Feb. 24, 1953 W. S. SCHUCK ET AL 2,629,613

IMPLEMENT TO FACILITATE MANIFOLDING

Filed Oct. 22, 1949

Fig. 1.

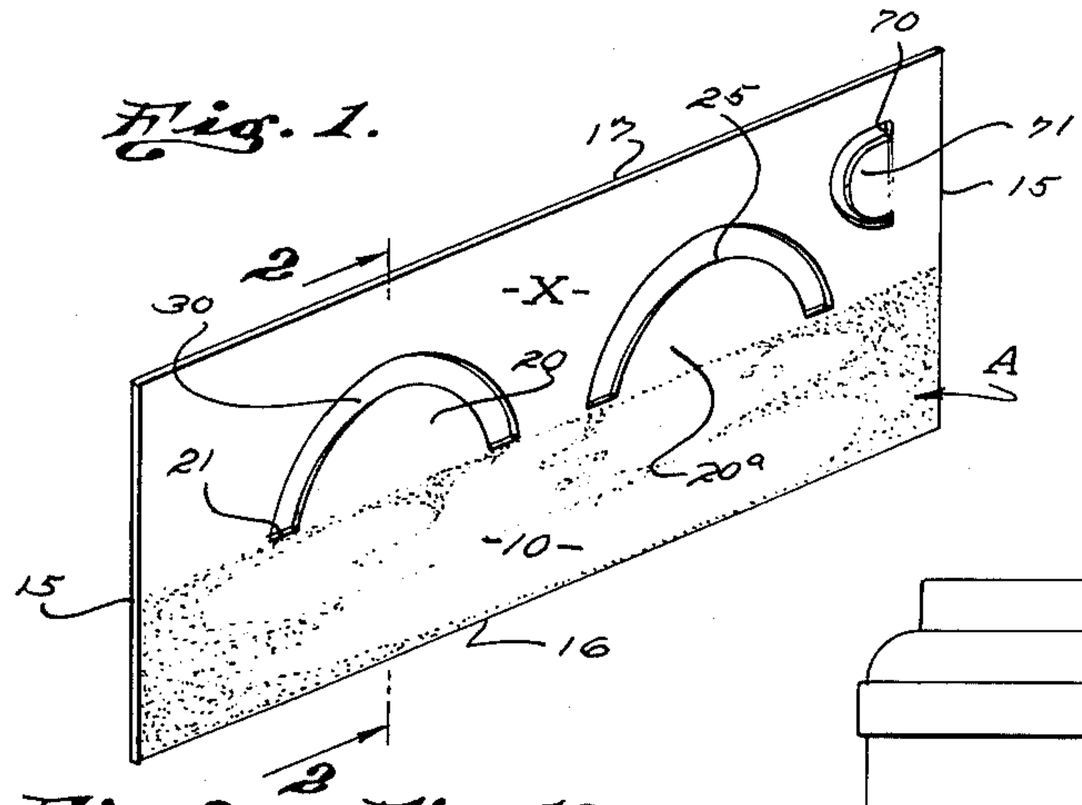


Fig. 3.

