IMPROVEMENT AND MODIFICATION IN MECHANISM OF MICRO SLITTER MACHINE

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ABSTRACT

The "Micro Slitter" is a general name given to both slitter and winder for producing fine yarn of 0.15mm width and 0.01~0.3mm thickness. The yarn which is cut using cutter knife and slitting die. These produced fine yarn is wounded on the winder. At that time, some of the fine yarn is wastage, due to some material elasticity. The wastage yarn which is also wounded on bobbins. From that with the use of wastage we convert back into final product. We need to solve the wastage problem by some design modification and manufacturing.

Keyword : - *Micro Slitter Machine, Fine Yarn, Cutter Knife, Winder, Slitting Die*

1. INTRODUCTION

There are mainly two operations in micro slitter machine.

1) Slitting
2) Winding

1.1 Slitting

Slitting is as shown in Fig. 1.

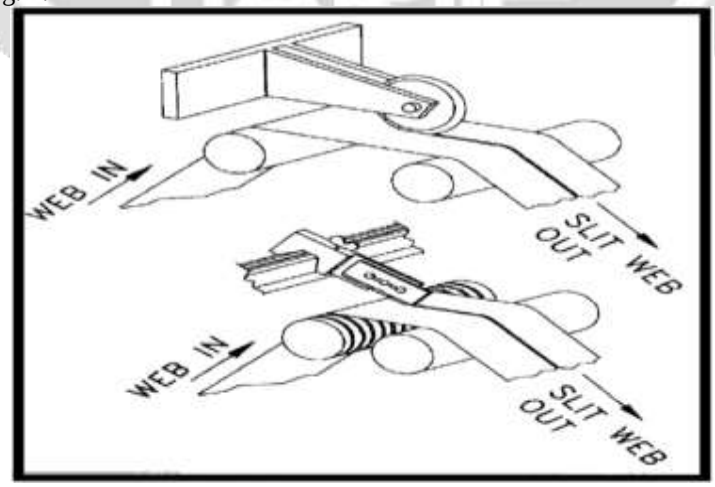

Figure 1: Slitting

Advantages:
a) Less expensive to set up and operate.
b) Easy to adjust slit width.
Disadvantages:
a) Difficult to attain close slitting tolerances.
Types of materials using this process: foils, films, textile products.

1.2 Winding

On some materials contact pressure cannot be applied because the materials could become blocked or damaged. Here center winding becomes necessary. Today center winding is the most prevalent type of winding and the basic principles remain the same whether the operation takes place in a vacuum or in ordinary atmosphere or in a pressurized chamber.

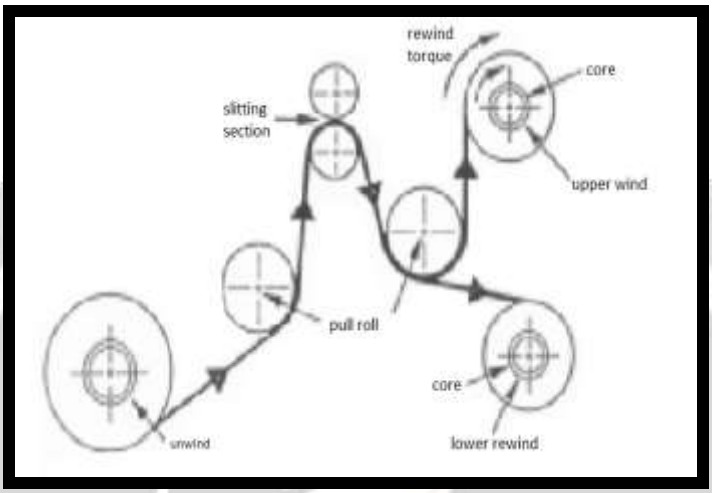

Figure 2: Winding

In Fig. 2 the winding force is derived solely from the rewind shafts and is transmitted to the winding web through the core and layers of material that have already been rewound.

2. IMPLEMENTATION

We have design the micro slitter machine based on inventor2015 software.
We are manufacturing the model with the use of this design data.
In this below components are used.

- SS roller
- Rubber roller
- Slitting die
- Press roller
- Slitting blades

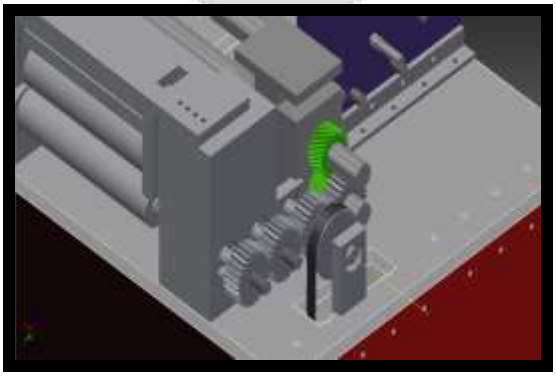

Figure 3: Die Gear

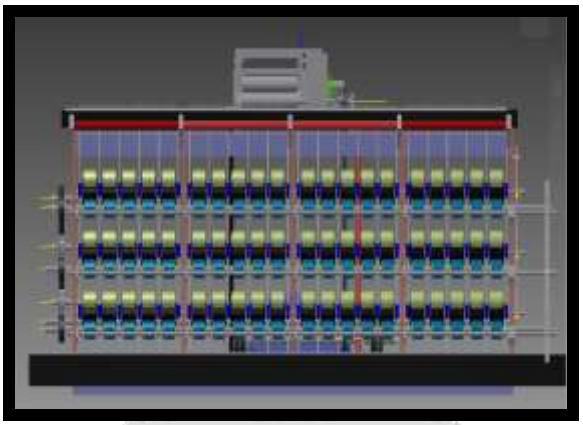

Figure 4: Full side back view of winder

Figure 5: Connection of pulley and motor

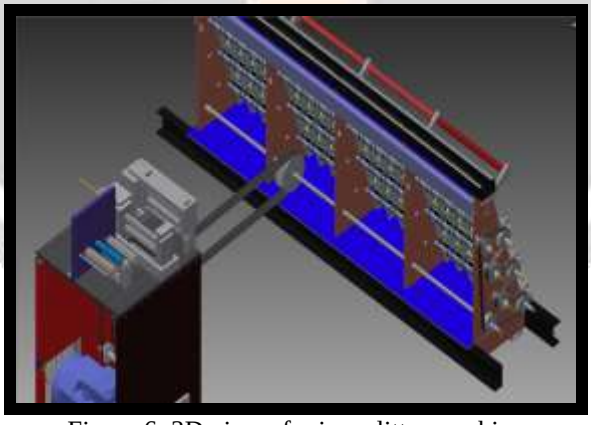

Figure 6: 3D view of micro slitter machine

3. WORKING MODEL

As per shown in design of micro slitter machine we experiment on the working model of micro slitter machine. We manufacture the micro slitter machine as per design which shows as above.

Figure 7: Winder

Figure 8: Main head

4. CONCLUSIONS

The modification of micro slitter machine will very helpful to industry for less area required of winder, reduction in the cost of micro slitter machine, and last but not least the reduces the wastages material.

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