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PAPER HOLDING MECHANISM FOR OFFICE MACHINES

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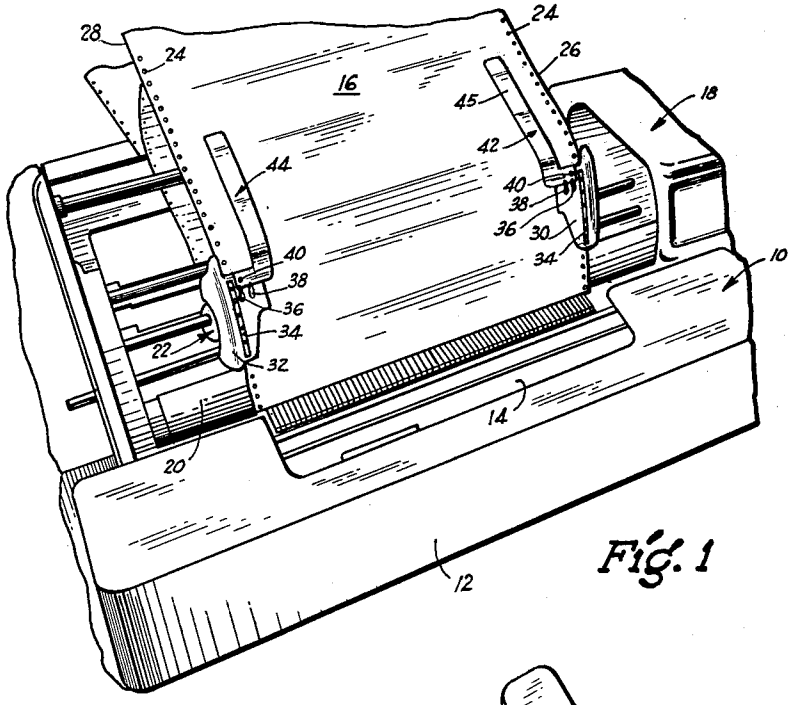


Fig. 1

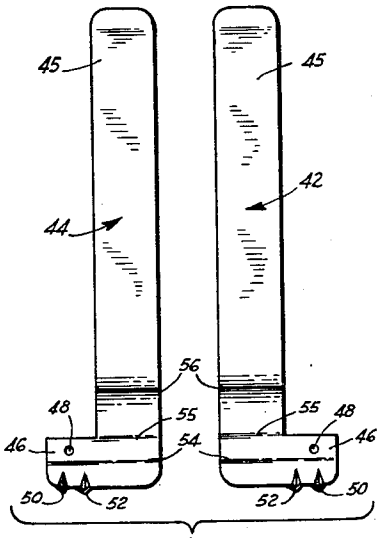


Fig. 2

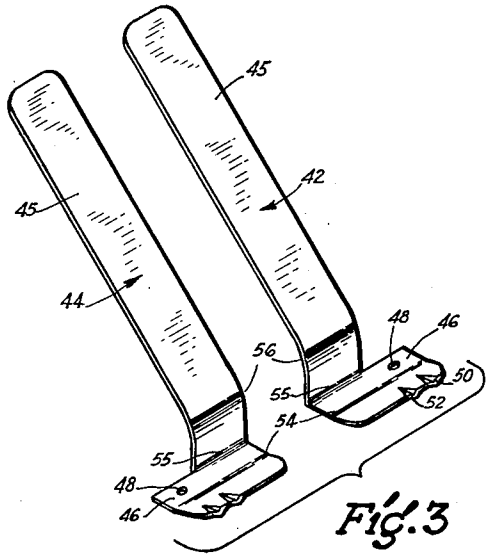


Fig. 3

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PAPER HOLDING MECHANISM FOR OFFICE MACHINES

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This invention relates to improvements in data processing machines and more particularly, but not by way of limitation, to a paper holding mechanism for accounting machines, and the like, for precluding over-printing or accidental folding of the work piece.

