

Integrated Drafting Table with Computer Table for Engineering and Technology Students

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Abstract:- Drawing with computer now is the order of the day, but one cannot succeed in CAD without having a background in manual drafting which is done on the normal Drawing table with the aid of the Drawing instrument and Equipment. CAD has been available to the industries in practically useful for a close a century. It has evolved from being a complicated simulation tool available to mainframe computers and exclusively by experts working on CAD. CAD play a vital role on industries and academia in recent years. The researcher come up with idea of modification of normal drawing that will suit the two purpose at once.

Keywords:- Integrated, Drafting Table, Computer Table, Engineering, Technology.

I. INTRODUCTION

In early 1970's many industrialized nations, recognized the benefits of computer in producing drawing to their economies (CAD), have promoted its adoption by both state and private enterprises. The automated factory, made possible by advances in microchip technology, has become more available at increasingly less cost to a greater number and wider variety of business. Millions of dollars have been spent in Europe, United Kingdom, Japan and United States of America to encourage the development and adoption of this Computer aided Drafting by industries.

In Nigeria, there are some institutions presently offering a variety of high technology oriented courses. In most cases, this training is offered as a part of drafting technology, engineering or similar program. Although there is considerable demand for offerings of Computer aided drafting as an upgrade course to engineers, architecture, designers, draftsmen and other professional.

Kachiku (2009) stated that if industrial arts drafting (drawing) programs is to remain effective and current, it is essential that the industrial arts educators scrutinize and incorporated new practices and innovation of industry. Further support is offered by Danrandah (2012) it is necessary for industrial educators to keep abreast of the rapid advancements in the field of technology, not only must they be recognizant of changes taking place in industry, they must also find means of implementing these technological changes.

II. LITERATURE REVIEW

Normal or conventional drafting table when computer table is attach to it will occupy more space because the size of drawing table is 900 x 750mm and the size of computer table which is attach to the drawing table is 500 x 750mm with overall size being 1400 x 750mm per work station.

Bognet (2004) opined that for the utilization of space that recommended for use which can only accommodate 25 students for a lesson instead of 30 students and above all because the drawing studio for tertiary institution were the number of students is very high. For the purpose of work station utilization the researcher come up with the idea of integrated drafting table with computer for each work station. The table will occupy a space of 1000 x 700mm per work station. With this development of introducing the integrated drawing table with computer table, the drawing studio will accommodate more than 30 students at once. Let assume the drawing studio size is 12.65 x 11.60 m.

➤ Case Study One

The existing drawing table in school now will occupy more space if computer table is attaching to them. As a result of technological advancement in the world which needs a Technical drawing students or Drafter to have Computer aided drafting skills.

Getting drawing tables with computer table attach to, it will make the work station to become more congested, which will not allow student to sit comfortably while working on the drawing table. Another problem with this kind of drawing table is that it will extend the work station for each student which will affect the other work station. A pictorial view of this kind of drafting table is shown in (figure II)

➤ Case Study Two

The researcher came up with the idea of producing integrated drafting table with computer table to solve all the problem the existing drawing table will make while introducing Computer aided Drafting lesson to the students. This new integrated drawing table with the computer table will not occupy much space as the existing one will occupy and it will make easy access to the drawing table top as well as easy access to the computer compartment while sitting on a chair or drawing stool without leaving the work area.

The propose drawing table with computer table is controlled by the working principles hydraulic jack which controls the upward and downward movements of the table, see figure IV which shows a pictorial view of this newly proposed integrated drawing table and computer table.

III. STATEMENT OF THE PROBLEM

For Drafting or Technical drawing class going in and out of the studio room distract students’ attention or interferes with a lesson which is not supposed to be done for effective teaching and learning process (Technical Drawing / computer aided drafting (CAD)).

Drafting Studio need to have a computer close to the learner and will give the learner an opportunity to manipulate the computer in producing his/her drawing rather than going to computer room for the lesson.

➤ *Objectives of the study*

Students in particular will benefit more from the project because all activities will be done on the integrated drawing table without requiring them to leave their seat. Students will find computer system close to them during computer aided drafting (CAD) class. The teacher also will benefit from the project by not living drawing studio for CAD lesson

IV. OPERATION/RESULT

The integrated drawing table with computer table is operated or controlled by working principles of hydraulic jack, which controls the upward and downward movement of the tables, to enable the user to adjust the height to his own satisfaction or conveniences. The hydraulic jack is operated by constructed press pedal where the user will put his foot to press the pedal for upward movement and for downward movement, there is a provision of turning screw which when release the compressed air in the hydraulic jack will escape thereby causing the downward movement of the jack.

V. CONCLUSION

The integrated drafting table with computer table for Engineering and technology Students if it come into use in Schools/Colleges will give easy access to students to computer as well as drawing table without leaving the drawing laboratory. Also the size of the integrated drafting table with computer table will not occupy more space per work station as the normal conventional drawing table will occupy if computer table is attached to it by the side.

