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R. W. UHLIG.

INKING MECHANISM FOR TYPE-WRITING MACHINES.

APPLICATION FILED NOV. 21, 1900. RENEWED DEC. 30, 1902.

NO MODEL.

FIG. 1.

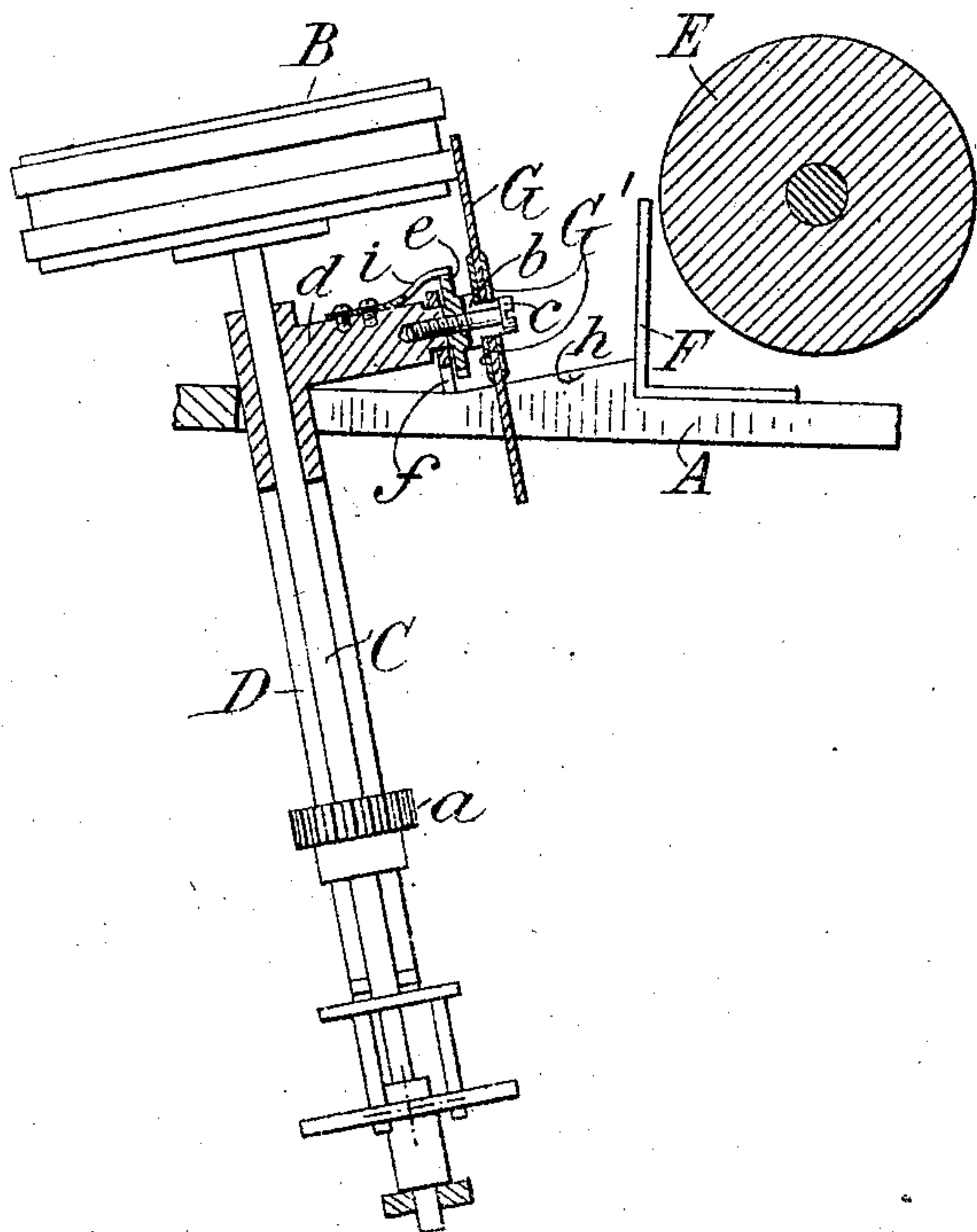


FIG. 2.