Present day data processing or accounting machines and equipment are normally rapidly operated and the work material processed thereby is usually a continuous sheet or web which is fed therein and moves therethrough with great speed. Often times the operator of the machine is engrossed in the work being done, or the actual mechanics of the operation of the machine, and does not maintain a constant visual inspection of the work or travelling sheet leaving the machine. As a result, the work piece or travelling web may catch on an obstacle or otherwise be stopped in the movement away from the platen or printing area of the machine, whereupon the paper or work piece may fold back on itself. This is a great disadvantage in that the operation of the machine may not be interrupted when the work piece has stopped moving, and the sheet or web continues to be fed into the machine. This usually results in back-folding of the sheet and over-printing of the accounting information, or other data on the work piece. It will be apparent that this not only ruins the previously accomplished work printed on the sheet, but also disfigures or mars the present data being processed in the machine. It is frequently desirable to advance a plurality of super-imposed sheets or webs through the machine at one time to provide printing or simultaneous impressing of identical data on more than one form. It will be apparent that the disadvantage of the accidental back-folding of the forms is thus increased.

The present invention relates to a novel paper or work holder mechanism adapted to be readily secured to the form-aligner of substantially any accounting machine, or the like, to positively preclude any accidental folding back of the paper at the platen or work area of the machine. Thus, the accidental over-printing of the data on the travelling sheet or form being processed is substantially eliminated, thereby greatly improving the overall results and operating efficiency of both the machine and operator thereof. The novel paper holder is particularly designed and constructed for directing the travelling web or sheet in a rearward direction from the imprinting portion or the platen of the machine in such a manner that the web or sheet leaving the platen is held substantially smooth and free from wrinkling. In the event the sheet inadvertently catches on any obstacle, the slight pressure of the paper holder device against the front surface of the sheet as it tends to fold back on itself precludes any back-folding thereof and causes the sheet to continue the rearward movement with no interruption, thus eliminating the inherent disadvantages of any backfolding. Furthermore, the novel paper holding device may be secured to the machine in such a manner that there is no hinderance or impeding of the normal operation processes, and the handling of the sheet or work piece, such as removal from the machine, or removal of portions of the completed data by tearing from the continuous sheet. The novel paper holder is simple and efficient in operation and economical and durable in construction.

It is an important object of this invention to provide a novel paper holder mechanism adapted for utilization

with data processing machines, and the like, for increasing the operating efficiency thereof.

It is another object of this invention to provide a novel paper holder mechanism for substantially any accounting machine, or the like, which may be quickly and easily secured to the machine without alteration or modification of the structure of the machine itself.

Another object of this invention is to provide a novel paper holder device for an accounting machine, and which is particularly designed and constructed for directing the travelling sheet leaving the work area of the machine in a substantially uninterrupted rearward movement during the operation of the machine.

A further object of this invention is to provide a novel paper holder mechanism adapted to be secured to the form-aligner of an accounting machine, or the like, for precluding back-folding of the travelling sheet for substantially eliminating accidental over-printing of the data being processed by the machine.

Other objects and advantages of the invention will be evident from the following detailed description, read in conjunction with the accompanying drawings, which illustrate my invention.

In the drawings:

FIGURE 1 is a perspective view of a portion of an accounting machine provided with a paper holder mechanism embodying the invention.

FIGURE 2 is a front elevational view of a paper holding device embodying the invention.

FIGURE 3 is a perspective view of a paper holding mechanism embodying the invention.

Referring to the drawings in detail, reference character **10** generally indicates a data processing machine, such as an accounting machine, but not limited thereto. The machine **10** normally comprises a suitable casing or housing portion **12** containing the usual operating members, generally indicated at **14**, for imprinting or otherwise transferring the desired data (not shown) on a continuous sheet or web **16** adapted to travel through the machine. It is frequently desirable to feed or move a plurality of superimposed webs or sheets **16** through the machine **10** simultaneously for imprinting identical information thereon, as is well known, although only one of the sheets is depicted herein. A carriage portion **18** is carried by the housing **12** and is normally disposed rearwardly thereof for supporting the instrumentalities which are required to secure, feed, and cooperate with the members **14** for printing or otherwise impressing the data on the web **16**.