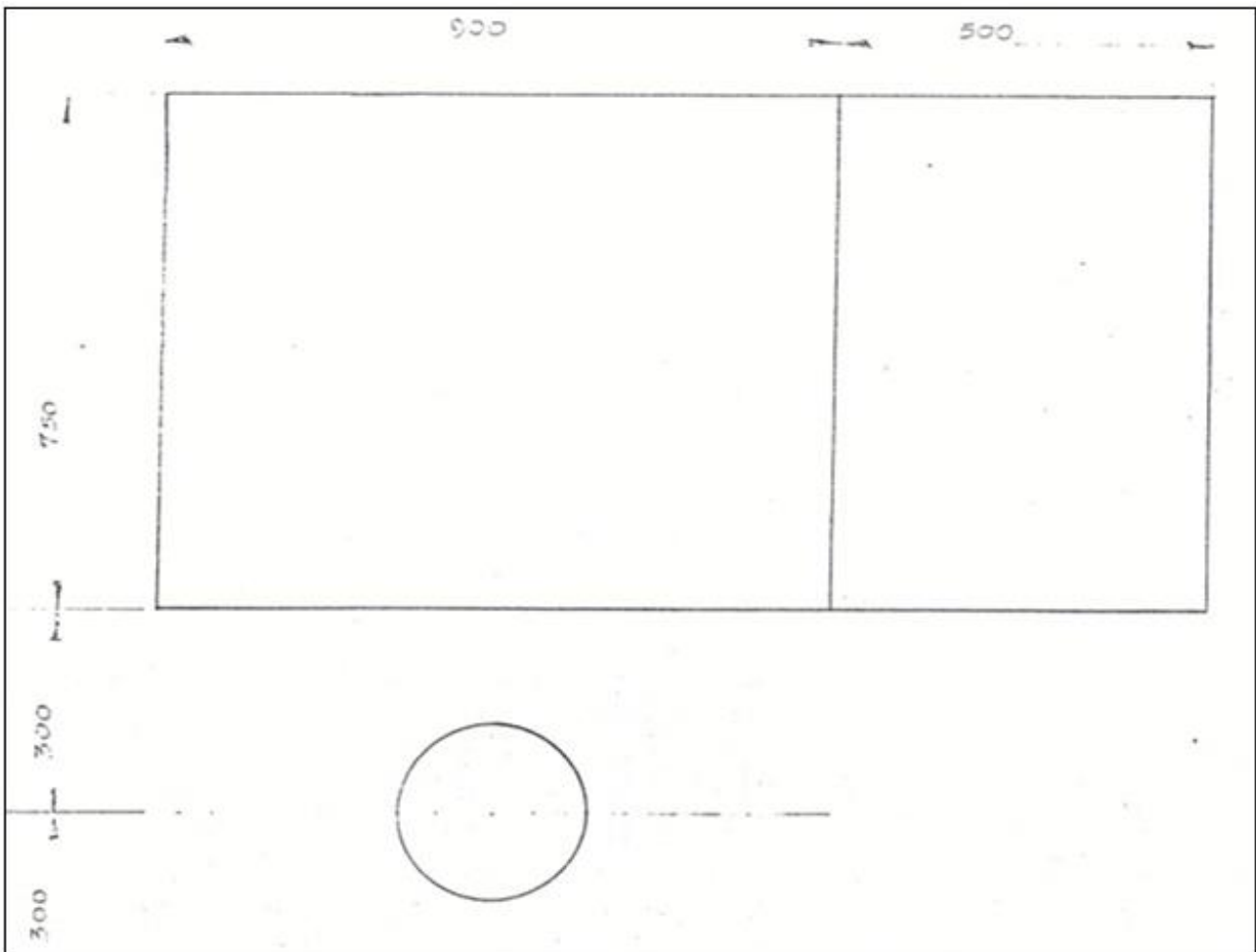


Fig 1 Top of Integrated Drawing Table with Computer Table

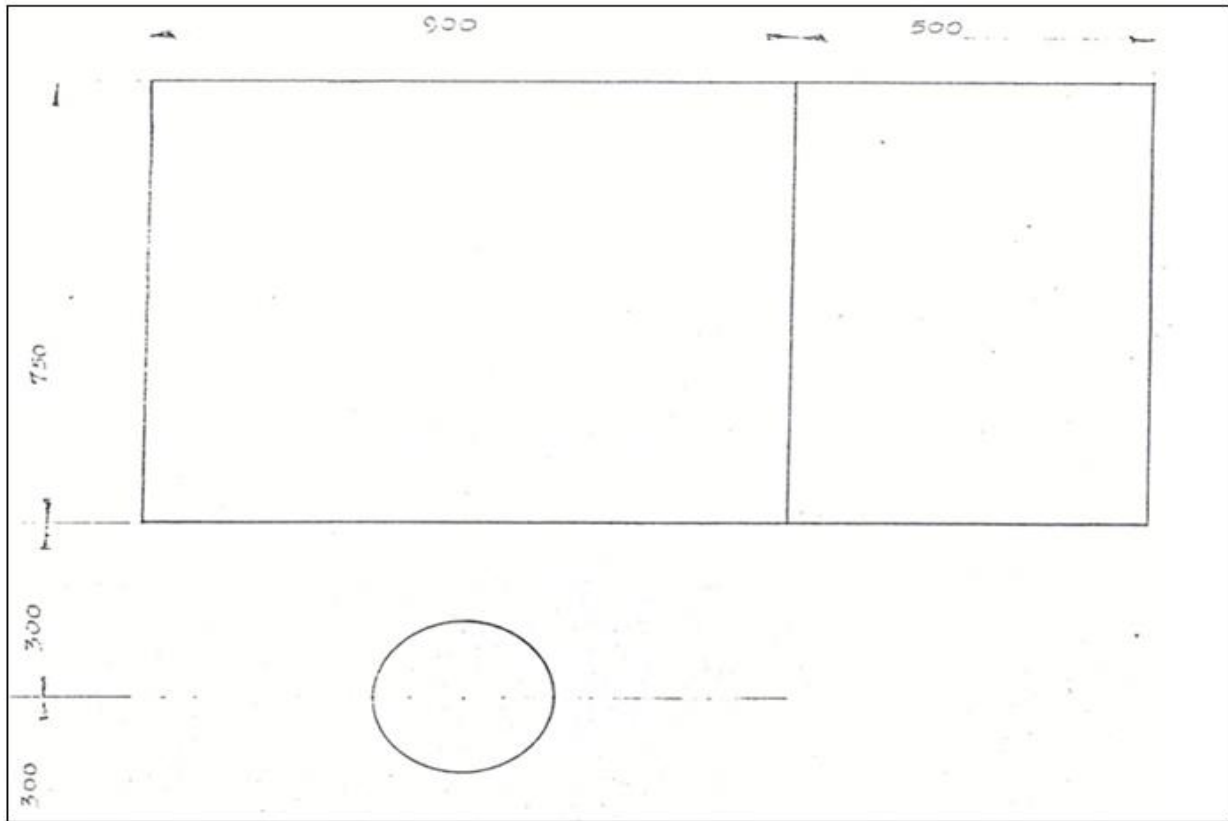


Fig 2 Top of Conventional Drawing Table If Computer Table is Attached

