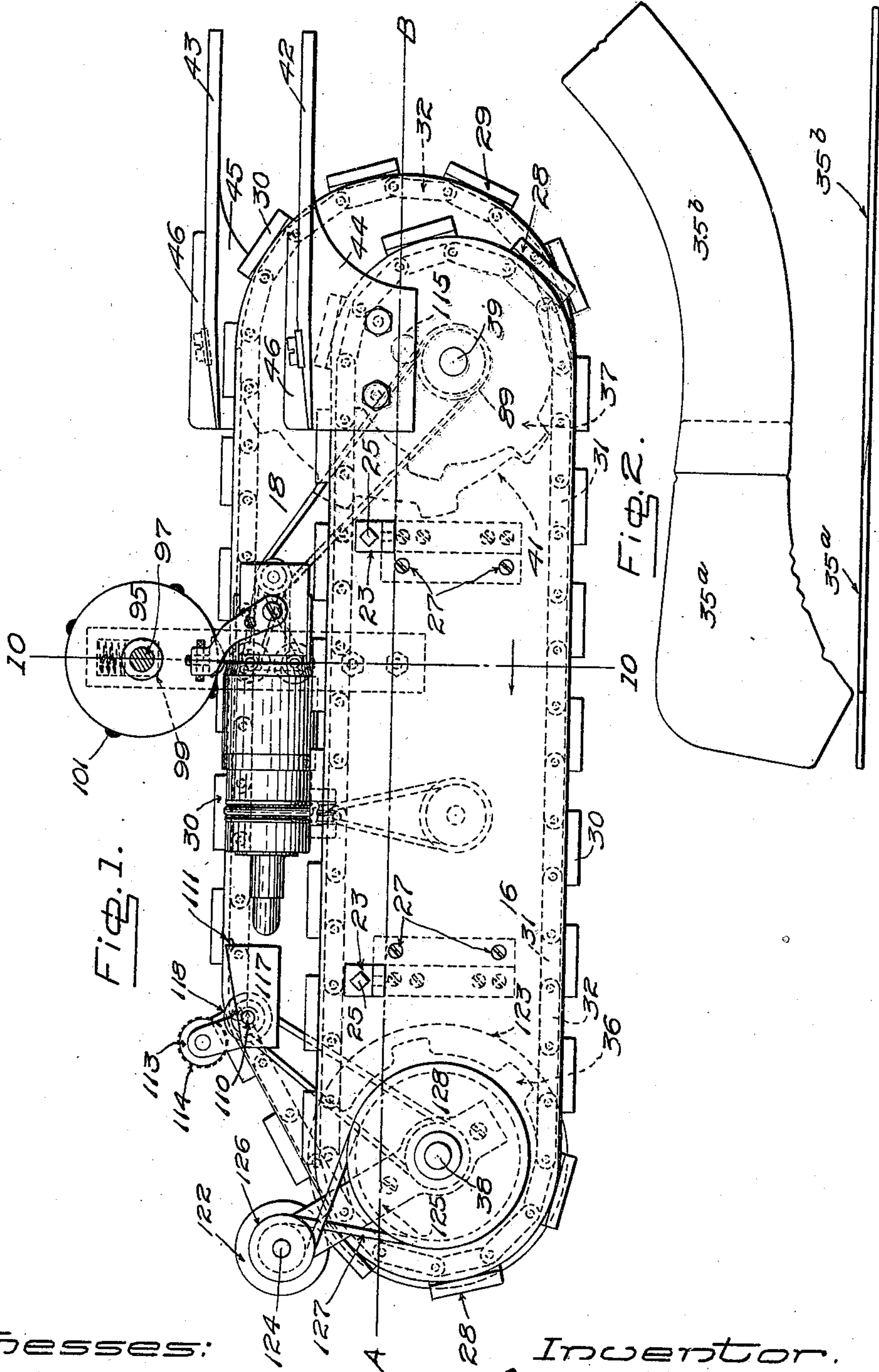


J. A. MILLICAN.
 APPARATUS FOR UNITING LEATHER BLANKS.
 APPLICATION FILED MAR. 28, 1910.

974,987.

Patented Nov. 8, 1910.

