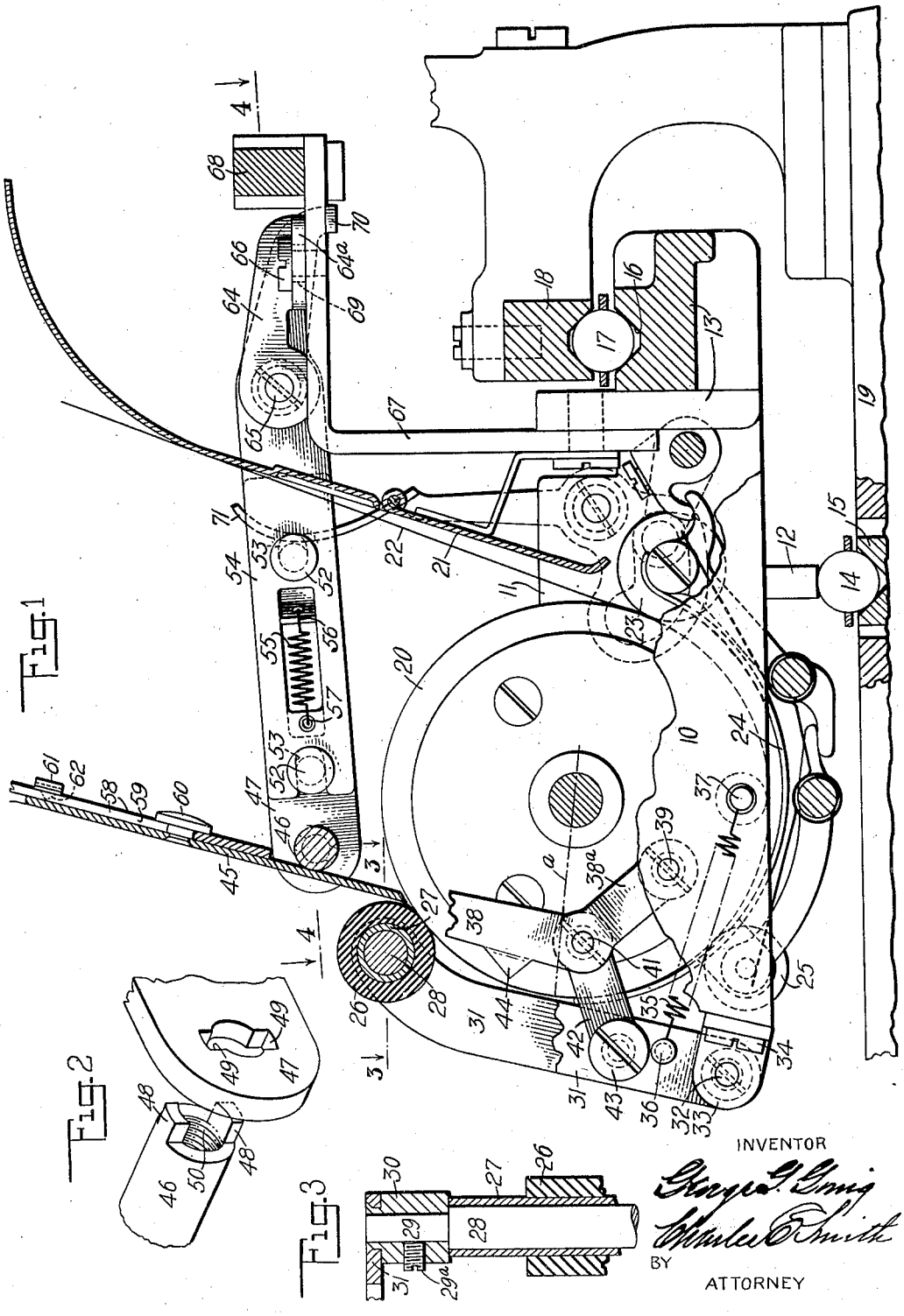
Sept. 11, 1934. G. G. GOING 1,973,311

TYPEWRITING MACHINE

Filed Feb. 15, 1933 3 Sheets-Sheet 1



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Sept. 11, 1934. G. G. GOING 1,973,311