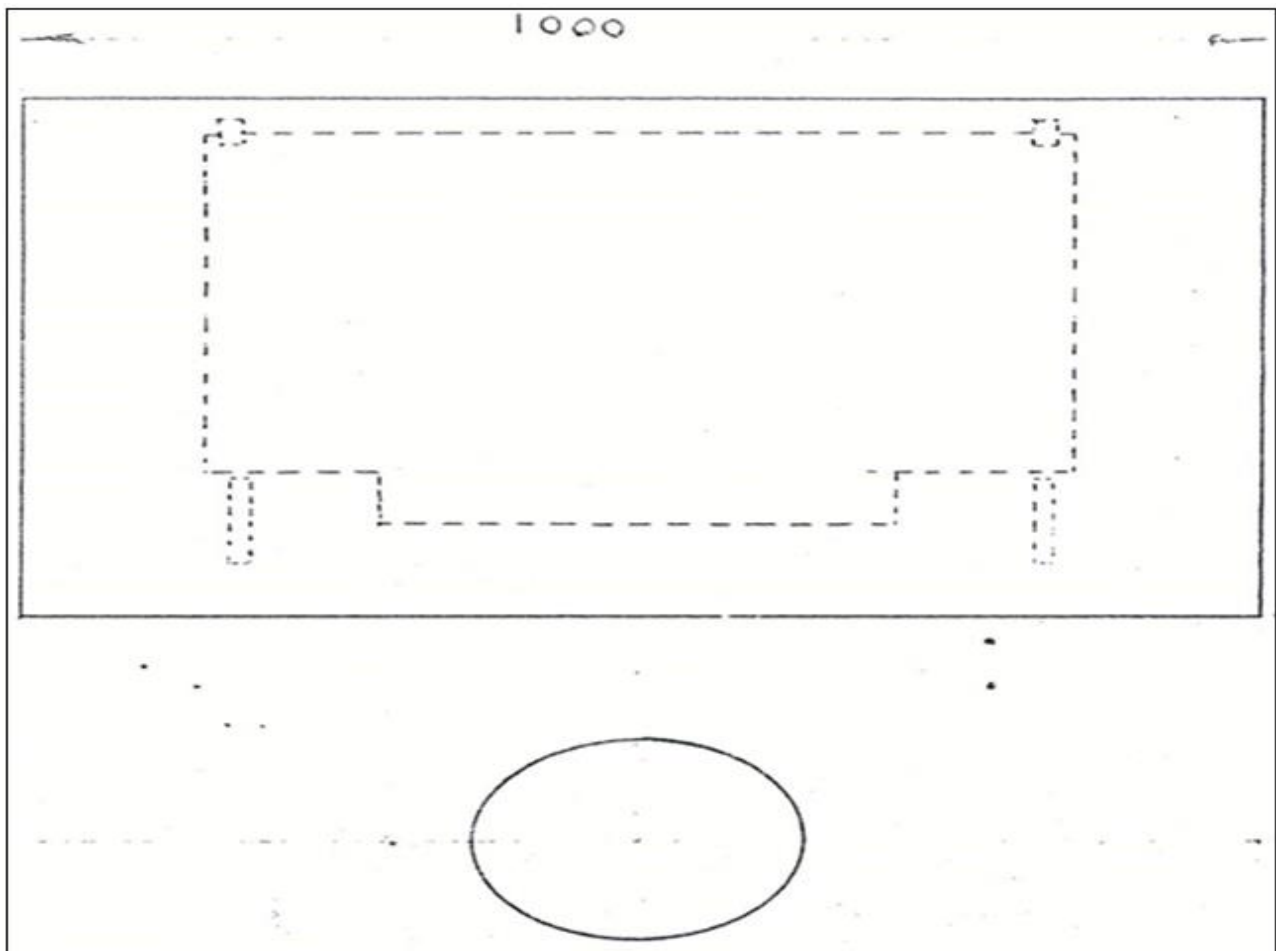


Fig 3 Plan View of the Drawing Table with Computer Table Beneath

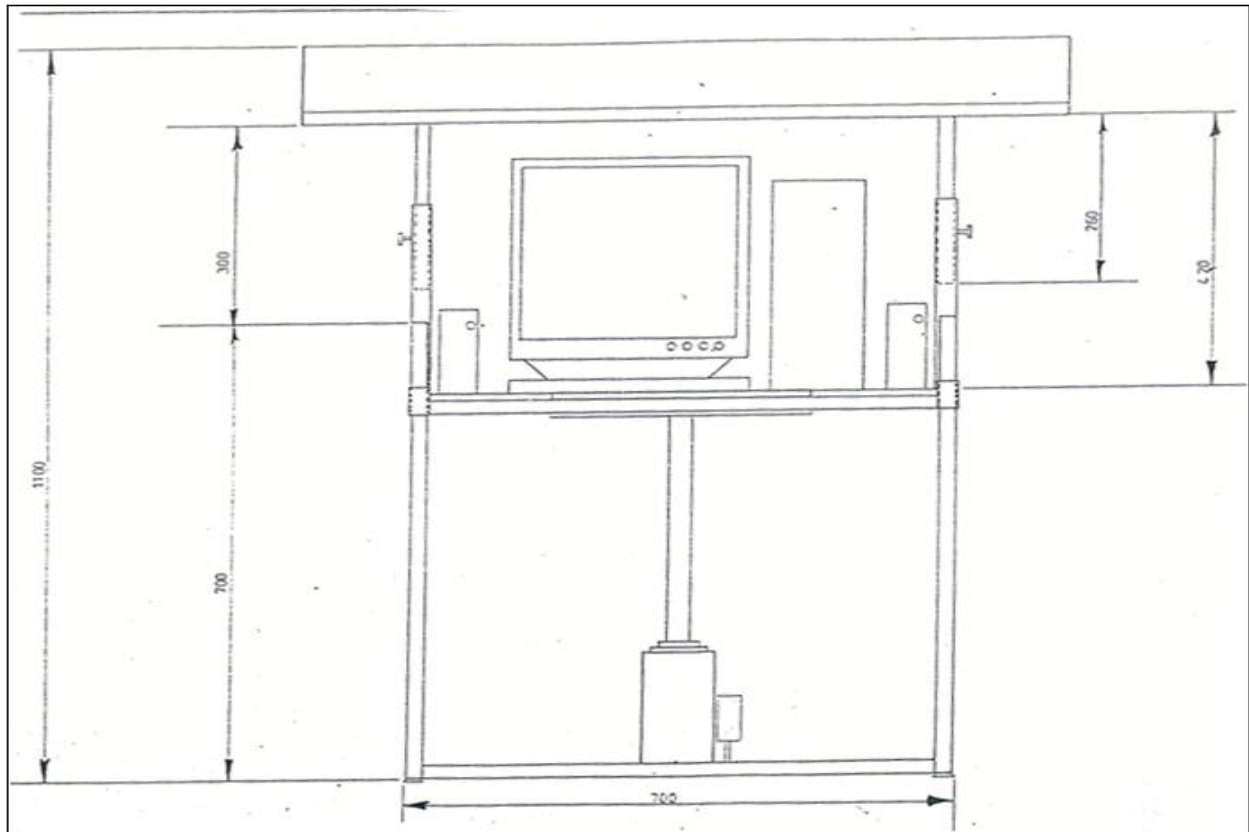


Fig 4 Front View of the Drawing Table and Computer System in the Computer Compartment of the Table

