

Oct. 23, 1962

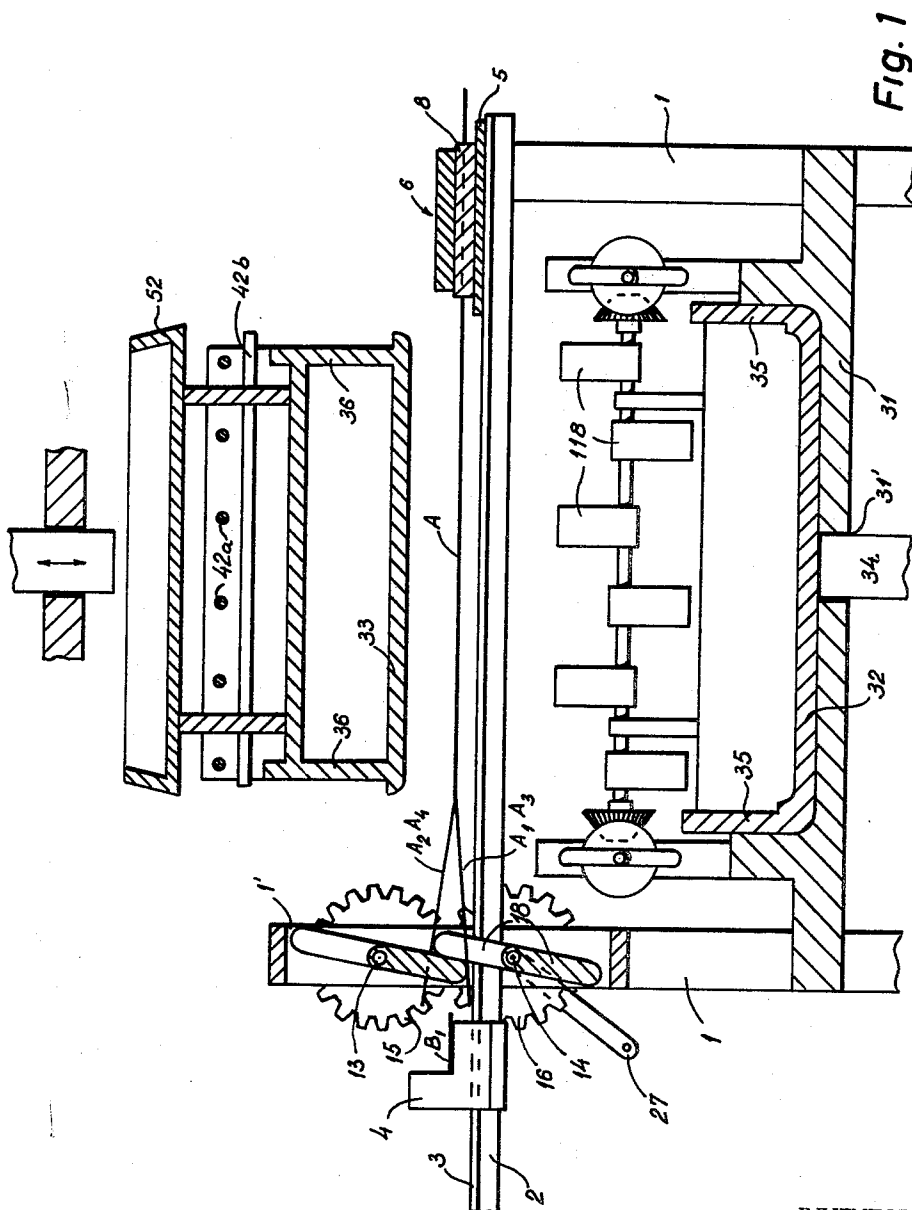
I. GREENSPAN

3,059,668

WEAVING MACHINE FOR WICKERWORK

Filed Nov. 16, 1960

3 Sheets-Sheet 1



INVENTOR.
Isaac Greenspan

BY

Michael S. Striker
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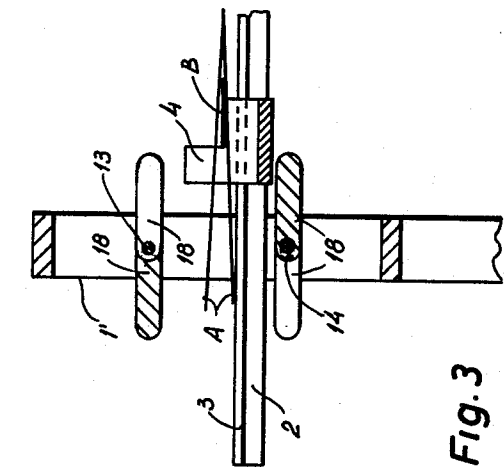


