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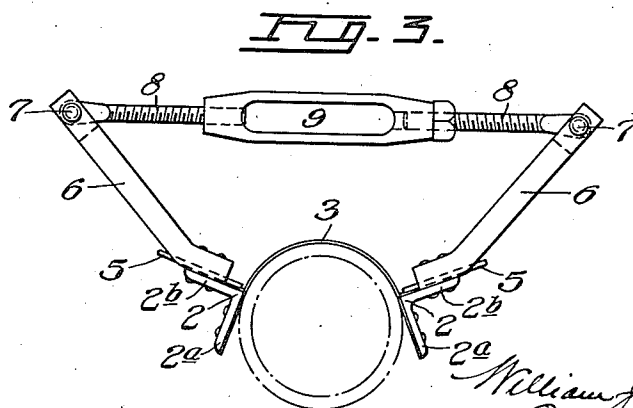
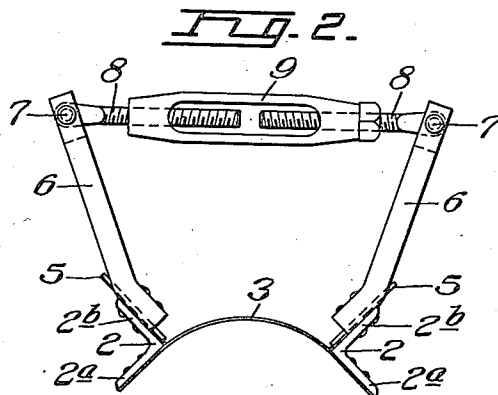
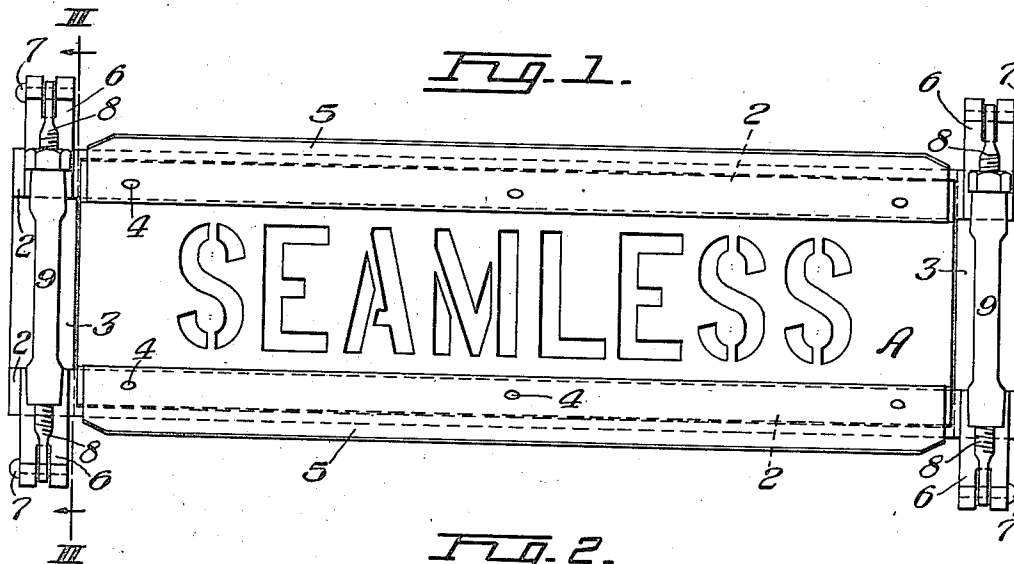
W. J. PANNIER, JR., ET AL

