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C. W. GRAHAM.
ART OF MAKING CAN SEAMS.
APPLICATION FILED DEC. 19, 1906.

Patented Mar. 29, 1910.

2 SHEETS—SHEET 1.

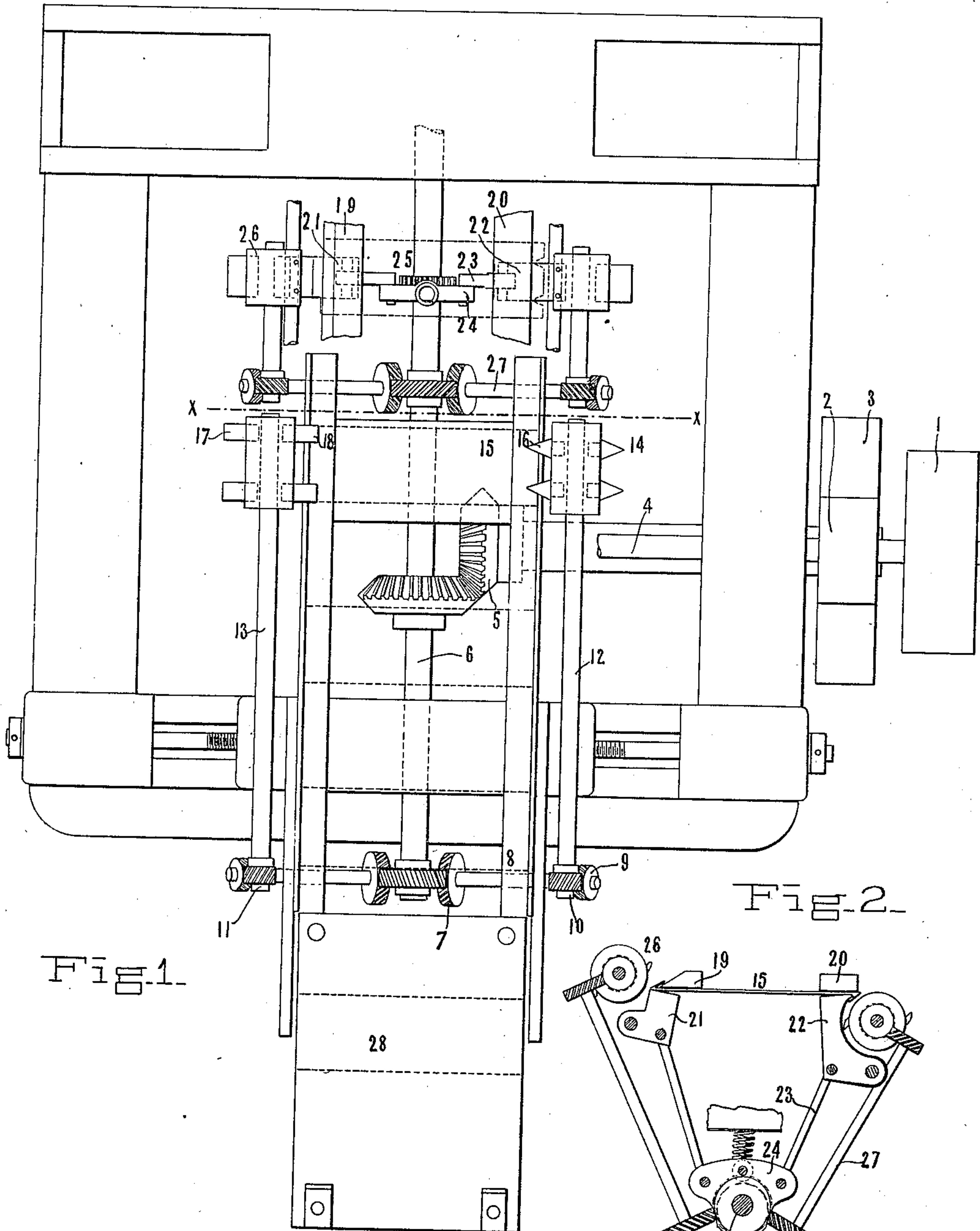


Fig. 1.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig-3-