Fig. 3

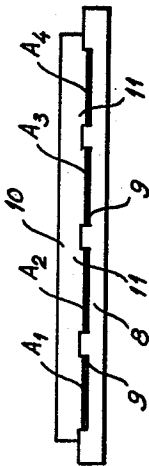


Fig. 4

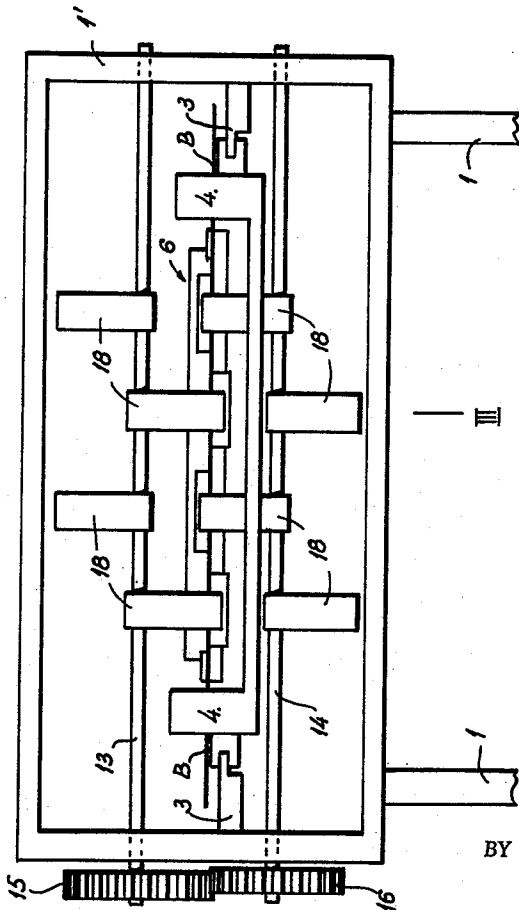


Fig. 2

INVENTOR.

Isaac Greenspan

Michael S. Striker
Attorney

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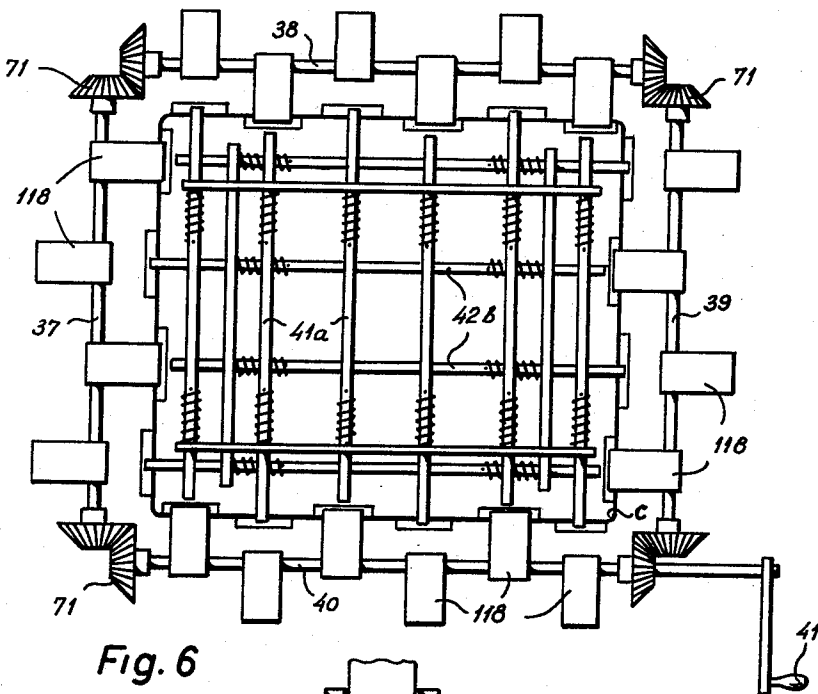