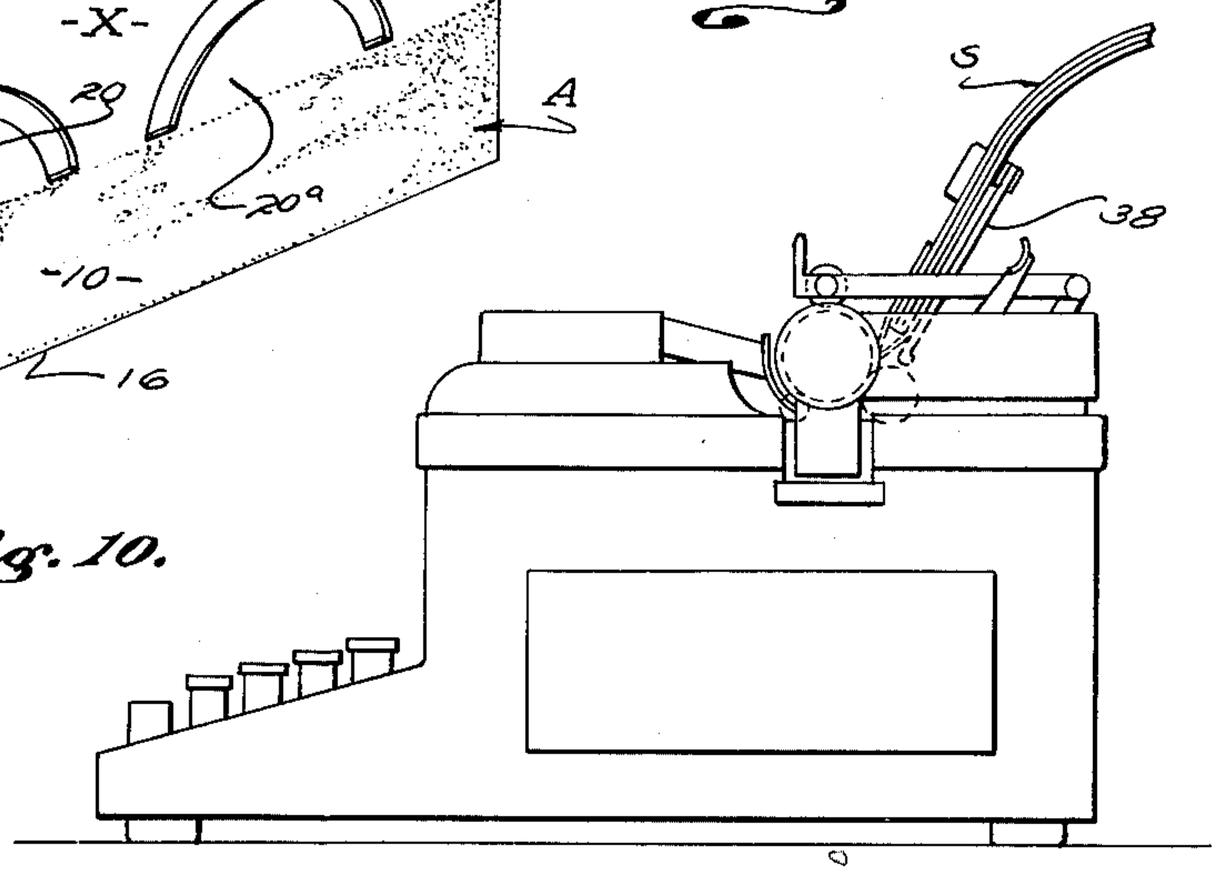


Fig. 2.

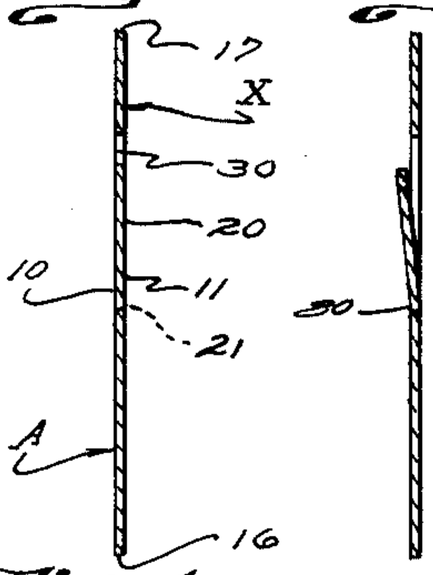


Fig. 10.

Fig. 4.

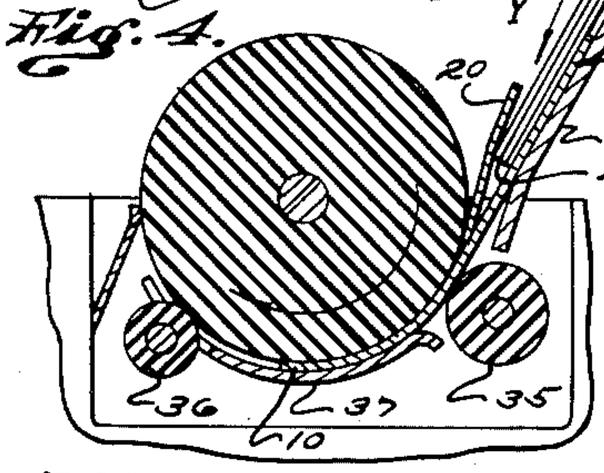


Fig. 5.

