

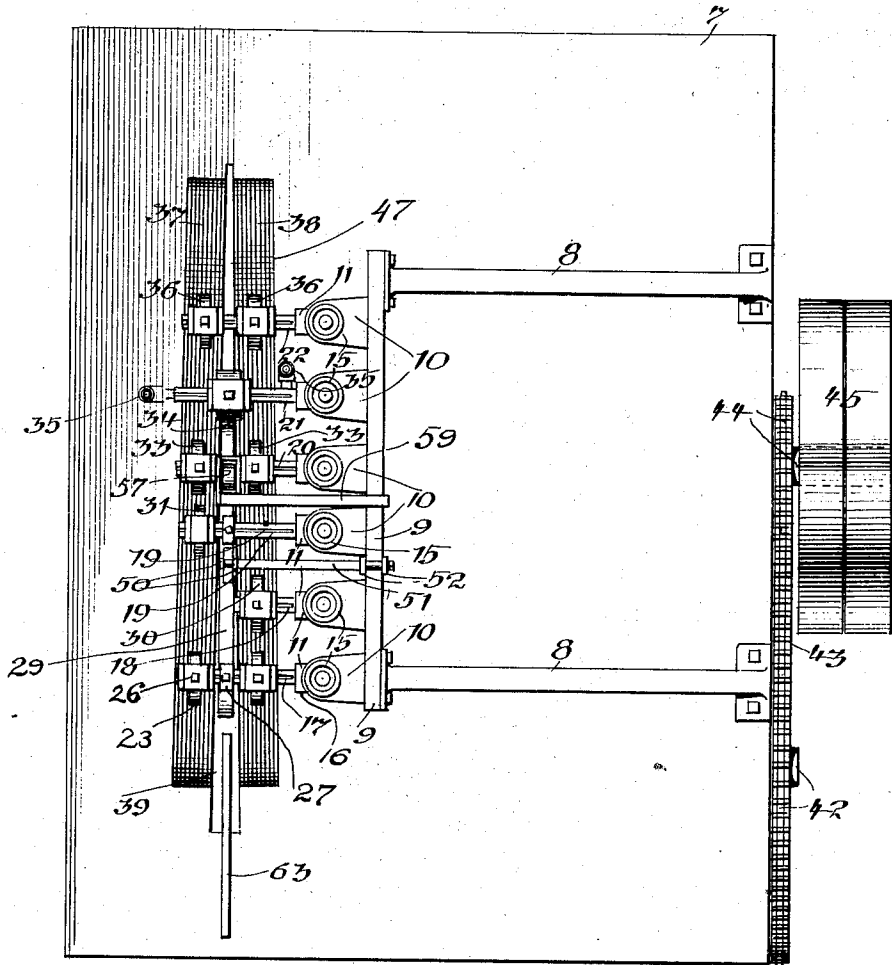
J. BLACK.
MACHINE FOR EDGE UNITING VENEERS.
APPLICATION FILED AUG. 25, 1910.

1,010,846.

Patented Dec. 5, 1911.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Francis Blanchard
Ephraim Banning.