Fig. 6

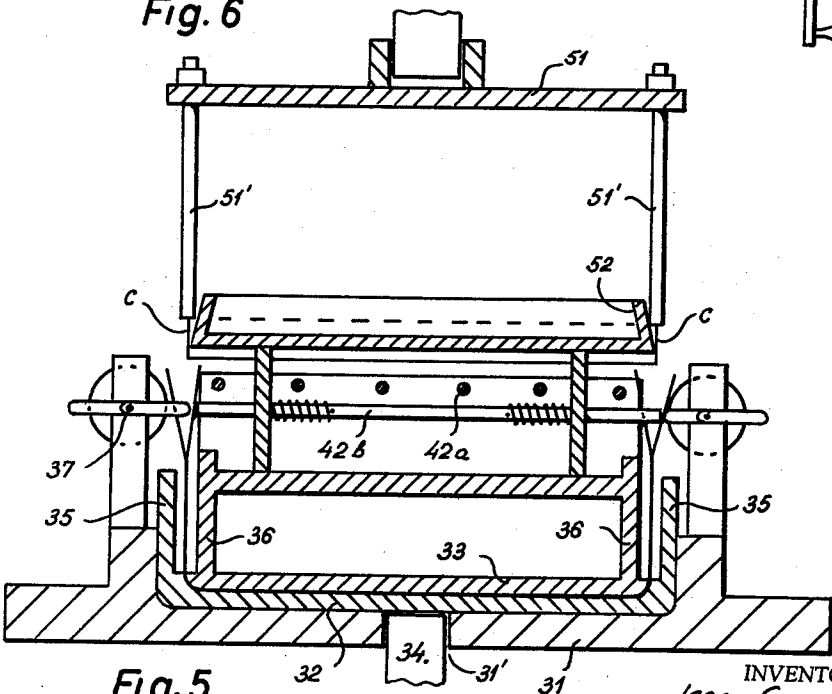


Fig. 5

INVENTOR.
Isaac Greenspan

BY

Thickael S. Striker
Attorney

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3,059,668

WEAVING MACHINE FOR WICKERWORK
Isaac Greenspan, 19 Kirjat Sefer St., Tel-Aviv, Israel

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2 Claims. (Cl. 139—28)

The present invention relates to a machine for the production of crates or baskets made from two sets of strips of wood which two sets are plaited or interwoven so as to result in a basket. Up till now this has been done by hand as a slow and cumbersome task, especially in cases where the strips are not very pliable and are, therefore, not easily bent.

It is an object of the present invention to provide a machine for speedier and cheaper production of such baskets.

It is a further object of the invention to use strips of materials too stiff to be easily bent and plaited by hand.

It is another object of the invention to assure a uniform quality for the product of the new machine.

This machine comprises in principle an emplacement for holding fixedly a plurality of wooden or similar strips at or near one of their ends in parallelism to each other and in a common plane, at least one rotatable shaft extending across said plane and at a short distance therefrom, said shaft being located at a distance from said emplacement substantially equal to the length of the strips to be used, said shaft carrying excenters of a height greater than the said short distance, and designed to abut intermittently against the free ends of the wooden strips when rotated, the arrangement being that subsequent excenters are directed in alternating order to opposite directions so that the free ends of alternating strips are, on impact, diverted out of their plane thus forming an open shed, means being provided for introducing in the so formed sheds crosswise extending strips at the free ends of the first mentioned strips and pushing said crosswise extending strips towards the fixed ends of the other strips. In practice there are used two parallel rotatable excenter-carrying shafts having a common drive being provided at both sides of the plane of the parallel wooden strips, the location and direction of the excenters being such that alternating excenters of one shaft act on alternating strips while alternating excenters of the second shaft act simultaneously on the strips between the first named ones from the opposite directions thereby forming the shed.

The machine and its function will be described in the following detailed description in connection with the drawings in which FIGURE 1 is a schematical vertical section of the machine in "open" position. FIGURE 2 is an end view in the direction of the arrow II in FIGURE 1. FIGURE 3 is a vertical section on line III—III of FIGURE 2 with certain parts in a different position. FIGURE 4 shows a side view of a detail from FIGURE 1, FIGURE 5 is a section similar to that of FIGURE 1, but in "closed" position, several parts being omitted for clarity's sake. FIGURE 6 is a plan view of FIGURE 5.