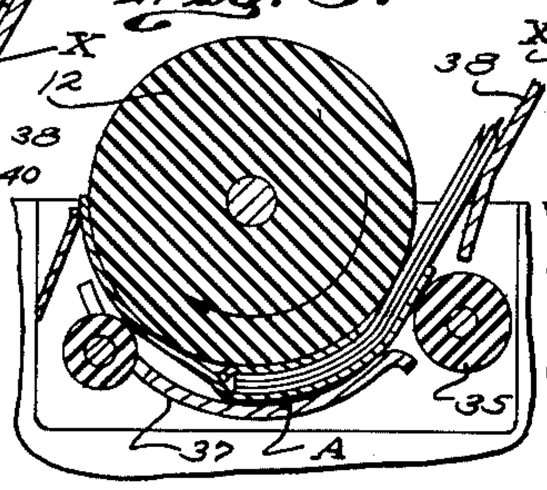


Fig. 6.

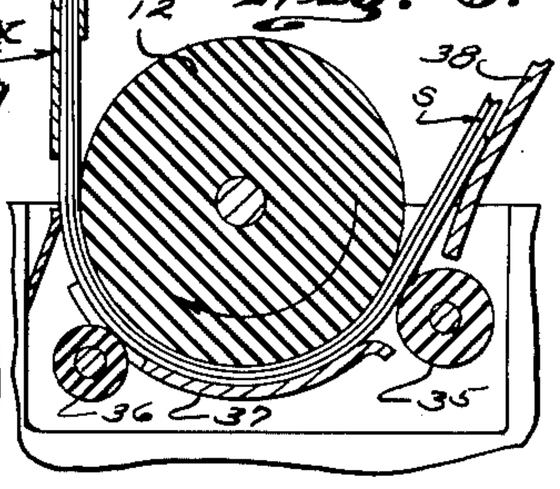


Fig. 7.

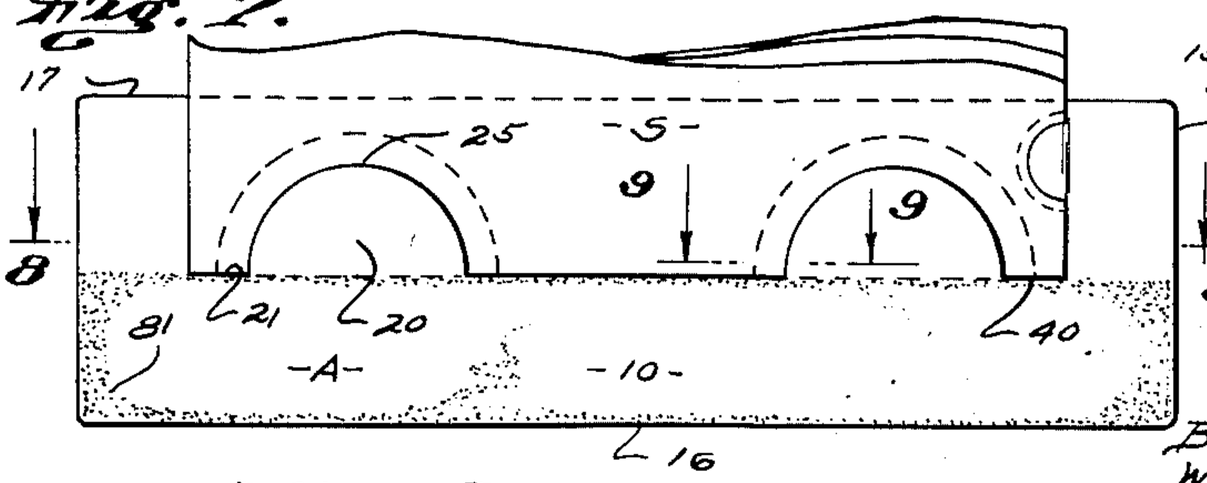


Fig. 9.

