

Review Paper On Additional Attachment On Lathe For Manufacturing Of Gear

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Abstract : The cost estimation is important for the manufacturing of any kinds of job or parts. Gear is power transmission device which is manufacture from many process like casting, milling, hobbing and shaping. Among the all processes milling machining is very time consuming process. so, we have use conventional lathe machine for manufacturing of gear by the additional attachment on lathe machine. so by this attachment we can reduce the cost of milling machine. by using this attachment on lathe manufacturing of gear is easy for small workshop and fabrication shop.

Keywords- gear manufacturing, conventional lathe, milling attachment, indexing mechanism, economy

I. INTRODUCTION

Gears are toothed wheel used to transmit power for small distances. It is positive types of drive and mostly preferred in machines. The important use of various type of gears are as follows-

- Spur gear-sliding mesh gear box, machine tool gearbox
- Helical gear- automobile gear box
- Rack & pinion- lathe carriage, steering gear box
- Worm & worm wheel- wiper mechanism, material handling equipments gear box, steering gear box
- Bevel gear- automobile differential gear box
- Spiral gear-drives in textile machineries

We have seen all above gear manufacturing processes from that we conclude that 3 methods are mostly used for gear which one are as follows

1. Gear milling –simple and for JOB production.
2. Gear hobbing-for mass production.
3. Gear shaping- mass production & internal gear manufacturing.

All above process require costly machine tool and which one is not affordable for small scale industry or workshop. When in some cases we don't get the desire gear suitable for our requirement. Then our problem is that we have to find out such method or technique which can make teeth of gear without using such a costly machine tool. Hence our need is we have to make any cheap alternative method for gear production .The purpose of this project is to design the gear cutting attachment in lathe machine. The motivation for this project is to make gear without bought extra machine in workshop and reduce cost to done this process. So the new product and design should have a mechanism which available to gear cutting and hold on the carriage of lathe machine so that it move on lathe bad. It will look more efficient and if people who use it, they could be interested in .product because of the design and function that not available in market yet. This is the idea concept for new design of gear cutting attachment in lathe.



Figure 1. Gear cutting attachment for lathe.

II LITERATURE REVIEW

1. First of all T.E.Smith proposed the principle of gear and keyway cutting attachment on lathe machine. This invention relates to keyway and gear 'cutting attachments for lathes, and has for the primary object the provision of -a portable power driven device of this character which be readily attached to a tool post holder of any lathe of a conventional construction, where by the' lathe and almost all of-the usual equipment-there on may be operated or-used without interference from the attachment and-'in conjunction A therewith if desired, that is, the work to' be 'cut' by the present attachment It may be supported and fed by the lathe, the attachment being easily adjusted relative to the work for-varying the cut made there in, so that keyways or splines may be cut with minute accuracy or if desired, gears may be cut by using on the attachment gear cutters .He used a separate motor for rotating cutting tool and indexing was done on lathe chuck. This attachment was very complex and large in construction. ^[7]
2. This invention relates to milling attachments for lathes. It has for its principal object to devise a, simple, efficient and relatively inexpensive attachment of the above type which is self operated and can be quickly and easily attached to and removed from the lathe as a complete p-reassembled unit. Other objects are to provide for adjusting the attachment for milling blind or continuous key slots and spur or beveled gears. Another object is to provide for adjusting the work through aliquot parts of a circumference and for locking the work in the desired position of rotary adjustment. they eliminated the use of motor and replaced the chuck indexing by compound indexing .Cutting tool was mounted on arbor and arbor was mounted between chuck and tail stock^[8]
3. the invention is to provide improvements in means for cutting screw threads in all kinds of materials broadly speaking, but more particularly in a milling attachment that can be operatively mounted upon a machine lathe, and set and adjusted to out every known type of thread and of any desired spiral pitch, as a rod, shaft, or the like is being rotatable supported by the lathe^[9]
4. The object of its improvements is to provide a machine of this character which will accurately cut screws and worms of large diameters .A further object is to provide a traveling carriage upon which the work is mounted, and to propel the carriage and rotate the work by mean so a single lead screw and, furthermore, to so arrange the lead screw that the work will be directly driven thereby, the driving mechanism for said lead screw being so constructed that the longitudinal movement of the lead screw.^[10]
5. This invention has for its object a milling head attachment for metal working machines, as shapers, planers, profiling machines, etc. having a traveling table and particularly milling machines^[11]
6. This invention relates to metal cutting machines and more particularly to cutting machines of the class mtended for slotting metal stock, such as drill bits, by means of a driven rotary cutter^[12]
7. In today scenario It would be very dreadful for the people who are running micro industry, because they cannot afford to have all machines at their door step .so its find some technique for higher production at low cost .so it is decide to use the multipurpose tool for lathe machine. The basic principle of working of multipurpose tool is "Rotation of a mounted tool via small chuck on shaft with help of a small motor mounted. With this attachment they can perform drilling, grinding, milling on same machine. A small scale industrialist can design such attachment in his own workshop with minimum resources available to him. The need of subcontracting or carrying the work piece here and there always is eliminated. Time and cost for machining is reduced by large margins, hence increasing the efficiency of lathe machine^[13]

III CONCLUSION

Hence from this project we conclude that for job production of gear this attachment really useful for small workshop and this is good alternative for milling machine from this arrangement we can produce spur, helical as well as bevel gear. This machine having advantages such as Simple assembly, Easy installation on lathe machine, spur, helical & bevel gear can cut by this, cost of milling m/c is saved, easily available by manufacturing.

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