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Sandberg

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[54] **DUAL DADO MACHINE**

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[73] Assignee: **Commander Industries, Inc.,** Red Bluff, Calif.

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[52] **U.S. Cl.** ..... **144/133 R,** 83/82, 83/417, 83/112, 144/136 R, 144/245 E, 144/253 F

[51] **Int. Cl.** **B27c 5/06,** B27f 1/08

[58] **Field of Search** ..... 83/417, 471.2, 471.3, 474, 83/488, 82, 112; 144/3 R, 3 A, 3 B, 3 C, 136 R, 133 R, 242 R, 242 K, 245 R, 245 E, 253 R, 253 F

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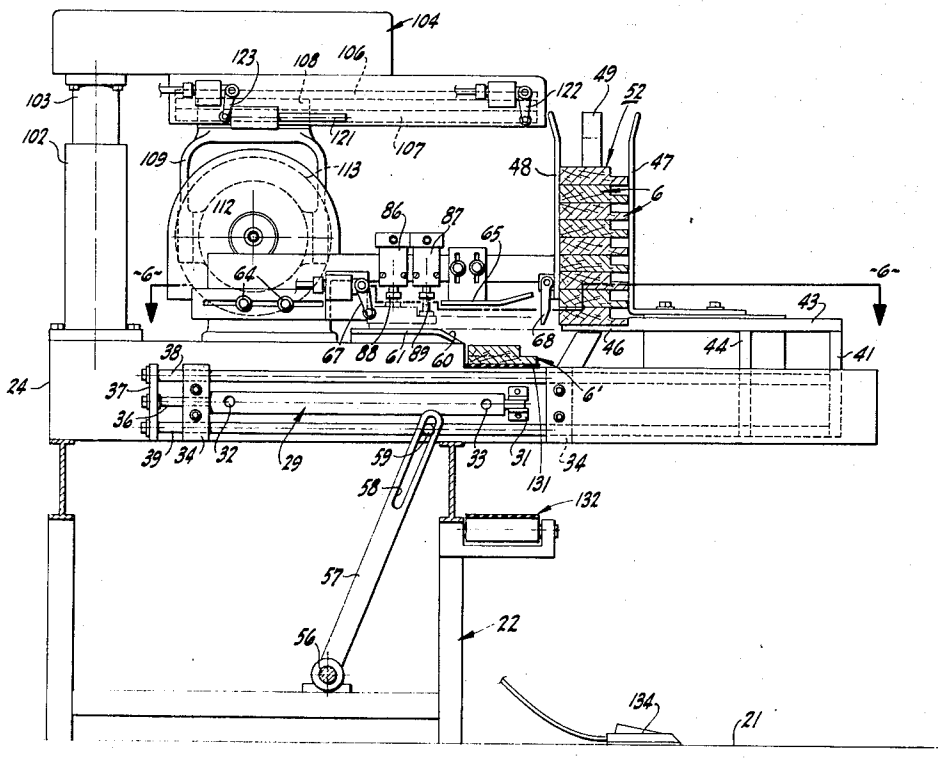
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Assistant Examiner—W. D. Bray
Attorney, Agent, or Firm—Lothrop & West

[57] **ABSTRACT**

For use with a work member such as a wood strip there is provided a dual dado machine with a main frame having at the front a magazine for a stack of several of the strips. The bottom strip is fed from the magazine simultaneously to occupy a couple of work sites on the main frame. The strip is accurately positioned endwise and is clamped on the main frame by hold down devices. A pair of dado cutters are movable simultaneously from the back of the main frame and in selectable and preferably converging paths through the work sites to make dado cuts through the top of the held strip. The cutters are then returnable to the back of the main frame. The cut strip is released by the hold down devices and is ejected from the machine. The operating sequences are preferably automatically controlled.

