No. 661,642. Patented Nov. 13, 1900.

J. M. HOMMEL.

TOOTHPICK MACHINE.

(Application filed Jan. 5, 1900.)

(No Model.) 4 Sheets—Sheet 1.

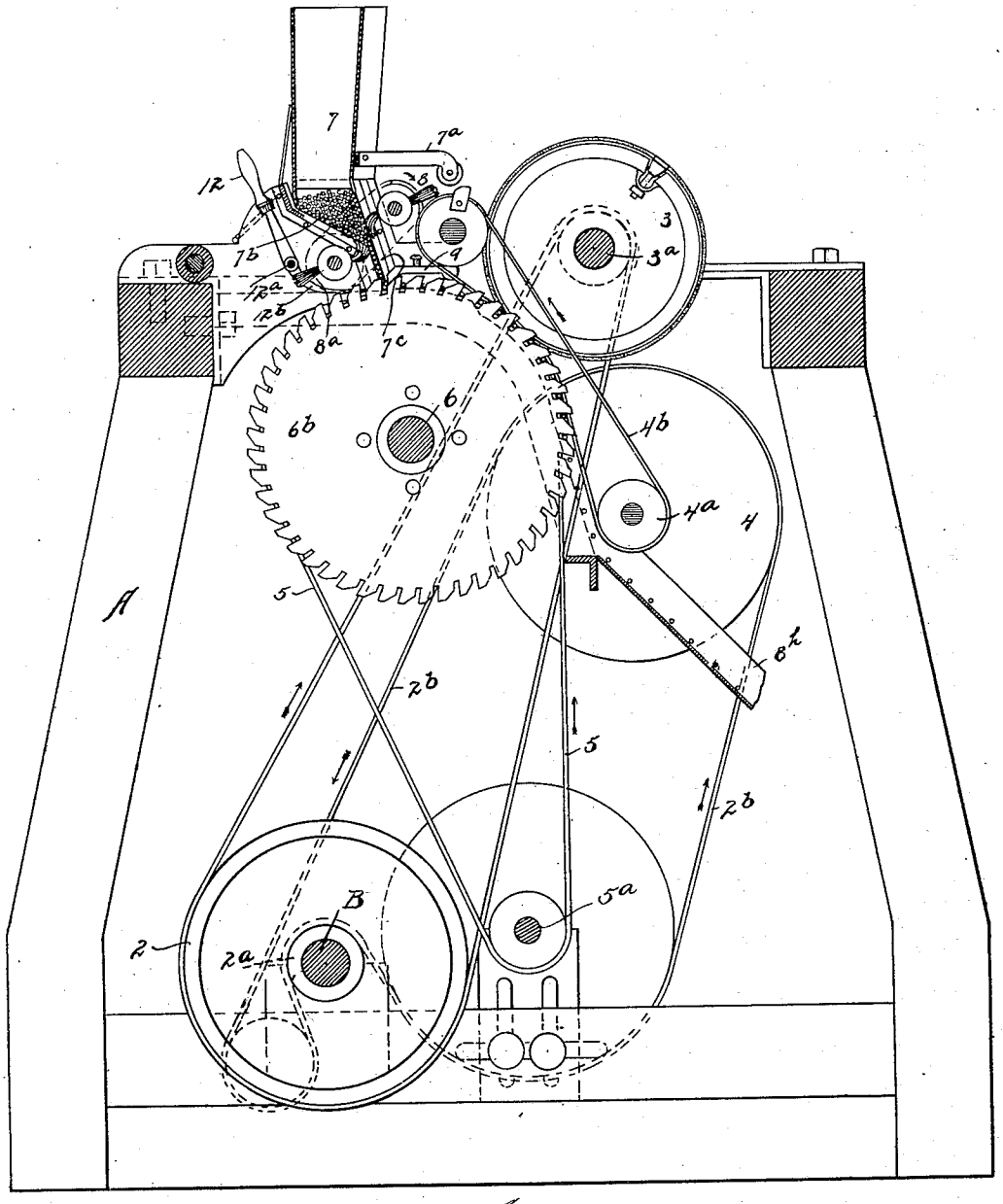


Fig. 1.

