Aug. 7, 1928. 1,679,996

P. J. TRACY

FILIGREE DESIGN PROCESS

Filed April 26, 1926

Fig. 1.

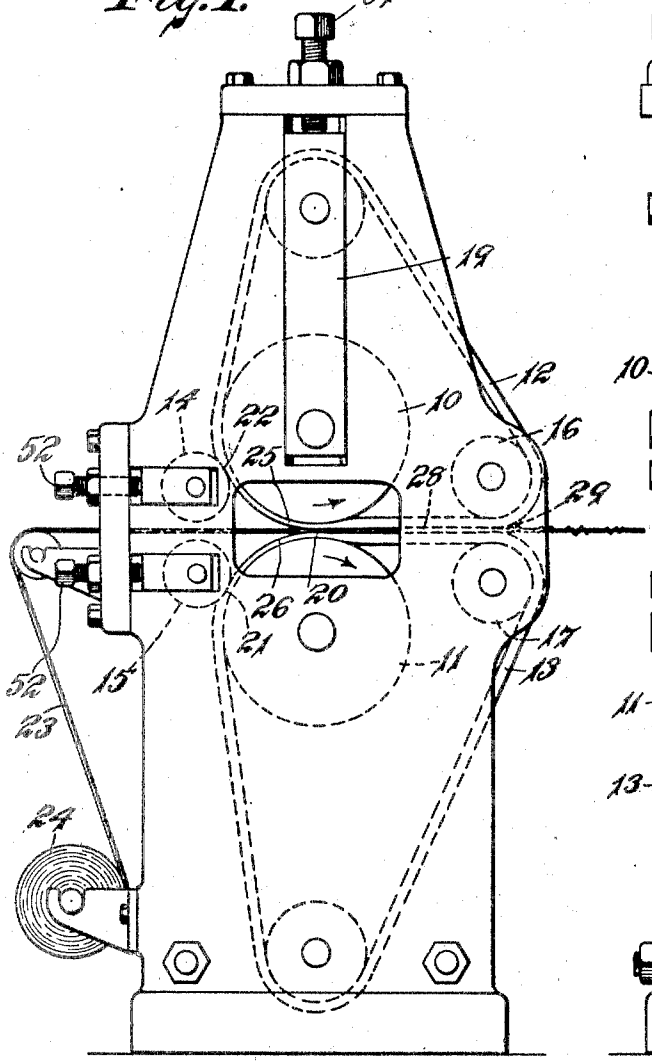


Fig. 2.

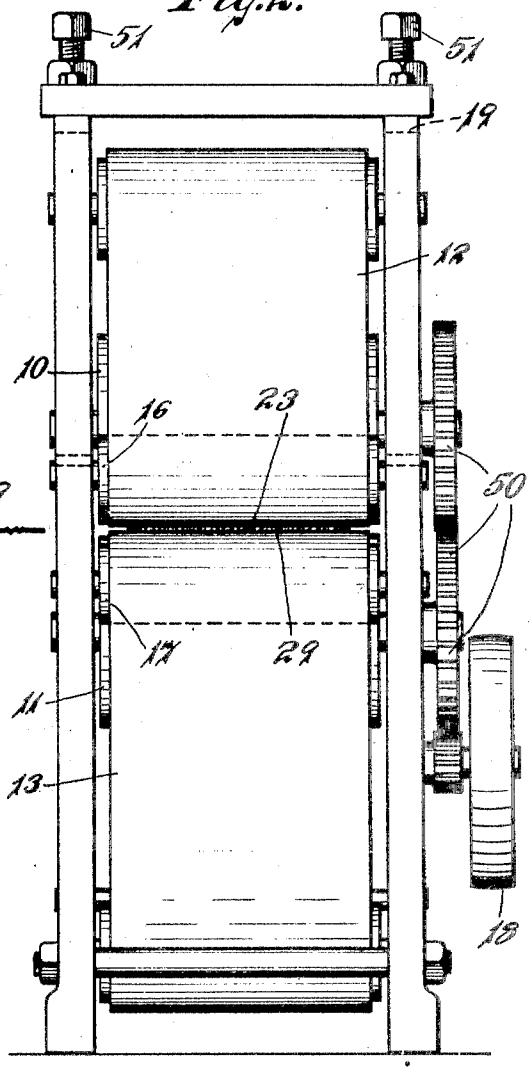


Fig. 3.

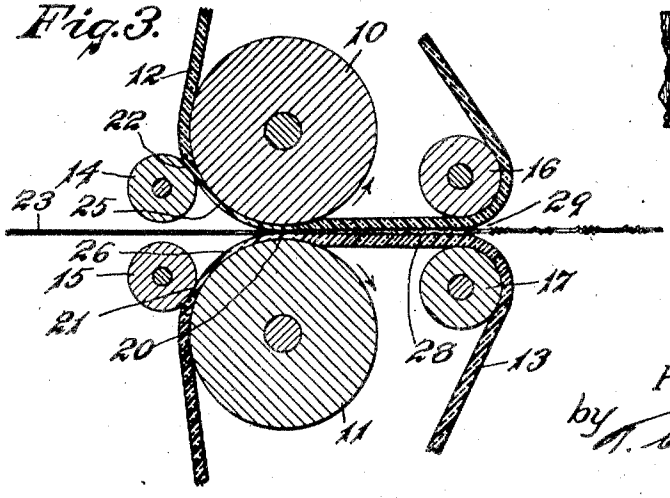


Fig. 4.