2,057,788

STENCIL

Filed July 23, 1935

2 Sheets-Sheet 1



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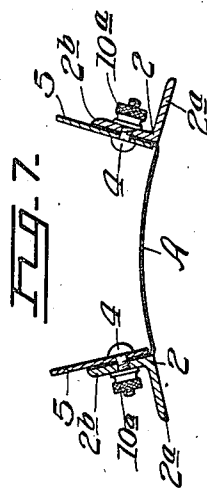
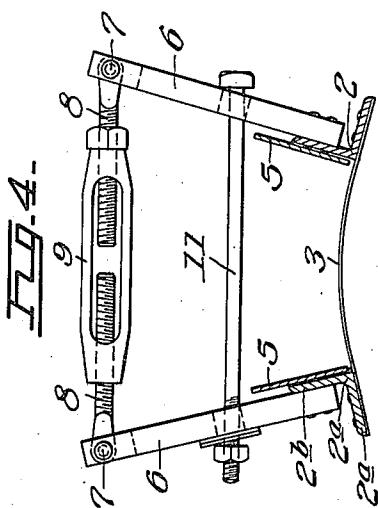
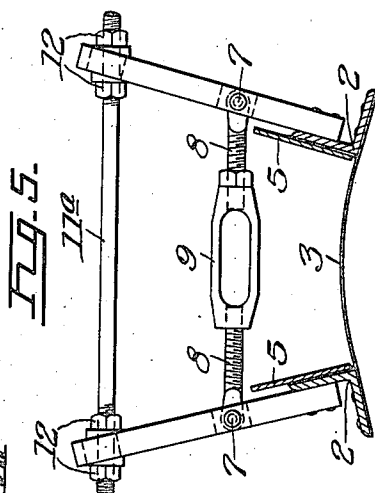
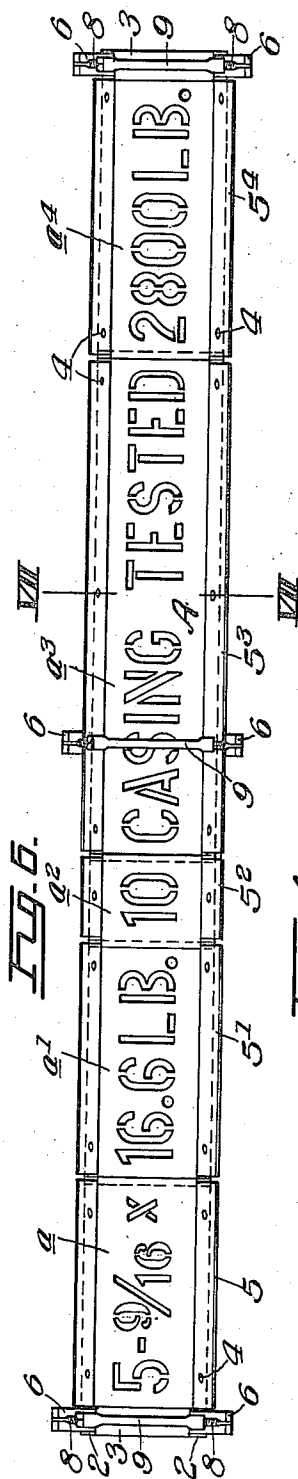
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,057,788

STENCIL

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Application July 23, 1935, Serial No. 32,750

20 Claims. (Cl. 101—127)

Our invention is an improvement in stencils, particularly designed for use in marking the curved surfaces of cylindrical or part cylindrical bodies.

5 It has in view to provide a one piece or plural section stencil mounted between lateral frame members, preferably joined by flexing spring members, and provided with means for adjusting the transverse curvature of the stencil member
10 of the spring and stencil members for close conformity to the annular surface of an article to be marked, as a pipe, post, or the like.

By so adjusting the transverse curvature of the stencil it may be made to conform to the face of
15 varying diameters of pipe, etc., within a considerable dimensional range.

Certain preferred constructions are illustrated in the accompanying drawings, in which:

Fig. 1 is a plan view of a single unit stencil, with the tension members relaxed;

20 Fig. 2 is a cross section through one of the endmost spring members on the line II—II of Fig. 1;

Fig. 3 is a similar section showing the adjustment of the spring and stencil to a curvature of
25 reduced radius;

Fig. 4 is a sectional view like Fig. 2, but showing an interposed fulcrum rod;

Fig. 5 is a similar section showing the adjusting elements for the spring and stencil in transposed
30 relation;

Fig. 6 is a plan view showing an elongated sectional stencil arrangement;

Fig. 7 is a cross section on the line VII—VII of Fig. 6.

35 Referring to the construction of Figs. 1, 2 and 3, we provide at each side of the stencil member A, a pair of outermost longitudinal supporting frame strips or bars, in the form of angle members 2, 2.

40 Endmost transverse resilient flexing members 3, in the form of thin steel band or leaf springs, are fixedly connected to the lower flanges 2a of bars 2, as by riveting. These have an inherent tendency towards assuming a normal maximum
45 radius curvature when relaxed, as in Fig. 2, and to assume an increasing curvature when the spring terminals are flexed, i. e. to conform to a curvature of reduced radius, under tension, and to re-assume their normal curvature when such
50 tension is released.

The stencil A extends lengthwise between the springs 3 and is secured to the inner face of upper flanges 2b of bars 2 by means of screws or bolts 4, preferably in connection with inner
55 splash strips 5, at each side. Such strips form

the side members of a trough-like space of which the stencil is the bottom, so that when the stencilling liquid, as paint or stencilling ink or the like, is applied as a spray, it will be confined therebetween. If desired, the liquid may also be
5 applied by a brush in the usual manner.