15 Claims, 7 Drawing Figures



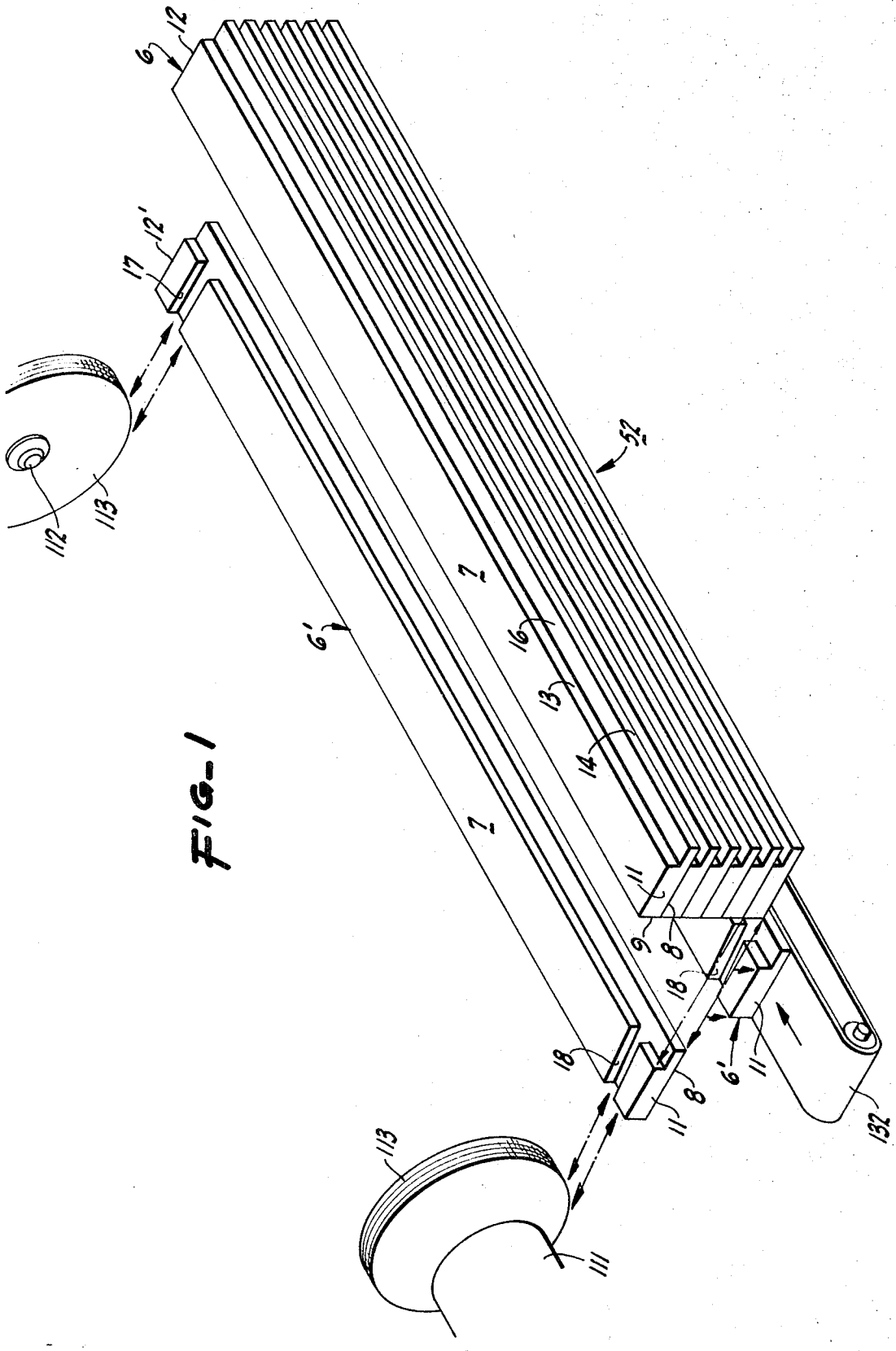


FIG_1

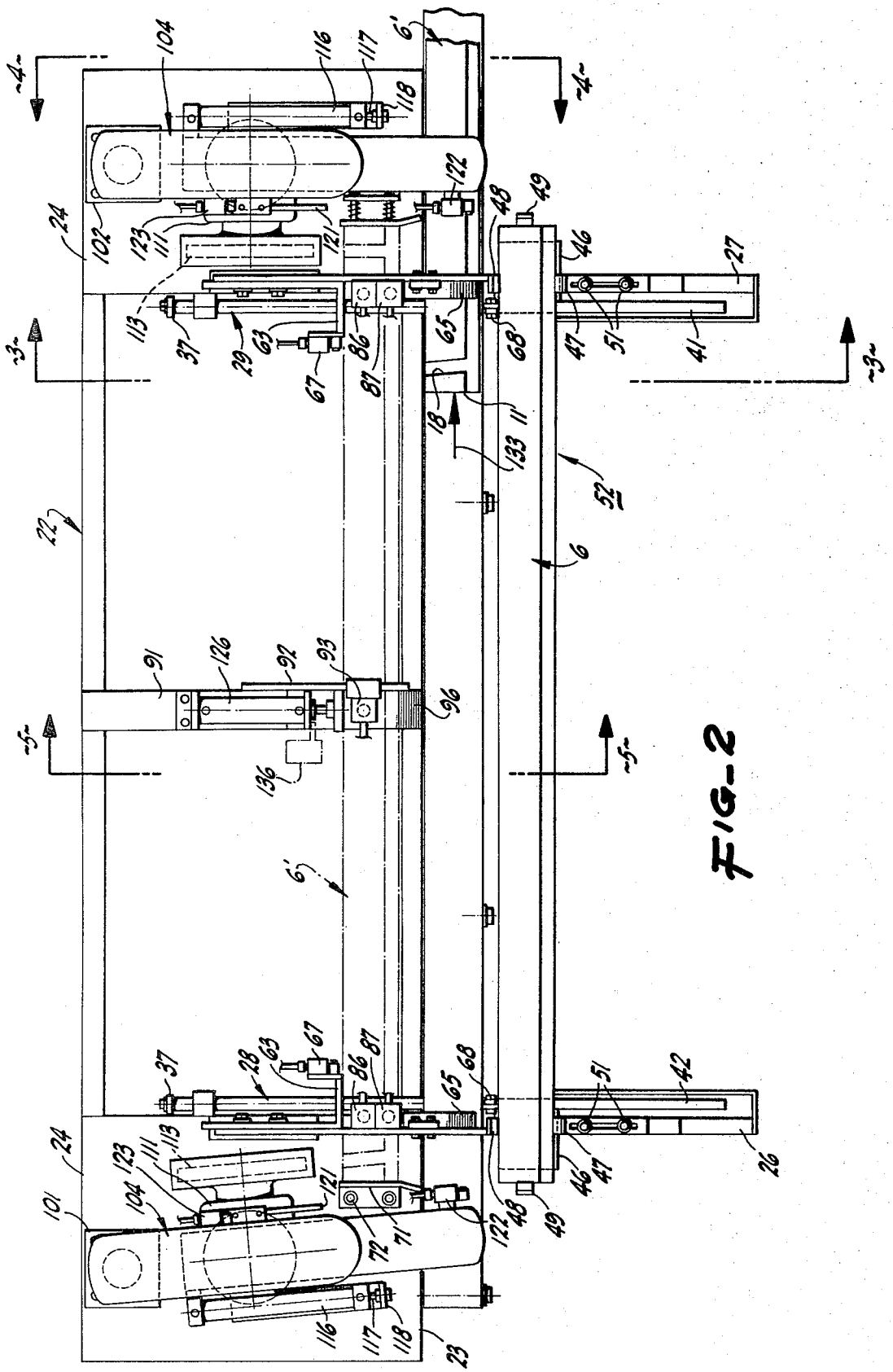
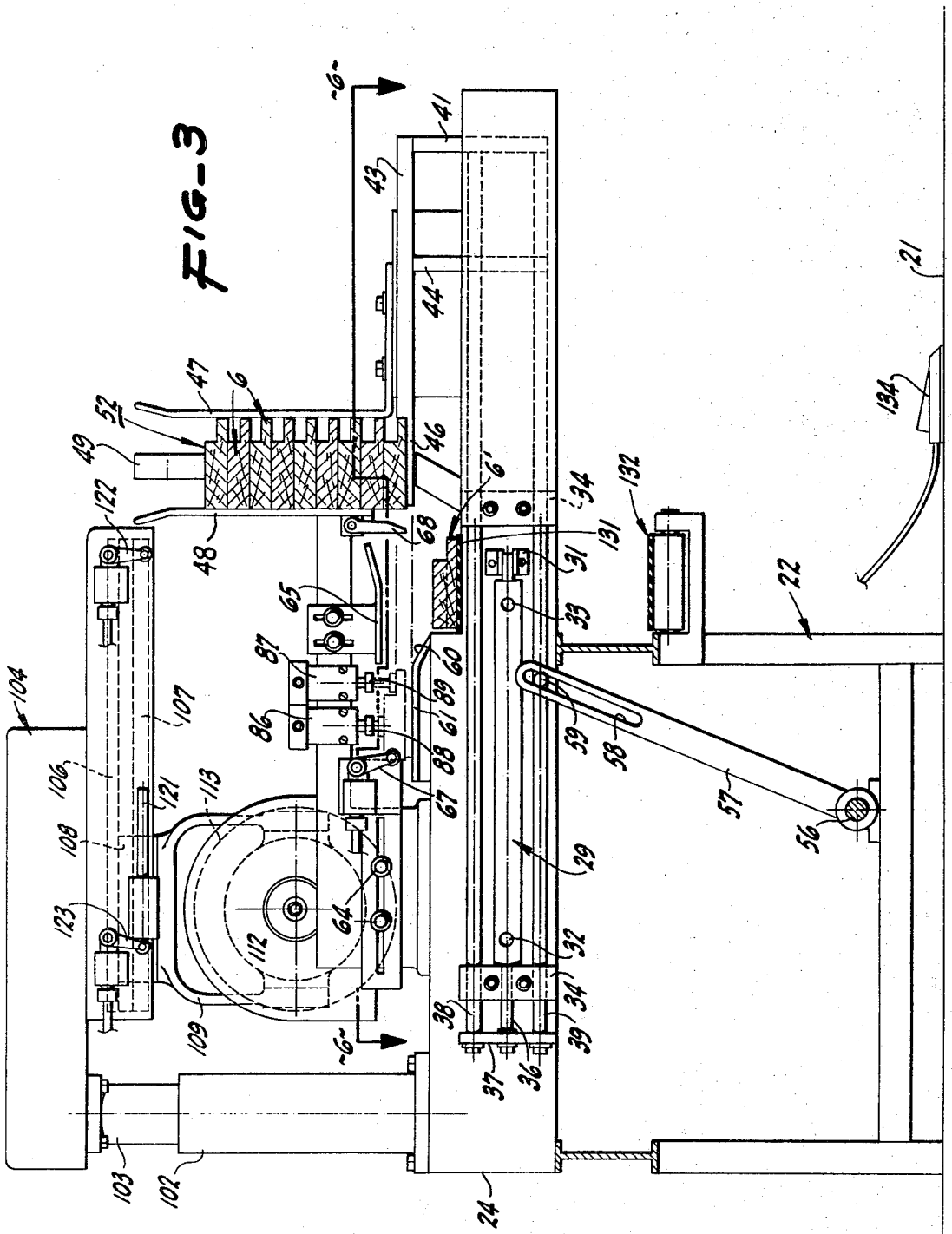

