No. 620,133. Patented Feb. 28, 1899.

S. H. HORGAN.

METHOD OF AND APPARATUS FOR SECURING ENGRAVED PLATES TO STEREOTYPES.

(Application filed Oct. 21, 1897.)

(No Model.)

Fig. 1.

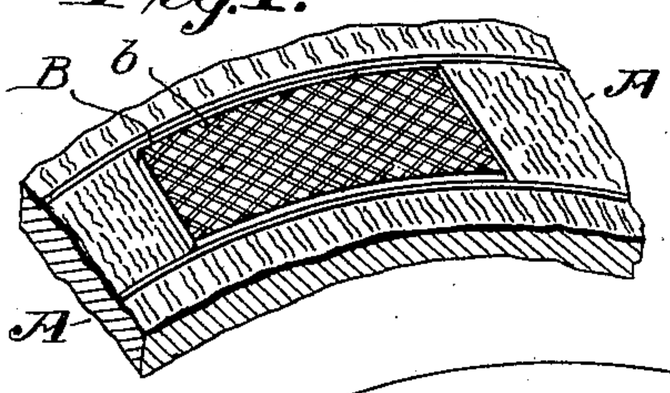
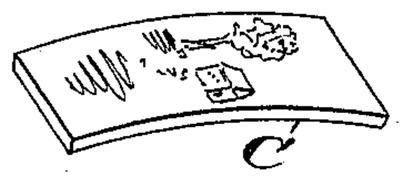


Fig. 2.

Fig. 3.



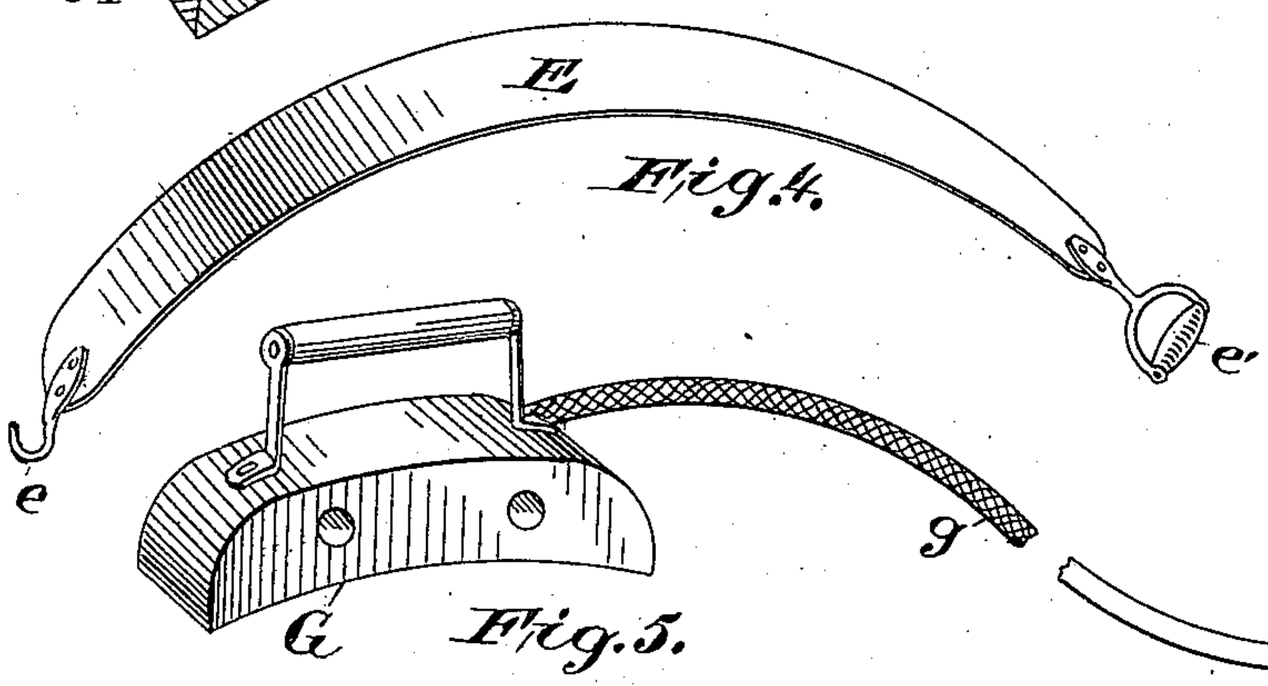


Fig. 4.

