March 31, 1936. J. Q. SHERMAN ET AL 2,035,768

TRANSFER PAPER AND METHOD OF MAKING SAME

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Fig. 1

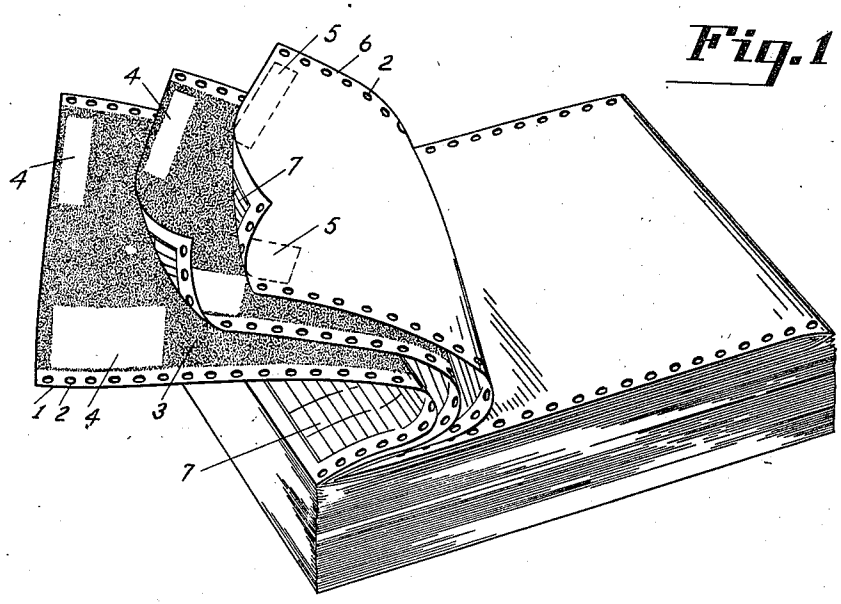
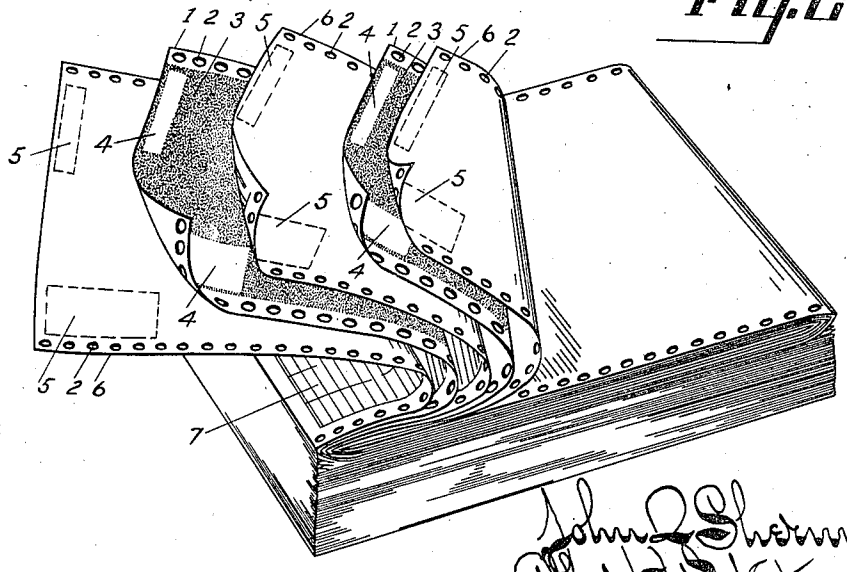


