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TYPE WRITING MACHINE.

APPLICATION FILED JAN. 28, 1910.

**1,067,992.** Patented July 22, 1913.

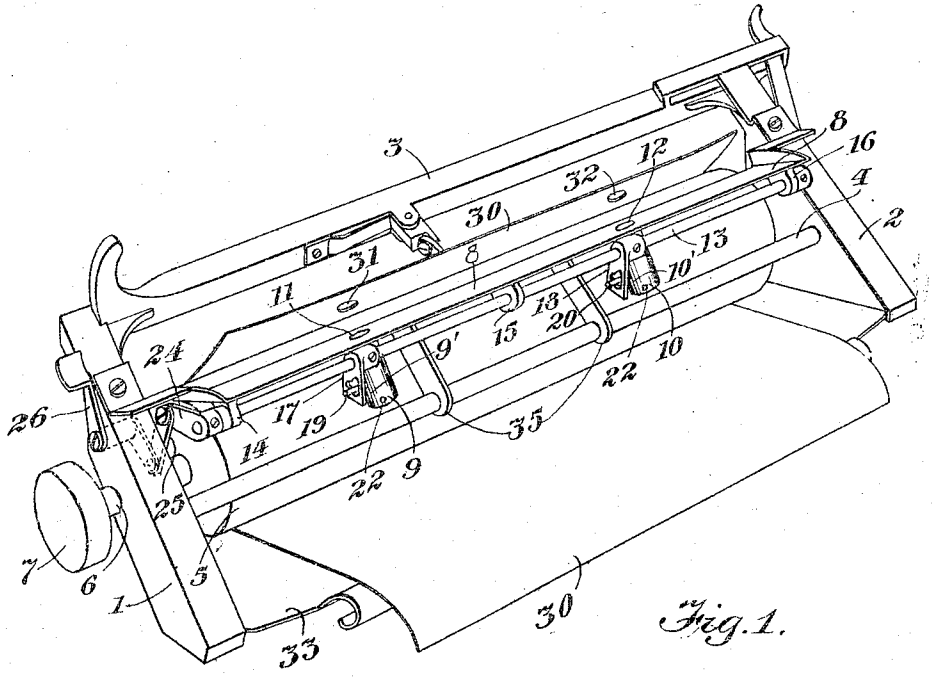



Fig. 1.

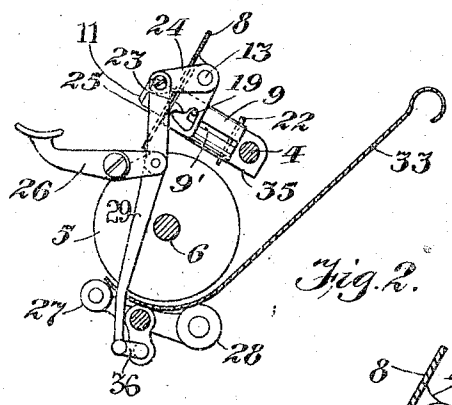



Fig. 2.

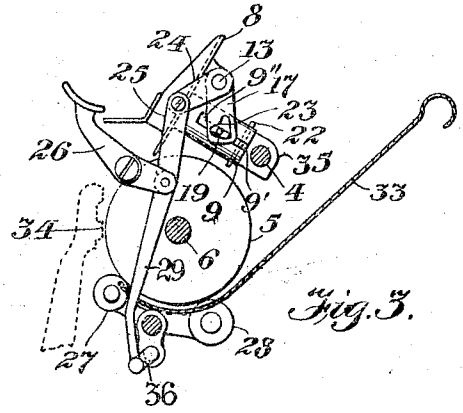



Fig. 3.

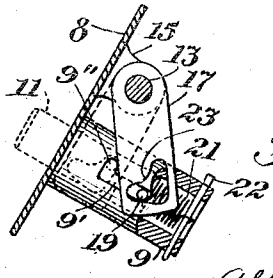



Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## TYPE-WRITING MACHINE.

1,067,992. Specification of Letters Patent. Patented July 22, 1913.

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*To all whom it may concern:*

Be it known that we, ALFRED G. F. KUROWSKI and HENRY N. McKAY, both citizens of the United States, and both residing in the borough of Brooklyn, 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 preparatory to writing thereon in typewriting machines.

The present invention is particularly intended for use in connection with sheets which are provided with marginal perforations, as for instance at their ends, these perforations being provided either for the purpose of binding or for other purposes; and we provide upon a work support or sheet-adjusting plate a series of studs, upon which the perforations in the sheet fit. The sheet is placed or impaled upon the studs, and then the typewriting proceeds. The studs coöperate with the perforations to position the sheet with reference to the printing line on the platen. Preferably the studs are movable, so that after positioning the work sheet, they may disappear or sink out of the holes in the paper.