~4~
~4~
~3~
~3~
~5~
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104
116
117
118
6'
122
48
49
46
27
24
102
123
111
121
113
37
29
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67
86
87
65
68
47
51
41
18
133
111
52
22
6
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126
92
93
96
136
6'
37
28
63
67
86
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65
68
51
42
24
123
111
113
104
121
101
72
71
122
48
49
46
47
26
116
117
118
23

FIG-2

FIG-3


-6-
41
43
44
21
47
6
52
49
46
134
122
6'
34
132
48
68
131
31
65
33
22
87
60
104
107
86
89
61
59
58
106
121
113
88
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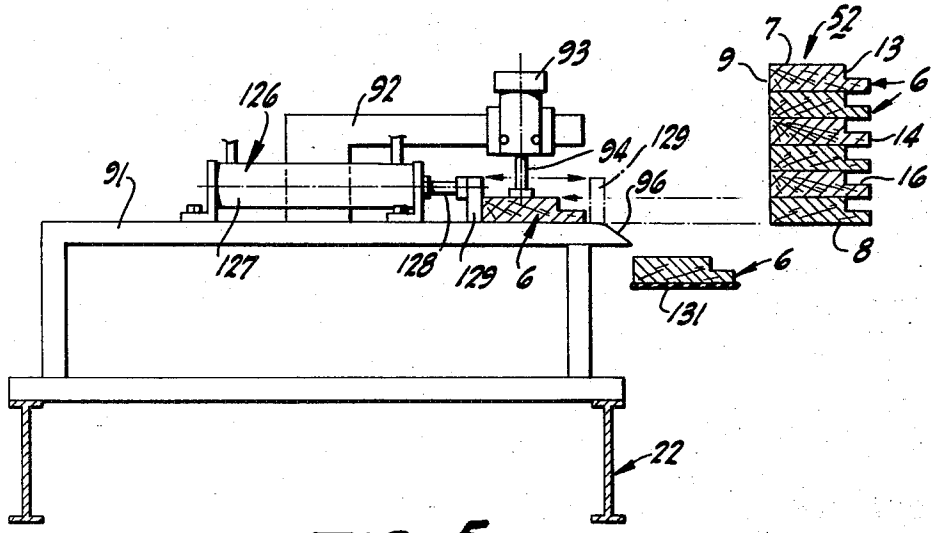
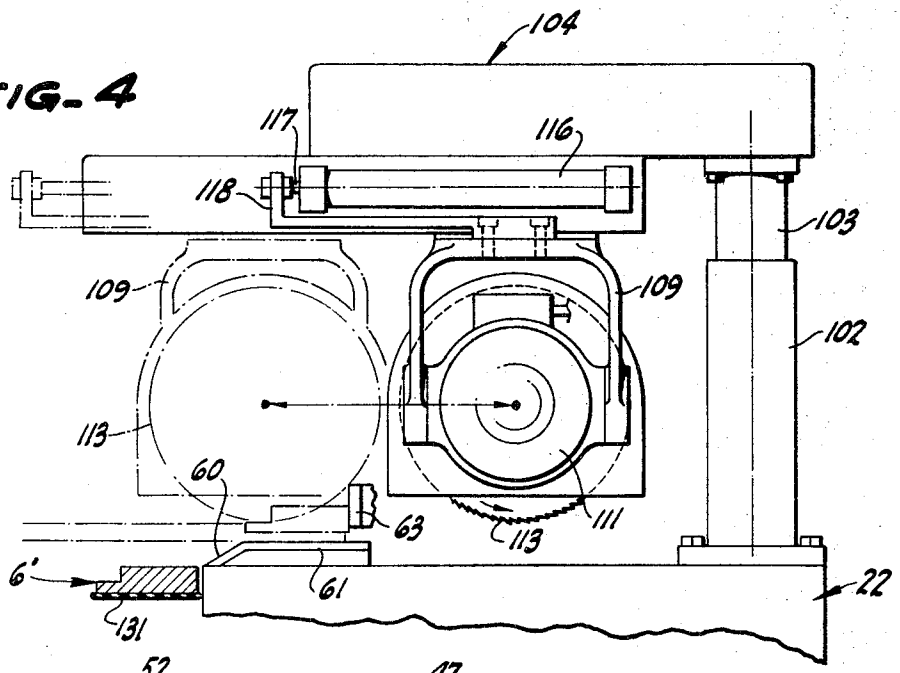


