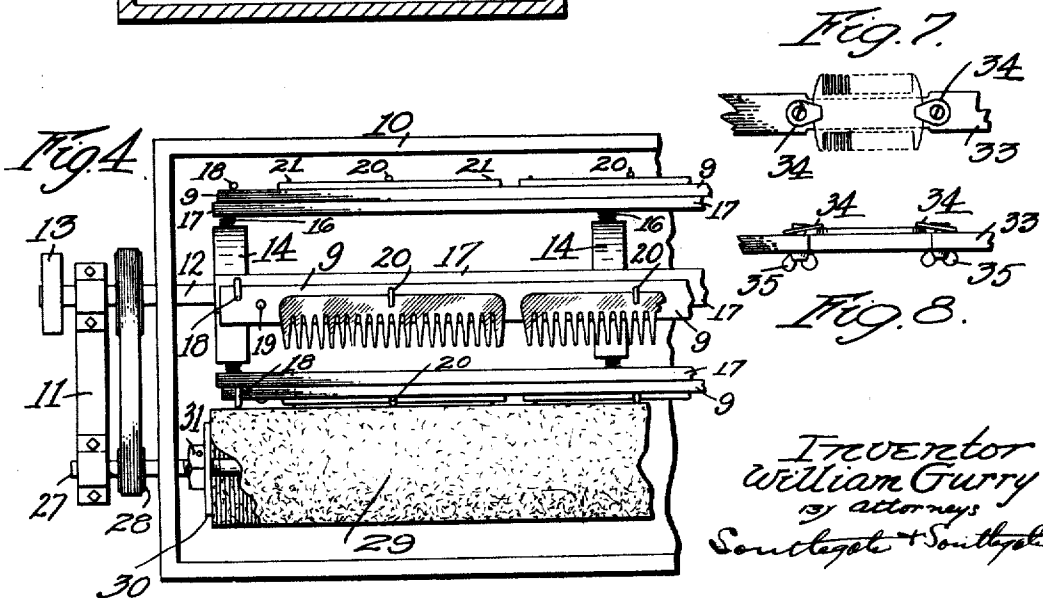
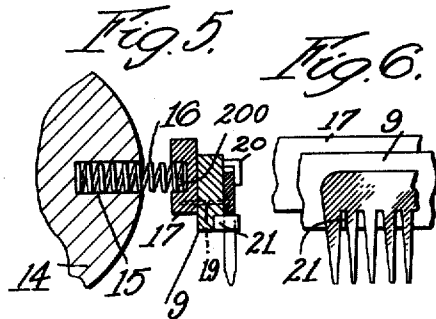
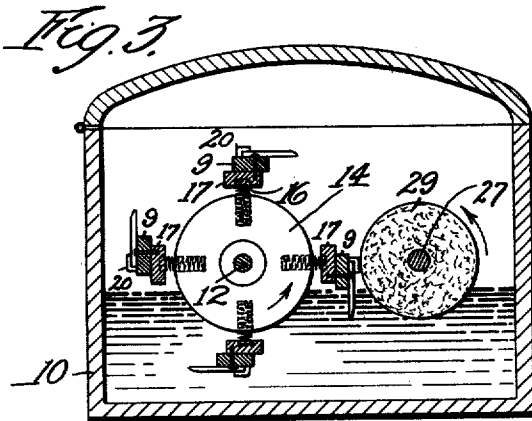
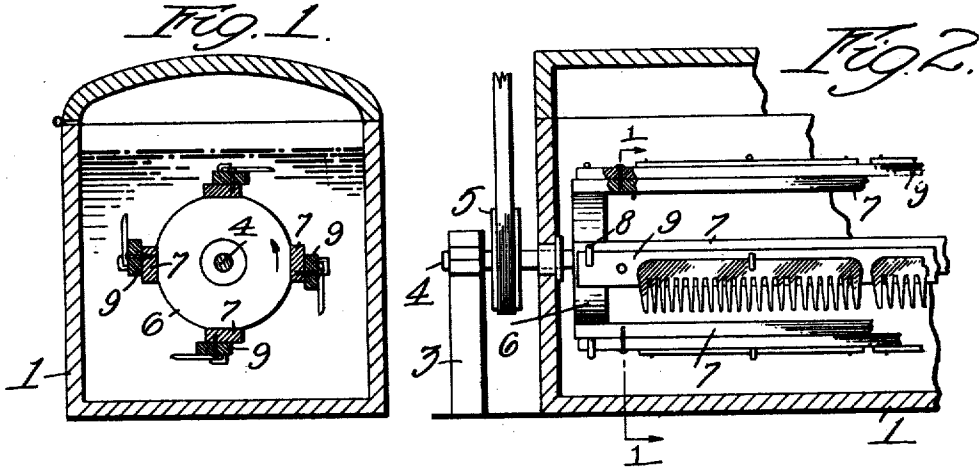


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MACHINE FOR SHAPING AND POLISHING ARTICLES OF CELLULOID AND THE LIKE.
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MACHINE FOR SHAPING AND POLISHING ARTICLES OF CELLULOID AND THE LIKE.