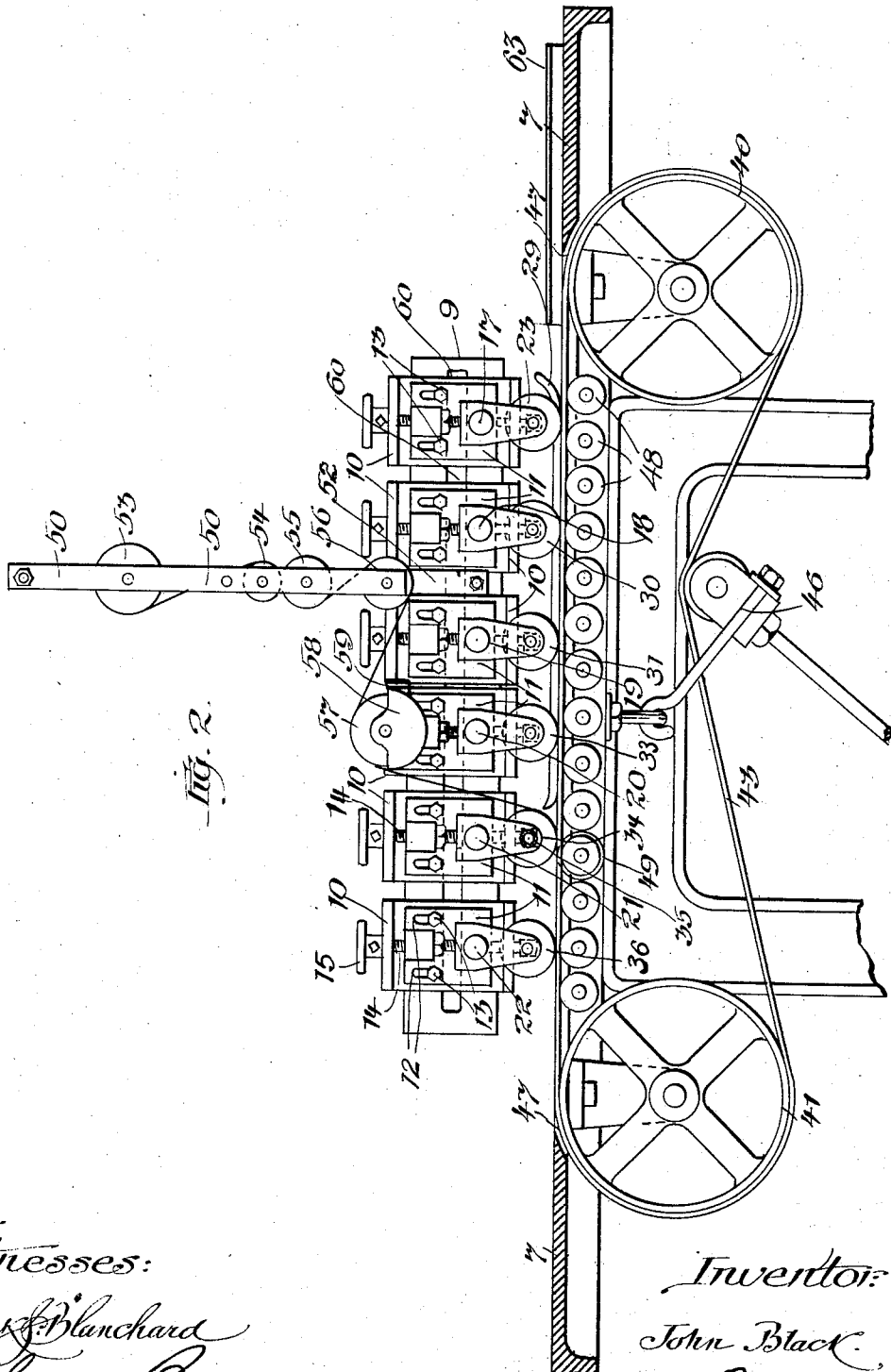
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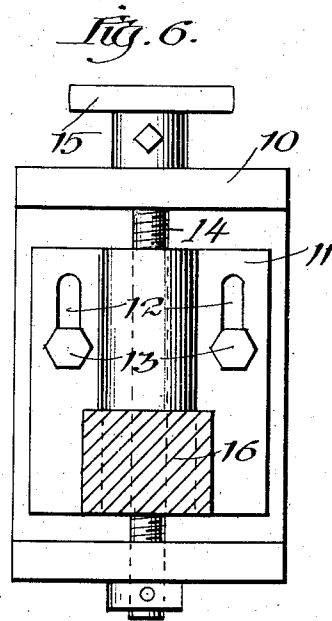
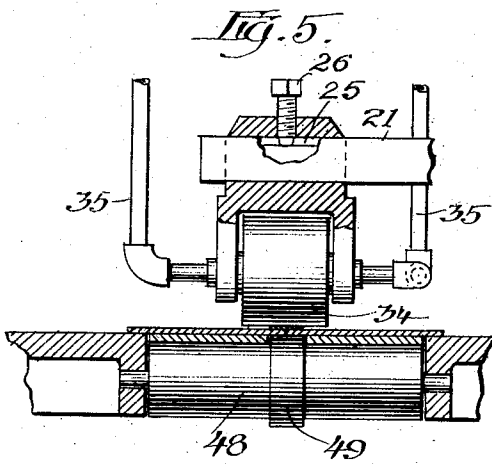
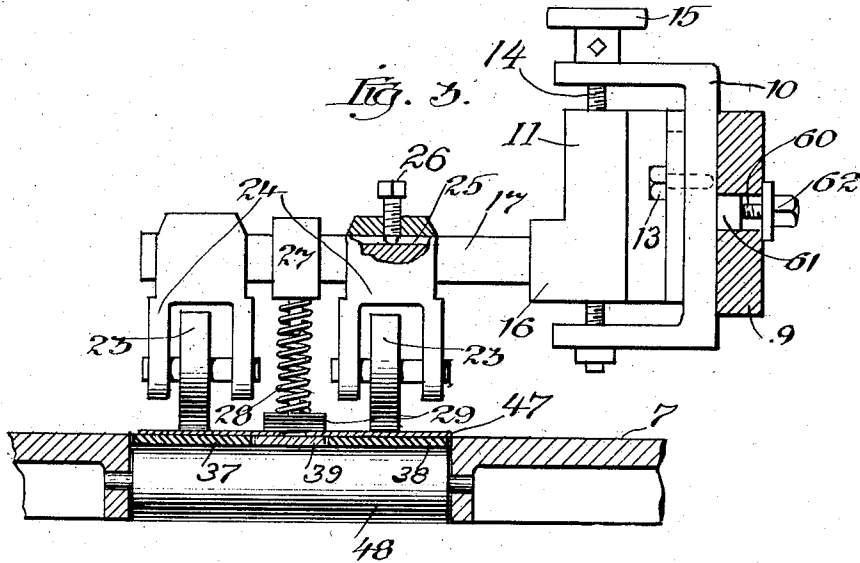
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4 SHEETS-SHEET 3.



