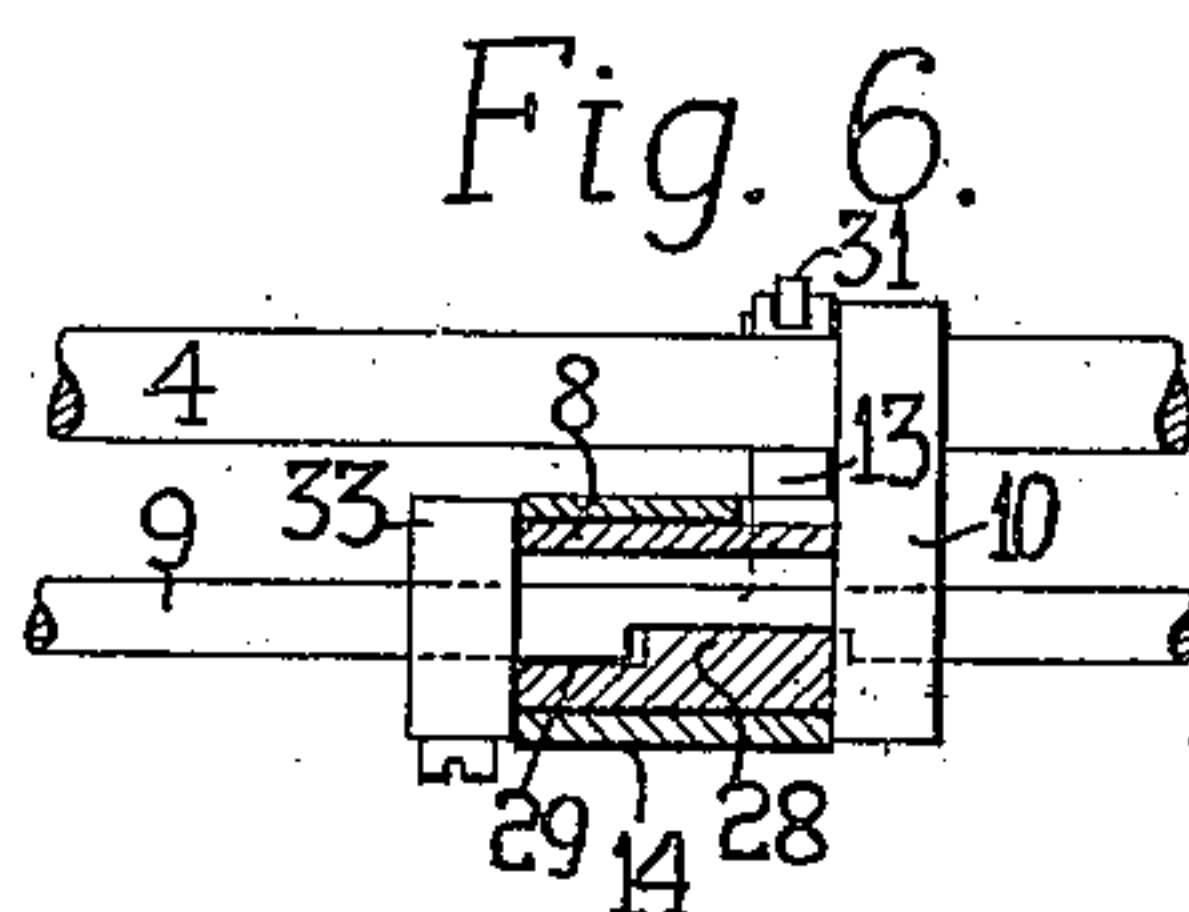
