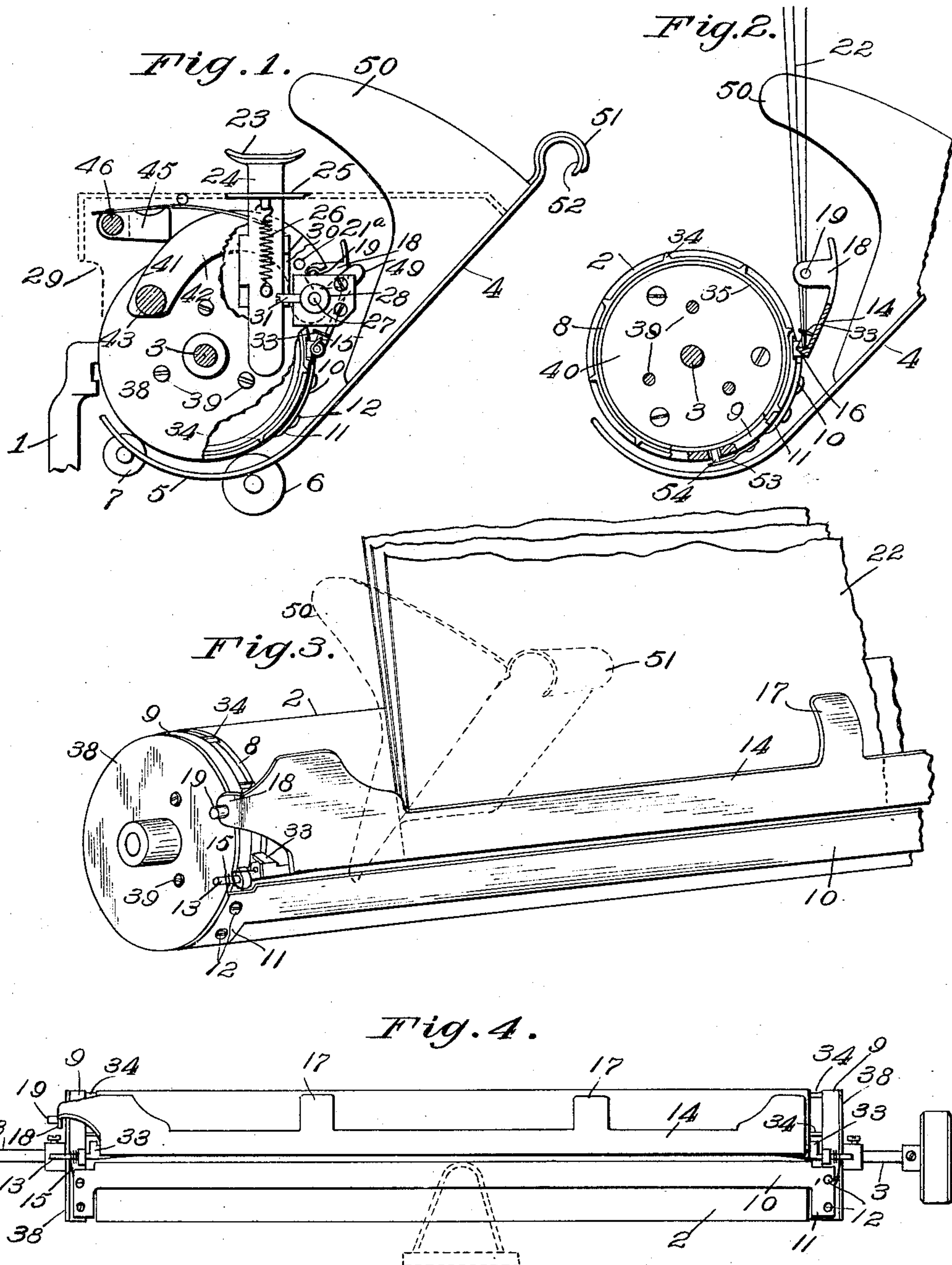


H. S. McCORMACK.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 11, 1908.

928,876.

Patented July 20, 1909.

2 SHEETS—SHEET 1.



Witnesses:
C. E. Whitney.
John C. Seifert.