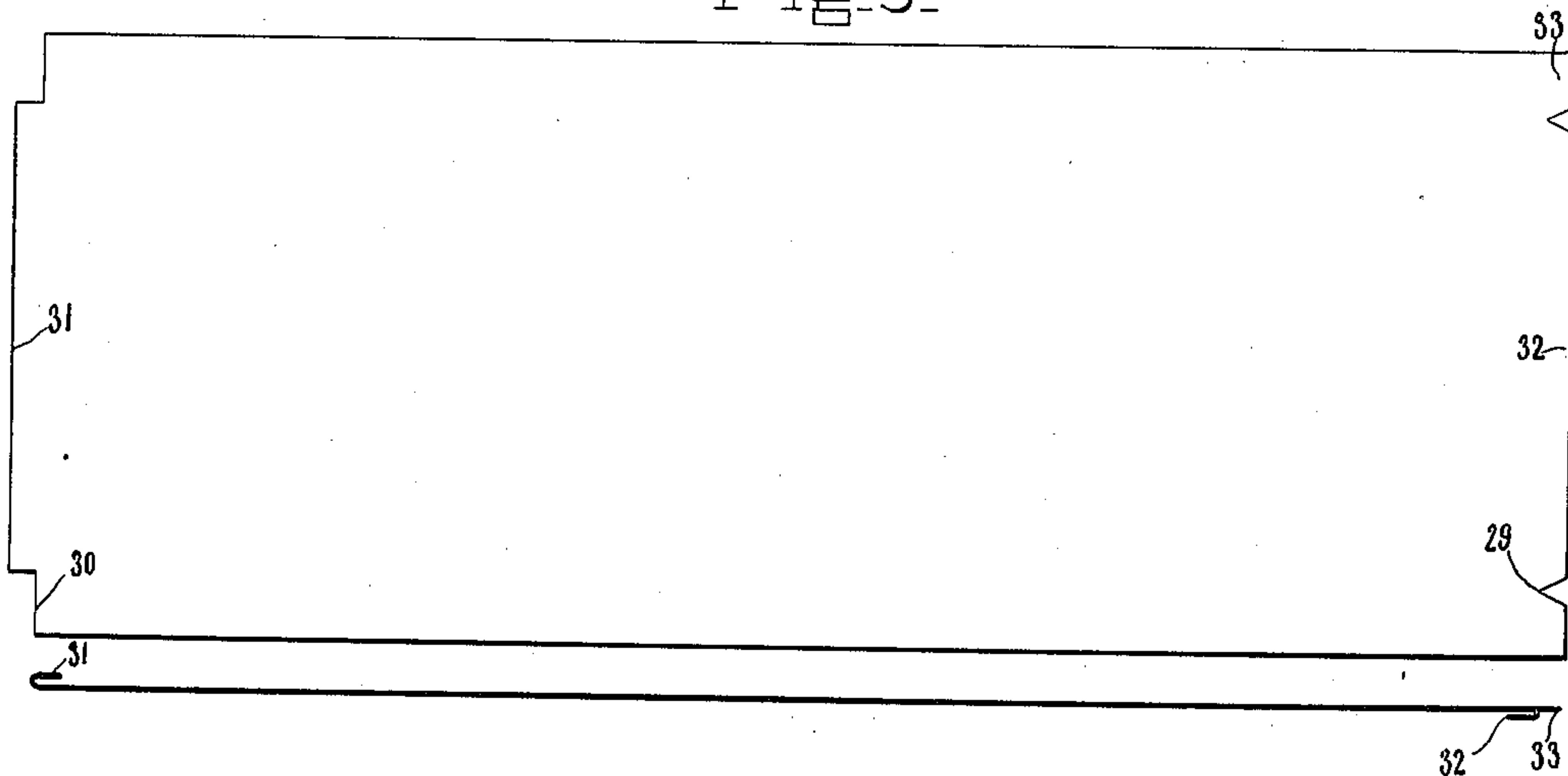


Fig-4-

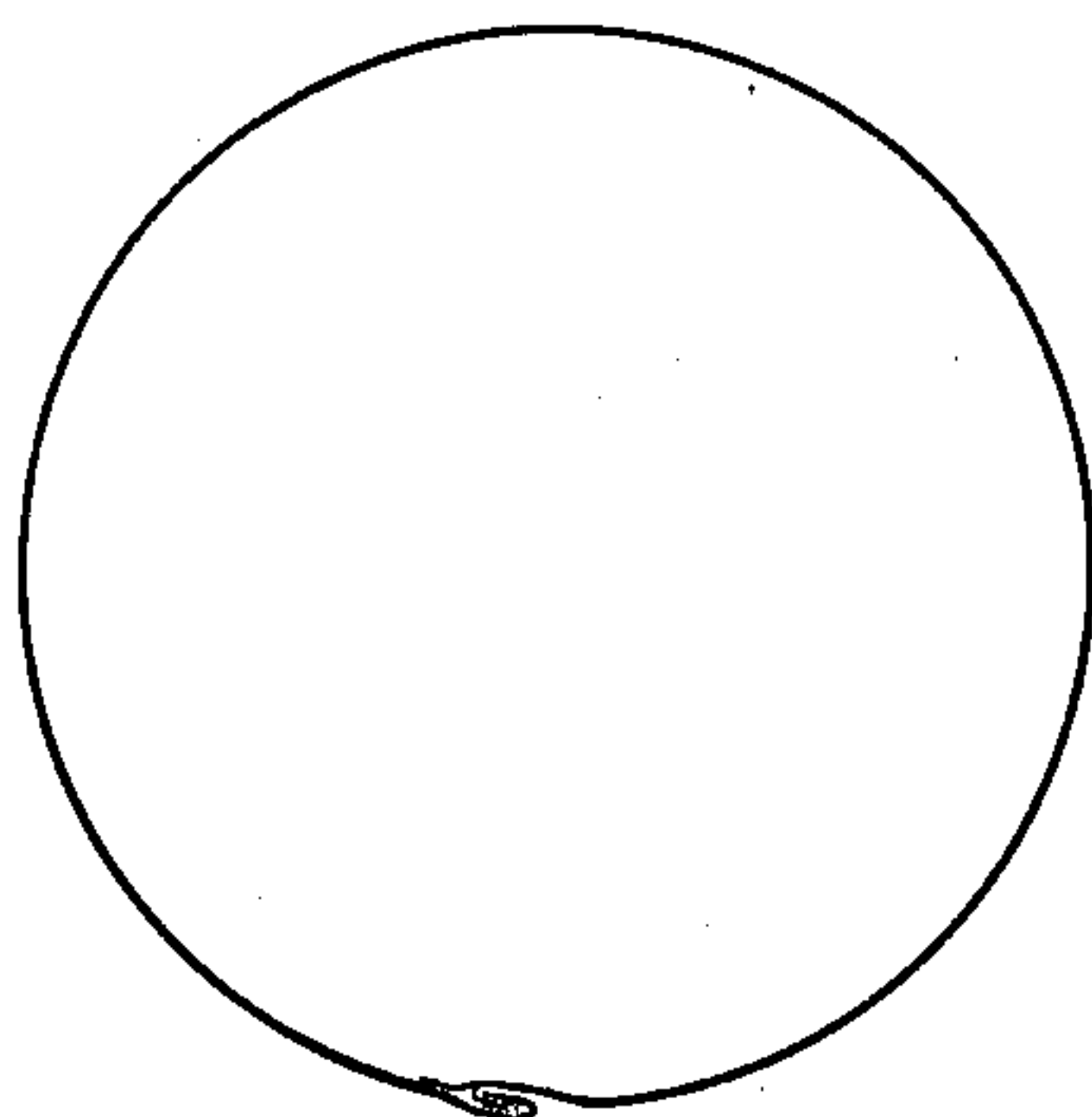


Fig-5-

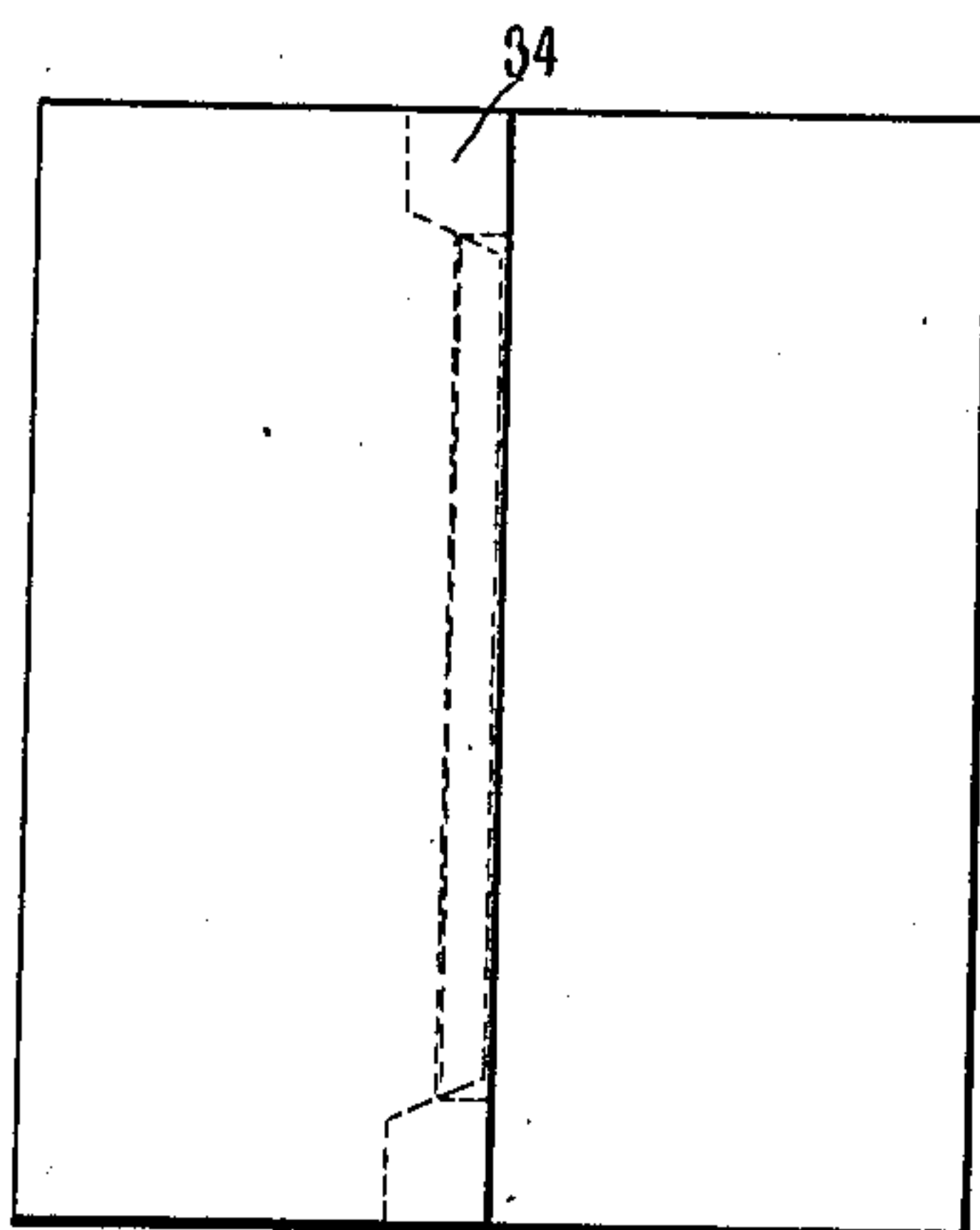


Fig-6-

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UNITED STATES PATENT OFFICE.

CHARLES W. GRAHAM, OF ROME, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ART OF MAKING CAN-SEAMS.

953,381.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed December 19, 1906. Serial No. 348,532.

To all whom it may concern:

Be it known that I, CHARLES W. GRAHAM, residing at Rome, in the county of Oneida and State of New York, have invented certain new and useful Improvements in the Art of Making Can-Seams, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to can seams and the like.

One of the objects thereof is to provide a simple and practical art whereby efficient can seams or other joints may be formed.

