Feb. 7, 1950 B. E. SCHAEFER 2,496,600

CARBON HOLDER FOR MANIFOLDING WORK

Filed Oct. 13, 1944 2 Sheets-Sheet 1

Fig. 5A

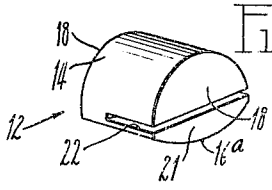


Fig. 1

Fig. 3

Fig. 5

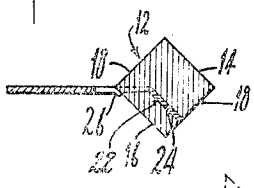


Fig. 4

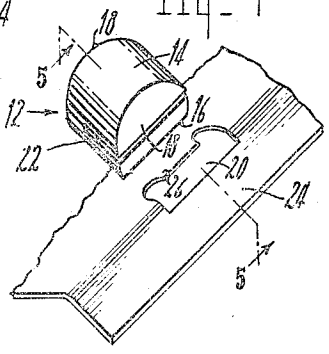
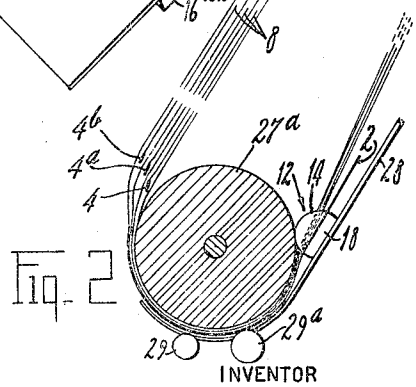


Fig. 2



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CARBON HOLDER FOR MANIFOLDING WORK

