

DESIGN OF BARBER'S CHAIR (SALOON  
CHAIR)

HIMANSU SEKHAR CHOUHAN

INDUSTRIAL DESIGN CENTRE  
INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY  
1974



✓44  
Design of Barber's Chair (Saloon Chair)

Diploma Project

Submitted in partial fulfilment of the  
requirements for the Postgraduate  
Diploma in Industrial Design

by

Himansu Sekhar Chouhan

**I. D. C. Library**

**L. I. T. Bombay.**

03 / Pro / 3-73-74

DP/IV - 44/1974

Industrial Design Centre

Indian Institute of Technology

Bombay

1974



Guide:

Shri. U.A. Athavankar

Co-guide: .

Shri A.G. Rao

**I. D. C. Library**  
**L. I. T. Bombay.**



Approval Sheet

Diploma Project entitled  
'Barber's Chair' (Saloon Chair)  
by H.S. Chouhan is approved for the  
Postgraduate Diploma in Industrial Design

Guide

U. A. Ashvaran

Chairman

*Handwritten signature in blue ink*

Examiners

*M. Y. Thakkar*

*Handwritten signature in blue ink*

24.5.74

I. D. C. Library  
L. I. T. Bombay.



My acknowledgements

Shri P.N. Saha &

Shri P.K. Banerjee, Central Labour Institute,  
Bombay

Shri I.C. Joseph, Larsen & Toubro Ltd., Bombay

Shri Joshi, Harsora Brothers, Bombay

Prof. S. Nadkarni

Shri U.A. Athavankar

Shri A.G. Rao

Shri M. Chattopadhyay

Shri N.O. Varghese

and

My friends at I.D.C.



## Contents

1. Introduction
2. Problem Statement
3. Information
4. Analysis
5. Hypothesis
6. Synthesis and Design development
7. Communication



1. PROBLEM STATEMENT

Design of Barber's Chair (Saloon Chair)



## 2. INTRODUCTION

Indian society accepts barbers as a class and their traditional profession still exists with an exception may be to urban cities. The pattern of this profession is totally traditional in rural areas and thus differs from cities where it becomes either self-involved or essentially business oriented.

In spite of the fact that the fashion of sporting long hairs has caught up with man this has'nt in any way reduced the barber's job potential. In fact, his work has become more specialised as a hair dresser.

The barber wants his livelihood and to keep up his traditional profession. Customer pays more and demands comfort. No more he can ask his customer to sit on the road side. He wants a decent and clean saloon with necessary gadgets - a saloon chair, mirrors, instruments, aprons, waste box, waiting bench and few magazines.

Besides the service he renders, the manner he deals, the music his radio plays, the magazines he subscribes, his saloon chair becomes the nuclei of customer's attraction. Unlike in foreign countries, Indian barber cannot



2

generally afford a profusedly mechanised chair because of the high capital investment. Government assistance and loan etc. were not extended to such profession and business till very recent times.

The chair has to cater to the functional needs of the barber and to accommodate the customers of different age groups.

This report is more concerned with saloon chair designed to suit to typical Indian cities and generally to a particular financial status of both the barber and his customer confirming to optimum comfort to the latter and convenience of the former.





### 3. INFORMATION

#### 3.1 Barber profession in India

##### 3.1.1

A village barber moves around as a hawker with his instrument kit. He does not possess a fixed working place. It is a full-time profession with some barbers with others it is part-time as they depend on cultivation.

Customers are from the same society. They sit on the floor or on a wooden platform. The barber's charge is quite nominal. This is also practised in small cities within the low income groups at weekly market centres.

##### 3.1.2

Barber of a city starts business alone. He builds a wooden cabin near a chowk area or close to side walks even sometimes goes for a rented cabin. He invests minimum gadgets - wooden saloon chair, waiting bench, instruments, aprons, mirrors and subscribes newspaper for his customer. His charges are nominal. The saloon is closed down before evening.

The customers are from low income groups and even lower middle class people. They demand service rather than comfort. Sometimes the low rates of the saloon attracts the customers.