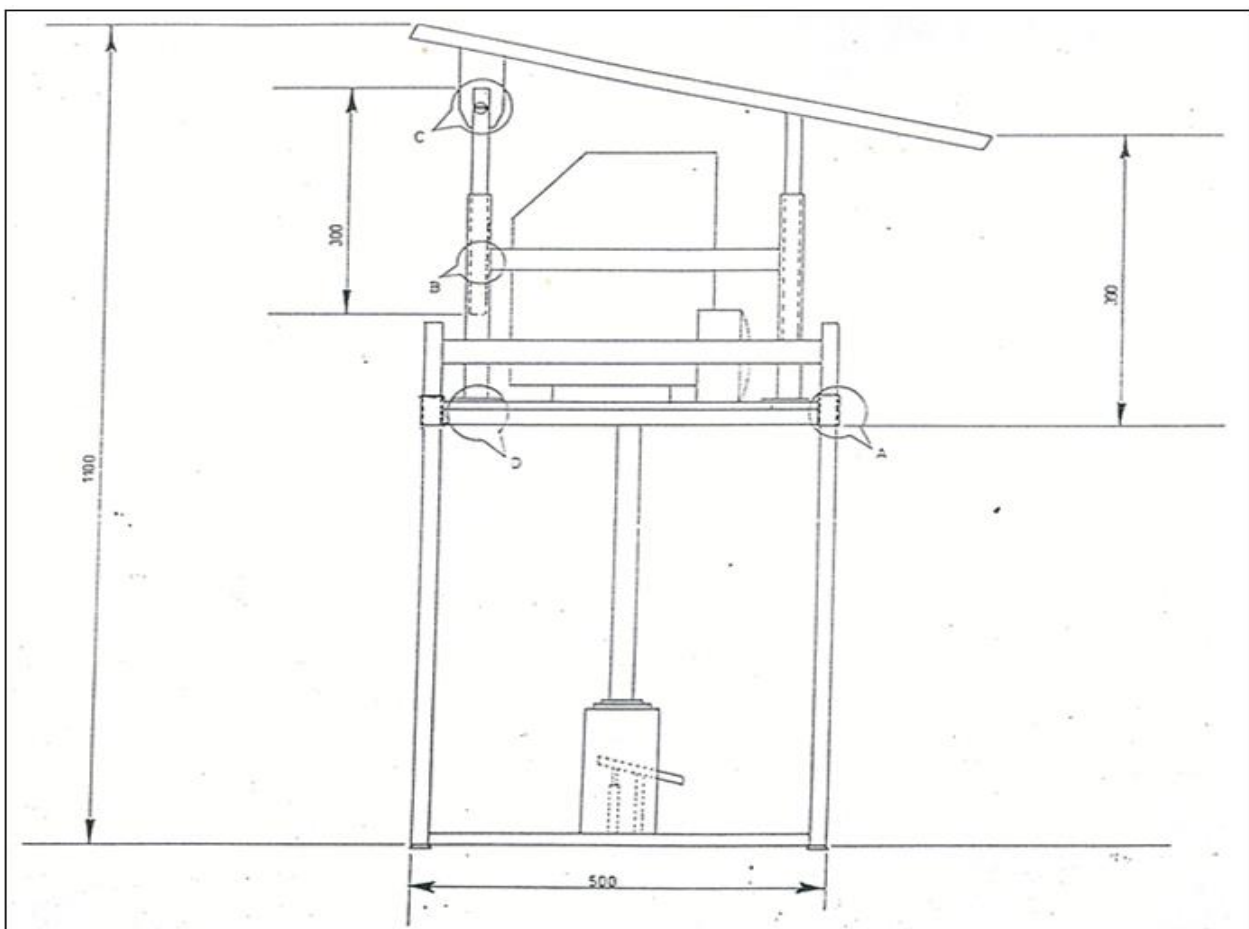


Fig 5 Left Side View of the Drawing Table and Computer Table

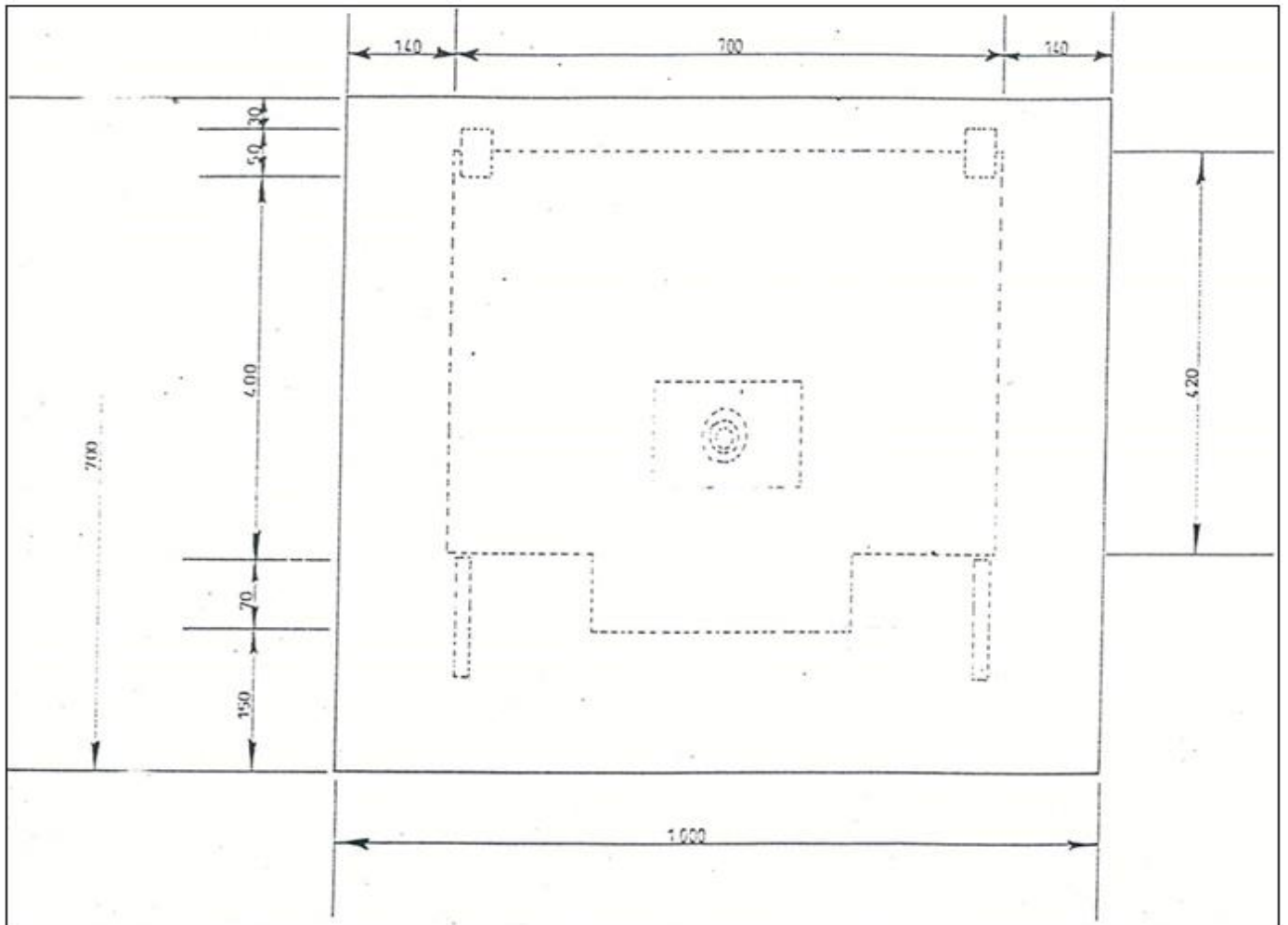


Fig 6 Plan View of the Drawing Table, Computer Table and Hydraulic Jack

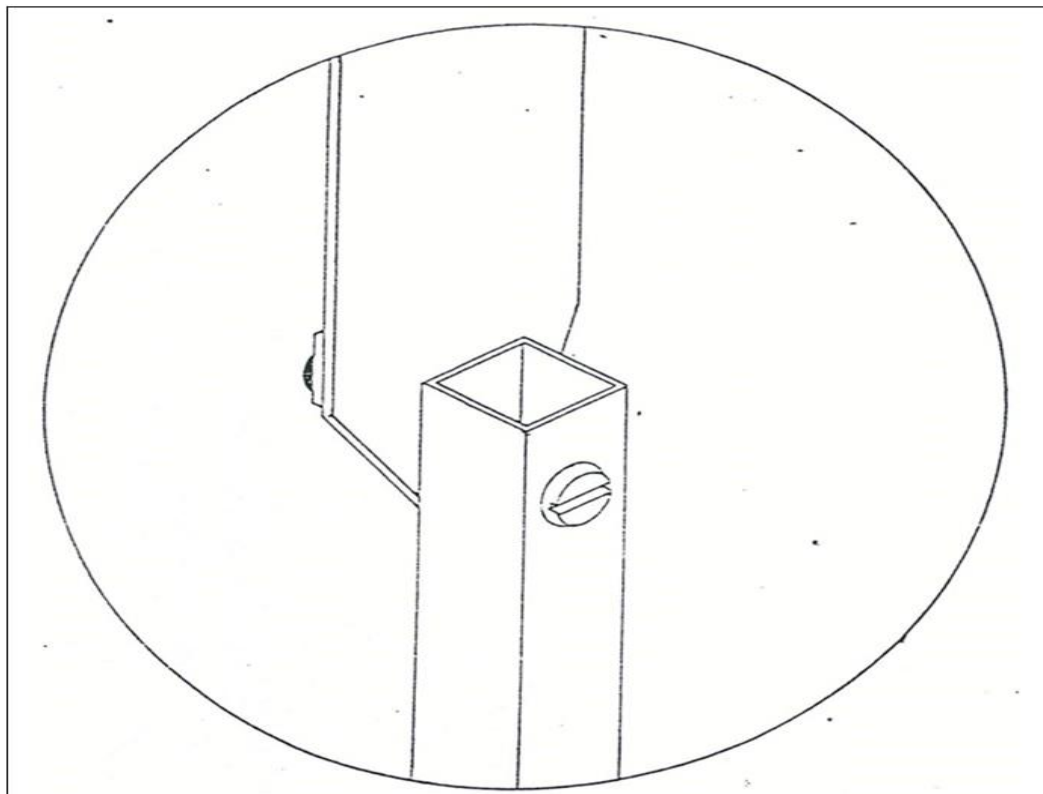