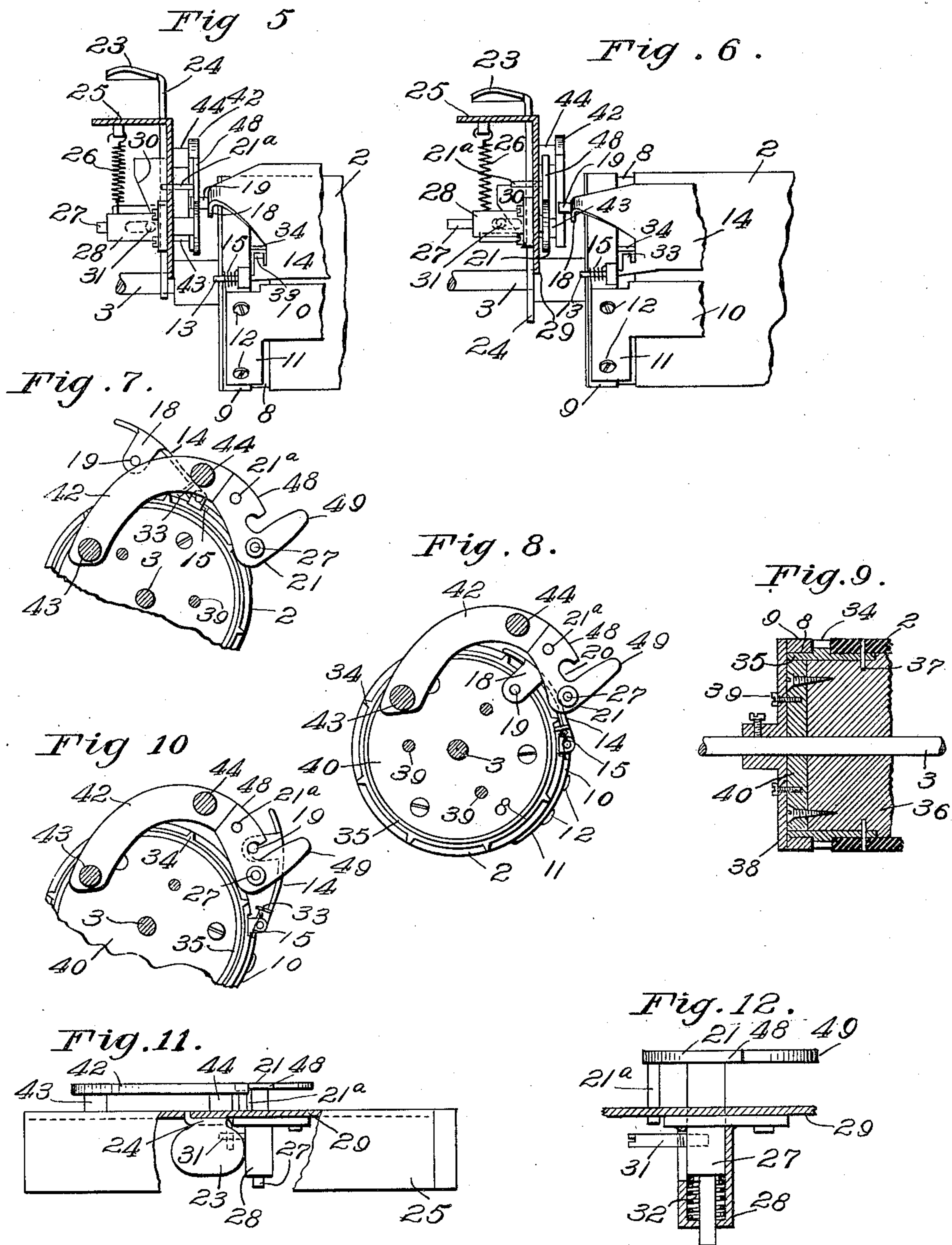
Inventor:
Harry S. McCormack.
By B. Stickney,
Attorney.

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Attorney.

UNITED STATES PATENT OFFICE.

HARRY S. McCORMACK, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 928,876.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed February 11, 1908. Serial No. 415,286.

To all whom it may concern:

Be it known that I, HARRY S. McCORMACK, a citizen of the United States, residing in New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the paper feeding means of typewriting machines, especially those in which a paper clip extends along the platen and is normally open and inactive during the rotation of the platen, so as to permit continued revolution of the platen independently of the clip; the clip being connectible to the platen to rotate therewith, so that the leading edges of a quantity of sheets may be readily inserted within the clip and carried thereby around the platen without disarranging the sheets, as set forth in United States Patent No. 850,310.

One of the principal objects of the present invention is to improve the construction and operation of the clip and its controlling mechanism, especially with a view to securing more perfect and satisfactory control of the clip, and enabling it to better perform its functions.

