June 16, 1931. J. SCHMUTZ 1,810,089

PRINTING PLATE

Filed Sept. 3, 1929

FIG. 1.

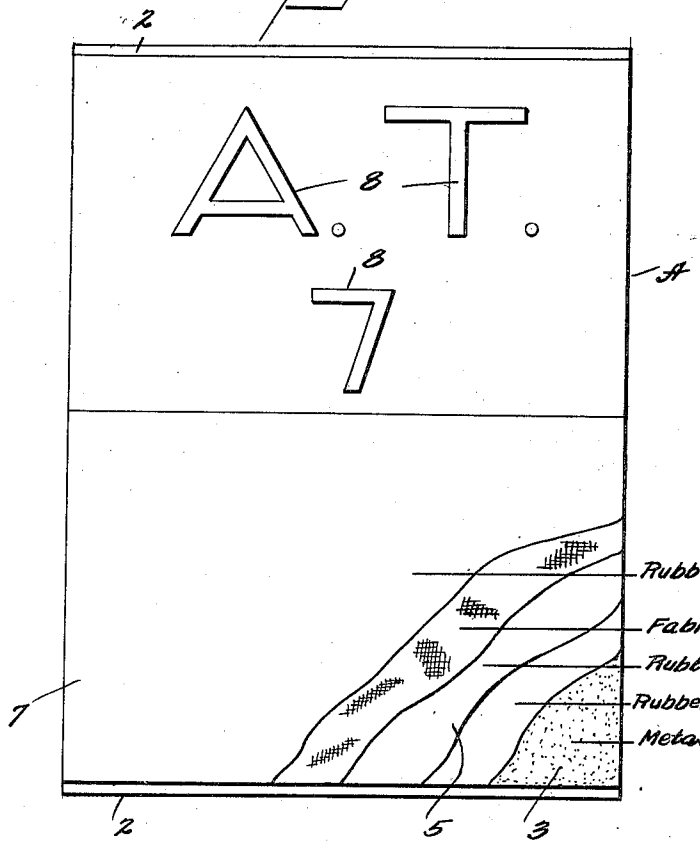
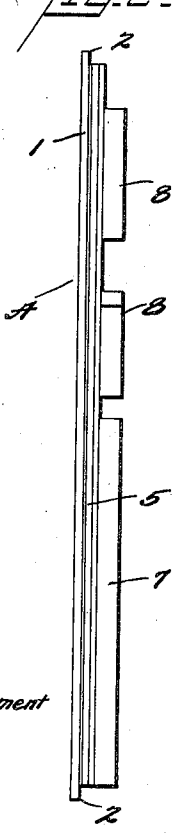


FIG. 2.



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UNITED STATES PATENT OFFICE

JULIUS SCHMUTZ, OF LOUISVILLE, KENTUCKY

PRINTING PLATE

Application filed September 3, 1929. Serial No. 390,087.

Generically this invention relates to printing plates but it more especially comprehends the type comprising a rubber or resilient impression design bearing sheet and a metallic backing more especially adapted for printing on coarse fabrics, corrugated paper, wooden containers and the like.

The principal object of this invention is the provision of a printing plate and process of making same comprising a solid or blank metal backed rubber printing plate designed for slidable contact with a flat bed or cylinder surface or holding means and intended to prevent binding of said plate thereon by expansion and frictional contact of any portion of the rubber with said supporting surface during the printing operation, and constitutes an improvement of my Patent No. 1,589,665, June 22, 1926, for article of manufacture.

A further important object is the provision of a metal backed rubber impression surfaced printing plate as above outlined, said metallic backing formed with opposite transverse smooth unbroken flanges slidable in grooves or other suitable fastening elements, whereby binding or sticking of the plate by swelling engagement of any portion of the rubber with the supporting surface and holding means incident to the printing operation is prevented, and ready insertion and removal of the plate is effected.

A further important object of this invention is the provision of a printing plate comprising a flanged solid metal backing, having a rubberized coating applied thereto, a fabric sheet superimposed on the said rubberized surface, and a rubber impression sheet superimposed on said fabric in which printing characters are formed, and the process of producing a homogeneous uniting of the elements to produce such plate.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a plan view of my improved printing plate in process of forming the printing characters thereon and with parts broken away to show the steps and components thereof; and

Fig. 2 is a longitudinal cross section of Fig. 1.

The types of printing plates of this general character for printing on coarse fabrics and the methods of producing same have proven deficient for many reasons, and while my Patent No. 1,589,665 was a distinct advance in the art, practice has proven its deficiency in certain regards.

