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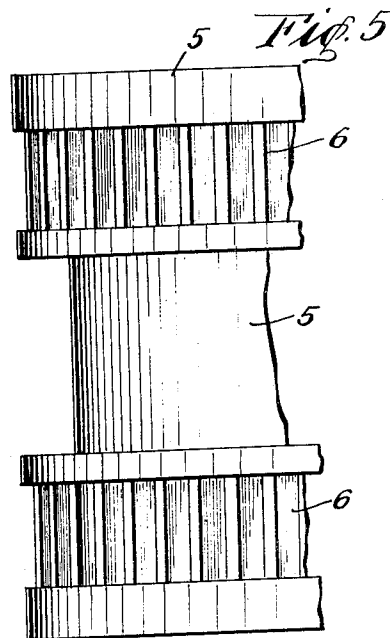
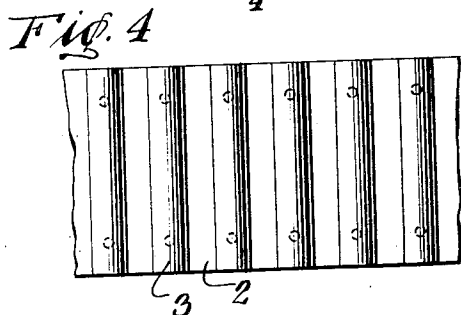
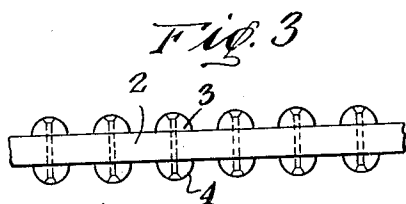
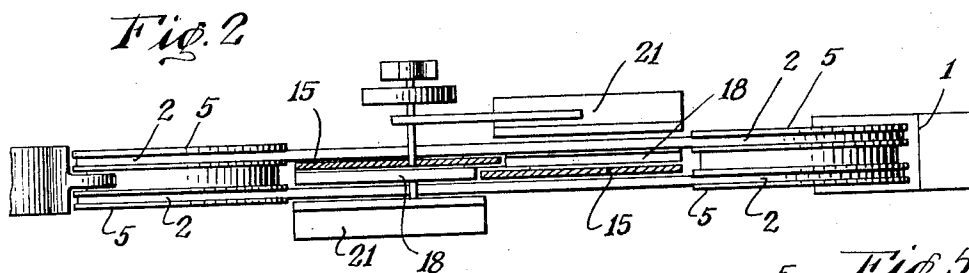
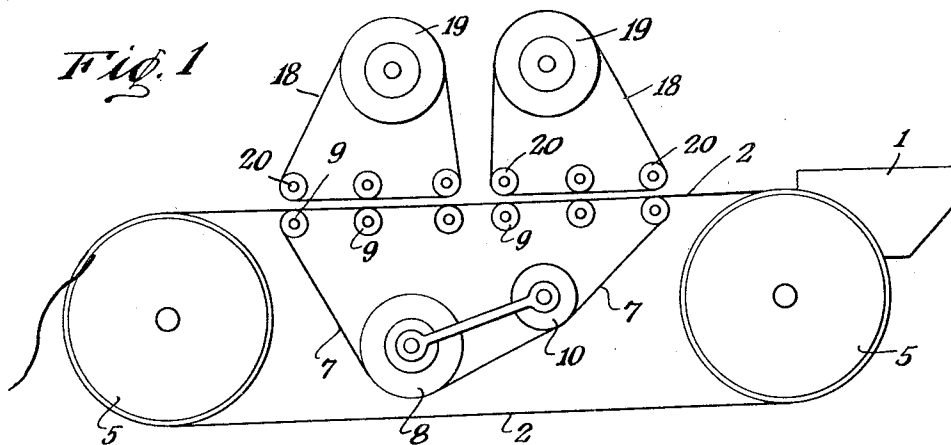
M. ETCHART HI JO