4 SHEETS—SHEET 1.



Witnesses:
M. G. Crozier.
Lillian F. Waldner

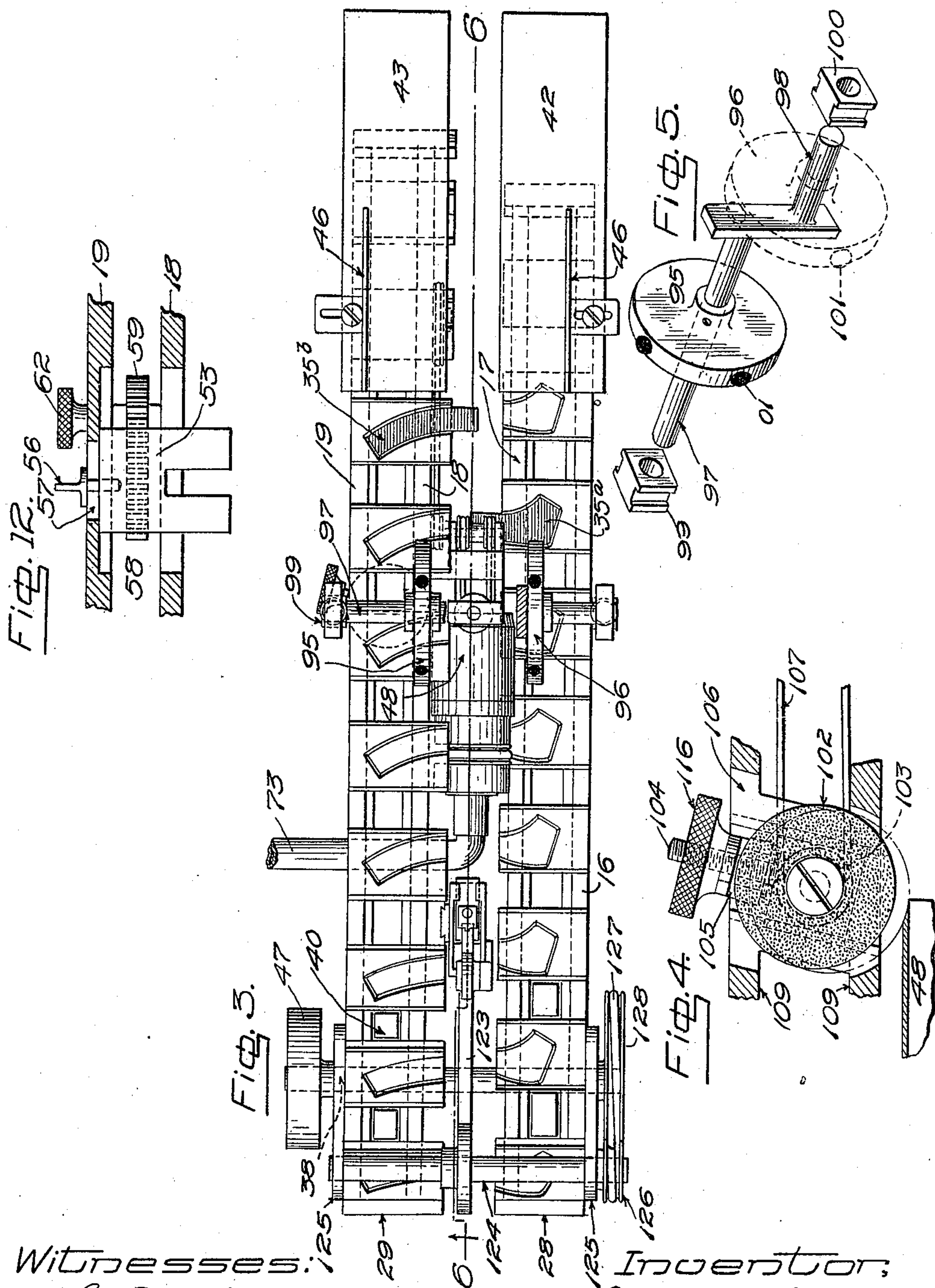
Inventor.
James A. Millican.
By Everett N. Smith
 Attorney

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4 SHEETS—SHEET 2.