FIG-5

FIG-4



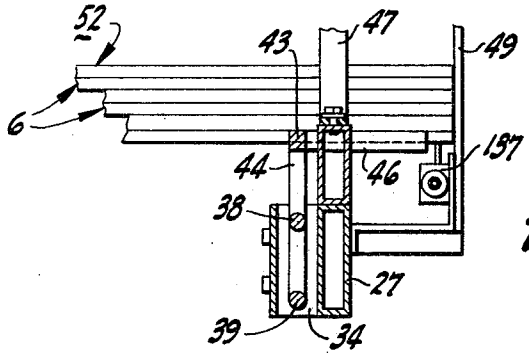


FIG-7

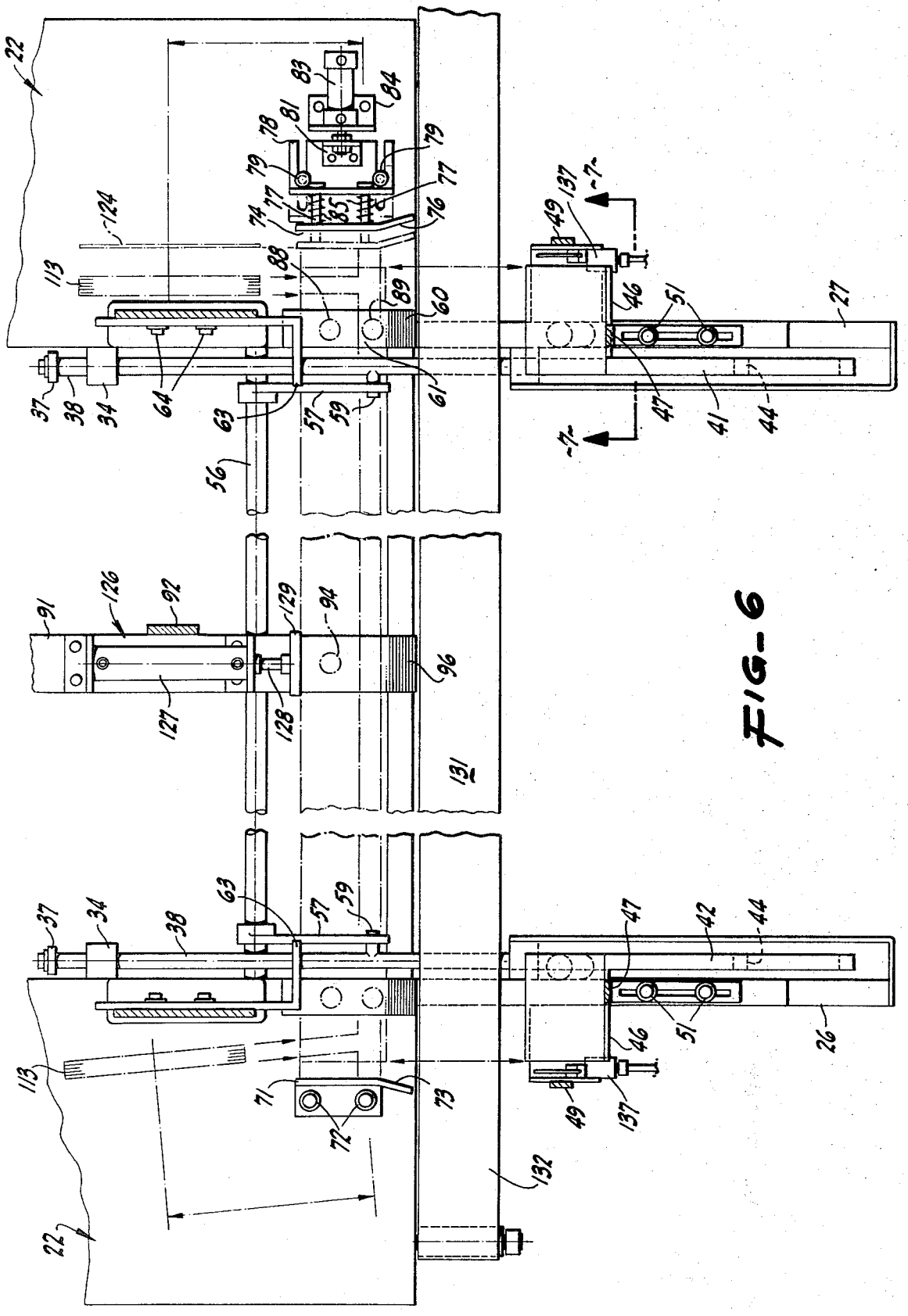

22
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85
76
124
113
88
89
60
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137
-7-
46
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-7-
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127
128
131
37
34
38
63
57
59
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42
44
46
51
26
113
71
73
72
49
137
132
22

FIG-6

DUAL DADO MACHINE

In the manufacture of various items from stock such as wood strip, there are often repetitive operations on successive pieces which can very economically be performed by machinery that is automatic or semi-automatic. It is important, however, that such machinery can readily be adapted to a wide variety of changes in the articles being worked on so that a variety of products can be turned out. Also in certain fields, such as the building industry, much of the work that formerly was done on the site by carpenters or comparable workmen is now more economically done in a central plant which furnishes the completed or nearly completed material for final use at the site.