Fig. 5.

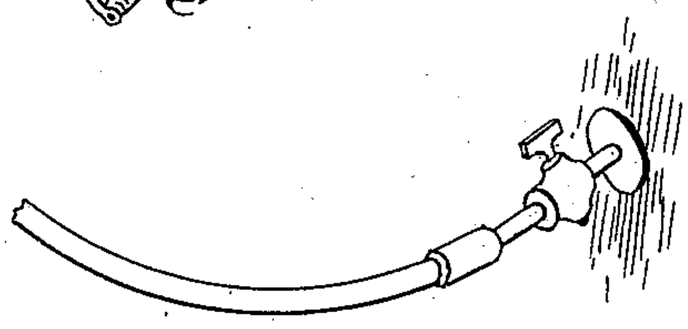


Fig. 6.

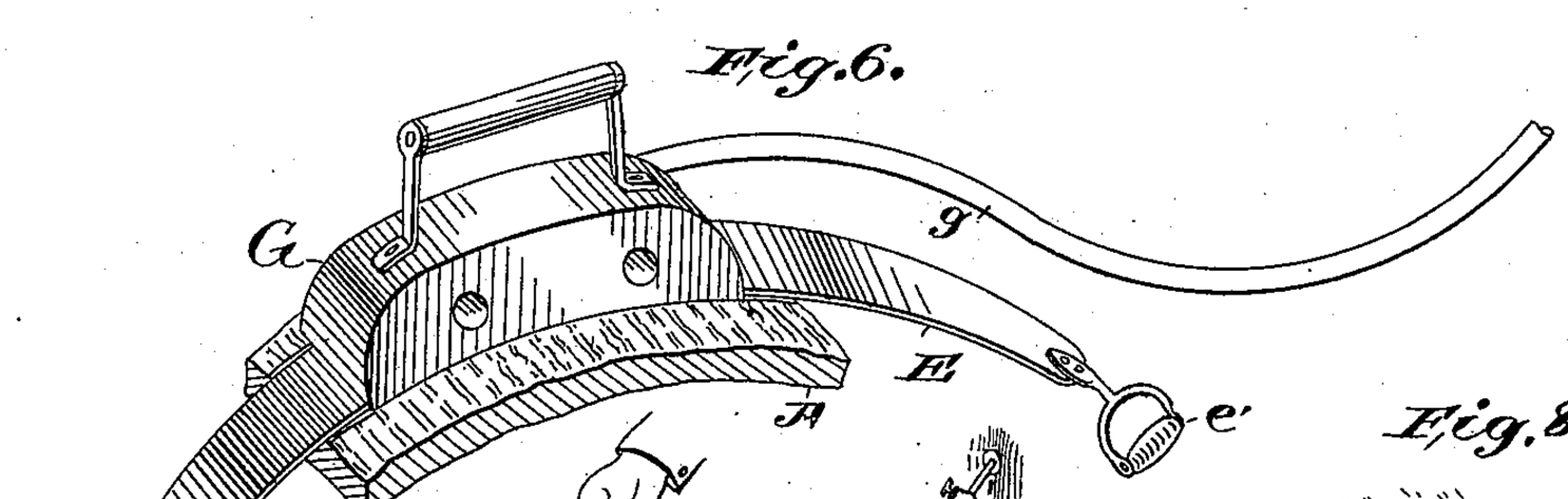


Fig. 8.

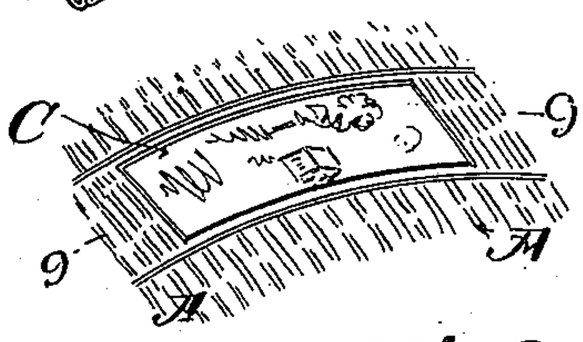


Fig. 9.