Secured to the opposite ends of the bars, as by riveting to the inner faces of the upper flanges thereof, are pairs of lever arms 6 adapted to tilt the bars outwardly and downwardly in opposite
10 directions when their upper portions are separated, with corresponding contraction of radius curvature of the springs 3 and stencil A.

Per contra, when the lever arms are permitted to approach each other, the springs and stencil
15 then tend to assume a more flattened trajectory, toward normal, and to assume a curvature of larger radius.

In the construction of Figs. 1, 2 and 3 this effect is produced by connecting the bifurcated
20 arms, as at 7, with the right and left hand threaded bolts 8 of a turnbuckle 9.

The stencil member A being secured to the bars 2 and of the same transverse shape as springs 3, and arms 6 being rigidly connected to
25 bars 2, further separation of arms 6 by the turnbuckle will effect flexing of the springs and stencil members to a curvature of reducing radius. It will be understood of course that in making the stencil member of thin sheet metal as steel,
30 brass, aluminum, copper, or the like, the stencil itself may have sufficient resiliency without the necessity of the separate resilient members 3.

Reverse or inward movement of the arms by reverse turnbuckle adjustment will effect or permit reverse movement of the springs and stencil
35 members towards a normal curvature of increasing radius. By such adjustment, the curvature of the stencil may be set to conform to the cylindrical surface of the article to be marked, and
40 within a considerable range of variation from maximum to minimum diameters.

The stencil A, of any suitable flexible material as thin sheet metal, copper, fibre, stencil paper, or the like is secured either to flanges 2b or 2a as
45 preferred. In Fig. 7 the edges of the stencil are bent up inside the flanges 2b and secured thereto at intervals, with splash strips 5, by bolts 4 and nuts. Ordinary nuts may be used, or thumb
50 nuts 10a, for easy removal and renewal of sectional stencil and splash members, as in Figs. 6 and 7.

We show in Fig. 4 a modified construction utilizing a transverse fulcrum rod 11 extending
across through the middle portion of both arms 55

6 and having a terminal limiting head and nut. With this arrangement the rod terminals act as lever fulcrums whereby separation of the arm terminals results in a lever action with inward movement of bars 2 and further flexing of the springs and stencil to a reduced radius curvature.

In Fig. 5 the positions of the rod 11a and turnbuckle are reversed, with terminal bearings 12 engaging the lever arm terminals, and the turnbuckle connected with their middle portions. With such arrangement the flexing of the springs 3 towards greater or less radius curvature may be effected with equal facility, as desired.

Wherever the printing clearance spaces of the stencil may be comprised in a single section, as in Fig. 1, it may extend lengthwise for the full distance between the endmost springs, for comparatively short work marking.

When however the length is abnormal, or when it is desirable to provide the device with a plurality of changeable sections or units, the supporting frame may be sufficiently long as in Fig. 6. In such case a series of stencil units a, a^1, a^2, a^3, a^4 , of varying length and of individual character as to their marking characteristics, may be arranged consecutively, as shown. These are secured to the side bars 2 in the same manner as above described, by suitably spaced registering holes and bolts, and in connection with the longitudinal splash strips 5 extending co-extensively. The splash strips may be in one continuous piece, or if preferred they may be of corresponding sections, 5, 5¹, 5², 5³, 5⁴ as shown.

By such construction and arrangement the scope of flexibility of use and application of the invention to marking is rendered greatly amplified and enlarged. Thus the entire series may be changed for others, or certain ones may be retained where appropriate and others substituted by different units, as to varying sizes, weights, numbers, etc. This feature of the invention will be appreciated by those applying the stencil to shipments of tubing or pipe, columns, or the like, requiring appropriate marking in the case of corresponding variation.

In such construction, dependent on its length, one or more additional sets of arms 6 and their adjusting turnbuckles 8—9 may be interposed between the endmost ones, for stability and ensuring continuous parallelism of the entire stencil construction.

The invention and its manner of use will be readily understood and appreciated from the foregoing description. Its construction may be changed or modified by the skilled mechanic in various details or otherwise to suit varying conditions of use within the scope of the following claims.

We claim:

1. A stencil consisting of side bars connected by transverse spring members and an intervening flexible stencil member, means rigidly connected with the side bars for imparting a variable transverse curvature to the spring and stencil members, and a splash bar on each side bar.

2. A stencil consisting of side bars connected by transverse spring members and an intervening flexible stencil member, splash strips on the side bars, and means for adjusting the side bars, springs, and stencil member.

3. In combination, a pair of laterally spaced side bars, transverse thin flat springs connecting the side bars, a transverse flexible stencil member directly connected with the side bars, adjusting arms secured to the side bars, and tighten-

ing and loosening means extending between and connecting the arms.