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Fig. 6

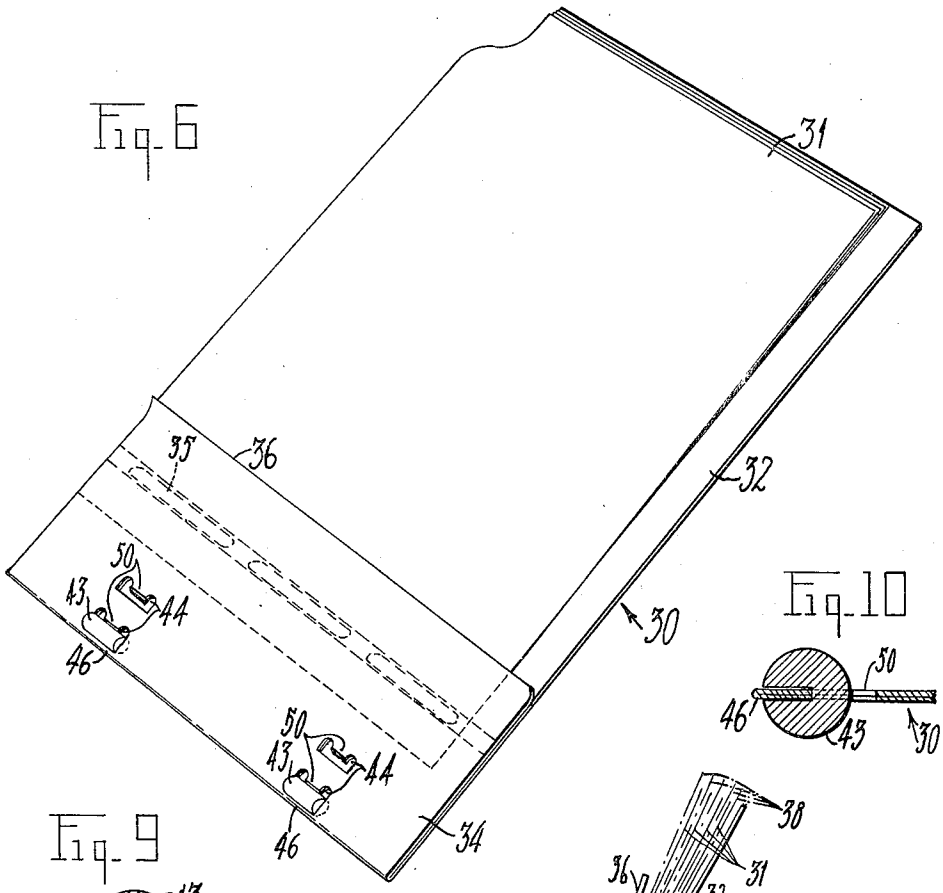


Fig. 10

Fig. 9

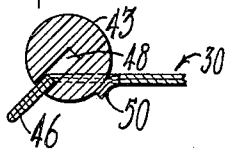


Fig. 8

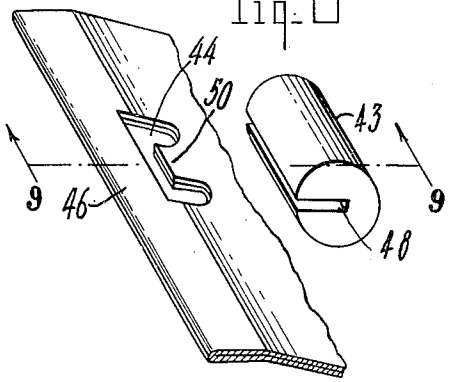
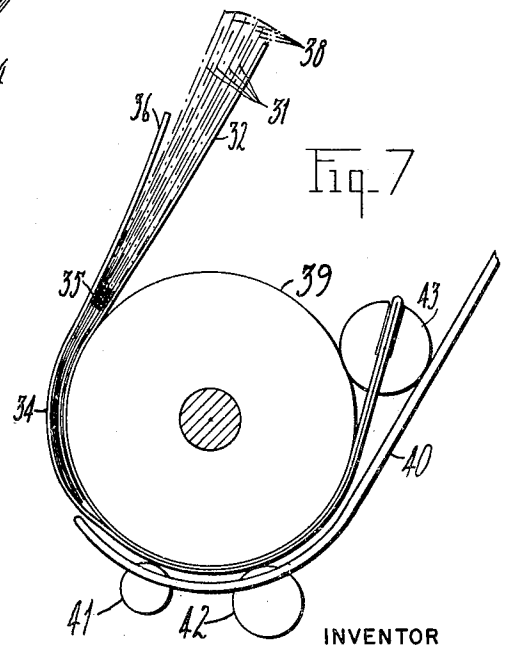


Fig. 7



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UNITED STATES PATENT OFFICE

2,496,600

CARBON HOLDER FOR MANIFOLDING WORK

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Application October 13, 1944, Serial No. 558,502

3 Claims. (Cl. 282—1)

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This invention relates to carbon sheet holders or carriers for supporting one or more sheets of carbon paper while they are being used in a typewriting machine in manifolding work.

The invention is particularly intended for application to carbon carriers of the type illustrated and described in the patent to Kerr No. 2,270,733 dated January 20, 1942, Transfer sheet control, in which the carbon carrier is constructed for use in typing continuous forms which are threaded through and guided by the carrier as they are typed. Certain features of the invention, however, may be embodied with advantage in carbon carriers or carbon packs of the type shown and described in the patent to Curtis No. 2,262,666, dated November 11, 1941, Carbon pack, in which the carrier is constructed to receive individual work sheets.

The primary object of the present invention is to improve the construction and mode of operation of carbon sheet holders and to provide such holders with novel and improved stop devices for limiting the movement of the holder between the platen and paper table or other work engaging devices of the typewriting machine opposed to the platen.

Another object of the invention is to provide carbon holders or carriers with stop devices which are simple in construction and inexpensive to manufacture and which may be quickly and easily applied to and removed from a carrier or backing sheet.

With the above and other objects in view the invention consists in a carbon carrier or holder embodying the novel and improved features, constructions, and combinations of parts hereinafter described and particularly pointed out in the claims, the advantages of which will be readily understood and appreciated by those skilled in the art.

The various features of the invention will be clearly understood from the accompanying drawings illustrating the invention in its preferred forms and the following detailed description of the constructions therein shown.