TYPEWRITING MACHINE

Filed Feb. 15, 1933 3 Sheets-Sheet 2

Fig. 4

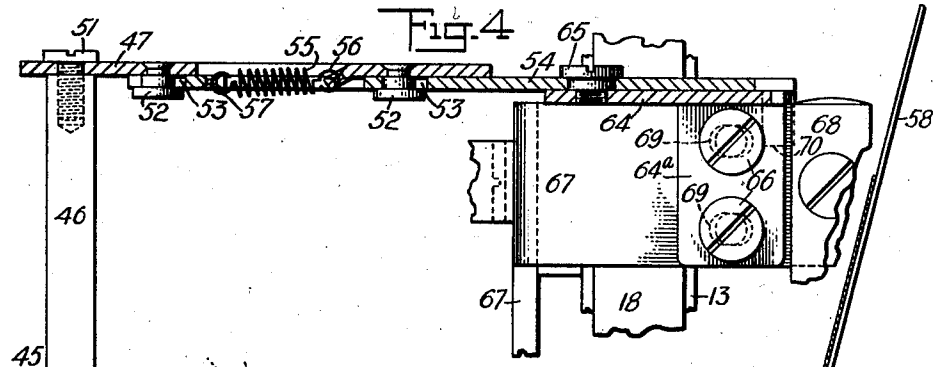


Fig. 5

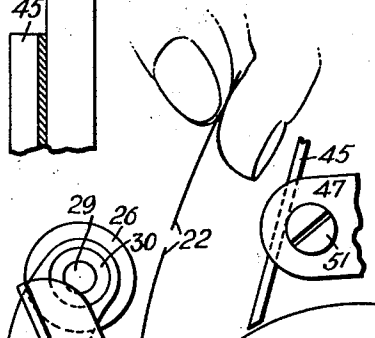
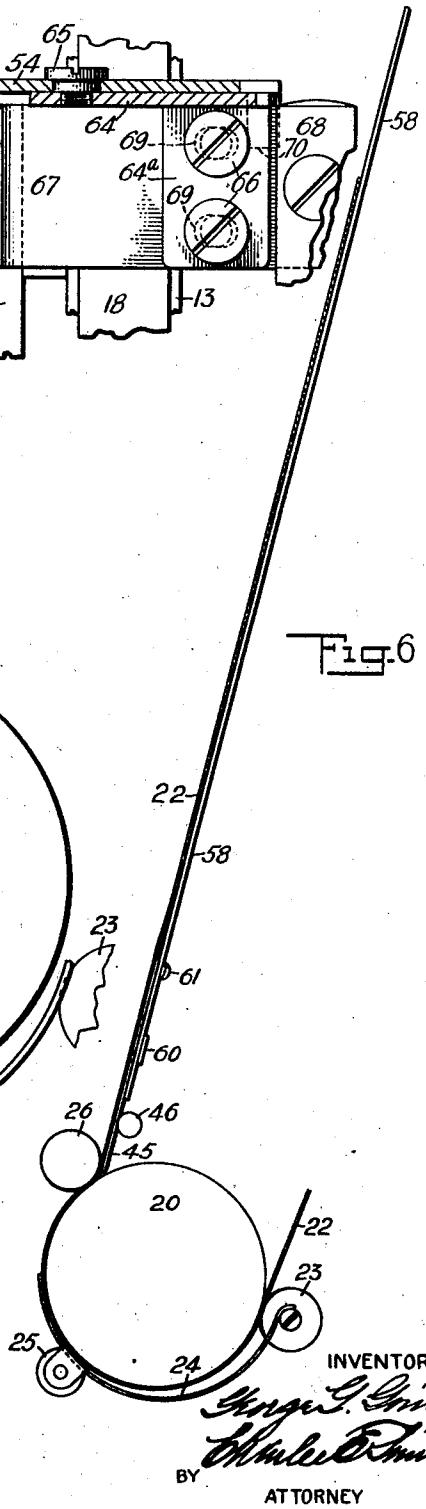