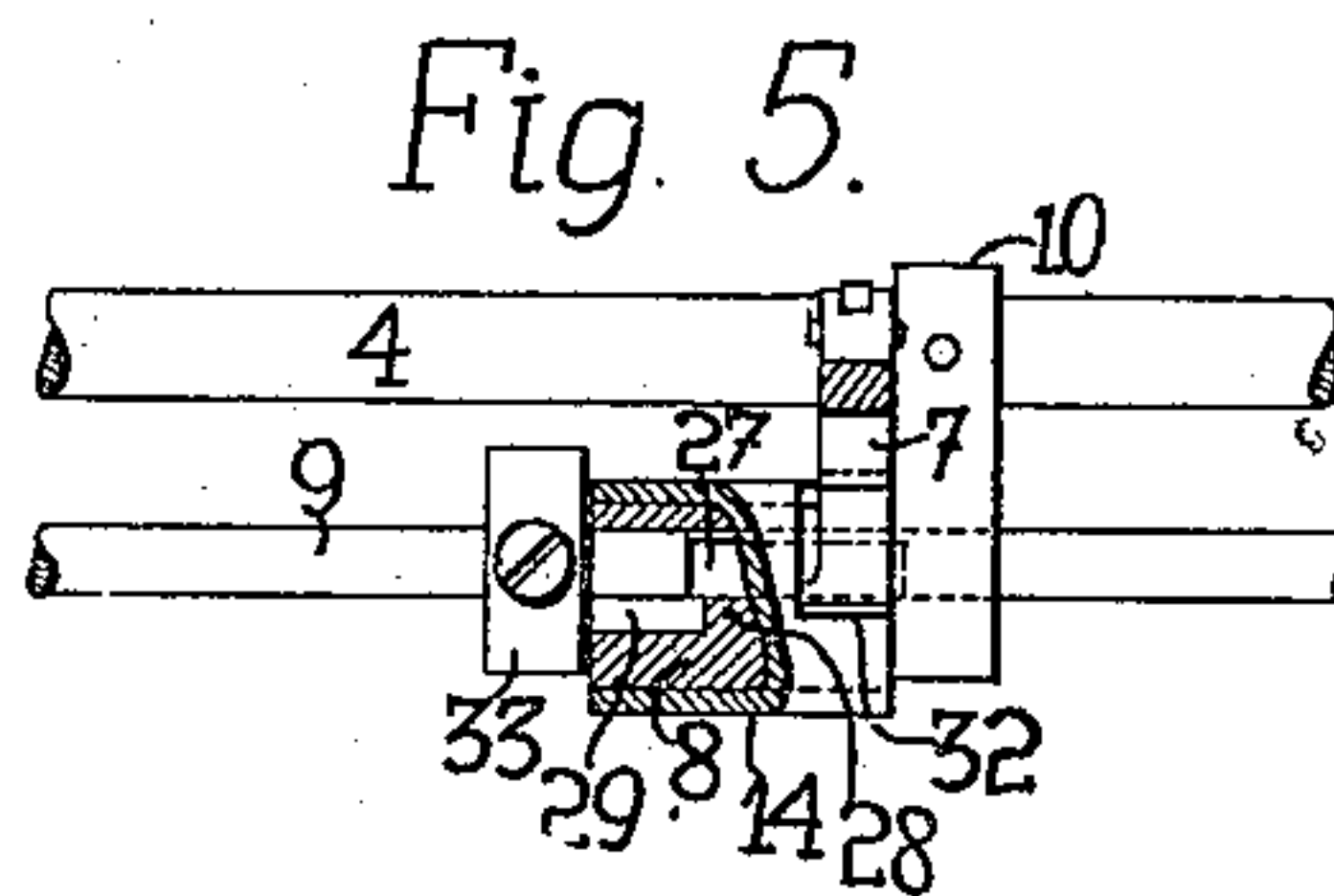
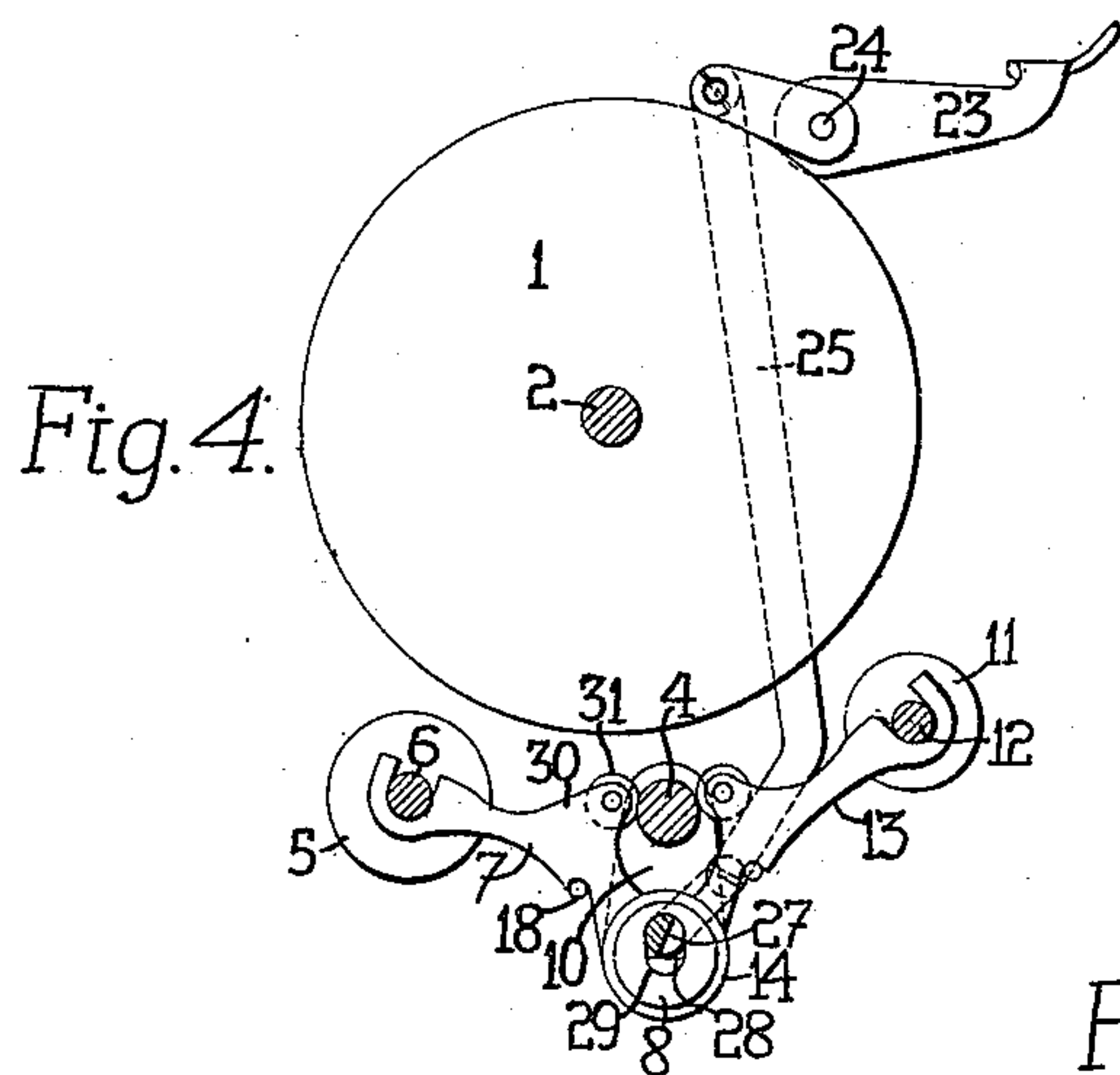