In the drawings:

Figure 1 is a perspective view illustrating the invention embodied in a carbon carrier of the type constructed for use in typing a series of continuous forms, showing the carrier applied to the forms,

Figure 2 is a view in vertical section illustrating the carbon carrier and forms shown in Figure 1 applied to the cylindrical platen of a typewriting machine;

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Figure 3 is a detail perspective view on an enlarged scale showing a portion of the carbon carrier and one of the stop blocks for limiting the movement of the carrier between the cylindrical platen and the opposed work engaging devices of a typewriting machine,

Figure 4 is a view similar to Figure 3 illustrating the stop block and the portion of the carbon carrier in positions for the application of the stop block to said carrier,

Figure 5 is a detail view partly in side elevation and partly in section substantially on the line 5—5 of Figure 4 illustrating the stop block, after it is applied to the carbon carrier but before it is moved to its final position,

Figure 5A is a detail perspective view showing a modified form of stop block,

Figure 6 is a perspective view illustrating certain features of the invention embodied in a form of carbon carrier or carbon pack constructed to hold a number of individual work sheets,

Figure 7 is a view in side elevation, partly in section illustrating the carbon pack shown in Figure 6 applied to the cylindrical platen of a typewriting machine in position for the insertion of the work sheets in, or the removal of said sheets from the pack,

Figure 8 is a detail view illustrating a portion of the backing or carrier sheet and one of the stop blocks for limiting the movement of the pack, shown in Figs. 6 and 7, between the cylindrical platen and the opposed work engaging devices of a typewriting machine, with the stop block and said portion of the backing sheet in positions for the application of the stop block to the backing sheet,

Figure 9 is a detail sectional view taken in a plane substantially on the line 9—9 of Figure 8, illustrating the stop block at another stage in its application to the backing sheet, and,

Figure 10 is a view similar to Figure 9 illustrating the stop block in its final or normal position with relation to the backing sheet and the portion of the backing sheet to which said block is applied also in its normal position.

The invention as illustrated in Figures 1 to 5, inclusive, is embodied in a carbon carrier of the type illustrated and described in the patent to Crews No. 1,565,550, dated December 15, 1925, Typewriting machine, and in the patent to Kerr, No. 2,270,733. The carbon carrier shown in these figures comprises a carrier sheet indicated at 2 arranged to ride on the work web or continuous series of forms to be typed, to which carrier sheet is attached a series of transfer sheets. The car-

rier sheet 2 is substantially rectangular in outline and consists of a sheet of flexible relatively heavy paper or similar material having sufficient stiffness to maintain its shape laterally and to support the carbon sheets laterally against wrinkling and creasing. The carrier sheet, of course, must be of the proper limited width and have sufficient flexibility to pass about the cylindrical platen of a typewriting machine between the same and the paper table and other work-engaging devices opposed to the platen. In the present construction the carrier sheet is provided with the transverse slats indicated at 4, 4*a* and 4*b* produced by forming the sheet with a relatively wide transverse slot 5 and with relatively narrow transverse slots 6 and 6*a*. To each of the slats 4, 4*a* and 4*b* is attached a carbon sheet indicated at 8 arranged to extend from the carrier sheet 2 in a direction away from the body of the carrier sheet as shown clearly in Figure 1. The carrier sheet is formed with a transverse cutout or slot indicated at 10 through which the work webs are threaded.

Each of the slats 4, 4*a* and 4*b* may be formed with a concave rear edge as shown in Fig. 1. This will tend to prevent side slip of the work webs and to keep the webs centered with relation to the carrier sheet, as well as facilitating the passage of irregularities in the work webs past the same. The slats, however, may have straight line rear edges extending across the carrier sheet in a direction substantially perpendicular to the longitudinal axis of the sheet, if desired, as shown in the patent to Crews No. 1,565,550.

In order to limit the movement of the carbon carrier between the platen of a typewriting machine and the opposed work-web-engaging devices, the carrier sheet 2 is provided with the stop blocks indicated at 12 attached to opposite side margins of the sheet. These stop blocks are detachably mounted upon the carrier sheet so that, when the carbon carrier is worn out, its carbon sheets being exhausted, the stop blocks may be detached and applied to another carrier.