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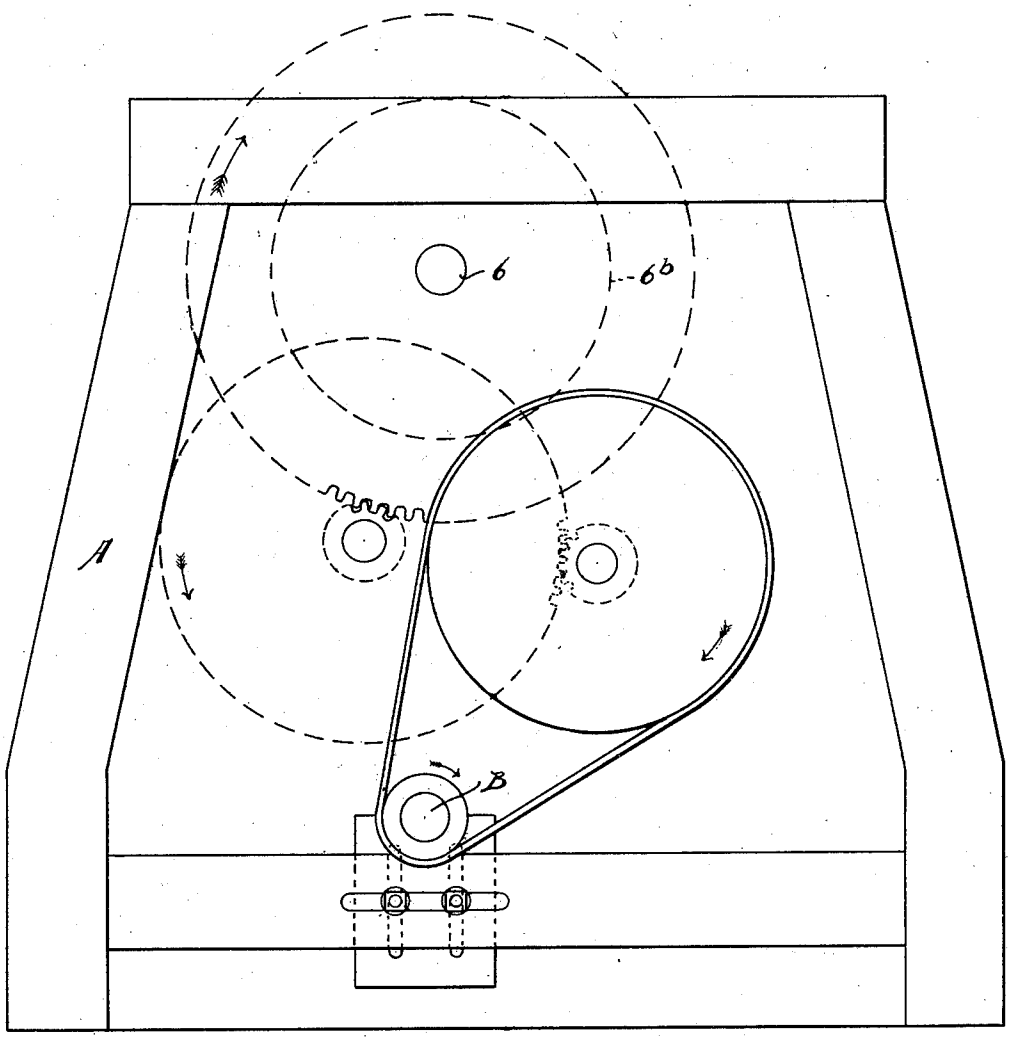


Fig. 2.

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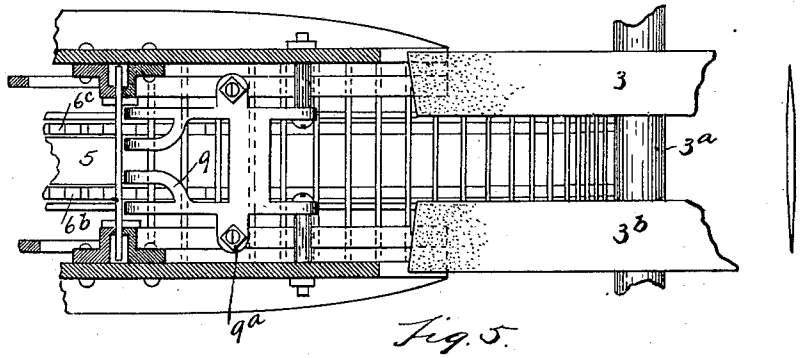


Fig. 5.

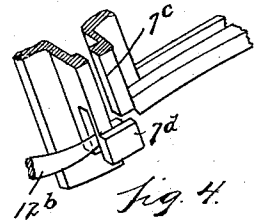


Fig. 4.

Fig. 3.

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(No Model.)