1,932,092

MACHINE FOR THE MANUFACTURE AND SMOOTHING OF RODS

Filed Aug. 16, 1930

2 Sheets-Sheet 1



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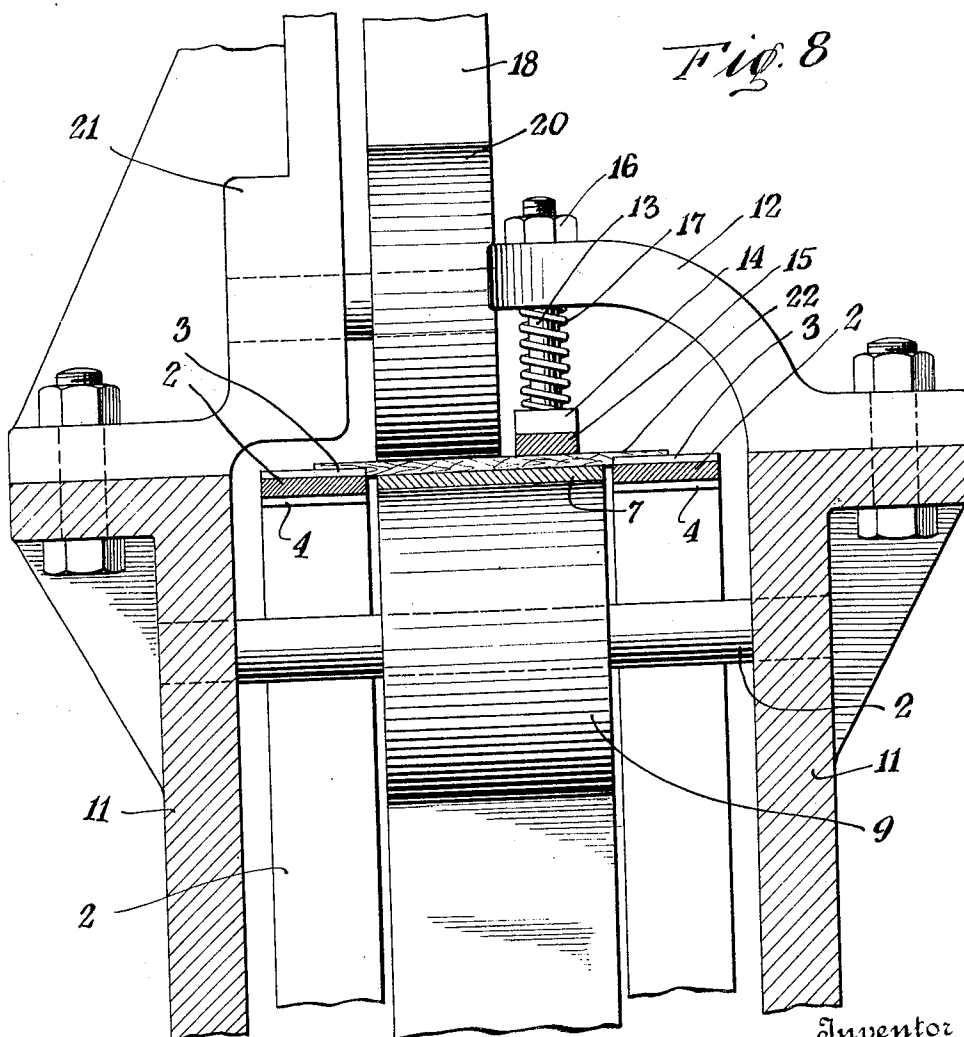
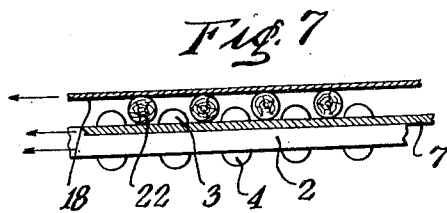
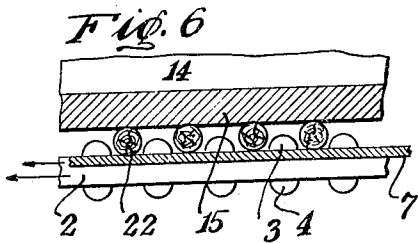
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MACHINE FOR THE MANUFACTURE AND SMOOTHING OF RODS