Each of the stop blocks is detachably mounted in a suitable slot in a side marginal portion of the carrier sheet 2. Each block is formed with a curved surface 14 preferably cylindrical in form and with a surface 16 substantially flat or conforming to a plane and located at one side of the axis of the cylindrical surface. The end surfaces 18 of each block conform respectively to planes substantially perpendicular to the axis of the curved surface of the block. Each block is detachably mounted in a slot 20 formed in a side marginal portion of the carrier sheet 2. This slot preferably has substantially the form illustrated in Figures 3 and 4. As shown in these figures, the longer dimension of the slot, which is that dimension substantially parallel with the side edges of the carrier sheet 2, is substantially the same as or slightly greater than the diameter of the cylindrical portion of the stop block. The width of the slot or the dimension substantially perpendicular to the side edges of the carrier sheet is considerably less than the dimension of the stop block in the direction of the axis of the cylindrical surface thereof. Each stop block is formed with a slot or cleft 22 located substantially diametrically of the cylindrical surface of the block to receive the marginal portion 24 of the carrier sheet outside the corresponding slot 20. The carrier sheet is formed, on the inner side of each slot, with a projection 26 to engage the inner face 18 of the stop block when the block is applied to the carrier sheet, to hold the same

from inward movement, axially of the block sufficient to disengage the portion 24 from the slot 22. Preferably the parts are constructed and arranged so that the block is held, by the projection 26, from any substantial amount of inward movement.

In applying each stop block to the carrier sheet, the portion 24 of the carrier sheet outside the corresponding slot 20, within which the block is to be attached, is bent into the angular position shown in Figures 4 and 5 with relation to the body of the sheet and the stop block 12 is placed in a corresponding angular position, with the slot 22 opposite the portion 24 of the carrier sheet and substantially parallel therewith. The stop block is then moved outwardly in the direction of the axis of the cylindrical portion thereof to engage the portion 24 of the carrier sheet in the slot 22 in the block and, when the portion 24 is brought into contact with the end face of the slot 22, the stop block is turned into a position in which the slot 22 and the portion 24 of the carrier sheet engaging in the slot are located substantially in the plane of the adjacent portions of the carrier sheet. This brings the stop block substantially into the position shown in Figures 1 and 3 with relation to the carrier sheet. As the stop block is turned from the position shown in Fig. 5 to the position shown in Figures 1 and 3, the projection 26 is deflected, and when the stop block is in its final position, said projection is engaged with the inner end face 18 of the block as indicated in Figure 3 to hold the stop block in position.

The work webs or continuous forms 27 are loaded into the carrier by passing the full set downwardly through the slot 10. The "original" form is then extended forwardly, or to the right as seen in Fig. 1, to underlie the slots 4, 4*a* and 4*b*. The first "copy" is fed upwardly through the slot 6*a*, the second "copy" is fed through the slot 6 and the last "copy" is fed through the wide slot 5. Thus it will be seen that the opening or slot 10 serves to guide the work webs and maintain them in proper relation to the carbon sheets attached to the carrier.

The stop block shown in Fig. 5A differs from that shown in Figs. 1 to 5, inclusive, in that the block shown in Fig. 5A is formed with a cylindrical surface 16*a* instead of a flat surface. The axis of the cylindrical surface 16*a* is substantially parallel with the axis of the surface 14, and the radius of the surface 16*a* is considerably greater than the radius of the surface 14. The thickness of the portion 21 of the block shown in Fig. 5A preferably is substantially the same as the thickness of the corresponding portion of the block shown in Figs. 1 to 5, inclusive. The block shown in Fig. 5A therefore is adapted to be inserted in a slot in the carrier sheet of the same size as a slot provided for a block of the form shown in Figs. 1 to 5, inclusive.