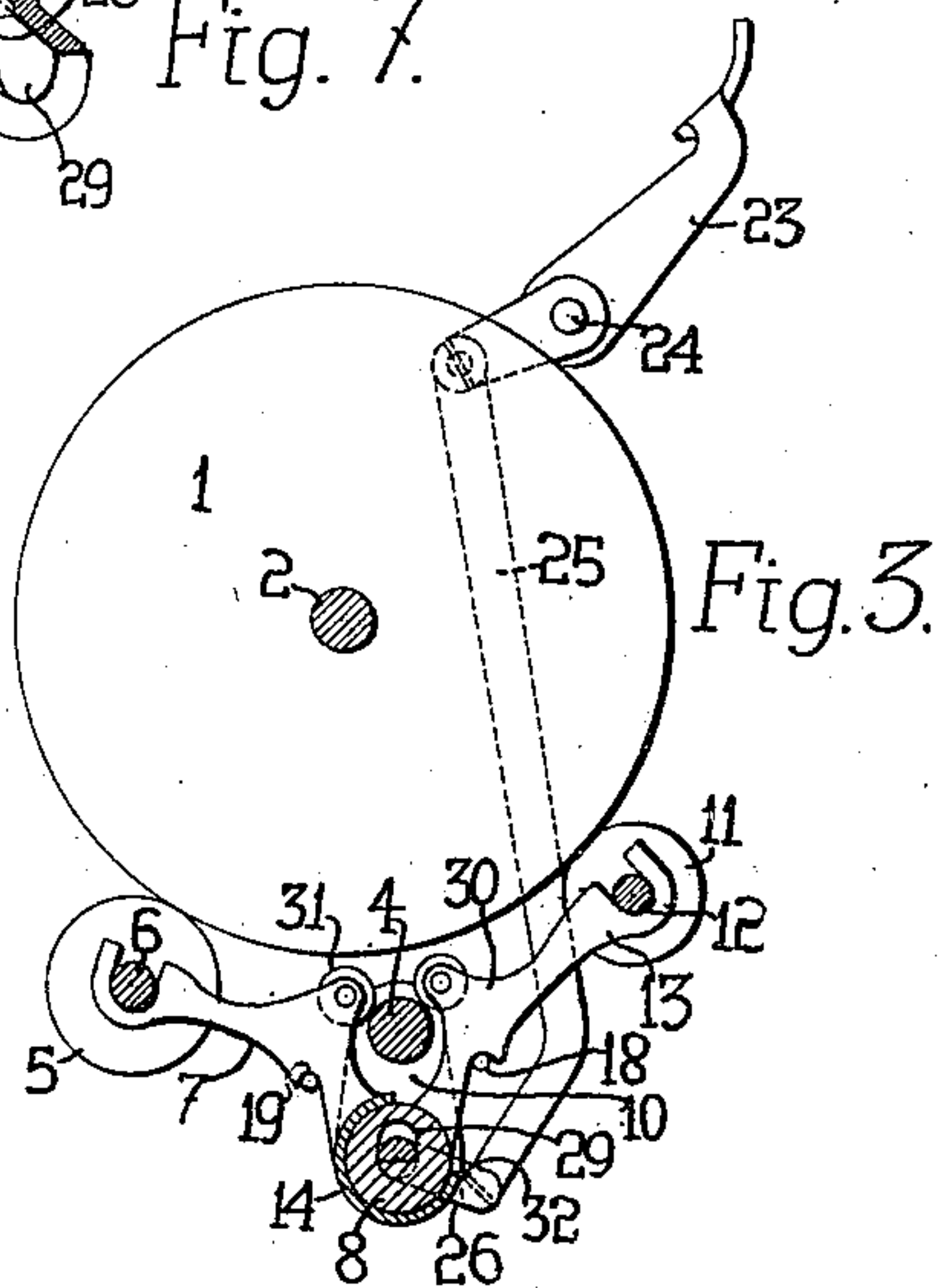