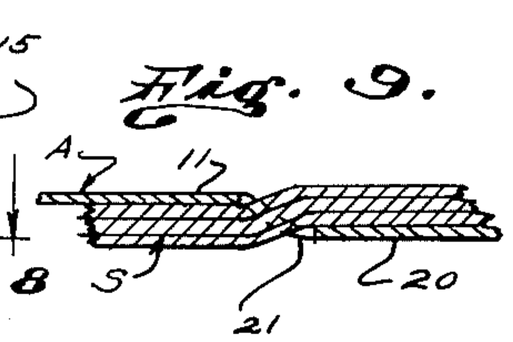
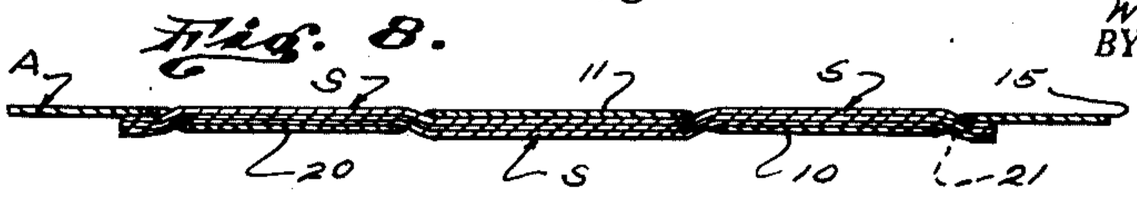


Fig. 8.



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IMPLEMENT TO FACILITATE MANIFOLDING

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Application October 22, 1949, Serial No. 122,984

5 Claims. (Cl. 282—29)

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This invention has to do with an implement or device to facilitate manifolding of papers and it is an object of the invention to provide a simple, inexpensive, easily operated device enabling a typist to apply a plurality of sheets of paper, or the like, to a typewriter so that they emerge from the platen rolls with their leading edges coincidental, or parallel and advanced to exactly the same extent.

Manifolding of sheets of paper is common as an incident to the operation of a typewriter and when a multiplicity of sheets is arranged in a typewriter in the usual manner it may be initially fed or led to the platen in an even group or properly arranged or stacked, but the sheets shift in the course of operation around the platen so that they emerge at the front of the platen with the sheet adjacent the platen advanced beyond the foremost sheets, and each successive sheet forward of the sheet engaging the platen is advanced somewhat ahead of the sheet forward of it, with the result that the group or manifold is unevenly positioned. This phenomenon or action is not ordinarily critical when but two sheets are used, but when a multiplicity such as five, six, or eight sheets are operated at a time it becomes a very serious problem. The shifting or spreading of sheets such as we have referred to becomes more critical as more sheets of paper are involved, and it is always critical if accurate alignment is required, as for example, in the case of following printed forms or the like.

It is a general object of this invention to provide a device useful in connection with a typewriter and a group of sheets of paper to introduce such group of sheets into the typewriter ready for typing in accurate aligned or stacked relationship.

Another object of this invention is to provide a device of the general character referred to which is in the nature of a simple article easy to handle and which is such that it does not complicate or confuse the feeding of paper into a typewriter.

It is a further object of this invention to provide a device of the general character referred to which is convenient and quick to use. The device is such that it can be engaged in a typewriter ready to receive paper by a very simple and well understood operation, and it occurs at the front of the machine convenient to be removed from the paper after it has served its purpose in feeding the paper into the machine.

It is another object of this invention to provide a device of the general character referred

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to which is inexpensive of manufacture and is such that in a very inexpensive form it can be used a great many times without failure or deterioration.

A further object of this invention is to provide a device of the general character referred to that can be advantageously manufactured from inexpensive sheet material that is reasonably durable and which is such that it will advantageously carry printing or like markings so that the device can be employed as an advertising medium.

The device of the present invention involves a simple sheet of flexible material such, for example, as heavy paper, light card, or Celluloid, etc. The sheet is preferably rectangular in plan configuration and has a leading edge and a trailing edge. In practice it is preferred that the leading edge be straight and continuous, and the trailing edge may be parallel therewith. One or more tongues are provided in the sheet, preferably having base portions at about the middle of the sheet or midway between the leading and trailing edges, and the tongues project toward the trailing edge. Stop shoulders are provided in the sheet or body, it being preferred that there be two stop shoulders adjacent each tongue and projecting in opposite directions therefrom, and the stop shoulders are of sufficient extent so that the body adjoining them or at which they are located may be flexed or deflected enough to accommodate a plurality of sheets of paper, enabling such paper to be engaged behind the tongues. The structure is such that as the leading edge is started into a typewriter the body reaches a point where the tongues are deflected from the plane of the body allowing a plurality of sheets of paper to be engaged behind the tongues and over the upper half or upper portion of the body. As the body is further advanced in the typewriter and finally moved to a position as the front of the platen or feed roll the sheets of paper are maintained in the relationship established at the time that they are inserted behind the tongues.