Fig. 6



WITNESSES

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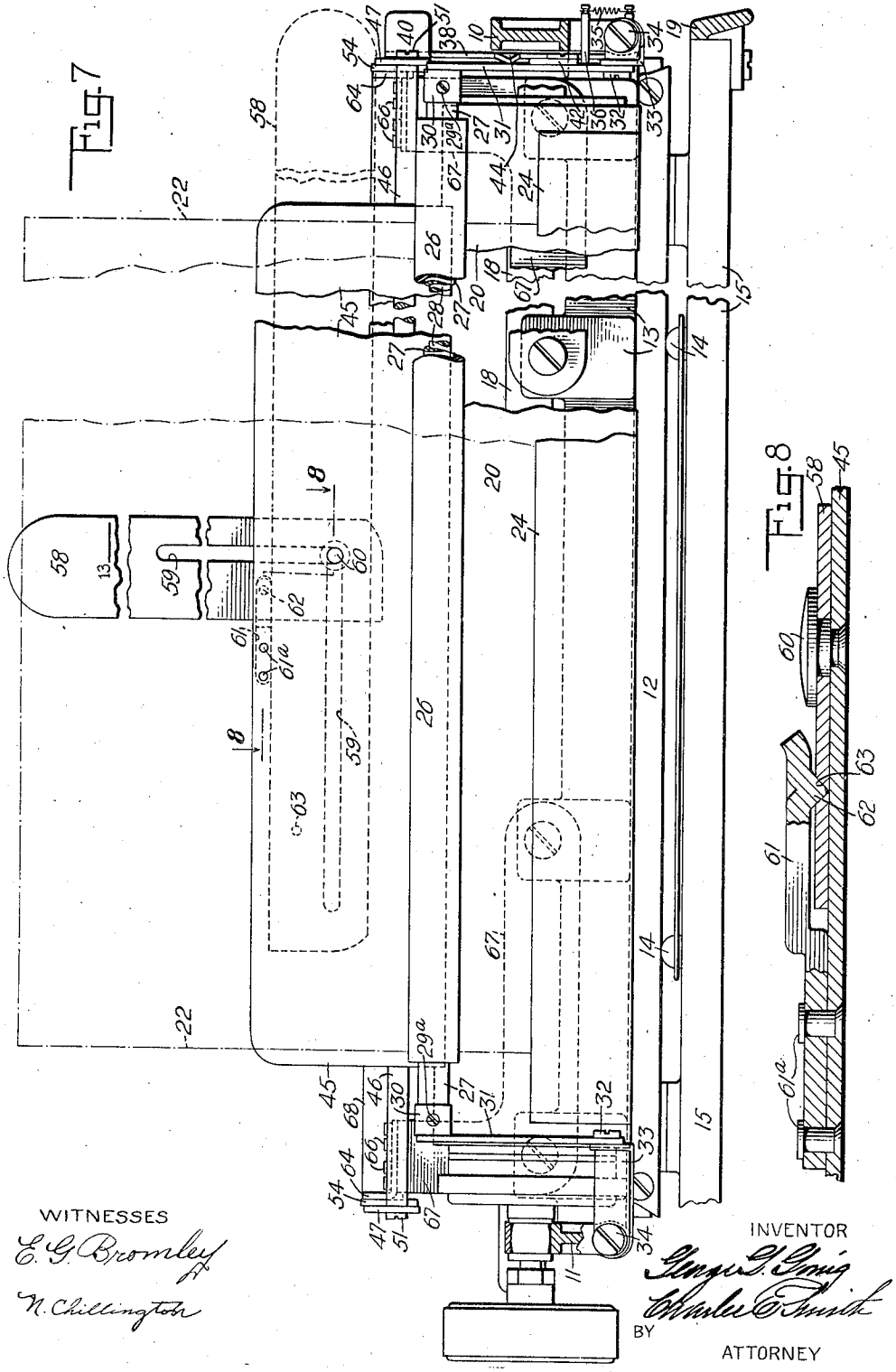
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Sept. 11, 1934. G. G. GOING 1,973,311

TYPEWRITING MACHINE

Filed Feb. 15, 1933 3 Sheets-Sheet 3



WITNESSES

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Patented Sept. 11, 1934 1,973,311

UNITED STATES PATENT OFFICE

1,973,311

TYPEWRITING MACHINE

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Application February 15, 1933, Serial No. 656,826

18 Claims. (Cl. 197—143)

My invention relates to typewriting and like machines and more particularly to devices that act on a work sheet in the machine.

One of the main objects of my invention is to provide highly effective means for damping that part of the work sheet which extends above the platen after it has advanced beyond the printing line, and which ordinarily accentuates any noise produced by a hammer blow of a type bar against the platen.

A further object of my invention is to utilize said damping means for other purposes such as for effectively feeding and guiding a work sheet and for indicating the approach of the bottom edge of the work sheet to the printing line etc.