Where the invention is used in connection with the revoluble platen of a front-strike writing machine, there may be employed a sheet-positioning plate or tablet extending along the platen, and said plate may lie over the top of the platen, and the studs may project from the plate. In such machine, after the sheet is positioned by means of the studs, the usual pressure devices may be brought into use to hold the sheet against the platen.

Where it is desired to write several lines upon a work sheet at one insertion in a front strike machine, the sheet may be released from the studs. For this purpose, the studs may be connected to the same key that releases the usual pressure rolls, so that when the pressure rolls are cast off, the studs are projected; and vice versa.

Where the invention is used in connection with a plate extending along the revoluble platen, it possesses advantages over the top and side sheet-gages heretofore used, inasmuch as the studs hold the sheet. so that it is not liable to become displaced while the pressure rolls are still cast off; but the invention is not limited to these advantages. There may also be provided means for preventing the studs from being accidentally withdrawn or pushed down by the pressure of the operator's fingers thereon. For this purpose, a lock may be employed which automatically locks the studs in projected positions; while said key unlocks the studs or pins and causes them to withdraw or drop to normal positions of disuse.

The invention is not, however, limited to studs which disappear; one of the principal features of the invention being the provision of studs in such relation to the printing line of the platen, that when a work sheet is impaled on the studs by means of its perforations, the sheet itself will lie in proper relation to said printing line or point. By means of the studs, therefore, the sheet may be positively and accurately adjusted.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a perspective view of our invention shown as mounted on the platen frame of an "Underwood" typewriter looking from the rear of the machine. Fig. 2 is a sectional end view in which all of the platen frame is omitted, excepting such parts as are more closely related to the improvement. The actuating mechanism is shown in its operative position to receive and adjust a sheet of paper. Fig. 3 is a similar end view and shows the relative position of the parts when the positioning studs are in their normal positions. Fig. 4 is an enlarged detail view of one of the positioning studs and the means for actuating the same.

The carriage frame 3 of the Underwood typewriting machine carries a platen frame having the two end pieces 1 and 2, connected by a rod 4. The platen 5 is journaled between the ends on shaft 6, having a finger-wheel 7.

An inclined top paper adjusting table is arranged at the delivery side of the platen, in the form of a bridge-plate 8, surmounts the platen and extends the length thereof,

being mounted on the platen frame ends 1, 2, and braced at 35 intermediate its ends. Bosses 9 and 10 project rearwardly from the body of plate 8 to form bearings for a pair of sheet-positioning or gaging studs 11 and 12, adapted to project up through the table 8, to receive the perforated sheets. These studs constitute in effect a gage. These studs are normally below the table 8, but are projected by rocking a shaft 13, which is journaled in bearings 14, 15 and 16 at the rear of the plate 8. The rock shaft (actuated by a key lever 26) is provided with downwardly-extending arms 17, 18, slotted near their free ends to engage pins 19, 20, which project from the sheet-positioning studs 11 and 12 near their rearward ends, whereby said studs may be operated.

When the rocker arms 17, 18 are moved forwardly, the pins 19, 20 are forced thereby forwardly along the longitudinal slots 9′ and 10′, which terminate in catch or detent openings 9″, more clearly shown in Fig. 4. These catches retain the studs in their extreme forward positions, by engaging the pins 19, 20 which are forced to rock into them by reason of the contortion of the coiled springs 21. Each spring 21 has one of its ends attached to the stud 11 or 12, and the opposite end anchored to a taper pin 22.

The positioning studs remain locked in their forward positions until the pressure rolls are restored against the platen to hold the sheet in place which extends around the platen. The cam surfaces 23 in the returning slotted arms 17, 18 then release the pins 19, 20 from the catches, and allow the distended springs 21 to return the studs to their rearward positions, so they will not interfere with the advance of the sheet 30 as the platen is revolved.

As a convenient means for operating the rock-shaft 13, we employ a crank arm 24, mounted at one end thereof and connect the same to the pressure-roll releasing key lever 26, usually found on the Underwood platen frame, by a link 25. It will be understood that the depression of the key lever 26 also casts off the forward and rear pressure rolls 27 and 28, through a link 29 connected to a pressure-roll controlling crank-shaft 36 operating in the usual manner.

