



## Motek treadle press: rejuvenating old letter printing press

**Mechanical/Electronics**

*National First*

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### Background

Satish Deb (28), has devised a technology that has the potential to rejuvenate the almost dead and obsolete treadle printing presses and convert them into screen printing presses.

Satish comes from a modest background. He lives with his parents, wife and a younger brother who works in Mumbai. He was born in Raipur in 1978 but moved on to Bhilai along with his family when his father got transferred in 1980.

They had a treadle printing press at their home. He and his brother used to work on it since their adolescence. Growing up in this environment, they learnt about various aspects of the printing process.

### Genesis

The year was 1996 and Satish was in class twelve, preparing for his engineering entrance exams. An uncertain future closed in on him when due to certain problems, his father's company did not pay his salary for many months. The income from their

small printing press was irregular and meager and they began to live off their small savings.

A dream died. Satish abandoned his plans of becoming an engineer, discontinued his studies and joined family business of printing. In his spare time, Satish started thinking about ways to revive their treadle press and increase the family's income.

But time had changed with the arrival of computers. There were new printing technologies, which were comparatively simple to operate and produced output of far better quality in colour. The treadle presses, using letterpress types based upon the 'Platen & Bed' theory, were slower and produced poorer quality printing.

His lack of knowledge, training or experience did not deter him as he went about painstakingly developing the Motek printing press, conceiving and optimizing all components.

In 1997, it occurred to him how he could convert his treadle press to deliver offset class output. He spent an entire frustrating year developing his novel

kit, searching in local markets and incessantly trying out different chemicals and polymer sheets to deliver the desired quality. He tested the product and also tried out impressions on paper, board and plastic. Finally, he succeeded in 1998 when he standardized its parts and working.

Having his product ready, he incubated it for another year (1998-99) for further testing and simultaneously applied for patent. His first patent (No. 189882) was granted on March 10, 1999 and till now he has five patents for various versions of his machine.

He has always had support of his family while facing various troubles in developing this Motek treadle press, jointly. His father helped him with technical inputs while his brother helped him with paper work and his mother remained a constant source of inspiration and a pillar of strength.

The process of development and the filing for patents proved very costly for him and he invested almost all of his father's savings. At a later stage he took a bank loan also, which the family is trying to repay gradually.

## Innovation

Motek India printing technology is a low cost, cutting-edge, upgradation tool for most printing machines, which use conventional treadle press and are unable to deliver quality output.

A number of devices and techniques have evolved since the invention of printing. US patent No 7021213- April 2006 describes a printing method comprising the steps of mounting an underlay sheet on a plate cylinder of a printing press, and providing, on the underlay sheet, a printing plate material comprising of a plastic sheet support, and provided thereon, a hydrophilic layer, an image formation layer and a backing layer.

Here in this Motek India printing technology, the innovation lies in the unique technique of registering computer printed images using an exposure unit onto a screen unit. Printing material is pressed by an inked custom-built polymer sheet holder, fitted into existing treadle press. It enables printing on various media by impact action. Mono or multi-colour half tone output can be generated using existing treadle press inks.

The attachment kit is convenient, user-friendly, requires very little maintenance and can be added to any working treadle-printing machine to get results comparable to desktop publishing up to the range of 300 to 450 dpi. The cost per print is also lower than screen-printing and offset processes.

Other important features included are that it can be operated by pedal or motor, can handle any paper size and can also be used to print on plastic surfaces such as polybags.

This kit also offers multifunction facility *i.e.* one can

use both letterpress types as well as Motek India printing kit at the same time. Another important feature is that a single operator can get all the jobs done on the machine.

The Motek treadle printing press uses 'butter paper' as the image-carrying medium against the 'polymaster' being used in baby-offset printers. This is what lowers printing cost *i.e.* Rs 1.50/- per sheet as against Rs. 15/- per sheet for baby offset printing.

The cost of the retrofitted Motek India Treadle press kit is about Rs 25,000 against Rs 1, 25,000, cost for installing offset printing press. The retrofitting increases output of conventional treadle press from 12,000 sheets/day to 70,000 sheets/day. Baby-offset printers can print about 5,000-10,000 impressions/day.

The technology of this kit has been approved and certified by The Northern Regional Institute of Printing Technology, Allahabad (U.P.), which is India's first and premier printing technology institute.

NIF, through its regional cell, GIAN NE, has facilitated a distribution license for the Motek kit in Assam. Since 2005, a large number of unit sales of this kit have been through this dealership, which forms a substantial part of their small income. He was also supported under the MVIF scheme for the diffusion of his technologies in four printing clusters of India, which elicited a very good response from the market.

Satish was invited by NIF to the Inventors of India Workshop at IIM, Ahmedabad in October 2006 to give a presentation about his technology to fellow



innovators. An article on his Motek treadle Press, published by Enadu daily, Hyderabad in October 2006, was very well received and generated many product inquiries. Lots of market enquiries are still pouring in from different parts of the country.

Presently, he is developing an automated version of the machine, filing additional patents and arranging finances for capacity expansion to deliver to the exploding demand for this product.