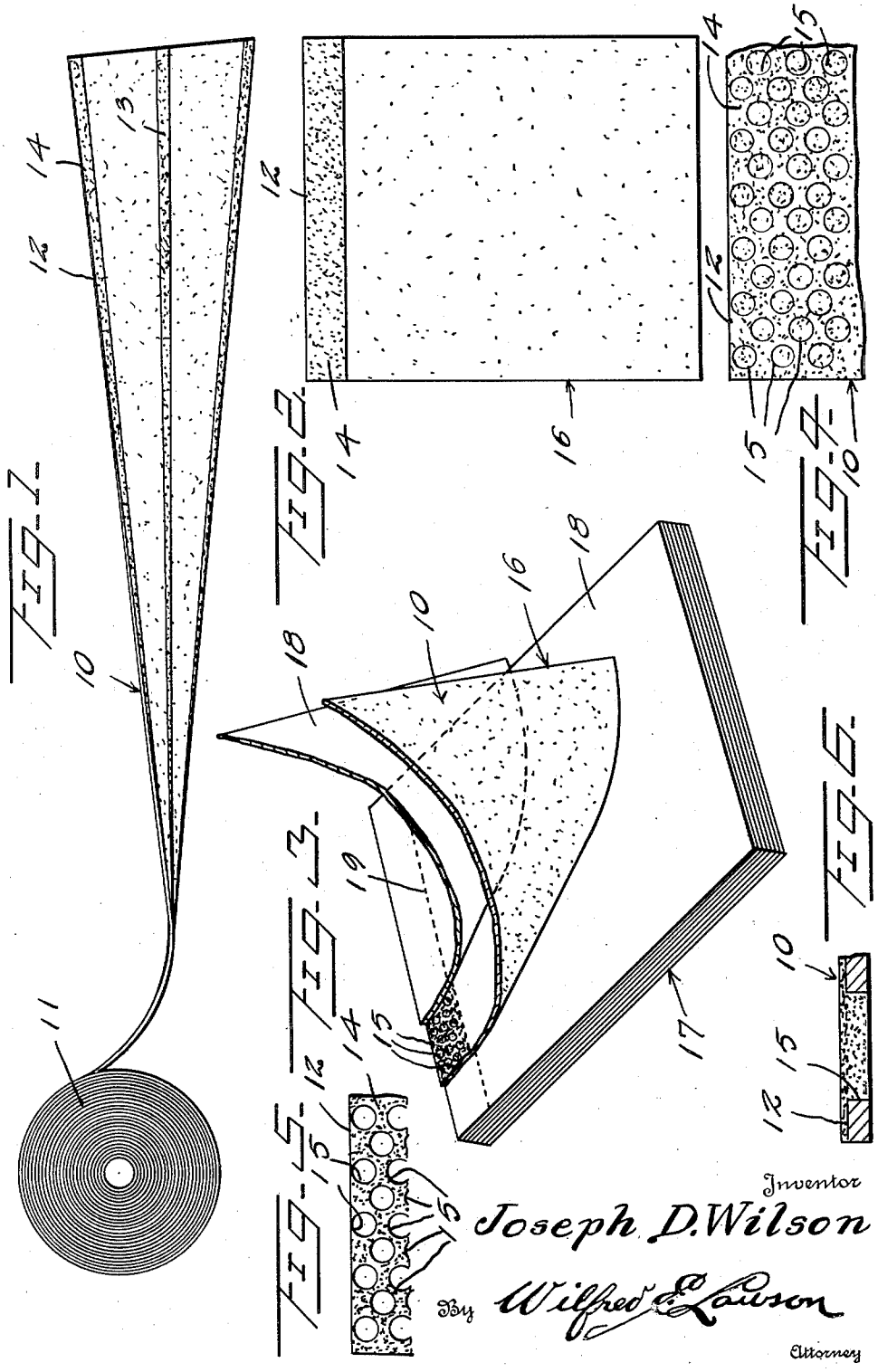
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MANIFOLDING SHEET MATERIAL

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Inventor
Joseph D. Wilson
By Wilfred E. Lawson
Attorney

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MANIFOLDING SHEET MATERIAL

Joseph D. Wilson, Atlanta, Ga.

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This invention relates generally to the art of manifolding and is directed particularly to improvements in the preparation of certain types of sheets for use in the manufacture of one time carbon snap-a-part forms, sometimes known as snap-sets.