### 3.1.3

The barber recruits two or more barbers and starts the business. He invests more to set up a sophisticated saloon. The chairs may be cushioned wooden type or fabricated column type. Customers are attracted not only by his service but also by his showmanship - the cosmetics, saloon interiors, radio, fans, newspapers, magazines. His charges are higher than previous barber. The customers are from middle and upper classes. They demand service and comfort too.

### 3.1.4

There are typical saloons in big cities owned by a proprietor, who invests, finances and employs the barbers. Saloon are sophisticated and furnished with costly fabricated chairs and interiors. The charges vary from Rs.1.50 to Rs.5/-.



Mostly middle class and upper class people are the customers. They ask service and comfort. Sometimes air-conditioned saloons are found in big cities to justify the status of the customers and barbers.



### 3.2

The types of saloon chairs available are  
wooden chair

column type chair

#### 3.2.1

Wooden chairs are made by local carpenter according to job order.

The capacity for designing the chair is decided from the wood sizes available in market.

There is no limitation in design as well as in application due to easy availability of materials. The cost of the chair is within the range Rs.25/- to Rs.120/- depending upon the cost of the material and labour.

The chair has an elevated seat height, wooden head rest mechanism and a separate wood box is used for foot rest. Special arrangement is made for children to sit keeping a wooden plank on the hand rest of the chair.

#### 3.2.2

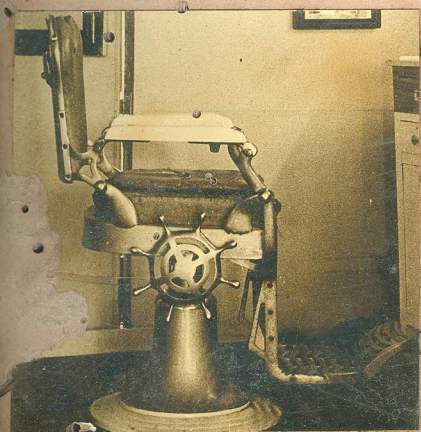
Column type fabricated chairs are batch produced according to job order.

Capacity for designing the chair is decided from iron, brass and aluminium castings, available wood and foam rubber sizes.

Forms and colour are based on technical design.

Guarantee of five years is offered by fabricator.

The cost is Rs.1,200/- and complaints are negligible.





### 3.3 Users

Users of the saloon chair are the barbers and customers.

#### 3.3.1 Barber

##### 3.3.1.1

Wooden type of chair is generally used by barbers of small cities and often in big cities for the service of the low income groups.

It needs low investment.

Easier to get it done from local carpenter.

Maintenance cost is nil.

Barber faces a problem for babies.

It is impossible to invest more on his part.

Government never assists financially to this profession.

In spite of his capability it is the lack of knowledge about the formalities to obtain a fabricated chair.

He prefers an improved quality of wooden chair and even a fabricated one if the cost will be low.

##### 3.3.1.2

Column type fabricated chair is very common in large towns and cities when the barber profession is business-oriented.

It is comfort oriented,

Extra cushion is added for babies to sit on the chair.





It is an attraction to customer in the competitive city environment.

The barber tries to justify his charges by keeping such chairs.

They need more sophisticated chair to improve the status of their saloon.

The saloon interior and the chair positions are permanent. It is observed in cities like Bombay, the saloon floor is used as a shelter during night by displacing the chairs to a corner.

### 3.3.2

The customers can be grouped as  
low income group  
middle income group  
high income group

#### 3.3.2.1

Low income group and some of the middle income group are the customers of the saloon furnished with minimum gadgets. They are concerned with the services rendered. The charge more than a rupee is a problem for them, after all comfort is not their demand.



### 3.3.2.2

High income group and some of the middle income group prefer good saloons. They want service as well as comfort. They prefer clean saloon, chairs, instruments and aprons. Mostly they go for hair cutting and treaming. They come for shaving when in hurry.



### 3.4 Ergonomical information

#### 3.4.1

Anthropometric data of Indian adult man at standing posture was collected to determine the comfortable working zone for manual and visual work.

#### 3.4.2

This data was collected to find out comfortable seating posture comfortable angular head movements.

#### 3.4.3

This data was collected to decide the seat.

#### 3.4.4

This information is about a comfortable back rest.

#### 3.4.5

This data was collected to study the types of hand rest.

#### 3.4.6

This information was taken to decide the angle between the seat and back rest for a chair used for short duration.