Another object is to provide an art of the above general type characterized by economical use of material, high speed of working, and independence of complicated machinery.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the several steps and the order and relation of each of the same with respect to one or more of the others thereof, all as will be exemplified in the matter hereinafter set forth and indicated in the following claims.

In the accompanying drawings, wherein is indicated one of various possible embodiments of the product of my art and a manner of carrying on the same,—Figure 1 is a plan view of apparatus whereby certain steps of my art may be carried on. Fig. 2 is a sectional elevation taken on the line $x-x$ of Fig. 1. Fig. 3 is a plan of a notched blank. Fig. 4 is a side elevation showing certain portions thereof flanged. Fig. 5 is an end view showing the edges in assembled relation. Fig. 6 is a side elevation of the completed joint.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Considering first the illustrative method of carrying on my art shown in the drawings and the apparatus therein set forth, there appears at 1 a driving pulley adapted to transmit power through the gears 2 and 3 to a shaft 4, from which power is led through bevel gears 5 to the shaft 6. From the latter shaft, by means of the spiral gears 7 and inclined shafts 8, gears 9 are driven, the latter parts intermeshing with gears 10 and 11 respectively mounted upon shafts 12

and 13. Shaft 12 is provided with rotating dies or cutters 14 adapted to co-act with the table 15, notched at 16, to accomplish a result hereinafter described. Upon shaft 13 are mounted cutters 17 co-acting with the notches 18 in table 15, as hereinafter set forth.

Mounted upon the frame of the machine are abutments 19 and 20, best shown in Fig. 2 of the drawings. These abutments are adapted to co-act with swinging jaws 21 and 22 respectively to hold a blank in fixed position, the jaws being actuated through links 23 from a spring depressed cross head 24 intermittently raised as by cam 25 upon shaft 6.

Mounted adjacent abutments 19 and 20 are rotary flanging devices 26 driven from shaft 6 by the inclined shafts 27 and the spiral gearing indicated.

A suitable supporting table 28 is provided for the raw material, and if desired suitable guides may extend therefrom to the table 15 and the clamping jaws above described.

Referring now to the manner of carrying on my art through the aid of the above described apparatus, it being assumed that suitable rectangular blanks are placed upon table 28, as indicated by the dotted lines, these blanks are transferred to the table 15 and the cutters 14 and 17, driven as above indicated, respectively form in the adjacent edges of the blank V-shaped notches 29 and rectangular notches 30, as best shown in Fig. 3 of the drawings. From this point the blank is placed beneath abutments 19 and 20 and the clamping jaws 21 and 22 being thrown upwardly the sheet is securely held in position with its outer edges projecting slightly beyond the corresponding parts of the jaws. The blades of flanging devices 26 thereupon engage the projecting edge 31 upon one side of the blank, and the edge 32 upon the opposite side, and bend or flange these parts in opposite directions, as best indicated in Fig. 2 of the drawings. It may be noted that the portions 33 are unflanged for a purpose hereinafter referred to. With the blank then in the form indicated in Fig. 4 of the drawings, the edges are brought into engagement one with another and the flanged portions hooked one within the other, or interlocked as indicated in Fig. 5. Portions 33, however, rest smoothly against the inner surface of the opposite edge of the

blank, and form therewith a lap joint as indicated at 34, this joint being of considerable width and thus adapted to form a seam portion which is substantially as secure against the chance of leakage as is the interlocking portion of the joint. The entire joint is then compressed as by hammering or otherwise, and solder is applied throughout its entire length.

It may here be noted that the term "flanging" as used throughout this description and in the following claims is intended to comprehend any bending of the edge whereby the same is partially or entirely folded toward the body of the blank; and it may also be noted that the expression "soldering" is used in a broad sense as including any method of sealing the completed joint.

Referring now to the resultant device, it may be noted that there is provided a seam possessing the high degree of strength characteristic of those of the interlocking type, and yet the portions over which the head is to fit are of lap joint conformation, thus presenting merely two thicknesses of material and adapting the body for efficient connection with the edge of the head.

It will thus be seen that there is provided an art in which the objects of my invention are attained and that the same possesses the favorable characteristics hereinbefore mentioned.