Witnesses:
 M. G. Crozier,
 Lillian F. Wadner

Inventor:
 James A. Millican
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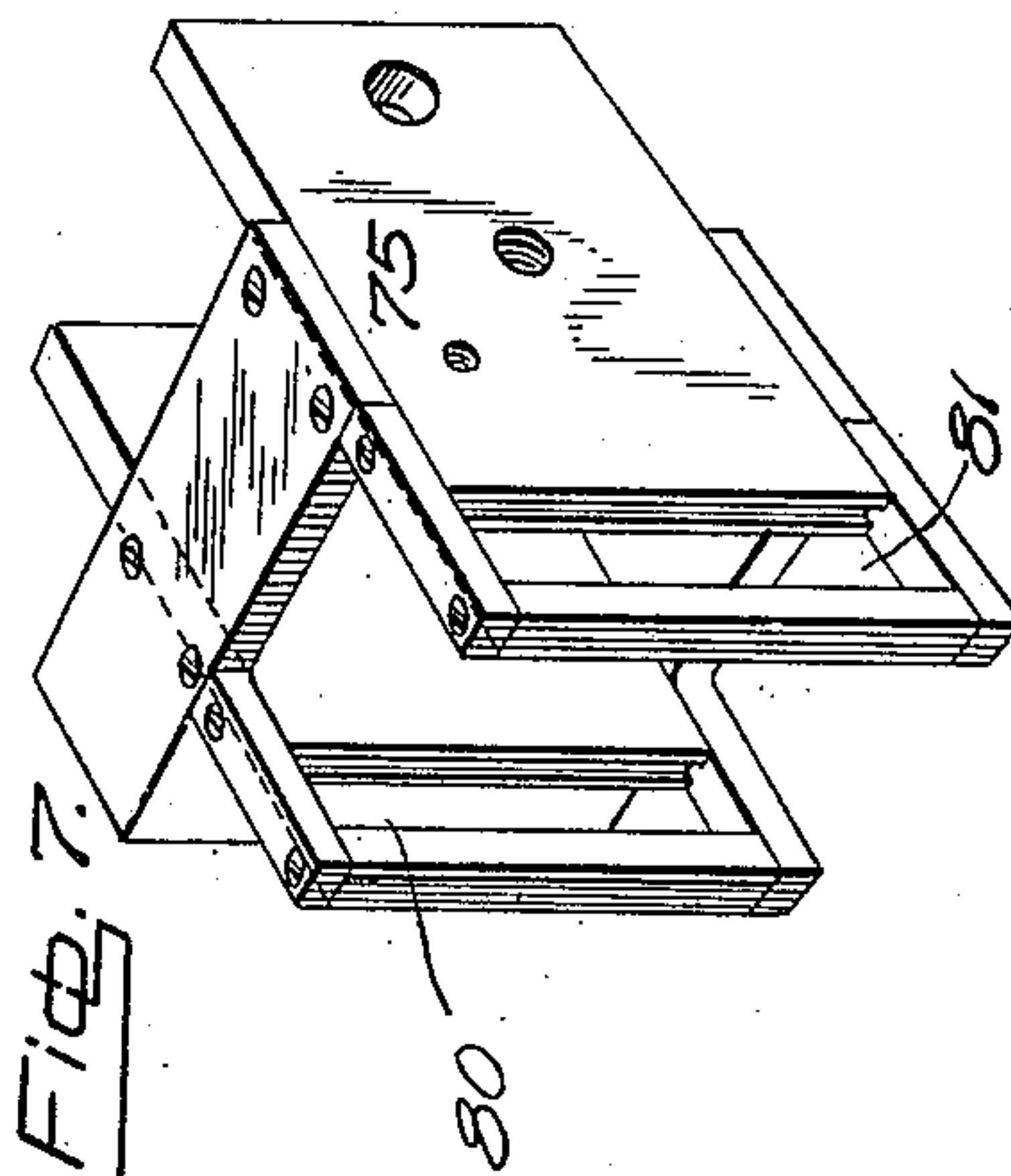
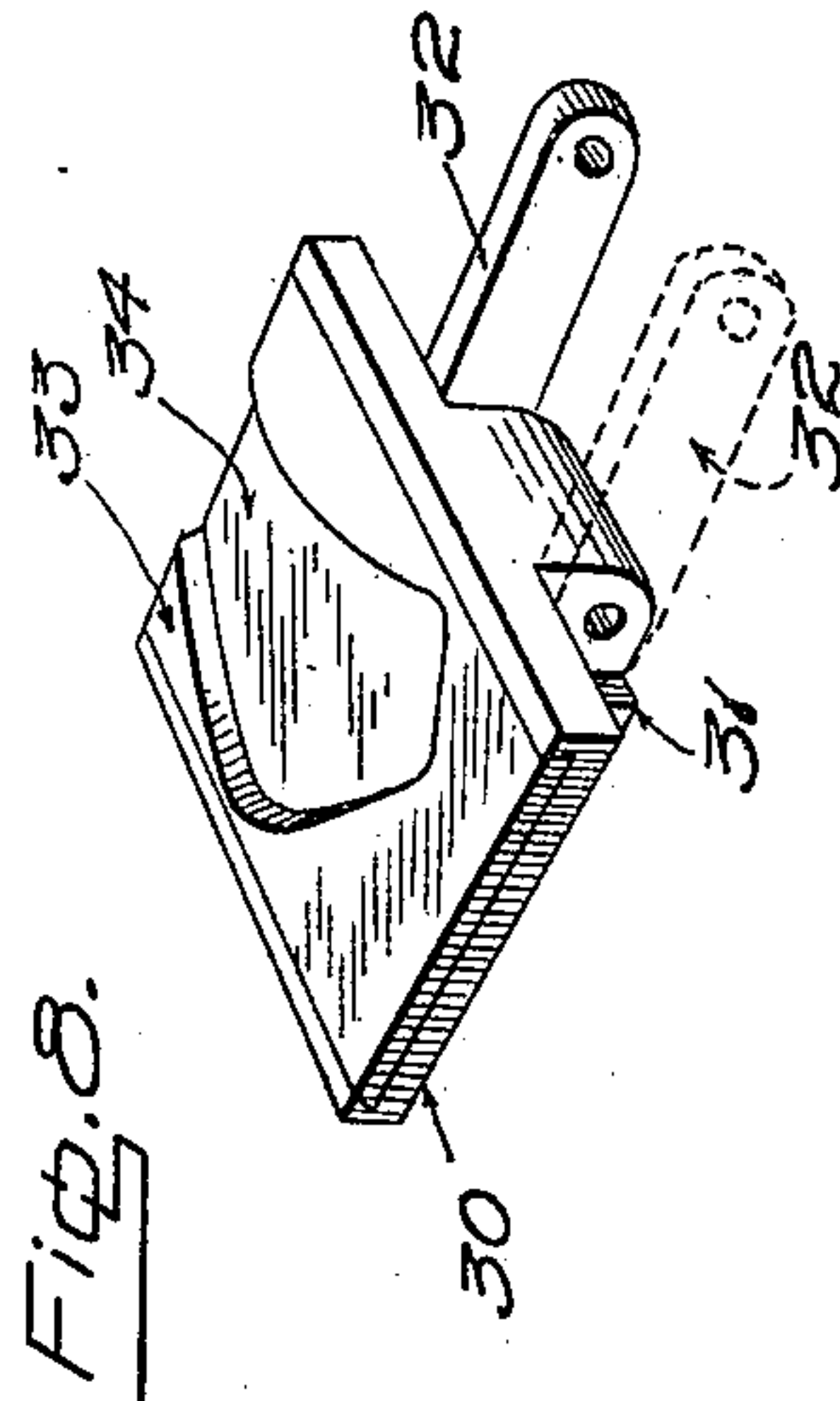
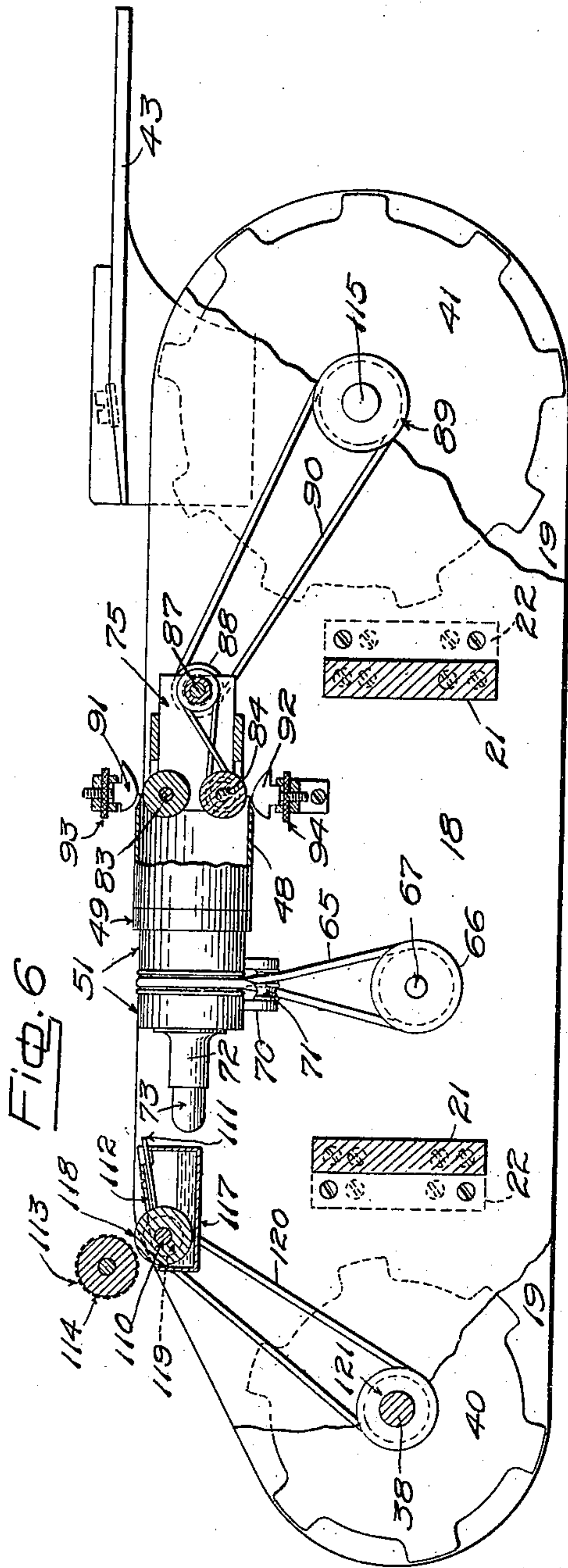
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4 SHEETS—SHEET 3.