I provide a spring that is tensioned to swing the clip against the platen, and I hold the clip away from the platen by means of a trip or latch. The latter is releasable by means of a finger key provided upon the platen frame, so that after introducing the leading edges of the sheets within the open clip, the operator may, by pressing said key, cause the clip to clamp the sheets against the platen, and also to become mechanically connected to the platen to rotate therewith. After carrying the leading edge of the sheets around past the pressure rolls and up past the printing point, the clip comes into engagement with a cam mounted upon the platen frame, whereby the clip is opened and the sheets released therefrom. As the platen continues to turn forwardly, the clip rides off from said cam on to the trip or latch before mentioned, and there remains idly during the subsequent revolution of the platen. I further provide a back check to prevent the clip from being carried around with the platen when the latter is rotated backwardly; also means to gage the side edges of the sheets while being introduced

into the clip. Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is an end elevation partly in section of a platen frame of an Underwood front strike writing machine embodying my improvements. Fig. 2 is a similar view, (certain parts being omitted) to illustrate the manner of inserting and catching the sheets. Fig. 3 is a perspective rear view of the platen and clip. Fig. 4 is a rear elevation of a platen and clip. Figs. 5 and 6 are rear elevations of one end of the platen illustrating the manner of releasing the clip to permit it to swing against the platen. Figs. 7 and 8 are end elevations to illustrate different stages in the movement of the clip. Fig. 9 is a sectional view of one of the platen frame ends. Fig. 10 is a view similar to Fig. 7, but illustrating the clip in normal idle position. In Figs. 7, 8 and 10, parts are omitted for the sake of clearness. Fig. 11 is a part sectional plan of the key for releasing the clip and of the cam for opening the same. Fig. 12 is a sectional plan of the spring-pressed trip or latch, which normally holds the clip in idle position.

In said Underwood machine herein illustrated, type-bars 1 strike rearwardly against the front side of a cylindrical platen 2, the latter having an axle 3, upon which it is journaled in the ends of a platen frame which also comprises a paper-shelf 4. The paper-shelf inclines forwardly and downwardly and in rear of the platen and is prolonged at 5 to curve forwardly around the under side of the platen and up in front thereof to serve as a guide for the paper. A set of rear rolls 6 and a set of front rolls 7 press upwardly against the platen, the guide-plate 5 being formed with suitable transverse openings through which said rolls 6 and 7 play. The rolls 6 and 7 are usually mounted so that they may yield downwardly, all of the parts described being in common use on said machine. Upon the ends of the platen are provided annular recesses or bearings 8 to receive loosely a pair of collars or ring-like journals 9, the latter rigidly connected by a bar 10, which extends along the platen and close thereto, which bar is beveled along its rear edge, to facilitate its introduction between the platen and the yielding pressure-rolls 6, 7. The bar has at its ends ears 11, which are fixed

to the collars 9 in any suitable manner, as by means of screws 12, and the entire device remains stationary and idle during the rotation of the platen, except during the period when it is coupled to the platen by instrumentalities hereinafter described.

Hinged upon the collars 9 by means of pintles 13 is a paper-clip 14, in the form of a thin strip extending along the platen from end to end thereof close to said bar 10. Along its rear edge the clip is bent inwardly at right angles to form a ledge 16, which serves as a gage for the leading edges of the sheets, to square them to the platen or to bring them into parallelism with the printing line. From the opposite edge of the paper-clip extend tongues 17 to aid in confining the sheets against the platen, and both the clip 14 and the tongues 17 conform substantially to the curvature of the platen. Upon the clip at one end is provided an ear 18 from which projects a pin 19 normally occupying a recess 20 in an L-shaped plate 21, which constitutes a trip or latch. After the sheets 22 are introduced into the clip, Fig. 3, the operator depresses a key 23, which moves said trip from the Fig. 5 to the Fig. 6 position, thereby releasing the clip 14, which is caused by springs 15 to press the sheets 22 against the platen, said spring being tensioned to throw the clip against the platen and being normally restrained by the trip 21.

It will be observed that the finger-piece 23 is provided upon the top of a plunger 24 suitably mounted upon the platen frame end 25 to slide downwardly, and returned to normal position by a spring 26. The trip plate 21 is carried upon the end of a horizontal plunger 27 sliding in a hollow stud 28, the latter secured upon a vertical wall 29 of the platen frame end; rotation of the trip being prevented by a pin 21^a.