As many changes could be made in the above method of carrying on my art, and as the same could be carried on through the use of widely different implements, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described to which said claims relate and to which I am entitled over the prior art.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The art which comprises cutting away the corner portions of a blank, flanging the edge comprehended between said portions, flanging the opposite edge of the blank throughout a portion of its length, interlocking said flanged edges with the unflanged portion overlapping and resting upon the corresponding portion of the opposite edge, and soldering the opposite edges in assembled relation throughout said interlocking and overlapping portions thereof.

2. The art which comprises cutting away the corner portions of a blank, flanging the edge comprehended between said portions, flanging the opposite edge of the blank throughout a portion of its length, interlocking said flanged edges with the unflanged

portion overlapping and resting upon the corresponding portion of the opposite edge, compressing said interlocked portions, and soldering the opposite edges in assembled relation throughout the interlocking and overlapping portions thereof.

3. The art which comprises cutting away the corner portions of a blank, flanging the edge comprehended between said portions, forming spaced incisions in the opposite edge of said blank, flanging the portions between said incisions, interlocking said flanged edges with the unflanged portion of each of the same overlapping and resting upon the corresponding portion of the other thereof, and soldering the opposite edges in assembled relation throughout said interlocking and overlapping portions thereof.

4. The art which comprises cutting away the corner portions of a blank, flanging the edge comprehended between said portions, forming substantially V-shaped incisions in the opposite edge of said blank, flanging the portions between said incisions, interlocking said flanged edges with the unflanged portion of each of the same overlapping and resting upon the corresponding portion of the other thereof, and soldering the opposite edges in assembled relation throughout said interlocking and overlapping portions thereof.

5. The art which comprises holding a blank upon a support, substantially simultaneously cutting away the corner portions of one edge of said blank and forming spaced incisions in the opposite edge thereof, flanging the portions of said edges comprehended between said corner portions and said incisions, interlocking said flanged edges with the unflanged portions of one edge overlapping and resting upon the corresponding portions of the opposite edge, and soldering said opposite edges in assembled relation throughout said interlocking and overlapping portions thereof.

6. The art which comprises cutting away the corner portions from one edge of a blank, flanging the entire remaining portion of said edge, flanging the opposite edge of said blank, interlocking said flanged portions, and soldering the opposite edges in assembled relation.

7. The art which comprises cutting away portions of one edge of a blank, flanging the entire remaining portion of said edge, forming incisions in the opposite edge spaced at a distance substantially equal to the flanged portion of said first edge, flanging the portion comprehended between said incisions, interlocking said flanged portions, and soldering the same in assembled relation.

8. The art which comprises cutting rectangular corner portions from one edge of a blank, flanging the edge portion comprehended therebetween, forming substantially

V-shaped incisions in the opposite edge of said blank, said incisions being spaced at a distance substantially equal to that of said flanged edge, flanging the edge between said incisions, interlocking said flanged portions with the unflanged portions of one edge overlapping and resting upon the corresponding portions of the opposite edge, compressing said interlocking portions, and soldering the opposite edges in assembled relation throughout the interlocking and overlapping portions thereof.

9. The art which comprises cutting away portions of one edge of a blank, flanging the entire remaining portion of said edge, flanging a portion of the opposite edge substantially equal in length to the flanged portion of the first edge, interlocking said flanged portions, and soldering the same in assembled relation.

10. The art which comprises cutting away a corner portion of one edge of a blank, flanging another portion of said edge, forming an incision in the opposite edge of the

blank to define a tongue that will overlap said cut-out portion when the edges are interlocked, flanging a portion of said opposite edge substantially equal in length to the flanged portion of the first edge, interlocking said flanged portions, and soldering the same in assembled relation.

11. The art which comprises cutting away a portion of one edge of a blank, flanging another portion of said edge, forming a tongue in the opposite edge of the blank that will overlap said cut out portion when the edges are interlocked, flanging a portion of said opposite edge substantially equal in length to the flanged portion of the first edge, interlocking said flanged portions, and soldering the same in assembled relation.

In testimony whereof I affix my signature, in the presence of two witnesses.

CHARLES W. GRAHAM.

Witnesses:

Mrs. J. BURR BELL,
F. B. BEERS.