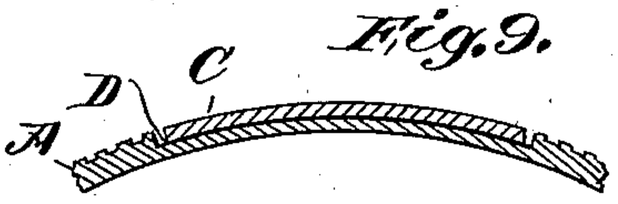
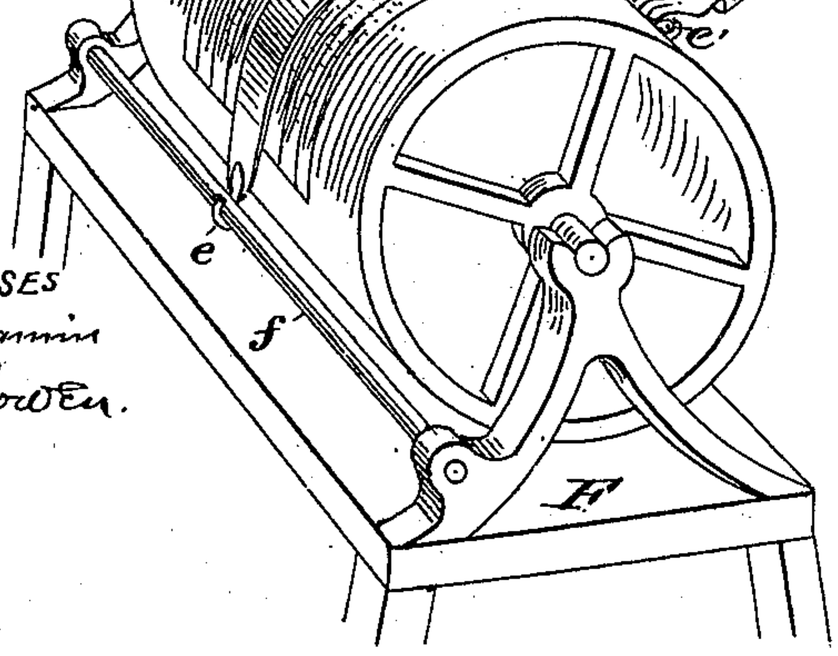


Fig. 7.



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METHOD OF AND APPARATUS FOR SECURING ENGRAVED PLATES TO STEREOTYPES.

SPECIFICATION forming part of Letters Patent No. 620,133, dated February 28, 1899.

Application filed October 21, 1897. Serial No. 655,905. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN H. HORGAN, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Methods of and Apparatus for Securing Engraved Metal Plates to Curved Stereotype-Metal Casts, of which the following is a specification.

I will first describe my improvement in detail and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a view of a fragment of a curved stereotype-cast. Fig. 2 is a view of a sheet of foil. Fig. 3 is a view of an engraved metal plate. Fig. 4 is a band of sheet metal provided at one end with a hook and at the other with a handle. Fig. 5 is a view of a heating-iron. Fig. 6 is a view showing a fragment of a curved stereotype-cast, a band extending over the engraved plate, and an iron imposed on the band. Fig. 7 is a view of a stereotype-cast on a saddle mounted on a bench and showing a band extending over that part of the cast where it is desired to secure an engraved metal plate with the iron away from the band. Fig. 8 is a view of a fragment of a stereotype-cast, showing an engraved plate secured thereto; and Fig. 9 is a section taken through the dotted line 9 9, Fig. 8.

Similar letters of reference designate corresponding parts in all the figures.

The type-form is first prepared as ordinarily, except that where an engraved plate is to be secured in a stereotype a block or "dummy" having a surface corresponding in size to the size of the engraved plate will be inserted. This block or dummy will be of such a height that with the engraved plate placed on it the face of the plate will be type-high, and the block or dummy may be furrowed on its upper surface. From the type-form thus prepared a stereotype papier-mâché matrix is made in the ordinary manner, and from this matrix a stereotype-metal cast is made in the usual manner. A designates a fragment of such a stereotype-cast, and B the portion of the cast to which the engraved plate is to be secured.

