

# Edge preparation of belt with belt grinding machine

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## ABSTRACT

Only in earlier days grinding of a belt for joining the two end of the belt is done. That requires hand on sanders machines which requires skill labour and can cause hazards to human. Due to inefficiency of human, human error will be there and rejection of belt can be occurs. Worker can not apply even pressure on the belt that might load to higher tolerance. With aim to minimize tolerance and user friendly work. We have obtained one solution for that to make a machine to have same ability of work. The work will be done on grinding wheel by putting belt at angle required according to the size of the belt and taper of the belt that will minimize human errors, efforts and any hazards to human. Due to lower in human error lower tolerance can be achieved.

**Keywords:** Belt, Edge, Grinding Machine, Edge Preparation, Tapper Grinding

## I. INTRODUCTION

A belt is, speed usually a loop of flexible material used to link two or more rotating shafts mechanically, most often parallel. Belt may be used as a source of motion, to transmit power efficiently, or to track relative movement. Internal combustion engines and electric motors are ordinary designed for a high power to weight ratio. This ratio is only possible through high operating speed; that is higher than required by the driven machines. Can be accomplished in a variety of ways. In addition to gear flexible machine element such as belt, chain, and ropes are commonly used for this purpose.

Only in earlier days grinding of a belt for joining the two end of the belt is done. That requires hand on sanders machines which requires skill labour and can cause hazards to human. Due to inefficiency of human, human error will be there and rejection of belt can be occurs. Worker can not apply even pressure on the belt that might load to higher tolerance. As to minimize tolerance and user friendly work. Main objective words is belt, edge, grinding machine Our objective is belt and make their edge preparation with belt grinding machine. We have obtained one solution for that to make a machine to have same ability of work. The work will be done on grinding wheel by putting belt at angle required according to the size of the belt and

taper of the belt that will minimize human errors, efforts and any hazards to human.

## II. LITERATURE REVIEW

In earlier days grinding of a belt for joining the two end of the belt is done. That requires hand on sanders machines which requires skill labour and can cause hazards to human. Due to inefficiency of human, human error will be there and rejection of belt can be occurs. Worker can not apply even pressure on the belt that might lead to higher tolerance. With aim to minimize tolerance and user friendly work, we have obtained one solution for that to make a machine to have same ability of work. The work will be done on grinding wheel by putting belt at angle required according to the size of the belt and taper of the belt that will minimize human errors, efforts and any hazards to human. Due to lower in human error lower tolerance can be achieved. In current condition machine of edge preparation of belt is available with very high cost and it is also require a skill worker and its require salary also high, we are making a machine with easily operated and neglected skill worker require. It is beneficial for a company owner for not given a high salary to a skill worker and it is also decrease a product cost.

<sup>(1)</sup>A dual belt, contour grinding machine, comprising a first endless grinding belt having an inner backing surface and an outer grinding surface,

means mounting said first belt for continuous movement of said grinding surface past a grinding station, a second endless grinding belt having an inner backing surface and an outer grinding surface, means mounting said second belt for continuous movement past the grinding station in the same direction as said first belt, means for holding and positioning a workpiece such that portions of said workpiece are placed between said first and second belts at the grinding station.

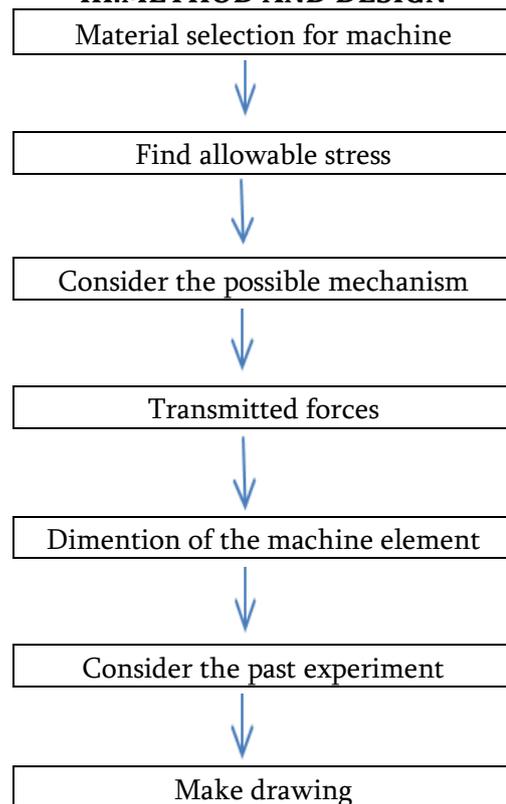
(2)The invention relates to a belt grinding machine with a pressure bar which has a plurality of pressure shoes arranged next to one another transversely relative to the conveying direction of the work-piece to be machined, and in which each pressure shoe has assigned to it its own pressing-on device actuatable as a function of work piece parameters, the pressing-on force of the pressing on device being controlled by means of a signal-processing unit taking into account the workpiece parameters and local and time data of the workpiece transport operation

(3)The belt grinding machine according to the invention makes it possible not only to detect in a simple way the contour form of the workpiece, but also to detect both the thickness and the surface form at the same time. Through the projection of a linear light mark transversely relative to the conveying direction by means of a light source which is arranged in front of or behind the incidence point, height differences on the surface of the workpiece lead to corresponding displacements in the conveying direction.