Witnesses:

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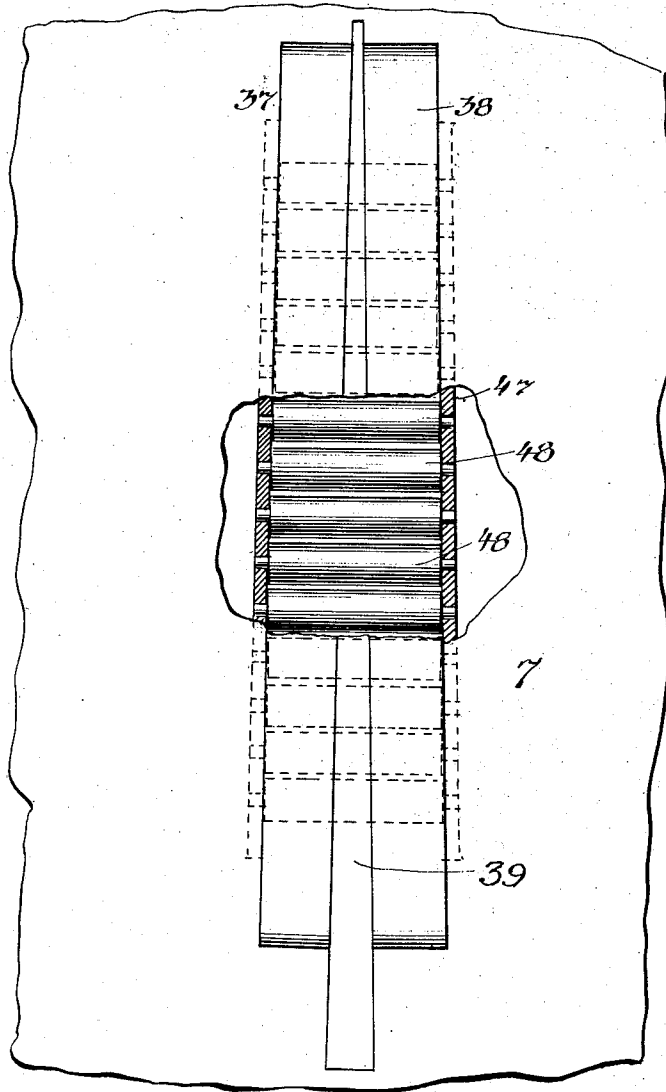
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4 SHEETS—SHEET 4.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN BLACK, OF MENDOTA, ILLINOIS.