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,932,092

MACHINE FOR THE MANUFACTURE AND SMOOTHING OF RODS

Martin Etchart, Hijo, Buenos Aires, Argentina

Application August 16, 1930. Serial No. 475,693

1 Claim. (Cl. 51-135)

This invention refers to a machine for the manufacture and smoothing wooden rods which can be applied to any material and which will afford considerable economical advantages in regard to the labour involved owing to its efficiency and high yield.

Reference is made to the accompanying drawings wherein:

Fig. 1 is a schematic side view of the whole machine;

Fig. 2 is a top view of the same machine drawn in schematic form;

Fig. 3 is a detail in larger scale of a side view of the conveyor belt;

Fig. 4 is a top view of the conveyor belt;

Fig. 5 is a detailed view of the pulley for conveyor belts;

Fig. 6 is a detailed view showing how the wood is rotated when being manufactured into rods;

Fig. 7 is a detailed view showing how the rods are manufactured;

Fig. 8 is a transverse cross section view of the machine drawn to a larger scale.

Similar numbers denote similar parts in all the illustrations.

Construction

The wood to be manufactured into rods, after being cut to a given measure, is placed into the feeding funnel (1) below which run the two conveyor belts (2). These belts which are manufactured of any suitable material such as leather, rubber, steel sheeting or any other material are provided essentially on their upper surface with ribs (3) distributed in a convenient manner in order to allow the necessary space between two ribs for location of one of the pieces of wood to be worked. The belts may be also provided, if required, with ribs (4) on the lower surface identical to the ribs (3) or different in form so as to serve as impelling teeth for the belts. In this case the impelling pulleys (5) should be also provided with teeth (6) to correspond. This ensures the absolutely equal running of the belts so that the rods accumulated in the feeding funnel (1) may easily enter into the spaces parallel to the shaft of the impelling pulley of the belts. The distance between the two conveyor belts depend on the article to be manufactured. Between the two belts (2) and at the same height there is located the belt (7) Figs. 6 and 7 which may be of steel or other suitable material and moved by the pulley (8) is guided by the rollers (9). The roller (10) acts as a counterweight to keep an equal tension on the belt (7), although any other tension system of known construction

may be utilized. Located above the conveyor belt (7) is a pressure device which is hereinafter described:

Pressure device.—Above the frame of the machine (11) Fig. 8 is bolted an arm (12) the end of which is provided with two or more holes for the bolts (13). These bolts have a device (14) of any convenient construction located at the lower end which holds a pad (15) of rubber or any other suitable material in position. The upper ends of the bolts are provided with the nut (16) which serves to maintain the minimum space that should exist between the pad (15) and the belt (7). Each of the bolts (13) are furthermore provided with a spring (17) placed between the pad carrier (14) and the lower part of the arm (12) so as to enable this spring to permanently apply sufficient pressure to maintain the pad in its lowest position while not preventing the pad to yield upwards in the event of the passage of a rod of wood of a larger dimension between the bolts and belt (7) than that afforded by the minimum space allowed by the bolts.

Also above the belt (7) in front of the pressure device and at the same height is located the device designed to carry out the manufacture of the rods and which is hereinafter described:

Manufacturing device.—This device may vary in accordance with the work to be done. On the drawings which accompany this specification and on which the type illustrated is only an example to show the method of working this new system, an emery belt (18) Fig. 8 is provided which is impelled by the pulley (19) and rollers (20). The pulley (19) and rollers (20) are located in the frame (21) which is bolted to the frame (11) of the machine.