4 Sheets—Sheet 4.

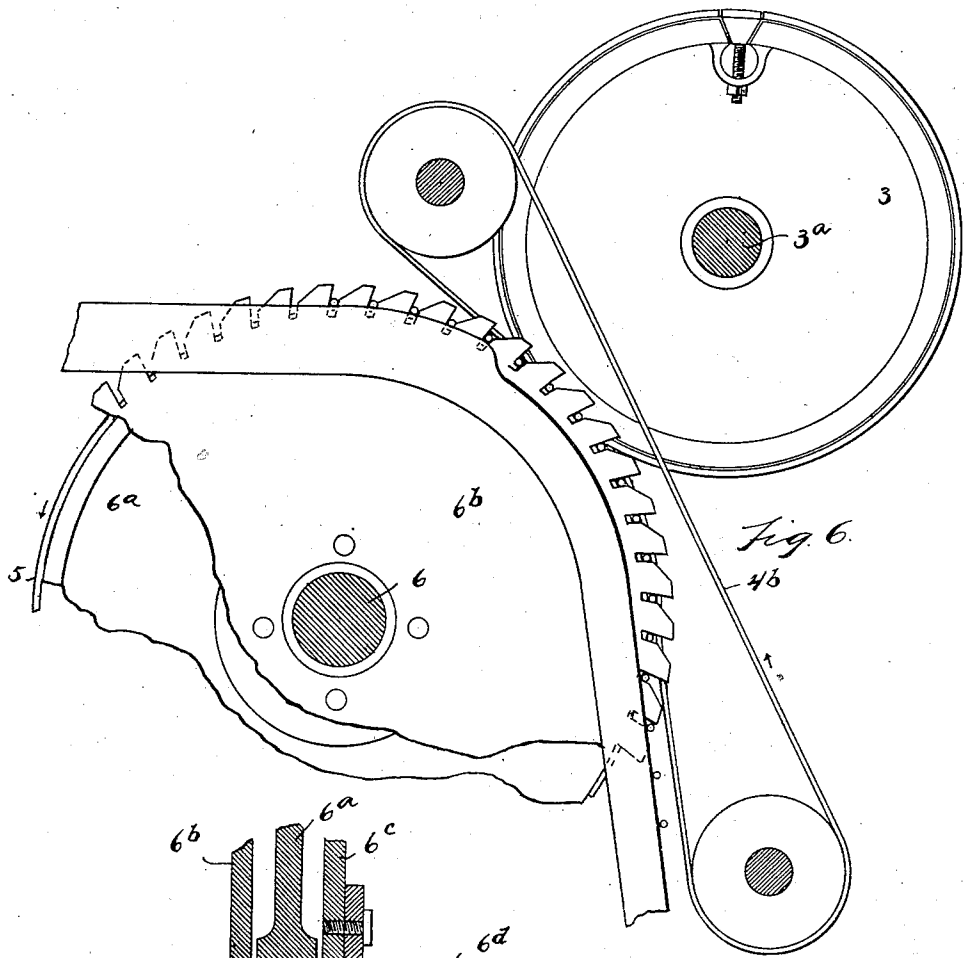


Fig. 6.

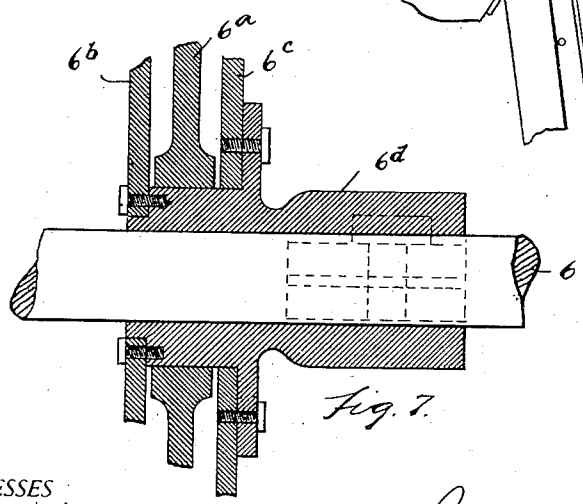


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOSEPH M. HOMMEL, OF DETROIT, MICHIGAN, ASSIGNOR TO THE NATIONAL TOOTHPICK COMPANY, OF SAME PLACE.

TOOTHPICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 661,642, dated November 13, 1900.

Application filed January 5, 1900. Serial No. 418. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. HOMMEL, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Toothpick and Skewer Machines; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to machines for sharpening and finishing toothpicks, and has for its object an improved machine intended to finish wooden toothpicks, wooden skewers, or similar articles with a sharp point at one end or at each end.

The machine which is shown is one constructed to sharpen toothpicks at both ends.