If the block or dummy used in the type-form is not provided with furrows, then furrows, as *b*, may be made in the stereotype-cast where the engraved plate is to be secured.

On the back of an engraved metal plate, as C, curved to conform to the curve of the surface of the stereotype-cast I paste a sheet of solder-foil, as D, and apply a soldering paste or liquid to that part of the surface of the stereotype-cast to which the plate is to be secured. The soldering paste or liquid may of course be applied to the back of the plate before the solder-foil is pasted to the plate, and I may omit to apply the soldering paste or liquid either to the plate or to that part of the surface of the stereotype-cast to which the plate is to be secured. The engraved plate is then placed in its proper position on the stereotype-cast and held firmly in place while heat is applied to solder the plate to the stereotype-cast.

E designates a thin flexible metal band which I prefer to use for the purpose of holding the engraved plate in position during the operation of soldering it to the stereotype-cast. I prefer to make this band of sheet-copper, and one end of the band is provided with a hook, as *e*, by which it may be attached to a rod, as *f*, fastened to a bench, as F. The other end of the band E is provided with a handle, as *e'*, to be grasped by the hand of the operator, by which it may be held down firmly on the engraved plate.

G designates an "iron" to which gas passes through a flexible tube, as *g*. This iron has burners which may be lighted to heat the iron in a well-known manner. The under side of this iron conforms to the curve of the stereotype-cast. The iron G, being sufficiently heated, is pressed over the engraved plate C or over the metal band E, while the plate C is held in position in the stereotype-cast until sufficient heat has been transmitted to melt the film of solder-foil between the engraved plate and the stereotype-cast. When the solder-foil has melted, the iron G will be removed; but the engraved plate C will be held firmly in its place until it is "set," when it will be found that the engraved plate is firmly secured to the stereotype-metal cast.

I am aware that it is a common expedient to secure engraved plates in position by means of solder; but the process as heretofore practiced is imperfect in that the plates were

merely seated in position and the ordinary method of soldering carried out. The band or shield E, employed in my process, is thin and flexible, so as to be drawn over the plate, thus pressing all parts snugly in position, and the iron being applied to it instead of directly to the plate preserves the latter against injury.

Instead of using the iron G, I may of course use any desired means for applying the heat necessary to melt the solder-foil, and instead of furrowing the stereotype-cast where the engraved plate is to be secured I may have the furrows on the back of the engraved plate.

It will be seen that by my improvement I am enabled to so firmly secure an engraved metal plate to a stereotype-cast as to permit of the use of engraved plates on fast web-printing presses.

The engraved plates may be rapidly and conveniently secured to the stereotype-cast while the cast is on the stereotype-saddle.

The furrows in the stereotype-cast underneath where the engraved plate is to be secured or on the back of the engraved plate, or both, will permit of the escape of steam which arises from the evaporation of the soldering paste or liquid while the solder-foil is being fused.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method of securing an engraved plate to a curved stereotype-cast, consisting in placing between the engraved plate and the stereotype-cast a sheet of solder, subjecting the exterior of the plate to a heated iron for fusing the solder, and binding the engraved plate in close contact with the stereotype-cast while the solder is being fused and until it has hardened after it has fused, substantially as specified.

2. The method of securing an engraved plate to a curved stereotype-cast consisting in attaching solder to the back of the engraved plate, placing the engraved plate in position on the stereotype-cast, binding a flexible shield over the outer face of the plate, subjecting the same to the action of a heated iron for fusing the solder, substantially as specified.

3. The method of securing an engraved plate to a curved stereotype-cast, consisting in providing one of the meeting faces with furrows, placing the engraved plate in position on the stereotype-cast with a sheet of solder between the plate and the cast, and against the furrows, and fusing the solder, substantially as specified.

4. The combination with a stereotype-cast, adapted to receive a plate, as C, of means for supporting the said cast, and a flexible strap connected at one end to the support and adapted to be bound upon the said plate C, and means for applying heat to the exterior of said strap.

5. The combination with a suitable support, and bearing-standards rising therefrom, of the stereotype-cast journaled in the standards, a bar connecting the standards, the flexible metal strap E, the same being provided with a hook at one end for loosely engaging the said bar, and at its opposite end with a handle, and means for applying heat to the exterior of the said strap.

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