In the manufacture of snap-sets or snap-a-part forms as practiced by the small printer, as distinguished from the large manufacturer who has the large and expensive mechanical equipment to turn out such sets in batches of 25,000 or more, two methods may be employed.

In the first method which the so-called small printer may follow, after printing and snap perforating the forms, the same may be gathered by the usual bindery methods. Here the carbon is cut approximately five-eighths of an inch shorter than the printed forms to allow gripper room at the bottom of the form sheets so that when the user grips the bottom of the set to snap the sheets away from the carbon, the carbon paper is above the fingers grasping the form sheets and the sheets are easily extracted. After the sets are gathered with the carbon sheets interleaved, they are "jogged" so as to bring all of the sheets, including the carbon sheets, "flush," or even at the top of the sets. Stacks of these are then placed under weights and a padding compound is brushed on and the assembled sheets are then cut down into sets of desired size. This method is unsatisfactory because the sets are easily broken apart for the reason that the padding compound does not penetrate deep enough to give the inner-gummed feature that users of the sets prefer.

The second method which the small printer may and preferably does employ is the inner-gumming method. Here, after the printing and perforating is accomplished, the use of a marginal gluer and three operators is required, one to feed the sheets and two to assemble. In this method the carbon sheets are cut a full inch shorter than the printed sheets and the printed sheets are provided at the tops with a line about half-way between the top edge and the snap perforations which forms a carbon marker. This line which is about three-eighths of an inch from the top of the sheet designates the position of the top edge of the carbon sheet.

In assembling, the assembler places the bottom sheet of a set in a gathering rack and upon this places a sheet of carbon paper with the top edge at the carbon marker line, which position of the carbon sheet places the bottom edge of the sheet about five-eighths of an inch from the bottom

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edge of the underlying form sheet. The top sheet is then provided upon its underside with a strip of glue which is of sufficient width to adhere to the bottom sheet and to a portion of the back of the carbon sheet or paper. This procedure is repeated until the set is complete. However, this operation is very slow and requires considerable skill to be accomplished with any speed.

In the light of the foregoing it is an object of the present invention to provide a novel gummed carbon or copy sheet so that the sets made up of the carbon or copy sheets and other sheets, may be gathered by the usual "bindery" method and caused to adhere together by the application of steam or by applying moisture in some other manner as by the use of a brush, sponge, sprayer or the like whereby there will be eliminated many of the problems now confronting the small manufacturer of articles of this character.

Another object of the invention is to provide a carbon or copy sheet for the purpose described, manufactured with a marginal strip provided with perforations and with an application of adhesive overlying or filling such perforations whereby upon the assembling of the copy sheet with other sheets, the application of moisture to the edge of the assembled group of sheets along said strip will cause the adhesive to bond the strip portion of the copying sheet with the adjacent sheets between which the copying sheet lies.

A further object of the invention is to provide a carbon or copying sheet with a marginal strip of adhesive applied at the time of the application of the copying material to the sheet, and with apertures in said marginal strip through which the applied adhesive may flow, the apertures being arranged in staggered relation whereby upon the trimming of the carbon sheets preparatory to assembly the adhesive filled apertures of the carbon or copying sheets will be cut through leaving portions of the adhesive exposed at the edge of the sheet so that when moisture is applied to the assembled sheets it will soften the adhesive and cause the latter to flow in between the opposed and contacting surfaces of the several sheets making up the set.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of the specification, with the understanding, however, that the invention is not confined to a strict conformity with the showing of the drawings but may be

changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a view illustrating diagrammatically the initial formation of a carbon sheet as a ribbon having carbon-free strips extending lengthwise thereof.

Figure 2 is a view in plan of a single formed carbon sheet as cut from the ribbon and prior to perforating the gummed edge area.

Figure 3 is a perspective view of a portion of a pad showing a carbon sheet in place.

Figure 4 is a view illustrating a portion of the gummed area of a carbon sheet showing the apertures filled with gum.

Figure 5 is a fragmentary view of the perforated gummed area of the sheet showing the apertures free of gum and before trimming the sheet for use.

Figure 6 is a sectional view on an enlarged scale through a portion of the gummed area of a sheet and through an aperture showing the gum filling in the aperture.

