



MICRO MOTION STUDY OF WORKER (CARDING MACHINE & RING FRAME)

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ABSTRACT

Motion study is a systematic way to understand and analyze human body motions. This article reviews the motion study and movements of the body while performing the activity. Here we explained what actually motion study is and the types and components of motion study by analyzing the activity of a worker performing her duty in Delhi cloth & general mill.

1. Introduction

Motion study is a systematic way of determining the best method of doing the work by scrutinizing the motions made by the worker or the machine. As per Gilbreath it is the science of eliminating the wastefulness due to unnecessary motions. He was interested in finding the one best way to do the job. he analyzed the motions of bricklayers and was successful in reducing the number of motions of a bricklayer from 18 to 5. Motion study can be divided into three components or types:

- 1) Therblig analysis: a therblig is a small part of a job. Gilbreath gave 17 basic motions of a worker each motion is known as therblig.
- 2) Micro motion study: it is the study of elements of an operation with the help of high-speed movie camera in order to eliminate the unnecessary motions involved in the operation and balancing the necessary motions.
- 3) Principles of micro economy: this motion study find out the correct application of theories behind motion elements to achieve synchronization of human body movements, best layout of work places and optimum design of equipments.

The five basic principles of micro economy are:

- 1) Principle of minimum movement
- 2) Principle of natural movement
- 3) Principle of habitual movement
- 4) Principle of rhythmic movement
- 5) Principle of symmetrical movement

Objectives:

- 1) To analyze the motion study
- 2) The movements of their body while performing the activity
- 3) The movements involved in doing the activity.

2. METHODOLOGY

Locale of study: The research will be carried out in DCM (Delhi cloth & general mill) near mill gate in Hisar, Haryana.

Observation during worker doing activity: In this research I observed that two activities firstly, Carding machine and second one Ring frame. I observed two different workers performing two different activities and their motion study and movements by observing their work and the steps they walk while performing the activity and the speed, at which they are working.

Activity 1: Carding machine

Operation: Operation means an action. It is one of the steps in the procedure. Any operation for making, altering or changing the job is said to be an operation.

(Worker performed operation for 5 times)

Inspection: It represents checking for quality and quantity of the items.

(Worker inspected the machine for four times)

Transport: Movement or travel of workers or materials from one location to another.

(Transported for 3 times)

Delay: Delay means the process has stopped due to some reason .It is temporary halt.

(Work was delayed once)

Change point: The point where we need to replace the empty machine with new objects.

(Change point happened for 2 times)

Storage: It is the stage of a finished good or raw material waiting for an action.

(Worker stored once)

Operation and Inspection: A product is being weighed when it is repacked.

Operation and Transport: Products are made and ready for travel.










Transportation and inspection: The process of cross checking the process while moving the object from one point to another

(Transportation and inspection was done once)

Result: Table 1

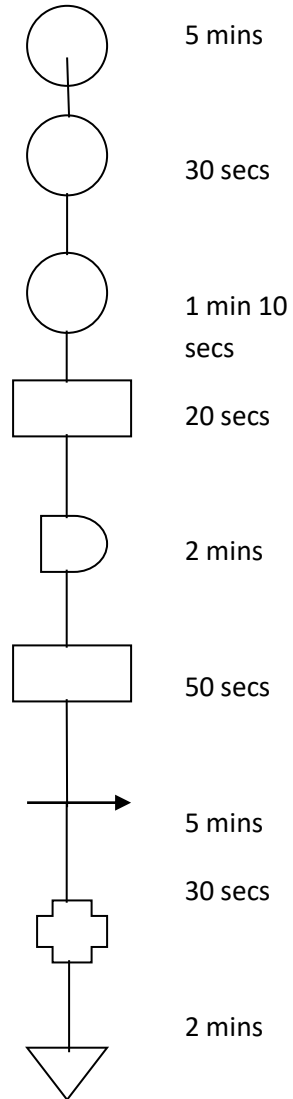
Task	carding machine
No . of worker	1
Age of worker	45
Year of experience	14
Training taken	6 months
Chart start(timing)	11:00 am
Chart end(timing)	12:00 pm

Table 2

Activity	Symbol
Operation	
Inspection	
Transport	
Delay	
Storage	
Operation and inspection	
Change point	
Transport and inspection	
Operation and transportation	

FLOW CHART:

- cleaned the floor
- Gave command and started computer
- Put silver in machine
- Checking sliver
- Sliver strucked and delay
- Checking silver and removing waste sliver
- Filled cans were moved
- Replace with empty cans
- Filled cans were stored separately



- Sliver were collected in cans
- Empty cans were placed
- checking the sliver
- kept sliver in the machine
- replaced with empty cans
- check and remove improper sliver
- Filled cans were kept aside
- empty cans placed under the machine