A still further object of my invention is to so mount said devices, or some of them, that they may be moved back out of effective position as a unit, or may be readily detached from the machine when desired.

To the above and other ends which will hereinafter appear my invention consists in the features of construction, arrangements of parts and combinations of devices set forth in the following description and pointed out in the appended claims.

In the accompanying drawings wherein like reference characters indicate corresponding parts in the different views:—

Fig. 1 is an enlarged, detail fragmentary, fore and aft sectional view with parts broken away of sufficient number of parts of a typewriting machine to show my invention in its embodiment therein.

Fig. 2 is an enlarged, detail, perspective view of parts of the supporting means for the front paper table.

Fig. 3 is an enlarged, fragmentary, detail, sectional view taken on line 3—3 of Fig. 1 and looking in the direction of the arrows at said line.

Fig. 4 is a detail, fragmentary, horizontal, sectional view of a part of the front paper table supporting means, the section taken on the line 4—4 of Fig. 1 and looking in the direction of the arrows at said line.

Fig. 5 is a skeletonized end view of parts represented in Fig. 1 but showing a different disposition of the parts.

Fig. 6 is a detail, diagrammatic, side view with parts in section, showing the manner in which the devices coact with a work sheet in the machine.

Fig. 7 is a detail, front view of the construction disclosed in Fig. 1, with parts broken away.

Fig. 8 is an enlarged, detail, fragmentary, sectional view taken on the line 8—8 of Fig. 7 and looking in the direction of the arrows at said line.

I have found in practice that the noise which is ordinarily produced by the hammer blows of the type bars against the platen are greatly accentuated by that portion of the paper in the machine which has advanced beyond the printing line and has left the platen, and that the greater the extent of this portion of the work sheet the greater will be the noise produced. This is found to be true even in the event that a substantially noiseless platen is provided. The noise accentuated by that portion of the work sheet referred to above is to be distinguished from that which is sometimes produced when the paper is bellied on the platen at or near the point of impact of the type bars and forms an air pocket beneath the work sheet.

I have found by experiment that if that portion of the work sheet which has advanced beyond the platen is effectively dampened, then the noise ordinarily produced will be eliminated or reduced to such an extent as to be hardly noticeable when a substantially noiseless platen is employed.

I have shown my invention embodied, in the present instance, in a typewriting machine of the type of the L. C. Smith machine in which the type basket receives a case shifting movement. However, my invention may be employed in various types of typewriting and like machines employing a cylindrical platen.

The carriage which may be of any suitable construction and in the present instance comprises end plates 10 and 11 connected by cross bars 12 and 13, the former bearing on balls 14 that travel in a race-way 15. The cross bar 13 has a race-way 16 that receives bearing balls 17 that likewise are received in the oppositely disposed race-way in a fixed guide bar or rail 18. The carriage is thus mounted to travel from side to side of the machine over a top plate 19 and supports a cylindrical platen 20 preferably of a substantially noiseless character. Type bars (not shown) receive an upwardly and rearwardly swinging movement and strike against the front face of the platen, the printing line being indicated by the dot and dash line *a* in Fig. 1.

A paper table 21 is mounted in the rear or introductory side of the platen to direct a work sheet 22 to the main feed rollers 23 and the paper apron 24. Forward feed rollers 25 also coact with the platen or the work sheet thereon. The usual or any suitable means may be employed for shifting the feed rollers 23 and 25 and the paper apron

24 from the normal effective position shown in Fig. 1 to the releasing position shown in Fig. 5. Since these features constitute no part of my present invention further description thereof is deemed unnecessary.

As the work sheet 22 is fed up beyond the printing line *a* it passes beneath a spring pressed member or paper feed roller 26 that extends throughout the length of the platen and bears against the platen above the printing line.

From the broader aspects of my invention it is immaterial whether the member 26 is in the nature of a bar or is in the nature of a feed roller and how said member is mounted. However, the location of this member relatively to other parts of the structure and the function attained thereby is an important factor, as will hereinafter more clearly appear.