The instrumentalities usually include a rotatable platen **20**, or the like, around which the web **16**, or plurality of webs travel during operation of the machine **10**, as is well known. The carriage mechanism **18** also normally includes a form-aligner device, generally indicated at **22**, which is provided for aligning the plurality of super-imposed sheets or webs during the operation or processing of the data. The web or sheet **16** most frequently utilized with this type of machine is provided with a plurality of spaced apertures **24** at the opposed side edges **26** and **28** thereof and extending throughout the length thereof. The form-aligner device **22** is usually provided with a pair of spaced rotatable gear or toothed wheel members (not shown) disposed substantially perpendicular to the plane of the web **16** and in alignment with the apertures **24** whereby the teeth of the wheel are adapted to engage the apertures **24**. The apertures **24** of each of the plurality of super-imposed sheets or webs **16** may be manually aligned, as is well known, and thus will be simultaneously engaged by the toothed wheel whereby the sheets **16** will be maintained in alignment during travel through the machine **10**.

The form-aligner device **22** is usually also provided

with a pair of oppositely disposed plate members 30 and 32 of substantially identical configuration. The plate members 30 and 32 are spaced slightly forwardly of the web 16 and extend over a portion of the opposite side edges 26 and 28 thereof, respectively, and as clearly shown in FIG. 1. Each plate member 30 and 32 is normally provided with a longitudinal slot 34 disposed in alignment with the apertures 24 of the corresponding side edge of the sheet 16. It will be apparent that the slots 34 provide clearance for the teeth of the wheel (not shown) which engage the apertures 24, as hereinbefore set forth. The plate members 30 and 32 function to hold the paper or sheet 16 in a position substantially adjacent the form-aligner device 22 for assuring that the teeth will engage the apertures 24, and to preclude the web 16 from falling forward as it leaves the platen 20, as is well known. However, the portion of the web 16 extending rearwardly from the opposed plates 30 and 32 may fold back on itself during the normal operation of the machine 10 whereby over-printing thereon may occur.

The plates 30 and 32 are each usually further provided with a pair of spaced slots 36 and 38 and an aperture 40 in the proximity of the upper edge thereof. In order to preclude accidental back-folding of the sheet 16, a pair of paper holding devices 42 and 44 are secured to the plates 30 and 32, respectively, in a manner as will be hereinafter set forth.

The devices 42 and 44 are substantially identical, as clearly shown in FIGS. 2 and 3. The holder 42 is preferably considered the right hand device, whereas the holder 44 is considered as the left hand device. The description of the device 42 will be set forth in detail, it being understood that the holder 44 is of a similar construction, but opposite or reversed therefrom. The holder 42 is of a substantially L-shaped configuration wherein the longer leg 45 thereof extends rearwardly from the plate 30. The shorter leg 46 of the holder 42 extends at a right angle from the leg 45 and is provided with an aperture 48 adapted to be aligned with the aperture 40 of the plate 30 whereby a screw (not shown), or the like, may be utilized for securing the holder 42 to the front face of the plate 30. The lower edge of the leg 46 is further provided with a pair of spaced detents 50 and 52 for engaging the spaced slots 36 and 38 of the plate 30. The engagement between the slots 36 and 38 and detents 50 and 52 precludes wobbling or pivoting of the holder 42 about the connection at the aligned apertures 40 and 48, thus assuring a stability for the holder 42 during the normal vibrations inherent with the operation of the machine 10. It will be apparent that the detents 50 and 52 are depicted in an exaggerated size in FIGS. 2 and 3 for purposes of illustration. In addition, the leg 46 is preferably slightly bent substantially along the longitudinal center thereof as indicated at 54 to assure no interference between the device 42 and the plate 30 thus providing no hinderance of the normal operation of the machine 10. The slight transverse bending of the leg 46 in no manner interferes with the engagement of the detents with the respective slots.