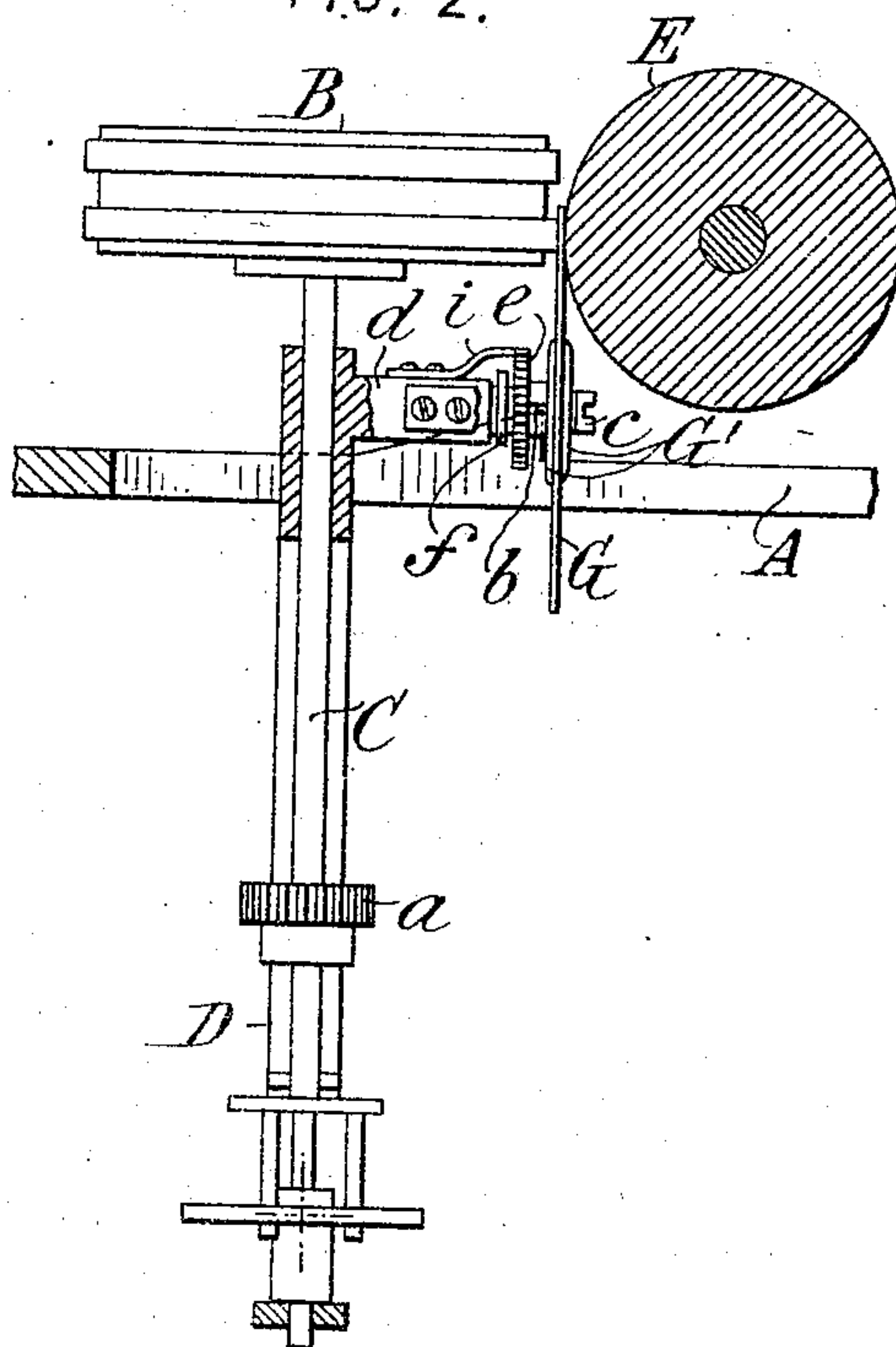


FIG. 3.