Having described the different parts comprising the machine, the working of same is detailed below:

Working

In the Figs. 6, 7 and 8 of the accompanying drawings the wooden articles (22) to be finished are shown as they are placed on the belts (2) and (7) below and with the pad (15) and emery belt (18) located above. The arrows indicate the direction in which the belts move. In order to have a better view of the different phases involved, we will imagine that there are only the two belts (2) which convey the wood (22), and the pressure pad (15). As the wood is conveyed by the belts (2) and forced below the fixed pad, a similar occurrence, which may be observed daily, takes place when several labourers wish to move a very heavy box and place a few rollers below it to

facilitate the operation. In this invention the belts (2) represent the box and the wood (22) represents the rollers while the pad (15) represents the fixed base. With reference to the box the power which is applied by the labourers when pushing and in our case the impulse given to the belts rotates the rollers, meaning in our case the wood (22) to be finished. This rotation produced by the movement of the conveyor belts (2) would be too slow to obtain efficient work, so it is therefore necessary to increase the rotation which is obtained by a second belt (7) moving in the same direction as the belt (2) but at a much higher speed. We will now study in rounded figures the effects produced by this method. Supposing a piece of wood which is to be finished has a circumference of 1 centimeter, the speed of the belt (2) equal to 100 centimeters per minute, the speed of the belt (7) 1,000 centimeters per minute and that the pad has a length of 20 centimeters. Due to the velocity of the belt (2) the wood (22) requires 12 seconds to pass beneath the pad and must in that period of time make 20 revolutions. At the same time belt (7) acts on the wood at a velocity equal to 10 times that of the belt (2) which would imply that the wood will only employ 1.2 seconds to travel underneath 20 centimeters of the pad making the same number of revolutions, but in our case the ribs (3) placed on the belt (2) prevent the wood from being carried forward by the belt (7) moving at a higher speed and the impulse given by same is transformed into a rotation movement of the wood. This makes it evident that the rods of wood will be given, during the 12 seconds employed to travel the 20 centimeters of the pad, twenty revolutions impelled by the belt (7) and 200 revolutions impelled by the belt (2) a total of 220 revolutions in 12 seconds or 1,100 revolutions per minute. In front of the pad (15) is located the device to be finished or ground, beneath which now pass the pieces of wood at the high velocity just mentioned. It will be understood that if we place an emery belt, as in the example illustrated in the drawings, which due to its own movement increases the efficiency of the work done, the surface of the wood which passes underneath this belt must result highly

smooth. The modifications which may be made to the cutting, smoothing and polishing devices or the variations which may be introduced in the location or the movement of same cannot affect the rights inherent to this invention, nor can the size of the machine, the details of the construction of the several devices which form part of same constitute essential parts of this invention, neither are its activities to be confined to wood work as it can also be successfully operated with bones as well as with metals.

Following the example shown in the accompanying drawings we find that the work to be done consists in the smoothing of the central portion of the wood (22) the width of which corresponds to that of the belt (7). As illustrated in Fig. 8 the emery belt (18) only smooths half of the piece of wood and it is therefore necessary to install identical finishing and pressure devices but in inverted form on the same length of travel of belt (7) as illustrated in Fig. 2. In this manner the central portion of the wood is completely smoothed and the belts (2) carry the finished rods to a device adapted to receive them or if necessary to another conveyor belt.

Having thus described the nature of the present invention and in which it may be worked what I claim as new and desire to secure by Letters Patent is:

In a material finishing apparatus, a feeding funnel for the material, a pair of conveyor belts provided with guiding and holding ribs for the material received from said funnel, and adapted to advance the material to the finishing tools, a steel conveyor belt between said pair of conveyor belts traveling at a higher speed than said pair of belts, a pulley over which said steel conveyor belt is guided, a weighted roller connected with said pulley for tensioning the steel conveyor, rollers over which said steel conveyor belt is guided, a yielding pad engaging the material and co-operating with the steel conveyor belt for rotating the material held between the ribs of said pair of conveyor belts, means on said apparatus to adjustably hold the pad against the steel belt, and an emery belt engaging the material on said belts for finishing the same.

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