Fig 7 Construction Detail of C

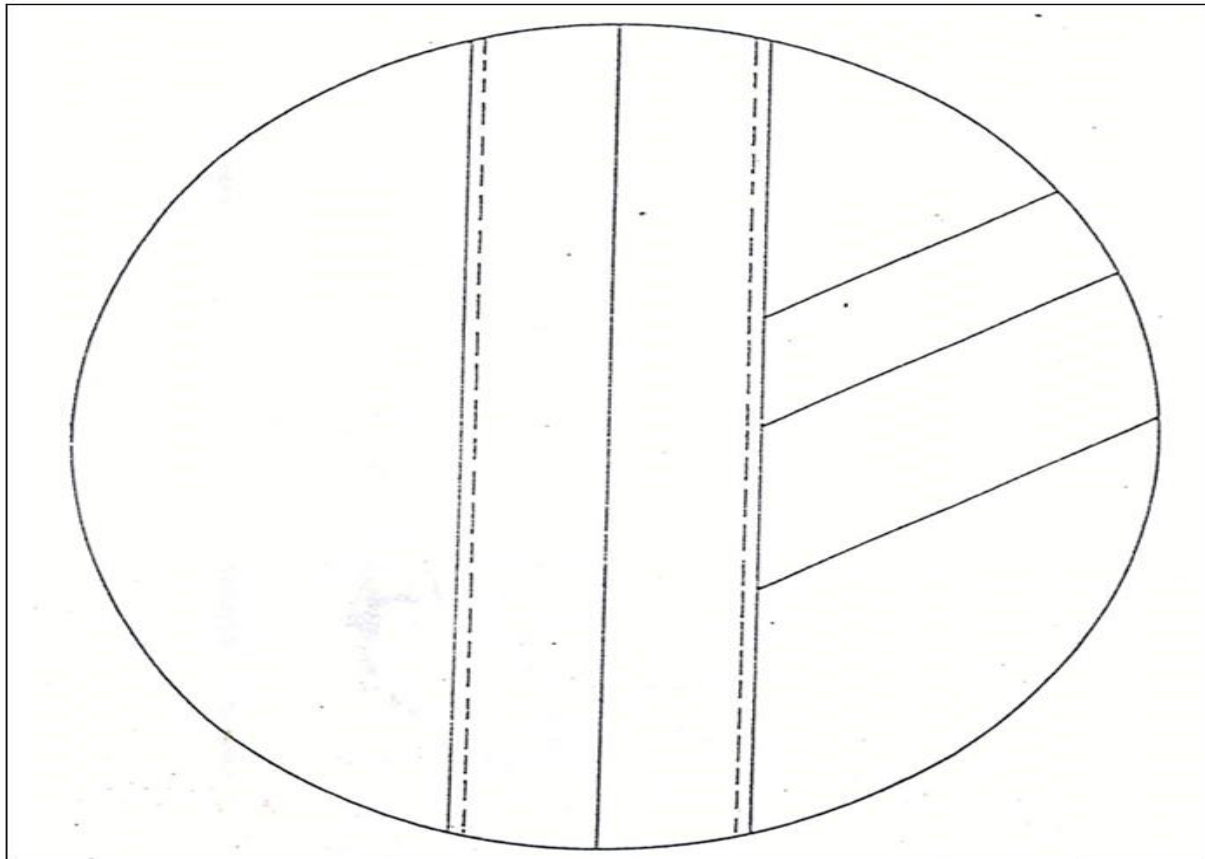


Fig 8 Construction Detail of B

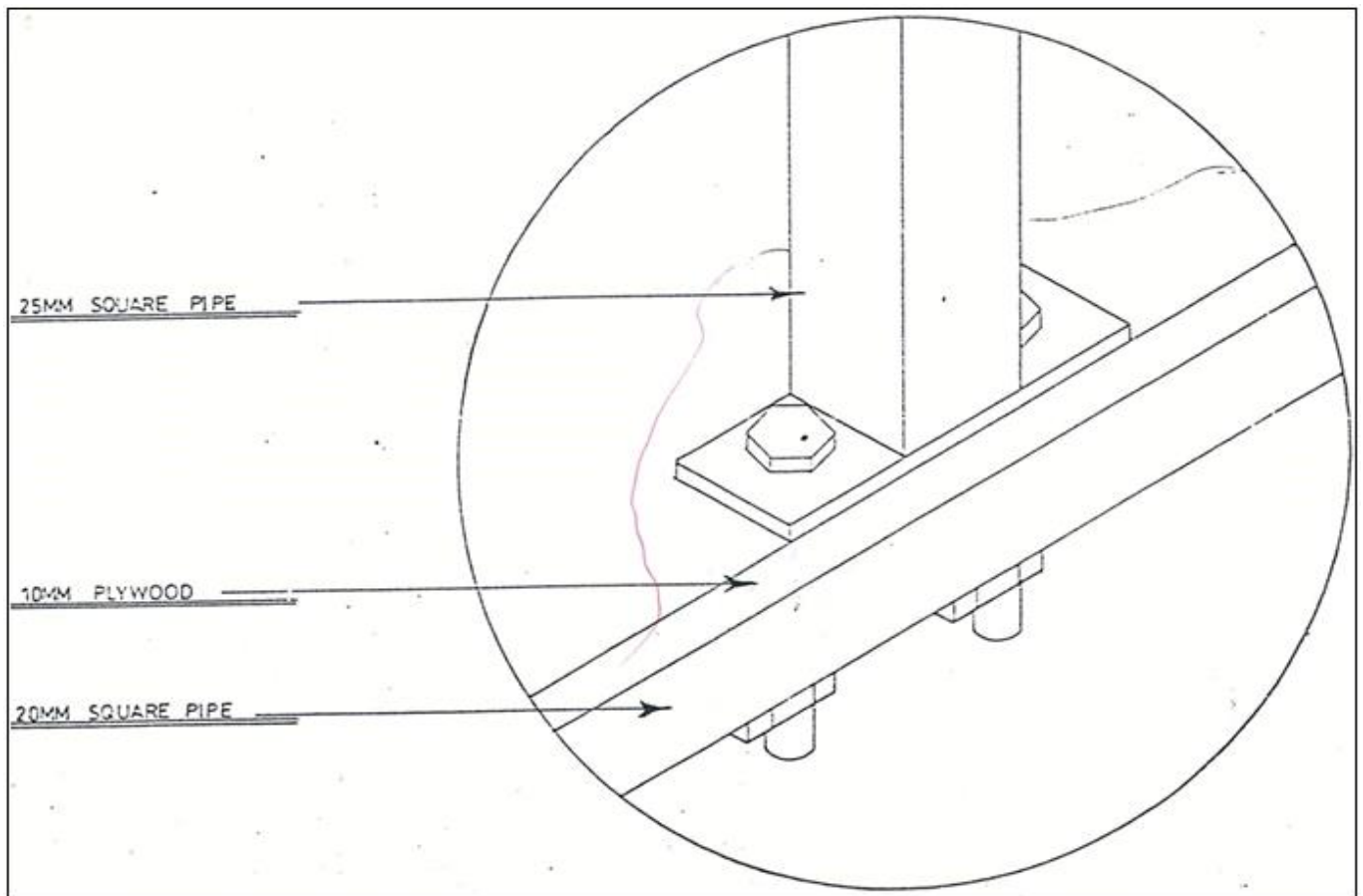


Fig 9 Construction Detail of D

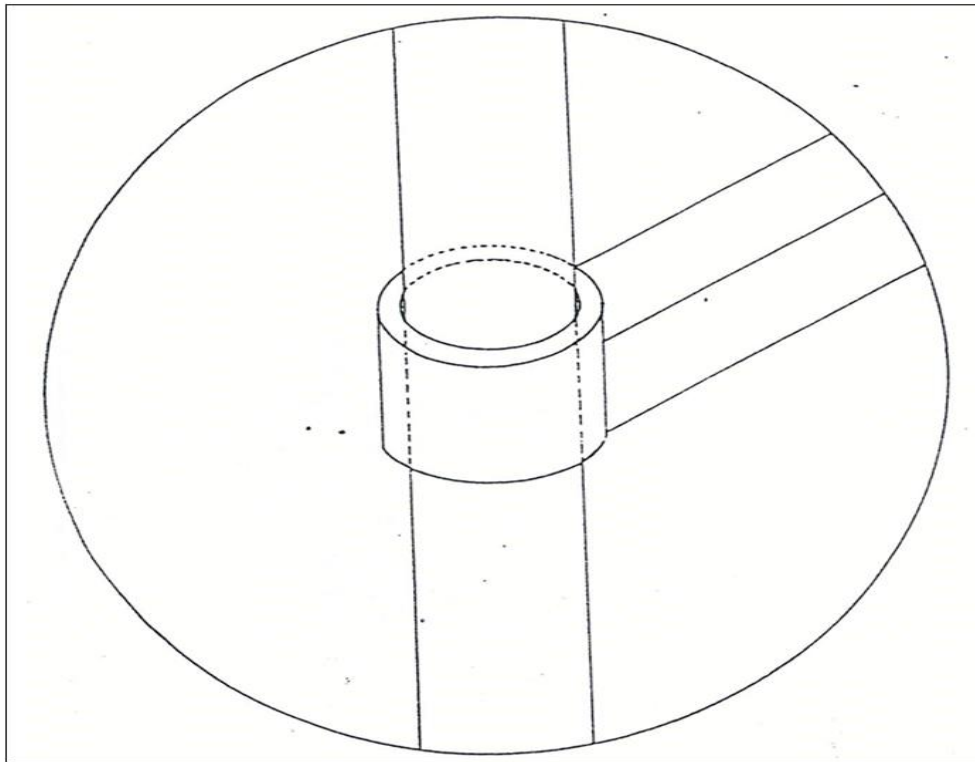


Fig 10 Construction Detail of A

