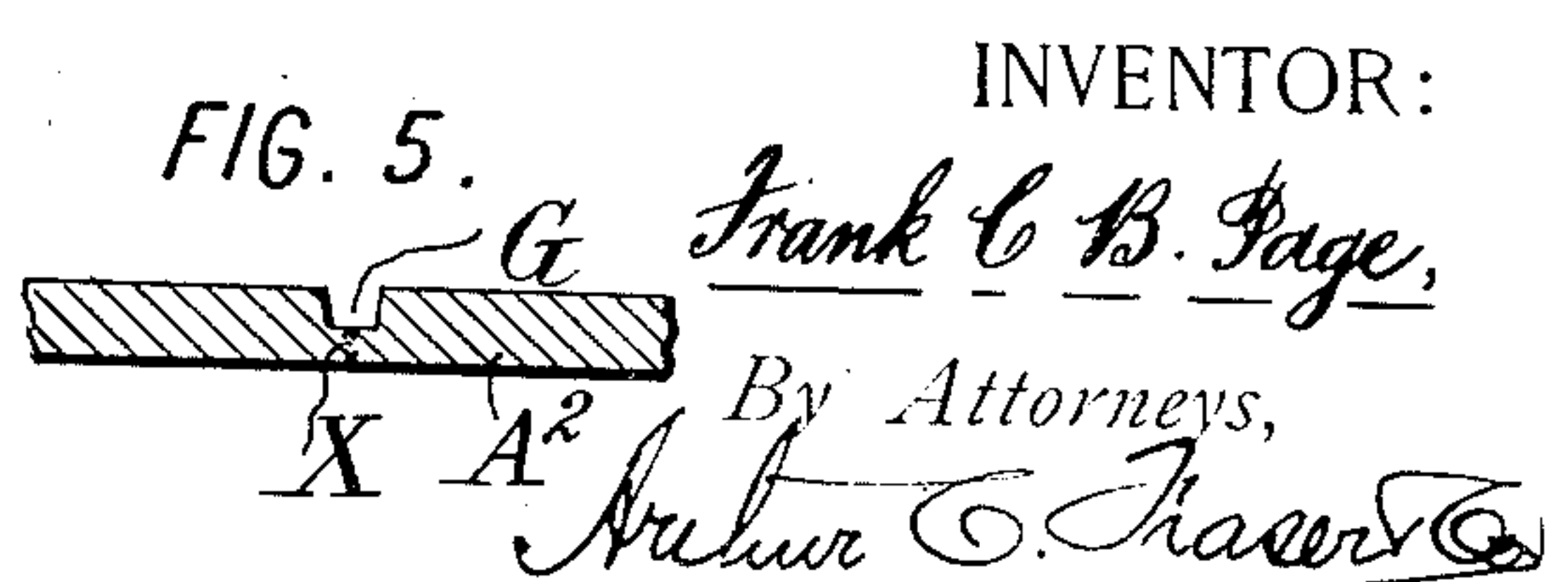
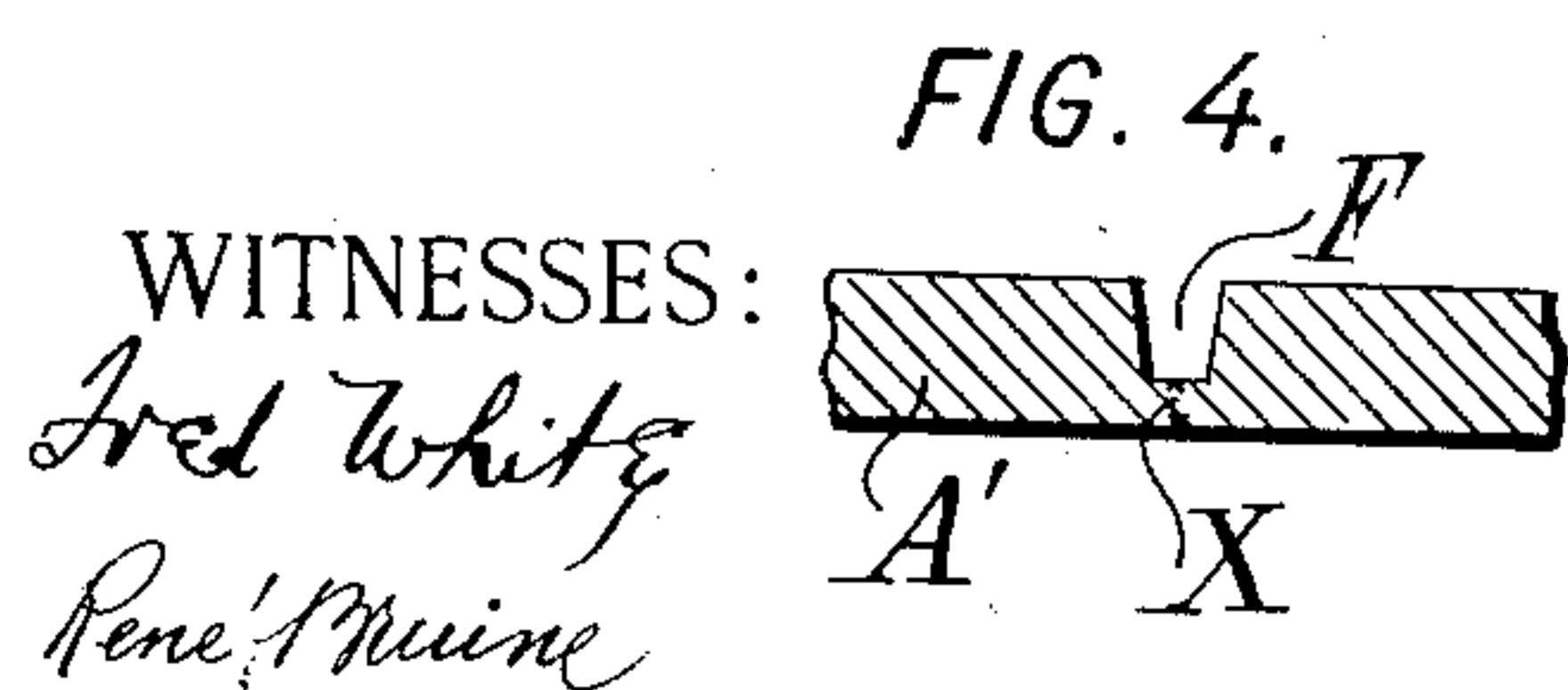