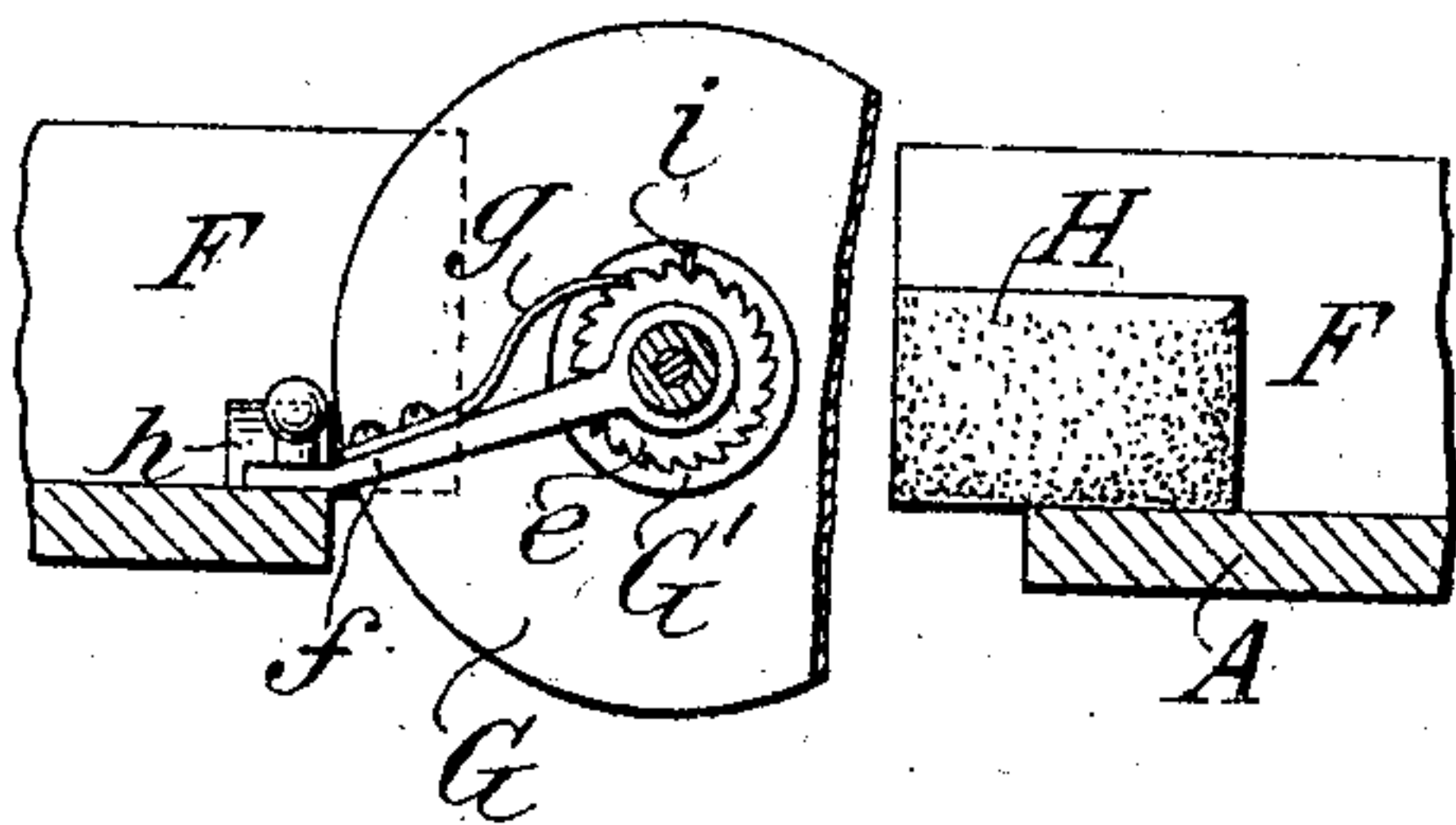


FIG. 4.

