

If the object sighted be less than five or six thousand feet distant, allowance is made for parallax by making the distance BB equal to the distance from the axis of the telescope, A, to the optical centre of the solar attachment.

Now depress the telescope to the latitude of the place of observations. (See Figs. 4 and 5), revolve the solar about its axis and the transit in a horizontal plane until the image of the sun is brought to the proper position on the cross-wires. The line of collimation then becomes the polar axis with the transit in the Meridian and the solar revolved about



Fig. 4.

its axis will follow the path of the sun. The engineer having carefully set off his angles and knowing that his transit is in adjustment, is assured of reliable results.

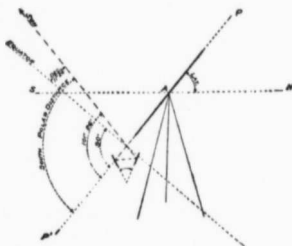


Fig. 5.

Fig. 4 shows an operator making an observation to determine the Meridian. Fig. 5 is a graphic illustration of the same when the sun's declination is North  $11^{\circ} 26'$ ; A being the axis of the telescope and PP the polar axis, coincident with the line of collimation.

After the transit has been set in the Meridian the reading of the differential nut is taken and the attachment is removed. It weighs less than three ounces and may be carried in the pocket without fear of damage.

In taking subsequent observations during the day as a check on the work, it is only necessary to set off the hourly change in declination by means of the graduated differential nut, each division of which represents one minute of arc, place the attachment in position, and if the instrument be in the Meridian, the sun will come to the proper position on the cross-wires.

Another valuable feature of this solar attachment is its adaptability to underground surveying. In connection with the delicate level under the transit telescope it is especially useful in carrying accurate transverse lines up or down shafts or steep inclines in the same manner as with side and top telescope.

Catalogue C-4, giving complete description will be mailed on request by Wm. Ainsworth & Sons, sole manufacturers.

#### A NOTABLE APPOINTMENT.

**A** CORRESPONDENT writes: "We have just noted the appointment of Mr. C. O. Baker, Jr., of Baker & Company, platinum refiners, of Newark, as a member of the Board of Directors of the National State Bank of Newark one of the strongest financial institutions of New Jersey. While Mr. Baker is to be congratulated on his appointment, we who have known him for so long feel as though this financial institution with which he is now so prominently connected is to be more so. It would indeed be difficult to find a gentleman of more sterling worth and strength of character."

#### THE NEW ANCHOR FENCING.

**M**ESSRS. ESPLAN, FRAME & CO., sole manufacturers of the Anchor Wire Fence for Ontario, have just sent out their last orders of their first import this season. They imported fifteen carloads of wire totaling 450,000 pounds, which is equal to about 200 miles of fencing; and this has all been sent out. On account of having only the right to erect the fence in Ontario it bars this company from supplying the demand in this province, separate companies having purchased the exclusive right of manufacture and sale in respectively Manitoba, the North West Territories and British Columbia. In spite of this fact their business in Ontario is increasing tremendously. By this it will be easily seen that the Anchor Fence is already in great demand in Ontario. The Anchor Fence is without doubt the cheapest and best wire fence on the market, and the B. C. Anchor Fence Co., controlling the sole patent rights for British Columbia, should find a ready sale for their product in this territory.

#### AN EXTENSIVE AERIAL TRAMWAY INSTALLATION.

**T**HE aerial tramway recently installed by the Leschen & Sons Co., of St. Louis, at Deep Gulch, Colorado, is 4,200 feet long. The line consists of two stationary sustaining cables securely anchored at each end. The loaded buckets run on a rope 1.8 inch in diameter, while the empty return on a 1-inch rope. The buckets are propelled by an endless steel wire rope three-quarter inch in diameter. This rope passes around one 8-foot sheave at both the terminals of the line, the one at the mine having a number of grips which clamp the rope tightly and afford the means to control the speed of the tramway when in operation. To this wheel are attached the brake-bands for stopping the tramway or controlling it.

The buckets are attached and detached automatically to and from the traction cable by means of patent clips, button-shaped, which are attached permanently to the cable. Each of the buckets has a capacity of 6 1-2 cubic feet and they are so placed in the pendent as to swing freely, thus allowing them to be dumped at the lower station of the line as described later.

The difference in elevation between the two terminals of the tramway is about 2,000 feet, and the weight of the loaded buckets travelling down is sufficient by far to operate the tramway by gravity, and in addition has sufficient force to bring supplies up to the mine. About midway of this tramway is placed what is known as an intermediate station, so designed that later on it can be used for loading ore from another mine located near by. This intermediate station is situated in a position where snow falls very heavy, and for that reason the entire length of the terminal for a considerable distance on each side is covered with a snow shed.

At the lower terminal of the line the tramway consists of a single span 2,100 feet in length without any means of support between. This is the most remarkable feature of this tramway, and is illustrated by the photo mentioned above. Owing to the automatic levers with which his tramway is furnished, very little labor is required in the entire operation, and brakings are reduced to a minimum. As a bucket enters the upper terminal it is automatically detached from the traction rope and its momentum is overcome gradually when it is placed in the loading position. After it is loaded it receives an acceleration to overcome its inertia, and is then again attached to the line automatically and travels to the lower terminal. At this station the same operation occurs