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Scheinpflug

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[54] **LARGE FORMAT PAPER HANDLING ASSEMBLY FOR TYPEWRITERS OR LIKE BUSINESS MACHINES**

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[51] **Int. Cl.**[3] **B41J 15/06**

[52] **U.S. Cl.** **400/623**; 400/552; 400/634

[58] **Field of Search** 400/552, 623, 634, 636, 400/26

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,280,678	10/1918	De Clamecy	400/552
1,311,929	8/1919	Tucker	400/623
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3,900,098	8/1975	Effinger	400/552
4,076,112	2/1978	Effinger	400/552

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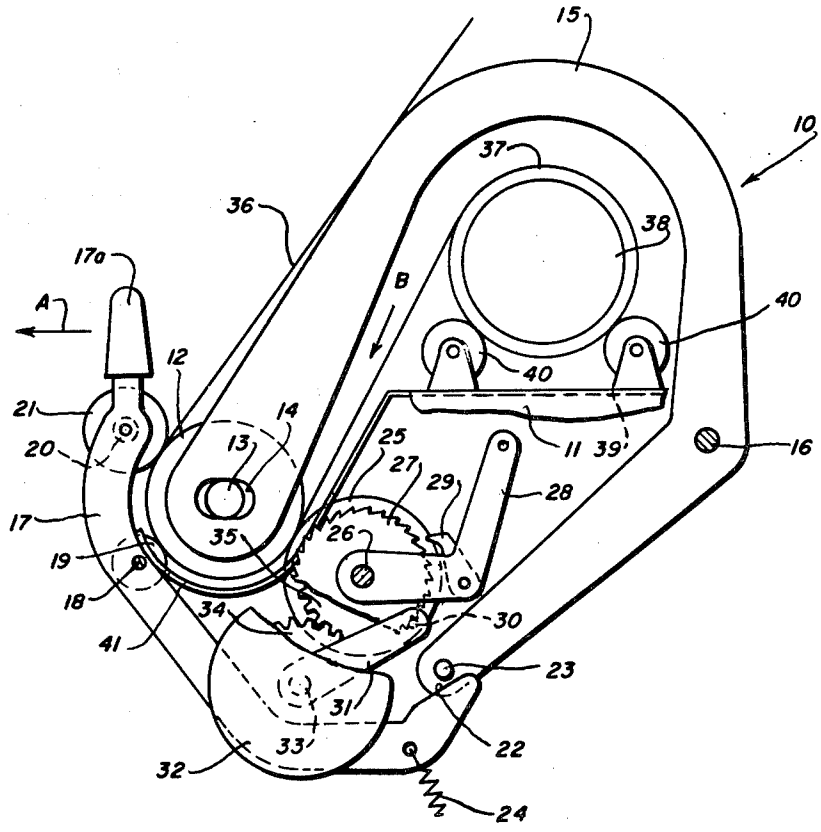
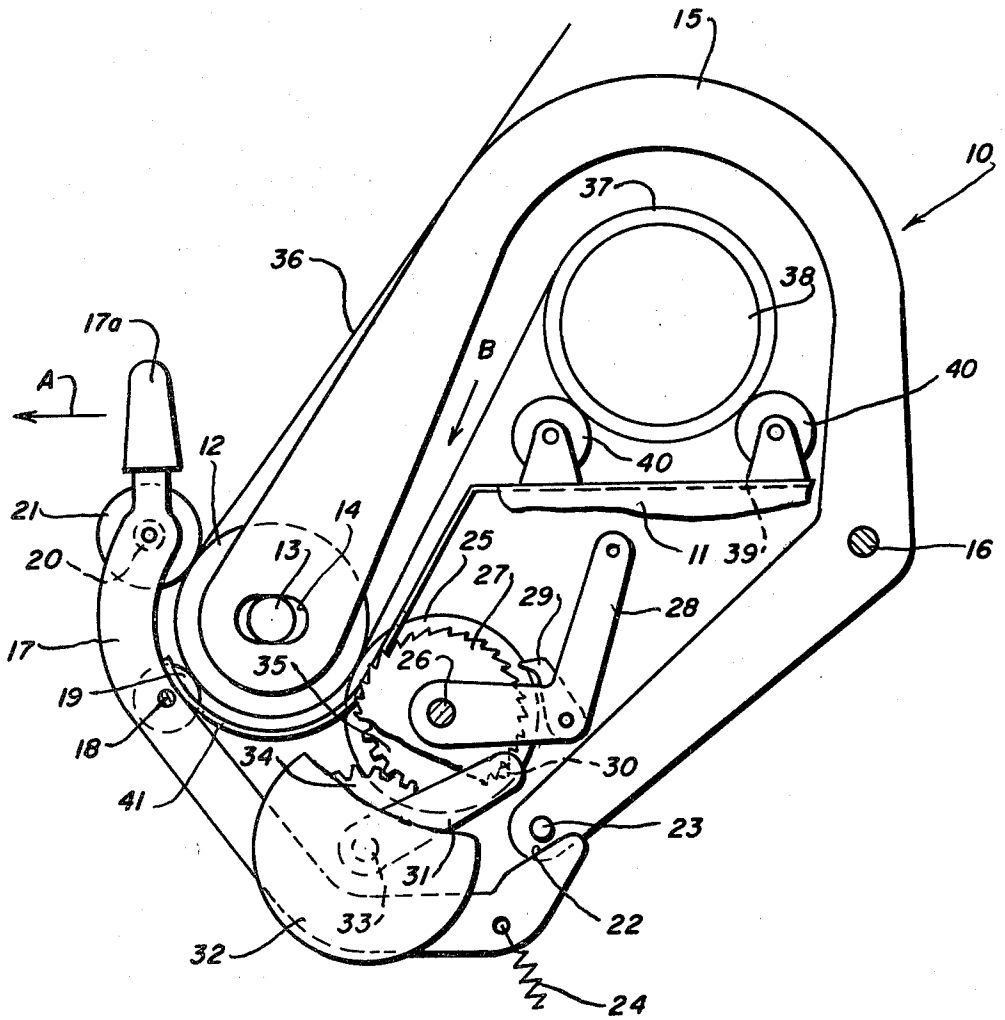
[57] **ABSTRACT**