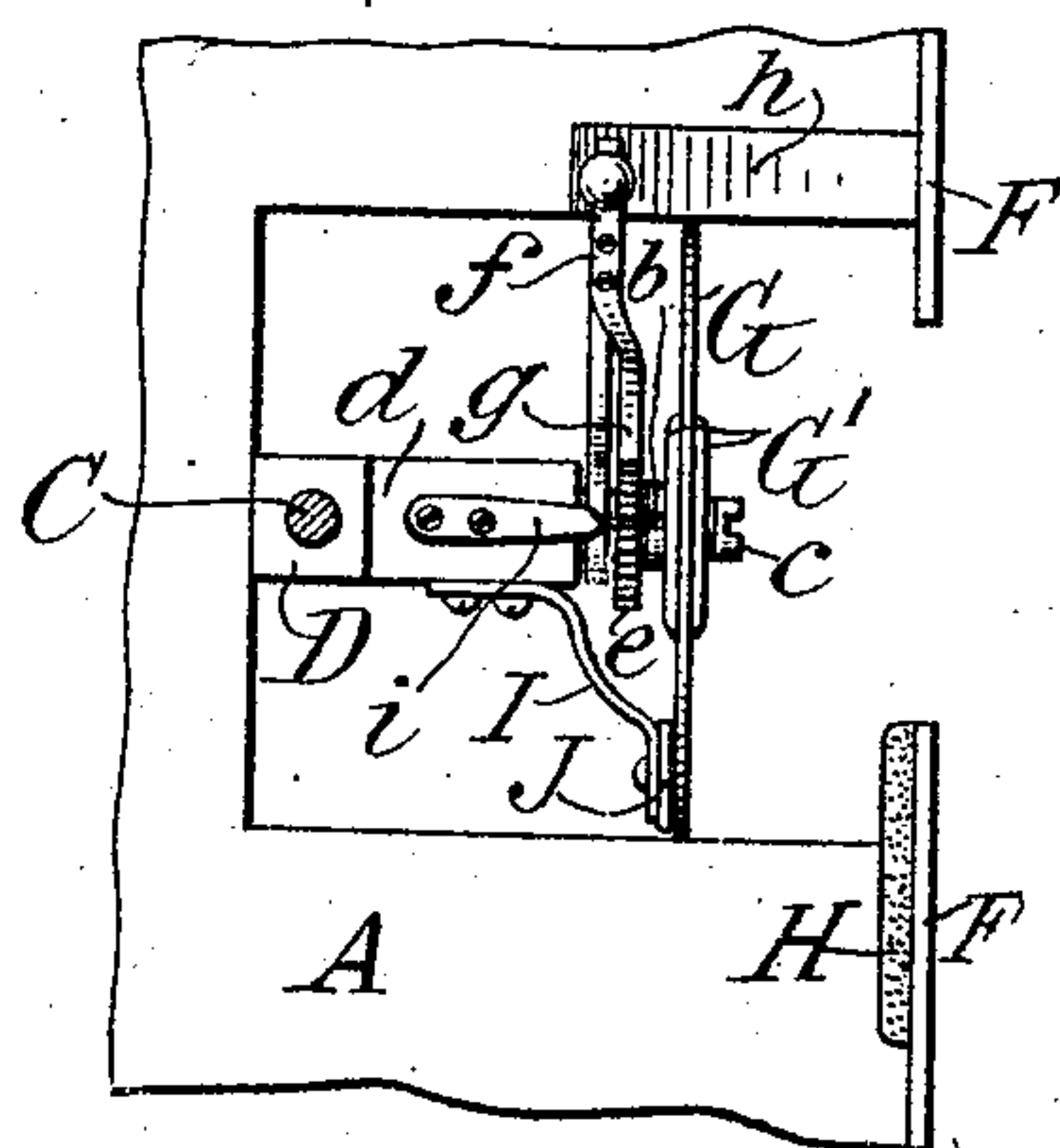
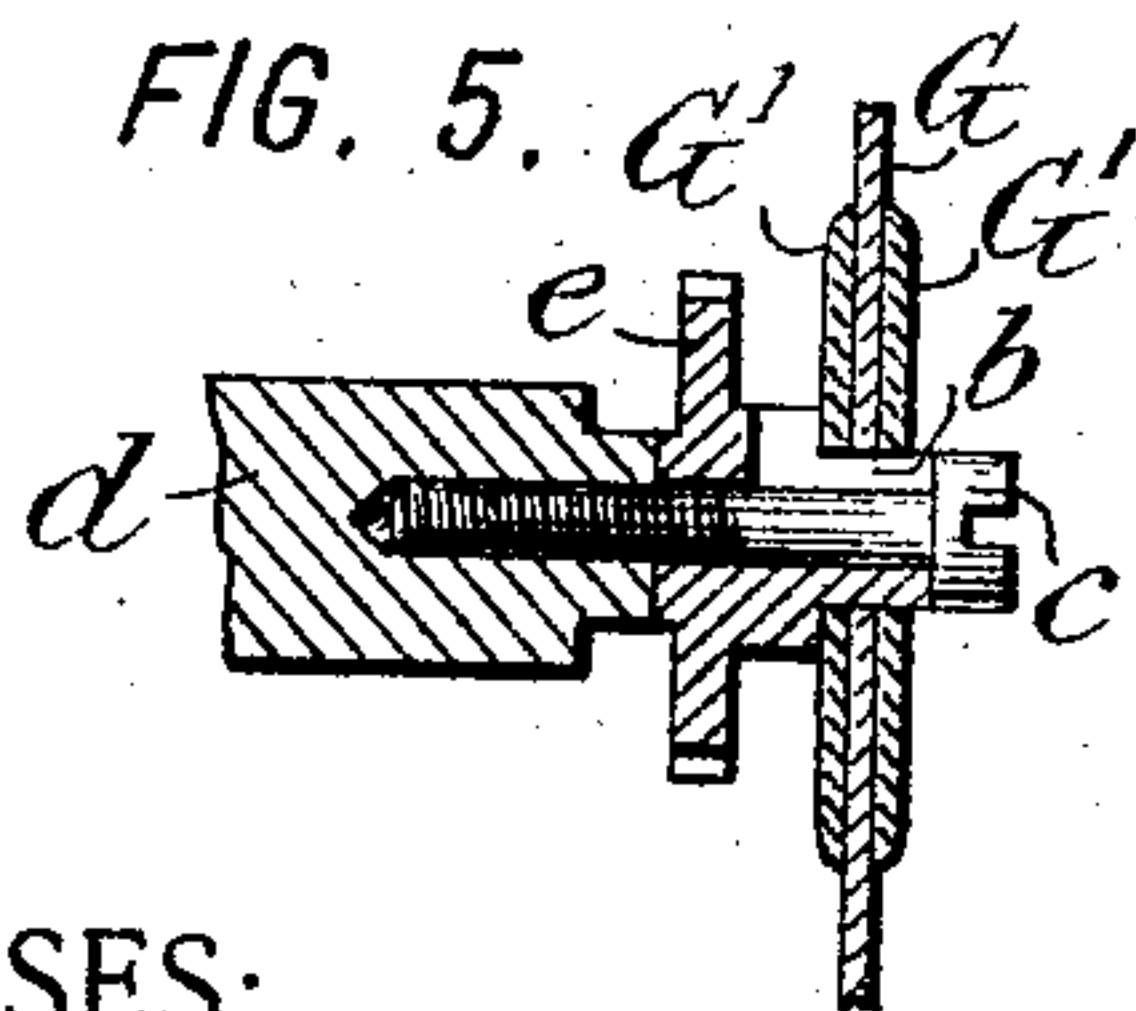