1,310,071.

Specification of Letters Patent.

Patented July 15, 1919.

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To all whom it may concern:

Be it known that I, WILLIAM GURRY, a citizen of the United States, residing at Leominster, in the county of Worcester and State of Massachusetts, have invented a new and useful Machine for Shaping and Polishing Articles of Celluloid and the like, of which the following is a specification.

This invention relates to the shaping and polishing of celluloid and similar articles in quantities. Its principal object is to provide for reducing the hand work now required in this art.

It is customary for celluloid combs and similar articles to be finished by handling each one. An operative takes one or two of these articles and places them against a buffing wheel rotating in a bath containing pumice or ashes. In order to polish and smooth out cutting tool marks between the teeth the combs are held by tongs and sedge grass is employed. These have to be placed very often in practice. On account of handling each article separately and holding it for a considerable period of time while being polished the labor is a material item in the expense of the production of such articles, and is particularly so in times of high wages.

I have found that it is not necessary to use the tongs or grass or to handle the articles in this slow manner, but that a large number of them can be placed rapidly on a support and held in such a way that they can be polished so as to take out the marks of the cutting tools or the like by which they are made. They can be pointed also and can be rapidly removed and replaced.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a sectional view on the line 1—1 of Fig. 2 of a machine constructed in accordance with this invention for carrying out the first step of the method;

Fig. 2 is a longitudinal central sectional view thereof;

Fig. 3 is a transverse sectional view similar to Fig. 1 of the apparatus for performing the finishing operation;

Fig. 4 is a plan of the same;

Fig. 5 is an enlarged sectional view of the holding means on the drum;

Fig. 6 is an elevation of a portion of the same;

Fig. 7 is a similar elevation of a modification showing a comb held thereon, and

Fig. 8 is an edge view thereof.

According to the best embodiment of my invention two machines are used. The first machine is shown in Figs. 1 and 2 as involving a wooden tank 1 adapted to hold water in which is placed a quantity of ashes or pumice or other polishing material. Frames 3 at its ends are provided with bearings for a main shaft 4 which extends from one frame to the other lengthwise of the tank. This shaft is provided with a pulley 5 or other means by which it can be driven. Where it passes through the tank a tight packed joint is made.

On this shaft between the two frames 3 is located a drum made up of a plurality of disks 6, each secured to the shaft. These disks support a plurality of bars 7 which are fixedly secured to the disks. Each of these bars extends throughout the length of the drum and constitutes a support for the articles to be operated upon.

For the purpose of holding the combs or other articles in position, the bars 7 are provided with two hooks 8 arranged to turn so as to clamp and release the bars 9 on which the combs are located.

The other machine is shown as involving a tank 10 also adapted to hold water in which is placed a quantity of ashes or pumice or other polishing material. Two frames 11 constitute the supports for the mechanism. They are provided with bearings and with a main shaft 12 which extends from one frame to the other lengthwise of the tank. This shaft is provided with a pulley 13 or other means by which it can be driven.

On this shaft between the two frames 11 is located a drum made up of a plurality of disks 14, each secured to the shaft. These disks constitute the entire fixed part of the drum. Each of these disks is provided with a plurality of radial sockets 15 for a series of springs 16. These springs are fixed at the bottom of the sockets and project from the cylindrical surface of the disks. Those on the several disks are in alinement. They support a plurality of bars 17 which are secured to the springs 16 by means of pins 200 which are fixed in position. Each of these bars extends throughout the length of the drum and constitutes a support for the articles to be operated upon that is capable of yielding.

For the purpose of holding the combs or other articles in position, the bars 17 are provided with two end hooks 18 arranged to

turn so as to clamp and release the bars 9 expeditiously. These bars are also provided with pins 19 extending into holes in the bars 17 or 7. Thus the bars 9 can be detached
 5 from the drum shown in Fig. 1 and applied to that in Fig. 2. The combs are held on the bars 9 by turn hooks 20 and by projections 21 extending out from the bar 9 so as to be located between two of the teeth of the comb
 10 or against some surface of it so as accurately to locate them. In this way the combs are held firmly down on the bars 9 but can be released merely by turning the hooks 20.

The frames 11 are also provided with
 15 bearings for the ends of a shaft 27. This shaft is provided with a pulley 28 for receiving a belt from a pulley on the other shaft and rotating it and on it is located a buffing wheel 29. This wheel is made up of layers
 20 of carpeting or similar coarse fabric cut out in circular form and pressed together by a couple of plates 30, one of which is preferably fixed to the shaft 27 and the other adjustable along it by means of a nut 31. This
 25 drum therefore is cylindrical in shape and furnishes a vehicle for holding some of the solid material in the liquid. It is so located as will be seen by reference to Fig. 2 that the combs or other articles held on the hold-
 30 ing drum will come against it in rotation. It is rotated at a higher speed than the drum 14 and acts as a polishing wheel.