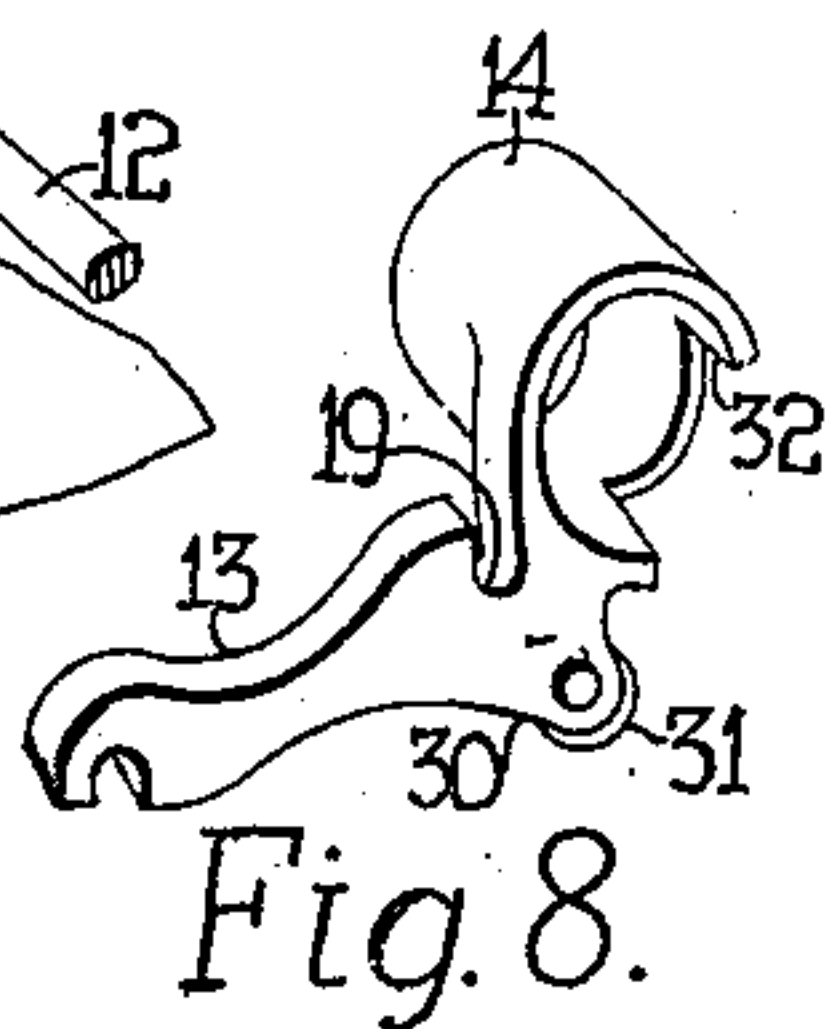