### 3.4 Ergonomical information

#### 3.4.1 Anthropometric data of Indian adult man at standing posture.

175 cm.  
154.5

164.5  
144.5

138.5  
121.0

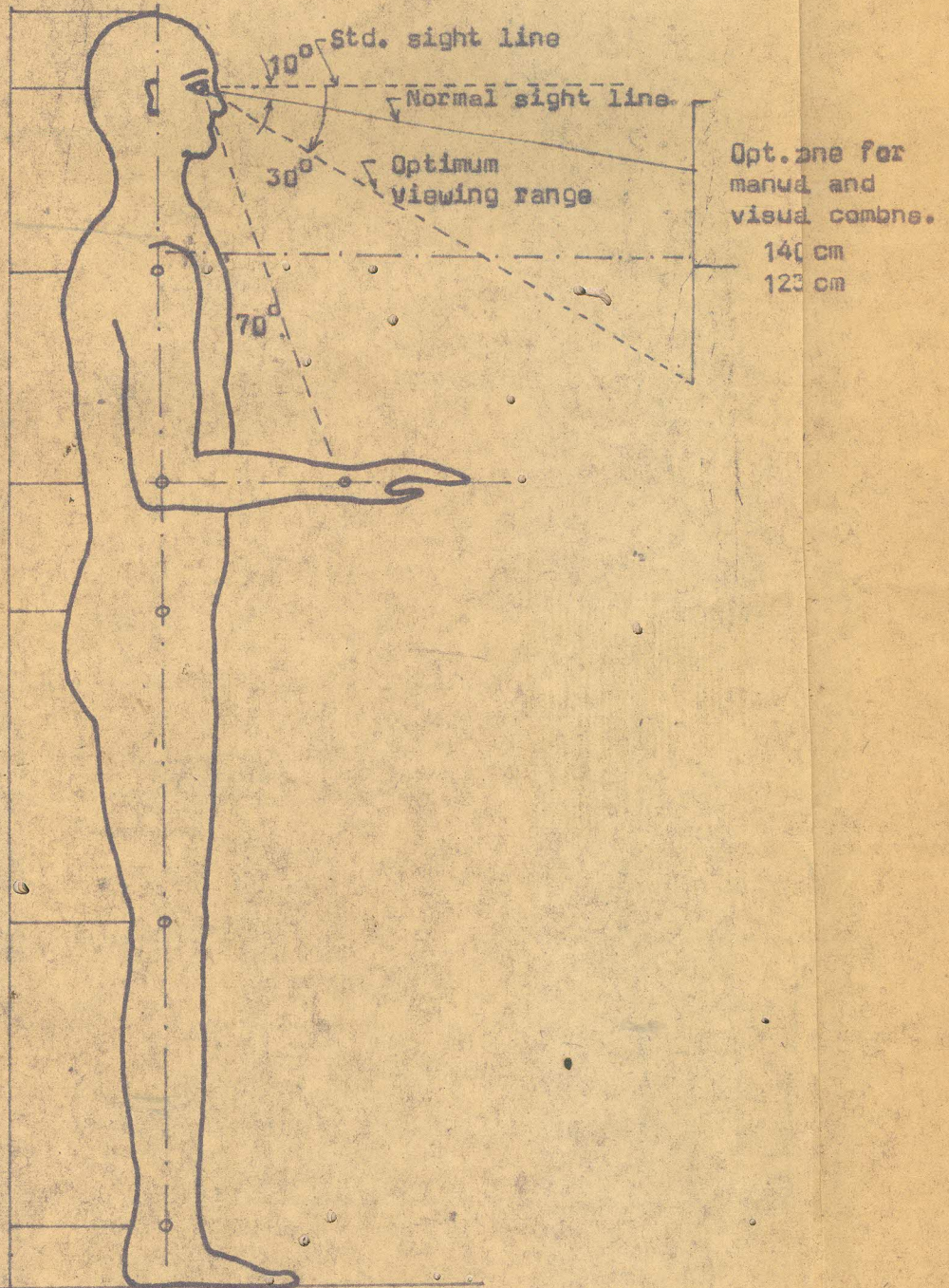
110.5  
97.0

93.0  