In the present instance the feed roller 26 is fixed on a hollow shaft or spindle 27 which rotates freely on a fixed spindle 28 by which the roller is supported. As shown in Fig. 3 each end of the spindle 28 is reduced at 29 where it is received in a hub 30 riveted to and projecting inwardly from the upper end of an upright arm 31, a set screw 29^a holding the spindle 28 against rotation. The lower end of each arm 31 is pivoted at 32 to a bracket 33 secured by a screw 34 to one of the end plates 10 or 11 of the carriage. A relatively heavy contractile spring 35 is connected at one end to a pin 36 on one of the arms 31, the other end of the spring being anchored to a pin 37 on the end plate 10 of the carriage. In this manner spring pressure is applied to the feed roller 26 to cause it to bear against the platen or a work sheet thereon.

I have provided means for casting off or releasing the feed roller 26 independently of the feed rollers 23 and 25 and to maintain said roller 26 in its released position. Said means comprises an angular lever 38, 38^a which is pivoted at one end at 39, to the end plate 10 of the carriage, the other end of said lever terminating in a finger piece 40 as shown in Fig. 5. At the intersection of the two arms 38, 38^a of the lever it is pivoted, at 41, to one end of a toggle link 42, the other end of said link being pivoted at 43 to one of the roller carrying arms 31. It will be seen that the lever 38, 38^a constitutes the second element of the toggle, and that a movement of said lever from the Fig. 1 to the Fig. 5 position results in bringing the toggle member 42, 38^a to a straight line or dead centered position to hold the feed roller 26 in its released position until the finger piece 40 is shifted rearward to break the toggle.

In order to limit the movement of the toggle member to the straight line position shown in Fig. 5 I have provided the lever 38, 38^a with an off-set stop projection 44 which, when the parts are in the Fig. 5 position, contacts with the link 42 and limits the movements of the parts under a forward pull on the finger piece 40.

From the broader aspects of my invention any suitable means which will effectively dampen that portion of the work sheet in the machine which extends above the feed roller 26 will meet the object of my invention. In the present instance I provide such a construction which will now be described.

A front paper table 45 is mounted above the platen near the front delivery side thereof with its lower edge adjacent to the platen. This paper table is so positioned that the feed roller 26 is immediately in front of and adjacent to the lower edge thereof for purposes which will presently appear. The paper table 45 is fixedly connected by spot welding or otherwise to a cross bar 46 that extends above the platen 20 and beyond the ends thereof where the ends of said bar are fixedly though detachably connected to slides 47 that are spring pressed forward and are mounted to move a limited extent fore and aft of the machine. Referring more particularly to Fig. 2 it will be seen that each end of the bar 46 is provided with two oppositely disposed lugs 48 that are received in correspondingly spaced openings 49 in the companion slide 47 to prevent the cross bar from turning relatively thereto. Each end of the cross bar is tapped at 50 to receive the threaded end of a headed screw 51 (Fig. 4) to firmly though detachably unite the cross bar and the two slides 47.

Referring more particularly to Fig. 4 it will be seen that each slide 47 has riveted thereto two headed pins 52 that are received in slots 53 provided in and extending longitudinally of the companion supporting arm 54. A contractile spring 55 is connected at one end 56 to the associated slide 47 and is anchored at the other end 57 to the companion supporting arm 54. The force of each spring 55 is exerted to move the companion slide 47 forward to the limit of its movement in that direction, as determined by the pins 52 engaging the left hand ends of the slots 53, as the parts appear in Fig. 4. The purpose of this arrangement is to permit the paper table 45 to receive a slight rearward movement against the force of the springs 55 in the event that the stiffness or thickness of the work sheet or sheets tends to prevent the feed roller from pressing such sheet or sheets against the platen. In other words it will be understood that if the paper table were rigidly mounted, the employment of a work sheet or sheets of unusual stiffness or thickness might hold the feed roller against the force of its spring out of cooperative relation with the platen, so that the sheets could not be fed forward after the lower ends thereof left the feed rollers 25. However, by mounting the paper table 45 for rearward movement against the force of the springs 55, which are weaker than the spring 35, then in the event of the use of a thicker or stiffer work sheet than that ordinarily employed, the paper table 45 will give rearwardly and enable the feed roller 26 to press the work sheet against the platen.

In order to provide a support and damper for that portion of a work sheet which may extend upward beyond the paper table 45 I have provided a so-called extension which is in the nature of a flat bar 58. This bar or extension is so mounted on the rear side of the paper table 45 that the extension may be shifted from its full line position for use, shown in Fig. 7, to the position of nonuse shown in dotted lines in said figure, and may be retained indefinitely in either of said positions, as will now be described.