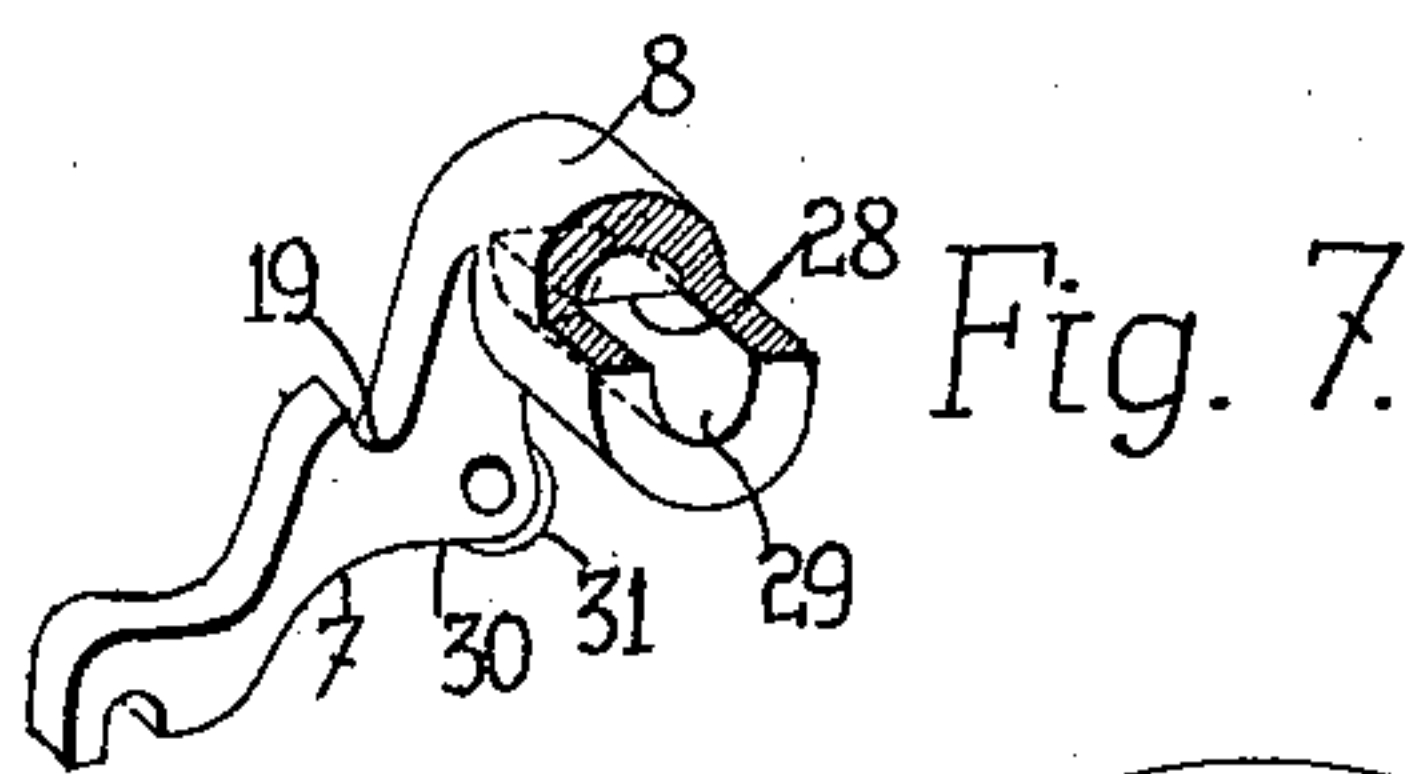
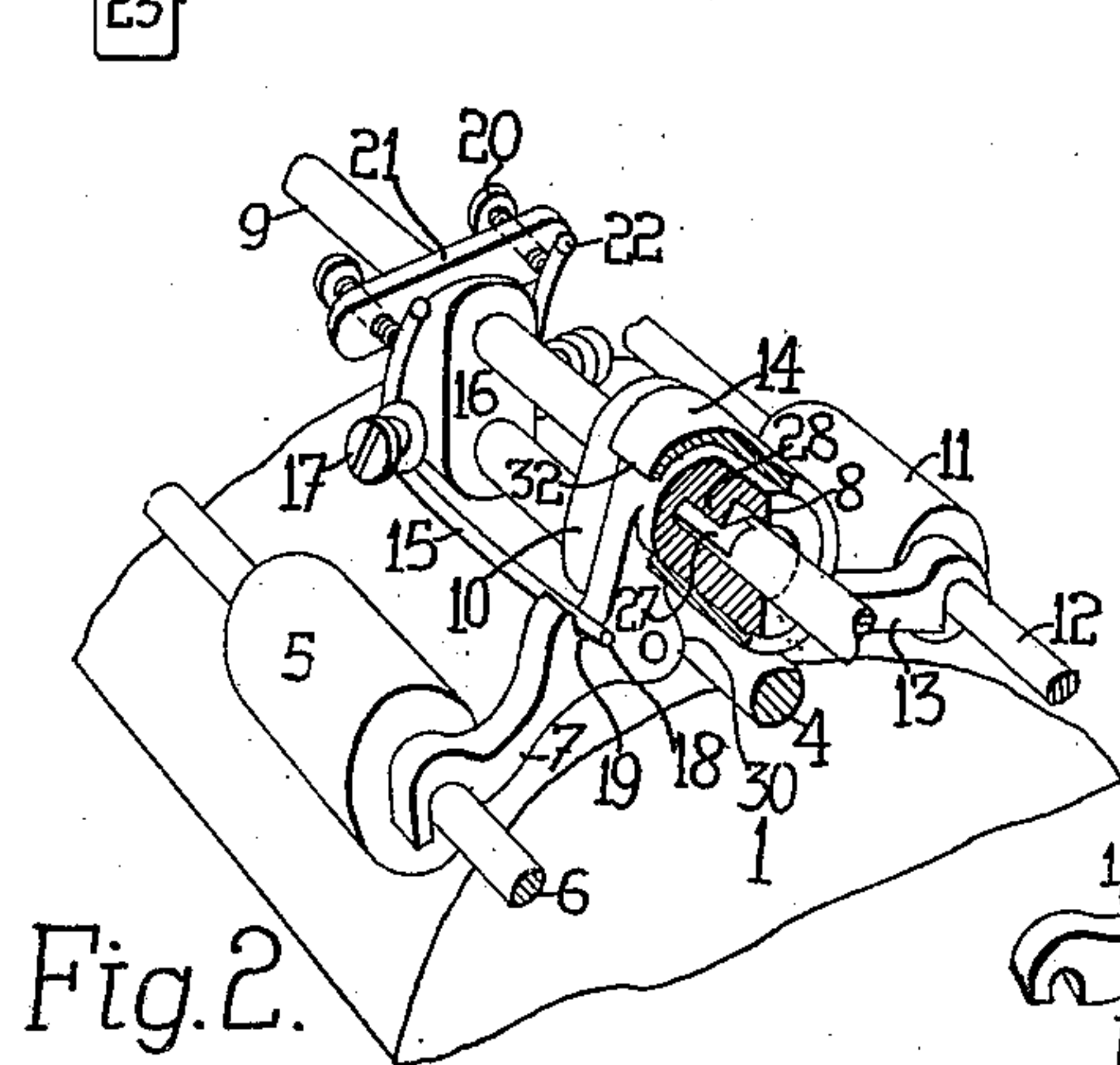