82.0

50.0  
44.0

8.5  
7.5

0 Datum





### 3.4.2 Anthropometric data of Indian adult man at sitting posture.

Easy head movement

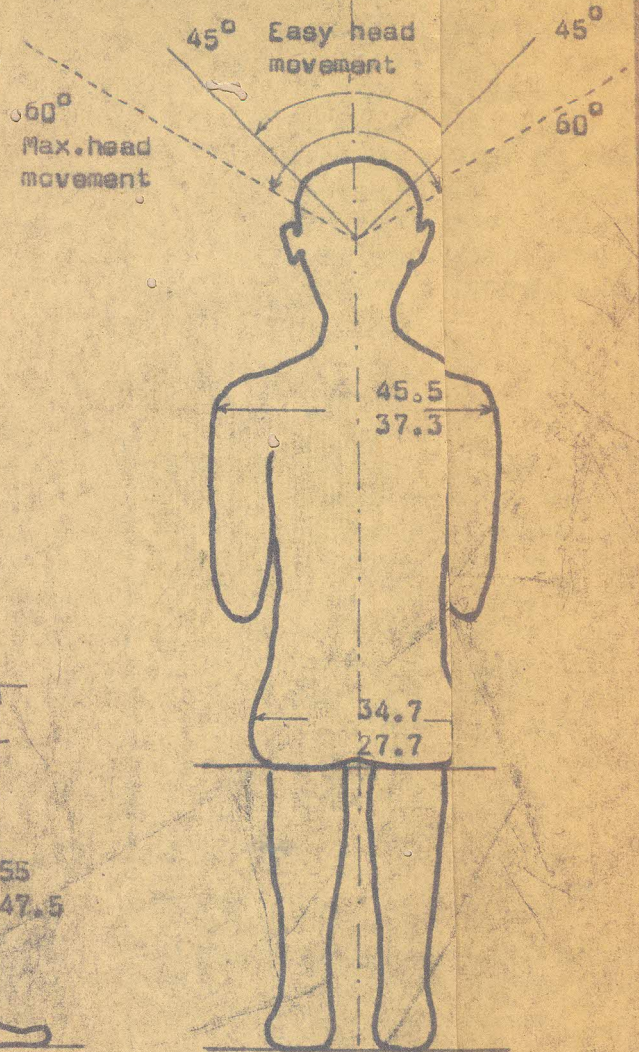
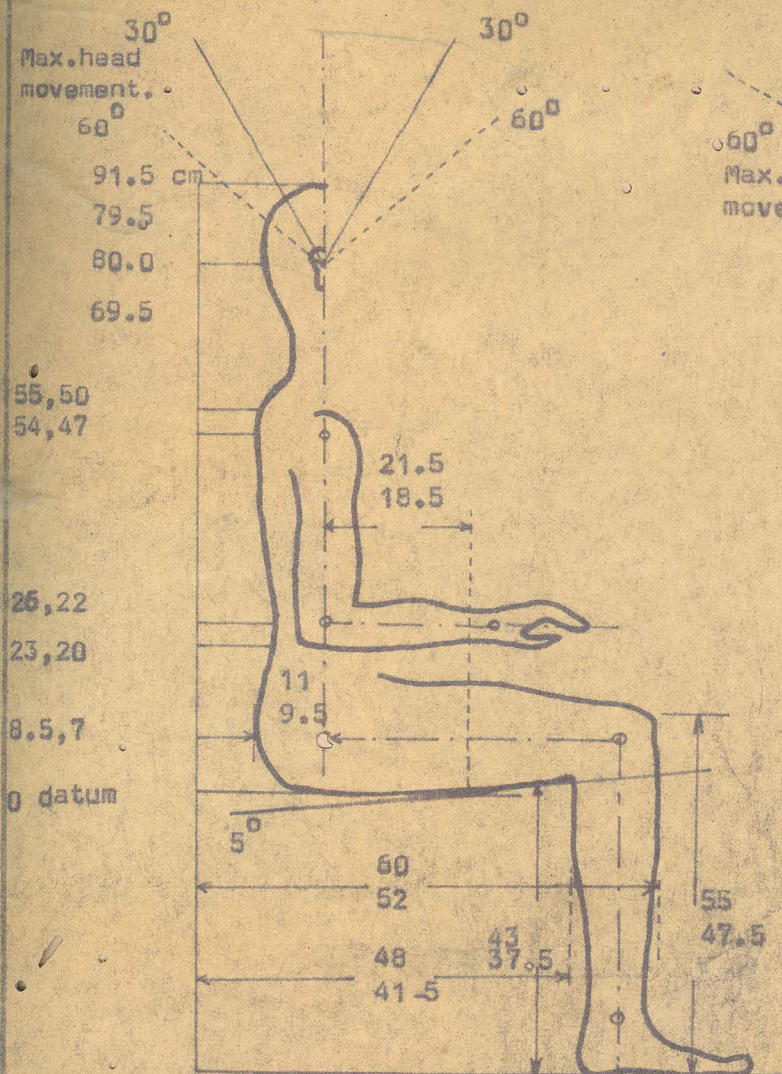