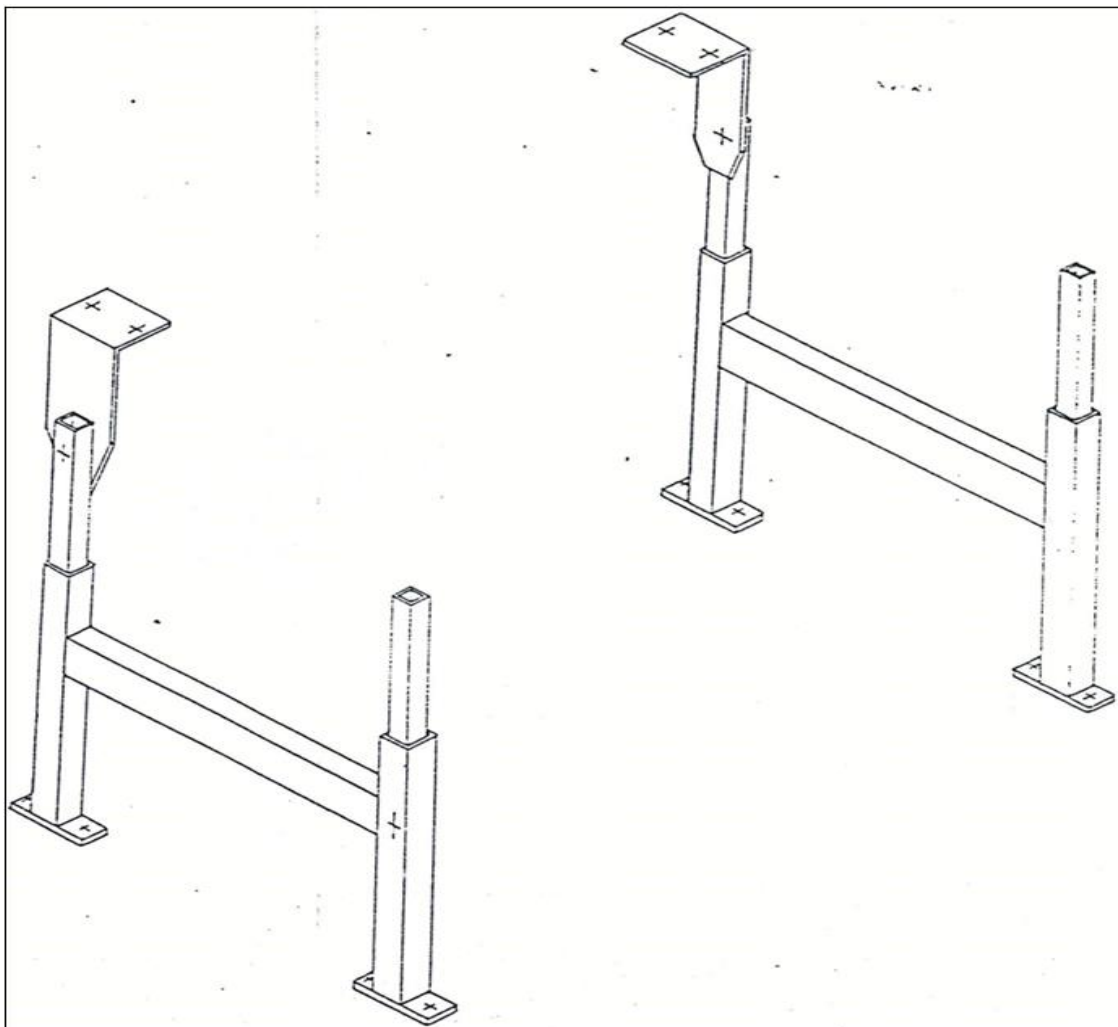


Fig 11 Skeleton Frame of Drawing Table

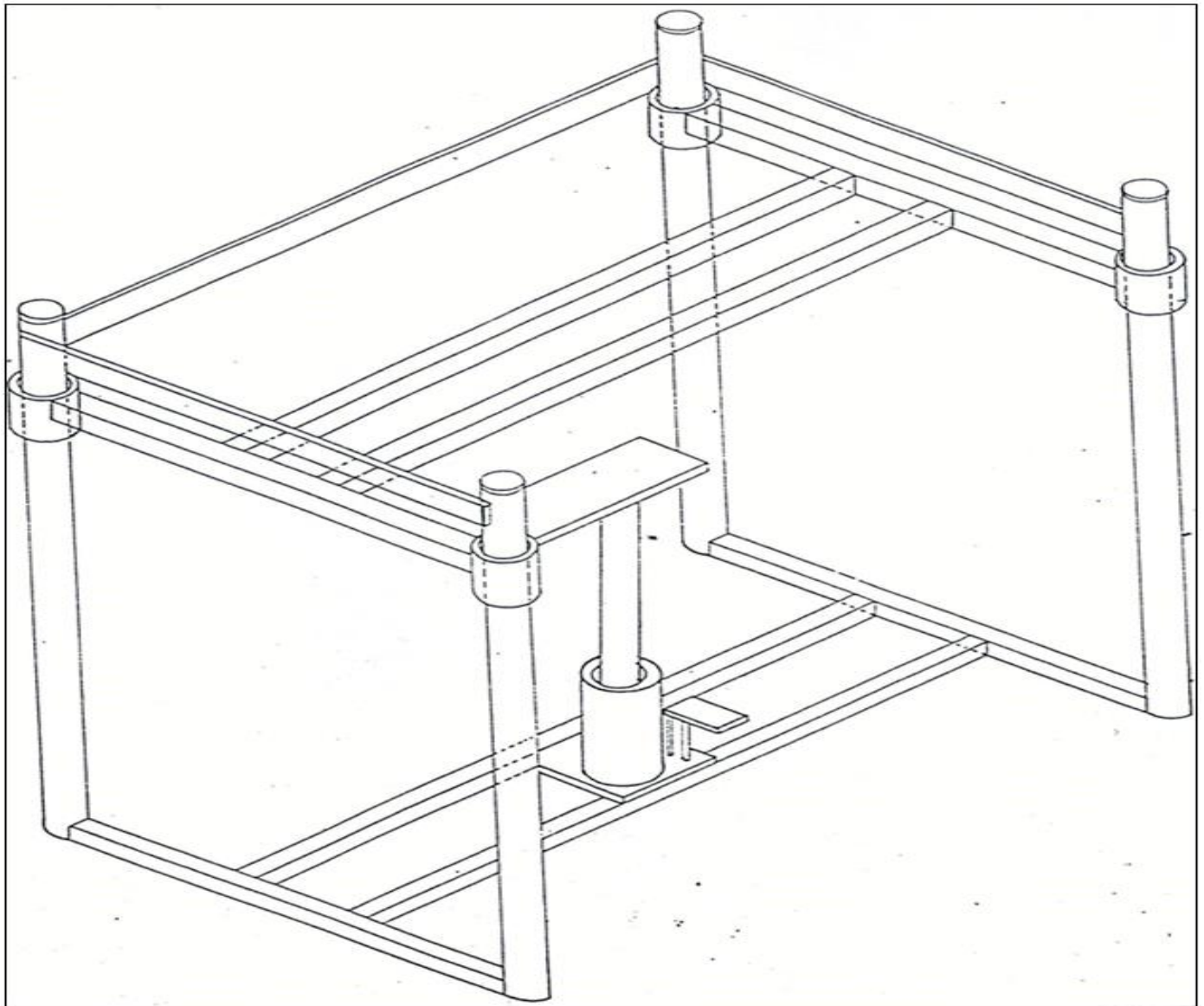


Fig 12 Skeleton Frame of Computer Table

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REFERENCES

- [1]. Bognet J. Y. (2004), Use of computers for Architectural Education at Ahmadu Bello University Zaria. Seminar Paper Presented during environmental Design Complex week of the University, December 7 – 11.
- [2]. Danrandah S.Y. (2012), Managing Technological changes in Technical drawing practice. Gaskiya printing press, Zaria.
- [3]. Kachiku J. J. (2009), A prototype of CAD/CAM education in Technical College. Paper presented at the annual national Conference, Kaduna.
- [4]. Architects Data, (2000) Edited and revised by Rudolf Herz, Friiba Dr. ing (Berlin).