One of the items which lends itself to factory production rather than individual fabrication on the site is the frame of a door. Such frames are usually standardized within relatively narrow limits and are made in quite similar fashion, although there are some variations in sizes and configurations. One of the parts of a door frame which lends itself to special construction is the vertical side rail of the frame. Such a frame usually has two side rails each with a dado or groove near one end for the frame head and another dado or groove, usually somewhat larger, and customarily inclined, to receive the door sill.

It is therefore an object of the invention to provide a dual dado machine effective to operate on the side member of a door frame simultaneously to cut the head dado and the sill dado in proper location and with proper dimensions and inclinations.

Another object of the invention is to provide a dual dado machine that can be used to operate on a single work member or can be operated automatically on a succession of work members.

Another object of the invention is to provide a dual dado machine that simultaneously makes a plurality of dado cuts in a work member.

A further object of the invention is to provide a dual dado machine that can readily be set up adjusted or arranged to afford a wide range of working configurations.

Another object of the invention is to provide a dual dado machine that can maintain a high degree of accuracy in its finished work.

A further object of the invention is to provide a dual dado machine which is relatively easy to construct, operate and maintain.

A further object of the invention is in general to provide a greatly improved dual dado machine.

Other objects, together with the foregoing, are attained in the embodiment of the invention described in the accompanying description and illustrated in the accompanying drawings, in which:

FIG. **1** is a diagram in isometric perspective showing the relationship of some of the major elements of the disclosure;

FIG. **2** is a plan of a machine constructed pursuant to the invention, a work member being shown therein by broken lines and certain parts being broken away to reduce the complexity of the showing;

FIG. **3** is a cross-section to an enlarged scale through the machine of FIG. **2**, the plane of section being indicated by the line **3—3** of FIG. **2**;

FIG. **4** is a cross-section showing a detail of the machine, the plane of section being indicated by the line **4—4** of FIG. **2**;

FIG. **5** is a cross-section of another detail of the machine, the plane of section being indicated by the line **5—5** of FIG. **2**;

FIG. **6** is a cross-section of the device, the plane of section being indicated by the line **6—6** of FIG. **3**; and

FIG. **7** is a detail shown in cross-section, the plane of which is indicated by the line **7—7** of FIG. **6.**

While the dual dado machine pursuant to the invention can be constructed in various different ways and particularly can be adapted for widely variant uses, it is explained herein in connection with its use commercially as a device for providing dados in the side rail of exterior door frame. Such side rail in one instance is received for further work by the dual dado machine from previous operations and is a work piece **6,** usually of wood, having a generally rectangular form with a top surface **7,** a bottom surface **8,** a side surface **9,** end surfaces **11** and **12** and composite side surfaces **13** and **14** spaced by a relatively small top surface **16.** The length of the work member **6** is more or less accurately cut previously at a predetermined value although for a nominal length of, say, 6 feet 9 inches, the actual, received length may vary about a half inch or so. However, the other bounding surfaces of the work piece are fairly accurately cut and the material is usually received in reasonably straight, unwarped condition.

Also shown in FIG. **1,** is a finished work piece **6'** which is substantially identical with the initially received work piece **6** except that its length is accurately cut and it is also provided with a frame head dado cut **17,** the bottom of which is substantially coplanar with the top surface **16** and the sides of which are usually normal to the top surface **7** and extend for the full width of the top surface **7.** The head dado cut **17** is a predetermined distance from the finished end **12'.** Near the other end **11** there is also provided a sill dado cut **18,** the bottom of which is substantially coplanar with the top surface **16** and the side edges of which are parallel to each other but are not normal to the side edges of the work member; i.e., the dado cut **18** converges toward the dado cut **17.** Furthermore, the dado cut **18** usually is somewhat wider than the dado cut **17.**

In order to start with a rough work member **6** and furnish a finished work member **6',** there is, pursuant to the invention, provided a dual dado machine, as largely shown in FIGS. **2** and **3.** The machine is erected on a floor **21** and includes a main frame, generally designated **22,** and made up of numerous shapes and angles preferably of metal and appropriately secured together to afford a generally rectangular, table-like support. The frame **22,** as particularly shown in FIG. **2,** is considerably longer than it is high or wide and hence is termed elongated and abitrarily has a front portion **23** and a rear portion **24.** Included in and supported from the other parts of the frame are stationary extensions **26** and **27** of somewhat box-like nature projecting from the front portion **23** and arranged generally parallel to each other.

Mounted on transversely extending portions of the main frame **22** are double acting cylinder mechanisms **28** and **29** which can be actuated by any suitable pressure substance, such as compressed air, or hydraulic

fluid. Preferably the actuation is by air. As an example, the cylinder mechanism **29** (FIG. **3**) is at one end provided with an anchor **31** to hold it stationary on the frame and is also provided with connections **32** and **33** to a suitable compressed air mechanism, not shown in detail. Much of the control piping, valving and other instrumentalities are omitted from the drawings to avoid complexity but the connections are generally standard and well known. The cylinder mechanism **29** is likewise held in frame blocks **34,** one of which also passes a piston rod **36** from the cylinder. A cross head **37** is secured to the piston rod **36** and likewise is connected to plunger rods **38** and **39.** These extend parallel to the cylinder and run toward the front of the frame where they are fixed to a magazine plunger frame **41.**

The cylinder mechaism **28** is a virtual duplicate of the cylinder mechanism **29** and is similarly connected to a duplicate magazine plunger frame **42** near the other end of the main frame. The machine is arranged in mirror symmetry about a vertical, transverse, central plane so that the description of one part of the structure in detail applies to a comparable structure in symmetrical relationship therewith.

