

Dec. 22, 1925.

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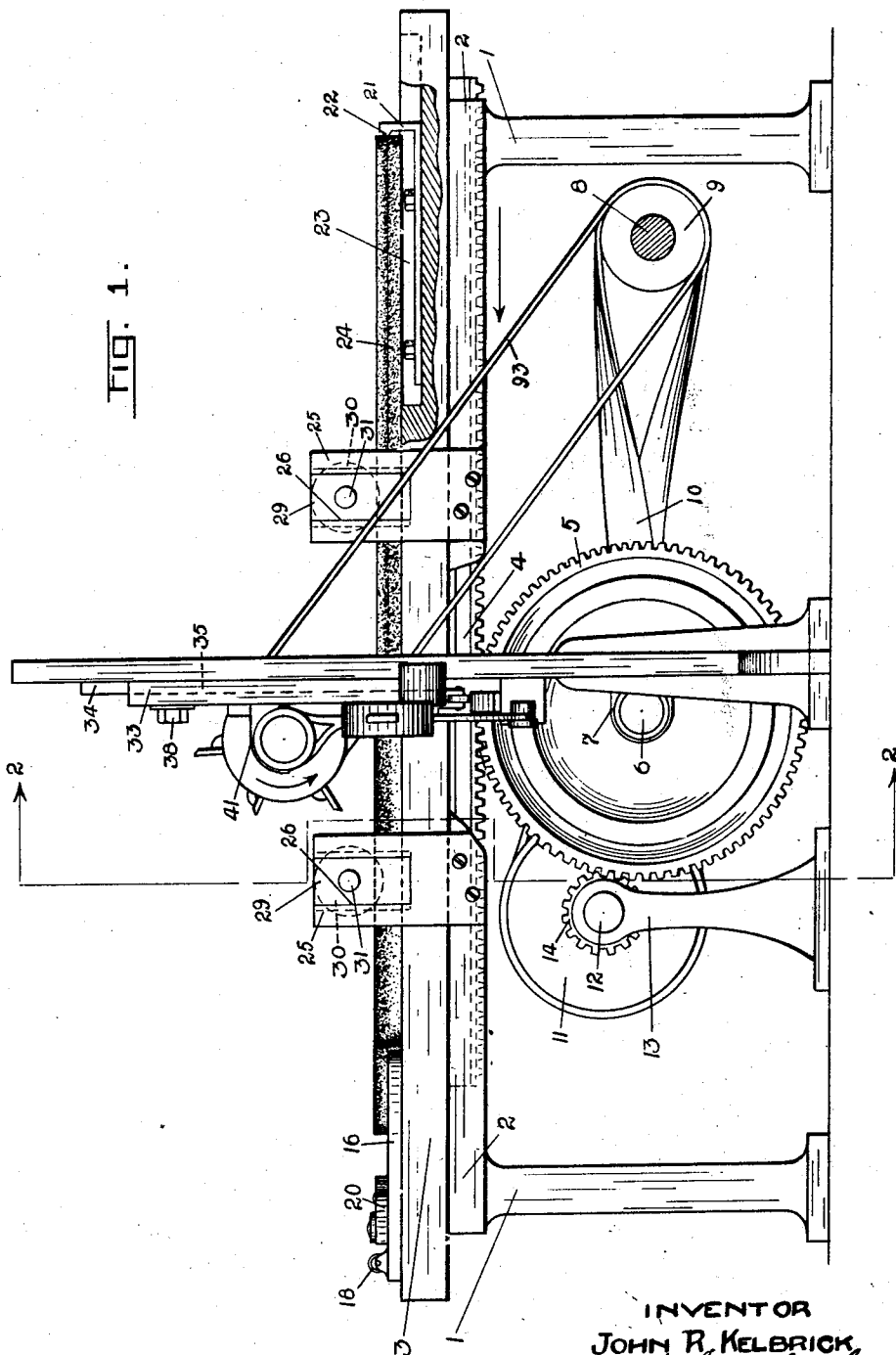
J. R. KELBRICK

PADDLE MAKING MACHINE

Filed Oct. 18, 1922

3 Sheets-Sheet 1

FIG. 1.