The bar 58 is slotted longitudinally at 59 to receive the stem of a headed pin 60 that projects from the rear side of the paper table 45. This connection affords a pivotal movement of the bar 58 from an upright position at right angles to the paper table 45 to a position parallel therewith and in the rear thereof. The connection also enables the bar to slide lengthwise a distance corresponding to the length of the slot 59 from a position where it extends to a considerable distance beyond the carriage to compact relation behind the paper table, as shown in dotted lines in Fig. 7.

In order to hold the bar 58 against accidental displacement from its upright effective position suitable means are provided for holding it in such

position. In the present instance such means comprise a spring detent 61 secured at one end, at 61a, to the rear side of the paper table near the top edge thereof. This detent, as shown, is provided with a cone-like engaging projection 62 that is received in a corresponding recess or indentation 63 in the bar 58 when the latter is swung to effective position shown in full lines in Fig. 7. The detent thus locks the bar in the effective position, but sufficient force exerted on the bar from left to right is effective to overcome the resistance of the detent and enable it to be swung down to ineffective position.

From a consideration of Fig. 6 it will be understood that the height of the paper table 45 and extension 58 is such that they will contact with and support a work sheet 22 of any of the standard lengths ordinarily employed. It will be seen, moreover, from this view that the work sheet intermediate the feed rollers 25 and 26 is held by said feed rollers firmly against the platen, whereas that portion of the work sheet that extends beyond the platen is in contact at all times from the point where it leaves the platen with either the table 45 or said table and its extension 58, to effectively dampen its vibrations and prevent or reduce to a minimum the noise that is ordinarily accentuated by this portion of the work sheet.

I have found, moreover, that by causing that portion of the work sheet in the machine which extends above the printing line to receive a more or less abrupt bend, as at the line where the feed roller 26 coacts therewith, this in itself acts to dissipate, reduce or prevent the vibrations of the sheet and the consequent noise which ordinarily occurs when that portion of the work sheet is free from such bend.

If desired the front face of the bar 58 may be provided with suitable indices with which the leading end of the work sheet may register successively and thus constitute a page end indicator, as well as a damper, for the work sheet. This is indicated in Fig. 7 in which the index numeral "13" on the bar 58, and the indicating line at the bottom of said numeral, indicate to the operator that the bottom edge of a legal cap or thirteen inch sheet is close to the printing line when the leading end of said sheet registers with said index numeral.

I prefer to construct and pivotally mount the supporting arms 54 in the following manner in order that said arms, the slides 47, the paper table 45 and its extension 58 may be readily swung back as a single unit to an ineffective position, and may when desired be readily removed as a single unit from the machine, as will now be described.

Each supporting arm 54 is pivoted in the rear of the platen to a bracket arm 64, as indicated at 65. Each bracket 64 is secured by headed clamping screws 66 to bracket arms 67 by which a column stop bar 68 is secured to the carriage. The stem of each screw 66 passes through a fore and aft elongated slot 69 in the foot piece 64a of the companion bracket and affords a limited fore and aft adjustment of said bracket and the parts carried thereby, and also provides for the ready removal of such parts as a single unit, when desired. Each supporting arm 54 extends rearward and downward from its pivot and terminates in a laterally projecting stop lug 70 that coacts with the companion bracket 67 to limit the pivotal movement of the associated arm 54 and the parts carried thereby to the effective, Fig. 1, position. Each stop lug 70 also coacts with the upright arm of the companion bracket 67 to limit the pivotal movement of the arms 54 and the parts carried thereby in the opposite direction.

The release of the feed rollers 23 and 25 and the paper apron 24 may be controlled from the handle 71 by any suitable means.

From the foregoing description it will be seen that the paper table 45 and its extension 58 constitute means for supporting a work sheet as it leaves the platen above the printing line and for substantially the full length thereof beyond said point and that the feed roller 26 constitutes means for assuring a contact between said sheet and supporting means throughout the length of the latter, thus causing the supporting means to operate in the nature of a damper to reduce or prevent the noise that ordinarily is accentuated by that portion of the work sheet in the machine which extends beyond and above the printing line.

It also will be seen that the feed roller 26 bears against the platen, or the work sheet thereon, at the point where the work sheet leaves the platen and is arranged close to the lower end of the supporting means and in the bight between the platten and supporting means. The roller thus coacts with the platen and supporting means to create a more or less abrupt bend in the sheet and compel it to contact with the platen and supporting means at such place and insures the sheet contacting with the supporting means throughout the length of the latter.