In the drawings, Figure 1 is a sectional elevation. Fig. 2 is an end elevation and shows the gearing and belting. Fig. 3 is a sectional elevation of the feeding mechanism. Fig. 4 is a detail of parts shown in Fig. 3, which are employed to stop the feed while the machine continues in action. Fig. 5 is a plan view of the carrying-wheel and the grinding-wheels. Fig. 6 is an elevation showing a part of the carrying-wheels and a belting by means of which the toothpicks are rotated during the time of forward progress. Fig. 7 is a detail of the hub arrangement of the carrying-wheel and a band-wheel which is connected with the carrying-wheel, but rotates at a different rate of speed therefrom.

The machine consists of a carrying-wheel provided with pockets into which the toothpicks are dropped singly and by which they are carried forward and subjected to a rotating abrading-wheel. The important parts of the machine are those by means of which the toothpicks are fed from a hopper to the carrying-wheel, are straightened in their progress through the hopper and from the hopper to the pockets in the carrying-wheel, and are dropped singly into the pockets. Another important feature of the machine is found in the actuating-belt, between which the body of the toothpick is carried by the carrying-wheel and by which the toothpick is rapidly rotated while in the pocket, and another important feature is found in the grinding-wheels, which act in conjunction with the carrying-wheel and with the actuating-belts to grind or abrade the end of the toothpick and produce on the end a point that is sharp and conical and is without a projecting thread or filament from the extreme point.

Details of the belting and gearing will be pointed out and claimed; but these may be modified in many ways and are of minor importance.

There is a frame A, which has bearings for a main driving-shaft B and bearings for counter-shafts that support the various other wheels employed in the machine.

A wheel 2 on the main shaft B is belted directly to an abrading-wheel 3 on a counter-shaft 3^a. In a completed machine for pointing both ends of a toothpick there are two abrading-wheels 3 and 3^b on the shaft 3^a, both belted from wheels on the main shaft B. A smaller wheel 2^a on the main shaft B also drives a belt 2^b, that actuates an idler 4 on the same shaft with a pinion 4^a, and the pinion 4^a actuates a belt 4^b, that engages closely over a third belt 5, passing from the counter-shaft 5^a around a loose band-wheel that is mounted on the shaft 6 of the feed-wheel. The construction of the feed-wheel with the loose wheel 6^a is shown in Figs. 6 and 7, and in these figures the shaft is indicated at 6. One part of the feed-wheel is indicated at 6^b and a second part of the feed-wheel is indicated at 6^c, and the hub 6^d of the feed-wheel constitutes the shaft or bearing of the loose wheel 6^a, which is mounted between the two parts 6^b and 6^c of the feed-wheel, and the belt upon it runs in the same direction as the belt 4^b, but at a different rate of speed. The direction of rotation of the wheel 6^a is opposite to the direction of the carrying-wheel 6^b 6^c. The two disks of the carrying-wheel 6^b 6^c are each provided with peripheral notches that enter the wheel on lines that are not quite radial to the wheel, but such that as the wheel travels in its forward direction from the hopper 7 to the discharge-spout 8^h to the forward and lower boundary of the notch becomes oblique, with its outer end lowest, before the

notch itself reaches the horizontal line drawn through the center of the shaft. The belt-wheel 6^a is so much smaller than the carrier-wheel 6^b 6^c that the outer surface of the belt 5 lies approximately at the inner boundary of the notches. The belt 4^b engages between the two disks 6^b 6^c and closely over the belt 5, engages against the belt 5 when there are no toothpicks in the machine, and is spaced from the belt 5 by the toothpicks only when there are toothpicks in the machine.