MACHINE FOR EDGE-UNITING VENEERS.

1,010,846.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed August 25, 1910. Serial No. 578,986.

To all whom it may concern:

Be it known that I, JOHN BLACK, a citizen of the United States, residing at Mendota, county of Lasalle, and State of Illinois, have invented certain new and useful Improvements in Machines for Edge-Uniting Veneers, of which the following is a specification.

The present invention relates to a machine adapted to press the edges of veneers into tight and proper relation to one another, and to secure the strips together by placing a strip of adhesive tape over the abutting edges.

One of the objects of the present invention is to so construct the feed mechanism that in the operation of feeding the strips forward a movement at an angle to the line of travel of the strips will be imparted thereto, this movement being effected by the feeding members.

A further object is to so construct the device that the only power-driven mechanism of the machine will be the feeding mechanism, all of the pressure rollers, etc., being idlers.

A further object is to provide means for vertically and horizontally adjusting the pressure rolls. And a further object is to provide a surface over which the belt travels which will be firm and substantial, so that the sagging of the belt is prevented. And a further object is to interpose a surface intermediate the belts which will serve to maintain the edges of the strips in proper position and prevent their being bent during the feeding or taping operation, it being understood that the strips are fed at all times in a plane parallel to the plane of the table.

In the drawings, Figure 1 is a plan view of the assembled machine; Fig. 2, a side elevation showing the table in section; Fig. 3, a detail showing one set of compression rollers and one of the supporting members for the shoe, and showing the mounting for the compression rollers; Fig. 4, a plan view showing the belts and showing a portion broken away to disclose the idler rollers over which the belts travel; Fig. 5, a detail showing the roller which secures the tape to the strips; and Fig. 6, a face view of the slidable member which forms the mounting for the pressure rollers.

The device comprises a table 7 which is supported upon a suitable framework, not

shown, and secured to the upper face of said table are companion arms 8 which support a plate 9, said plate serving as a mounting for a plurality of fixed members 10 and each of the members 10, in turn, serves as a mounting for a slidable member 11 which forms a support for the pressure rollers, and also for members supporting the shoe and tape adhering roller, each of the slidable members is formed with companion slots 12 in which lie the stems of bolts 13, said slots and bolts cooperating to form guide members for the member 11 during its movements. The member 11 is adjusted through the medium of a screw-threaded stem 14 which is fixed with respect to the mounting 10 and is rotated by a suitable hand-wheel 15, the manipulation of the hand-wheel moving the slidable member vertically with respect to the mounting 10 whereby vertical adjustment of the pressure roller is effected as will be more fully hereinafter set forth. As shown in the drawings, the plate 9 supports six of these members 10, each of which is provided with a slidable member 11, but since the number of these supports and slidable members can be varied, as the occasion may require, and since all of them are identical in construction and operation, a description of one is all that is deemed necessary at this time.