4. In combination, a pair of laterally spaced side bars, transverse springs connecting the side bars, a transverse stencil connecting the side bars, adjusting arms secured to the side bars, splash strips on the side bars, and tightening and loosening means connecting the arms.

5. In combination, a pair of laterally spaced side bars, transverse springs connecting the side bars, a transverse stencil connecting the side bars, adjusting arms secured to the side bars, and tightening and loosening turnbuckles connecting the arms.

6. In combination, a pair of laterally spaced side bars, transverse springs connecting the side bars, a transverse stencil connecting the side bars, adjusting arms secured to the side bars, and fulcrum rods and co-operating turnbuckles connecting the arms.

7. In combination, a pair of laterally spaced angle bars, transverse thin leaf springs connecting end portions of said bars, a transverse thin flexible stencil member connecting the bars between the springs in register therewith, pairs of arms forming rigid extensions of the angle bars, and an adjusting turnbuckle for each pair of arms.

8. In combination, a pair of laterally spaced angle bars, transverse thin leaf springs connecting end portions of said bars, a transverse thin flexible stencil member connecting the bars between the springs in register therewith, a splash strip secured to and extending upwardly along each bar, pairs of arms forming rigid extensions of the bars, and an adjusting turnbuckle for each pair of arms.

9. In combination, a pair of laterally spaced angle bars, transverse thin leaf springs connecting end portions of said bars, a transverse thin flexible stencil member having upwardly bent edges, a splash strip laid along each stencil edge, bolts connecting the stencil edge and splash strip with a flange of each bar, pairs of arms forming rigid extensions of each bar, and an adjusting turnbuckle for each pair of arms.

10. In combination, a pair of laterally spaced angle bars, transverse thin leaf springs connecting end portions of said bars, a transverse thin flexible stencil member connecting the bars between the springs in register therewith, pairs of arms forming rigid extensions of the angle bars, an adjusting turnbuckle for each pair of arms, and a fulcrum rod extending between each pair of arms.

11. In combination with a pair of laterally spaced bars provided with transverse thin leaf connecting springs and means for tilting the bars to effect arcuate spring deflection, an intervening thin flexible stencil member secured by its edges to the bars and in registering alignment with the springs, and splash strips secured to the bars.

12. In combination with a pair of laterally spaced bars provided with transverse thin leaf connecting springs and means for tilting the bars to effect arcuate spring deflection, an intervening thin flexible stencil member secured by its edges to the bars and in registering alignment with the springs, and side flanking splash strips secured to the bars and extending upwardly beyond the stencil member.

13. In combination with a pair of laterally spaced bars provided with transverse thin leaf connecting springs and means for tilting the bars

to effect arcuate spring deflection, and a series of intervening thin flexible stencil member units in registering alinement with each other and with the springs having means removably securing them to the bars.

14. In combination with a pair of laterally spaced bars provided with transverse thin leaf connecting springs and means for tilting the bars to effect arcuate spring deflection, a continuous series of intervening thin flexible stencil member units having means removably securing them to the bars, and corresponding series of splash strips held in position on the bars by said securing means.

15. A stencil consisting of side bars connected by a resilient member and an intervening flexible stencil member directly and rigidly secured to the bars, splash strips on the side bars, and means for tilting the side bars, splash strips, and stencil member, in opposite directions.

16. A stencil consisting of side bars connected by a resilient member and an intervening flexible stencil member directly and rigidly secured to the bars, arms rigidly connected with the side bars, and transverse tightening and loosening members connected with the arms for variably tilting the side bars in opposite directions to effect curvature of the stencil member.

17. Stencil construction consisting of a pair of angle shape side bars each having an actuating flange and an attaching flange, means rigidly secured to the actuating flanges for adjusting them laterally, and a thin resilient trans-

verse member secured to and extending between the attaching flanges adapted to be variably concaved by adjustment of the angle bars.

18. In a stencil for marking curved surfaces of variable radii, a pair of spaced apart parallel flat faced side bars, an intervening flexible stencil member directly secured by its opposite edge portions to the faces of the side bars, resilient means connecting the side bars, and means directly secured to the side bars for adjusting them and the stencil member to the curved surface of a contacting face.

19. In a stencil for marking curved surfaces of variable radii, a pair of spaced apart parallel flat faced side bars, an intervening flexible stencil member directly secured by its opposite edge portions to the faces of the side bars, resilient means connecting the side bars, and means directly secured to the side bars for imparting movement to the side bars and a variable transverse curvature to the stencil member to adjust it to the curved surface of a contacting face.

20. A stencil consisting of side bars directly connected by an intervening flexible stencil member and embodying means providing resiliency in co-operation therewith, and means rigidly connected directly with the side bars tending to tilt them in opposite directions with accompanying transverse flexure of the resiliently controlled flexure of the stencil member.

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