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 DEVICE FOR RECEIVING AND GUIDING CONTINUOUS
 SETS OF FORMS OR THE LIKE
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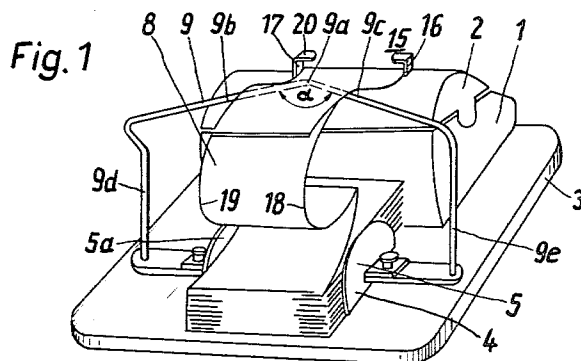


Fig. 1

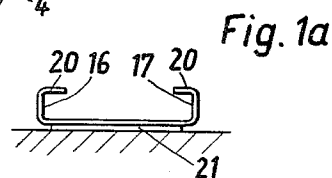


Fig. 1a

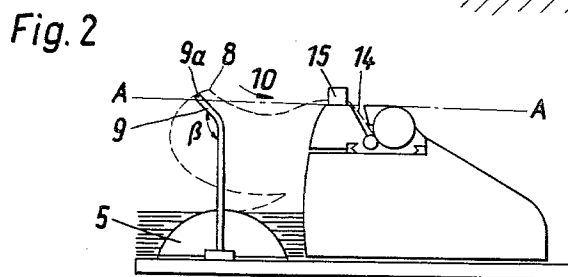


Fig. 2

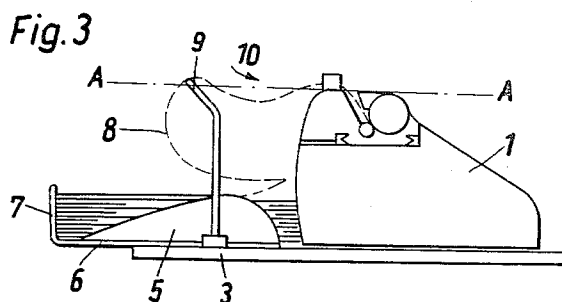


Fig.3

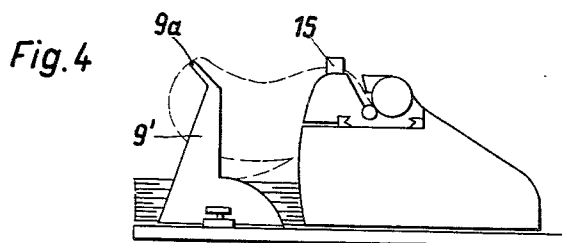


Fig.4

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DEVICE FOR RECEIVING AND GUIDING CONTINUOUS SETS OF FORMS OR THE LIKE

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6 Claims. (Cl. 197—180)

The present invention relates to a device for receiving and guiding continuous sets of forms or the like material for writing on which may be zig-zag folded or reeled, in combination with a transcribing or duplicating machine. The hitherto known devices for receiving continuous material for writing on, such as continuous sets of forms or the like, are connected to the reciprocating carriage of the transcribing machine in such a way that the stacking or pile container, inclusive of the continuous writing material is carried along by the carriage in its reciprocating motion. Such pile container associated with the reciprocating carriage are known both for continuous zig-zag folded and reeled writing material. The considerable disadvantage of these known devices is that the pile container with the material contained therein and following the high speed reciprocating motion of the carriage of the transcribing machine, imposes additional weight on the carriage such that the latter is subject to substantial additional forces due to inertia on acceleration and particularly on sudden braking.