Each slidable member 11 is provided with a lug or boss, 16, which receives a stem, or rod, 17, which rod forms the mounting for the compression rollers. As shown, there are six of these rods provided, which, although they are alike and identical in construction, will, for the purpose of clearness hereinafter, be numbered as 17, 18, 19, 20, 21, and 22. The rod 17 supports compression rollers 23, each of the compression rollers being mounted within suitable yoked brackets 24, through the upper portion of which the rod 17 extends, and each of the rods 17, 18, 19, 20, 21, and 22 is provided with a slot 25 into which is entered set-screws 26, whereby each of the yoked members can be adjusted horizontally upon the rod, thus each set of compression rollers and the mountings for the shoe and the adhering roller can be adjusted vertically through the manipulation of the hand-wheel 15 and can be adjusted horizontally by loosening the set-screw 26 and sliding it along the rod. The mountings for the compression rollers are all identical, and it is

not thought that a description of more than the one heretofore described is necessary.

As shown in Fig. 3, the rod 17, in addition to supporting the pressure rollers 23, also supports a collar 27 which serves to maintain in position a coil spring 28 which bears against a shoe 29 and holds the same in firm engagement with the work. The rod 18 serves as a mounting for a single compression roller 30, the rod 19 serves as a mounting for a roller 31 and a collar 32 similar to the collar 27, these two collars cooperating to hold the shoe 29 at either end thereof. The rod 20 supports companion compression rollers 33 and the rod 21 supports a tape adhering roller 34 which is heated by gas passing through the pipes 35, and the rod 22 serves as a mounting for companion pressure rollers 36. It is, of course, understood that this arrangement of compression rollers can be varied to suit different requirements, and that the arrangement set forth is merely for the purpose of showing one way of arranging these rollers to accomplish the desired results. The pressure rollers overlie companion belts 37 and 38 which, as shown in Figs. 1 and 4 extend at an angle to the line of travel of the strips, that is, they are converging in the direction in which the strip is traveling. It is through this novel arrangement of the feed belts that I am enabled to obtain a simultaneously feeding forward of the strips and crowding together of the edges of the strips, as, obviously, while the belts will tend to carry the strips forward in a direct line of travel, at the same time they will be moving the strips transversely of themselves or at an angle to the line of travel, whereby simultaneously with the forward movement of the strips a movement of the strips toward each other will be produced thus crowding the edges of the strips closely against one another so that when the tape is applied and the strips joined together a close seam will be produced which is the result desired in machines of this nature.

Interposed between the belts 37 and 38 is a rigid surface 39 upon which the edges of the strip rest during the feeding operation. This prevents any bending down of the edges during the feeding operation, which, in a machine operated under the principle of that of the present invention, would be highly objectionable, as it would tend to spread the edges apart so that an efficient joint could not be made. It will be noted by referring to Fig. 1 that the edges of the strips pass under the shoe 29 until they are brought practically to the point where the tape is adhered thereto. By this means an overlapping of the edges is prevented. The belts 38 and 37 are driven by pulleys 40 and 41, the latter of which is a power-driven pulley, receiving power through the medium

of the sprocket-wheel 42, actuated by a chain 43 driven from a sprocket 44, actuated by pulleys 45, and the tension of the belt is regulated by means of suitable tension adjusting mechanism 46.

The upper surface of the table 7 is cut away to provide an opening 47 extending between the outer edges of the belts 37 and 38 as shown more clearly in Fig. 4, and extending transversely across this opening are a plurality of rollers 48 over which the belts travel. These rollers 48 form a substantial and firm support for the belting, so that, when the strips are pressed down upon the belt by the pressure rollers, sagging of the belt is prevented which prevention, of course, is necessary in order to obtain any feeding action of the strips, and by providing a surface composed of a plurality of rollers an anti-friction arrangement is provided so that the feeding operation is not unduly retarded by frictional contact of the belt with its support. These rollers 48, however, are merely idler rollers and are only rotated by reason of the advancement of the belt. This statement also applies to all of the pressure rollers and to the tape adhering roller. The only portion of the device constituting the mechanism for feeding, joining and adhering the strips which is power-driven, being the belts 37 and 38.