The pressure rolls remain cast off to enable the operator to use both hands in introducing the sheet 30 between the paper shelf 33 and the platen and in fitting the holes 31, 32 of the sheet on the positioning studs 11, 12. The return of the key lever to normal position restores the pressure rolls and swings the stud-controlling arms 17, 18 to release the pins 19, 20 from the catches 9″ after which the retracting springs 21 withdraw the positioning studs 11, 12 as the stud-controlling arms swing rearwardly.

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

Having thus described our invention, we claim:

1. In a typewriting machine, the combination with a platen, pressure rolls therefor, and a release key for casting off and restoring the rolls, of a paper-adjusting table located above the platen, and sheet-positioning studs movable into and out of the path of the sheet and fitting in holes in the sheet to positively hold the latter until the pressure rolls are restored.

2. In a typewriting machine, the combination with a platen, pressure rolls therefor, and a release key for casting off and restoring the rolls, of a paper-adjusting table located in view above the platen, sheet-positioning studs protrusible through apertures in the table and into the path of the sheet, to fit in holes in the sheet, and arms for projecting the studs.

3. In a typewriting machine, the combination with a platen, pressure rolls therefor, and a release key for casting off and restoring the rolls, of a paper-adjusting table located in view above the platen, sheet-positioning studs protrusible through apertures in the table and into the path of the sheet to fit in holes in the sheet, and lever-operated arms for projecting the studs against the tension of returning springs.

4. In a typewriting machine, the combination with a platen and pressure rolls therefor, of a paper-adjusting table supported just above the platen, hollow bosses lying beneath the table in alinement with apertures in the table, studs slidable in the bosses, pins projecting from the studs through slots in the bosses, catches located at the inner ends of the slots in the bosses to lock the studs protruding beyond the face of the table, slotted arms engaging the pins, a key-lever to swing the arms to project the studs, the pins automatically engaging the catches, cams on the arms to release the pins from the catches, and springs to withdraw the studs.

5. In a typewriting machine, the combination with a platen and pressure rolls therefor, of sheet-positioning studs fitting holes in the sheet to positively hold the sheet, and movable into and out of the path of the sheet, locking devices to hold the studs in the path of the sheet, and a release effective to disengage the studs from the locking devices to permit their return out of the path of the sheet.

6. In a typewriting machine, the combination with a platen and pressure rolls therefor, of sheet-positioning studs passing through apertures in the table and fitting in holes in the sheet to positively hold the sheet, locking devices automatically engaged by the studs to maintain the studs in opera-

tive position, and releasing arms to disengage the studs from their locking devices and permit their withdrawal from the holes in the sheet.

7. In a typewriting machine, the combination with a platen and pressure rolls therefor, of sheet-positioning studs passing through apertures in the table and fitting in holes in the sheet to positively hold the sheet, catches automatically engaged by pins carried by the studs to maintain the studs in operative position, and releasing arms to cam the pins out of the catches to permit the withdrawal of the studs from the holes in the sheet.

8. In a typewriting machine, the combination with a platen and pressure rolls therefor, of sheet-positioning studs fitting holes in the sheet to positively hold the sheet, and movable into and out of effective position, stud-controlling arms to project the studs into operative position against the tension of returning springs, a key-lever to operate said arms, pins carried by the studs, catches with which the pins are engaged by the contortion of the returning springs to maintain the studs projected, and cams to disengage the pins from the catches.

9. In a typewriting machine, the combination with a platen and pressure rolls therefor, of a paper-adjusting table located above the platen, sheet-positioning studs fitting holes in the sheet to hold the latter in place, key-operated arms to project the studs into and withdraw them from operative position, and locking mechanism to maintain the studs in projected position, said arms effective to disengage the studs from the locking mechanism.

10. In a typewriting machine, the combination with a platen and pressure rolls therefor, of sheet-positioning studs fitting in holes in sheets, mechanism effective to project the studs into and withdraw them from the path of the sheet, and locking mechanism from which the studs are released by their controlling means, and effective to maintain the studs in operative position.

11. In a typewriting machine, the combination with a platen, pressure rolls therefor, and a release key for casting off and restoring the rolls, of a paper-adjusting table located above the platen, sheet-positioning studs protrusible through apertures in the table and into the path of the sheet to fit in holes in the sheet, lever-operated arms for projecting the studs against the tension of returning springs, and locking means releasably maintaining the studs in operative position.

12. The combination with a platen and a sheet adjusting table in proximity thereto, of a sheet adjusting means consisting of a series of studs adapted to engage the work sheet, and normally in a position of disuse behind the table and means for effecting a suitable movement to bring the sheet adjusting means into engagement with the sheet on the table.

