No. 656,442.

Patented Aug. 21, 1900.

J. S. DUNCAN.

RUBBER TYPE.

(Application filed Nov. 20, 1899.)

(No Model.)

Fig. 1.

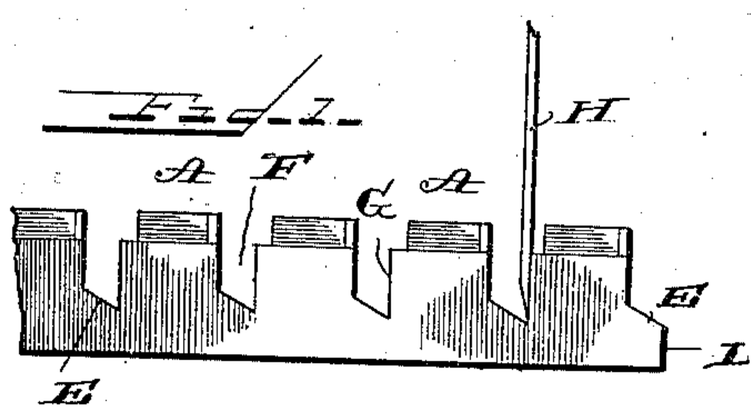


Fig. 2.

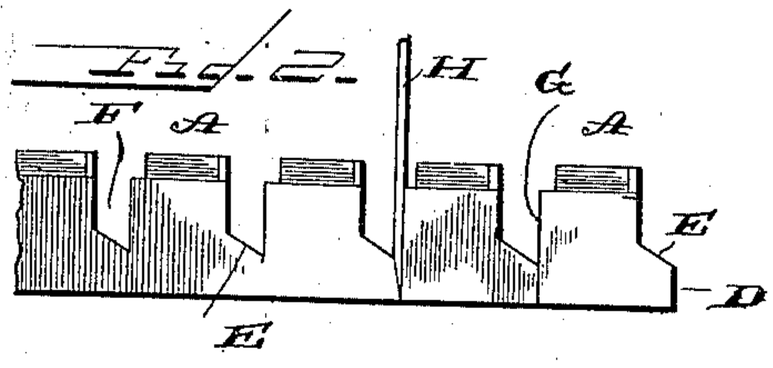


Fig. 3.

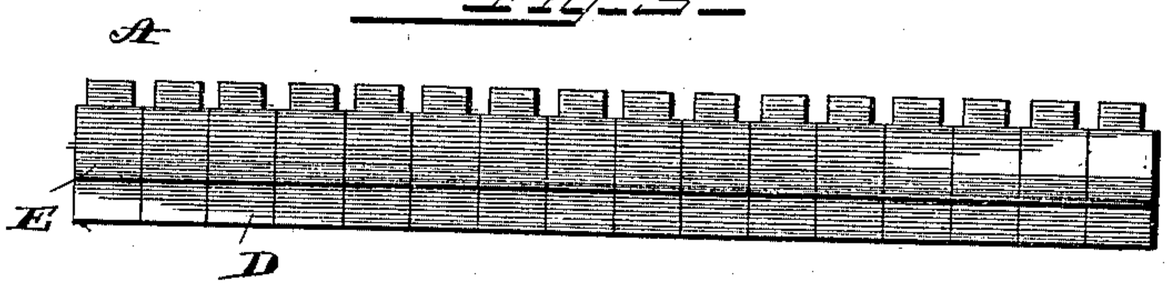


Fig. 4.

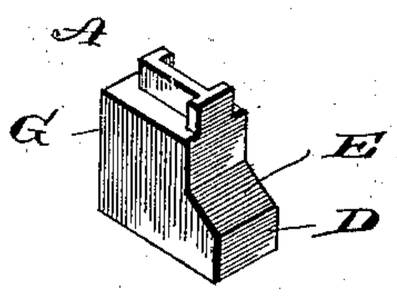
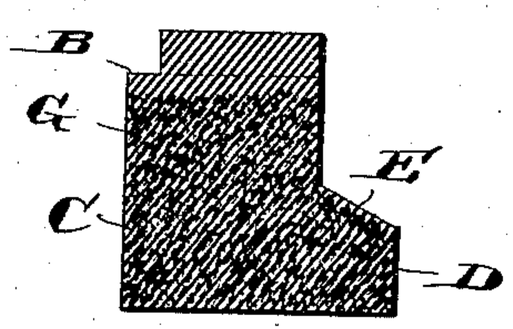


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH S. DUNCAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ADDRESSOGRAPH COMPANY, OF SAME PLACE.

RUBBER TYPE.

SPECIFICATION forming part of Letters Patent No. 656,442, dated August 21, 1900.

Application filed November 20, 1899. Serial No. 737,583. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. DUNCAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rubber Type, of which the following is a specification.

My invention relates to certain new and useful improvements in rubber type and the process of making same; and its object is primarily to provide a homogeneous type having an elastic printing-face and a less-elastic but not hard body, so that the type will retain its proper shape and have a sufficiently-elastic printing-face inseparably united with a comparatively-inelastic body.

My invention has other objects in view, which will be pointed out hereinafter in the detailed description in connection with the accompanying drawings, in which—

Figure 1 is an end view of a type-sheet, showing the knife in position for operation to separate the lines of type. Fig. 2 is a similar view showing the line of type severed from the sheet. Fig. 3 is a side view of a line of type. Fig. 4 illustrates a single type. Fig. 5 is a sectional view of a type.

In the drawings like letters of reference denote corresponding parts in all the figures.

