



Automated Machine for Removing Impurities from Ribbed Smoked Rubber Sheets

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Natural rubber industry is one of the most important industries in Thailand. Its revenue is about 60,000 – 80,000 million baht a year. Ninety percent of all rubber produced in Thailand is exported, and about 80 percent of the rubber is in the form of ribbed smoked sheets (RSS). Ribbed smoked sheet manufacturers suffer quality problem due to impurities settling in the rubber during manufacturing process.

Ribbed smoked sheets produced in Thailand are in middle to low quality. The manufacturers deal with this quality problem by hiring skilled labors to inspect the sheets and scissors out the portions of rubber that contain impurities. This can improve the quality of the rubber sheets therefore the price per unit weight of the ribbed smoked sheets increases.

To yield good quality products within a reasonable short time, the method of removing the impurities required highly skilled labor. The highly skilled labor can only be obtained from many months of training and practicing. Furthermore, the performances of skilled labors reduce after hours of continuous work. It is very beneficial to the industry to have a machine capable of removing impurities in rubber sheets to substitute the skilled labor because the machine can provide more consistent product quality, longer continuous operation, higher productivity, and the better quality of life of the workers.

This project is aimed at developing a machine that capable of removing the impurities in ribbed smoked sheets for benefits to the industry as previously mentioned. This machine consists of two major systems: an impurity detection and an impurity elimination system.

These two systems work correspondingly and employ computer control. The scope of function of this machine is from loading rubber sheet by a worker, inspecting the sheet to pinpoint impurities, and then cutting out the portions of rubber sheet containing impurities. These tasks are done automatically. Workers only load and unload the rubber sheets.

Currently a working prototype of such a machine has been developed, and it is being tested for its reliability in a real working environment. The machine will become available for industrial use soon and it has been filed for patents.



Fig.1 shows the inspection and impurity removing task by highly skilled labor



Fig.2 shows the ribbed smoked sheet punching machine

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