



“AUTOMATIC PAPER STAMPING MACHINE”

Mr.Gangurde Amol N, Mr.Shaikh Habeebullah I, Mr.More Ajay A, Dept. Of Mechanical Engineering, S.N.D.COE & RC, Yeola, Maharashtra, India.

Prof.Amol R.Nikam, Prof.Pavan S.Baravkar, Dept. Of Mechanical Engineering, S.N.D.COE & RC, Yeola, Maharashtra, India.

ABSTRACT

Rubber stamping, also called stamping, is a craft in which some type of ink made of dye or pigment is applied to an image or pattern that has been carved, molded, laser engraved or vulcanized, onto a sheet of rubber. The rubber is often mounted onto a more stable object such as a wood, brick or an acrylic block. Increasingly the vulcanized rubber image with an adhesive foam backing is attached to a cling vinyl sheet which allows it to be used with an acrylic handle for support. These cling rubber stamps can be stored in a smaller amount of space and typically cost less than the wood mounted versions. They can also be positioned with a greater amount of accuracy due to the stamper's ability to see through the handle being used. Temporary stamps with simple designs can be carved from a potato. The ink coated rubber stamp is pressed onto any type of medium such that the colored image is transferred to the medium. The medium is generally some type of fabric or paper. Other media used are wood, metal, glass, plastic, and rock. High volume batik uses liquid wax instead of ink on a metal stamp.

Key Words : Stamping machine, Pneumatic cylinder, Ladder logic programming.

INTRODUCTION

An Automated **Stamping Machine** driven by **pneumatic** systems that consists of **air** compressor, directional control valves, **air** service unit was designed, fabricated, tested and operated. The FRL unit prepares the compressed **air** for utilization by the **pneumatic** components

Basic of Pneumatics

The earth is surrounded by an envelope of air known as atmosphere. The composition of this 12 mile thick envelope. Due to the compressibility of air, increasing the pressure causes decrease in the volume of air.

Manual types of the paper stamping machines are handled by any persons working.

MOTIVATION FOR PROJECT

1. Secured documentation:

Due to password protected system it only work on the correct password feed otherwise it do not function.

2. Time saving:

It saves time by atomization and fast stamping process due to the pneumatic cylinder, and electrical circuits.

3. Labor cost:

It minimizes the need of the labor required in government/private offices for paper work, which is eliminated by this machine.

4. Easy to use:

It is easy to use because of its automatic actions only we have to do is to put the papers in machine and set



the position.

Why Use Pneumatics?

1. Much easier to mount than motors
2. Much simpler and more durable than rack and pinion
3. Cylinders can be stalled indefinitely without damage
4. Resistant to impact.

Need of automatic paper stamping machine

Statement of project

The statement of project is “ automatic paper stamping machine” for used punch or emboss themachine components names, symbols and other printing work.

objective

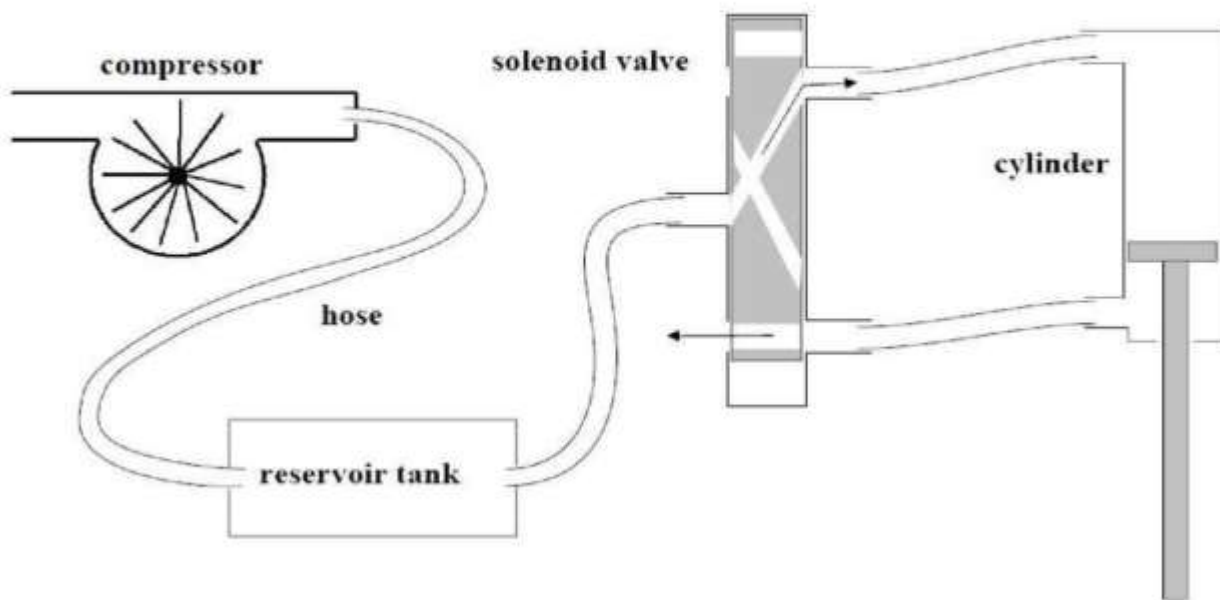
To reduce the power consumption during machining. To maintain the accuracy in production.