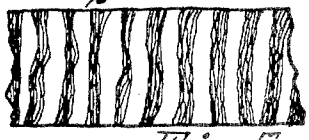
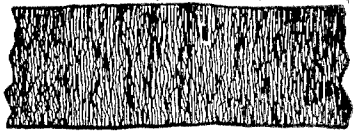


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FILIGREE-DESIGN PROCESS.

Application filed April 26, 1926. Serial No. 104,577.

This invention relates to novel processes and mechanism for producing designs in paper fabrics that may be termed "filigree" or ornamental designs.

In the present illustrated disclosure of the invention, the fabric is passed between elastic surfaces that have been stretched and which co-operate to produce designs in the fabrics while emerging from these elastic surfaces as they recover their normal condition. The irregular designs are formed by portions of the paper being compressed. The elastic surfaces may preferably consist of a pair of rubber bands that may be stretched by any desired means to exert pressure on the paper fabric passing between the bands. The fabric may be passed through dry, or moistened.

In the drawings Figure 1 is a side view and Fig. 2 is a front view of the machine to produce the designs in the fabric. Fig. 3 is a sectional view of a part of Fig. 1. Figs. 4 and 5 show designs produced by the machine.

The machine which is shown in the accompanying drawings by way of exemplification only, has a pair of pressure rolls 10 and 11; a pair of belts 12 and 13; a pair of pressing rolls 14 and 15; a pair of belt separating rolls 16 and 17; a pulley 18 that drives the machine through gearing 50; a slide 19 carrying roll 10, and having means such as the screws 51 to press the roll upon the belt 12 at 20, and means such as screws 52 to press the rolls 14 and 15 against the belts 12 and 13 at 21 and 22.

The paper web 23 from roll 24, is guided into the bite of the belts at 20. These belts have been tensioned at 21 and 22 by the rolls 14 and 15 respectively, reducing the belt thickness as at 25 and 26. As the paper 23 enters between the belts at 20, the paper is held by the two belts in the normal condition of the paper; but as the paper passes along, the tension on the belts is released by seperating the rolls 16 and 17 slightly, as at 28. This causes the belts to expand and as they hold the paper between them, the paper will be compressed at various points as it emerges at 29 from between the belts. The paper will thereby be covered with a network of fine lines disposed irregularly on the paper, which may be termed a "filigree" design. Two designs are shown in Figs. 4 and 5.

By varying the pressure on rolls, 10 and 11, and 14 and 15, varying designs are produced.

The elasticity of the belts will also vary the appearance of the designs. Many modifications may be made in the apparatus. My invention consists essentially in producing an irregular design paper fabric by passing it between elastic surfaces under tension and releasing that tension as the paper emerges from the apparatus.

Another modification may be employed by using but one elastic surface under tension, as for example, belt 12 and passing the paper between it and a smooth surface roll 11, upon which the paper will slip to produce the filigree design.

I claim as my invention:

1. The process of forming designs in webs of paper and the like, which consists in progressively applying the web to and pressing the web into frictional engagement with an elastic under tension and relieving the tension.

2. The process of forming designs in webs of paper and the like, which consists in passing the web into engagement with, and pressing the same against a travelling elastic, while the latter is under tension, and relieving pressure on the web while said elastic is recovering its normal condition.

3. The process of forming designs in webs of paper and the like, which consists in engaging opposite sides of the web with elastics under tension and relieving the tension.

4. The process of forming designs in webs of paper and the like, which consists in progressively applying to the opposite sides of a web, elastics under tension and relieving the tension.

5. The process of forming designs in webs of paper and the like, which consists in passing and pressing the paper between two stretched elastic surfaces that are under compression, and allowing the paper to emerge as the elastic surfaces recover their normal condition.

6. The process of forming designs in webs of paper and the like, which consists in passing a web between two rubber surfaces under pressure and in a stretched condition, and gradually relieving the pressure on said surfaces so that they may then return to their normal unstretched condition.

7. The process of forming designs in paper which consists in passing the paper, dry or slightly wetted, between two surfaces, that engage the paper under pressure and effecting the design formation by a variation in the tension of said surfaces.

8. In a device for producing designs in webs of paper and the like, including a pair of members between which a web is adapted to be frictionally engaged, one at least of said members comprising an elastic, and means for tensioning said elastic and then relieving the tension thereon while frictionally engaging said webs.

9. In a device for producing designs in webs of paper and the like, including a pair of elastic members between which a web is adapted to be positioned, and means for tensioning said elastics and then relieving the tension thereon while frictionally engaging the said web.

10. A machine for producing irregular designs in paper, comprising pressure rolls, elastic belts passing around said rolls, the surfaces of the elastic belts engaging each other under pressure.

11. A machine for forming irregular designs in paper, comprising pressure rolls, a pair of rubber belts passing around said rolls; means for pressing the surfaces of the belts together to tension them when the paper engages the belts, and means to release the belt pressure while the paper emerges from the mechanism.

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