Therefore, all the hitherto known arrangements are in contrast to the principles adopted by the manufacturers of transcribing machines, namely to reduce the forces due to inertia to a minimum by means of a reduction in weight of the carriage. As a result, most of the transcribing machines are not capable of taking up any additional forces due to inertia and it may happen that such machines, provided with the known devices for receiving continuous material for writing on, disfunction in transcribing or calculating, for example in the case of billing machines. Furthermore, these transcribing machines because of the additional forces are subject to increased mechanical stresses resulting in a much quicker wear and tear.

It is an object of the invention to provide a device of the type described which does not impose any additional weight on the transcribing machine nor on parts thereof thus avoiding the development of additional forces due to inertia. The improved device also is to ensure safe and troublefree guidance of the continuous sets of forms from the zig-zag laid pile or from the reel up to insertion of the material in the paper guide roll of the machine without subjecting the material to undesirable forces, in particular the linkages between the individual manifold sets and their transverse perforation or their lateral edges,

This problem is solved by the invention in that a support for the writing material, hereinafter referred to as paper support, is arranged at least on a level with the feed plane of the writing material, said support being mounted in spaced relationship to and behind the transcribing machine and in that the continuous sets of forms stacked in a stationary pile container behind said transcribing machine are supported by said paper support on passing through the transcribing machine.

It is of advantage to construct the actual supporting and contacting surface of the device which ensures a correct feed position of the writing material and a reduction of frictional forces between the paper support and the continuous writing material as well as a reduction of tensional forces in such a manner that said surface has approximately point contact with the material or preferably is formed as a convex surface or line. A very

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simple and convenient paper support may be obtained by providing said paper support with an attachment in the form of a bracket, an arc or approximately ball-shaped, semispherically or spherically shaped supporting members.

For feeding the continuous writing material which is relieved of its own weight and not subjected to stresses due to the reciprocating motion of the carriage to the transcribing machine, the invention further proposes to dispose the uppermost supporting point of the paper support preferably in the perpendicular longitudinal central plane of the said pile container or the continuous sets of forms respectively.

The paper support according to the invention may have the form of a bracket secured to the base plate of the transcribing machine, or to the transcribing machine or to the pile container.

Due to the fact that the continuous sets of forms for writing on approximately have point contact with the support, said support can be of little weight and provided with only a small contact surface. According to a further embodiment of the invention the paper support may consist of a laterally movable guide lever fixed to the carriage, preferably in such a way that the point of support in the reciprocating motion of the carriage retains its neutral position with respect to the writing material, thus ensuring an almost constant support of said material.

With the device according to the invention the continuous sets of forms are arranged zig-zag folded or reeled within a stationary mounted holding device or stacking or pile container which may have the form of, for example, a container open at its upper end and having laterally adjustable side plates, and the bottom of said container may be provided with extensible supporting members presenting a stop member at their rear end, said supporting members being adjustable to different sizes of writing material.

The improved device permits the continuous material for writing on to be guided approximately parallel, and avoids the development of tension forces or other stresses which may affect the material in spite of the continuous reciprocating motion of the carriage vertically to the direction of feed of the material such that this continuous transverse movement of the carriage in the direction of feed of the material to be inserted cannot impose undesirable stresses or tensional forces on the writing material.

According to yet another feature of the invention the paper support is provided with a level guide directly ahead of the inserting area of the writing material into the roller of the carriage, said level guide being adapted to align the writing material in the desired position for insertion. In order to achieve this alignment, the invention further provides a level guide on the carriage for laterally and vertically aligning the continuous writing material prior to its insertion into the transcribing machine. This level guide can easily be formed with lateral guiding edges projecting beyond the lateral edges of the writing material to be inserted, said guiding edges preferably being curved in the direction of feed of the writing material and relatively thereto such that an enlarged inlet and/or outlet passage is formed. In order to ensure vertical alignment of the writing material passing through said level guide, the latter according to a further feature of the invention is provided with at least one stop member located above the writing material, said stop member preferably being convex relatively to said writing material. A particular simple and practical arrangement of the level guide is obtained according to yet another feature of the invention by securing the level guide directly to the carriage of the transcribing machine by means

of a known adhesive, for example a self-adhesive tape, a magnet or the like means. In this way, the invention makes it possible to use a prefabricated level guide irrespective of what type of machine is employed which may be arranged in a simple manner at the correct place of the particular type of machine without damage to any parts thereof.

