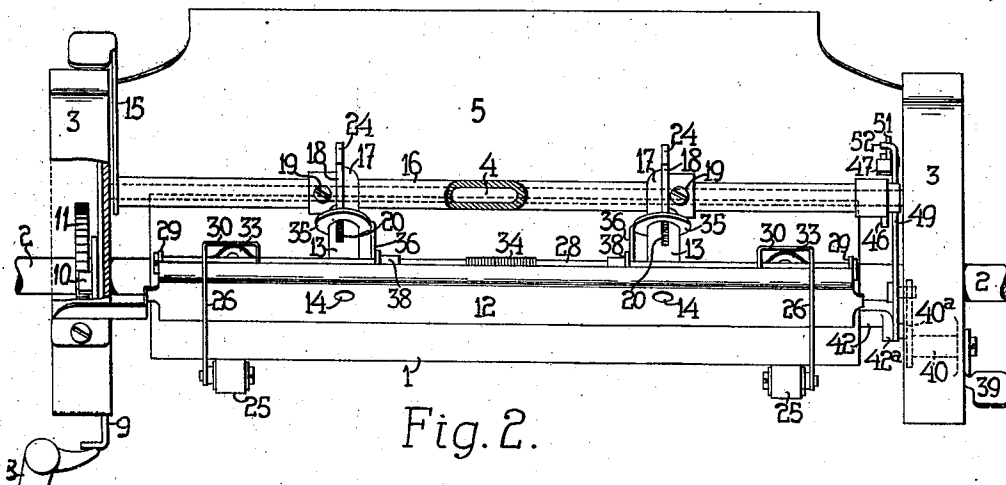
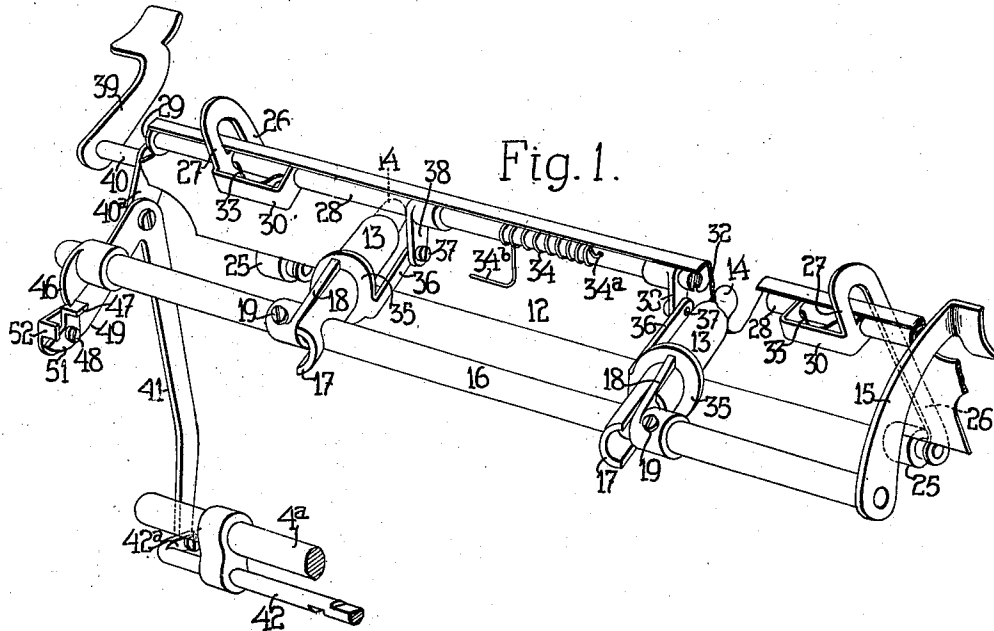


A. G. F. KUROWSKI.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 11, 1910.

1,061,618.

Patented May 13, 1913.

2 SHEETS-SHEET 1.



Witnesses.
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Paul Warfield

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2 SHEETS—SHEET 2.