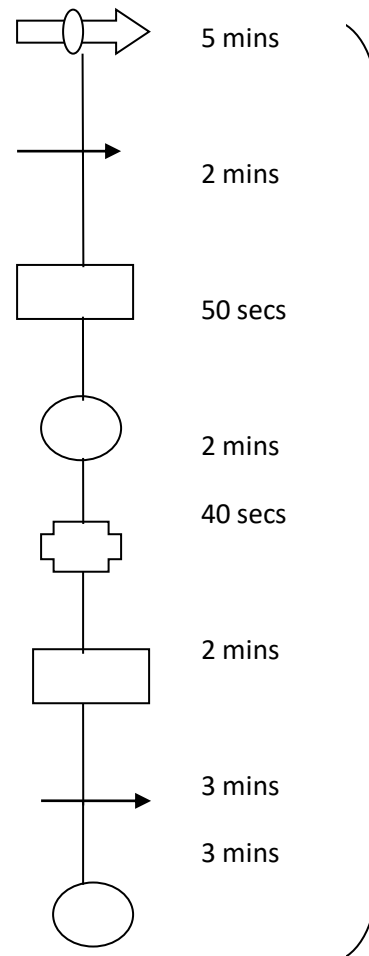


Table 3

Summary sheet	
No. of operation	5
No. of inspection	4
No. of storage	1
No. of delay	1
No of change point	2
No. of transport	2
No of operation and transport	1
Total distance travelled	3963 steps(3.0 km)

Activity 2 : Ring frame

Operation: worker performed operation for 3 times

Inspection: Inspected the machine for 5 times

Transport: Nil

Delay: Delay was happened once

Change point: Nil

Storage: They stored for Once

Operation and inspection: They operated and inspected for 3 times

Operation and transport: Nil

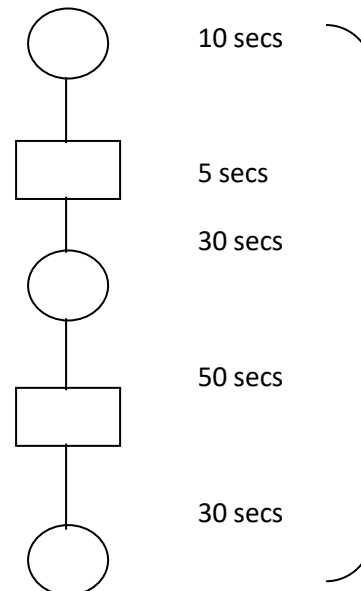
Transportation and inspection: Nil

Result: Table 4

Task	Ring frame
No . of worker	1
Age of worker	35
Year of experience	3
Training taken	5 months
Chart start(timing)	10:10 am
Chart end(timing)	11:10 am

Flow chart:

- Work under process
- Worker is inspecting the work
- Threads were fixed
- Red light gets on if the thread breaks. (10 times)
- it will be fixed by worker



- Extra cotton will be checked and removed
- Struck cotton will be removed with stick
- Empty bobbins will be replaced with new cotton
- If Roving bobbin gets empty, it will be replaced
- Bobbins will be checked regularly
- For every 5-10 secs one bobbin is checked through another bobbin
- Filled bobbins were placed in roven bobbins
- Bobbins will be checked whether filled or not
- Broken threads will be fixed

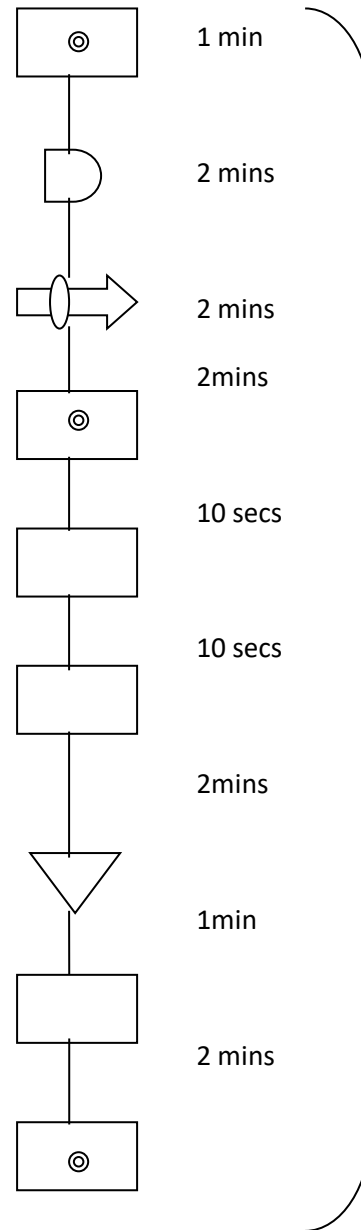


Table 5

Summary sheet	
No. of operation	3
No. of inspection	5
No. of storage	1
No. of delay	1
No of change point	0
No. of transport	0
No of operation and transport	1
No of operation and inspection	2
Distance travelled	1097 steps (0.8 km)

3. CONCLUSION

By properly analyzing the human body motions we can reduce the workload and the repercussions faced by the worker after performing any activity in an improper way. Every worker who works continuously for long hours daily should take proper care while performing the activities and the concerned authorities should help them in adopting work-friendly postures

REFERENCES

- [1] <https://managementation.com/what-is-motion-study/>