The machine stands on legs 1 to which are fixed two parallel horizontal beams 2 of rectangular cross-section (only one of which is shown in FIGURE 1), forming part of the basic framework of the machine. Each beam is provided with a longitudinal horizontal rib 3, the two ribs facing one another. On these ribs is slidably arranged a carrier 4 on the top of which can be held a strip of wood B₁ for transport towards and into the "shed" mentioned above, to form finally part of the set "B" of the strips. At one end the beams 2 are rigidly interconnected by a cross-beam 5 which, on its top, carries an emplacement 6 for temporarily holding a number of strips "A" near one of their ends and parallel to each

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other. This emplacement is removably held on cross-beams. It comprises a rectangular lower part 8 (see FIGURE 4) which part has a number of parallel grooves 9 extending parallel to ribs 3 in beams 2. Grooves 9 are of a width equal to, and of a height slightly greater than the dimensions of the profiles of the strips to be used. On upper or top part 10 of the emplacement fits on part 8. Part 10 has protrusions 11 in its underside entering grooves 9 of part 8. By clamping the two parts together after introduction of the said strips A₁—A₄ the latter are held fixedly in the machine near one of their ends, extending with the greater part of their length into the machine towards carrier 4 and in a plane slightly above the plane of the top faces of beams 2. At that end of the machine opposite of the emplacement 6 there extend two shafts 13, 14 across the machine and parallel to one another. The ends of these shafts are held rotatably in two of the legs 1 which, for that purpose, are extended above beams 2 to form uprights 1'. Shaft 13 extends a short distance above beams 2, while shaft 14 extends below said beams. They are interconnected by meshing toothed wheels 15, 16 for a common drive which may be in the form of a crank handle 27 or a motor. On both shafts are fixed a number of blocks 18, serving as excenters. On each shaft they are at a distance from each other equal to the intended distance between neighbouring parallel strips 4, and extend alternately to opposite directions. The excenters on the two shafts are arranged above each other, thus forming pairs, and extend in the same direction, each pair destined to act on the same strip, at different times, one from above and the other from below. The two shafts turn in opposite directions.

The machine works as follows: Four slats "A" are clamped in the emplacement 6 so as to extend with the greater part of their length cantilever-like between shafts 13, 14 towards carrier 4. In the actual position shown in FIGURE 1, two strips, A₂, A₄, rest with their free ends on top of two upturned excenters 18 of shaft 14 and are thereby diverted upwardly out of the horizontal. The two other strips, A₁, A₃, are by two excenters of shaft 13 bent downwardly. Thus a "shed" is formed between the open ends of strips A₁, A₃ and A₂, A₄. The cross strip B₁ lying on carrier 4 is now shifted into said shed by the carrier being moved forwardly. The movements are so coordinated that immediately before strip B₁ comes into contact with the excenters the latter are turned through 90° (see FIGURE 3), permitting strip B₁ to pass and to proceed until it abuts against the last strip of the "B" set already in place. After that the carrier is withdrawn, the shafts with their excenters are turned through a further 90° assuming a position whereby the ends of strips A₁, A₃ are moved upwardly and those of strips A₂, A₄ downwardly. A further strip "B" is now introduced as already described and so on. During forward movement the strips "B" rest and slide with their free ends on top of the beams 2 and remain there even when already in place. By opening the clamps of part 6 the plaited strips can be removed from the machine.

The strips are now interwoven at their center parts, the ends extending freely in a common plane into four directions. These free ends are now bent upwardly and are united by interweaving with other strips C-shaped into a closed rectangle with the strips standing on edge. This is done as shown in FIGURES 1, 5 and 6.

The interwoven strips are clamped between a lower part 32 and an upper part 33 between which parts the plaited strips are held with their central portions. These clamping means are accommodated on a base 31, having a central opening 31'. Into this opening extends from below a ram 34. Part 32 is a rectangular plate with upturned sides 35. The upper part 33 fits on plate 32