In order to obtain an efficient pressure at the point where the tape is adhered to the strips, I provide a roller 49 which, as shown, is merely an enlargement of one of the rollers 48. This enlargement underlies the adhesion roller 34 and provides a very firm surface whereby the tape is readily adhered to the strips and whereby the feeding of the tape off from the reel is readily effected.

The mechanism for supporting the tape and guiding it to its place of adhesion is as follows: Companion vertically extending arms 50 are provided which are supported by rods 51 extending from arms, or bars, 52 secured to the plate 9, and between these arms 50 is journaled a reel 53 around which the tape is wound. The tape passes from the reel 53 around a roll 54 and between the roller 54 and the roller 55, thence over a roller 56 and thence over a roller which may be termed the moistening roller and which is mounted within a box 58 supported by a bar 59 from the plate 9. The box 58 contains a suitable liquid so that as the tape is passed over the roller 57 it is moistened and then as it passes under the roller 34 the moistening surface is adhered to the strips, and the roller 34 being heated at the same time the tape is adhered, it is dried to a greater or less extent. However, the use of tape of this nature and the method of application of the same is old and well known in the art and is not claimed to be a portion of the present invention. As

shown in Fig. 2 the plate 9 is provided with a slot 60 which receives a lug 61 on the member 10 as shown in Fig. 3, and the member 10 is held against movement with respect to the plate 9 by means of a suitable locking nut 62. The slot 60 provides a means whereby the tension rollers may be adjusted lengthwise of the belt so as to lie upon any point of the belt desired.

The operation is as follows: The strips of veneer are fed in upon either side of a channeled guide member 63, and when they are engaged by the belt they are fed forward underneath the compression rollers and, at the same time, owing to the angle at which the belts are traveling, they are fed toward one another whereby the edges are brought into close engagement. The strip will travel underneath the shoe 29 which is of sufficient width to overlie the edge of each and will be thus prevented from overlapping one another during the feeding operation. When the strips are brought into position where they pass underneath the roller 34, the strip of tape from the reel 53 is adhered to the strips along the adjoining edges thus uniting the two sections together. After the tape has been applied the strips are fed on until they have passed entirely beneath the adhering roller and out of the machine.

I claim:

1. In a machine of the class described, the combination of a table, means consisting solely of companion belts lying entirely upon one side of the work for feeding the work forward in a plane parallel to the top of the table, at least one of said belts traveling in a line extending at an angle to the direct horizontal line of travel of the work whereby the edges of the work are crowded together simultaneously with the feeding operation, an anti-friction surface extending transversely of the line of travel of the work and underlying and engaging both belts the entire transverse distance thereof, and means for placing a strip of tape along the joined edges of the work, substantially as described.

2. In a machine of the class described the combination of a table, means consisting solely of companion belts lying entirely upon one side of the work for feeding the work forward in a plane parallel to the top of the table, said belts converging toward one another in the direction of travel of the work whereby the edges of the work are crowded together during the feeding operation, and a plurality of anti-friction surfaces extending transversely of the line of travel of the work and engaging and underlying both belts the entire transverse distance thereof over which the belts travel, and means for placing a strip of tape along the joined edges, substantially as described.

3. In a machine of the class described the

combination of a table, means consisting solely of companion belts lying entirely upon one side of the work for feeding the work forward in a plane parallel to the top of the table, said belts converging toward one another in the direction of travel of the work whereby the edges of the work are crowded together during the feeding operation, idler pressure rollers located entirely upon the opposite side of the work for holding the work in engagement with the belts, means for preventing overlapping of the edges of the work during the feeding operation, a member intermediate the belts for preventing the bending of the edges of the work during the feeding and crowding operations, and a plurality of anti-friction surfaces extending transversely of the line of travel of the work and underlying and engaging both belts the entire transverse distance thereof over which the belt travels, and means for placing a strip of tape along the joined edges, substantially as described.

