Oct. 18, 1938. F. R. COUGHLIN ET AL 2,133,685

METHOD OF REMOVING METALLIC PLATING FROM A CARRIER BAND

Filed March 11, 1935

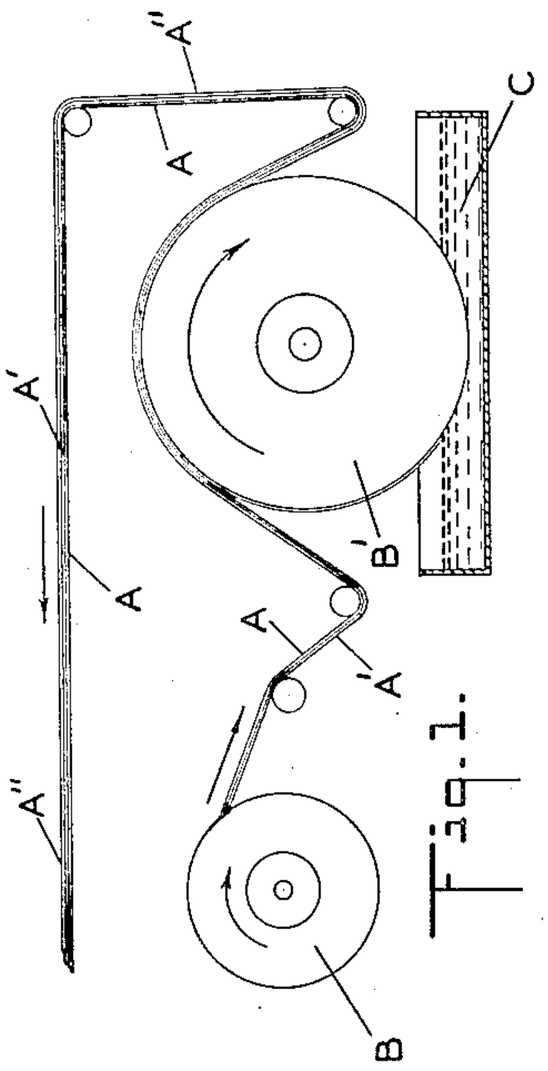

Fig. 1.

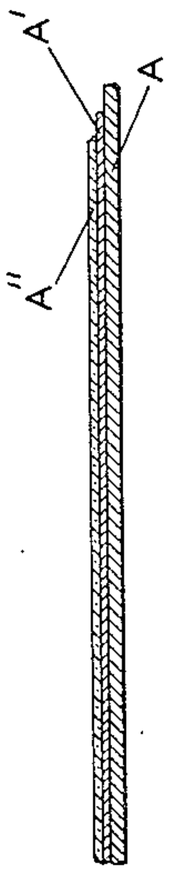

Fig. 5.