The various objects and features of our invention will be fully understood from the following detailed description of typical preferred forms and applications of the invention, throughout which description reference is made to the accompanying drawings, in which

Fig. 1 is a perspective view of the device provided by this invention showing it alone or apart from other structure and in a position in which it is normally held preliminary to being inserted

in a typewriter. Fig. 2 is an enlarged vertical or transverse sectional view of the device taken as indicated by line 2—2 on Fig. 1. Fig. 3 is a side elevation of a typical typewriter with the device of the present invention in place and a group of sheets of paper in the device ready to be fed through the machine. Fig. 4 is an enlarged detailed sectional view of a portion of a typewriter showing the device of the present invention introduced into position with relation to the platen roll of the typewriter so that the device is ready to receive a group of sheets of paper, such a group of sheets of paper being shown positioned ready for insertion in the device. Fig. 5 is a view of the parts shown in Fig. 4 with the group of sheets of paper in the device and the platen roll advacned so that the device is partially fed through the machine showing the manner in which the device serves as the medium by which the group of sheets of paper is fed through the machine. Fig. 6 is a view similar to Figs. 4 and 5, showing the platen roll further advanced so that the device is clear of the platen roll and is in position where it can be lifted away from the group of sheets of paper. Fig. 7 is a view of the device of the present invention showing a group of sheets of paper arranged therein or engaged therein as they are when made ready for feeding into the typewriter and as they remain until they reach the position shown in Fig. 6, the group of sheets of paper and the device being shown alone or independent of the parts of the typewriter. Fig. 8 is a transverse sectional view taken as indicated by line 8—8 on Fig. 7. Fig. 9 is an enlarged detailed sectional view taken as indicated by line 9—9 on Fig. 7, and Fig. 10 is a view similar to Fig. 2 showing another form of construction.

The present invention provides, generally, a simple, thin sheet of material such as a heavy paper or cardboard, or possibly Celluloid or the like, having certain features or form serving to establish paper holding parts and stops or shoulders for positioning paper. In accordance with the broader features of the invention the device may be varied widely in form, shape, and proportioning and it is therefore to be definitely understood that the particular form and details herein set forth are but typical and for the purpose of facilitating an understanding of the principles which underlie the invention.

The invention provides, generally, a single element or unit in the nature of a body A, which body is in the form of a thin flat sheet of material having sufficient rigidity to normally remain flat and to return to a flat condition following use, as will be hereinafter described. The body while having the rigidity mentioned is flexible so that it yields when subjected to the forces or pressures that occur in the course of its operation under or around the platen of a typewriter or when pressed by a group or limited stack of papers such as are ordinarily used in a typewriter during manifolding operations.

In its preferred form the body, being a sheet of material, has flat smooth parallel sides 10 and 11 which may, for example, be referred to as the front and rear sides, respectively. In its preferred form the body A is rectangular or substantially rectangular and it is of such size and proportioning that its length in the direction of the typewriter platen or roll 12 approaches the length or capacity of the roll and is ordinarily somewhat greater than the width of the sheets of paper to be handled, although this is not necessarily true in that the length of the device may correspond with the width of the sheets of paper that are being handled or, in some cases, may be even less than this dimension.

In the case illustrated the body A is somewhat longer than the sheets S of paper are wide, and it has straight parallel end edges 15.

In what we will refer to as breadth the body A is so related to the diameter of the platen or roll 10 of the typewriter that it will carry a group of sheets S of paper through the machine in the manner hereinafter described or so that the feeding or advancing action that occurs as the device is in the machine is primarily upon the device of the present invention rather than on the sheets S of paper. In the particular form of the invention illustrated the body 10 has a leading edge 16 and a trailing edge 17, the leading and trailing edges being straight and parallel and spaced apart so that the body has the desired breadth. Although the breadth of the body may vary widely, where the device is to be used in the ordinary or average typewriter it is practical that the body be about two and one half inches wide, this dimension having been found in practice to be practical under most conditions.

