ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com
International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 8, March 2017

New method for drawing Lines in Engineering Design

R.Beulah, aerobeulah@gmail.com

Project Associate, IIT Madras.

***Abstract*—An engineering drawing, a type of technical drawing, is used to fully and clearly define requirements for engineered figures. Engineering drawing (the activity) produces engineering drawings (the documents). More than merely the drawing of pictures, it is also a language—a graphical language that communicates ideas and information from one mind to another. Most especially, it communicates all needed information from the engineer, who *designed* a part, to the workers, who will *make* it. Points, Lines, Planes and Solids make a part in Engineering Drawing. Among these lines alone are drawn in a different method than others. In this paper I have used the method used for points, planes and solids in lines too. Similarly the method used in lines can be used in drawing points, planes and solids. That's a future concept.**

INTRODUCTION

Projections of lines

Straight line

A line is a geometric primitive that has length and direction, but no thickness. Straight line is the Locus of a point, which moves linearly. Straight line is also the shortest distance between any two given points.

The location of a line in projection quadrants is described by specifying the distances of its end points from the VP, HP and PP. A line may be:

- Parallel to both the planes.
- Parallel to one plane and perpendicular to the other.
- Parallel to one plane and inclined to the other.
- Inclined to both the planes.

Projection of a line

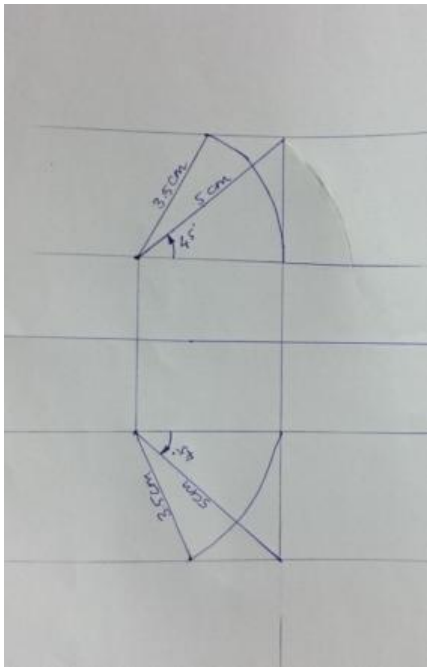
The projection of a line can be obtained by projecting its end points on planes of projections and then connecting the points of projections. The projected length and inclination of a line, can be different compared to its true length and inclination. In this paper a line which is inclined to both HP and VP is used.

.

I. PRESENT AND PROPOSED METHOD

A. Present method

1. Draw a horizontal line, which is x-y line.
2. Draw two horizontal lines at some distance above & below and parallel with the x-y line.
3. On the line, which is above & parallel with the x-y line, mark a point. With this point as reference make a line which is 5 cm in length and 45 degree to xy reference line
4. Repeat the above step to the line which is parallel to and below xy reference line.
5. Extend the other end of the 5cm line to the line which is below HP.
6. Repeat the above step to the line which is parallel to and below xy reference line to meet the line which is above VP
7. Now draw an arc from both the other ends of the 5 cm line to meet the lines as shown in fig 1
8. Join the newly formed points to the first end of the 5 cm line above and below xy reference line.
9. The formed lines are the projected length of the lines in HP and VP.



ISSN 2394-3777 (Print)
ISSN 2394-3785 (Online)
Available online at www.ijartet.com
International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 4, Special Issue 8, March 2017

Fig 1. Lines drawn using the steps used in present method

B. *Proposed method*

1. Draw a horizontal line, which is x-y line.
2. Draw two horizontal lines 5 cm at some distance above & below and parallel with the x-y line.
3. Project the two lines. Draw a 45 degree inclined line above which is 5 cm in length
4. Project the above line to below xy and get the projected lenth of the line in top view.
5. Measure the above projected line and draw a line 45 degree to VP using the length measured.
6. Project the newly formed projected ine to VP and draw the front view of the line.
7. Measure the top view and front view and find the result similar to the present method discussed earlier.

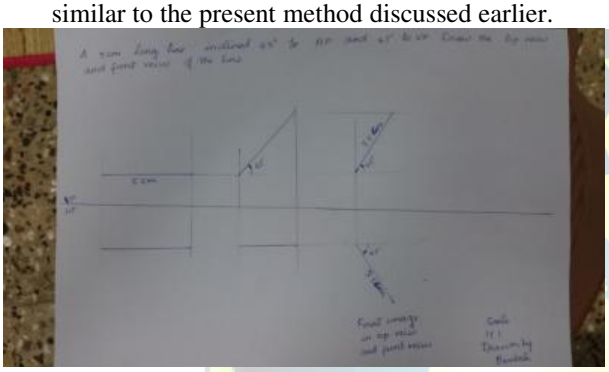


Fig. 2.Lines drawn in the method used for planes solids and points.

II. UNITS

The diagram is drawn in S.I units that is Centimeter. The scale used is 1: 1

III. OTHERS

A. *Literature Reveiw*

1) John Willats (1997). *Art and Representation: New Principles in the Analysis of Pictures.* p. 10.
2) D. Chilton. "A History of Engineering Drawing by P. J. Booker." in: *Technology and Culture.* Vol. 6, No. 1, Museums of Technology (Winter, 1965), pp. 128-130.
3) *The Chartered Mechanical Engineer: The Journal of the Institution of Mechanical Engineers,* Vol. 10. The Institution, 1954. p. 429.
4) *NPTEL*

B. *Abbreviations and Acronyms*

HP- Horizontal plane
VP- Vertical plane

IV. EDITORIAL POLICY

This engineering drawing theory will be patented according to Indian Patent rules and regulations.

V. CONCLUSION

Continuity in the method of studying Engineering drawing is established by using the method used for points, planes and solids for lines too and vice versa.

ACKNOWLEDGMENT

I sincerely thank **my Sister** for teaching me pictorial projections before even I started doing engineering.

I would like to express a deep sense of gratitude to **my Engineering graphics sir** while studying in Jaya Engineering college.

I would like to express a deep sense of gratitude to **Dr. C. Senthil Kumar, Assistant professor, Aerospace engineering, MIT** for guiding me in my project in M.E.,

I owe a humble submission to **Mr. P. ESWARAN, Chief Manager (Technical), H.O.D of CAD/CAM/CAE centre now Deputy Director** who honed my skills in EG softwares such as catia, UG, Pro-e, etc

I thank my parents for the constant support provided by them.

Finally, I would thank **the college** for providing a suitable platform for paper presentation.

REFERENCES

[1] Prof. K.Venugopal , "Engineering Drawing and Graphics," 5th ed, New age international edition, 2012 pp.