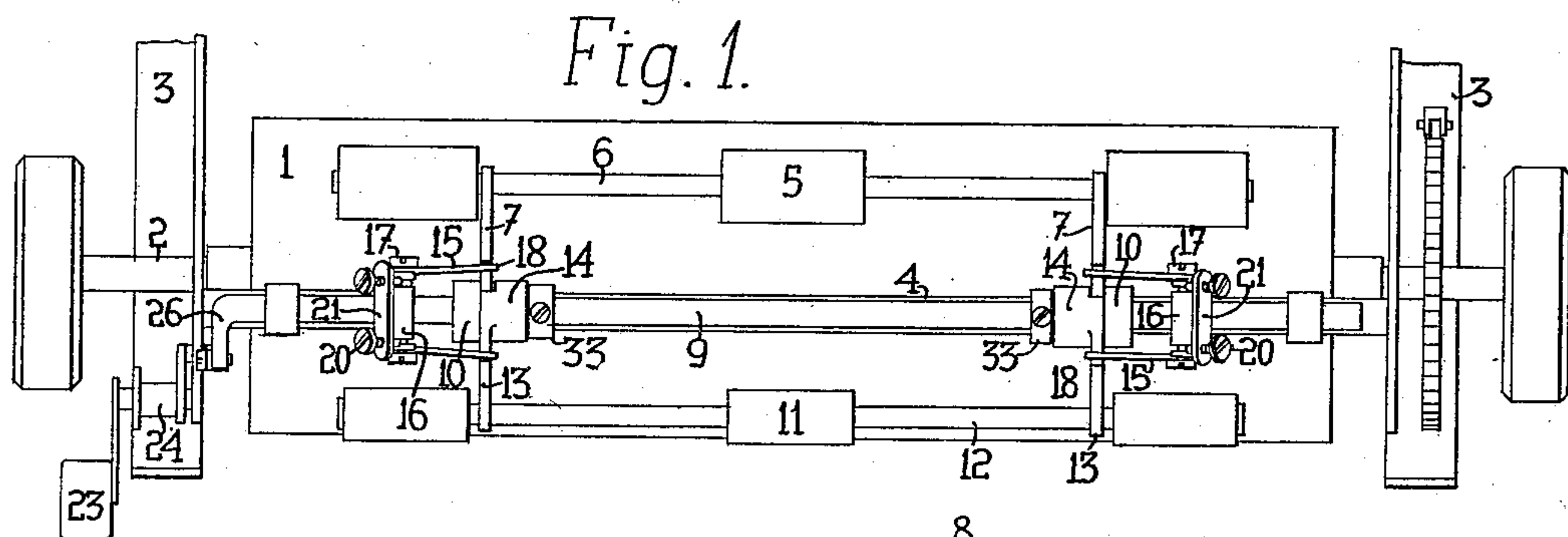