The body may, in practice, be formed of one or more materials. However, in the interest of economy and simplicity it is preferred that it be formed of a single sheet of material and that material may in practice vary from a heavy paper, or light card, to various so-called plastics. It has been found most advantageous to employ sheet material such as Celluloid or a plastic having the characteristics of Celluloid, and when such a material is used it is practical to make the body of a sheet having a thickness of about .005 to .010 of an inch. It is to be understood that when in the claims we refer to the body being a sheet of Celluloid we are referring to and mean to include various other materials such as have been mentioned or which have the general characteristics of those mentioned.

In accordance with the present invention the body is provided with one or more tongues 20 and in the preferred arrangement the tongue or tongues are established in the body remote from its various edges. The tongues are faced toward the trailing edge 17 of the body and they have base portions 20a extending lengthwise of the body or parallel with the edges 16 and 17 and it is through these base portions that the tongues are joined to or integral with the remainder of the body. The tongues 20 are also related to and cooperate with shoulders 21 established on or in the body, which shoulders are located intermediate the edges 16 and 17 and face toward the trailing edge 17.

The tongues 20 may, in practice, vary in number, size, shape and proportioning and they also may be varied considerably as to location. It is preferred in practice and has been found practicable to employ two like tongues 20 and these tongues are arranged in line lengthwise of the body and have rounded or convex free ends 25. In the preferred form of the invention the tongues are entirely free or project freely from their base portions 20a so that they can move in a direction normal to the plane of the body to the end that their outer or tip end portions may be readily positioned so that they are moved a substantial distance from the normal general plane of the body, in fact, far enough to receive a multitude of sheets S between them and the remainder of the body. Where there are two equally spaced

tongues 20, as shown in the drawings, they are located inward from the ends 15 of the body, preferably equal distances inward from the ends, and they are so located that the space between them, that is, between the two tongues, is somewhat less than the width of the sheets S to be handled by the device. In practice the shape, size, proportioning and spacing of the tongues may vary widely, depending upon circumstances or the character of the work to be done. In a typical and ordinary situation where the body A is about two and one half inches in width, the base portions 20a may be located about midway between the heading and trailing edges of the body and the tongues may be about two inches in width facing from the base portions toward the trailing edge. In such case the base portions of the tongues which are parallel and which extend parallel with the edges 16 and 17 may be about an inch and a half in length. If desired, the base portion of each tongue joins the balance of the body in which case the tongues may more readily deflect from the plane of the body.

The shoulders 21 may vary in number, extent, shape, etc. and like the tongues they are preferably established in the body remote from its various edges and they are faced toward the trailing edge 17 of the body. In the preferred form of the invention the shoulders are straight and are in line lengthwise of the body and they are in line with the base portions or base lines 20a of the tongues. In practice it is desirable to provide one or more shoulders immediately adjacent each tongue, in fact it is practical to provide two shoulders in connection with or adjoining each tongue, one extending in each direction lengthwise of the body from each tongue. The shoulders form rests or stops against which a group or bundle of sheets S of paper is arranged, and in practice they may vary considerably in extent lengthwise of the body. It has been found practical where two tongues 20 are employed as shown in the drawings to employ a shoulder 21 adjacent each tongue and the two shoulders related to each tongue extend in opposite directions therefrom. For the action or operation of the device a certain flexibility of the body is necessary at or adjacent the shoulders, and for the desired working or flexibility of the body in the region of the shoulders each shoulder may be advantageously made about one quarter of an inch long.

The features provided on or in the body A as above described can be gained in various ways or by simple cuts and operations in the sheet of the body. In the case illustrated tongues and shoulders that have been described are formed by making like simple arcuate apertures 30 in the body A, which apertures have inner walls that establish the shape or contours of the tongues and have outer walls that clear the tongues so that the tongues are free to flex and work entirely independent of the adjoining portions of the body. Where the arcuate cuts terminate their ends are straight and flat and thus form the shoulders 21. By thus forming apertures or openings 30 it will be apparent that the desired tongues and shoulders are formed by simple cutting or punching operations and in manufacture as many such openings as may be desired may be formed in one operation, and through a multiplicity of bodies, thus making manufacture very inexpensive. It will be apparent that, if desired, the tongues may be formed by merely providing simple cuts in the sheet to

define the tongues, it being unnecessary to remove material as shown in the drawings. It is desirable, however, that material be removed in any case in the immediate vicinity of the stop shoulders.