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WITNESSES:
M. G. Crozier
Lillian F. Maiden

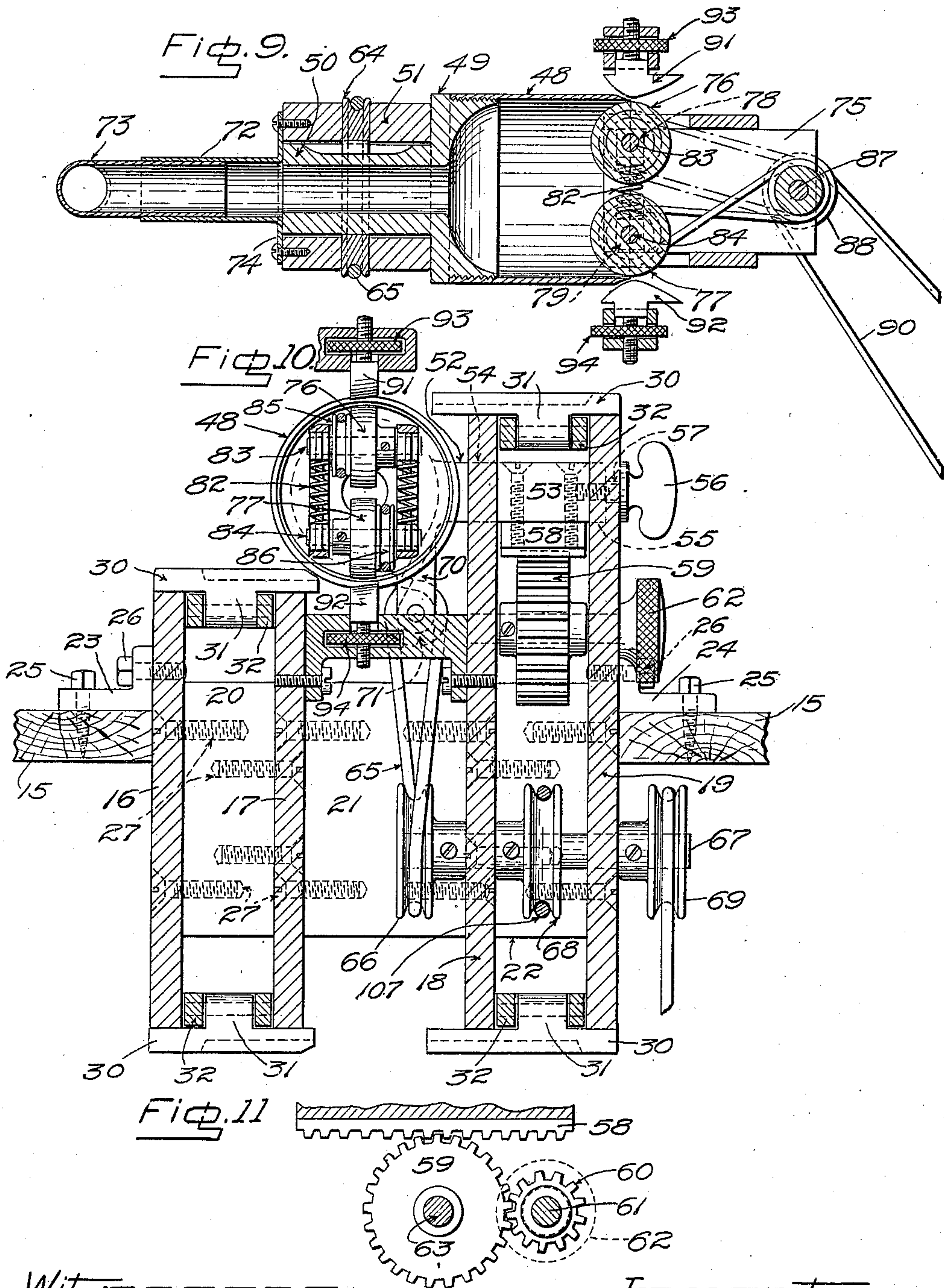
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4 SHEETS—SHEET 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JAMES A. MILLICAN, OF CAMBRIDGE, MASSACHUSETTS.