In the operation of the device above described, the continuous forms or work webs are threaded through the carbon carrier in interleaved relation to the carbon sheets and the assembly of carbon carrier, carbon sheets and work webs is introduced between the cylindrical platen 27*a* and the paper table 28 and feed rolls 29, 29*a* of a typewriting machine. The said assembly is then positioned in the usual manner for writing upon the first form. At the conclusion of the typing operation, the assembly is advanced until the cylindrical surface 14 of the stop blocks 12 engage the platen. The flat surfaces 16 of the stop blocks then engage the paper table 28 there-

by locking the carbon carrier from further advance movement as shown in Figure 2. The feed rolls are then positioned to release the assembly, the forward ends of the work webs are grasped by the operator and the webs are drawn forward with relation to the carbon carrier until a new or blank set of forms is introduced into position for typing. The typed set of forms may then be severed from the assembly along the weakened lines with which the forms are usually provided, after which the feed rolls are restored to pressure position with relation to the platen and the assembly is backfed to place the next set of forms in typing position.

The work webs **27** pass between the stop blocks **12** and the end surfaces **18** of the blocks which are arranged to engage the side edges of the work webs, guide the same with relation to the carbon carrier. The blocks allow a free movement of the work webs with relation to the carrier in a direction longitudinally of the work webs and, at the same time, position relatively the work webs and carrier laterally with relation to each other. This free feed of the work webs with relation to the carrier is highly important in a device of this character.

When the transfer sheets on a carbon carrier are exhausted, or for any other reason it is desired to remove the stop blocks from a carrier, this may be done quickly and easily. In removing a block from the carrier, the marginal portion **24** of the carrier sheet with the stop block is turned into substantially the position shown in Figure 5, and the stop block is then moved in the direction of the axis of the cylindrical portion thereof inwardly of the carrier sheet or away from the marginal portion **24** until the latter portion is disengaged from the slot **22**. This detaches the block from the carrier sheet. The block may be attached to another carrier sheet in the manner above explained.

As above stated, Figures 6, 7, 8, 9, and 10 illustrate a stop block construction, embodying certain features of the invention, applied to a carbon carrier or pack of the type illustrated and described in the patent to Curtis No. 2,262,666. The carbon pack shown in these figures comprises a backing sheet indicated at **30** and a set of carbon leaves or sheets **31** applied to the backing sheets in the manner shown in Figure 1 and attached at their lower margins to the backing sheet. The backing sheet consists of a sheet of flexible relatively heavy paper or similar material having sufficient thickness to give body to the carbon pack and to keep the carbons from wrinkling or creasing.

The lower margins of the carbon leaves are inserted between the body **32** of the backing sheet and a folded over portion **34** of said sheet and are secured in position by a line or strip of fastening means **35** extending transversely of the pack which also attach the folded over portion **34** of the backing sheet to the body **32** of the sheet. The folded over portion **34** is extended upwardly beyond the strip of fastening means to form a detent device or clip indicated at **36**, between which and the outer carbon sheet, the outer work sheet is inserted.

Figure 7 shows, in dot and dash lines, a series of work sheets indicated at **38** interlined with the sheets of carbon in position for typing. In placing the work sheets in the carbon pack, the work sheets are located with their lower edges respectively in engagement with the line of fastening means **35** between the body **32** of the backing sheet and the folded over portion **34** thereof.

In placing the carbon pack loaded with individual work sheets in a typewriting machine, the upper portion of the pack as shown in Figure 6 is inserted between the cylindrical platen **39** and the paper table **40** and the platen is then turned in a clockwise direction (Figure 7) to bring the outer work sheet into proper position for typing. When the typing operation is completed, the platen is turned farther in a clockwise direction until the lower margins of the work sheets are disengaged from between the platen and the pressure or feed rolls **41** and **42** or other opposed paper engaging devices so that the work sheets can then be readily removed from between the carbon leaves.

In order to limit the movement of the pack produced by this rotary movement of the platen, the stop blocks **43** are mounted in the lower marginal portion of the backing **30**. Each of these stop blocks preferably is cylindrical in form as shown in the drawings and is removably mounted in a slot **44** formed in the backing. Each of these slots **44** is similar in form to the slots **20** shown in Figures 1 and 3 to 5, inclusive. The length of each slot is substantially the same as or slightly greater than the length of each stop block or the dimension parallel with the axis of the cylindrical surface thereof. The backing of the pack is provided with a marginal portion **46** outside or below each of the slots **44** and each of the stop blocks **42** is formed with a radially arranged slot **48** to receive this marginal portion of the backing. The depth of each slot **48** is slightly greater than the radius of the stop block and the backing is formed with a projection or tongue **50** upon the inner side of each slot for engagement with the inner part of the cylindrical surface of the stop block when the stop block is located in operating position in one of the slots **44**.