While the means herein described have been found to be highly effective to substantially eliminate the noises ordinarily highly accentuated or produced by a work sheet in the machine, it should be understood that from the broader aspects of my invention many changes may be made in the construction, and parts thereof may be employed without others, without departing from my invention as it is defined in the accompanying claims.

What I claim as new and desire to secure by Letters Patent is:

1. The combination of a cylindrical substantially noiseless platen, means for immediately supporting a work sheet as it leaves the platen above the printing line and for substantially the full length of said sheet beyond said point, and means for assuring a contact between said sheet and said support throughout the length of the latter, whereby said support will operate in the nature of a damper on the work sheet to reduce or prevent the noise that ordinarily is accentuated by that portion of the work sheet in the machine which extends above the printing line.

2. The combination of a cylindrical platen, a work sheet support near the front of and above the platen and having its lower end adjacent to the platen, a spring, means for mounting said support for bodily rearward sliding movement from normal position against the force of said spring, and a feed roller which coacts with said platen directly in front of and adjacent to the lower end of said support.

3. The combination of a cylindrical platen, a work sheet support near the front of and above the platen and having its lower end adjacent to the platen, a spring, means for mounting said support for bodily rearward sliding movement from normal position against the force of said spring, a feed roller which coacts with said platen directly in front of and adjacent to the lower end of said support, and means for affording a bodily pivotal movement of said support rearward to an ineffective position.

4. The combination of a cylindrical platen, arms pivoted in the rear of the platen, slides mounted on said arms, springs which connect said arms and slides and offer a spring resistance to the backward movement of said slides from normal position, a paper table carried by said slides and having its lower edge adjacent to the platen, and a spring pressed member mounted independently of said paper table and located in front of the lower edge thereof, said member coacting with a work sheet to press it against the platen and cause it to bear against the paper table as the work sheet leaves the platen.

5. The combination of a cylindrical platen, arms pivoted in the rear of the platen, slides mounted on said arms, springs which connect said arms and slides and offer a spring resistance to the backward movement of said slides from normal position, a paper table carried by said slides and having its lower edge adjacent to the platen, a spring pressed feed roller mounted independently of said paper table and located in front of the lower edge thereof, said feed roller coacting with a work sheet to press it against the platen and cause it to bear against the paper table as the work sheet leaves the platen, and hand actuated means operable at will for releasing said feed roller.

6. The combination of a cylindrical platen, arms pivoted in the rear of the platen, slides mounted on said arms, springs which connect said arms and slides and offer a spring resistance to the backward movement of said slides from normal position, a paper table carried by said slides and having its lower edge adjacent to the platen, a spring pressed member mounted independently of said paper table and located in front of the lower edge thereof, said member coacting with a work sheet to press it against the platen and cause it to bear against the paper table as the work sheet leaves the platen, and means for readily detaching the arms, slides and paper table from the carriage as a single unit.

7. The combination of a cylindrical platen, arms pivoted in the rear of the platen, slides mounted on said arms, springs which connect said arms and slides and offer a spring resistance to the backward movement of said slides from normal position, a paper table carried by said slides and having its lower edge adjacent to the platen, a spring pressed member mounted independently of said paper table and located in front of the lower edge thereof, said member coacting with a work sheet to press it against the platen and cause it to bear against the paper table as the work sheet leaves the platen, and an extension carried by said paper table and shiftably mounted thereon from an upright position of use to an ineffective position parallel with the paper table.

8. The combination of a carriage, a cylindrical platen carried thereby, arms extending forward from the carriage above the platen near the ends thereof, spring pressed slides carried by said arms, a cross bar intermediate said slides and detachably connected therewith but fixed against rotation thereon, and a paper table fixed to said cross bar and extending at its lower edge adjacent to the platen near the front thereof.

9. The combination of a carriage, a cylindrical platen carried thereby, arms extending forward from the carriage above the platen near the ends thereof, spring pressed slides carried by said arms, a cross bar intermediate said slides and detachably connected therewith but fixed against rotation thereon, a paper table fixed to said cross bar and extending at its lower edge adjacent to the platen near the front thereof, and an extension mounted on said paper table for movement thereon from an effective upright position of use to an effective position parallel with the paper table.