In the manufacture of carbon or copying paper such paper is at the present time prepared as a long sheet or ribbon which may vary considerably in width. As the carbon is applied to the sheet either in the form of a spray or by a suitable transfer mechanism, a strip along each longitudinal edge of the sheet is left free of the copying material. The sheets are then formed in suitable lengths and each is later cut by the printer or other person using the same, to the proper or desired size. These strips of the sheet which are left uncoated with the copying material receive the adhesive or gum when the copying sheets are assembled in the manufacture of the previously referred to one time carbon snap-a-part forms. In some instances the sheet may be formed with a central longitudinal carbon free strip.

In accordance with the present invention it is proposed to provide the sheet material, designated 10, and which is wound up into a roll 11 as the carbon is applied thereto, with the longitudinal carbon free edge strip 12 to which a coating of gum adhesive 14 is applied either simultaneously with the application of the carbon material or subsequently. Where the sheet or ribbon of paper is provided with the central carbon free strip 13, this too may be supplied with the gum coating either at the time of applying the carbon, or later, as may be found most desirable.

In addition to providing the strips or bands of adhesive material along the edges of the carbon sheet, the sheet where the gum or adhesive is applied, is first provided with rows of apertures 15. The apertures of one row are offset from or in staggered relation with the apertures of the next adjacent row so that while the apertures will not merge, they overlap a line extending longitudinally of the row and consequently when the sheet is cut or trimmed along a line paralleling the adhesive coated strip or band, the trimming knife will cut through a row of the apertures regardless of where the cut is made between the free edge of the sheet and the adjacent edge of the carbon coating.

When the strip sheet of copy material is cut up into the individual sheets, designated 16, one edge of such single or individual sheets will have the gummed strip or border portion or selvage.

In manufacturing the snap-sets or forms, the carbon or copying sheets will be assembled in the proper order with record sheets and the assembler needs then only to apply moisture in a suitable manner to form the completed inner gummed snap-set. When the user trims the gummed part of the carbon sheet, which is done before assembling the set, he cuts through the gum or adhesive filled holes 15 which, as previously stated, are staggered so that any trimming will cut through one row of holes, thereby leaving gum exposed to readily adhere to the sheets above and below and to act as a spreading agent of the moisture which would spread to that portion of the gummed copying sheet that is not perforated. This will create or form a more or less solidly glued top the entire length of the form.

It is contemplated as being within the scope of the present invention to apply the adhesive to one face or to both faces of the carbon or copying sheet and while it is preferred that the holes or openings in the copying sheet be filled with the adhesive material, they may remain unfilled without defeating the object of the invention.

A reason for providing the copying sheets with one side only gummed is that carbon sets are frequently made with an extra carbon sheet on the top or bottom of the set that they may register over or under certain ledger sheets, pay roll cards or bookkeeping records that are used with several shipping orders or records.

Figure 3 illustrates a carbon snap-set which is generally designated 17. These snap-sets are made, as previously stated, by interleaving and gumming of sheets of one time carbon between sheets of printed paper, the printed paper sheets being designated 18. These printed paper sheets are perforated along the line 19 adjacent the top edge of the set so that when the printed page or form has been filled in or typed, a quick snap will separate the printed form from the carbon sheet. The carbon, adhering to that part of the form which has been glued to the top of the carbon sheet, is then discarded so that the user of the form does not have to touch the carbon and is not likely to have his hands soiled.

As previously explained, while other methods have been used heretofore for securing the carbon sheets and the printed paper sheets together, the only method which has been found satisfactory for the small printer who does not have large and expensive rotary equipment, is the hand method of assembling the sheets and applying adhesive to the surfaces of the sheets along one edge of the form so that the completed form is flat and it can be easily passed through a typewriting machine without having the sheets break apart. This hand assembling method is, however, slow and expensive whereas by providing carbon sheets made or manufactured in accordance with the present invention, such carbon sheets, and the printed sheets can be assembled easily and quickly and be made to permanently join together by the mere application of moisture along the edge of the form where the gummed edge portions of the carbon sheets lie.

I claim:

1. As an article of manufacture a paper sheet having the major portion of one side coated with a copying substance, the remaining portion comprising a relatively narrow strip along one edge, said strip portion having rows of perforations therein, a moisture absorbing adhesive coating covering said strip, and one row of perforations being open through the adjacent edge of the sheet.

2. An article of the character stated in claim 1, wherein the perforations of one row are in staggered relation with the perforations of an adjacent row.

3. An article of manufacture as stated in claim 1, wherein the perforations of one row are in staggered relation with those of the adjacent row and the rows of perforations are so arranged that the perforations of one row will each have a portion lying between perforations of an adjacent row.

JOSEPH D. WILSON.

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