In applying a stop block to the backing **30**, the marginal portion **46** is bent substantially into the position shown in Figures 8 and 9 with relation to the body of the backing and the stop block is located opposite the corresponding slot **44** with the slot **48** in the stop block placed at an angle corresponding to that of the portion **46** or substantially parallel with said portion in position to receive the latter portion. The stop block is then moved outwardly in a direction substantially parallel with the portion **46** to engage said portion in the slot **48**, and when said portion **46** engages the inner face of said slot, the block is turned substantially into a position to locate the slot **48** substantially in the plane of the adjacent portions of the backing as shown in Figure 10. During the insertion of the stop block into the slot **44** in this manner, the projection or tongue **50** is deflected as shown in Figure 9, and upon the turning of the stop block into the position shown in Figure 10, the resilience of the tongue causes it to be restored substantially into the position shown in this figure, in which it engages the inner portion of the cylindrical surface of the stop block.

The tongue then holds the stock block in position in the slot **44**, with the portion **46** of the backing substantially in engagement with the inner face of the base of slot **48**. In order to detach a stop block from the backing **30**, the marginal portion **46** of the backing with the stop block is turned substantially into the angular position shown in Figure 9 and the stop block is

removed from the slot 44 by moving the block in a diametrical direction substantially parallel with the slot 48 to disengage the marginal portion 46 of the backing from the latter slot. Thus the stop block may be quickly and easily removed from the slot in the backing.

Figure 7 shows clearly the manner in which the stop blocks are engaged between the platen 38 and the paper table 40 of the typewriting machine to limit the movement of the pack when shifted into position for the withdrawing of typed work sheets and the insertion of new work sheets in the pack.

Figure 6 of the drawings shows two sets of slots 44 in which the stop blocks may be inserted. These correspond to the two positions in which the stop bar of the construction shown in Patent No. 2,262,666 may be adjusted to shift the impression points of the types with relation to the carbon leaves. When the stop blocks are located adjacent the lower margin of the backing 32, the types will have certain impression points across the carbon sheets. When it is desired to change these impression points, longitudinally of the pack, the stop blocks are shifted to the slots farther from the lower margin of the backing.

It is to be understood that, except as defined in the claims, the invention is not limited to the particular construction and arrangement of parts of the illustrated embodiment of the invention but that the invention may be embodied in other forms within the scope of the claims.

Having explained the nature and object of the invention and having specifically described a construction embodying the invention in its preferred form, what is claimed is:

1. A manifolding unit having a carrier sheet formed with a stop receiving slot, a sheet of transfer paper attached to said carrier sheet and a stop device for limiting the movement of the unit between the cylindrical platen of a typewriting machine and the opposed working engaging devices, said stop being insertable into

said slot in the carrier sheet and having a cleft to receive a portion of the carrier sheet on one side of said slot and a laterally flexible projection formed on said sheet at the opposite side of the slot and arranged to engage the stop device to hold the same in position in said slot with said portion of the carrier engaged in the cleft in the stop device.

2. A manifolding device for typewriting machines comprising a carrier sheet having a stop block receiving slot, one or more sheets of transfer paper attached to said carrier sheet, a stop block detachably mounted in said slot in the carrier sheet and having a cleft to receive a portion of said sheet at one side of said slot and means on the carrier sheet for removably holding the block in position with said portion of the carrier sheet engaged in said cleft.

3. A manifolding device comprising a carrier of sheet material having a stop block receiving slot, a stop block having its body removably mounted in said slot and extending upon opposite sides of the sheet and having a carrier sheet receiving cleft extending inwardly from one side of said body and said carrier having a portion at one side of the slot therein engaging in said cleft, the carrier sheet, upon the opposite side of said slot, being arranged to engage the other side of the block normally to prevent the block from being moved to disengage the sheet from said cleft.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,865,115	Lacroix	June 28, 1932
2,270,733	Kerr	Jan. 20, 1942