FIG. 5.



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# UNITED STATES PATENT OFFICE.

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## INKING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 726,230, dated April 21, 1903.

Original application filed March 29, 1900, Serial No. 10,614. Divided and this application filed November 21, 1900. Renewed December 30, 1902. Serial No. 137,208. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD W. UHLIG, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Inking Mechanism for Type-Writing Machines, of which the following is a specification.

This application is a division of my application, Serial No. 10,614, filed March 29, 1900, for improvements in type-writing machines.

This invention relates to inking mechanisms for type-writing machines, and aims to provide certain improvements therein.

My invention is especially applicable to that class of inking mechanisms in which a flexible disk is interposed between the platen and the types at the printing-point.

In the preferred form of my invention I provide a flexible member interposed between the paper and type at the printing-point, which member is preferably, although not essentially, initially charged with ink. I provide means for inking this flexible member intermittently or at stated intervals, preferably upon each movement of a type to the printing-point. The inking of the ribbon may, however, be continuously effected, if desired. In the construction shown the ribbon is mounted upon the type-wheel frame of a type-writing machine in which a rotating type-wheel is employed, and means are provided for rotating the ribbon at each forward movement of the frame to a sufficient extent to interpose a fresh surface between the type-wheel and paper. An inking-pad or other suitable device is preferably fixed to a stationary part of the type-writer frame in the path of movement of a portion of the ribbon, so that at each movement of the type-wheel frame the ribbon is brought into contact with the inking-pad and is thereby recharged with ink. Suitable means are preferably provided for pressing the ribbon against the ink-pad at each movement of the frame. I also prefer to provide means whereby the ribbon may be relieved of any excess or surplus of ink which may be taken up by it, so that it may not become overcharged, and thus blur the impression.

In the accompanying drawings, in which I have illustrated my invention as applied to a type-writing machine of the type-wheel class, Figure 1 is a sectional side elevation of so much of a type-writing machine as is necessary to illustrate my invention, the flexible ribbon or disk and its mounting means being shown in vertical section. Fig. 2 is a sectional side elevation showing the type-wheel in the act of printing. Fig. 3 is a rear elevation, partly in section, of the ribbon and its mounting means. Fig. 4 is a plan, and Fig. 5 is a detail section of the clamp for the ribbon.