Fig. 2



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Fig. 3

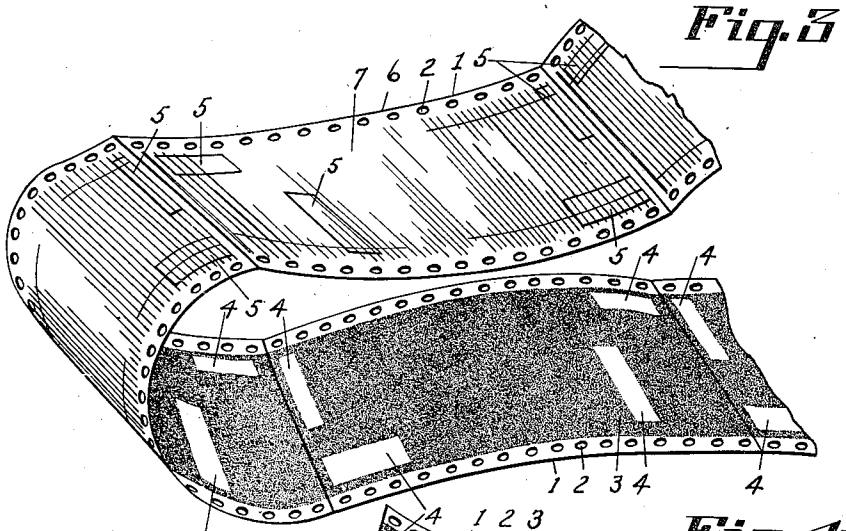


Fig. 4

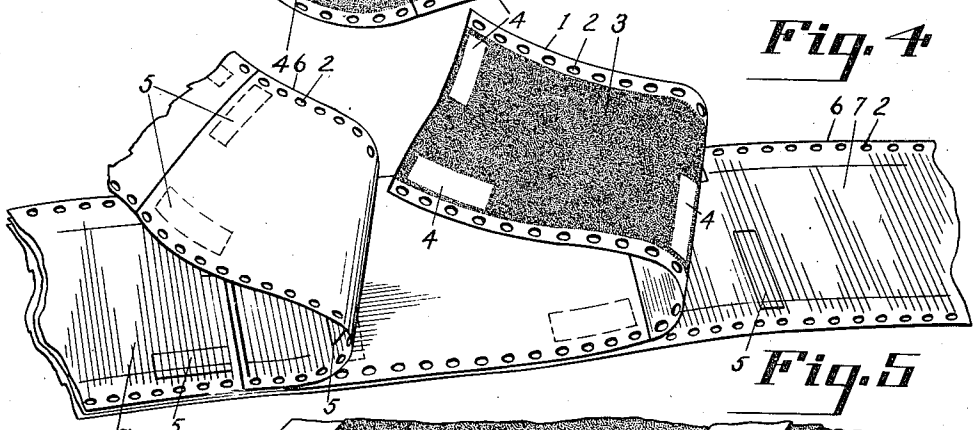


Fig. 5

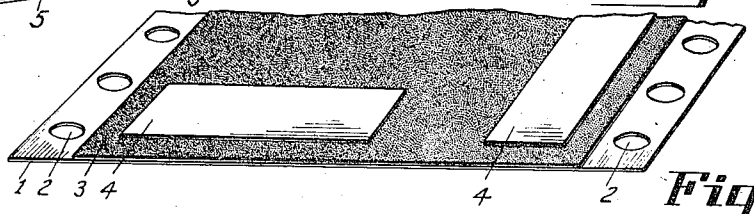
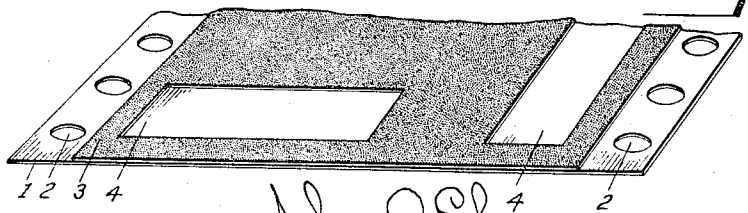


Fig. 6



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UNITED STATES PATENT OFFICE

2,035,768

TRANSFER PAPER AND METHOD OF MAKING SAME

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Application February 20, 1933, Serial No. 657,614

3 Claims. (Cl. 91—68)

This invention relates to manifolding material, and more particularly to a sheet coated with transfer material which may be either a "carbon backed" record sheet or an independent sheet of transfer material having an interrupted transfer surface, certain areas of which are rendered inert whereby data inscribed coincident with such areas upon an overlying record sheet will not be transferred to an underlying duplicate sheet.