APPARATUS FOR UNITING LEATHER BLANKS.

974,987.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed March 28, 1910. Serial No. 551,824.

To all whom it may concern:

Be it known that I, JAMES A. MILLICAN, a subject of the King of Great Britain, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Apparatus for Uniting Leather Blanks, of which the following is a specification.

My invention relates to apparatus for uniting leather blanks, and its object is to utilize leather cuttings and waste for forming a single connected strip.

In carrying out the general principle of my invention, I preferably employ two endless carriers having a space between and constructed to convey the leather blanks, said blanks being preferably of suitable form and having one edge of each blank projecting into said space. Both carriers are arranged to travel a well defined path, at the outset of which the blanks are placed upon their respective carriers; and are then conveyed to and past the cutting devices where the said projecting edges of the blanks are beveled. After beveling, one of the carriers transports the blanks carried by it to a cement roll by which the beveled surfaces of said blanks are covered with cement. Further along, the paths of the carriers converge and come in close proximity, and the edges of the blanks on one carrier successively come in contact with and overlap the blanks of the other carrier, and are pressed together in pairs by two positively driven rolls located at this point. The operation being now completed, the united blanks are then removed from the carrier.

Attention is directed to the accompanying drawing in which similar numerals of designation refer to similar parts throughout the several views.

Figure 1, is a side elevation of my apparatus shown detached from the supporting table, the upper surface of which is indicated by the line A—B. Fig. 2, is a representation of one of the united blanks showing the same both in plan and elevation. Fig. 3, is a plan view of my apparatus shown detached from the table as in Fig. 1. Fig. 4, is a plan view of the emery wheel and adjacent parts employed for sharpening the revolving knife. Fig. 5, is a view in perspective showing the presser rolls for securely holding the blanks upon their respective carriers, while the edges of

said blanks are being beveled. Fig. 6, is a section on line 6—6 of Fig. 3, looking in the direction of the arrow, and showing details of the rotary cutter and cement pot, the carriers being left out for the purpose of clear illustration. Fig. 7, is a view in perspective of the bracket used for supporting the presser rolls within the revolving knife. Fig. 8, is a view in perspective of one of the carrying blocks. Fig. 9, is a longitudinal section of the revolving knife and connections. Fig. 10, is a cross section on line 10—10 of Fig. 1, looking in the direction of the arrow, the presser rolls shown in Fig. 5, being left out. Fig. 11, is a side elevation showing the rack for adjusting the revolving knife and gear for operating the same. Fig. 12, is an enlarged section of the knife support.

Referring to the drawing, upon the working table 15, constructed in the usual manner with an elongated central opening therein, I secure the main frame of my apparatus, composed of the elongated plates 16, 17, 18 and 19 and lateral strips 20, 21 and 22, by means of the brackets 23 and 24 and screws or bolts 25 and 26, (see Fig. 10.) The said plates and lateral strips are constructed of metal or other suitable material, and are secured together to form the frame by means of screws 27, as here shown, or by other suitable means.

The plates 16 and 17, and the plates 18 and 19, are arranged in pairs, the plates of each pair being of the same size and shape, and the peripheries of each pair forming a track for the endless carriers 28 and 29 respectively. Both of said carriers is composed of blocks 30, each of which is constructed with a downwardly projecting lug 31 fitting in the space between the plates forming the tracks, said lugs being connected at their adjacent edges by the links 32. (See Fig. 8). To the top of each block preferably within a dove tailed groove of the same is removably attached the plate 33 constructed with a recess 34 therein for the purpose of securing one of the leather blanks 35^a or 35^b which are shown in Fig. 2. Preferably the recesses of the plates of the carrier 28 are shaped to receive and convey blanks 35^a, and the recesses of the plates of the carrier 29 are shaped to receive and convey blanks 35^b, the said plates and blanks being disposed to permit one of the ends of

said blanks to project into the space between the carriers to the extent that the edges of each of the blanks 35^b shall project beyond the edges of each of the blanks 35^a. (See Fig. 3).