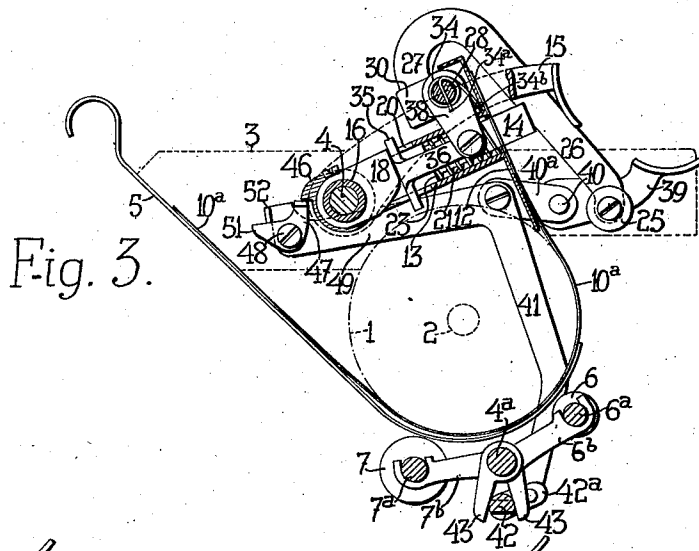


Fig. 3.

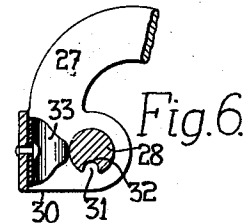


Fig. 6.

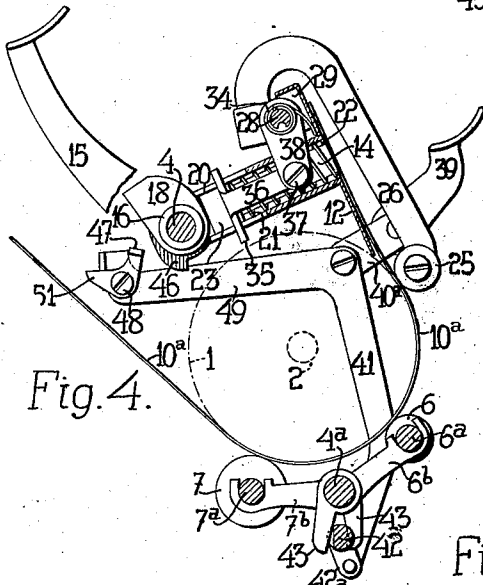


Fig. 4.

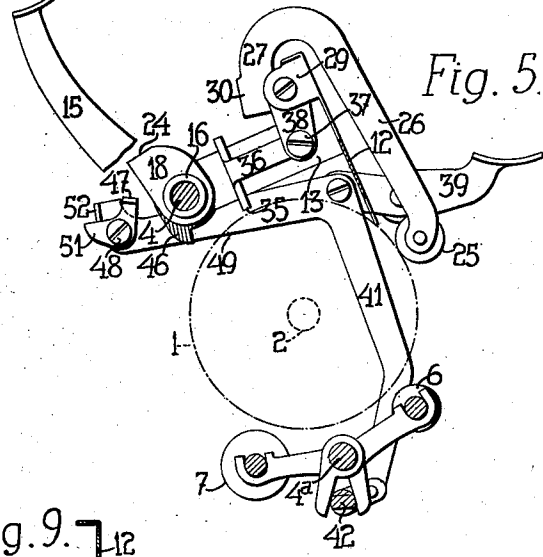


Fig. 5.

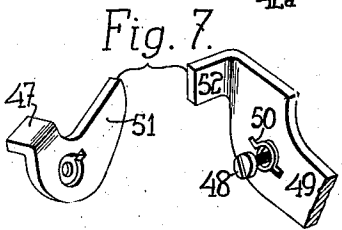


Fig. 7.

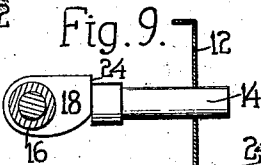


Fig. 9.

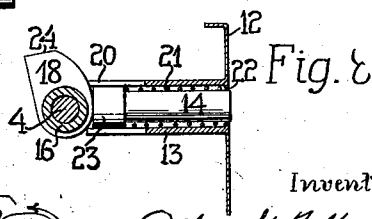


Fig. 8.

Witnesses.
Ligman Schiff
Ralph Warfield

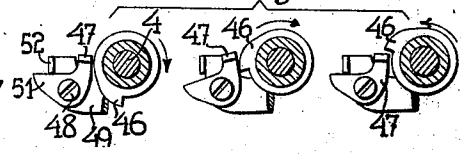


Fig. 10.

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UNITED STATES PATENT OFFICE.

ALFRED G. F. KUROWSKI, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPE-
WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,061,618.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed May 11, 1910. Serial No. 560,554.