Referring to the drawings, let A indicate the top plate of a type-writing machine; B, the type-wheel; C, its shaft; D, its swinging or tilting frame carrying the shaft C; E, the platen; F, a stationary scale-plate, and G, the flexible disk or ribbon. The type-wheel B may be of any suitable construction and is shown as mounted upon the shaft C, which is adapted to be rotated through a suitable pinion *a* by any mechanism capable of bringing the appropriate type to the printing-point upon depression of the corresponding key of the machine. The scale-plate F is fixed to the top plate A and is formed in two parts, as shown in Figs. 3 and 4, to permit the type-wheel to strike the platen.

As shown, the ribbon G is of circular form and is interposed between the type-wheel and platen and moves with the former during the printing movement of the swinging frame D, although this is not essential. It is preferable, however, in that after each printing movement the ribbon is retracted with the frame, so that it does not obscure the character last printed, and in that it permits the use of simple mechanism for continuously inking the ribbon. As shown, the ribbon G is reinforced at its center by a circular reinforce G', of metal or other suitable material, both the reinforce and the ribbon being formed with a central perforation which is adapted to spring over a catch *b*, which is shown as a split tube held by a suitable screw or pin *c* upon a forwardly-projecting arm *d*, formed at the upper end of the swinging frame D. The catch *b* engages the walls of the central perforations of the ribbon and re-



inforce, as shown. The ribbon G is preferably rotated to a sufficient extent at each printing movement of the type-wheel to present a fresh surface to the next character to be printed. I have shown a simple device for accomplishing this result, which comprises a ratchet *e*, fixed to the catch *b* at the rear, a lever-arm *f*, pivoted upon the arm *d* of the frame D, and a spring-pawl *g*, carried by the arm *f* and adapted upon the upward movement of the latter to engage the teeth of the ratchet *e* and rotate the latter and the ribbon G to the desired extent, as best seen in Fig. 3. The movements of the lever-arm *f* may be given by any suitable means; but, as shown, the top plate A of the type-writing machine is formed adjacent to the frame D with a rise or cam *h*, along which the end of the lever *f* is moved during the forward movement of the swinging frame D. The lever-arm *f* may be weighted, as shown, so as to insure its prompt descent when the swinging frame D is retracted, the ribbon G being prevented from accidental rotation in a backward direction during this movement by a spring-detent *i*.

In the construction shown the ribbon is rotated during the forward swinging of the type-wheel frame. It is obvious that the same result may be accomplished by reversing the direction of the cam *h*, thus causing the ribbon to rotate during the backward movements of the type-wheel frame. This latter construction will avoid any possibility of rotation of the ribbon during contact of the type-wheel with the paper.

The ribbon is conveniently inked at each movement of the type-wheel frame D and preferably during its forward movement. To effect this, I provide an inking-pad H, which may be fixed to some part of the frame of the type-writing machine (as shown the scale-plate F) in the path of movement of the ribbon G during the forward swinging of the frame D. During this movement a portion of the ribbon is pressed against the inking-pad by a plate I, fixed to the arm *d* of the frame D, as shown in Figs. 3 and 4. This plate I may be a spring-plate, if desired. It is obvious, however, that the ribbon may be rotated and inked in other suitable ways. The inking-pad or other device H may be of any desired capacity and may be charged at such times as is found necessary.

In the construction shown it is possible that the inking-pad H may be inadvertently so overcharged with ink that the capacity of the ribbon will be exceeded and blurring of the printing result. I hence prefer to provide means whereby such a possible excess may be taken up, and in the present construction this is accomplished by mounting a pad J upon the plate I between this plate and the ribbon. This pad should be so proportioned that it is capable of absorbing from the ribbon any undesirable excess of ink. As the ink

is consumed in use that absorbed by the pad J may be then utilized for inking the ribbon. Obviously the pad J might constitute the sole means for charging the ribbon; but I prefer to use this pad in the manner and for the purposes just described.

While I have described my invention as applied to a machine of the type-wheel class, yet I do not wish to be limited to this use, as the invention is of course applicable to other type-writing machines—such, for instance, as type-lever machines; neither do I wish to be limited to the precise features of construction described herein, as these are capable of considerable modification without departing from the spirit of my invention.