An oblique cam edge 30 is formed upon the vertical sliding plunger 24, to engage a pin 31 projecting from the trip plunger 27, and thereby force said plunger and trip from the Fig. 5 to the Fig. 6 position, thus releasing the projecting pin 19, and permitting the clip to snap toward the platen. When the key 23 is released, a spring 32, Fig. 12, returns the trip 21 to normal position.

The springs 15 not only throw the clip toward or against the platen, but also move a pair of teeth or pawls 33 thereon into mesh with toothed wheels 34, which are fixed upon the platen, whereby the clip is forced to rotate with the platen. A wheel 34 is provided at each end of the platen, Fig. 4. The construction of each platen end is illustrated at Fig. 9, at which it will be seen that the collar or hub 9 is loosely mounted upon a rim or flange 35 formed upon the wheel 34, the latter secured upon the platen core 36 by means of pins 37. A disk-cap 38 is se-

cured by screws 39 upon the platen frame head 40 to retain the collar 9.

The clip structure is thin, and hugs close to the platen, so that the rolls 6 and 7 may ride easily thereover. The sheets are all held by the clip in the original position to which they were adjusted upon the platen until, during the rotation of the platen, the sheets are safely introduced between the paper-guiding devices and the platen, so that the original alinement and gaging of the sheets upon the platen remains undisturbed. After conducting the leading edges of the sheets up past the printing point, the projection 19 upon the clip comes into engagement with a cam edge 41, which is mounted at the upper side of the platen and curves eccentrically thereto, so as to force the projection 19 outwardly or radially away from the platen, and hence to open the clip, Fig. 7. The cam edge 41 is formed upon a plate 42, which is secured upon studs 43, 44, projecting inwardly from the wall 29 of the platen frame. A back check pawl 45, Fig. 1, pivoted upon a stud 46, carried upon the wall 29 of the platen frame, is pressed by a spring 47 against the cam 41, to be engaged by the projection 19 to arrest the open clip in case the platen should be turned backwardly, so that the comparatively frail structure of the clip may not become injured by forcing it down against the usual platen scale and paper-guiding devices. As the platen continues to rotate forwardly after the leading edges of the sheets 22 are released by the clip, the clip pin 19 continues to ride rearwardly along the curved upper edge of the bar 42, and passes on to the edge 48 of the trip plate 21, said edge 48 forming a substantial continuation of the curved cam edge 41, by means of which the clip is held open against the tension of the springs 15. A finger or guard 49 upon the cam plate projects into the path of the pin 19, and arrests the clip; the platen thereafter continuing to revolve while the clip remains idle and stationary. The springs 15 force the pin 19 into the notch 20 in the trip, whereby the clip is held against accidental rotation either forwardly or backwardly.

I provide a horn 50 to extend forwardly from the paper shelf 4 above the open clip 14, Fig. 2, and to a point well forward of the clip when the latter is in normal position, so that the side edges of the sheets 22 may be gaged against said horn as they are being introduced within the clip; the horn having an eye or loop portion 51 to catch over the roll 52 at the top of the paper shelf for adjustment along the latter.

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

A spring 53 may be secured upon one of the clip collars, to press a pin 54 inwardly against

the bearing on which the collar turns; the pin fitting loosely in a hole in the collar and making sufficient friction between the collar and the bearing to enable the platen to carry
 5 around the clip after the clip is released from the toothed wheel.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 10 extending therealong and supported so as to permit continued revolutions of the platen independently of the clip, a spring to press the clip toward or against the platen, means
 15 operated by the spring to connect the clip to the platen to revolve therewith, and means rendered effective by the revolution of the platen to throw the clip away from the
 20 platen in opposition to the tension of said spring.

2. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 25 extending therealong and supported so as to permit continued revolutions of the platen independently of the clip, a spring to press the clip toward or against the platen, means operated by the spring to connect the clip to the platen to revolve therewith, and means
 30 rendered effective by the revolution of the platen to throw the clip away from the platen in opposition to the tension of said spring, and to disconnect the clip from the platen and hold it stationary during subsequent revolution of the platen.

3. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 35 extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, and means operated by the
 40 spring to connect the clip to the platen to revolve therewith upon the release of the clip from said trip.

4. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 45 extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, means operated by the spring to connect the clip to the platen to revolve therewith upon release of the clip from
 50 said trip, and means to move the clip away from the platen and restore it to the control of said trip.