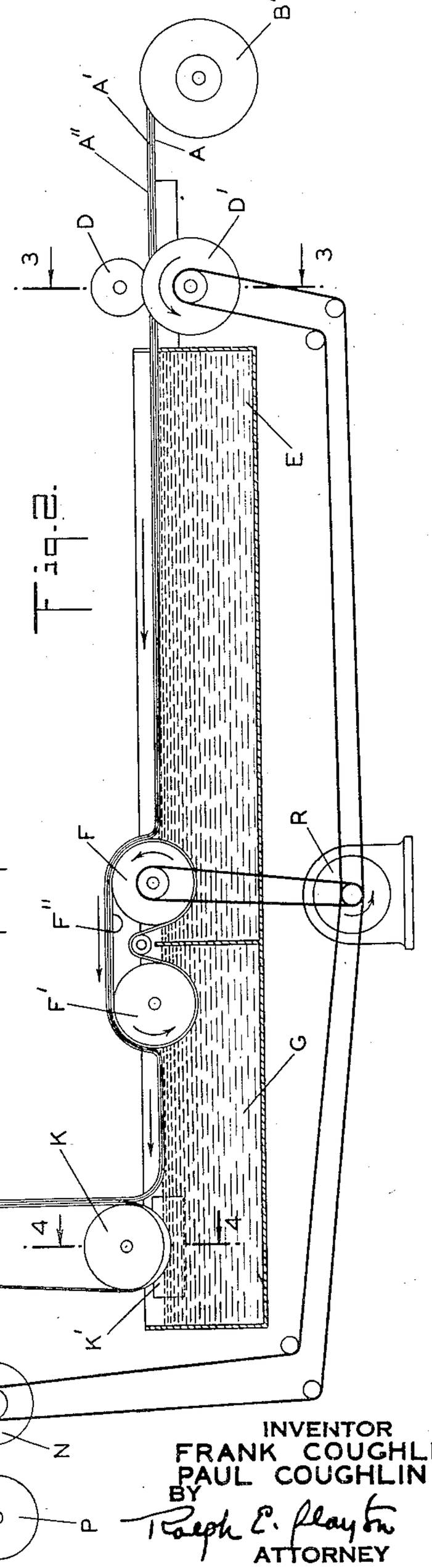

Fig. 2.

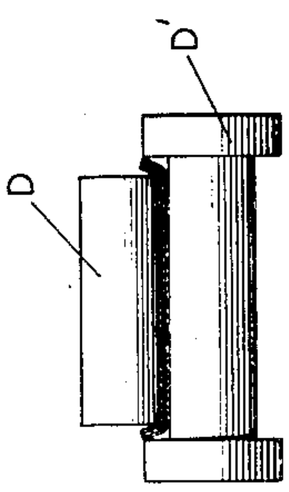

Fig. 3.

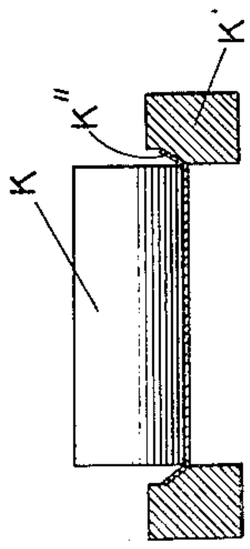

Fig. 4.

INVENTOR
FRANK COUGHLIN
PAUL COUGHLIN
BY
Ralph E. Clayton
ATTORNEY

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METHOD OF REMOVING METALLIC PLATING FROM A CARRIER BAND

Frank R. Coughlin, Flushing, and Paul V. Coughlin, Crestwood, N. Y.

Application March 11, 1935, Serial No. 10,536

2 Claims. (Cl. 204—11)

This invention relates to the production of metallic leaf or film, and has more particular reference to the transfer of the plated metallic film of a carrier band to a supporting strip, which simplifies handling of the film in subsequent use; and to the protection of the metallic plating or film, more particularly while the transfer from the carrier band to the supporting strip is being effected.

Comprehensively stated, one aspect of the invention among others resides in the application of a protective coating to a plated carrier band, the separation of the carrier band from the protected plating or film, and the transfer of the plating or film so protected to one face of a suitable supporting strip, so that the metallic film may be conveniently packed and shipped without damage for subsequent commercial utilization.

More specifically stated, the invention comprises the steps of applying to the more generally very thin plated side of a metal band, a coating comprising a cellulose compound or a derivative thereof, floating the carrier band with its protective coating along the surface of a bath capable of dissolving or otherwise removing the carrier band so as to free the protected coating from the latter, and then transferring the protected plating or film to one face of a moving continuous supporting strip, and rolling the supporting strip with its protective film into roll form.

Other characteristics and objects of the invention will be apparent as the description proceeds.

While one embodiment of the invention is illustrated in the accompanying drawing, it is to be understood that this embodiment merely serves as an illustration of the underlying principles of the invention so that they may be readily comprehended by those skilled in the art and is not intended as limiting the invention to the specific form disclosed therein.

In said drawing:

Fig. 1 is a diagrammatic view of the apparatus for applying the protective coating to the plated face of a carrier band.

Fig. 2 is a diagrammatic view showing the apparatus for removing the carrier band from the protected coating and transferring it to a supporting strip.

Fig. 3 is a section of Fig. 2 on the line 3—3.

Fig. 4 is a section of Fig. 2 on the line 4—4, and

Fig. 5 is an enlarged sectional view of the plated carrier band with its protective coating after having been treated in the apparatus shown in Fig. 1.