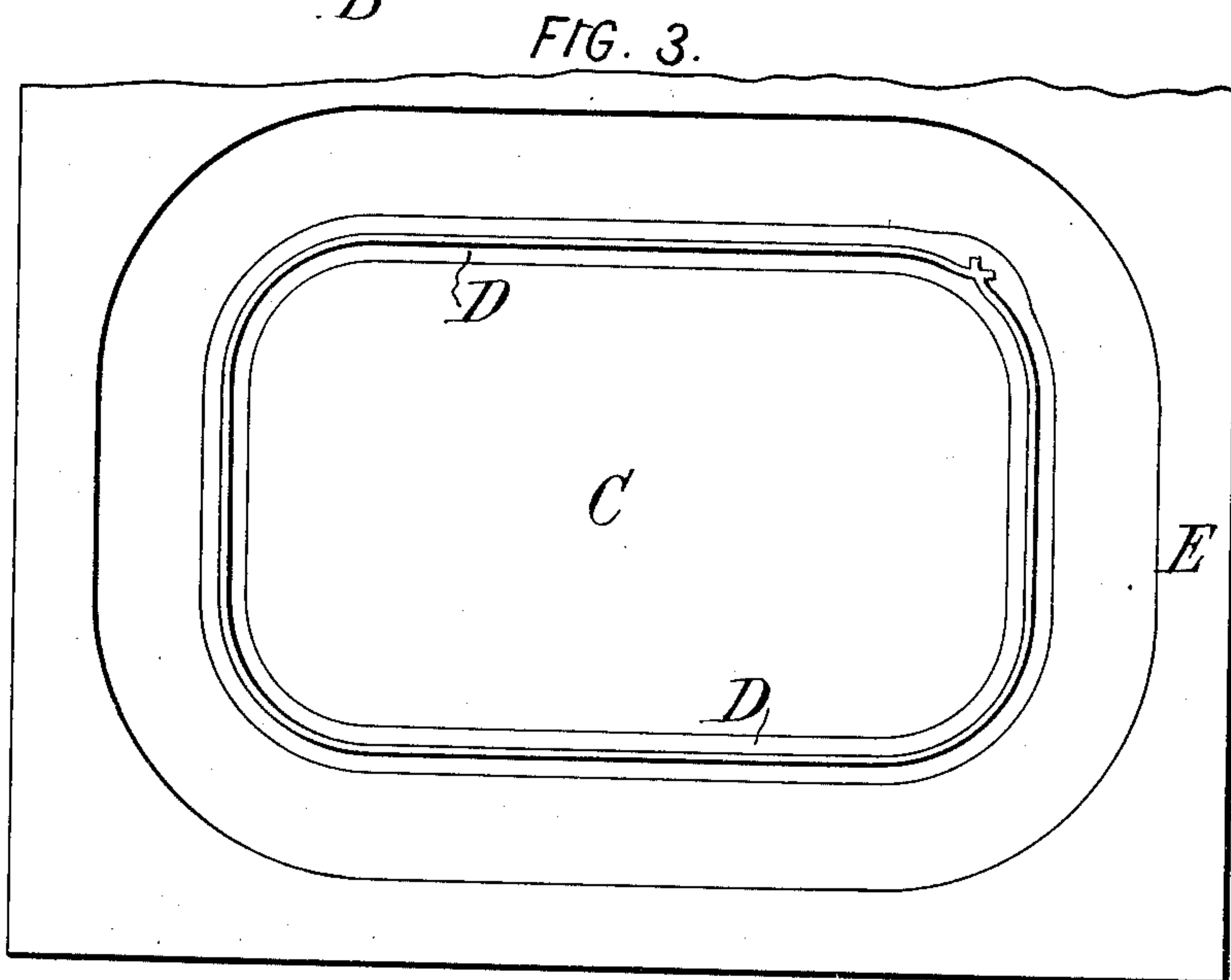