B. P. FORTIN.
TYPE WRITING MACHINE,
APPLICATION FILED FEB. 16, 1910.

975,610.

Patented Nov. 15, 1910.



Witnesses.
Lyman Schiff
John A. Remme

Inventor.
Benjamin P. Fortin
By D. B. Stickney
Attorney.

UNITED STATES PATENT OFFICE.

BENJAMIN P. FORTIN, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

975,610.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed February 16, 1910. Serial No. 544,152.

To all whom it may concern:

Be it known that I, BENJAMIN P. FORTIN, 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 the pressure-roll mechanism which coöperates with the platens of typewriting machines to feed the paper, and particularly to means for casting the rolls off from the platen.

The object of the invention is to produce at low cost a compact mechanism of this character, simple in construction and operation, readily applied to existing machines, and not liable to get out of order.

According to the present improvements, the pressure-roll arms are mounted upon a shaft, upon which they may turn independently, to permit the rolls to yield when paper is being fed around the platen; while at any time, the shaft itself may be operated or rocked to withdraw all the pressure rolls from the platen. Certain of the hubs of said roll-carrying arms are provided with elliptical or elongated bores, whereby they are mounted upon said rock shaft, the shape of the bore permitting the upward and downward movement of the hub. Preferably within the bore is a cam, which is engaged by a cam upon the rock shaft, to enable the rotation of the latter to force the hub downwardly. Said roll-carrying arms are so guided that when their hubs move downwardly, the arms and the pressure rolls also move downwardly. Other pressure-roll arms have hubs which are loosely mounted upon the hubs just referred to, so that the rocking of the shaft carries down all the hubs, arms and rolls bodily.

The entire structure is very compact, and is especially adapted to the machines to which it is herein shown as applied.

Other objects and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a plan view of the invention applied to a platen frame of the Underwood type. Fig. 2 is an enlarged perspective detail view, parts being broken away to better disclose the construction. Fig. 3 is a cross sectional view showing the parts in normal position. Fig. 4 is a similar view showing the rolls

cast off from the platen. Figs. 5 and 6 are detail views, partially broken away, showing the operating cams in their two positions. Fig. 7 is a perspective detail view of one of the roll-supporting arms partially broken away to show the cam surface in the hub. Fig. 8 is a perspective view of the co-operating roll-supporting arm.

A platen 1 has an axle 2 by which it is journaled in the ends 3 of the platen frame. Said ends are connected by a tie rod 4.

The sheets are gripped between the platen and a series of rear feed rolls 5 mounted on a shaft 6 carried in arms 7. Said arms are formed with hubs 8, whereby they are mounted loosely on a shaft 9 beneath the tie rod, the shaft 9 being carried in hangers 10 depending from the tie rod.

Forward feed rolls 11 are mounted on a shaft 12 carried in arms 13, the latter having shell-like hubs 14 swiveled upon the cylindrical hubs 8, to turn independently thereof. Set collars 33 on the rock shaft 9 coöperate with the hangers 10 to prevent displacement of the hubs 8, 14. The roll-carrying arms 7, 13 are permitted independent rocking movement by cutting away the hollow hubs 14, as at 32, to accommodate the arms 7.

Springs 15, which press the rolls against the platen, are mounted on collars 16 having headed studs 17 around which the springs 15 are coiled, the free ends 18 of the springs catching in notches 19 (Fig. 2) in the several roll-carrying arms 7 and 13. Pressure of the springs is regulated by screws 20 adjustable in stationary ears 21, to engage the lower ends 22 (Fig. 2) of the springs 15. By turning any screw 20, the tension of its spring is increased or reduced independently of all the others, the regulating screws being placed near the ends of the platen frame for accessibility.

By depressing a key 23, pivoted at 24 to the platen frame, the feed rolls are dropped or released from the platen. Said key is connected by a link 25 to a crank 26 on the end of the shaft 9, which is journaled for a rocking motion. Those portions of the rock shaft 9 inclosed within the hubs 8 are each formed with a flat or cam 27, normally squarely engaged by a cam face 28 formed in and occupying a part of the elliptical or oblong bores 29 of said hubs. When the cams are face to face, the feed rolls are engaged with the platen. The turning of the

rock shaft 9, by the key 23, causes the cam 27 to push down against the cam face 28, to force the hub 8 downwardly, such movement being permitted by reason of the elliptical form of the bore, through which the rock shaft 9 passes, and arms 13, whose hubs 14 are mounted on the hubs 8, move downwardly therewith; such dropping movement of the hubs and arms operating to withdraw the feed rolls 5 and 11 from the platen.

The presence of the cams within the hub 8, does not interfere with the downward swinging of the arm 7, when a quantity of sheets is run through the machine.