Included in each of the magazine frames **41** and **42** is a feeding plate **43,** supported on reinforcing bars **44.** The feeding plate is a generally flat plate of uniform thickness except at one, cantilevered end whereat the feeding plate **43** has a cut in the upper surface to leave a shoulder and a relatively thin finger **46** projecting therefrom.

Designed to cooperate with the plates **43** are adjacent magazine holders each incorporating a pair of side bars **47** and **48** as well as an end bar **49.** These are inclined upwardly and outwardly at their upper ends and at their lower ends are secured by appropriate fasteners **51** to the main frame **22.** At least one of the sides bars, such as **47,** is preferably secured by the fasteners **51** in any one of several adjusted positions. The side members **47** and **48** are spaced to lie rather closely to the sides of a stack **52** made up of a number of work pieces **6** of whatever selected width is being operated on at a particular time. Usually the end members **49** are not made adjustable since there is only a small variation in length of materials handled and other mechanism, later described, is utilized for accurate positioning. In the position of the parts shown in FIG. **3,** the lowermost work member **6** by gravity rests upon the fingers **46** of the two feeding plates **43** when the plates are in an extreme position (right-hand) as seen in FIG. **3.**

For the operation of this portion of the mechanism, pressure fluid is admitted to the connection **33** of both of the hydraulic members **28** and **29** so that the piston rods **36** are expelled therefrom. This translates the pairs of rods **38** and **39** toward the left in FIG. **3** so that the rods as supported by the cross head **37** and as guided in the blocks **34** correspondingly translate the magazine plunger frames **41** and **42** toward the left.

In order to make sure that both magazine plunger frames **41** and **42** operatesynchronously despite possible pressure variations in the two hydraulic mechanisms **28** and **29,** there is provided on the main frame **22** a cross shaft **56** journalled for oscillation and at its opposite ends carrying a pair of levers **57,** each of which has a slot **58** in the outer end thereof interengaging a pin **59** on an adjacent one of the rods **39.** Thus, the piston rods **36** and the magazine frames **41** and **42,** although separately impelled, must necessarily travel in synchronism.

As the frames **41** and **42** move toward the left in FIG. **3,** the shoulders formed between the fingers **46** and the main plates **43** are in engagement with the side edge **14** of the lowermost one of the work pieces **6** in the stack **52.** The lower work piece is, therefore, displaced simultaneously near both ends toward the left in FIG. **3** but the immediately superposed work pieces, as soon as the lowermost one is clear of the stack, then drop down part way and the lower one rests upon the subjacent plates **43,** being temporarily supported thereby.

As the work piece **6** is thus displaced toward the left in FIG. **3,** it travels through an intervening space and then rides up on the cammed leading end of a pair of support shoes **61** and **62** having their upper surfaces substantially at the same level as the bottom of the transported work piece **6,** any slight discrepancy in elevation being taken care of by a cam surface **60.** Adjustably mounted upper shoes **65** having cammed entrances hold the moving work piece below a set elevation.

In the final portion of the leftward movement of the magazine frames **41** and **42,** the lowermost work piece **6** is shifted onto the shoes **61** and **62** until the work piece comes substantially into abutment with stops **63** adjustably positioned by fasteners **64** which hold them onto the main frame. Also during the final movement of the magazine frames, the work piece comes into contact with and moves a control lever **67** effective to reverse the power fluid connection to the cylinder mechanisms **28** and **29.** They no longer tend to move the carriage frames **41** and **42** toward the left in FIG. **3** but rather, with reverse connections, such members are reversed toward the right in FIG. **3** and eventually return to initial position.

Should the work piece not be left behind on the shoes **61** and **62** as desired, the work piece is nevertheless restrained by a depending pair of pawls **68** that permit advancement of work pieces into the machine but block retrograde movement thereof. The work piece is, therefore, delivered from the stack **52** to the shoes **61** and **62** and is ready for subsequent operations.

Since the length of the work member is not necessarily exact but since it is desired to have an appropriate datum point for the rest of the operations, there is provided, particularly as shown in FIG. **6,** a gauge angle **71** at the left end of the main machine frame **22.** This is appropriately mounted with adjustable securing devices **72** and has an inclined lead-in **73.** A work piece being advanced into the machine toward the shoes encounters the incline **73,** if necessary, but in any event comes to rest about opposite to and either against or slightly spaced from the gauge angle **71.**

In a comparable position but at the right end of the main frame **22,** there is provided a similar gauge plate **74** having an inclined lead-in **76.** In this instance, the gauge plate **74** is not fixed on the frame directly but rather has a pair of posts **77** guided in a frame **78** slidably guided by upright fastenings **79** on the main frame. The frame **78** has a connection **81** to the piston rod of a cylinder mechanism **83** fastened on the main frame but by a bracket **84.** With this mechanism there is afforded a wide entrance for the work piece which generally comes to rest approximately in position so far as its length is concerned and more or less distant from the gauge angle **71.**

When the cylinder mechanisms **28** and **29** are reversed, or slightly before that time, the cylinder **83** is energized with compressed air and is effective through the connections **81** to translate the frame **78,** to he left in FIG. **6,** through springs **85** to move the datum plate **74** tightly against the end of the work member. The urgency of the mechanism is such that the work member is moved lengthwise until its far end **11** firmly abuts the datum angle **71,** thus establishing the left end of the work member as the datum end from which all dimensions of length are measured. Should there be overtravel in the mechanism, the springs **85** yield to take it up and ascertain that no damage is done despite the use of a relatively strong positioning force. By this means the fed work member is accurately located laterally against the stops **63** and as well longitudinally against the datum angle **71.**

There is then imposed a further restraint upon the work member so positioned. At appropriate points on the main frame **22,** particularly as shown in FIG. **3,** there are mounted hold down devices **86** and **87.** These are virtually duplicates of each other, not only side-by-side but at the opposite ends of the machine. They are generally controlled simultaneously from the supply of compressed air. When operated there is a simultaneous expulsion of plungers **88** and **89** therefrom near both ends of the work member and in abutment with the top **7** and with the panel **16.** When pressure is exerted by the hold downs **86** and **87,** the force is sufficiently great as to hold the ends of the work piece substantially immobile.