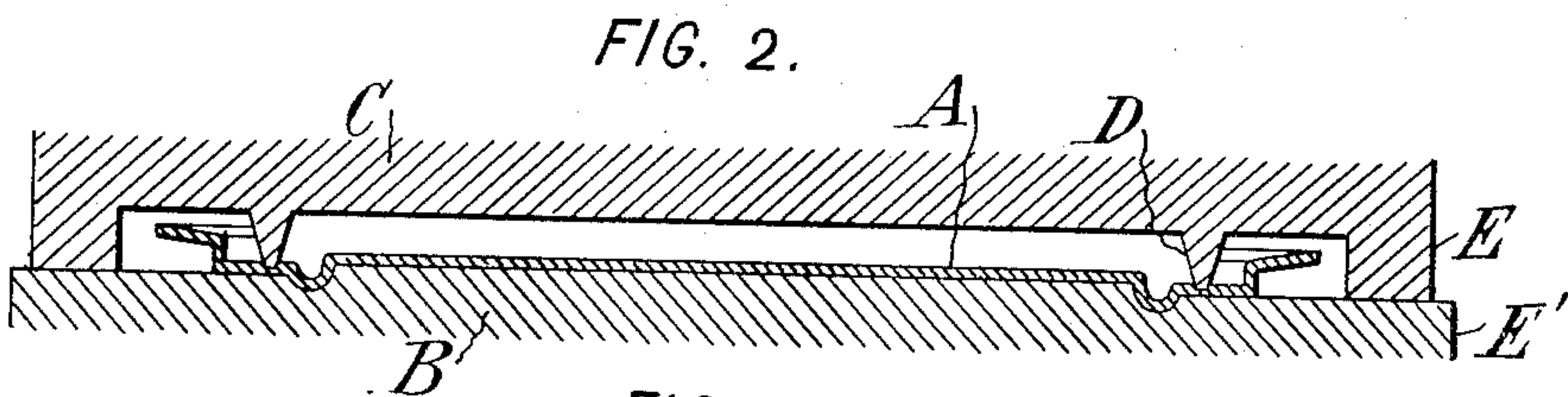
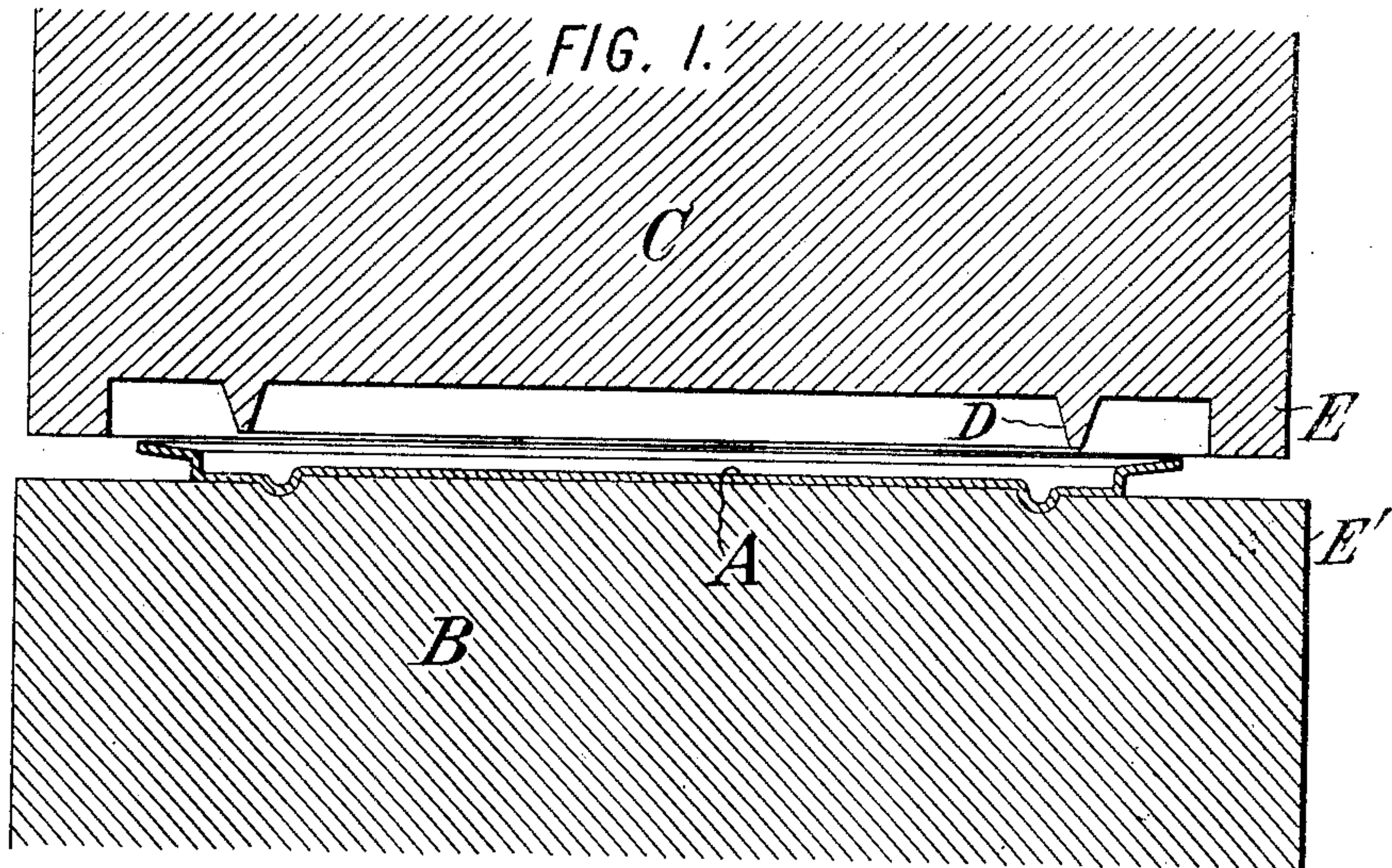