Fig.1

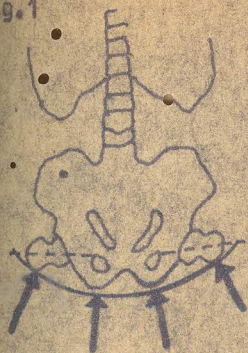
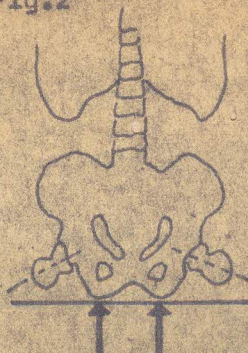


Fig.2

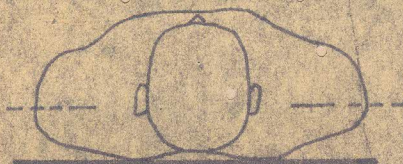


3.4.3 A very short seat will cause fatigue by placing pressure on thigh joints and other areas (fig.5). A flat, firm seat (fig.6) allows weight to be concentrated on the two bony joints of the pelvis.

Fig.3



Fig.4

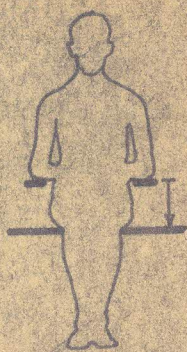


3.4.4 The shoulders should rest against reasonably flat surface (fig.4). If the back is too concave (fig.3), the shoulders will be rolled inward, this compresses the lungs and impairs breathing efficiency, thereby causing fatigue.

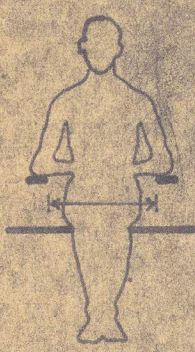
Fig.5



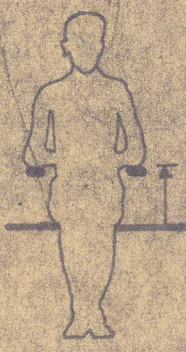
6



7



8



3.4.5 Armrests should be placed so that the elbows can support some of the weight of the upper body (fig.5). If they are too low (6) or too far apart (7) the customer will have to slouch. If they are too high (8) the shoulders should be hunched.

Fig.9

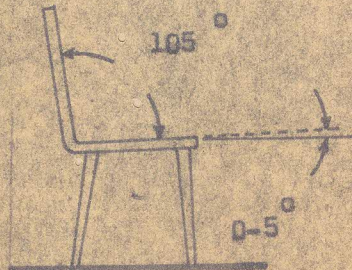


Fig.10



3.4.6 Fig.9 shows the conventional straight chair for short duration.

Fig.10 shows the chair with low back rest used for short duration.



#### 4. ANALYSIS

##### 4.1 User

The user of the saloon chair is broadly classified as the barber and his customer.

The barber is essentially interested in the functional, financial, aesthetical aspects of the product whereas the customer is interested towards the comfort that such a product can provide.

Customer can be from any class of society and from any age groups irrespective of height and weight. Barbers are from a definite age group.

##### 4.1.1 Functional requirements

- . To accommodate customers of different stature.
- . Ensure adequate comfort to customer.
- . Compatibility to the different height of barber.
- . Easy approach to all the focii of interest on the customer's person.
- . Comfortable working condition to the barber.