To develop automation unit , so that m/c can easily be adopted in today’s automated plants. To perform the most rigid operation with high speed.

Problem identification

The stamping is the major operation performed in industry, & to perform this operation in massnumber the manpower is require which results in to high cost of production , more time require to complete the operation , affect the accuracy of product so for automation in system we aretrying to do work on new system in stamping.

Pneumatic Principles



MANUFACTURING STAGES

1. Frame manufacturing in fabrication shop with the arc welding.



2. Mounting of the cylinders on the frame with the help of fix welding arrangement mounting it vertically.
 3. Attaching the sliding table to the frame with help of nut bolt arrangement having highest flexibility.
 4. Attaching the self ink stamp to the piston rod at its end with the perfect alignment.
 5. Assembling the motors with their rollers to guid the page on the sliding table.
 6. Fitting the 5/2 dc valve to operate the cylinder and connecting the air reservoir.
 7. To make connections of the plc circuit for the proper functioning of the circuit with password programmed in the plc.
8. Make the connections properly and starting of the compressor supply to the actuator
- S.N.D. Polytechnic & Resurch Center, Yeola 11

COST

ESTIMATION

Sr No

Name of component Cost incurredRs.

1	frame raw material cost	2500
2	Air cylinder	1000
3	Gear motor	500
4	Sensors	1500
5	Gear motor	250
6	Paper sliding mechanism	1000
7	Self Ink stamp	500
8	Electric panel	2000
9	Sliding table	1000
Total cost		Rs.10250

ADVANTAGES AND LIMITATIONS

Advantages

1. To minimize labor cost.
2. To save time.
3. Secured stamping.
4. Compact in size
5. Easy to operate.

Limitations

1. Hazardous due to electrical system.
2. Costly compare to mechanical stamping machine.

Applications

By using this machine we can easily print our logo or name on leather, card board & plastic articlescrafts by using stamp printing tool.



CONCLUSION :

This new technology developed for the official purpose of paper stamping. It tells about modern stamping method based on the password system which can be applied for official use. The user interface provides whole information to promote the stamping service for the officer. During stamping proper place is adjusted for where the stamp is required. It has also given two rollers for forwarding the next paper. After finishing the stamping it has given the photo electric sensor for the stopping the impact of stamp to prevent the blank movement of the actuator.

FUTURE SCOPE:

This project can be modified in the following manner

1. Addition to the barcode system for the proper stamping place. And also it will secure the authority of the government stamps
2. We can add the another accessories such as punching machine and also the stepper also to make it multipurpose.
3. It can also used in industry for stamping company logos on their products.