To all whom it may concern:

Be it known that I, ALFRED G. F. KUROWSKI, a citizen of the United States, residing in the borough of Brooklyn, city of New York, in the county of Kings 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 devices for adjusting sheets of paper in typewriting machines, and is an improvement upon the construction shown in application filed January 28, 1910, Serial No. 540,519, wherein pins are projected through a tablet extending along the top of the platen, to correspond to the perforations in the sheets of loose leaf ledgers and the like, whereby the sheet may be hung or set upon the pins, and the first line of printing thus brought to the printing point. In said construction, the paper-alining mechanism is operated when the usual feed rolls are cast off.

One feature of this invention is to enable the paper-alining or impaling devices to be projected independently of the usual feed roll mechanism; and the alining mechanism may remain idle when the feed rolls are cast off and restored, thereby enabling the machine to be used readily for correspondence work when required. A finger-piece separate from that which operates the feed roll mechanism is provided for controlling the alining devices.

Another feature of the invention is to simplify and improve the means whereby the paper-alining mechanism, when restored to idle position, may cause the restoration of the released feed rolls to normal position, so that although the feed rolls are cast off by a separate finger-piece from that which operates the alining mechanism, and independently thereof, yet said rolls may be restored without operating said finger-piece. I also provide pressure rolls to engage the platen at points above the printing line, and these are automatically cast off when the impaling pins are protruded.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view of the present improvements, showing the register pins or hooks projected. Fig. 2 is a plan showing the platen frame of an Underwood writing ma-

chine, with the invention applied thereto. Fig. 3 is a cross-section, showing the main feed rolls cast off, and the alining mechanism in operative position, the front pressure rolls being rocked away from the platen. Fig. 4 is a similar view, showing the parts in normal positions. Fig. 5 is a similar view showing the bottom feed rolls cast off, the alining mechanism remaining in idle position, and the front pressure rolls lying against the platen. Fig. 6 is a fragmentary detail view, showing the connection of the front pressure roll-carrying arms to the rock shaft. Fig. 7 is a detail perspective view of the bottom feed roll-returning tappet and its supporting arm, disassembled. Fig. 8 is a detail cross-section, showing one of the impaling pins and its cooperative parts, in idle position. Fig. 9 is a detail side view, partly in section, showing the manner of locking the alining pins in operative position. Fig. 10 is a detail side view, showing the positions assumed by the bottom feed roll tappet and its operating cam.

The platen 1 of an Underwood typewriting machine (which is of the front-strike type) is journaled by an axle 2 in the ends 3 of a platen frame, said ends being connected by upper and lower tie rods 4 and 4^a, and supporting a rear paper shelf 5. The platen is line-spaced by a lever 8 operating a slide 9 having a pawl 10, to engage a line space wheel 11 fast on the platen axle in the usual manner.

The paper is fed around the platen by the usual forward and rear bottom feed rolls 6 and 7, mounted on shafts 6^a, 7^a, supported in hangers 6^b and 7^b, and engaging the platen 1. The feed rolls are cast off from the platen by depressing a finger-piece 39 pivoted at 40 to one end of the platen frame, to swing an arm 40^a connected by a link 41, with the cranked end 42^a of a roll-controlling cam shaft 42. Said cam shaft by its engagement with arms 43 connected to the feed roll hangers 6^b, 7^b, operates to cast the feed rolls from the platen (Figs. 3 and 5) in which position they remain until the cam shaft is rotated to enable the feed rolls to be restored to the platen (Fig. 4).

A paper-adjusting tablet or plate 12 extends across the platen frame above the platen, and is supported on the platen frame ends 3.

Sheet-positioning or alining pins 14

(whose outer ends normally lie flush with or below the face of the tablet 12), are projected above the tablet through apertures therein, the perforated work sheets 10^a being set or hung on said pins to determine the location of the first line of printing. To protrude the pins, a finger-piece 15 on a hollow shaft 16 (turning on rod 4) is depressed to rock the shaft and cause the engagement of cams 18 (Fig. 9) on said shaft with the pins 14 to thrust the pins outwardly, into operative position, said pins being held in such positions by dwell portions 24 on the cams, which dwells may rest against the ends of the pins (see Figs. 1, 3 and 9), when the finger-piece 15 has reached one end of its swing, whereby to mechanically hold the pins projected and therefore permit the use of both hands of the operator in positioning the sheets. The pins are returned by springs 21 (which operate as soon as the cams have been returned sufficiently to remove the dwell portions 24 from engagement with the pins), the outer ends of the springs bearing against rests 22, and their inner ends against shoulders 23 on the pins.