To employ the device provided by the present invention the device is arranged in or applied to an ordinary or conventional typewriter in which there is a platen or feed roll 12, a back supporting roll 35, a forward or front supporting roll 36, and possibly other rolls or a paper guide 37 between the rolls 35 and 36. The rollers 35, 36 and guide 37 are suitably distributed circumferentially around the roll or platen 12 and these parts or their equivalents are such that a sheet inserted between the rollers 12 and 35, possibly with the aid of a guide plate 38 extending upwardly and rearwardly from the roll 35, readily enters between the rolls 12 and 35. As the main roll or platen 12 is rotated in the direction indicated by the arrows in Figs. 4 and 5, a sheet introduced between the rollers 12 and 35 will advance between the main roll 12 and the auxiliary parts to finally emerge and project upward and forward at the front of the platen.

In using the device of the present invention its leading edge 16 is introduced between the main roll 12 and the roll 35 and the main roll is operated to advance the device to a position such as is shown in Fig. 4. When the device has been advanced to such a position the apertured portion X of body A above the center thereof or toward the trailing edge 17 from the center of the body remains flat and will continue to bear against the guide 38, while the tongues 20 tilt somewhat forward out of the plane of the portion X of the body, as clearly illustrated in Fig. 4 of the drawings. A group or bundle of sheets S of paper initially stacked to be coincidental in arrangement may then be lowered against the upper body portion X or against that portion of the body provided with the tilting edge 17 to be then lowered behind the tongues 20 until the sheets S are completely engaged behind the tongues and all stop against the shoulders 21. In the course of this operation introduction of the group of sheets S in the general direction indicated by the arrow Y in Fig. 4 may exert pressure on the tongues and portion X of the body A sufficient to cause further spreading between that portion of the body and the tongues to facilitate entrance of the group of sheets S between the tongue and the portion X and into engagement with the shoulders.

When the group of sheets S has once seated against the several shoulders the platen roll 12 is again advanced or rotated, as indicated by the arrow in Figs. 4 and 5, and may be operated or rotated until the group of sheets with the device thereon reaches a position such as is shown in Fig. 6. While the leading or advancing edge portion 40 of the group of sheets is between the platen and the pressure elements that cooperate therewith to facilitate feed of the sheets, the device of the present invention is so positioned on the leading portion of the group of sheets as to take the pressures or forces that cause the feed with the result that the forces or actions which tend to cause shifting between the sheets of paper do not prevail or exist and consequently the group of sheets terminates in a position such as is shown in Fig. 6, with the several sheets stacked or coincidental exactly as they were when initially introduced into engagement with the device. In Fig. 5 of the drawings the group of sheets S of paper is shown in a position in the

typewriter where the device of the present invention is so leading or feeding and holding the sheets that they remain in accurate register or stacked relation. When the group of sheets has been advanced to a position such as is shown in Fig. 6 the device of the present invention remains on the leading edge portion of the group of sheets positioned and ready for simple quick removal.

From Figs. 8 and 9 of the drawings, it will be observed that for introduction of a group of sheets S to the position above described where they are stopped against the shoulders 21 certain flexure of the body must occur at or in the region of the shoulders 21, since the tongues when the group of sheets is in position, occur at on side of the group of sheets, while the portion X of the body occurs at the opposite side of the group of sheets. Such flexure of the body sets up or creates a certain strain or pressure so that the device has a limited pinching or gripping action holding the leading edge portion of the group of sheets snugly together in proper alignment and seated on the shoulders 21, thus aiding or supplementing the action first described.

If desired, an edge stop 70 with an adjoining ear 71 may be provided to position the sheets of paper lengthwise of the body. If this structure is used, it is preferred that the ear 71 be formed to normally project from the plane of the body.

In Fig. 10 of the drawings there is shown a modified or different form of structure in which the tongues are shaped or formed so that their outer or free ends normally project slightly from the front face of the body, in which case the projection of the tongues from the body, as hereinabove described, is not relied upon but as the device is arranged in a typewriter care must be taken that the front face is facing forward, in which case the tongues are so positioned relative to the front face that the sheets of paper can be readily engaged behind the tongues.