The longer leg 45 is bent at 55 with respect to the leg 46 and is curved slightly backward at 56, as viewed in the drawings, whereby the leg 45 extends upwardly a short distance from the leg 46 and then rearwardly therefrom at a slight angle. Thus the leg 45 extends rearwardly at an angle from the plate 30 whereby there is no interference with the normal travel of the web 16 through the machine 10. The legs 45 of each holder device 42 and 44 function as stop members to positively preclude any upward or forward movement of the web 16 travelling rearwardly from the form-aligner 22 or plates 30 and 32. It is to be noted that the leg 45 of each holder 42 and 44 extends rearwardly from the respective plates 30 and 32 a sufficient distance to assure that the web 16 leaving the platen 20 will travel through the machine 10 smoothly without back-folding in the printing or working area of the machine 10. In the event there should be any accidental stoppage of the sheet 16 or catching of the web on an obstacle whereby the sheet may try to rise from the form-aligner 22 or attempt to fold back on itself, the leg members 45 will contact the front surface of the paper and positively preclude any forward movement thereof, thus forcing the paper or sheet to continue in its rearward travel from the platen.

It will be apparent in FIG. 1 that the paper holding devices 42 and 44 are disposed slightly inwardly of the respective plates 30 and 32 due to the L-shaped configuration of the holding members 42 and 44. In this manner, the holders 42 and 44 do not interfere with the handling of the travelling sheet, particularly when it is desired to remove the completed data from the machine, such as by tearing a portion of the sheet 16 from the machine. The side edges 26 and 28 of the sheet 16 are not encumbered by the devices 42 and 44, thus permitting ease of handling thereof when manual manipulation of the sheet is required. The simplicity of the structure of the paper holding devices 42 and 44 facilitates the use thereof, and the devices may be quickly and easily secured to substantially any accounting machine, or the like, without modification of the structure of the machine.

From the foregoing, it will be apparent that the present invention provides a novel paper holding device for increasing the operating efficiency and results of a business machine. The novel paper holding devices positively preclude accidental back-folding of the work sheet or travelling web during the processing thereof by the machine. The holder members may be utilized with substantially any type of accounting machine, or the like, and do not in any manner interfere with the normal operation of the machine. The novel paper holder fingers are simple and efficient in operation and economical and durable in construction.

Changes may be made in the combination and arrangement of parts as heretofore set forth in the specification and shown in the drawings, it being understood that any modification in the precise embodiment of the invention may be made within the scope of the following claims without departing from the spirit of the invention.

I claim:

1. In combination with a data processing machine including a form-aligner device and having a web of paper moving therethrough at a high speed, paper holding means adapted to be secured to the form-aligner device of the machine and comprising a pair of substantially identical oppositely disposed holder members, each of said holder members comprising a relatively short leg and a relatively long leg disposed at substantial right angles with respect to each other, each of said short legs provided with apertures for facilitating securing of the holder members to the form-aligner whereby the holder members are disposed slightly inwardly therefrom, detent means provided on each short leg for cooperation with the form-aligner to stabilize the holder members against vibration of the machine during operation thereof, said short legs being slightly bent along the longitudinal center line thereof to preclude hindrance of the operating portions of the machine, each of said long legs being bent with respect to the associated short leg whereby the long leg extends upwardly from the machine a short distance and being further bent whereby the greater portion thereof extends rearwardly of said short legs a sufficient distance for precluding back-folding of the paper being processed in the machine due to passage of the paper over the rear portions of the machine.

2. In combination with a data processing machine including a form-aligner device and having a web of paper moving therethrough at a high speed, paper holding means adapted to be secured to the form-aligner device of the machine and comprising substantially identical but oppositely arranged holder members, each of said holder members comprising a relatively short leg and a relatively

long leg disposed at substantial right angles with respect to each other, each of said short legs provided with apertures for facilitating securing of the holder members to the form aligner device whereby the short legs will be substantially horizontally disposed and in a plane complementary with the portion of the web disposed adjacent thereto, each long leg being bent in the proximity of the respective short leg for extending outwardly from the machine for a relatively short distance, each long leg being bent at a position spaced from the first bend whereby the preponderance of the length of each long leg extends rearwardly at an angle a sufficient distance for precluding back-folding of the paper being processed in the machine due to passage of the paper over the rear portions of the machine.

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