No. 826,601.

PATENTED JULY 24, 1906.

F. C. B. PAGE.  
APPARATUS FOR SCORING CAN TOPS.  
APPLICATION FILED JULY 6, 1905.





# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR SCORING CAN-TOPS.

No. 826,601.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed July 6, 1905. Serial No. 268,450.

*To all whom it may concern:*

Be it known that I, FRANK C. B. PAGE, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Apparatus for Scoring Can-Tops, of which the following is a specification.

It is common to provide can-tops with scored lines to facilitate opening, as illustrated, for example, in my application Serial No. 221,091, (Patent No. 794,880, July 18, 1905,) in which the score surrounds the greater part of the can-top. Considerable difficulty has been found in the manufacture of such cans because of the weakness of the scored line when made too deep or the difficulty of opening when the scoring is not made deep enough. In practice these cans have to stand a severe internal pressure during the processing or testing of them, and it is found that they are quite irregular in ability of the scored portion of the can to stand the strain. Ordinarily the scoring is done by a stamping-die, and the depth of the groove is determined by carefully adjusting the crank, eccentric, toggle, or other motion-transmitting mechanism for pressing the die down upon the sheet metal forming the can-top.

The principal source of the irregularity and consequent heavy loss in the manufacture is the variation in the thickness of commercial sheets of tin nominally of the same weight and thickness. By reason of the increased thickness of some of the sheet metal the scoring-die meets with a greater resistance and yields slightly in the joints of the motion-transmitting mechanism or in some cases very slightly in the metal of this mechanism itself, so that it does not score deeply enough, producing a can-top which is difficult to open, whereas in extra-thin can-tops the dies penetrate too far, so as to cause the can-top to fail on the test referred to. Only in such tops as are of the average thickness is the result satisfactory. To overcome these difficulties, it is proposed, according to this invention, to provide two dies with abutting portions adjacent to the line of scoring and which form stops making direct contact with each other. These stops being close to the scoring-line and the dies being sufficiently thick, a rigid limit is placed upon the approach of one die to the