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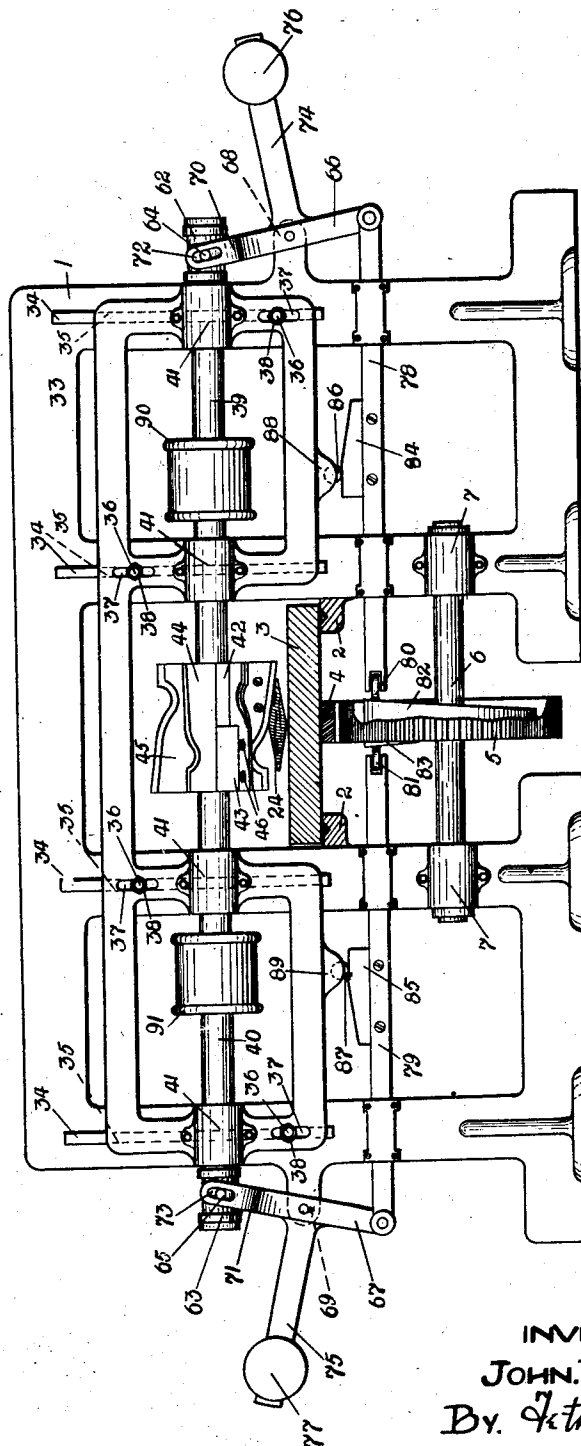
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3 Sheets-Sheet 2

FIG. 2.



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UNITED STATES PATENT OFFICE.

JOHN ROBERT KELBRICK, OF PETERBOROUGH, ONTARIO, CANADA.

PADDLE-MAKING MACHINE.

Application filed October 18, 1922. Serial No. 595,353.

To all whom it may concern:

Be it known that I, JOHN ROBERT KELBRICK, a subject of the King of Great Britain, and a resident of the city of Peterborough, in the county of Peterborough, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Paddle-Making Machines, of which the following is the specification.

My invention relates to improvements in paddle making machines and the object of the invention is to devise a machine in which each side of the paddle blade and handle portion can be made in one operation, the paddle being passed through the machine twice for forming the complete paddle.

A further object is to devise a positive means for holding the paddle blank in position as it is passed through the machine and a still further object of the invention is to devise a combined blade and handle portion cutter in which complementary knives are secured to independent shafts, which in addition to being rotated, are capable of inward and outward movement for bringing the knives into the required position to cut the paddle blade or handle portion.

Another object is to devise means for lowering and raising the cutter shafts vertically so as to position the knives correctly for cutting the handle portion or the blade portion of the paddle, as the case may be.

My invention consists of a paddle making machine constructed and arranged all as hereinafter more particularly described and illustrated in the accompanying drawing in which:

Fig. 1 represents a side elevation of a machine.

Fig. 2 is a reduced vertical cross sectional view through the line 2—2 Figure 1.

Fig. 3 is a reduced plan view.

Fig. 4 is an end elevation of the cutter, showing the mounting of the knives thereon, and

Fig. 5 is a vertical longitudinal section therethrough taken on the line 5—5 Figure 4.

Like characters of reference indicate corresponding parts in the different views.

1 is the frame of the machine, provided with the longitudinally extending horizontally spaced apart rails 2. 3 is a paddle carrying table slidably mounted on the rails 2 and having secured thereunder the toothed rack 4 which meshes with the gear 5, which

is in turn secured to the laterally extending shaft 6 mounted in suitable bearings 7 on the main frame 1.

8 is the main shaft adapted to be driven by any suitable means and provided with pulleys 9, one of which is connected by the belt 10 to the pulley 11 mounted on the laterally extending counter-shaft 12 which is rotatably supported in the bearings 13, said counter-shaft having secured thereto the pinion 14 which meshes with the gear 5.