10. The combination of a carriage, a cylindrical platen carried thereby, arms extending forward from the carriage above the platen near the ends thereof, spring pressed slides carried by said arms, a cross bar intermediate said slides and detachably connected therewith but fixed against rotation thereon, a paper table fixed to said cross bar and extending at its lower edge adjacent to the platen near the front thereof, an extension mounted on said paper table for movement thereon from an effective upright position of use to an ineffective position parallel with the paper table, and a feed roller arranged in front of the lower edge of said paper table and bearing against the platen adjacent to said paper table.

11. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, means for supporting a work sheet as it leaves the platen above the printing line and for substantially the full length of the sheet beyond said point, and a member arranged above the printing line and bearing against a work sheet in the machine throughout the width thereof at the point where the sheet leaves the platen and where it immediately coacts with said support, thereby maintaining the sheet in contact with the platen and support at said point.

12. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, means for supporting a work sheet as it leaves the platen above the printing line and for substantially the full length of the sheet beyond said point, and a feed roller that extends throughout the length of the platen and bears against the latter above the printing line and at the bight between the platen and said support, said feed roller coacting with a work sheet in the machine throughout the width thereof and coacting with the platen and said support to create an abrupt bend in the work sheet at the point where the sheet passes from the platen where it immediately coacts with said support, thereby maintaining contactive engagement of the work sheet with the platen and support at said point and providing against the formation of a pocket between the platen and work sheet.

13. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, means for supporting a work sheet as it leaves the platen above the printing line and for substantially the full length of the sheet beyond said point, a feed

roller that extends throughout the length of the platen and bears against the latter above the printing line and at the bight between the platen and said support, said feed roller coacting with a work sheet in the machine throughout the width thereof and coacting with the platen and said support to create an abrupt bend in the work sheet at the point where the sheet passes from the platen immediately to said support, thereby maintaining contactive engagement of the work sheet with the platen and support at said point and provide against the formation of a pocket between the platen and work sheet, and hand-controlled means operable at will for shifting said feed roller forward to and for maintaining it in an ineffective position.

14. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, a paper table at the front delivery side of the platen, an upwardly directed extension on said paper table, the combined height of the paper table and extension being such as to support and dampen the work sheet substantially throughout the length thereof beyond the point where it leaves the platen, and means adjacent to the lower end of said paper table for controlling a work sheet at the point where it leaves the platen and immediately coacts with said paper table to provide against the formation of a pocket between the platen and work sheet.

15. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, a paper table at the front delivery side of the platen, an extension for said table, means for assuring a contact between a work sheet and said paper table and extension where the work sheet leaves the platen, means for connecting said extension to the paper table for movement from an upright position thereon to a position behind and parallel with said paper table, and a detent for holding said extension in its upright position.

16. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, a paper table, an extension for said paper table, the combined height of the paper table and extension being such as to support and dampen the work sheet substantially throughout the length thereof beyond the point where it leaves the platen, means for assuring contact between a work sheet and the platen and paper table, and a pivotal and sliding connection between said table and extension, whereby the latter may receive a pivotal movement into parallelism with the table and may then receive a sliding movement into compact position behind the paper table.

17. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a carriage, a cylindrical substantially noiseless platen carried thereby, brackets detachably and adjustably mounted on the carriage in the rear of the platen, arms pivotally connected to said brackets and extending forward above the platen near the ends thereof, a paper table carried by said arms and extending at its lower edge near the platen at the front thereof and above the printing line, and an independently mounted spring pressed feed roller arranged in front of and adjacent to the lower edge of said paper table and extending throughout the length thereof, and an extension on the paper table, the combined height of the paper table and extension being such as to support and dampen the work sheet substantially throughout the length thereof beyond the point where it leaves the platen.

18. In a construction for damping that part of a work sheet which extends above the platen after it has advanced beyond the printing line in order to reduce to a minimum or eliminate the noise that ordinarily is accentuated by the paper during the hammer blows of the type bars against the platen, the combination of a cylindrical substantially noiseless platen, a paper table at the front delivery side of the platen, an extension for said table, means for assuring a contact between a work sheet and said paper table and extension when the work sheet leaves the platen, the combined height of the paper table and extension being such as to support and dampen the work sheet substantially throughout the length thereof beyond the point where it leaves the platen, means for connecting said extension to the paper table for movement from an upright position thereon to a position behind and parallel with said paper table, and a detent for holding said extension in its upright position.

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