13. The combination with a platen and a sheet-positioning table in proximity thereto, of a sheet adjusting means for the sheet, said sheet adjusting means normally in a position of disuse behind the table, means for effecting a suitable movement of the sheet adjusting means, so that the sheet adjusting means may engage the sheet; said sheet adjusting means consisting of a series of studs to engage perforations in the sheet, and a detent for holding the movable member in position to permit sheets to be impaled upon the studs.

14. The combination with a platen, of means for positioning a perforated sheet relatively thereto, including a device having studs to engage the perforations in the sheets, and releasable means for feeding sheets around the platen.

15. The combination with a platen and a sheet-positioning table, of studs normally in a position of disuse, and means to protrude or raise the studs to a position to permit sheets to be caught thereon.

16. The combination with a platen and a sheet-positioning table, of studs normally in a position of disuse, means to protrude or raise the studs to positions to permit sheets to be caught thereon, and means for locking or holding the studs in raised positions.

17. The combination with a platen and a paper-positioning tablet, of studs normally in a position of disuse, a pressure roll running upon the platen, and means for simultaneously releasing the pressure roll and protruding or raising the studs.

18. The combination with a platen and a sheet-adjusting tablet in proximity thereto, of a paper-stop comprising a stud normally ineffective by reason of the position of the stud, and means for effecting suitable movement to render said paper stop effective.

19. The combination with a platen, of sheet-positioning means constructed to engage the sheet to prevent it from moving edgewise in any direction, means for rendering said sheet positioning means inoperative to permit movement of the sheet around the platen, and means to hold the sheet upon the platen.

20. The combination with a platen, of a sheet-adjusting plate, studs for engaging a sheet when the latter is laid upon the plate, and means for effecting suitable movement of the studs, to effect disengagement between the sheet and the studs.

21. The combination with a platen, of means for positioning a sheet, including studs for engaging perforations in the sheet, means to cause the studs to sink out of the

perforations for permitting the sheet to be advanced, and sheet-advancing means.

22. The combination with a platen, of means for positioning a sheet, including studs for engaging perforations in the sheet, means to cause the studs to sink out of the perforations for permitting the sheet to be advanced, sheet-advancing means, a lock for automatically locking the studs in protruded positions, and means for releasing the lock.

23. The combination with a platen and a tablet, of a sheet-positioning stud normally in a position of disuse, a key connected to said stud to protrude it to position to be engaged by a perforation in the sheet, means for automatically locking the stud in protruded position, and means effective upon the return of the key to unlock the stud and return it to normal position of disuse.

24. In a typewriting machine, the combination with a platen and pressure rolls therefor, of sheet-positioning studs to fit in holes in the work-sheets, and mechanism effective to project the studs into and withdraw them from the path of the sheet.

25. In a typewriting machine, the combination with a platen and a pressure roll therefor, of a perforated tablet across which the work sheets pass, studs or gages to pass through the perforations in the tablet, and mechanism to protrude the studs through the perforations.

26. In a typewriting machine, the combination with a platen and a pressure roll therefor, of a perforated alining tablet for the work sheets, guides in line with the perforations, studs sliding in the guides to pass through the perforations in the tablet, and mechanism to protrude the studs through the perforations.

27. 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 a finger-piece controlling the cams.

28. In a typewriting machine, a table upon which a sheet is to be laid, a stud upon which the sheet is to be impaled, means to coöperate with said stud to aline the sheet, and means to effect a suitable movement to render the stud accessible, the stud being normally inaccessible.

29. In a typewriting machine, the combination with a revolubie platen, of a work-sheet support adjacent to the platen, and a set of gage pins on said support upon which the work-sheet is impaled, to position the work-sheet relatively to the printing line on the platen.

30. In a typewriting machine, the combination with a revoluble platen and means to coöperate therewith to feed a work-sheet around the same, of a work-sheet support adjacent to the platen for supporting the leading margin of the sheet while the body of the sheet extends around the platen, and a set of gage pins on said support upon which the leading margin of the work-sheet is impaled, to position the work-sheet relatively to the printing line on the platen.

31. In a typewriting machine, the combination with a revoluble platen, of a set of work-sheet impaling pins mounted above the platen for positioning a perforated work-sheet with reference to the printing line.

32. In a typewriting machine, the combination with a revoluble platen, of a work sheet support adjacent to the platen and arranged at the delivery side thereof, and a set of gage pins upon said support upon which a perforated work sheet is impaled, said gage pins arranged to gage the work sheet by means of its perforations relatively to the printing line on the platen.

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