##### 4.1.2 Additional requirement

To provide a cheap, presentable and eyecatching saloon chair to the barber.



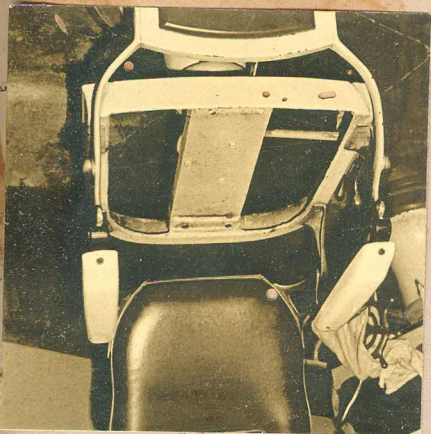
#### 4.2 Structural analysis

The structure of the saloon chair is the natural outgrowth of a need for supporting the seat, back rest, hand rest, foot rest according to the varied angular posture of the customer and provide working condition to the barber. For the detail analysis the conventional type of saloon chairs manufactured by Harsora Brothers, Bombay, has been chosen. The following are the main parts and function of the same.

##### Seat:

The seat is press fitted to an anamelled cast iron frame which is bolted to central friction column. The seat is a wooden frame structure with foam rubber cushion. Four chrome plated brass casting brackets are bolted to the seat frame; the front two directly support the foot rest and indirectly to the hand rest whereas the back ones take care of the back rest.

The seat is supposed to accommodate the customer irrespective of age and weight. An additional seat is provided to increase sitting height of the children. It is stable to prevent undue vibration at a particular sitting posture.





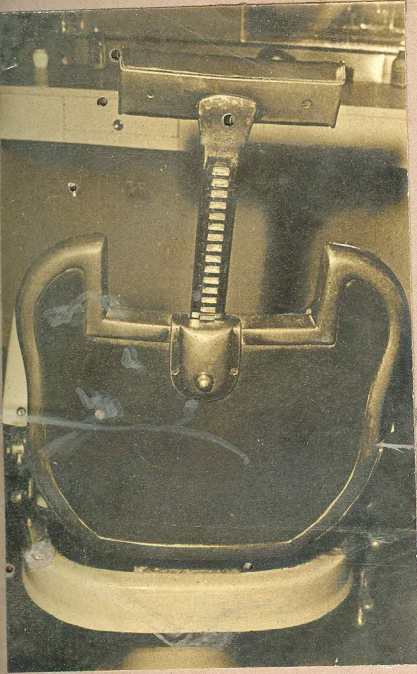
### Back rest:

The back rest is a wooden structure with cushion and is rexin covered. All the sides of it are screwed to a chrome plated brass casting frame. A negative area at the top of back rest accommodate the adjustable head rest. The extra length of the head rest is inserted inside the back rest structure. Two brass casting brackets are screwed to its sides. The back rest is kept in position being bolted to the seat frame.

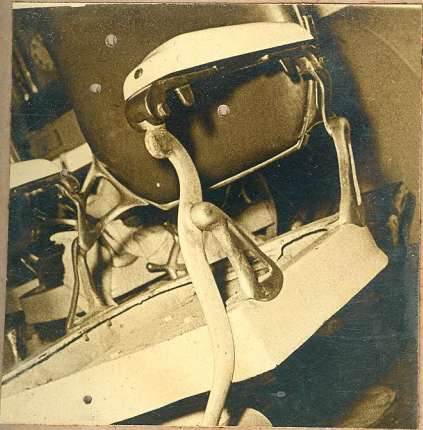
The back rest is to support the back of the customer to ensure a steady head position. Its varied angular position is claimed to provide comfort to the customer and working condition to the barber.

### Head rest:

A wooden block with cushion and rexin cover and a chrome plated brass casting 'U' frame with a grooved supporting rod constitute the head rest. The elongated supporting rod is locked by a spring loaded lever system. The head rest is used during shaving to support the head.







#### Hand rest:

One end of the hand rest is screwed to the back rest side bracket and the other end bolted to the foot rest. Both the joints are flexible. Vacuum formed polystyrene cover is press fitted to the hand rest. It is meant to support the hands at the sitting posture of the customer.