Intermediate its ends, each roll-carrying arm is provided with a part 30, having a roll or bearer to engage the sides of the tie rod 4, when the key 23 is depressed, to guide the arm and roll in their bodily downward movement. It will be observed that the feed rolls 5, 11 move directly down from the platen, which is a desideratum in the Underwood writing machine and others where space is limited.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a platen, of a feed roll device including front and rear feed rolls, arms having hinges and rocking independently of each other and supporting the rolls, springs for pressing the rolls toward the platen, casting off and restoring mechanism engaging the arms at their hinges to drop the rolls from the platen, and means to prevent the arms from swinging toward each other.

2. In a typewriting machine, the combination with a platen, of a feed roll device including forward and rear feed rolls, hinged arms supporting the rolls, springs for pressing the rolls toward the platen, mechanism to drop the arms to release the rolls from the platen, means to maintain the arms apart as they are dropped and restored, including antifriction rollers on the arms and guides on which the rollers run.

3. In a typewriting machine, the combination with a platen frame having a tie rod and a platen, of a feed roll device including forward and rear rolls, springs for pressing the rolls toward the platen, hinged arms lying on opposite sides of the tie rod and supporting the rolls, mechanism to drop the arms and rolls from the platen, and parts on the arms to engage the tie rod to hold the arms apart.

4. In a typewriting machine, the combination with a platen, of a feed roll device including forward and rear rolls, arms supporting the rolls, springs to press the rolls toward the platen, a rock shaft on which the arms are mounted, and means associated with

the arms and operated by the rock shaft, to cast off the rolls from the platen.

5. In a typewriting machine, the combination with a platen, of a feed roll device including forward and rear feed rolls, casting off and restoring mechanism therefor, including a rock shaft, and roll supporting arms hinged on and operated by the rock shaft.

6. In a typewriting machine, the combination with a platen, of feed rolls, supporting arms therefor having hubs with oblong bearings, cams forming portions of said bearings, a rock shaft passing through the hubs, and having cams to cooperate with the cams in said bearings to control the casting off and restoration of the rolls, and a release key to operate the rock shaft.

7. In a typewriting machine, the combination with a platen, of a feed roll device including forward and rear rolls, oppositely extending arms supporting the feed rolls, a hub on one of the arms and having an oblong interior bearing, a cam forming part of the bearing, a hub on the remaining arm loosely mounted on the first hub, a rock-shaft passing through the first hub and having a cam to cooperate with the cam in the bearing, and a release key to control the rock shaft to cast off and restore the rolls.

8. In a typewriting machine, the combination with a platen, of a feed roll device including forward and rear feed rolls, arms supporting the feed rolls, the arms having hubs journaled on a rock shaft, cooperating cam surfaces on the hubs and rock shaft, respectively, and a release key to operate the rock shaft, to release and restore the rolls.

9. In a typewriting machine, the combination with a platen, of a feed roll device including forward and rear feed rolls, oppositely extending arms supporting the feed rolls, springs to press the rolls toward the platen, certain of the arms having hubs journaled to move transversely of a rock shaft, the remaining arms connected with the hubs, cooperating cams on the rock shaft and hubs, and a key to operate the rock shaft to release and restore the rolls.

10. In a typewriting machine, the combination with a platen and forward and rear rolls to run thereon, of independently movable arms carrying said rolls, means to press the rolls against the platen, hubs provided upon said arms, bearings for said hubs, a finger piece, and means connected to said finger piece and said bearings to move said hubs, arms and rolls away from the platen.

11. In a typewriting machine, the combination with a platen and forward and rear rolls to run thereon, of independently movable arms carrying said rolls, means to press the rolls against the platen, hubs provided upon said arms, bearings for said hubs, a finger piece, and means connected to

said finger piece and said bearings to move said hubs, arms and rolls away from the platen; means being provided to guide the roll-carrying ends of said arms during their movement away from the platen.

12. In a typewriting machine, the combination with a platen, of a rod, an arm having a hub pivoted on said rod, a roll carried by said arm, a second arm pivoted upon said hub and also carrying a roll, means to press said rolls against said platen, a finger piece, and means connected to said finger piece to move said rod and cause it to move the hubs, arms and rolls away from the platen.

13. In a typewriting machine, the combi-

nation with a platen, of a rod, an arm having a hub pivoted on said rod, a roll carried by said arm, a second arm pivoted upon said hub and also carrying a roll, means to press said rolls against said platen, a finger piece, means connected to said finger piece to move said rod and cause it to move the hubs, arms and rolls away from the platen, and means to guide the roll-carrying ends of the arms during such movement.

BENJAMIN P. FORTIN.

Witnesses:

W. M. BYORKMAN,

LYMAN D. BROUGHTON.