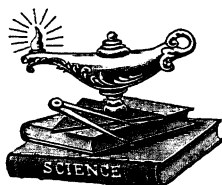


# Practical Perspective

A TREATISE SHOWING JUST HOW TO MAKE ALL KINDS OF MECHANICAL DRAWINGS IN THE ONLY PRACTICAL PERSPECTIVE (ISOMETRIC). MAKES EVERYTHING PLAIN SO THAT ANY MECHANIC CAN UNDERSTAND A SKETCH OR DRAWING IN THIS WAY. SAVES TIME IN THE DRAWING ROOM AND MISTAKES IN THE SHOPS. CONTAINS PRACTICAL EXAMPLES OF VARIOUS CLASSES OF WORK.

BY FRANK RICHARDS  
Associate Editor American Machinist  
AND FRED. H. COLVIN



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# The Principles of Isometric Perspective

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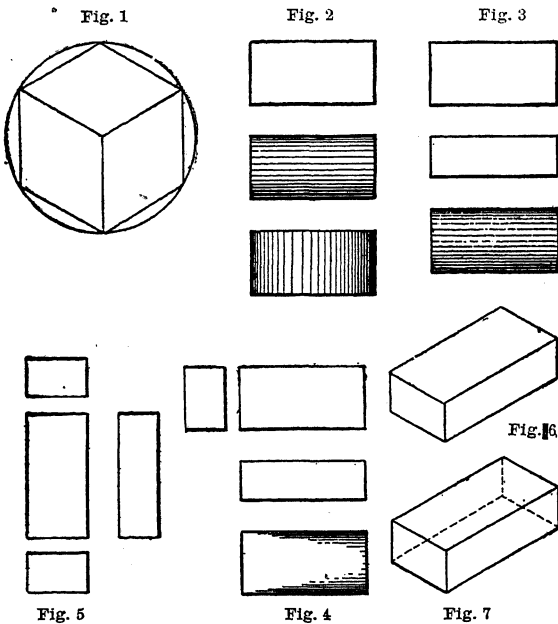


I suppose it is from constantly seeing working drawings of machinery, and no other representations of it, that mechanics generally are entirely unable to sketch anything in perspective. Yet, in perspective or pictorial work is where free-hand drawing is most valuable to the mechanic. Without perspective or without some representations of more than one side of an object, a drawing is not readily and effectively descriptive to the untrained eye. It seems to me that if mechanics could get hold of the simple principles of isometric projection, it would help them much in making intelligible sketches of machinery. The mechanical draftsman does not use it very commonly, and I suppose the principal reason is the difficulty of drawing ellipses. But this objection does not apply to free-hand drawing at all, because it is just as easy to draw an ellipse by hand as it is a circle, and perhaps a little easier. So I will venture to explain the principles of isometric projection, so that common folks will not be afraid to use it every day, if they choose to.

The regulation way of teaching the principles of isometric projection is by the drawing of a cube (Fig. 1).

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That is supposed to show the whole thing. Of course it does ; but why not use a brick, that shows it better ? Even the word cube is objectionable, because it is one of the words that frighten the poor little machinist. But, seriously, a brick is preferable for our purpose, because its



three dimensions are all different, and cannot be mistaken for each other.

Now, if we were going to make a working drawing of a brick, we couldn't get along without at least three views of it : plan, side or front elevation and end elevation. Without all three views we would be very much in doubt about it, and even with all three it would be possible to be mistaken ; so one is really not very much to blame, nor very

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much to be despised, if he is not quick to see the thing that a "draft" tries to represent. With only the plan before us (Fig. 2,) the thing represented might be cylindrical or round in either direction. With plan and side elevation (Fig. 3) it might be elliptical in cross-section. With all three views (Fig. 4) it might have the straight lines and the square corners at the end shown and the corners might taper off and the other end of the object might be oval or semi-circular, and the drawing would still be a correct representation of it. So to bind the meaning of the drawing beyond all possibility of mistake, we would require a view of the other end of the brick (Fig. 5) or four views in all. But with an isometric projection of the brick (Fig. 6), we would require no label to tell us, "This is a brick," and we wouldn't find it possible to mistake it for anything else. By drawing the dotted lines (Fig. 7), the entire outline of the brick is shown. This is another advantage the isometric projection often gives us.

It will be remembered that I am calling attention to isometrical projection for its value and applicability to sketching or free-hand drawing. The little illustrations that I offer are made with instruments in the regular mechanical way, and that may be said to be rather inconsistent. But I am only trying to put *the idea* of isometrical drawing in a simple and familiar way, so that common, every-day, young shop folks will be able to get hold of it. The application of it will come readily enough to any one who once fully understands it; and it will come in play whether making working drawings with instruments or sketching with eye and hand unassisted.

We are now ready to make an isometric projection of a brick. Our brick, we need not remind any one, has three dimensions: length, width or breadth, and thickness or