REFERENCES

- [1] Khurmi and Gupta "Theory of Machine" Edition Reprint 2007. Page no. 106-107
- [2] Khurmi and Gupta "Machine Design" Edition 2005. Page no. 261- 280 and 558-570
- [3] "Information Search Report on an electro-magnetic machines" Om Industries, C- 25, MIDC Satpur. 201516.
- [4] Design of machine Elements: - Prof. V. B. Bhandari, Tata Mc .Grew Hill Publishing Co. New Delhi.
- [5] Workshop Technology, Hajara Chaudhari, MPP edition 2015.
- [6] Production Technology, R.K. Jain, Khanna publications. 17 Edition 2013.
- [7] PSG Design Data Book of engineers, edition 2012.
- [8] Pneumatics Systems Principles and Maintenance, Majumdar S.R, Tata McGraw Hill, Edition 2013.
- [9] Pavan S. Baravkar & Dr. Amol D. Lokhande, Experimental & FEA Investigation of V Shape Spring with Materials, "Mater. Its Charact.", 1, no.1, pp. 43-47, 2002, doi:10.46632/mc/1/1/6
- [10] Sheela. S, Shivaram. K. R ,Meghashree. S, Monica. L, Prathima. A, Shriya. M .Kumar, "Low Cost Automation for Sorting of Objects on Conveyor Belt", Vol. 5, Special Issue 10, May 2016, pp.195-200.



- [11] AmrutaPandit, Jyoti “Object counting using image processing technique”Vol. 3, Issue 4, April 2014, pp.8509-8512
- [12] Avadhoot R. Telepatil, “Colour Object Counting and Sorting Mechanism Using Image Processing Approach”
Volume 02, Issue 03, [March - 2015].
- [13] Mr. Ravipothin “Automatic Pneumatic stamping machine” International Journal & Magazine of Engineering
Technology & research Volume 2, Issue no 7, july2015 ISSN 2348-4845
- [14] A Gundawar “Pneumatic Stamping Machine”, IJARIE, Vol-3 Issue-3 2017
- [15] Pavan Subhash Baravkar & Amol D Lokhande p, FEA Investigation of V Shape Spring with Materials under loading conditions, no.3,pp. 1-14,2023.
- [16] Mr.Arun S, SreeRajendra and VijayavithalBongale “Automatic Punching Machine: A low cost approach” (2014).
- [17] Mr. Raj Kumar Sharma, RakeshPatwal, Rakesh Kumar Yadav, Vijay pratap , Kinematic Design & Development
of Automatic Pa-per Stamping Machine by using CAM & FOLLOWER Mechanism[2015-16].
- [18] Mr. D .S .Welkar, LalitS.Saindane, Niraj S. Nerker, HarshalR.Baviskar, Vishal P. Sonawane, “Automatic Stamping And Pad Printing Machine”, 7th International Conference on Science, Technology and Management ,
ISBN:978-93-86171-30-6, 2005.
- [19]Mr. S. M. Pimpalgaonkar, Mr. S. V. Kale, Mr. S. G. Ghugal, Mrs. S. V. Borkar, “Automatic Stamping Machine for Post Card to Over Come the Usage of Manual Repetitive Stamping Work”,
International Journal For Research
In Emerging Science And Technology ,Special Issue ,2007
- [20] MohdJazirin Bin Shamsul , “Programmable logic control application for stamping operation”,
University TeknikalMalessiya Melaka ,2008.
- [21]Mr. Ravipothina,B.Raju, G. Upendra Kumar, “Automatic pneumatic stamping machine” ,
International Journal & Magazine Of Engineering,Technology,Management And Research ,2008.
- [22]Yusha Patel, PrajaktaAtale , Maitri Shah, R. S. Deshmukh, “Arduino controlled automatic paper stamping machine.”, International Journal of Scientific & Engineering Research, Volume 8,
Issue 2, ISSN 2229-5518 2009
- [23] Akshay Gundawar¹, Yogesh Shahane², Aditya Kathar³, Prof. S. A. Shimple⁴, “Pneumatic stamping machine”,Vol-3 Issue-3, IJARIE-ISSN(O)-2395-4396, 2009,
- [24]ThivankaKasunGunawardena, P R Dadigamuwa and B G D A Madhusanka, “Low Cost Automated Machine for Paper Gathering and Folding.”, European Journal of Advances in Engineering and Technology, Vol 2(2): 40-43,
2009
- [25] RakeshSehgala & AshimSharmab , “A graphical approach for.kinematic design and development of an automatic stamping machine. using four bar chain”, Indian Journal of Engineering & Materials Sciences, Vol. 15, pp. 229-235, June-2009.
- [26] Prof.Baravkar Pavan S., Mr.Gangule Vishal B, Mr.Koshti Pratik R, m.g.j.d. & M.N. Kiran, wind ventilator electricity generator, no.3, pp. 1-14, 2023.