(4)This invention relates to machine tools for shaping or finishing objects of complex shape to conform to a pre determined computer model. More particularly, it relates to a grinding machine having six axes under simultaneous computer control that permit simplified computer control programs and automatically produces objects of complex shapes rapidly and accurately. The described embodiment of the invention is particularly adapted to produce airfoil shaped blades and buckets, for example, of the kind used in turbines, and other objects having complex curved surfaces.

After we read many papers we have come to the conclusion that there is currently an automatic grinding machine available. But we have made a machine in which its cost is low and any other nonskilled worker can also run comfortably. By reducing the price the machine and the cost and because of the cost less he can buy any small company.

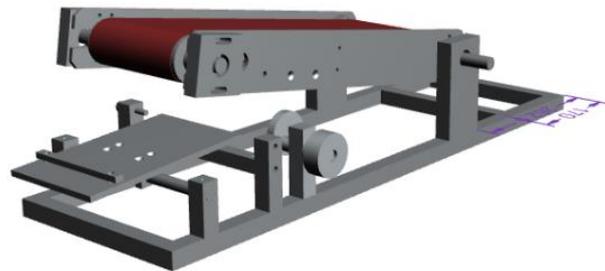
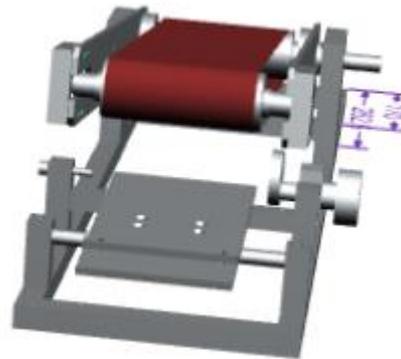
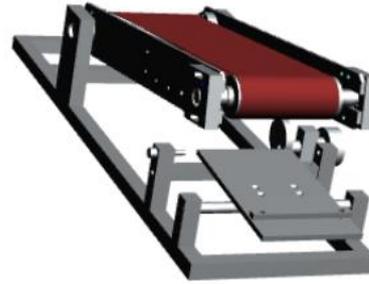
### III.METHOD AND DESIGN



- (1) **Material selection** - Select the appropriate materials for each element of the machine so that they can sustain all the forces and at the same time they have least possible cost.
- (2) **Find allowable stress** - All the machine elements are subjected to stress whether small or large. Considering the various forces acting on the machine elements, their material and other factors that affect the strength of the machine calculate the allowable or design stress for the machine elements.
- (3) **Consider possible mechanism** - If you have the past experience of designing the machine element or the previous records of

the company, consider them and make the necessary changes in the design. Further, designer can also consider the personal judgment so as to facilitate the production of the machine and machine elements.

- (4) **Transmitted forces** - Machine is made up of various machine elements on which various forces are applied. Calculate the forces acting on each of the element and energy transmitted by them.
- (5) **Dimension of the machine element** - Find out the appropriate dimensions for the machine elements considering the forces acting on it, its material, and design stress. The size of the machine elements should be such that they should not distort or break when loads are applied.
- (6) **Consider the past experience** - If you have the past experience of designing the machine element or the previous records of the company, consider them and make the necessary changes in the design. Further, designer can also consider the personal judgment so as to facilitate the production of the machine and machine elements.
- (7) **Make drawing** - After designing the machine and machine elements make the assembly drawings of the whole machines and detailed drawings of all the elements of the machine. In the drawings clearly specify the dimensions of the assembly and the machine elements, their total number required, their material and method of their production. The designer should also specify the accuracy, surface finish and other related parameters for the machine elements.



Material of machine – Mild steel  
 Motor – single phase AC induction motor 0.5 hp  
 Dimensions – 500×200×150 approx  
 Belt material – Nylon sandwich belt  
 We used solid work for made design of machine

Operating Method – first put the belt on the platform and then lock the belt in its grinding position by using the lock screw then lock the screw to need according the need. Now switch on the motor, running the grinding belt. Now move the above handle down to the bottom where we have the grinding the belt then check after some time whether the belt grinded or not. belt will be grind up to the locking screw. After it will stop. Now take out the

grinded belt and check whether it is well grinded or not. As per above, we can easily and efficiently run the machine with out the help of any skill worke.

#### IV.CONCLUSION

Machine will operate easily with out required any skill worker. Time taken for setting angle may reduce so that also lead to reduce in product cycle time and increase in productivity. And also this machine is in very low cost compare to the other machinethat helps small industry can offered this machine.

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