In making records of commercial transactions, it is frequently desirable to omit upon duplicate copies, or at least some of them, certain entries which appear on the original and perhaps on other copies. It has long been the practice to "spot" carbon material on the backs of record sheets whereby the record sheet itself became also the transfer sheets. In such case the transfer material is applied only over certain areas leaving other areas uncoated.

It has heretofore also been proposed to provide cutouts, that is, holes and indentations in the transfer sheet coincident with the areas to contain such unduplicated entries which necessitates special punching and cutting operations for each lot of forms. Commercial methods of coating transfer material are such that it is not practical nor commercially economical to leave vacant areas. Moreover, either of the above mentioned methods are quite expensive and the transfer coating must be applied special for each set of printed forms. The present invention overcomes these difficulties by first coating the material continuously throughout, or by utilizing commercial carbon or transfer material and then treating the continuous coated surface throughout predetermined selected areas of limited extent to render them inert, either by imposing thereon an overlying coating of incommunicable sealing or masking material, preferably applied by a printing process, or by removing the original transfer coating over such areas, which operation is also preferably performed in a printing press. The material forming the subject matter hereof and the method of treating or preparing the carbon material may be employed with "carbon backed" record forms or sheets of various sizes and proportions, and is especially applicable to the present continuous strips or series connected forms, particularly to continuous strips of one-time carbon material which are interleaved between strips of series connected printed forms. Such continuous interconnected forms are generally printed simultaneously with the preparation of the continuous strips of carbon material which may be effected upon the same printing press or upon an adjacent press and the respective strips of forms and carbon material are brought together in alternating relation and superfolded into packet form.

The object of the invention is to provide an improved form of manifolding transfer material and an economical method of producing the same whereby it will not only be cheap in production, but will be more efficient in use, convenient, and the inert areas accurately located.

A further object of the invention is to provide improved form of manifolding sheets having inert or noncommunicable areas as distinguished from carbon "spotted" forms.

A further object of the invention is to provide improved and commercially practical means for producing carbon or transfer material having noncommunicable or inert areas by initially coating a given surface continuously throughout and then obliterating or emasculating the transfer coating over selected localized areas.

A further object is to insure accurate registry of the actively coated and inert areas with corresponding portions of over and underlying printed forms.

A further object is to provide as an article of commerce a superfolded packet of manifolding forms in zigzag formation having definitely defined and accurately registered transfer and non-transfer areas.

With the above primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of production, or their equivalents, as hereinafter described and set forth in the claims.

Referring to the accompanying drawings wherein is shown the preferred, but obviously not necessarily the only form of embodiment of the invention, Fig. 1 is a perspective view of a packet of manifolding material wherein the present invention is embodied in "carbon backed" record forms. Fig. 2 is a similar view of a packet of manifolding material wherein the invention is

embodied in interleaved transfer strips. Fig. 3 is a perspective view of a length of "carbon backed" record strip partially reversed to disclose both sides. Fig. 4 is a perspective view of an assembly of superposed record strips and an interleaved transfer strip reversed to show the relation of the inert and non-record areas. Figs. 5 and 6 are grossly exaggerated detail perspective views illustrating two modes of embodiment of the invention.

Like parts are indicated by similar characters of reference throughout the several views.

Referring to the drawings, 1 indicated a strip of carbon coated material which is shown provided with marginally punched holes 2 by which the strip is adapted to be fed through a pin type feeding device of a writing machine. Such pigment coated strip 1 may be a record strip as shown in Figs. 1 and 3, the back or reverse side of which may be "carbonized" or coated with transfer material, or such strip may comprise a separate strip of transfer material interleaved between superposed record strips as shown in Figs. 2 and 4. In either event the strip of carbonized material 1 as originally manufactured has a continuous uninterrupted transfer surface 3. Certain areas 4 of this surface have been treated as hereinafter described to render such portions inert or non-communicable. The areas 4 form islands completely surrounded with a communicable surface.