15 and 16 are opposed grips having their inner faces shaped substantially the shape of the paddle handle, said gripping pieces being hinged to the table 5 by the pins 17. 18 is a spring secured to the free ends of the grips 15 and 16, and 19 is a lever pivotally connected to one grip 15 intermediately of its length and its inner end pivotally connected to the link 20 which is in turn pivotally connected to the other grip 16.

21 is an upwardly extending stop having the tooth 22, said stop being adjustably secured in an indented portion 23 on the table 3 at the opposite end to the grips 15 and 16. 24 is the paddle blank which is sawed to the approximate shape prior to being placed on the table 3. 25 are vertically disposed brackets having the recesses 26 extending down from the top thereof, said recesses being provided with the grooves 27 into which are inserted the tongues 28 of the slides 29. 30 are opposed conical rollers having their outer ends provided with the stub shafts 31 journaled in the slides 29 and said opposed rollers 30 being joined by the neck 32. Two pairs of rollers are provided, one pair being positioned on each side of the cutter.

33 is a subsidiary frame slidably mounted in a vertical direction on the main frame 1 above the table 3, said frame extending transversely thereof. In mounting the subsidiary frame 33 on the main frame I provide outwardly extending ribs 34 on such main frame adapted to be inserted into corresponding grooves 35 in the abutting face of the subsidiary frame 33, such grooves and ribs constituting slides for the subsidiary frame. 36 are bolts extending outwardly from the main frame through vertical slots 37 in the subsidiary frame and the ends being provided with nuts 38 for holding the subsidiary frame in position against the main frame, although permitting it to slide relatively thereto in the vertical direction.

39 and 40 are independent horizontal shafts, each journaled in bearings 41 on the subsidiary frame, the adjacent ends of the shafts 39 and 40 being positioned in proximity to each other at substantially the centre of the machine. The shafts 39 and 40 are provided at their inner ends with the triangular spiders 42 and 43 respectively, such spiders being oppositely positioned on such shafts, as is illustrated in Figure 5 of the drawings.

44 and 45 are knives suitably secured respectively to the spiders 42 and 43 by the bolts 46, said knives being offset from the centre of the spider but each lying substantially parallel to one side thereof. It is to be understood that three knives are provided on each spider, such knives being set at substantially an angle of twenty degrees to each other and the knives 44 on the spider 42 interposed between the knives 45 on the spider 43, and each knife slidably connected to the opposed spider to that to which it is secured, by the bolts 46. This is achieved in each instance by the sides of the spiders being provided with dove-tailed grooves 47 into which are inserted dove-tailed projections 48 on the opposed spider, the knives being secured to such dove-tailed tongues by means of the screws 49. Each knife is provided with a cutting edge 50 inclined towards the spider from its outer end to a recessed cutting portion 51 situated intermediately of the length of the knife, said recess being substantially the arc of a circle. The adjacent ends of the spiders 42 and 43 have cut-away portions 143 and 144 respectively, adapted to receive the reduced threaded ends 52 and 53 of the shafts 39 and 40, said threaded ends being provided with the nuts 54 and 55 for securing the plates 56 and 57 in engagement respectively with shoulders 58 and 59 in such cut-away portions, thus holding the spiders against inward displacement on such shafts. Keys 60 and 61 are provided between the shafts 39 and the spider 42 and between the shaft 40 and the spider 43 for preventing the rotation of the spiders on such shafts.

62 and 63 are collars rotatably mounted on the outer ends of the shafts 39 and 40 and provided with the pins 64 and 65 respectively. 66 and 67 are opposed levers suitably fulcrumed on the opposed brackets 68 and 69 on the main frame and the upper ends of the levers 66 and 67 being provided with forks 70 and 71 straddling the collars 62 and 63, and each side of the forks of such levers having respectively the slots 72 and 73 adapted to receive the pins 64 and 65 respectively. 74 and 75 are arms extending outwardly from the opposite levers 66 and 67 and provided with suitable weights 76 and 77 at their outer ends. The lower ends of the levers 66 and 67 are provided respec-

tively with inwardly extending slides 78 and 79 with rollers 80 and 81 which engage corresponding cam faces 82 and 83 on opposite sides of the gear wheel 5, said slides being slidably mounted on the main frame 1.

The slide 78 is provided with the cam block 84 extending upwardly therefrom and the slide 79 is provided with an opposed cam block 85 similar to the cam block 84, said blocks engaging respectively the rollers 86 and 87 journaled on the depending brackets 88 and 89 on the subsidiary frame 33. 90 and 91 are flanged pulleys secured to the shafts 39 and 40 and connected by the belts 92 and 93 with the pulleys 9 on the main shaft 8.