The pins 14 slide back and forth in tubular bearings 13 registering with the apertures in the tablet 12, and having extensions 17, (Figs. 1 and 2) supported by the rock shaft 16, upon which said extensions loosely fit. These bearings, by connecting the tablet 12, intermediate its ends, with the rock shaft 16 and tie rod 4, prevent springing of the tablet. Said extensions 17 are cut away, as in Figs. 1 and 2, to clear the cams 18 (secured on the shaft 16 by set screws 19), which work in slits 20 in the bearings 13, to engage and push forward the alining pins 14.

Feed rolls 25, running upon the front of the platen above the printing line, are carried by arms 26, depending in front of the tablet 12, the upper ends of said arms being for convenience curved backwardly and downwardly, as at 27, behind the tablet, and mounted upon a rock shaft 28, journaled in ears 29 on the tablet; guide-brackets 30 being formed on said arms and fitting on the rock-shaft, and adjustable therealong, to enable the rolls 25 to be shifted along the platen to accommodate work sheets of different widths. The brackets may have keys 31, (Fig. 6), fitting in a groove 32 in the shaft; and may be held where adjusted by friction springs 33. The rolls 25 are preferably offset from the arms 26 toward each other so as to lie upon the side edges of work sheets confined between the arms 26, and are pressed against the platen by a spring 34 coiled about the rock shaft 28, and having one end secured to the shaft as at 34^a, (Fig. 1), the opposite end 34^b resting against plate 12.

The rolls 25 are released by the cams 18, which, in the act of protruding the alining

pins 14, engage rings 35 loosely sliding on the bosses 13, and formed on the ends of links 36 pivoted at 37 to cranks 38 fast on the rock shaft 28. The cams 18 force the links to rock the shaft 28 and swing the arms 26 and the rolls away from the platen (Fig. 3).

The dwell portions 24 of the cams hold the pins protruded and the front rolls released. Spring 34 returns the rolls and slides to normal positions.

The bottom rolls 6 and 7 (running on the side of the platen where the main work sheets are introduced) may be independently cast off when a pile of sheets is being introduced into the machine; and to enable the alining mechanism to return the bottom feed rolls to normal position in case the operator should forget to do so, as well as to reduce the number of operations necessary to return the parts to operative position, I provide the rock shaft 16 with a cam 46 (Fig. 10), to engage a tappet 47 on an arm 49 extending rearwardly from the link 41 of the bottom feed roll mechanism. The link 41 is drawn upwardly by the finger piece 39, to cast off the bottom feed rolls from the platen; and the arm 49 is moved to such position that the tappet 47 will be engaged and depressed by the cam 46 when the rock shaft 16 is returned to normal position. The cam (Fig. 3), causes the tappet and the arm 49 to return the cam shaft 42 to normal position (Fig. 4), to restore the bottom feed rolls to the platen, the finger-piece 39 also returning to normal position. The tappet 47 is pivoted at 48 on the arm 49, so as to yield to the cam 49 in case the bottom feed rolls are cast off prior to protruding the alining pins, as in Fig. 10; a spring 50 operating to return the tappet to normal position. A stop 52 is engaged by a tail 51 on the tappet.

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 and feed-roll mechanism therefor, including releasable feed rolls, of shiftable alining pins, mechanism independent of the releasable feed-roll mechanism, and effective to project said alining pins into and remove them from the path of the sheets, and means for moving said rolls from released position whenever the pins are withdrawn from projected position.

2. In a typewriting machine, the combination with a platen having a feed roll mechanism, and an apertured tablet extending along the platen, of alining pins projectable back and forth through the apertures in the tablet, a manually operated rock shaft, and cams on the rock shaft to protrude the pins, said cams having dwell por-

tions to maintain the pins in active positions.

3. In a typewriting machine, the combination with a platen, a feed roll mechanism therefor, an apertured tablet having bearings in line with its apertures, of alining pins slidable in the bearings, a manually-operated rock shaft, and cams on the rock shaft working in slots in the bearings, and effective to protrude the pins.