other. The machine being adjusted so that with the thickest sheet metal it will press the dies together until said stops are pressed against each other, it follows that the dies cannot be pressed any closer together even for the thinnest sheet metal. The result of this is to leave a determined thickness of metal at the bottom of the score regardless of any irregularity in the thickness of the sheet. By this method of manufacture can-tops of uniform strength calculated to resist the processing operations and having grooves or scores of irregular depth, depending on the original thickness of the metal, are produced, the thickness remaining at the bottom of the groove being exactly uniform and being the minimum which will withstand the test referred to, so as to make the opening of the cans as easy as possible. Uniformity in resistance to the test and a uniform ease of opening are thus secured.

The portions of the dies which form the stops referred to preferably substantially surround the score in the manufacture of can-tops of the type referred to in my above patent, and thus secure the greatest degree of rigidity and a uniform thickness of metal throughout the length of the score.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a sectional view showing the relative positions of the dies before the scoring operation. Fig. 2 is a sectional view of the face portions only, showing the position during the scoring operation. Fig. 3 is an under side plan view of the upper die. Figs. 4 and 5 are diagrams illustrating the work with different thicknesses of can-tops.

Referring to the drawings, A is a can-top grooved and flanged in any desired manner and resting on a solid lower die B. The upper die C has a scoring edge or rib D, shown in Fig. 3 in the form of an oblong ring such as is ordinarily used for sardine-cans. The lower die has a flat supporting-surface opposite the rib D. The upper die C may be given its up-and-down movement away from and toward the lower die from an overhead rotating or oscillating shaft in connection with toggles or eccentric or crank mechanism of any usual or suitable type. This mechanism may be substantially unyielding and provided with the usual adjusting means



to determine the lowest position of the die. Nevertheless I have found by experiment that there will be a variation in the lowest position of the die, depending generally upon the thickness of the can-top and due to a slight yielding in the joints of the mechanism and possibly in some machines to a very slight yielding of the metal by reason of its shape or manner of support, and which variation is sufficient to cause the rejection of a large number of can-tops by making their scores either too deep or too shallow. I therefore propose to limit the movement of the mechanism by means of stops consisting of portions of the dies—such, for example, as the ring E, forming an integral part of the upper die C, arranged adjacent to the scoring-rib and surrounding the same and the marginal portion E' of the lower die. By reason of the disposition of these stops closely adjacent to the scoring-line and the thickness of the metal of the dies a perfectly rigid determination is effected of the thickness of metal which shall be left at the bottom of the score.

Referring now to Figs. 4 and 5, representing can-tops A' and A<sup>2</sup>, which may be found in the same lot and may be, nevertheless, of considerably different thickness, the scores F and G produced upon my improved machine will differ in depth just as the can-tops do in thickness; but the portion of metal left at the bottom of the scores and the thickness of which is indicated at X will be the same for both can-tops and will be the minimum thickness which will surely stand the conditions of use.

Though I have described with great particularity of detail a certain specific embodiment of the invention, yet it is not to be understood therefrom that the invention is limited to the exact embodiment disclosed.

Various modifications thereof in detail and in the arrangement and combination of the

parts may be made by those skilled in the art without departure from the invention.

What I claim is—

1. An apparatus for scoring a can-top or similar sheet-metal article, comprising dies one of which moves bodily relatively to the other to squeeze the metal between them, the one having a scoring-rib and the other a supporting-surface opposite said rib, said dies having abutting portions adjacent to said scoring-rib and supporting-surface respectively so as to be rigidly connected therewith and adapted to make direct contact with each other and thereby rigidly limit the approach of the scoring-rib to the supporting-surface, whereby to insure that the thickness of the metal at the bottom of the score shall be uniform notwithstanding variations in the thickness of the sheet metal.

2. An apparatus for scoring a can-top or similar sheet-metal article, comprising dies one of which moves bodily relatively to the other to squeeze the metal between them, the one having a scoring-rib and the other a supporting-surface opposite said rib, said dies having abutting portions adjacent to and substantially surrounding said scoring-rib and supporting surface respectively so as to be rigidly connected therewith and adapted to make direct contact with each other and thereby rigidly limit the approach of the scoring-rib to the supporting-surface, whereby to insure that the thickness of the metal at the bottom of the score shall be uniform notwithstanding variations in the thickness of the sheet metal and throughout the length of the scored line.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANK C. B. PAGE.

Witnesses:

EUGENE V. MYERS,  
FRED WHITE.