In the form shown in Figs. 7 and 8 bars 33 are employed in place of the bars 17 and
 35 they are provided with holding members 34 held by thumb screws 35 having their outer ends enlarged so as to secure the combs in position. These bars 35 of course are spring-supported like the bars 17.

40 In the operation of the device the combs are placed on the bars 9 and they are mounted on the drum 6. Then the tank 1 is filled with water containing the ashes or pumice to a level above the top of the drum and the
 45 drum is rotated. This polishes the combs or other articles and for some purposes they can be regarded as finished. But when a higher polish is desired the bars 9 are released from this drum and placed, still carrying the combs, on the bars 17 of the other
 50 drum. The tank 10 is filled with water to a level a little below the shafts. This water contains the same polishing material as the other. Then the two shafts are rotated, the
 55 shaft 27 being rotated at a much higher speed than the shaft 12. The result of this action is that in the time that it now takes to polish a single comb or pair of them a very large number can be polished on one
 60 side to such a degree as to take out all the tool marks and in fact to shape their points in the case of the combs shown. These blanks are cut out in a rather rough manner and this polishing action virtually grinds
 65 the points down to the desired degree. The

combs can be turned over in their holders and subjected to the same action again when the other side will be ground into shape. This gives the combs a polishing action all over and greatly improves their appearance. 70

Although I have illustrated and described only certain forms of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the 75 invention as expressed in the claims.

Therefore I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. In a machine for shaping articles of 80 celluloid and the like, the combination with a tank for a liquid containing a grinding material, of a drum rotatable therein partially submerged in the liquid, and yielding supports on the drum for the articles 85 to be operated upon.

2. In a machine for shaping and polishing articles of celluloid, the combination with a tank for water containing a polishing powder, of a drum rotatable therein in 90 the water, supports on the drum yieldingly connected therewith so as to be capable of moving in all directions, and means on said supports for supporting the articles to be polished. 95

3. In a machine of the character described, the combination with a tank for containing water and a polishing powder, of a shaft in said tank, a series of disks fixed to said shaft and spaced apart thereon, said disks constituting a drum and extending down into the water, and bars extending longitudinally and supported by said disks for holding the articles to be polished and moving them in the water to shape and polish them thereby. 105

4. In a machine of the character described, the combination with a tank for containing water and a polishing powder, of a shaft in said tank, a series of disks 110 fixed to said shaft and spaced apart thereon, said disks constituting a drum, each disk having a plurality of sockets in its surface, springs located in said sockets and projecting therefrom, and bars extending 115 longitudinally of the drum and supported by said springs in the disks for holding the articles to be polished.

5. In a machine of the character described, the combination of a tank for water 120 and polishing material, of a drum rotatable therein, a shaft for supporting said drum located above the level of the liquid in the tank, a series of bars surrounding said drum and located longitudinally, yielding means 125 for supporting said bars from the drum, means on said bars for holding down on the surface thereof combs or other articles to be polished, and holding means located 130 perpendicular to the surface of said bars

for engaging the articles at another point, the first named means being adapted to be turned on its axis out of operative position, whereby the articles can be instantly placed in position or removed.

6. In a machine for shaping articles of celluloid and the like, the combination with a tank for a liquid containing a grinding material, of a drum therein, yielding supports on the drum for the articles to be operated upon, and a polishing wheel located in said tank in position to engage the articles on said drum, said drum and wheel both extending below the surface of the water.

7. In a machine for shaping and polishing articles of celluloid, the combination with a tank for water containing a polishing powder, a drum rotatable therein partly submerged in the water, means on said drum for yieldingly supporting the articles to be polished in a substantially tangential position, and a polishing wheel located in said tank and rotatable at high speed.

8. In a machine of the character described, the combination of a tank for water and polishing material, of a drum rotatable therein, a shaft for supporting said drum located below the level of the liquid in the tank, a series of bars surrounding said drum and located longitudinally, yielding means for supporting said bars from the drum,

means on said bars for holding down on the surface thereof combs or other articles to be polished, and a polishing wheel located in said tank in position to engage the articles held by the drum.

9. In a machine of the character described, the combination with a tank containing water and a polishing powder, of a shaft in said tank, a series of disks fixed to said shaft and spaced apart thereon, said disks constituting a drum, bars extending longitudinally of the drum yieldingly supported by said disks for holding the articles to be polished, and a polishing wheel located in said tank in position to engage the articles held by the drum.

10. In a machine of the character described, the combination with a tank containing water and a polishing powder, of a shaft in said tank, a series of disks fixed to said shaft and spaced apart thereon, said disks constituting a drum, bars extending longitudinally of the drum supported by said disks for holding the articles to be polished, a second set of bars detachably mounted on the first named bars, and readily detachable means for holding articles to be finished on the second set of bars.

In testimony whereof I have hereunto affixed my signature.

WILLIAM GURRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."