The inert areas 4 are proportioned and disposed to register with corresponding areas 5 of an overlying record 6, either on the opposite side of the same strips as in Figs. 1 and 3 or on an overlying strip as in Figs. 2 and 4. The record 6 is adapted to receive inscriptions within the main area 7 which are to be transferred to underlying copy strips through the untreated or communicable portions 3 of the transfer coating 1. The record strip 6 also is adapted to receive within the areas 5, other inscriptions which it is not desired to have transferred to the underlying copy strips and hence the registering areas 4 of the transfer surface have been rendered non-communicable or inert.

As before mentioned, this might be accomplished by cutting holes in the carbon strip 1 or by omitting the coating over certain areas thereby leaving such areas initially blank at the time of manufacture. The methods of manufacturing carbon paper render this means of production commercially prohibitive and further necessitates that each lot of carbon material be specially manufactured for the particular printed forms with which it is to be used. It has been found quite practical to employ ordinary carbon or commercial transfer material which is uniformly coated throughout, and to produce the inert areas thereon either by masking or sealing the transferable pigment over such areas, or by removing the pigment. The preferable method of applying a sealing or coating substance over the areas 4, is by passing the carbon material through a printing press, preferably, though not necessarily, of the cylinder type by which such sealing or coating material is accurately applied from suitably shaped printing blocks over the desired area. Printer's ink of suitable consistency may be employed for this purpose and when employing a cylinder type press, a second impression may be applied over the first impression before the material passes from the printing press, thus affordingto a heavier and more impervious coating. A very desirable coating or masking material to be applied in this manner has been found to be a silver bronze printing ink with which is mixed a dryer, preferably, though not necessarily, perilla oil and a resin gum to afford the desired consistency. Ordinarily two parts of dryer are used to ten parts of perilla oil. To insure complete coverage and thorough sealing in of the pigment, the printed impression is preferably repeated.

In lieu of applying an overlying sealing coat of non-transferable material which is confined to the particular areas desired to be rendered inert, the carbon transfer coating throughout such areas may be removed. It has been found that this can be rapidly and accurately effected by passing the carbon material through a printing press by which there is applied thereto over the selected area, an impression of heavy opaque white printing ink which preferably contains a small quantity of refined kerosene and a small quantity of ether, which serve as solvents for the carbon transfer pigment material. In this method the opaque white ink is not deposited upon the carbon strip 1, but serves as an adhesive or adherent which remains affixed to the printing block and to which the carbon transfer material, softened by the solvent, adheres and is stripped from the supporting strip or sheet 1. Thus the pigment is lifted out or removed over the areas 4 by the tacky or adhesive white ink, which, as the printing cylinder revolves, is wiped from the printing block which thereupon receives another deposit of the adhesive material. While the transfer material will be stripped over the selected area, in order to insure against any remaining pigment being transferred to the underlying strip, such area is preferably coated with a heavy lithographic or coating varnish which forms a hard sealing surface when dry so that any remaining dye or ink within the area cannot come through onto the underlying copy strips when the overlying strip is inscribed.

While a heavy opaque white printing ink has been mentioned as the preferable material, since it has been heretofore practically demonstrated, it is to be understood that other adhesive materials may be employed in lieu thereof. Obviously any substance having sufficient adhesive characteristics to cling to the printing block and at the same time hold the transfer material of the strip 1 with which it comes in contact, will serve the purpose equally as well. The coating varnish mentioned is also preferably applied by a printing block during the same printing operation.

From the above description it will be apparent that there is thus provided a material of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described our invention, we claim:

1. The herein described method of preparing manifolding transfer material including uniformly coating the surface thereof with communicable pigment, and subsequently removing such communicable pigment throughout predetermined limited areas.

2. The herein described method of preparing manifolding transfer material including uniformly coating the surface thereof with communicable pigment, and subsequently applying to limited areas thereof a solvent and an adherent body by which the pigment coating is softened and removed from the material.

3. The herein described method of preparing manifolding transfer material including uniformly coating the surface thereof with communicable pigment, and printing upon the pigmented surface a coating of nontransferable printer's ink.

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