In addition, there is sometimes provided on a central member **91** of the main frame (FIG. **2** and FIG. **5**) a bracket **92** supporting a single hold down device **93** having a plunger **94.** The hold down **93** is actuated simultaneously with the hold down **86** and **87** and comes into contact with the top surface **7** near the central portion of the work member which is so held against the front part of the central member **91.** The frame member **91** extends forwardly and has a beveled surface **96** corresponding generally to the cam surface **60.** The work member is initially easily positioned. In this fashion the work member is not only located at the back and at one end but is also clamped firmly in the center and adjacent both ends. Even if warped the work member is held substantially flat. When the hold downs are effective additional mechanism is brought into play.

A pair of dado cutting devices is disposed in the rear portion **24** of the machine. As illustrated especially in FIGS. **2** and **3,** from the main frame **22** near the rear corners thereof there arise supports **101** and **102.** Each of these is substantially like the other so that the description of one applies as well to the other. The supports are arranged substantially symmetrically and with their axes vertical. Each support, such as **102,** is tubular and contains a slidable and rotatable plunger **103** therein. The plunger can be clamped in position in the upright by appropriate, firm clamping means, not shown. The slidable and rotatable plunger **103** at its upper end carries a dado saw frame **104** which is movable in an arc about the axis of the mounting **102** and is movable vertically but always remains parallel to itself.

The frame **104** includes a pair of rectilinear ways **106** and **107.** Guides **108** included in a pivot frame **109** for an electric motor **111** slide between the ways **106** and **107.** On the shaft **112** of the motor is mounted a group of dado cutters **113,** as particularly shown in FIGS. **4** and **1.** The dado cutters are set for the desired width of the dado cut. The height at which the various frames are clamped is such that the dado cutters **113** at their lowermost extent coincide with the plane of the surface **16.**

In the usual positioning of these mechanisms, the frame **104,** at the right in FIG. **2,** is usually set so that the ways **106** and **107** are normal to the longitudinal dimension of the work piece. The left-hand saw frame, as shown in FIG. **2,** is usually set at somewhat of an angle so that the ways **106** and **107** thereof converge toward the front of the machine with respect to the right-hand member. This is illustrated in FIG. **1.**

As part of this arrangement, each of the frames **104,** as especially shown in FIG **4,** carries a hydraulic mechanism **116** anchored on the frame and having a piston rod **117** projecting in a forward direction therefrom and connected to an adaptor bracket **118** that is secured to the saw frame **109.** The connections to the hydraulic mechanism **116** are such that when pressure fluid is supplied thereto when the parts are in the position of FIG. **4,** the piston rod **117** is expelled and is moved toward the left in FIG. **4.** In turn, the bracket **118** moves the frame guides **108** through the ways **106** and **107** in the predetermined path.

While this action occurs the motor **111** is energized. The dado cutters **113** are advanced from the full line position shown in FIG. **4** to the broken line position therein through a sufficient distance to encounter and cut the held work piece on the shoes **61.** As the frame **109** advances and cuts through the work piece it also advances a reverse rod **121** (FIG. **3**) which ultimately comes into abutment with and actuates a control lever **122** at the extreme forward position of the motor frame. This reverses the pressure supply to the cylinder mechanism **116** and sends the piston rod **117** back into the cylinder, thus retracting the traveling saw frame to its initial position. Thereupon another control **123** is contacted to stop the cylinder mechanism **116.**

The effect of the traverse of a dado cutter is to provide the dado cut such as **17.** Simultaneously, the other dado mechanism on the support **101** is operating similarly and produces the dado cut **18.** The two cylinders **116,** both the right-hand and the left-hand ones, are simultaneously energized so that the two dado cutters operate in substantial synchronism. If desired, a cut-off saw **124** (shown dotted in FIG. **6**) can be included with the cutters **113** to make a finish end cut of the piece **6,** but usually this is done as a subsequent operation.

When the dado cutter frames **109** are retracted and back in their full line positions, as shown in FIG. **4** or in FIG. **3,** the cutting operation has been completed. Thereupon, preferably as actuated by the controller **123,** there is a release of the pressure fluid from the hold downs **86** and **87** as well as from the hold down **93,** thus removing the vertical restraint from the work member. At the same time, if it has not occurred previously, pressure fluid is released from the datum cylinder **83** so that the work member is free at its ends.

At this time an ejector mechanism **126** (FIGS. **2, 5** and **6**) is also conveniently supplied with actuating fluid. This mechanism includes a cylinder **127** secured to the frame bracket **91** and having a piston rod **128** extending therefrom. The rod **128** carries an ejector shoe **129** normally in abutment with or close to the rear face **9** of the work member. When the cylinder **127** is sup-

plied with air under pressure, the piston rod **128** is projected and the shoe **129** pushes on the central portion of the work member to advance the entire member toward the front of the machine. The work member travels over the inclines **60** and **96** and falls by gravity onto the upper run **131** of a conveyor belt **132** (FIGS. **1** and **2**) mounted on the main frame and disposed in the space intervening between the magazine portion and the hold down portion of the device.

The effect of the ejector shoe **129** is to clear the machine of the just completed work member to the extent of getting the finished work member low enough to be out of the way of the magazine. The upper run of the belt **132** which generally travels in the direction of the arrow **133** in FIG. **2** carries the work piece out of the machine. The cycle has thus been completed and the machine is available to recycle and to repeat the operation with the now lowermost work member in the magazine.

The new cycle can easily be initiated by an operator depressing a foot pedal **134** (FIG. **3**) which reenergizes the cylinder mechanisms **28** and **29.** If desired, this can also be accomplished automatically by a switch mechanism **136** effective when the ejector mechanism **126** is restored to its retracted position and when one or more sensing switches **137,** mounted on part of the magazine structure, are activated. That is, the next or lowermost work member can start to be removed from the magazine when the ejector **126** is home after its just-finished ejection, provided there is in fact a subsequent work member available in the lowermost position of the magazine and resting upon the switches **137** (see FIGS. **2, 6** and **7**). Under the automatic mode of operation a machine operator is not necessary. It is then ony necessary to keep the magazine loaded with work members, each work member going through the cycle, as described, and being provided with a pair of dado cuts, as described, and being ejected from the machine automatically on the belt **132.**

There are many variations possible with this particular setup. For example, in the event it is desired to make only one dado cut in a work member, it is simple to deenergize one of the dado cutters and even to swing it out of the way, if preferred. Furthermore, additional dado cutters can be employed in the same fashion as the two dado cutters described. Also, work members of different lengths, widths and thicknesses can be accommodated by appropriately setting or adjusting the machine. The controls can be arranged for manual operation but preferably so that each element, when it has finished its cycle, automatically energizes the next succeeding element. Alternatively, the device can be provided with a central program control to operate each of the various control instrumentalities from a central point and in accordance with a timed program.