In practice some typewriters may be encountered which so handle the device that the tongues deflect rearwardly instead of forward as is usually the case. In such event the papers may be engaged behind the body and in front of the tongue, this situation being a mere reversal of that hereinabove described. Further, if desired, the leading edge portions 8′ of the body may be roughened somewhat to facilitate feeding of the body in the typewriter.

Having described only typical preferred forms and applications of our invention, we do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to ourselves any variations or modifications that may appear to those skilled in the art and fall within the scope of the following claims.

Having described our invention, we claim:

1. A manifolding device adapted to be frictionally engaged with a group of sheets free relative to each other, the device including a thin flat elongate body of flexible material substantially longer than it is wide and of such length as to be of substantially the same length as an edge portion of the group of sheets to which the device is applied and having one longitudinal edge forming a leading edge and the other longitudinal edge forming a trailing edge, a tongue intermediate said edges free to move laterally of the plane of the body and projecting toward the trailing edge, and a plurality of spaced straight elongate stops spaced from the leading edge in the direction of the trailing edge and facing toward the trailing edge, the stops being in line with each other and parallel with said leading edge.

2. A manifolding device adapted to be frictionally engaged with a group of sheets free relative to each other, the device including a thin flat elongate body of flexible material substantially longer than it is wide and of such length as to be of substantially the same length as an edge portion of the group of sheets to which the device is applied and having one longitudinal edge forming a leading edge and the other longitudinal edge forming a trailing edge, a plurality of spaced tongues on the portion of the body intermediate said edges, the tongues being free to move laterally of the plane of the body and projecting toward the trailing edge, and a plurality of spaced straight elongate stops located at the tongues and facing toward the trailing edge, the tongues and also the stops being spaced longitudinally of said leading edge and the stops being in line with each other and parallel with said leading edge.

3. A manifolding device adapted to be frictionally engaged with a group of sheets free relative to each other, the device including a thin flat elongate rectangular body of flexible material substantially longer than it is wide and of substantially the same length as the portion of the group of sheets to which it is applied and having one longitudinal edge forming a leading edge extending lengthwise of the body while the other longitudinal edge forms a trailing edge extending lengthwise of the body, a tongue intermediate said edges free to move laterally of the plane of the body and projecting toward the trailing edge, and a plurality of straight elongate stops facing toward the trailing edge, the tongue having a base portion joined to the balance of the body at a point about midway between said edges and the stops being adjacent the base portion of the tongue and being in line with each other and parallel with said leading edge and with the base portion of the tongue.

4. A manifolding device adapted to be frictionally engaged with a group of sheets free relative to each other, the device including a thin flat elongate body of flexible material substantially longer than it is wide and of substantially the same length as the portion of the group of sheets to which it is applied and having one longitudinal edge forming a leading edge while the other longitudinal edge forms a trailing edge, a tongue intermediate said edges free and normally deflected from the plane of the body and adapted to move laterally of the plane of the body and projecting toward the trailing edge, and spaced straight elongate stop shoulders adjoining opposite edges of the tongue and facing toward the trailing edge, the stop shoulders being in line with each other and with said leading edge, the body having an opening therein extending from the stop shoulders toward the trailing edge and receiving the tongue with substantial clearance.

5. A device engageable in a typewriter and adapted to frictionally engage a group of papers including, a thin flat elongate body of Celluloid substantially longer than it is wide and of substantially the same length as the portion of the group of sheets to which it is applied and having one longitudinal edge forming a leading edge while the other longitudinal edge forms a trailing edge, side edges extending between the leading and trailing edges, a plurality of tongues intermediate said edges each with an outer end freely, normally deflected from the plane of the

body, and adapted to move laterally of the plane of the body and projecting toward the trailing edge, a stop shoulder at one side edge portion of the body facing the other side edge of the body and adapted to stop papers engaged behind the tongues in a predetermined position relative to the first mentioned side edge of the body, and straight elongate stops projecting in opposite directions from each tongue and extending in line with each other and parallel with the leading edge of the body, the body having an opening therein extending from the stop shoulders toward the trailing edge and receiving the tongue with substantial clearance.

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