Though I have employed a perforated metal-backed rubber printing plate with great success, it has been found that in connection with my improved means for attaching the printing plate to a flat bed or printing cylinder, and which forms the subject matter of a companion application I am filing concurrently herewith, that where the printing plate has a rubberized contact surface with the flat bed or printing cylinder and holding means, and where a perforated metal backing is used with projections of the rubber printing or impression sheet vulcanized through said openings, that owing to the action of ink, oil, grease and the heat and pressure incident to the printing operation, the rubber through said openings or the rubber surface in contact with the supporting bed plate or cylinder surface is caused to swell, as is also the rubber filled broken edges of the flanges of the plate with the holding means, causing a binding and sticking of the plate which prevents the ready removal and insertion of said plate in operative position, and also often prevents accurate register in color printing, and it was to overcome the deficiencies of such plates and methods employed in their production, and to provide the metal back having a smooth printing cylinder contact surface, formed with smooth unbroken flanged edges for engagement with suitable fastening means, and the method of treating the opposite surface of said back by applying a cleansing treatment thereto, vul-

canizing a rubberized substance thereon, applying a fabric covering to said rubberized substance, superimposing a rubber sheet on said fabric, and homogeneously uniting said components to said metal backing by vulcanization, that I designed the printing element and method of making same forming the subject matter of this invention.

In the illustrated embodiment characterizing this invention there is shown the preferred embodiment of my invention designated generally as A, comprising a metallic backing 1 formed at its opposite edges with transverse flanges 2, forming a continuation of the bottom surface of said plate, for slidable engagement with suitable grooves, means for attaching the plate to the cylinder, not shown. The upper surface of said metal backing is treated with gasoline or other suitable cleaning agent and then treated with a sand blasting operation 3, and then applying a coating of suitable cement to said surface, preferably by a brush or spray gun, or in any suitable manner, the composition of the cement necessarily varying with the type of metal used, such as, for instance, where the metal backing is of zinc as contrasted with brass, then covered with a coating of uncured rubber 5, and then the prepared backing is placed in a press and the rubber suitably cured, and effecting a thorough vulcanization with said metallic surface. A piece of fabric then is superimposed on said rubber surface 5 and a rubber impression sheet 7 is superimposed on said fabric, and the assembly then treated to a vulcanizing operation, whereby the several components are homogeneously vulcanized and united with said metallic backing to form a homogeneous structure, the said operation also effecting a predetermined vulcanization of the rubber substance 7 so that the printing characters 8 formed therein will possess the proper degree of resiliency to effect a non-blurred imprint on the coarse fabrics when subjected to the printing operation. While the rubber 7 is preferably cut out to provide the desired characters 8 in relief they may be formed in any suitable manner commensurate with the requirements and type of design desired.

Also, according to the exigencies of the particular requirements a brass sheet may be used instead of the zinc sheet, the method being identical except that in connection with certain types of brass a variation in composition of the cement may be necessary. Likewise, in some instances it may be found expedient to apply a coating of brass to the zinc sheet by any well known electro-plating method, in which case, the remaining process being identical with that above described.

From the above it will be apparent that I have provided a printing plate, and method of producing same, having a rubber impression surface and a metal back vulcanized to a rubber printing element, flanged to fit grooves for locking into either hand stamped, marker, flat bed, or printing cylinder so designed and constructed that ink, oil, grease or other effects of the printing operation cannot coact on the rubber to effect inaccurate mounting of the plate or to bind or lock the same by contact or swelling of the rubber in contact with holding or supporting surfaces, yet admitting of versatile use, comprising few parts, manufacturable at a minimum of time and labor, and efficient for the purposes intended.

Although in practice I have found the form of my invention illustrated in the accompanying drawings and referred to in the above description as the preferred embodiment is the most efficient and practical; yet realizing that conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having thus described my invention, what I desire protected by Letters Patent is as set forth in the following claims:

1. A method of producing a printing plate consisting in forming a resilient impression material with a design having a metallic backing formed with transverse lateral flanges, treating the surface of said backing with a cleansing substance, applying a cementitious composition to said cleansed surface, covering the said cementitious substance with a rubber material interposing a fabric intermediate the rubber and impression sheets and then homogeneously uniting the assembly by vulcanization.

2. A method of producing a printing plate consisting in forming a solid metallic backing material with transverse lateral flanges, treating the surface of said backing intermediate the flanges with a cleansing preparation, then treating such surface to a sand blast operation, applying a cementitious substance to said treated surface, and superimposing a rubber sheet on said cementitious substance, then superimposing a rubber impression sheet on said first mentioned sheet, and subjecting the assembly to a vulcanizing operation to effect a homogeneous structure.

3. A method of producing a resilient printing plate consisting in forming a metal backing with unbroken transverse flanged edges, the lower surface of said flanges and that of the backing constituting an uninterrupted smooth lower contact surface of said back, treating the opposite surface of said back with a cleansing agent, treating the cleaned surface to a sand blast operation, applying a cement composition to said sand blast sur-

face, applying a coating of rubber to said cement, subjecting said backing and rubber to a vulcanizing operation, applying a fabric to the last mentioned surface, superimposing a rubber impression sheet on said fabric surface, subjecting said structure to a vulcanization operation to homogeneously unite the said components and backing, and forming printing characters on said impression sheet, whereby said plate may be slidably mounted in a printing press without being affected by frictional contact of any portion of the rubber incident to the printing operation.

This specification signed this 29th day of August, A. D. 1929.

JULIUS SCHMUTZ.