The operation of my machine is as follows:

The paddle blank 24 is placed on the table 3 and is secured thereto by inserting the tooth 22 into the blade end thereof and inserting the handle end between the opposed grips 15 and 16 which has been spread apart as is illustrated in dotted lines in Figure 3. When such handle is in the required position the lever 19 is swung over into the position shown in full lines in Figure 3, drawing the free ends of the grips together and they are held in position by means of the spring 20.

The main shaft 8 now rotates and through the medium of the driving connections described above, the gear wheel 5 is rotated in an anticlock-wise direction which will move the rack 4 and table 3 in the direction indicated by the arrow indicated in Figures 1 and 3, thus causing the paddle blank to travel under the cutter with the handle portion first. As the handle portion of the paddle blank 24 engages the cutter, the knives of which are rotating in an anticlock-wise direction through the medium of the belt drives from the shafts 39 and 40 to the main shaft 8, such handle portion will be cut by the respective sets of knives 44 and 45 on one side, such sets of knives being then in the position illustrated in Figure 3 wherein the shafts 39 and 40 and the spiders 42 and 43 with the sets of knives 44 and 45 thereon, are slid into their outermost position through the medium of the levers 66 and 67, the slides 78 and 79 engaging the cam faces of the cams 82 and 83. The knives are shown in the blade cutting position in Figure 2 of the drawings and as the blade portion is reached, the rollers 80 and 81 travel up their respective cam faces, thus permitting the outward movement of the slides 78 and 79 and the lower ends of the levers 66 and 67 with the corresponding inward movement of the upper ends of such levers and the consequent inward movement of the shafts 39 and 40, thus moving the spiders 42 and 43 with the sets of knives 44 and 45 thereon to their innermost position

when each set of knives register one with another and the blade portion is cut.

During this drawing out of the respective portions of the cutter and the actuation of the slides 78 and 79 to achieve this result, the cam blocks 84 and 85 on such slides move inwardly and permit the rollers 86 and 87 respectively to slide down the inclined faces of such cam blocks wherein the subsidiary frame 3 will be lowered, and with it the cutter, when it is in the position illustrated in plan in Figure 3, that is, cutting the handle portion.

The oppositely positioned conical pairs of rollers 30 hold the paddle blank in position on the table during the feeding operation and when the handle portion is fed through the cutters to reduce the neck 32, rollers thereon hold the handle portion down on the table as well as the blade portion.

When the table 3 reaches the end of its run by operating the lever 19 into the position shown in Figure 3, the handle portion is released and the paddle, which is now shaped correctly on one side is removed and the table restored to its initial position when either another paddle blank is placed in the machine or the particular paddle blank which has been finished on one side is turned over with the finished side down on the table and secured in this position thereto, so that when it is run through the machine again, the remaining side of the blade and handle portion is finished, thus completing the entire shaping of both the blade and handle portion in two operations. All that is now necessary is to put the paddle on a sanding machine or to sandpaper it to the desired finish, by hand.

From the above description it will be seen that I have devised a simple and effective paddle making machine which will form the paddle into the desired shape from a blank in two operations and thus do away with the necessity of having to shape the paddles by hand, as is now the case, which involves a very lengthy and laborious process. In making a paddle on a machine construct-

ed according to my invention it will be seen that there are only four operations necessary to make the paddle from the blank. The first which forms no part of the present invention is the shaping of the blank on a band-saw to substantially the profile of the paddle, then running the paddle through my machine as above described, and then finishing it by sandpapering.

Although I have described my device as being particularly applicable to the manufacture of paddles, it is to be understood that it could with equal facility, by changing the shape of the knives, be used to manufacture oars.

What I claim as my invention is:

1. In a paddle making machine, the combination with the main frame, of a subsidiary cutter shaft carrying frame vertically slidable on the main frame, a pair of shafts independently journaled end to end on the subsidiary frame, a pair of oppositely positioned levers fulcrumed on the main frame, inwardly extending slides connected to their lower ends, their upper ends being pivotally connected to the shafts, means coacting with the inner ends of the slides for intermittently forcing them outwardly in unison, and means on the slides coacting with the subsidiary frame for lowering and raising the latter upon the slides being moved inwardly and outwardly.

2. In a paddle making machine, the combination with the main frame, of a subsidiary cutter shaft carrying frame vertically slidable on the main frame, a pair of shafts independently journaled end to end on the subsidiary frame, a pair of oppositely positioned levers fulcrumed on the main frame, inwardly extending slides connected to their lower ends, their upper ends being pivotally connected to the shafts, means coacting with the inner ends of the slides for intermittently forcing them outwardly in unison, opposed cam blocks on the slides and rollers on the subsidiary frame engaging said cam blocks.

JOHN ROBERT KELBRICK.