4. In a machine of the class described, the combination of a table, companion endless friction faced members for conveying the work along the table, at least one of which members travels in an oblique line, whereby the work is simultaneously fed forward and crowded together by the same operation of the same members, means for holding the work in engagement with the companion endless members, whereby the work is conveyed by frictional engagement therewith, and a non-yielding surface intermediate the members for preventing the bending of the edges of the work during the feeding and crowding operations, substantially as described.

5. In a machine of the class described, the combination of a table, companion sets of driving and driven pulleys below the table, friction surfaced endless members extending over said pulleys and acting as feeding members for the work, said endless members being arranged to extend convergent to one another, said table being provided with elongated slots through which said endless members project, the surfaces of the endless members extending parallel to the surface of the table, and idler pressure members above said endless members and engaging therewith, substantially as described.

6. In a machine of the class described, the combination of a table, companion sets of driving and driven pulleys below the table, friction surfaced endless members extending over said pulleys and acting as feeding members for the work, said endless members being arranged to extend convergent to one another, said table being provided with elongated slots through which said endless members project, the surfaces of the endless members extending parallel to the surface of the table, idler pressure members

above said endless carriers and engaging therewith, and means for adjusting said pressure members longitudinally and transversely of said carriers, substantially as described.

7. In a machine of the class described, the combination of a table, companion sets of driving and driven pulleys below the table, friction surfaced endless members extending over said pulleys and acting as feeding members for the work, said endless members being arranged to extend convergent to one another, said table being provided with elongated slots through which said endless carriers project, the surfaces of the endless members extending parallel to the surface of the table, idler pressure members above said endless members and engaging therewith, and means for vertically adjusting said pressure members with respect to said endless members, substantially as described.

8. In a machine of the class described, the combination of a table, companion sets of driving and driven pulleys below the table, friction surfaced endless members extending over said pulleys and acting as feeding members for the work, said endless members being arranged to extend convergent to one another, said table being provided with elongated slots through which said endless carriers project, the surfaces of the endless members extending parallel to the surface of the table, idler pressure members above said endless members and engaging therewith, a surface extending parallel with the top of the table and interposed between the two endless members, and a spring pressed shoe overlying said surface and overlapping the edges of said endless members, substantially as described.

9. In a machine of the class described, the combination of a table, companion sets of driving and driven pulleys below the table, friction surfaced endless members extending over said pulleys and acting as feeding members for the work, said endless members being arranged to extend convergent to one another, said table being provided with elongated slots through which said endless

carriers project, the surfaces of the endless members extending parallel to the surface of the table, idler pressure members above said endless members and engaging therewith, and means for applying a strip of adhesive tape to the joined edges of the work, substantially as described.

10. In a machine of the class described, the combination of a table, companion endless members, as belts, traveling across the surface of said table in a plane parallel with the top of said table and in a direction convergent to one another, movable members, as rollers, located above said endless members and cooperating with said endless members to frictionally engage the work and feed it forward, and means operatively connected for actuating the feeding mechanism, substantially as described.

11. In a machine of the class described, the combination of a table, companion endless members, as belts, traveling across the surface of said table in a plane parallel with the top of said table and in a direction convergent to one another, movable members, as rollers, located above said endless members and cooperating with said endless members to frictionally engage the work and feed it forward, means operatively connected for actuating the feeding mechanism, and means for adjusting the movable member longitudinally and transversely of the endless member, substantially as described.

12. In a machine of the class described, the combination with feed mechanism of a plurality of idler pressure members for holding the work in engagement with the feed mechanism, a mounting for each of said pressure members, a plurality of rods, each rod serving as a support for one of said mountings, a supporting member for each of the rods, a mounting in which each of the supporting members is adjustably held, and a bar in which said last named mountings are adjustably held, substantially as described.

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Witnesses:

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