A large format paper handling assembly has an axially stationary platen which is rotatably mounted on pivotally mounted support arms. The platen is supported on spaced frame supported front guide rollers and rear feed rollers. The off axis rear feed rollers are adapted to be manually and/or automatically line indexed to frictionally feed paper between the rear feed rollers and the platen. Hold down rollers are mounted on a bail extending between spaced paper feed release levers which are pivotally mounted on the frame about the axis of the front guide rollers and are movable away from the platen against the bias of springs. The springs acting through the hold down rollers maintain the platen in frictional engagement with its supporting front guide rollers and rear feed rollers. The pivotal movement of the paper feed release lever withdraws the hold down rollers and also acts to pivot the platen support arms to move the platen away from the front guide rollers and the rear feed rollers. A paper roll of large format paper is peripherally supported on frame mounted rollers and is trained between the platen and the feed rollers and the platen and guide rollers.

2 Claims, 1 Drawing Figure

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LARGE FORMAT PAPER HANDLING ASSEMBLY FOR TYPEWRITERS OR LIKE BUSINESS MACHINES

This invention relates to large format paper handling assemblies for typewriters or like business machines; more particularly it relates to a large format paper handling assembly having a platen supported upon front guide rollers and rear feed rollers; and specifically to a large format paper handling assembly in which paper feed release lever means operates to disengage the platen from the guide and feed rollers.

Large format paper handling assemblies known to the are, are represented by U.S. Pat. No. 4,076,112 to Cecil S. Effinger which is an improvement on his earlier U.S. Pat. Nos. 3,767,023 and 3,900,098.

The noted Effinger patents are relatively complex and have certain shortcomings, e.g., no provision is made for both automatic and manual indexing of the platen, nor is provision made for moving the platen to a paper feed release position away from supporting stationary rollers to facilitate paper insertion, lateral paper shifting or paper squaring.

In accordance with the invention the shortcomings of the prior art are accommodated in a paper handling assembly of simple and reliable design. More particularly in accordance with the invention large format paper, for example, in roll form, is supported on a machine frame and guided in turn between frame supported rear feed rollers and a floatingly supported platen, around the platen, between the platen and front guide rollers, and between the platen and upper paper hold down rollers, the latter of which are supported on a bail extending between paper feed release levers. The paper feed release levers are under spring bias and act through the hold down rollers thereon to urge the platen into frictional engagement with the front guide and rear feed rollers. Movement of the paper feed release levers withdraws the hold down rollers and acts against platen support arms to bodily separate the platen from all contacting rollers to a release position to facilitate paper entry, lateral shifting and/or squaring.

An object of the invention is in the provision of a simple and reliable large format paper handling assembly.

Another object of the invention is to provide a large format paper handling assembly which permits automatic as well as freely accessible manual platen indexing.

A further object of the invention is in the provision of a large format paper handling assembly in which the platen may be moved to a paper release position relative to supporting front guide and rear feed rollers without removal of the platen from the assembly.

Other objects, features and advantages of the present invention will become known to those skilled in the art from a reading of the following detailed description when taken in conjunction with the accompanying drawing wherein like reference numerals designate like or corresponding parts throughout the several views thereof, and wherein:

The single FIGURE of the drawing is a side elevational view of a paper handling assembly in accordance with the invention.

Referring now to the drawing there is shown a paper handling assembly generally designated by reference numeral **10** particularly adapted for mounting on the

frame **11** of a stationary platen typewriter in which a print element supported on a carriage (not shown) is movable relative to the frame **11** in escapement and carriage return directions.