The carrier 28 is operated by the sprocket wheels 36 and 37, keyed to the shafts 38 and 39, and meshing in the openings between the blanks 30, the shaft 38 also bearing thereon the pulley 47, connected with any suitable source or power, the shafts 38 and 39 being mounted in suitable bearings upon plates 16 and 17. The carrier 29 is operated in a similar manner by the sprocket wheels 40 and 41 secured to shafts 38 and 115, mounted in bearings upon plates 18 and 19, the sprocket wheel 41, however, being somewhat larger in diameter than the sprocket wheel 40. To the plates 16 and 19 at one end of my apparatus, I affix the feed plates 42 and 43 by means of their respective downwardly extending flanges 44 and 45, each of said plates having thereon adjustable guider 46 and being disposed to feed a series of blanks of the same form in each case to the plates of their respective carriers. The plates 18 and 19 are somewhat greater in size than the plates 16 and 17, in order that the upper portion of the track formed on the peripheries of plates 18 and 19 may extend for a portion of its path above the track formed by the edges of the plates 16 and 17. (See Fig. 1). In the space between the upper paths of said tracks, I secure a hollow knife 48 the cutting edge of which is arranged to come in contact with the projecting edges of both series of blanks conveyed by each carrier and to bevel the same. The end of said hollow knife opposite to said cutting edge, is threaded to engage with the head 49 of the hollow shaft 50 journaled in the bearing 51 forming part of the casting 52. To firmly secure said casting I construct the same with the arm 53 integral therewith, which arm engages with elongated slots 54 and 55, formed in each of the plates 18 and 19 near the top thereof, and permitting the arm to move in a direction parallel to the adjacent path of the carriers. While the slot 54 permits the arm 53 to pass through the same, the slot 55 is formed of less depth in order to permit the end of said arm to abut against the further wall thereof and to be secured against movement by the thumb screw 56, the threaded shank of which passes through the slot 57 and engages with a threaded opening at the end of said arm. The slot 57 being of the same horizontal extent as the slots 54 and 55, the arm 53 can be adjusted and secured at various positions and the position of the knife 48 thereby regulated in relation to the work. (See Fig. 10.) For the purpose of obtaining a careful adjustment of said knife, I preferably secure to the under side

of said arm the rack 58, engaging with the gear 59, which meshes with the pinion 60, secured to the pintle 61 which is operated by the hand wheel 62, both said shaft 63 and pintle 61 being suitably mounted in bearings upon the plates 18 and 19. (See Figs. 10 and 11.)

The bearing 51 of the casting 52 is cut away in the middle portion thereof to insert the pulley 64 which is keyed to the hollow shaft 50 and designed to rotate the same. The pulley 64 is connected by the belt 65 to the pulley 66 on the shaft 67 which is mounted in suitable bearings upon the main frame under the table and also bears thereon the pulleys 68 and 69, the pulley 69 being connected with some suitable source of power. Upon the lugs 70 integral with the castings 52 is mounted the idler roll 71 which engages with the belt 65 and serves to twist the same as shown and keep the same out of the path of the blanks conveyed by carriers 28.

At the outer end of the bearing 51 is secured the spout 72 by means of its flange 74 which is attached by screws or the like. Fitting within the said spout is one end of the suction pipe 73, operated by a blower (not shown), the other end of said pipe leading to a bin (not shown), the said spout and pipe being designed to carry away the scarfings cut by the knife 48 from the blanks. For this purpose the shaft 50 is made hollow and interior of the head 49 is beveled to admit a ready passage for said scarfings.

Upon a bracket 75 secured in any suitable manner to the plate 18, near the top thereof are mounted the pressure rolls 76 and 77, the axles 83 and 84 of which are journaled in boxes 78 and 79 which are held in the grooves 80 and 81, and which are yieldingly held apart by the springs 82 secured thereto. Upon the said axles 83 and 84 are also mounted pulleys 85 and 86 which are connected by belts to pulleys upon the shaft 87 carrying the pulley 88 connected to the pulley 89 by the belt 90. The said pressure rolls 76 and 77 are located half way within the hollow knife 48 and come nearly in contact with the edge thereof. Above the pressure rolls 76 as well as below the pressure roll 77 in close proximity with the edge of said knife are presser feet 91 and 92 which are suitably mounted in brackets secured to the main frame and are provided with adjusting screws 93 and 94. In close proximity with said presser foot 91 and located on each side of the same are the presser rolls 95 and 96 mounted upon studs 97 and 98 secured to brackets 99 and 100 attached to the plates 16 and 19 respectively. (See Figs. 3 and 5.) Each of the said presser rolls 95 and 96 have thereon the rubber teeth 101 and are arranged above the car-

riers 28 and 29 respectively at the proper distance to permit the said teeth to press down upon the blanks and securely hold the same within their recesses while the edges of the said blanks are being cut. To provide a ready means for sharpening the knife I mount within an opening made in the plates 18 and 19 a box 103 carrying a casing 106 holding the emery wheel 102, (see Fig. 4) which is made adjustable to and from the said knife by means of the thumb nut 116 engaging with the threaded bolt 104 secured to said box and passing through a nut 105 integral with the said casing 106. For operating said emery wheel 102, I connect a pulley mounted upon the axes of the same with the pulley 68 by means of the belt 107.