Rubber type have been made in sheets containing any number of lines A of any type characters, the sheet being then cut up to separate the individual types. The rubber used in making this type-sheet has usually consisted of a single grade, so that the entire type will be made of exactly the same kind of rubber and be of the same degree of elasticity throughout. It is a somewhat difficult matter to handle such type to advantage and set them up in a type-holder expeditiously and in exact alinement with each other on account of the flexible character of their bodies, which disadvantages, with others familiar to those skilled in the art, I avoid by making the type as herein disclosed.

My improved type consists of a comparatively-elastic face B and a less-elastic body C. This type can be produced in quantities in the following manner, which I have employed with success: I provide a blank sheet of unvulcanized rubber, from which the type are to be produced, consisting of a layer of comparatively-elastic rubber for the face of the type and a layer of comparatively-inelastic rubber for the body of the type, placed one upon the other and adhering closely together by reason of the nature of the material. This blank sheet is made of the proper thickness and with the two grades of rubber proportioned as desired. The type-faces are then produced in the elastic side of the sheet and the entire sheet vulcanized by arranging the sheet with the elastic face against a form and then applying pressure and heat. It will be observed that I employ a sheet consisting wholly of unvulcanized rubber, that portion of the sheet which is to form the faces of the type being more elastic than that portion which is to form the body. The type-faces are produced on the elastic side of the sheet, and when the sheet has been vulcanized the part thereof bearing the type-faces and the part constituting the body of the type will have approximately the same relative degrees of elasticity and inelasticity as before vulcanization.

My improved type has the desired elastic printing-face, which can be made even more elastic than is now customary in ordinary rubber type, while its body is less elastic than the printing-face, without being hard, like hard rubber, so that the type can be handled with rapidity and accuracy and always retain its shape. It is distinguished from rubber type of a single degree of elasticity throughout and from type having a rubber face mounted on a solid body, like hard rubber or metal, by reason of the fact that it consists of an elastic printing-face and a less-elastic and comparatively-soft, as distinguished from rigid, body inseparably connected together by vulcanization, the body, however, being sufficiently hard and inelastic to maintain its shape at all times.

In Fig. 5 I have indicated the elastic and inelastic portions of the type by different degrees of shading; but the particular proportions of these parts will vary in different types and in different styles of type.

To facilitate the arrangement of the type in the holder and provide a means for securing it therein, I may provide each type with

a projection or offset D on one side. This projection may be placed on the type so as to indicate the correct position therefor, and it provides a means whereby the type can be secured in a holder without compressing its body.

These types may be made in sheets in the following manner: When the characters are formed in the sheet, a groove F is provided between the lines of type, the lower wall or bottom of this groove being inclined and providing an inclined or sloping face E on the type when the latter is separated from the line. After cutting the sheet across the lines and between the type characters, the knife H is brought down into the groove closely against the flat side G of the types, and by reason of the angle formed by this straight side G and the downwardly-sloping face E of the type the knife will seek its proper position against the side G and make a clean cut without leaving any shoulders or lumps on the side of the type.

In setting ordinary type which have heretofore been made of the same degree of elasticity throughout, it has been customary to employ tweezers to pick them up from a case and arrange them in a holder, it being necessary to place each type in the holder in practically the exact position it is to occupy finally close alongside the other types in the holder. These elastic types have also been held in the holder by compression, the body of the type being compressed between the sides of the holder. Consequently it happens sometimes that the elastic types get jammed and disarranged in the holder and the face of some forced up above the others, so that considerable time and effort are required to straighten them into proper alinement, with each type occupying its proper position, so as to produce a perfect printing-face and give a clear, distinct, and correct imprint; but with my improved type having comparatively-inelastic bodies these difficulties are avoided and the types can be set up loosely in the holder and then crowded up into position close to each other when the line is complete without jamming or disarranging them in any way. The inelastic bodies cause the types to slide freely in the holder, maintain their shape, prevent them from becoming jammed, and preserve a proper alinement and a level printing-face. The projection or offset D enables the type to be secured in the holder without compressing its body, so that a comparatively-free movement in setting them up is possible. I prefer, however, that the holder should make a close contact with the type at the top of its body.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A solid homogeneous type composed entirely of rubber and consisting of an elastic printing-face and a less-elastic soft body inseparably connected together by vulcanization.

2. The herein-described process of making type composed entirely of rubber and having an elastic printing-face and a comparatively-inelastic body which consists in providing a blank sheet of unvulcanized rubber composed of two layers placed one upon the other and adhering together, one of said layers consisting of a comparatively-elastic grade of rubber for the face of the type and the other layer consisting of a comparatively-inelastic grade of rubber for the body of the type; arranging the blank sheet with the elastic face thereof against a form and applying heat and pressure to produce the type characters in the sheet and vulcanize the rubber of both sheets and unite the two grades of rubber inseparably together; and finally separating the individual types of the sheet, substantially as described.

3. The herein-described process of making type composed entirely of rubber and having an elastic printing-face and a comparatively-inelastic body which consists in providing a blank sheet of unvulcanized rubber composed of a comparatively-elastic layer of rubber for the face of the type and a comparatively-inelastic layer of rubber for the body of the type; arranging the blank sheet with the elastic face thereof against a form and applying heat and pressure to produce the type characters in the sheet and vulcanize the rubber of both sheets and unite the two grades of rubber inseparably together; then cutting the sheet across the lines of type and between the type characters thereon and finally separating the lines of type, substantially as described.

JOSEPH S. DUNCAN.

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