

The individual construction of a machine will influence largely which type of ball bearing should be selected. For rolls, blowers, and gas engines the effect of heat in other cases springing from the shaft and alignment have to be figured on. Generally speaking light bearings should only be used for small shafting and fine mechanical gears; medium sized bearings should be applied most generally for shafting, for lathes, other tools, also automobiles; heavy bearings should only be used exceptionally for

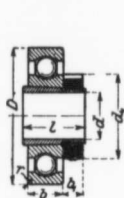


Fig. 14.

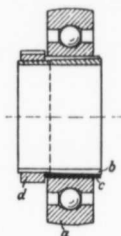


Fig. 15.

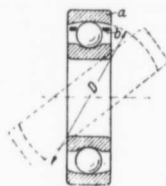


Fig. 16.

special purposes such as axles of drays, crank shafts of gas engines, cranes and elevators.

Most manufacturers make their ring ball bearings interchangeable. For straight shafting they are fitted with cone shaped sleeves, and lock-nuts as in Figs. 14 and 15.

For long shafting the ball bearings are sometimes made adjustable in all directions, either by putting a standard ball bearing into a ball shaped ring or by giving the outside of the ring of the ball bearing a ball shape (Fig. 15). It is not advisable to slot the cone shaped

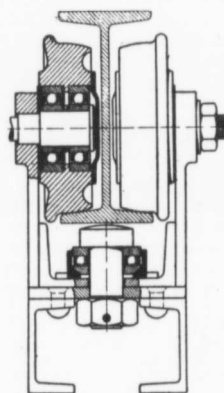


Fig. 17.

the I-beam trolley bearing (Fig. 17).

Fig. 19 shows a bearing where two rows of balls are put into one bearing. These will stand a slight thrust pressure. With ring bearings several rows of balls should be avoided as well as with cone bearings, as it is a hard proposition to divide the load evenly.

For heavy work the sliding friction of the balls against each other has to be avoided by arranging partitions between the individual balls, so called ball cages. The shape of the outside ring and of these ball cages are to-day the only open question in connection with ball bearings. That bearing will be the best which takes the largest number of balls, in spite of the use of ball cages.

Book Reviews

SMOLEY'S PARALLEL TABLES OF LOGARITHMS AND SQUARES—The fiftieth edition of this book, by C. S. Smoley, C.E., published by The Engineering News Publishing Co., 220 Broadway, N.Y.; flexible morocco; 4 1/2 x 7 inches; 448 pages. Price, \$3.50.

Smoley's tables have for a number of years been recognized as a standard by structural engineers, and is used in a number of colleges. This edition is a combination of the old set of tables of the previous editions, to which has been added a multiplication table for rivet spacing, with a new set of 5-decimal logarithmic-trigonometric tables, comprising the following separate tables:

1. Common logarithms of numbers from 0 to 10,000, with tables of proportional parts.
2. Logarithms of the sine and tang, from 0° to 3° and of the cosine and cotang. from 87° to 90°, varying by 10 seconds, with proportional parts for single seconds.
3. Logarithms of the sine, tang., cotang. and cosine for each minute of the quadrant, with proportional parts for seconds.
4. Natural functions.

The book is designed for engineers, architects and students.

With the inclusion of the new set of tables, this book not only completely covers the field of all classes of technical work, but it has become a Universal Calculator, being available for computations with the United States or English measures as well as with decimals (metric or feet)

Catalogues Worth Having

These Catalogues will be sent by the firms upon request. Mention The Canadian Manufacturer.

AIR COMPRESSORS—A well gotten up and well illustrated catalogue of steam and power driven air compressors of the Canadian Rand Co., Limited, Montreal. 100 pages 6 x 9 inches. The details of the construction which characterizes the Rand machines are fully illustrated and described, which makes interesting and instructive reading. A section is devoted to the endeavor to aid purchasers in selecting the proper design of compressor for the work to be done.

APPLICATIONS OF THERMIT.—Booklet illustrating and describing various applications of the Thermit in foundry practice, issued by the Goldschmidt Thermit Co., 103 Richmond St. W., Toronto. It also contains an illustrated and instructive article on the methods used to avoid piping in steel ingots which are applied in the Hungarian Government steel foundries at Diosgyor.

PERFORATED METAL.—Bulletin No. 1425 sent out by the mining machinery department, Allis-Chalmers-Bullock, Limited, Montreal. In this bulletin complete information is contained concerning the use and advantages of perforated metal, and all the different styles and sizes.

PRESSES.—Complete catalogue of the Consolidated Press and Tool Co., Hastings, Mich. The catalogue is very completely illustrated showing all the different styles of presses supplied by this firm. The special features of the "Consolidated" are illustrated and described in detail.