For applying cement to the beveled edges of the blanks conveyed by carrier 29, I provide the cement pot 117 which is secured in any suitable manner to the plate 18. (See Figs. 1 and 6). Within the said pot 117 is located the cement roll 118 which is mounted upon the pintle 110 journaled in the sides of said pot. Upon a cover 111 which serves to shield cement where the same is not covered by the roll 118, I preferably mount a narrow doffing plate 112 the end of which comes in contact with the middle portion of the periphery of said roll and serves to scrape a path thereon which is constantly kept free from cement. Above said cement roll is the presser roll 113 suitably mounted upon a bracket secured to the side of said pot 117 and bearing upon the periphery thereof the toothed ring 114 which engages with the said path formed on the periphery of the said cement roll and prevents the peripheries of both wheels from coming in contact, and keeps the said presser roll 113 constantly free from cement. The said box and cement roll are arranged to permit the end of each of the blanks 35^b to pass between the roll 113 and the cement roll 118, and the beveled edge to be covered with cement. To insure a positive movement of the cement roll 118, I also mount upon the pintle 110 a pulley 119 which is connected by a belt 120 to pulley 121 upon the shaft 38.

At the top and left of my apparatus as shown in Fig. 1, the planes of the paths of the carriers converge, in order that the edges of each blank on one carrier may overlap the edge of the corresponding blank on the other carrier when the blanks arrive at this point of their progress. It will be observed that a pair of blanks overlap shortly after the edge of one of them is cemented, and to insure the pressing together and securing of the same, I locate at said point the presser rolls 122 and 123, the presser roll 122 being mounted upon the shaft 124 journaled in the brackets 125 secured to the main frame and bearing thereon the pulley 126 which is con-

nected by a belt 127 to a pulley 128 on the shaft 38, and the presser roll 123 being mounted upon said shaft 38.

The operation of my apparatus is as follows:—Two series of blanks having been properly shaped and prepared are fed a pair at a time (a blank of each series forming a pair) into the recesses 34 of the plates 33, by means of the feed plates 42 and 43 and guider 46. One blank of each series always being opposite to a blank of the other series and the velocity of each carrier being uniform. The ends of the blanks of carrier 29 are conveyed to the top edge of the rotating knife and are beveled or chamfered on the under edge thereof, and the ends of the blanks of carrier 28 are conveyed to the lower edge of said revolving knife and are beveled or chamfered on the upper edge thereof. Further along the beveled edges of the blanks 35^b on carrier 29 are covered by cement by the cement roll 118, and shortly afterward come in contact with the edges of blanks 35^a on the other carrier, and the blanks are pressed together in pairs by the rolls 122 and 123 to form the united leather strip. After being united the said strips drop from the carriers into bins (not shown) beneath the work table 15.

While I have above set forth specific means for carrying into effect the object of my invention, I by no means desire to limit myself to the precise device shown since it is obvious that changes and modifications could be made therein without departing from the spirit of my invention.

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

1. In an apparatus for uniting blanks, two carriers for conveying blanks, mechanism for causing said carriers to travel in endless paths and to approach and pass each other at one point with a narrow space between, said carriers permitting the edges of the respective blanks conveyed by them to extend into said narrow space and to overlap, combined with means for securing together said overlapping edges.

2. In an apparatus for uniting blanks, two carriers for conveying blanks, mechanism for causing said carriers to travel in endless paths in the same general direction and to approach and pass each other at one point with a narrow space between, said carriers permitting the edges of the respective blanks conveyed by them to extend into said narrow space and to overlap, combined with means for securing together said overlapping edges.

3. In an apparatus for uniting blanks, two carriers for conveying blanks, mechanism for causing said carriers to travel in endless paths in different lengths and to approach and pass each other at one point with a narrow space between, said carriers

permitting the edges of the respective blanks conveyed by them to extend into said narrow space and to overlap, combined with means for securing together said overlapping edges.

4. In an apparatus for uniting leather blanks, two endless tracks, two carriers for conveying blanks arranged to travel over said tracks, said tracks being in proximity at one point with a space between the same greater than twice the distance that either carrier projects into said space, said carriers permitting the edges of the respective blanks conveyed by them to extend into said space and to overlap, combined with mechanism for moving said carriers over said tracks and means for securing together said blanks by said overlapping edges.

5. In an apparatus for uniting leather blanks, two endless tracks of different lengths, two carriers for conveying blanks arranged to travel over said tracks, said tracks being in close proximity at one point and permitting the edges of the blanks conveyed by the carriers to come in contact and overlap two at a time, combined with mechanism for moving said carriers over said tracks, and means for securing together said blanks by said overlapping edges.

6. In an apparatus for uniting leather blanks, two endless belts each arranged to convey a series of blanks of the same form, one of said belts being of greater length than the other, and means securing said blanks to said belts and causing one edge of said blanks to protrude from the adjacent edges of said belts, said belts being arranged to travel close together at one point and to cause one of each series of blanks to come in contact and overlap the other, and means for cementing together said overlapping edges.

7. In an apparatus for uniting leather blanks, two endless belts for conveying blanks, one of said belts being arranged to travel above the plane of the other belt for a portion of its path, and then to intersect said plane, the edge of said belts being arranged to be in close proximity at said point of intersection of their planes and permitting the edges of two of the blanks to come in contact and overlap combined with means for cementing together said overlapping edges at said point.