#### Foot rest:

The cast aluminium foot rest has two long tie bars which are bolted to the hand rest. It is also fitted to the seat brackets so that it can pivot about those points. A central lever arm projects out from the back of the foot rest and is fitted inside the side housing of the friction column.

It is supposed to provide a rest for the feet. There are two levels according to the need of tall and short man. The foot rest which is linked to the back rest moves accordingly. The central lever arm of the foot rest controls the entire moving system and hence locking system.

#### Friction column:

It is a cast iron cylindrical column with a side housing towards the top face. The seat frame is bolted to its upper face and its

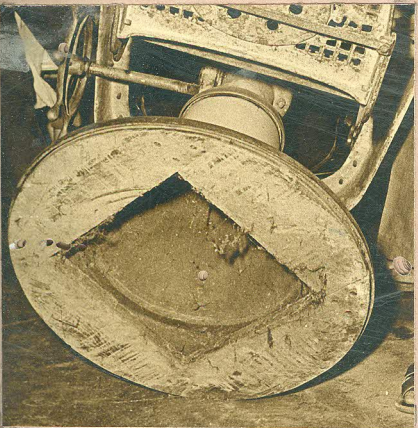


lower part is inside the base column. Thus the friction column revolves on the horizontal plane with the total chair. All the elements of the chair are directly or indirectly locked to it.



#### Locking wheel:

The locking wheel is a chromium plated brass casting with radial projection on its periphery. The threaded elongated rod from its centre is fitted to the side housing of the friction column. The projection provides a leverage while locking the chair.



#### Base column:

It is a hollow cast iron truncated conical column with an enamel finish. The base column is made heavy to support all the elements and balances the chair.



#### 4.3 Ergonomical analysis

##### 4.3.1

The present seat height of the chair is 650 which is inconvenient for a short barber to work.

##### 4.3.2

The back rest of the chair is vertical and far from the seat which is required by the present system mechanism.

While shaving, it is inclined to bring the face level of the customer to the shoulder height of the barber.

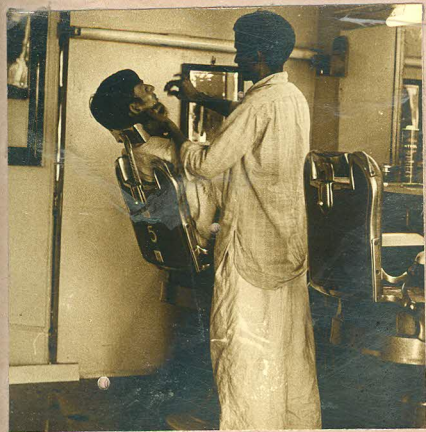
There is no proper lumbar support provided. Maximum load falls on the pelvis joint when the back rest is vertical and creates fatigue.

##### 4.3.3

The head rest form never goes with the neck contour, rather it supports the head and the lateral head movement becomes strainous. It becomes more effective when it supports the upper part of the neck.

##### 4.3.4

The locking wheel is at a very low height. The barber has to bend down to loosen and tighten the mechanism.





4.3.5

While cutting hair at the sides of the head and while shaving, the barber comes very near to the chair. Thus the base plate projection often strikes his feet.



#### 4.4 Formal analysis

The basic form of the saloon chair is completely mechanical and lacks visual unity.

Various parts, locking wheel, brackets and foot rest protrude out in all directions and lack of consistency in the form of different elements contribute to the visual disorganisation.

The lack of uniform transition and juxtaposition of different forms and components creates confusion.

The whole chair is built into number of parts and they are joined with too many screws and bolts all over. This spoils the overall appearance of the chair.



#### 4.5 Socio-economical analysis

##### 4.5.1

The manufacturers never give proper thought in designing the chair due to their poor technical knowledge.

##### 4.5.1

Saloon chair is the means of attraction of to the customer, so unnecessary <sup>na</sup> ornamentation raises its cost.

##### 4.5.3

Barber profession is well recognised, and a means of self-employment for two or more people. So it enables them more independent in society.



## 5. HYPOTHESIS

### 5.1 Structural

#### 5.1.1

The chair should be stable enough while taking the maximum load of the customer.

#### 5.1.2

Toppling at the sides and back has to be taken care when the posture of the customer changes according to the need of barber.