and also has upturned sides 36. Between sides 35 and 36 remains a free space in which are accommodated with play the free ends of strips A and B. The height of said side walls is such that the strip ends emerge on top. Above said emplacement, slightly outside the latter and parallel to its four sides extend four horizontal shafts 37, 38, 39, 40 in appropriate bearings and provided with cams 118 similar to shafts 13, 14 already described. These shafts are interconnected for common rotation by bevel gears 71, and shaft 40 is also provided with a crank handle 41. In substantially the same plane as the shafts and in line with the planes of the rotating cams extend across the emplacement, suitably guided in bearings for a to and fro movement, spring biased rods 42a, 42b, to serve as counter-pressure means in cooperation with the respective cam in the following way. With the turning of the shafts alternating cams will bend alternating strips inwardly for the formation of sheds as already described. The rods opposing those cams will yield to the pressure and move backwards. Thus the said strip ends are held at both faces by the cams and the rod ends respectively. With further turning of said cams the rods will move forward again, forcing the strip ends outwardly. But in the meantime the alternating cams press on the alternating strips, repeating the performance described above, creating a shed again. Into these sheds is inserted edgewise from above by means of an up and down movable plate 51 carrying in its four corners four vertical rods 51', a strip C, its ends closed and bent into a rectangle. It is forced downward as far as possible by the rods 51' into the space between the upturned side walls 35, 36, whereupon part 51 is retracted upwardly. Thereupon a new rectangle C is slid over a stationary frame 52 which also serves as a guiding means for frame 51. The new strip C is now in a position to be forced downward to be interwoven with the upstanding ends to form finally the side walls of the basket. "Passing over" and "passing under" positions of the plaited strips will alternate regularly. After finishing of the side walls, ram 34 is moved upwardly, forcing parts 32, 33, together with the finished basket out of base 31, whereupon the basket is removed from the machine. Instead of wood similarly rigid strips, e.g. of plastic material may be used for the whole or for part of the basket.

I claim:

1. A machine for making baskets from interwoven slats of substantially rigid material comprising, in combination, support means; clamping means mounted on said support means for clamping a first plurality of slats in the region of one of the ends thereof substantially parallel to and spaced from each other and in a common plane; at least one rotatable shaft mounted on said support means and extending in the region of the other ends of said slats transversely across said plane and spaced a short distance from the latter; a plurality of eccentrics mounted on said shaft for rotation therewith, said eccentrics being respectively aligned with said slats and alternatively projecting in opposite direction a distance greater than said short distance so as to deflect during rotation of said shaft alternating slats out of said plane

to thus form an open shed; means for successively introducing into the thus formed open shed crosswise extending slats from the free ends of said first plurality of slats and for pushing each of said crosswise extending slats toward but short of the clamped ends of said first plurality of slats so as to form two sets of slats extending substantially at right angles to each other, interwoven at a center portion thereof and having free end portions projecting from said center portion; means mounted on said support means for clamping said interwoven center portion and for bending the free end portions of said interwoven slats, after release of said clamped ends of said first plurality of slats, in upward direction so that the free end portions are arranged along four sides of a square prism; four rotatable shafts arranged outside said square prism and respectively parallel to the sides thereof in the region of the free ends of said upwardly bent slat portions; a plurality of eccentrics mounted on each of said four shafts for rotation therewith and respectively aligned with the upwardly extending end portions of said slats and the eccentrics on each shaft alternatively projecting in opposite direction to deflect during rotation of said shafts the free ends of said upwardly bent portions of alternating slats to form a shed; a plurality of counter pressure means at the interior of said square prism and respectively aligned with said last mentioned eccentrics for cooperation therewith; and means for inserting suitably sized square shaped rings of strips of substantially rigid material into the shed formed by the end portions of said slats for forming four side walls of a basket.

2. In a machine for making baskets from slats of substantially rigid material interwoven with each other at the center portion thereof and having free end portions projecting from said center portion, in combination, means for clamping said interwoven center portion and for bending the free end portions of said interwoven slats in upward direction so that the free end portions are arranged along four sides of a square prism; four rotatable shafts arranged outside said square prism and respectively parallel to the sides thereof in the region of the free ends of said upwardly bent slat portions; a plurality of eccentrics mounted on each of said four shafts for rotation therewith and respectively aligned with the upwardly extending end portions of said slats and the eccentrics on each shaft alternatively projecting in opposite direction to deflect during rotation of said shafts the free ends of said upwardly bent portions of alternating slats to form a shed; a plurality of counter pressure means at the interior of said square prism and respectively aligned with said eccentrics for cooperation therewith; and means for inserting suitably sized square shaped rings of strips of substantially rigid material into the shed formed by the end portions of said slats for forming four side walls of a basket.

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