Continuing by way of a more detailed description, a carrier band A, plated in the manner described in co-pending application of Paul Coughlin, Serial No. 7330, has a protective coating or sizing "A" applied to its plated face A' for the purpose to be fully described hereinafter. This protective coating is applied as is more particularly shown in Fig. 1 by passing the plated carrier band conveniently stored on a roll B, after plating over a rotating coating roller B', the circumferential surface of which is wet by passing through a bath C, comprising ethyl cellulose or other cellulose compound dissolved in alcohol, alcohol chloroform, or other suitable solvent. The solution is of quick drying type so that the coating adhering to the surface of the roll B', when brought into contact with the plated face of the carrier band, quickly forms a protective coating for the plating of the carrier band, which more generally is very thin, for instance in the form of leaf or film, particularly when the plating is gold.

The plated carrier strip A, coated in the manner above described and as shown more particularly in Fig. 1, may be stored on a reel B'', (shown in Fig. 2, but not in Fig. 1) after leaving the roll B'. This roll may then be transferred from the coating device to the position shown in Fig. 2, although instead of storing the coated plated carrier band on reel B'', the band, after coating, could be fed directly to the apparatus shown in Fig. 2.

The end of the coated carrier strip A, stored on roll B'', or fed directly from the coating apparatus shown in Fig. 1, is passed between the rollers D and D' for the purpose of bending or flanging the edges of the plated carrier band with its protective coating, as will be readily understood.

The band A, with its plating A' and protective coating A'', shaped by the rollers D and D' is fed to the surface of a bath E, containing an agent such as dilute nitric acid, the protective coating, as well as the bent edges affording sufficient buoyancy so that the plating will remain on the surface of the acid after the carrier band has been removed.

The plated coating, after having been floated on the surface of the bath E long enough to remove or dissolve the carrier band, is passed over rolls F and F', carrying an endless web F'', and then floated along the top surface of a water bath G, and is then applied to a moving con-

tinuous strip H of paper, for instance, glassine paper, or other suitable supporting material.

The strip H is initially stored on a roller J and passes under the transfer roller K, in contact with the water in bath G, and then over the guide roller L. The roller K is arranged to co-operate with the guide K' so that the flanging bevels K'' bend the edges of the paper so that only one side of the paper is wet.

The strip H, with its attached coated film after passing over the roller L, which flattens the bent edges is passed under the roller M, and in contact with a drive roll N, and an idler roll P, to a suitable storage reel Q, on which the supporting strip with the metallic film having a protective coating on one face is stored. The rolls F, N, and D' are driven from a suitable source of motive power R by suitable belting, or otherwise, as will be readily understood.

The speed with which the carrier band is to be moved along the surface of the bath E is dependent on the plating material of the carrier band, and the characteristics of the bath for attacking the band, the object being to remove the carrier band without appreciably attacking the plating.

While the present invention relates more particularly to a plated brass carrier band such as is disclosed in the co-pending application above referred to, it is also within the contemplated scope of the invention to use a carrier band consisting of an alloy such as zinc and lead having a comparatively low melting point, particularly a melting point below 100° C. If a plated alloy having the characteristic above referred to is to be treated, a bath maintained at a high enough temperature to melt the carrier band might be used in place of the bath E, or the bath might be eliminated entirely and a heated chamber substituted.

We claim:

1. The method of transferring a metallic plating from a carrier band to a supporting strip, comprising the step of applying a buoyant protective coating to the plated side of the carrier band, then floating the carrier band with the buoyant coating on a bath of sufficient heat to melt the band, dissolving the carrier band and then spreading on a moving supporting strip the coated plating remaining after the carrier band is dissolved, said band consisting of an alloy having a melting point below one hundred degrees centigrade.

2. The steps in the method of transferring a metallic plating from a carrier to a supporting strip, comprising applying a cellulose coating to a band consisting of a carrier strip coated with precious metal, floating the carrier band with its cellulose coating along the surface of a bath to dissolve the carrier band and leave the precious metal film adhering to the cellulose coating, simultaneously flanging a supporting strip and wetting one face thereof and continuously moving the supporting strip, and attaching one end of the protected film of precious metal to the continuously moving supporting strip so that the protected film is continually spread along the supporting strip.

FRANK R. COUGHLIN.
PAUL V. COUGHLIN.