The feed to the carrier-wheel consists of the hopper 7, which is arranged to be shaken by an agitator-arm 7^a. Below the vibrating part of the hopper is a narrowing or contracting spout 7^b, having a delivery-mouth that leads directly into a chute 7^c. The delivery-mouth is wide enough to allow the toothpicks to lie across it parallel with the axis of the carrier-wheel 6^b. The front and rear walls of the chute are slotted vertically, so that the middle part of the toothpicks, midway between the ends of each one of them, is exposed to contact with brushes 8 and 8^a, one of which is arranged to rotate at the front of the chute and the other of which is arranged to rotate at the rear of the chute. The brush 8 at the front rotates in a direction tending to push the pick upward into the hopper. The brush 8^a at the rear rotates in a direction tending to push the pick forward and down. The direction of the rotation of the brush-cylinders is the same, but inasmuch as they engage with the toothpicks on opposite sides of the picks the actuating influence of the one is the reverse of the actuating influence of the other. The chute 7^c will hold only a single line or file of picks, and these are dropped one at a time into the notches of the carrier. The picks drop to the bottom of the chute 7^c and come to rest, with the lowermost of them resting on the block 7^d. The surface of the block 7^d on which the pick rests lies between the notched disks 6^b 6^c and just below the path of the extreme outer surface of the teeth of the disks. Above the block and in front of the lowermost pick is a passage for the escape of the picks; but this passage is blocked by a gravity-actuated stop 9. The nose of the stop 9 rests just in front of the lowermost pick and just above the block 7^d, but does not rest in close contact with the block. Its exact position is adjustable and is adjusted by a screw 9^a. The extreme point of the stop 9 is beveled slightly or rounded, and the pick engaging against it is driven forward by the tooth of the notched wheel which comes into engagement with the pick behind the pick, lifts the stop, and the pick is forced under it, and this is repeated as each succeeding tooth passes under the lower end of the chute. The pick having entered the notch in the carrier is carried forward on the belt 5 and enters under the belt 4^b, and it is rotated rapidly on its own axis by the differential speed of the two belts. While still between the belts and still rapidly rotating the toothpick is subjected to the grinding and abrading action of the wheels 3 and 3^b. These may be abrading-wheels of any approved style. A wheel arranged to be covered with sandpaper and arranged to have the sandpaper renewed as frequently as may be necessary is a useful abrading-wheel in this machine, although the wheel might be made of any suitable material.

If it is desired to stop the feed without stopping the action of the machine, there are provided a hand-lever 12 on a rock-shaft 12^a and a finger 12^b, that can be lifted by the hand-lever to close the exit from the chute 7^c.

The belting and wheel by means of which motion is communicated from the main shaft B to the shaft 6 of the carrier are shown in Fig. 2, and consist of a chain of gearing by means of which a comparatively slow speed is given to the carrier, while the abrading-wheels 3 and 3^b, traveling from the same shaft B, are delivered at a comparatively high rate of speed.

What I claim is—

1. In a toothpick-machine, a hopper, a feed-spout leading from said hopper, a rotating brush at the junction between the said hopper and spout adapted to brush the picks back into the hopper and to straighten the same, and a brush midway between the ends of said spout adapted to urge the picks in the spout toward the delivery end thereof, substantially as described.

2. In a toothpick-machine, a hopper provided with a feed-spout, and a brush arranged to engage through the walls of the spout, said brush being adapted to urge the picks toward the delivery end of said spout with a yielding pressure, and thereby to straighten the same, substantially as described.

3. In a toothpick-machine, a hopper provided with a feed-spout having slots extending longitudinally thereof, through its front and rear faces, a pair of brushes arranged one in front at the upper end thereof, and one behind the feed-spout toward the lower end thereof, and to rotate in the same direction, whereby the brush in front produces an actuating result the reverse of the actuating result provided by the brush at the rear, substantially as described.

4. In a machine for treating splints, and as a means for arranging the individual splints, a rotating carrier-wheel provided with notches on its periphery, a hopper, a feed-spout leading from the hopper to the carrier-wheel, a rotating agitator arranged to engage through a slot in the feed-spout against the splints, and rotated in a direction contrary to the feed motion of the splints, a rotating force feed arranged to engage through a slot at the rear of the feed-spout and to rotate in a direction with the feed of the splints, substantially as described.

5. In a machine for treating splints, means for presenting said splints singly to the treating mechanism consisting of parallel rotating disks provided with notched edges, a loose

belt-wheel mounted between the rotating disks, a belt arranged to be carried on said belt-wheel, an opposing belt arranged against the first-mentioned belt, and means for giving opposite motions to said belts, whereby the splints carried forward in the notches of said disks are rotated, substantially as described.

6. In a machine for feeding splints and sharpening the same, the combination of a pair of carrier-disks, each of which is provided with notches in its periphery, a belt-support between the carrier-disks, a belt-support outside the carrier-disks, and arranged to carry a belt in parallelism with the belt between the disks, and means whereby motion is given to the two belts, substantially as described.

7. In a machine for feeding splints and sharpening the same, the combination of a pair of carrier-disks, each of which is provided with notches on its periphery, means for feeding the splints into said notches, a belt-support between the carrier-disks, a belt-support outside the carrier-disks, and arranged to carry a belt in parallelism with the belt between the disks and means whereby motion in opposite directions and at different velocities is given to said belts, whereby said splints are whirled, and rolled along at a speed approximately that of the periphery of said disks, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOSEPH M. HOMMEL.

Witnesses:

JOHN N. GOODRICH,

M. E. KOTT.