8. In an apparatus for uniting leather blanks, two endless tracks, two endless carriers composed of plates connected together at their adjacent edges, each of said plates having a depression in which to secure a single blank and to permit one of its edges to project beyond the side of said carrier, said tracks being arranged in close proximity at one point and permitting the edges of the blanks to come in contact and overlap two at a time, combined with mechanism for

moving said carriers over said tracks, and means for securing together the blanks by said overlapping edges.

9. In an apparatus for uniting leather blanks, two endless tracks, two endless carriers composed of plates connected together at their adjacent edges, each of said plates having a depression in which to secure a single blank and to permit one of its edges to project beyond the side of said carrier, said tracks being arranged in close proximity at one point and permitting the edges of the blanks to come in contact and overlap two at a time, combined with means for securing together said overlapping edges and fingers secured to said tracks near said point of proximity of the carriers, said fingers being arranged to come in contact with the united blanks and remove the same from said carriers.

10. In an apparatus for uniting leather blanks, two carriers for conveying blanks, a revolving knife located between said carriers, and means for simultaneously bringing one edge of a blank on each conveyer in contact with said knife, said carriers being arranged in close proximity and successively permitting the said edges of two of the blanks to come in contact and overlap, and means for securing together said overlapping edges.

11. In an apparatus for uniting leather blanks, two carriers for conveying blanks, an adjustable revolving knife located between said carriers, and means for simultaneously bringing one edge of a blank on each conveyer in contact with said knife, said carriers being arranged in close proximity and successively permitting the said edges of two of the blanks to come in contact and overlap, and means for securing together said overlapping edges.

12. In an apparatus for uniting leather blanks, two carriers for conveying leather blanks arranged with a space between the same, said carriers permitting one edge of each of the said leather blanks to project into said space, a hollow revolving knife located in the path of the said edges and arranged to bevel the same, pressure rolls located within the hollow of said knife and arranged to press the edges of said blanks outwardly against the edge of said knife, said carriers being arranged in close proximity and successively permitting the edges of two of the blanks to come in contact and overlap after the same have been beveled, and means for securing together said overlapping edges.

13. In an apparatus for uniting leather blanks, two carriers for conveying leather blanks, arranged with a space between the same, said carriers permitting one edge of said leather blanks to project into said space, a hollow revolving knife located in the path

of the edges of said blanks and arranged to bevel the same, and positively actuated rolls located within the hollow of said knife and arranged to press the edges of said blanks outwardly against the edge of said knife, combined with means for causing the beveled edges of the blanks carried by one carrier to overlap and come in contact with the beveled edges of the leather blanks carried by the other carrier, and means for securing together said overlapping edges.

14. In an apparatus for uniting leather blanks, two carriers for conveying leather blanks arranged with a space between the same, said carriers permitting one edge of said leather blanks to project into said space, a hollow revolving knife located in the path of said edges of said blanks and arranged to bevel the same, two positively actuated pressure rolls located within the hollow of said knife, and spring actuated means for spreading said rolls and pressing the edges of said blanks outwardly against the edges of said knife, combined with means for causing the beveled edges of the blanks carried by one carrier to come in contact and overlap the edges of the adjacent blanks of the other carrier and means for securing together said overlapping edges.

15. In an apparatus for uniting leather blanks, two carriers for conveying leather blanks arranged with a space between the same, said carriers permitting one edge of said leather blanks to project into said space, a hollow revolving knife located in the path of said edges of said blanks and arranged to bevel the same, two positively actuated corrugated rolls located within the hollow of said knife and arranged to press the edge of said knife outwardly against the edges of said blanks and two pressure feet located opposite said rolls and arranged to press said edges inwardly against the edge of said knife, combined with means for causing the beveled edges of the blanks conveyed by one carrier to come in contact and overlap the beveled edges of the adjacent blanks conveyed by the other carrier and means for securing together said overlapping edges.

16. In an apparatus for uniting leather blanks, two carriers for conveying blanks, one edge of said blanks being permitted to

protrude beyond the edge of the carrier supporting the same, the said carriers being arranged to approach each other at a portion of their paths and at one point to cause a blank of each carrier to come in contact and overlap the other, combined with a cement pot and means for applying cement therein to said overlapping edges and positively actuated pressure rolls for pressing and securing the same together.

17. In an apparatus for uniting leather blanks, two carriers for conveying two series of blanks and causing the same to overlap, combined with a glue pot, a positively actuated cement roll mounted on said pot and necessarily engaging with the edges of the blanks of one of said series, a doffing plate arranged to scrape a path on the periphery of said cement roll, a pressure roll arranged to press said edges against said roll, a toothed ring affixed to the periphery of said pressure roll, the teeth of said ring coming in contact with said cement roll solely along said path, thereby preventing the peripheries of said rolls from coming in contact.

18. In an apparatus for uniting leather blanks, two carriers for conveying two series of blanks and causing the same to overlap, combined with a glue pot, a positively actuated cement roll mounted on said pot and necessarily engaging with the edges of the blanks of one of said series, a doffing plate arranged to scrape a path on the periphery of said cement roll, a pressure roll arranged to press said edges against said roll, a toothed ring affixed to the periphery of said pressure roll, the teeth of said ring coming in contact with the said cement roll solely along said path, thereby preventing the peripheries of said rolls from coming in contact and two positively actuated pressure rolls for pressing and securing together the edges of the blanks after the edges of said series of the same have been treated with cement as aforesaid.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses, this 26th day of March 1910.

JAMES A. MILLICAN.

Witnesses:

THOMAS R. BATEMAN,
ANGUS M. SWANBURG.