#### 5.1.3

Weight of the chair has to be reduced to an optimum range so that it will be easier to displace while cleaning and during transportation.

#### 5.1.4

The chair has to be batch produced, so it leads to suitable manufacturing processes.

#### 5.1.5

The base has to be levelled as far as possible.

#### 5.1.6

The chair has to occupy optimum floor area.



## 5.2 Functional

### 5.2.1

Customer should be able to sit on the chair to fulfil the working conditions of the barber.

### 5.2.2.

The back rest of the chair should not project above customer's neck.

### 5.2.3

Special arrangement has to be made for the children.

### 5.2.4

Angular variation of the back rest should be possible by simplest mechanism.

### 5.2.5

Vibration of the chair should be avoided.

### 5.2.6

The form of the chair should facilitate cleaning after each service.



### 5.3 Ergonomical

#### 5.3.1

The head of the customer should be below the normal sight line and above the shoulder of the barber.

#### 5.3.2

The seat surface should be flat, firm and should not be very soft.

#### 5.3.3

Maximum load on the pelvis joints should be avoided while sitting.

#### 5.3.4

The back rest should be flat to avoid the concave form of the customer's back.

#### 5.3.5

The lumbar region of the customer should be supported at every position of the back rest.

#### 5.3.6

The arm rest should take some weight of the upper body.

#### 5.3.7

An ideal seat depth and the proper foot rest should avoid the pressure at the back of thighs.

#### 5.3.8

The head rest should support at the cervical zone and allow easy lateral head movement.



#### 5.4 Formal

##### 5.4.1

Overall form of the chair should be simple, visually clean and light.

##### 5.4.2

The transition of different elements should be smooth and follow function.

##### 5.4.3

Quality and finish should sufficiently be improved to suit the saloon environment.

#### 5.5 Socio-economical

##### 5.5.1

The cost of the chair should be reduced.

##### 5.5.2

The chair should be eye-catching and presentable.



## 6. SYNTHESIS AND DESIGN DEVELOPMENT

As mentioned earlier, convenience to the barber and comfort to the customer are the basic factors optimised. Fabrication and manufacturing processes are accordingly chosen to reduce the cost factor.

The chair consists of the base part and the sitting part. Intricate parts are cast iron as it is inexpensive, slower manufacturing process and its possibility of different shape.

The base part has a base block, foot rest and base plate. Base block and base plate are iron castings. The base plate is used for stability, whereas the sitting part is clamped to the base block. They are separate, hence the base block can be bolted to the saloon floor when the interior is permanent.

The seat is flat wood with 25 mm thick cushion and rexin cover. It is fitted to the C.I. seat frame. It is flat, hence avoid fatigue in sitting.

The seat is positive locked horizontally to a hollow 60 mm dia iron pipe. The pipe is bolted to the base block at  $105^{\circ}$ .



27

The back rest is pivoted to the top of the iron pipe. The angle between the back rest and seat is  $105^{\circ}$ . This leads to a comfortable sitting posture and load on the pelvis joints is reduced. The height of the customer's head at this posture is lesser than that of sitting correct posture. Five degree back rest inclination is possible by a locking arrangement to the back rest.

The seat height can be raised to 600 and lowered to 500. The seat frame can be positive blocked to the pipe at the above positions. This enables suitable working heights according to the need of the tall and short barber. (6.1)

The head rest and back rest are integrated to one form. The head rest moves up and down and positive locked at a particular position. The head rest surface is inclined at  $30^{\circ}$  to the vertical so that the head can be tilted back easily.

The foot rest is a spring loaded pipe having a wooden resting surface. The front side of the resting platform is raised by  $30^{\circ}$ . The spring factor depends on the minimum pressure the feet exert and hence provides rest to feet. It is fitted to base plate. The same unit can be made to separate box form.



## 6.1

This study was carried out to determine the customer's sitting heights so that it will be convenient for a tall barber and a short barber. The working height of a tall barber is 1395 mm so the seating height for customer was decided to be 600 mm.

The working height of short barber is 1230 mm so the seating height for customer was decided to be 500 mm.



7. COMMUNICATION

7.1 Photographs

7.2 Technical drawings





**I. D. C Library**  
**L. L. T. Bombay.**