4. In a typewriting machine, the combination with a platen, and an apertured tablet having bearings in line with its apertures, of alining pins slidable in the bearings, springs engaging shoulders in the bearings and on the pins to hold the latter retracted, cams to protrude the pins beyond the plane of the tablet against the tension of the springs, and a finger piece controlling the cams.

5. In a typewriting machine, the combination with a platen, and an apertured tablet having bearings in line with its apertures, of spring-pressed alining pins slidable in the bearings, cams effective to protrude the pins, and enable them to be retracted, and a finger piece controlling the cams.

6. In a typewriting machine, the combination with a platen and platen frame, of alining pins on said frame shiftable into and out of the path of the sheets, said platen movable in line space direction relatively to the pins, cams to protrude the alining pins, dwell portions on the cams to maintain the pins protruded, and a finger piece to control the cams.

7. In a typewriting machine, the combination with a platen and platen frame, of alining pins on said frame shiftable into and out of the path of the sheets, said platen movable in line space direction relatively to the pins, cams to protrude the alining pins, a finger piece having a limited throw, to control the cams, and dwell portions on the cams, brought into operative positions when the finger piece reaches one limit of its throw, to maintain the pins protruded.

8. In a typewriting machine, the combination with a platen, bottom feed-rolls, and mechanism controlling said rolls, of a paper-alining mechanism including paper-alining pins shiftable into and out of the path of the paper, and a releasable paper-confining and directing member operable with the paper-alining pins, to hold the paper against the platen when the pins are retracted, and a finger piece to project the paper-alining pins and release the paper confining and directing member independently of the bottom feed roll mechanism.

9. In a typewriting machine, the combination with a platen and bottom feed roll mechanism therefor, of sheet-alining pins, mechanism to operate the pins, a front pres-

sure roll to engage the sheets above the printing line, and a finger piece controlling the pin-operating mechanism; said front roll connected to the pin-operating mechanism to be released when the pins are projected.

10. In a typewriting machine, the combination with a platen and bottom feed roll mechanism therefor, of a spring pressed front pressure roll to engage the paper above the printing line, and paper-alining mechanism with which the front pressure roll is connected, to cast off and restore the front roll relatively to the paper as the paper-alining mechanism is operated.

11. In a typewriting machine, the combination with a platen and bottom feed roll mechanism therefor, of a front pressure roll to engage the paper above the printing line, a spring pressed rock shaft with which the front pressure roll is connected to press the roll against the paper, a manually operated cam to rock the shaft to release the front pressure roll, and locking means to maintain the front roll in idle position.

12. In a typewriting machine, the combination with a platen and bottom feed roll mechanism therefor, of a front pressure roll to engage the paper above the printing line, a spring pressed rock shaft with which the front pressure roll is connected to press the roll against the paper, and a manually-operated cam to rock the shaft to release the front pressure roll, said cam having a dwell portion to maintain the front roll in idle position.

13. In a typewriting machine, the combination with a platen and bottom feed roll mechanism, of a tablet, alining pins shiftable relative to the tablet, a swinging front pressure roll to hold the paper against the platen above the printing line, and a finger piece to project the alining pins relatively to the tablet and to cast off the front pressure roll.

14. In a typewriting machine, the combination with a platen, of a tablet, alining pins shiftable relatively to the tablet, guides for the alining pins, a spring-pressed front roll to hold the paper against the platen above the printing line, a rock shaft to which the front roll is connected, and means to project the alining pins and cast off the front pressure rolls.

15. In a typewriting machine, the combination with a platen, of alining devices shiftable into and out of the path of the sheets, means engaging the devices to protrude them into the path of the sheets, a front pressure roll to hold the sheets against the platen above the printing line, a rock shaft to which the front pressure roll is connected, an arm on the shaft and a device connected to the arm and engaged by the means which operate the alining devices, to cast off the front pressure roll when the alin-

ing devices are protruded into the path of the sheets.

16. In a typewriting machine, the combination with a platen, of alining devices shiftable into and out of the path of the sheets, means engaging the devices to protrude them into the path of the sheets, a front pressure roll to hold the sheets against the platen above the printing line, a rock shaft to which the front pressure roll is connected, an arm on the shaft, a device connected to the arm and engaged by the means which operate the alining devices, to cast off the front pressure roll when the alining devices are protruded into the path of the sheets, and means to restore the front pressure roll to operative position when the alining devices are withdrawn.