The operation of the device is initiated by actuation of the foot pedal **134** by an operator or, in the automatic mode, by the presence of at least one work member **6** supported on the switches **137** located adjacent the opposite end bars **49** (see FIGS. **6** and **7**)

In other words, the weight of even a single work member on the switches **137** is sufficient to actuate the switches **137.** If no work member is present in the magazine, the switches **137** will not be actuated, thereby providing a self-terminating feature in the automatic mode.

If the two switches **137** are actuated, however, by the presence of a work member, and if the ejector mechanism **126** has returned to base, or home, position so as to actuate the switch mechanism **136** (see FIG. **2**), the concurrent actuation of the three switches will initiate the new cycle of operation.

At the start of the cycle, compressed air is valved by operation of the foot pedal **134** or the actuation of the switches **136** and **137** into the connections **33** in the double acting cylinder mechanisms **28** and **29,** thereby ejecting the plunger rods **38** and **39** in a rearward direction so that the two feeding plates **43** displace the lowermost work member **6** in the magazine toward the left, as it appears in FIGS. **1** and **3,** onto the support shoes **61** and **62** and into abutment with the control lever **67** which reverses the power fluid connection to the cylinder mechanisms **28** and **29,** thereby returning the feeding plates **43** to the base position shown in full line in FIG. **3.**

At the time the cylinder mechanisms **28** and **29** are reversed by actuation of the control lever **67,** the cylinder **83** is energized with compressed air, so as to abut the work member against the datum angle **71** (see FIG. **6**); and substantially instantaneously thereafter the pairs of hold down devices **86** and **87** located at both work sites go into operation, together with the central, single hold down device **93** (see FIG. **2**), thereby securely clamping the work piece adjacent both ends and in the center.

At this juncture, the two dado cutters **113** are advanced toward the front by actuation of the cylinder mechanism **116** and engage and cut the work member **6,** as indicated most clearly in FIG. **1.** As the reverse rod **121** mounted on the dado frame **109** (see FIG. **3**) engages the control lever **122,** the pressure connections to the cylinder mechanism **116** are reversed and the two dado frames are retracted toward base position. Upon reaching base position, the control lever **123** is contacted, thereby stopping the cylinder mechanism **116** and completing the cutting operation.

Thereupon, preferably as actuated by the control lever **123,** pressure is released from the two end pairs of hold downs **86** and **87** and the central hold down **93.** Concurrently, if not before, pressure fluid is released from the datum cylinder **83.**

The work member **6** is thereby freed of all restraints and, through operation of the ejector mechanism **126** (see FIGS. **2, 5** and **6**), is urged forwardly, passing over the inclines **60** and **96** and falling by gravity onto the conveyor belt **132** for transfer to another location.

The cycle is thus completed and the machine is ready to recycle with a new work member in lowermost position in the magazine. As previously indicated, the new cycle is initiated either by actuation of the foot pedal **134,** by an operator, or by return of the ejector mechanism **126** to base position thereby actuating the switch **136** which cooperates with the sensing switches **137** to commence the new cycle in the automatic mode.

What is claimed is:

1. A dual dado machine for use with an elongated work member having top, bottom and end surfaces comprising an elongated main frame extending through two work sites, a magazine on said frame for supporting a stack of said work members, means on said main frame for transferring a work member from said stack in said magazine to said work sites simultaneously, means on said main frame for holding said work mem-

ber in said work sites, a pair of dado cutters, means for simultaneously moving both of said dado cutters on said main frame transversely and each into and out of a respective one of said work sites, and means on said main frame for ejecting said work member from said main frame.

2. A machine as in claim **1** including means responsive to the presence of a work member in said work sites for controlling operation of said transferring means.

3. A machine as in claim **1** including means responsive to the presence of a work member in said work sites for controlling operation of said moving means.

4. A machine as in claim **3** in which said controlling means is effective to move said dado cutters simultaneously into said work sites and then simultaneously out of said work sites.

5. A machine as in claim **1** in which said moving means includes means for guiding said dado cutters to move in predetermined paths.

6. A machine as in claim **5** in which said paths are converging.

7. A machine as in claim **5** in which said paths are parallel.

8. A machine as in claim **1** including means for urging said work member longitudinally in said work sites.

9. A machine as in claim **8** including a datum block and in which said urging means is effective on an end of said work member in a direction toward said datum block.

10. A dual dado machine for use with an elongated work member having top, bottom and end surfaces comprising an elongated main frame having a front portion and a rear portion, a pair of supports upstanding from said main frame in said rear portion thereof and spaced apart longitudinally of said main frame, dado cutter guides on said supports and extending transversely of said main frame, dado cutters movable along said guides, means on said main frame for simultaneously so moving said dado cutters, means on said main frame for holding a work member in a predetermined position for substantially simultaneous engagement by said moving dado cutters, and means for movably connecting at least one of said dado cutter guides to the respective one of said supports.

11. A machine as in claim **10** including means for establishing a predetermined travel of said dado cutters on said guides.

12. A machine as in claim **10** including means disposed on said front portion of said main frame for feeding a work member into said predetermined position on said main frame.

13. A machine as in claim **10** including means on said main frame for ejecting a work member from said predetermined position into said front portion of said mainframe.

14. A machine as in claim **13** including a conveyor on said main frame in said front portion thereof for receiving a work member from said ejecting means.

15. A machine as in claim **12** including a magazine for a stack of work members mounted on said main frame in said front portion thereof and for supplying said work members to said feeding means.

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