I claim as my invention the following-defined novel features, substantially as hereinbefore specified, namely:

1. In a type-writing machine, the combination with a type-carrier, of a ribbon of substantially disk form, and means adapted to be operated by said type-carrier for rotating said ribbon continuously in one direction.
2. In a type-writing machine, the combination with a printing mechanism, of a ribbon of substantially disk form having at its central portion a fixed reinforce so formed as to maintain the edges of said ribbon in substantially flat condition, means for engaging said reinforce, to hold said ribbon, and means for rotating said ribbon.
3. In a type-writing machine, the combination of a ribbon having an aperture therein, of a spring-clamp passing through said aperture and pressing outwardly against its edges, for holding said ribbon in position.
4. In a type-writing machine the combination of a ribbon having a reinforce fixed at its middle so formed as to maintain the edges of said ribbon in substantially flat condition, and an aperture therein, of a clamp passing through said aperture and engaging said reinforce for holding said ribbon in position, and means for rotating said clamp.
5. In a type-writing machine, the combination of a rotative ribbon, and means for holding said ribbon in position, of means for rotating said ribbon, comprising a ratchet-wheel connected to said holding means and a pawl for moving said wheel.
6. In a type-writing machine, the combination of a rotative ribbon, and means for holding said ribbon in position, of means for rotating said ribbon, comprising a ratchet, a lever operating said ratchet and a cam for moving said lever.
7. In a type-writing machine, the combination of a ribbon having a reinforced central portion and an aperture therein, of a clamp passing through said aperture for holding said ribbon in position, and means for rotating said clamp, comprising a ratchet, a lever operating said ratchet and a cam for moving said lever.
8. In a type-writing machine, the combina-



tion with a flexible ribbon, and a stationary inking-pad, of means for transferring the ink from said pad to said ribbon.

5 9. In a type-writing machine, the combination with a ribbon, and an ink-holding device, of means for transferring the ink from said device to said ribbon, and means for relieving said ribbon of any excess of ink.

10 10. In a type-writing machine, the combination with a ribbon, and an ink-holding device, of means for transferring the ink from said device to said ribbon, and a pad for absorbing the excess of ink from said ribbon.

15 11. In a type-writing machine, the combination with a printing mechanism, of an inking-pad, a ribbon through which said printing mechanism acts to make the impression adapted to make contact with said inking-pad, and said printing mechanism and means  
20 intermittently pressing said ribbon against said pad.

12. In a type-writing machine, the combination with the platen and printing mechanism, and an inking-pad, of a flexible rotating  
25 disk making contact with said inking-pad, and rotating between said printing mechanism and the platen and independent means for rotating said ribbon.

13. In a type-writing machine, the combination with an inking-pad, a type-wheel and a swinging frame for said type-wheel, of a disk moved by said frame into contact with  
30 said inking-pad, and means for rotating said disk to present its inked surface to the type-wheel.  
35

14. In a type-writing machine, the combination of a type-wheel, a swinging frame carrying said wheel, a flexible disk rotated in front of said wheel, an inking-pad located in  
40 proximity to said wheel and a presser carried by said frame for pressing said disk into contact with said inking-pad.

15. In a type-writing machine, a type-wheel, a swinging frame carrying said type-wheel, a disk rotatively mounted on said  
45 frame, an inking-pad in the path of movement of said disk, and means for rotating said disk, whereby said disk is continuously inked from said pad, and continuously presents a freshly-inked surface to the type  
50 wheel.

16. In a type-writing machine, a platen, a type-wheel, a swinging frame carrying said wheel, a flexible disk carried by said frame between said wheel and the platen, and swing-  
55 ing with said wheel, an inking-pad located in the path of the swinging movement of said disk, a presser carried by the frame, and adapted to press a portion of said disk against said pad at each swinging movement of the  
60 frame, and means for rotating said disk to successively ink a fresh surface.

17. In a type-writing machine, the combination of a top plate, a type-wheel, a ribbon located in front of said type-wheel, and means  
65 for moving the type-wheel to printing position, of a scale-plate fixed to said top plate, and carrying an inking-pad in such position as to contact with said ribbon when the wheel is moved to printing position.  
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18. In a type-writing machine, the combination with a printing mechanism, and a ribbon-feed, of a top plate having a cam projection formed integrally therewith, and actuating said ribbon-feed upon the movement of  
75 said printing mechanism.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

RICHARD W. UHLIG

Witnesses:

EUGENE V. MEYERS,  
FRED WHITE.