17. In a typewriting machine, the combination with a platen, of alining devices shiftable into and out of the path of the sheets, cams engaging the devices to protrude them into the path of the sheets, a front pressure roll to hold the sheets against the platen, above the printing line, a rock shaft to which the front roll is connected, an arm on the shaft, and means connected to the arm and operated by one of the cams to cast off the front pressure roll.

18. In a typewriting machine, the combination with a platen, of alining pins shiftable into and out of the path of the sheets, guides in which the pins are supported, front pressure rolls to hold the sheets against the platen above the printing line, a spring returned rock shaft with which the front pressure rolls are connected, an arm on the shaft, a device on one of the guides and connected with the arm, and cams to shift the alining pins into the path of the sheets, one of said cams constructed to engage said device to cast off the front pressure rolls from the platen.

19. In a typewriting machine, the combination with a platen, of alining pins shiftable into and out of the path of the sheets, guides in which the pins are supported, front pressure rolls to hold the sheets against the platen above the printing line, a spring returned rock-shaft with which the front pressure rolls are connected, an arm on the shaft, a device on one of the guides and connected with the arm, cams to shift the alining pins into the path of the sheets, one of said cams constructed to engage said device to cast off the front pressure rolls from the platen, and dwells on the cams to engage the pins and slide to maintain the pins protruded and the front rolls idle.

20. In a typewriting machine, the combination with a platen and a releasable bottom feed roll mechanism therefor, of a paper-alining mechanism movable to effective position independently of the bottom feed roll mechanism, said alining mechanism in-

cluding a cam to engage a part of the bottom feed roll mechanism and effective to restore the bottom feed rolls to the platen, when the alining mechanism is returned to normal position.

21. In a typewriting machine, the combination with a platen and a releasable bottom feed roll mechanism therefor, of a front pressure roll mechanism to hold the paper against the platen above the printing line, including front pressure rolls to be cast off from and restored to operative position, said front pressure roll mechanism movable to ineffective position independently of the bottom feed roll mechanism, and a cam connected with the front pressure roll mechanism to engage a part of the bottom feed roll mechanism, and effective to restore the bottom feed rolls to the platen when the front pressure rolls are returned to operative position.

22. In a typewriting machine, the combination with a platen and a releasable bottom feed roll mechanism therefor, of a front pressure roll mechanism to hold the paper against the platen above the printing line, including front pressure rolls to be cast off from and restored to operative position, said front pressure roll mechanism settable to ineffective position independently of the bottom feed roll mechanism, and a cam connected with the front pressure roll mechanism to engage a tappet on the bottom feed roll mechanism and effective to restore the bottom feed rolls to the platen when the front pressure rolls are restored to operative position.

23. In a typewriting machine, the combination with a platen, bottom feed rolls therefor, a shaft controlling the positions of the bottom feed rolls relatively to the platen, a finger piece and a link connecting the shaft and finger piece, of an alining mechanism movable to effective position independently of the bottom feed roll controlling finger piece, said alining mechanism including a cam, and an arm on the link and a yielding tappet on the arm bodily shiftable into the path of the cam when the bottom feed rolls are cast off and engaged by the cam, to effect the restoration of the bottom feed rolls to the platen when the alining mechanism is returned to normal position.

24. In a typewriting machine, the combination with a platen, bottom feed rolls therefor, and mechanism to cast the bottom feed rolls off from and restore them to the platen, of paper-alining mechanism comprising impaling pins shiftable into the path of the paper independently of the operation of the feed roll mechanism, and means for moving said rolls from the paper alining mechanism.

25. In a typewriting machine, a revoluble platen having bottom feed rolls which may be cast off from and restored to the platen,

and paper-alining mechanism including a paper tablet with which are associated paper-alining pins shiftable through apertures in the plate to enter perforations in the sheets, by means of cams on a rock shaft controlled by a finger piece, and retracted by springs when the cams are moved to idle position, front pressure rolls also operated by the cams to releasably engage the platen above the printing line to hold the paper against the platen, the front pressure rolls being held idle, and the alining pins being held protruded at will, the bottom feed rolls, when cast off, being returnable to the platen by the alining mechanism irrespective of the precedence of operation.

26. In a typewriting machine, the combination with a platen, of a front pressure roll in advance of the printing line, a pressure roll behind the printing line, an alining member projectable into the path of the paper, means for automatically moving front roll away from the platen when said alining member is projected, and means for automatically moving both rolls toward the platen when said alining member is withdrawn.

