

thing lacking to make it a big success is enough photographers to come forward and lend us their countenance.

The programme will be issued in about one month and I think it will be a dandy."

PANORAMIC CAMERAS.

H. H. BUCKWALTER.

About once a month we are greeted by the announcement in patent office reports that So-and-So of Somewhere has been granted a patent for a panoramic camera. By a panoramic camera it is designed to take continuous pictures of the entire horizon or a much greater part than can be made with the ordinary lens with one exposure. Some years ago much interest was manifested in this class of cameras, but invention after invention was patented and very few results were exhibited. In fact, the results seemed to end at the patent office, except in very few instances. There has been a genuine desire on the part of photographers to have or see a camera that would "take a picture behind it." One of the annuals of recent years gave a description and drawing of such a camera but it was noticed that the description was very incomplete; besides departing from the theoretical fact that the centre of rotation should be equivalent to the centre of the lens, otherwise distortion would ensue.

The particular scientific value of a panoramic picture when not distorted, or the exact distortion is known, is in topographical work—surveying and map making. A camera used at central points in the system of surveying known as "triangulation" is of immense advantage. In most United States government surveys an outline panoramic map is made from each sta-

tion. Sometimes this is done by making a series of negatives and joining the prints, the outline map being made from the composite photogram. In surveying the Rocky Mountain region these outline maps were made and the results are exceedingly interesting. All the stations were elevated several thousand feet and the location of every prominent mountain peak is shown. It is impossible to give a more correct idea of the country in so simple a manner as by this means.

The first panoramic camera idea of which much is known was constructed with a flat plate. The camera and lens turned on a pivot under the lens and the light rays fell on the plate through a narrow slit near it. The plate was in a peculiar carriage on the back of the camera and when the lens swept the scene in one direction the plate and carriage moved in the opposite. This method of construction was very clumsy and unsatisfactory and was abandoned. Besides, the size was limited to very small dimensions. Another model suggested the use of a curved plate (this was before the advent of film) and was abandoned for obvious reasons. Various inventions were brought forth on these two principles but none filled the want. Few even gave results worth mentioning.

When film was placed on the market, panoramic camera inventors again came forth. This time with considerably more success than in their previous efforts. Almost from the start in the use of film, results more or less satisfactory were produced. Machines as complicated as a Waterbury watch were offered for sale but did not seem to meet with a ready sale. At least the writer has not seen as many in use as some more desirable forms of cameras; in fact one was about the num-