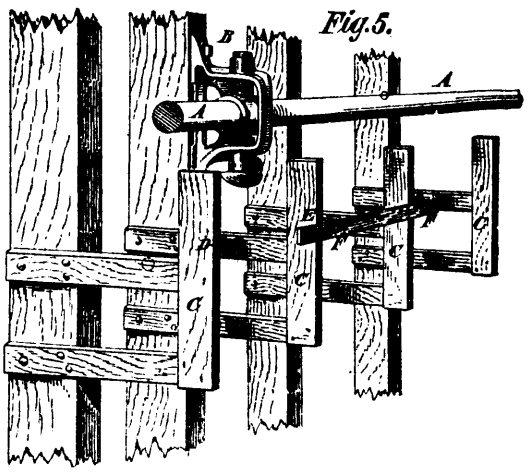
Fig.5.



just its height so that when the gauge is placed, as shown, the line C, on the guage must exactly coincide with the line D (Figs. 5 and 7) on the targets. By carrying this adjustment along at all the targets, we shall have set the shafting true with the lines marked by the aid of the straight-edge and spirit-level, and therefore level. If there are sections of the shafting of different diameters, we must provide for it as follows: Suppose the line of shafting has sections of two inches, of 2¼, and 2½ inches diameter, and that the line *c* on the gauge is proper for the 2¼-inch section. All we have to do is to mark on the gauge the lines D and F (Fig. 6), one being ⅛ inch above the line C (Fig. 6), and the other ⅛ inch below it, because the section of 2½ inches would lift the gauge ⅛ inch higher, and the section of 2 inches would let it fall ⅛ inch lower than the 2¼ inch section. Hence, for the large section we use the line F (Fig. 6), and for the small section of shafting we use the line D as the one to be set fair with the line on the edges of the target. To facilitate setting the line on the gauge with that on the target, we may, with a try-square and scriber, carry the line on the target edge around on the side face a short distance, as shown at D (Fig. 7).

Fig.6.

Fig.7.

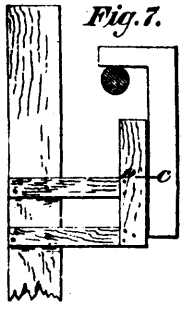
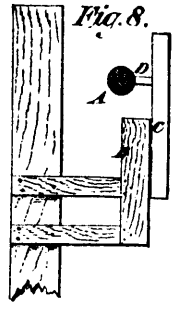


Fig.8.



To effect the horizontal adjustment, we proceed, as in Fig. 8, in which A is the shaft, B the target, *c* a straight-edge placed against the edge of the target, and D a guage, and it follows that the edges of the targets being set true from a stretched line, this adjustment must be, when thus made, accurate. The thickness of the gauge D must be varied to suit any variations in the size of the shafting; thus sections of 2½ inches diameter would require D, in Fig. 8, to be ⅛ wider than it would require to be for sections of 2¼ inches diameter (the difference being one half of the difference in the diameters). It will be noted that in this process any sag of the stretched line does not affect the accuracy of the adjustment, which is a decided advantage over processes in which this is not the case. If the line of shafting is suspended from the joists of a ceiling instead of from posts, the shape of the target must be varied, the only prime necessity being that it shall have the edge A standing, in the positions shown in our illustrations, plumb and true with the stretched line.

The advantage of this system is, that after the targets are erected and the gauges made, we may go over the whole line of shafting and ascertain exactly how much alteration it requires, and then consider how much alteration shall be effected. Suppose, for instance, one end of the line is higher than the other, lifting the low end unaffected; again, lowering the raised end of the line of shafting might entail the necessity of cutting a piece out of many of the belts. It is best therefore to go over the whole line of shafting with the gauges and to mark near or upon the targets in chalk the amount the shafting is out and an arrow-head denoting the direction in which it requires to be moved, and then to decide how the adjustment may best be made to serve the requirements of the belts, taking into consideration their number, location, and degree of tension. As a rule, the adjustment is best made to tighten rather than to loosen the belts; but where there are belts above, below, and on both sides of the line of shafting, this becomes an important consideration.

In putting up a line of new shafting, the hangers may first be set to a stretched line passing through the boxes of the hangers; and if this line is a very long one, it will be necessary to fasten it here and there to prevent currents of air from affecting it. After the shafting is put in place as near as may be, the targets should be erected and the process described carried out, the targets being stored away for future use.

THE SIZE OF THE GLOBE.

Its size has been determined, I have no doubt, to within a very few miles, in what appears to us now a very simple manner. In the first place, every section of the earth is bounded approximately by a circle, and mathematicians divide all circles into 360 degrees. Hence if we can measure accurately the 1-360th part of this great circle, and if, when we have got that measure out into miles, we multiply it by 360, we get the circumference of the earth, that is to say the whole distance around it. Then by dividing this result by something a little over 3 (3,1416 the ratio of the circumference of the circle to its diameter) we find out how far it is from one side of the earth to the other. This gives us the diameter of the earth. As a result of a long series of observations, it has been found that a degree measures as near as possible on the average 69½ miles. It can be stated in inches, but it is near enough for me to give as a first statement of result that it is about 69½ miles, and if you take the trouble to multiply 69½ miles, the average length of one degree, by 360 degrees, the number of degrees that there are all round the earth, you will find that the circumference is something like 8,000 miles. Mark well the words "on the average." In truth, the earth is flattened at the poles, so that the length of the degree varies from the pole to the equator; and hence the diameter in the equatorial plane is in excess of the diameter from pole to pole. These two diameters, expressed in feet, are as follows: Equatorial, 41,848,389; solar, 41,708,710.

WAYS OF WASHING THE FACE.—There are several wrong ways of washing the face, and but one right. Towel, flannel-sponge are all out of place where the face is concerned. The hands only should be used. Doctor Wilson's directions are: "Fill your basin about two-thirds full with fresh water; dip your face in the water, then your hands. Soap the hands well, and pass the soaped hands with gentle friction over the whole face. Having performed this part of the operation thoroughly, dip the face in the water a second time and rinse it completely. You may add very much to the luxury of the latter part of the operation by having a second basin ready with fresh water to perform a final rinse." But the care of the complexion requires that not only the face, but the whole body shall be daily subjected to the bath. The sponge-bath is, perhaps, the best, and the temperature of the water must be regulated by the sensations of the bather and by the season of the year. No one can deny the charm of clear, soft color in the cheeks and lips—and it must be an incorrigible complexion indeed that will not yield to the measures that I have recommended.

A FATAL case of poisoning by peach kernels is reported from Paris. The child is stated to have been less than six years old, and yet he had sufficient strength and perseverance to obtain enough kernels to kill him. We doubt the story as we receive it, but it cannot be too widely known that the flowers and kernels of the majority of peaches are poisonous, and even the leaves. Of late years some sweet-kerneled varieties have been obtained from Syria, and been put into cultivation in this country, and it is doubtful whether one ounce of these kernels contain so much as a grain of hydrocianic acid. All members of the genus Amygdalus contain more or less prussic acid in their flowers and fruits (the latter, of course, being the stone); the sweet almond possesses a very infinitesimal quantity, but the bitter almond and the peach and nectarine contain notable quantities in their kernels. The apricot is a Prunus, and has, like the plum, a bland and harmless kernel.