The invention will now be described more fully with reference to the accompanying drawings, in which:

FIGS. 1, 1a and 2 show one embodiment of the invention, in which the paper support consists of a bracket which is secured to the base plate of the machine,

FIG. 3 is a side view of FIG. 1,

FIG. 4 is an arrangement in which the paper support is carried on side plates of the pile container or stacking container for the writing material.

As can be ascertained from the perspective view according to FIG. 1, the transcribing machine 1 incorporates a carriage 2 adapted for reciprocating motion, whereas the machine is rigidly secured to a base plate 3. At the rear end of the transcribing machine 1, there is arranged a holding device 4 in the form of a pile container for the writing material. In order to be adaptable to any size of writing material, the pile container is provided with laterally displaceable side plates 5, 5a and an extensible bottom plate 6 which carries at its rear end a stop member 7. The pile container 4 for the writing material is secured firmly preferably to the base plate 3. The location of the holding device 4 (pile container) relatively to the transcribing machine must be chosen such that the longitudinal middle axis of the pile container approximately coincides with the middle of the transcribing machine 1, 2 when its carriage is in its neutral position.

As evident from FIGS. 1 to 3, the paper support 9 is arranged at least level with the feed plane A—A (FIGS. 2 and 3) of the writing material 8 and behind the transcribing machine 1, 2 and in spaced relationship thereto. The writing material 8, particularly continuous sets of forms is inserted in the transcribing machine by passing over the support in the direction of the arrow 10. To ensure smooth operation, it is essential to keep the frictional forces between the writing material 8 and the contact surface of the paper support 9 as low as possible and to form the actual support and contact surface 9a approximately as a point, preferably as a convex arc or it may be represented by the angular point of two legs of a bracket making an obtuse angle. However, it is essential that the uppermost point of support 9a of the paper support 9 lies preferably in the perpendicular longitudinal central plane of the pile container 4 or of the continuous writing material respectively.

The upwardly extending and protruding contact surface which is arranged in the longitudinal central axis of the continuous stationery or writing material may have any suitable shape. It is for example possible, to provide a bracket having an approximately horizontal and straight upper portion with a suitably shaped attachment, for instance in the form of a ball or a spherical portion.

Due to the arrangement of the supporting point 9a of the paper support 9 at least above the feed plane A—A and in spaced relationship to the transcribing machine 1, 2, it is achieved that in spite of the continuous reciprocating movement of the carriage 2, the stacked writing material to be inserted in the machine is subject to only a slight tilting or rolling movement above the supporting surface 9a. The legs 9b, 9c of the bracket prevent any excessive sagging or bending of the lateral portions of the continuous sets of forms. By virtue of the supporting of the writing material in the manner previously described, the paper or the like material for writing on reaches the paper feed area or inserting area of the carriage 2 relieved of its own weight and without being subject to tensional forces. The bracket 9 may be fixed to the base plate 3, or to the transcribing machine or alternatively

to the pile container, as illustrated in FIG. 4, wherein the side plate of the pile container constitutes the support 9' for the actual paper support 9a. It is of particular advantage to arrange the bracket 9 transversely to the direction of feed of the continuous sets of forms 8 and to form the members 9a of the bracket 9 which support the writing material as an arc or such that said supporting members preferably make an obtuse angle, the angular point forming the uppermost supporting point 9a for the continuous sets of forms 8 to be inserted. The lateral legs 9d, 9e of the bracket, according to the embodiment of FIGS. 1-3 are arranged in a perpendicular plane transverse to the direction of feed of the continuous writing material. The legs 9b, 9c of the bracket 9 forming the obtuse angle are bent rearwardly with respect to said perpendicular plane such that their plane makes an obtuse angle with the perpendicular plane of the bracket legs 9d, 9e.