The paper handling assembly comprises a platen **12** having a central shaft whose ends **13** extend into horizontally elongated holes **14** in spaced platen support arms **15**. The elongated holes **14** rotatably support the platen **12** while allowing it to reliably position itself relative to guide and feed rollers. The platen support arms **15** extend upwardly, curve around to the rear and down to frame supported pivots **16** thereby to allow the support arms **15** to be pivoted to enable the platen **12** to be moved to paper release position. To move the platen support arms **15** two paper feed release levers **17** which are pivotably mounted on a shaft **18** fixed in the frame and carrying paper guide rollers **19** are provided. Toward the outer handle ends, the paper feed release levers **17** support a cross bail **20** mounting paper hold down rollers **21**. The lower rearwardly directed ends of the paper feed release levers **17** have each a beveled tab **22** which interacts with pins **23** disposed at the lower ends of portions of the platen supporting arms **15** extending beyond and downwardly from pivots **16**. Each paper feed release lever **17** is acted upon by a spring **24** to urge the paper hold down rollers **21** towards the platen **12**. Disposed on the paper intake side of the platen **12** generally to the rear and below the platen **12** are paper feed or transport rollers **25** of the same diameter as the platen **12** mounted on a cross shaft **26** rotatably supported on the machine frame. The cross shaft **26** has secured thereto a line space ratchet **27** actuable by a conventional line indexing device (not shown) via a suitably spring loaded indexing lever **28** and pawl **29**. A detent **30** also supported by a suitably spring-loaded lever **31**, is provided to detentably hold the line space ratchet **27**.

To turn the platen **12** a platen turning knob **32** is mounted on a shaft **33** rotatably supported in the frame generally below and rearwardly of the platen **12**. A manually performed rotary motion of the knob **32** is transmitted to the platen **12** via a gear **34** fixed to the shaft **33** of the turning knob **32** and another gear **35** fixed to the shaft **26** of the paper transport rollers **25** adapted to frictionally drive the platen **12**.

The wide format paper **36** to be written on, such as paper used for technical drawings, e.g., in the form of a paper roll **37** on a core **38**, is mounted on rollers **40** carried on a stationary support **39** secured to the machine frame. The support **39** extends downwardly towards and around the platen **12** to form a paper trough **41** provided with openings to accomodate the feed and guide rollers **25** and **19**.

The operation of the device is as follows:

To feed the paper **36** of any width unwound from the paper roll **37** and to be typewritten on, the paper feed release levers **17** are actuated in the direction of arrow A to a release position and suitably held, thereby carrying the paper hold down rollers **21** off and away from the platen **12**. At the same time the beveled tab **22** at the lower ends of the paper feed release levers **17** act to pivot the platen supporting lever arms **15** about pivots **16** via the pins **23**, whereby the platen **12** is raised relative to the guide rollers **19** and the feed rollers **25** thereby to open the gap between platen **12** and the paper trough **41** wider. The wider gap between the platen **12** and the paper trough **41** can now facilitate leading the paper **36** around the platen **12** in the direc-

tion of arrow B to bring the lead edge beyond the hold down rollers **21** and to square the paper **36**. After this is done, the paper feed release levers **17** are returned to their basic position by and are maintained, positioned by the springs **24**. The return of the paper release levers **17** from feed release positions allows the supporting arms **15** to return to the basic position shown and the platen **12** to locate itself via slot **14** upon the paper supporting guide rollers **19** and the transport rollers **25**. As the platen shaft **13** is mounted in an elongated hole **14**, the platen **12** can so place itself on the rollers **19** and **25**, respectively, that the paper **36** is securely guided and reliably transported in case of a line shift by means of the pawl **29**. The mass of platen **12** is adequate to obtain a safe bearing pressure against the rolls **19** and **25**.

The platen turning knob **32** which, as described above, transmits its rotary motion to the platen **12** via the gears **34** and **35** can be operated manually to adjust the paper **36** to the line to be written on.

According to the invention since the platen turning knob **32** is below the platen it remains accessible from the side so that a rotary adjustment of the platen **12** can be made without hindrance by side edges of paper **36** projecting to the left and right beyond the sides of the typewriter. Moreover, since the support **39** carrying paper in roll form is stationary and only the type carrier moves, crumpling of paper side edges hitting objects on the desk is obviated. Further, the pivoting of the paper feed release levers **17** to paper release position facilitates, in a simple manner, paper insertion squaring and/or lateral shifting so that a new portion of its width is positioned in front of the platen within the writing line of the print element which can then be typed on.

The invention claimed is:

1. A large format paper handling assembly for association with a printing element movable in escapement and carriage return directions comprising

a frame,

platen support arms pivotably mounted on said frame,

a platen having its ends rotatably and translatably mounted between said support arms,

frame mounted guide rollers and rearwardly spaced feed rollers for rotatably supporting said platen,

paper feed release lever means pivotably mounted on the axis of said guide rollers,

paper hold down rollers supported on said paper feed release lever means for engaging said platen, and

means on said paper feed release lever means for rocking said support arms incident to movement of said paper feed release lever means to a release position to move said platen support arms and said platen from engagement with said guide and feed rollers.

2. An assembly as recited in claim **1**, including

a platen turning means rotatably supported on said frame, and

gear means on said turning means and said feed rollers for transmitting turning motion to frictionally drive said platen.

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