding means comprising a spring confined between the cap plate and a head which is fixed to said collar.

3. In a typewriting machine, the combination with a platen and an axle therefor, of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the collar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap plate, means to cause said cap plate to bind the friction plates together to connect the line-space wheel to the platen, said binding means comprising a spring confined between the cap plate and a head which is fixed to said collar, and manually operable means to cause said friction drum and spring to release the clutch.

4. In a typewriting machine, the combination with a platen and an axle therefor, of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the collar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap plate, means to cause said cap plate to bind the friction plates together to connect the line-space wheel to the platen, said binding means comprising a spring confined between the cap plate and a head which is fixed to said collar, and manually operable means to cause said friction drum and spring to release the clutch, said manually operable means including a plurality of dogs or levers, fulcrumed in recesses formed in said head, and engaging eyes formed on the cap plate.

5. In a typewriting machine, the combination with a platen and an axle therefor, of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the col-

lar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap plate, means to cause said cap plate to bind the friction plates together to connect the line-space wheel to the platen, said binding means comprising a spring confined between the cap plate and a head which is fixed to said collar, manually operable means to cause said friction drum and spring to release the clutch, said manually operable means including a plurality of dogs or levers, fulcrumed in recesses formed in said head and engaging eyes formed on the cap plate, and a ring mounted on the circumference of the head to slide over cam faces on the arms of the dogs or levers to turn them on their fulcrums to pull the cap-plate and relieve the pressure on the friction plates.

6. In a typewriting machine, the combination with a platen and an axle therefor, of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the collar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap-plate, means to cause said cap-plate to bind the friction plates together to connect the line-space wheel to the platen, said binding means comprising a spring confined between the cap-plate and a head which is fixed to said collar, manually operable means to cause said friction drum and spring to release the clutch, said manually operable means including a plurality of dogs or levers, fulcrumed in recesses formed in said head and engaging eyes formed on the cap-plate, and a ring mounted on the circumference of the head to slide over cam faces on the arms of the dogs or levers to turn them on their fulcrums to pull the cap-plate and relieve the pressure on the friction plates; means being provided to detain the clutching mechanism in the released position.

7. In a typewriting machine, the combination with a platen and an axle therefor, of a line-space wheel revolubly mounted upon a collar on the platen axle and abutting against a flange formed thereon, a plurality of friction disks loosely mounted to turn on the collar and connected to the line-space wheel to revolve therewith and capable of lateral movement, friction plates alternating or nested with said friction plates and mounted on said collar against rotation, and also capable of axial movement thereon, a cap plate, means to cause said cap plate to bind the friction plates together to connect the line-space wheel to the platen, said binding means comprising a spring confined between the cap plate and a head which is fixed to said collar, manually operable means to cause said friction drum and spring to release the clutch, said manually operable means including a plurality of dogs or levers, fulcrumed in recesses formed in said head and engaging eyes formed on the cap plate, and a ring mounted on the circumference of the head to slide over cam faces on the arms of the dogs or levers to turn them on their fulcrums to pull the cap-plate and relieve the pressure on the friction plates; said ring engaging with dwell portions formed on the cam edges of the dogs, to counteract any tendency of the ring to slip off from the dogs.

8. In a typewriting machine, the combination with a platen and a line-space wheel revoluble relatively thereto, of a nest of friction washers some connected to the platen and others to the line-space wheel, and means for binding said friction washers together or releasing them at will.

9. In a typewriting machine, the combination with a platen and a line-space wheel revoluble relatively thereto, of a nest of friction washers some connected to the platen and others to the line-space wheel, and means for binding said friction washers together or releasing them at will, including a spring and a finger piece opposed thereto, one of said spring and finger-piece elements constructed to bind the washers together and the other to release the washers.

10. In a typewriting machine, the combination with a platen and a line-space wheel revoluble relatively thereto, of a nest of friction washers some connected to the platen and others to the line-space wheel, means for binding said friction washers together or releasing them at will, including a spring and a finger piece opposed thereto, one of said spring and finger-piece elements constructed to bind the washers together and the other to release the washers, and means being provided to lock said finger piece in effective position.

11. In a typewriting machine, the combination with a platen and a line-space wheel, of a nest of washers, certain of said washers having openings at their outer edges engaged by a projection upon one of the line-space wheel and platen elements, and others of said washers having central means for connecting them to the other of said elements, and releasable means for binding said washers together.

12. In a typewriting machine, the combination with a platen having an axle, of a loosely mounted line-space wheel, a boss or collar fixed on said axle, a nest of washers also mounted on said collar, certain of said washers connected to the line-space wheel

and loose on the collar, and others of said washers alternating with said loose washers and keyed or splined to the collar to rotate with the platen, and the releasable means to bind said washers together.

13. In a typewriting machine, the combination with a platen having an axle, of a loosely mounted line-space wheel, a boss or collar fixed on said axle, a nest of washers also mounted on said collar, certain of said washers connected to the line-space wheel and loose on the collar, and others of said washers alternating with said loose washers and keyed or splined to the collar, to rotate with the platen, a spring to bind said washers together, a cap-plate intervening between said spring and said washers, a head having a bearing for said spring, and a lever or dog upon said head to act upon said cap-plate to relieve the pressure upon the washers.

14. In a typewriting machine, the combination with a platen having an axle, of a loosely mounted line-space wheel, a boss or collar fixed on said axle, a nest of washers also mounted on said collar, certain of said washers connected to the line-space wheel and loose on the collar, and others of said washers alternating with said loose washers and keyed or splined to the collar to rotate with the platen, a spring to bind said washers together, a cap-plate intervening between said spring and said washers, a head having a bearing for said spring, a lever or dog upon said head to act upon said cap-plate to relieve the pressure upon the washers, and a ring or finger-piece movable upon said head to control said lever or dog.

JOHN C. DOANE.

Witnesses:
W. M. DYORKMAN,
LYMAN D. BOUGHTON.