27. In a typewriting machine, the combination with a platen, of an impaling pin projectable into the path of the paper, pressure rolls for guiding the paper, means for moving said pressure rolls to and from the platen, and means for automatically returning said rolls to the platen as said impaling pin returns from its projected position.

28. In a typewriting machine, the combination with a platen, of pressure rolls to guide the paper, an impaling pin projectable into the path of the paper, means for moving said rolls independently, and means for automatically returning said rolls to the platen as said impaling pin returns from its projected position.

29. In a typewriter, the combination with a platen, of a transverse shaft carrying front rolls, a rock arm fast on said shaft, a link on said rock arm, a cam for moving said link, a second transverse shaft, a handle for rotating said shaft, and a hub on said shaft carrying said cam.

30. In a typewriting machine, the combination with a platen, a feed roll on the introductory or bottom side thereof, and releasable feed-roll operating mechanism therefor, of an apertured tablet, shiftable alining pins arranged to arrest paper, and controlling mechanism operating independently of said bottom feed-roll mechanism to project said pins through the apertures in the tablet.

31. In a typewriting machine, the combination with a platen frame, a platen and a feed-roll running upon the bottom or introductory side of the platen, and releasable feed-roll mechanism therefor, of alining

pins on said frame shiftable into and out of the path of the sheets, said platen movable in line-space direction relatively to the pins, cams to protrude the alining pins, dwell portions on the cams to maintain the pins protruded, and a finger piece independent of said releasable bottom feed-roll mechanism to control the cams.

32. In a typewriting machine, the combination with a platen, of a paper-alining mechanism including paper-alining pins shiftable into and out of the path of the paper, and releasable paper controlling members both in advance of and beyond the printing line, said advance paper-controlling members connected to be moved into and out of effective position with the paper-alining pins, to hold the paper against the platen as the pins are retracted.

33. In a typewriting machine, the combination with a platen and a releasable bottom feed-roll mechanism therefor, of a paper-alining and holding mechanism including alining devices normally out of the path of the paper, front pressure rolls normally holding the paper against the platen above the printing line, and means to engage a part of the bottom feed-roll mechanism to restore the bottom rolls to the platen, when the alining and holding mechanism is returned to normal position.

34. In a typewriting machine, the combination with a platen and a releasable bottom feed-roll mechanism therefor, of a paper-alining mechanism normally ineffective, said alining mechanism including means to engage a tappet on the bottom feed-roll mechanism and effective to restore the bottom feed rolls to the platen when the alining mechanism is returned to normal position.

35. In a typewriting machine, the combination with a platen and a releasable bottom feed-roll mechanism therefor, of a paper-alining mechanism normally ineffective, and said alining mechanism including a cam, and a yielding tappet on the bottom feed-roll mechanism normally lying in the path of and engaged by the cam when the alining mechanism is being returned to normal position, to effect the restoration of the bottom feed-roll mechanism to normal position.

36. In a typewriting machine, the combination with a platen, of bottom rolls, front rolls movable from the platen independently of the bottom rolls, and a connection for automatically returning said bottom rolls to the platen when the front rolls are returned; the bottom rolls being releasable independently of the front rolls.

37. In a typewriting machine, the combination with a platen, of a paper guiding member in advance of the printing line, a paper guiding member beyond the printing line, said members being movable to and

from the platen, the advance one of said members being movable independently of the other to and from the platen, and connections for moving said members simultaneously to the platen.

38. In a front-strike typewriting machine, the combination with a rotatable platen and rolls riding on said platen above the printing line, of paper-engaging pins above said rolls for positioning the work-sheet on said platen, and means coupling together said pins and said rolls.

39. In a front-strike typewriting machine, the combination with a rotatable platen and front rolls riding on said platen above the printing line, of means whereby said rolls may be adjusted across the face of the platen, a paper-engaging pin above said rolls, said pin movable to effective or in-

effective position, and connections for simultaneously moving said rolls and said pin.

40. In a front-strike typewriting machine, the combination with a rotatable platen and front pressure rolls riding on the face of said platen, of a paper-engaging pin or device above said rolls movable to effective or ineffective position, a connection from said paper-engaging pin for moving said rolls from the platen when the paper-engaging pin is moved to its effective position, and means returning said rolls against the platen when the paper-engaging pin is moved to its ineffective position.

ALFRED G. F. KUROWSKI.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."