It is evident from all the embodiments shown that it is an essential feature of the invention to provide the actual paper support 9, 9a directly ahead of the feed-in area 14 of the carriage with a level guide 15 adapted to align the continuous writing material 8 both in regard to its lateral and to its vertical disposition prior to inserting. The level guide 15 is provided preferably with guide edges 16, 17 extending beyond the lateral margins or edges 18, 19 (FIG. 1) of the writing material 8 to be inserted so as to ensure lateral guiding of said edges. In order to prevent damages of the lateral margins of the material and of the linkage between individual sets of forms, the upwardly extending guide edges are preferably curved in such a manner as to form an enlarged inlet and/or outlet passage for the writing material 8. For proper vertical guidance of the writing material 8, the level guide 15 is provided with at least one stop member 20 arranged above the strip of writing material and which may preferably have a convex curvature directed towards the writing material 8. In the embodiment illustrated in FIGS. 1-3, said stop member consists of a horizontally bent tongue. It is feasible, that for adapting the level guide to different sizes of material, a plurality of inlet openings may be provided one above the other and at different intervals relatively to each other.

The level guide 15 can easily be fixed to the carriage 2 by means of a known adhesive, for example a self-adhesive tape or a magnet or the like means. The use of such adhesive permits the level guide to be arranged at any suitable place of the carriage without damage to the carriage and independently of the configuration of the carriage. The self-adhesive layer is applied to the underside of the level guide and is designated in FIG. 1a by the reference numeral 21.

The level guide 15 prevents any deviations of the writing material either vertically or laterally. As a result, the continuous writing material which relieved of its own weight is fed towards the paper guide rolls of the machine is protected against lateral displacement and permanent alignment of the writing material at both sides is ensured.

In order to ensure an accurate disposition of the pile container on the base plate, the container is adjustable relatively to the base plate 3, as can be seen in FIG. 3. The material for making the base plate 3 is suitably so chosen that the inherent weight of the transcribing machine does not cause any relative displacement between the machine body and the device according to the invention. An accurate position of any type of transcribing or duplicating machine may conveniently be obtained by providing the base plate with reference markings which may be printed, stamped or may consist of special inserts or attachments.

The level guide 15 may be adapted for lateral displacement in order to be adjustable to the position of the writing material or its writing area. For this purpose, the level guide may be shifted laterally on a retaining device

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which is firmly mounted on the carriage, for instance a dove-tailed guide. Also, it is possible to mount the level guide resiliently so as to be adapted for lateral displacement in conformity with the required margins of the writing material.

What I claim is:

1. In a device for receiving and guiding continuous sets of forms or the like material for writing on which may be zig-zag folded or reeled, in combination with a transcribing or duplicating machine having a movable carriage; a stationary support for the writing material having an upwardly inclined upper end substantially on a level with the plane in which the writing material leaves said machine, stationary pile container means mounting said support rearwardly and independently of the said machine and in spaced relationship thereto, said stationary pile container being located behind said machine and beneath said support for receiving in stacked relation the writing material passing through the movable carriage of said machine.

2. A device according to claim 1, in which said upper end of said support is shaped so as to have approximately point contact with the writing material.

3. A device according to claim 1, in which the contact surface of said upper end of said support is convex toward the said writing material.

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4. A device according to claim 2, wherein the uppermost supporting point of said paper support lies in the perpendicular longitudinal central plane of the said pile container.

5. A device according to claim 1, wherein said paper support is in the form of an inverted U, and a base plate supporting said paper support.

6. A device according to claim 5, wherein the upper ends of the legs of said paper support make an obtuse angle with each other and are inclined upwardly and are jointed at their ends to form the supporting point for the said writing material.

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