5. In a typewriting machine, the combination with a revoluble platen and a platen
 55 frame, of a paper clip extending along the platen and supported to permit continued revolutions of the platen independently of the clip, a finger-piece mounted upon the platen frame, means operable by said finger-
 60 piece to cause the clip to bear against the platen or the paper thereon, and means called into action by the revolution of the platen to effect the release of the clip.

6. In a typewriting machine, the combination with a revoluble platen, of a paper clip

extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, a finger-piece having means to operate said trip, means operated
 70 by the spring to connect the clip to the platen to revolve therewith upon release of the clip from said trip, and means to return the trip and finger piece to normal positions.

7. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 75 extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, and connected to a finger-piece, means operated by the spring to connect the clip to the platen to revolve there-
 80 with upon release of the clip from said trip, and means dependent upon the revolution of the platen to move the clip away from the platen and restore it to the control of said trip.

8. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 85 extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, means operated by the
 90 spring to connect the clip to the platen to revolve therewith upon the release of the clip from said trip, and a cam mounted upon the platen frame in the path of a part upon said
 95 clip, and shaped to lift the clip from the platen during the revolution of the latter.

9. In a typewriting machine, the combination with a revoluble platen, of a paper clip
 100 extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, means operated by the spring to connect the clip to the platen to revolve therewith upon release of the clip from
 105 said trip, and a cam mounted upon the platen frame in the path of a part upon said clip, and shaped to lift the clip from the platen during the revolution of the latter; said cam mounted in position to release the
 110 clip after the latter has advanced past the printing line during the first revolution of the platen.

10. In a typewriting machine, the combination with a revoluble platen and a platen
 115 frame, of a paper clip mounted so that the platen may be rotated independently of the clip, a spring tensioned to throw the clip against the platen, releasable means restraining the clip from acting under the influence
 120 of said spring, a tooth upon the clip to engage teeth upon the platen when the clip is thrown against the platen, a cam mounted upon the platen frame, and a projection upon the clip to be engaged by the cam during the
 125 revolution of the platen, to lift the clip from the platen and disconnect the clip tooth from the platen, and to restore the clip to the control of said releasable means.

11. In a typewriting machine, the combination with a revoluble platen and a platen
 130 frame, of a clip extending along the platen

but disconnected therefrom, a finger-piece mounted upon the platen frame, means controlled by said finger piece for moving the clip against the platen and connecting the clip to the platen to revolve therewith, and means dependent upon the revolution of the platen for lifting the clip so that the platen may continue to revolve independently of the clip.

12. In a typewriting machine, the combination with a revoluble platen, of a paper clip extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, means operated by the spring to connect the clip to the platen to revolve therewith upon release of the clip from said trip, and a cam mounted upon the platen frame in the path of a part upon said clip, and shaped to lift the clip from the platen during the revolution of the latter; said cam mounted in position to release the clip after the latter has advanced past the printing line during the first revolution of the platen; said trip forming a substantial continuation of said cam, and a finger-piece connected to said cam to move it laterally to release the clip.

13. In a typewriting machine, the combination with a revoluble platen, of a paper clip extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, means operated by the spring to connect the clip to the platen to revolve therewith upon release of the clip from said trip, and a cam mounted upon the platen frame in the path of a projection upon said clip, and shaped to lift the clip from the platen during the revolution of the latter; said cam mounted in position to release the clip after the latter has advanced past the printing line during the first revolution of the platen; said trip forming a substantial continuation of said cam, and a finger-piece connected to said cam to move it laterally to release the clip; said trip having a finger in the path of said projection to arrest the clip.

14. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a paper clip extending along the platen, a spring upon said paper clip and tensioned to swing the same against the platen, a trip mounted upon the platen frame to engage a projection upon said clip and restrain it from either swinging to the platen or rotating therewith, a plunger mounted upon the platen frame and having a finger-piece, means for enabling said plunger to cam the trip to inoperative position, and resilient means to return the plunger and trip to normal positions.

15. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a paper clip extending along the platen, a spring upon said paper clip and tensioned to swing the same against the platen,

a trip mounted upon the platen frame to engage a projection upon said clip and restrain it from either swinging to the platen or rotating therewith, a plunger mounted upon the platen frame and having a finger-piece, means for enabling said plunger to cam the trip to inoperative position, and resilient means to return the plunger and trip to normal positions; said trip being provided upon a spring-pressed plunger movable crosswise to the direction of movement of the first plunger.

16. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a paper clip extending along the platen, a spring upon said paper clip and tensioned to swing the same against the platen, a trip mounted upon the platen frame to engage a projection upon said clip and restrain it from either swinging to the platen or rotating therewith, a plunger mounted upon the platen frame and having a finger-piece, means for enabling said plunger to cam the trip to inoperative position, and resilient means to return the plunger and trip to normal positions; said trip being provided upon a spring-pressed plunger movable crosswise to the direction of movement of the first plunger, and said camming means including a cam provided upon the first plunger, and a pin projecting from the second plunger into the path of said cam.

17. The combination of a revoluble platen, a paper clip extending along the same, and mounted to revolve therewith, the platen being revoluble independently of the clip, means to connect and disconnect the clip from the platen, and means to prevent the clip from rotating backwardly with the platen.

18. The combination of a revoluble platen, a paper clip extending along the same, and mounted to revolve therewith, the platen being revoluble independently of the clip, means to connect and disconnect the clip from the platen, and a check, as 45, and a projection, as 19, on the clip to engage said check to arrest the clip during the backward rotation of the platen; the check being movable and mounted to permit the passage of the projection during the advance rotation of the platen.

19. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a paper clip mounted so that the platen may be rotated independently of the clip, a spring tensioned to throw the clip against the platen, releasable means restraining the clip from acting under the influence of said spring, a tooth upon the clip to engage teeth upon the platen when the clip is thrown against the platen, a cam mounted upon the platen frame, and a projection upon the clip to be engaged by the cam during the revolution of the platen, to lift the clip from

the platen and disconnect the clip tooth from the platen, and to restore the clip to the control of said trip; a back check pawl being mounted in the path of said projection to permit forward rotation of the clip with the platen but to arrest the clip during the backward rotation of the platen.

20. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a paper clip mounted so that the platen may be rotated independently of the clip, a spring tensioned to throw the clip against the platen, releasable means restraining the clip from acting under the influence of said spring, a tooth upon the clip to engage teeth upon the platen when the clip is thrown against the platen, a cam mounted upon the platen frame, and a projection upon the clip to be engaged by the cam during the revolution of the platen, to lift the clip from the platen and disconnect the clip tooth from the platen, and to restore the clip to the control of said trip; a back check pawl being mounted in the path of said projection to permit forward rotation of the clip with the platen but to arrest the clip during the backward rotation of the platen; said pawl mounted to be effective at about the releasing point of the clip.

21. In a typewriting machine, the combination with a revoluble platen, of a clip having a collar or hoop, whereby it is mounted to revolve with the platen, the platen being revoluble independently of the clip, and a friction device between the collar and the platen.

22. In a typewriting machine and in combination, a revoluble platen having a cylindrical uninterrupted printing surface, a bar extending along said platen, means for supporting the said bar at its ends to permit continued revolutions of the platen independently of the bar, means operable at the will of the operator for connecting the bar to the platen to revolve therewith, a paper-clip carried by said bar, means for causing said clip to press the paper directly against the printing-surface of the platen, and a friction device between the platen and the bar supporting means.

23. In a typewriting machine and in com-

bination, a revoluble platen having a cylindrical uninterrupted printing-surface, a paper-clip extending along said platen, means for normally supporting said clip so as to permit continued revolutions of said platen independently of the clip, means for causing said clip to press the paper directly upon the printing-surface of the platen, means for connecting the paper-clip to the platen to revolve therewith, and means to prevent either forward or backward accidental rotation of the trip around the platen when the trip is in normal position.

24. In a typewriting machine, the combination with a revoluble platen, of a paper clip extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, and means operated by the spring to connect the clip to the platen to revolve therewith upon release of the clip from said trip; means being provided to prevent accidental movement of the clip either forward or backward along the platen when the clip is under the restraint of said trip.

25. In a typewriting machine, the combination with a revoluble platen, of a paper clip extending therealong, a spring tensioned to swing the clip against the platen, a trip restraining the clip, a finger-piece having means to operate said trip, means operated by the spring to connect the clip to the platen to revolve therewith upon release of the clip from said trip, and means to return the trip and finger-piece to normal positions; said trip also having means to prevent accidental movement of the clip in either forward or backward direction around the platen.

26. In a typewriting machine, the combination with a platen and a platen frame, of a clip extending along the platen, the platen being revoluble independently of the clip, a spring tensioned to swing the clip against the platen, a finger-key provided upon the platen frame to release the clip, means also being controlled by said finger key to connect the clip to the platen, and means to release the sheets.

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Witnesses:

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