

APRIL 4, 1897—FIFTY-TWO PAGES.

MOVE AS IF ALIVE.

How Pictures That Show Life Are Now Produced.

DONE HERE IN THE WEST.

Factory Making Much-Talked-Of Views in Waukegan.

CAMERA TURNED BY A CRANK

Films Sixty Feet Long Easily Developed and Printed.

MACHINES FOR EXHIBITING THEM.

AGAINST a lot of little pictures—so small that the eye needs a microscope to appreciate all the details of each of them—the Legislatures of five States are taking action. They are tiny little views, scarcely an inch long by three-quarters of an inch high, and as innocent-looking as could be well imagined. Yet just now there is a cry going up the length and breadth of the land regarding them, and society is divided over the question of their exhibition.

It is the kinesiographic pictures of the recent fortnight at Carson City that are so agitating the lawmakers. In Illinois, Minnesota, Massachusetts, New York and Washington they have been introduced looking to the prohibition of these offensive appearing views of transparent film. Sharp debates are taking place over the advisability of allowing their exhibition, and the partisans of either side are equally in earnest. Over the outcome of the discussion there are thousands of people interested.

Everybody knows what these pictures will look like when thrown on screens by the aid of powerful light. But what they really are now made, and how exhibited, is so much a matter of ignorance that there are no less than five mistakes in the specifications of the machine prohibiting their use in Illinois. Yet this is a factory for the manufacture of the machines that exhibit these views in Chicago and Waukegan, together with a laboratory or studio where the pictures are turned out by the thousand. For the benefit of its readers this Sunday Tribune gives a description of the method of making and exhibiting these little transparencies, a clever process by means of which actual occurrences out in the sunlight may be produced in the lifelike representation so familiar with the patrons of down-town theaters.

Early last week a crowd gathered in Dearborn street, a short distance north of Tribune corner. It was just after noon, and the east side of the street was flooded with sunlight. In the center of the group of curious people was a man working busily over the most curious-looking thing in the way of a camera that has been seen on the city streets for many a day. It was inventor E. H. Amet and his machine for making pictures for the magniscope.

Undeterred by the throng of the curious about him, Mr. Amet put his instrument in place so that it would point at the sidewalk ahead in front of Tribune office. When he had it adjusted exactly to suit him he closed up the machine and began to turn a crank in the side. After a few minutes' grinding the whole operation was finished and the machine put in a carriage to start for the next place where a scene of interest was to be photographed. On Friday of the next week the pictures of the Chicago street view in front of Tribune office was put on exhibition at a downtown theater during the week.

HOW PHOTOGRAPHY REPRESENTS IMAGES IN ACTION.



the darkness of its original receptacle. All the inside of the machine is kept in almost total darkness when the slide in the back is closed so that the movement of the film across the field of the lens is in a condition perfectly favorable to picture-taking. The shutter by which the exposures are made is a large black disk with a portion cut out of its edge. It revolves by the same mechanism which feeds the strip of film across the back of the lens, and works exactly with it. What the grain of gas is set against the film moves forward three-quarters of an inch, then stops an instant while the opening in the shutter passes the front of the lens; then moves ahead again, and so on. Each time the shutter operates a picture is made on the film. They are arranged one close below the other, each one an inch by three-quarters of an inch in dimension. The whole machine is operated from the outside by a crank attached to a spring handle that takes all the vibration of the instrument itself.

Either 60 or 120 feet of film is held in the upper box ready for a run of the machine. This is fed past the lens at the rate of thirty to forty pictures a minute, each exposure being in the neighborhood of a fortieth to a fiftieth of a second in duration. Thus to take a motion which lasts three seconds over a hundred exposures would have to be made, and where a performance lasts an hour—like the prize fight at Carson City—nearly 8,000 feet of film must be used, meaning at least 125,000 pictures.

shoves the film ahead an inch or two, punches slight holes in the edge, and then moves along for another punch. So accurately are the holes made that 200 feet of the film may be doubled on itself and the holes will be found to fit, even at the ends, to a thousandth of an inch. The necessity for punching holes in the film is found in the accuracy with which the actual negatives were taken. In variations of this method of feed come all the differences between the several types of moving picture machines. It is the slipping of the feed mechanism which makes the jarring and flashing of the pictures so trying to the eyes of the spectators.

For the handling of the films, the development of the negatives, and the making of the transparencies used for projection, a laboratory has been built in the last few weeks at Waukegan. In it are dark rooms, a great drying hall, printing and developing facilities, and the necessary apparatus for making pictures. This is the process through which the films go, from the time they enter the house until they depart on their mission to please the public eye.

After a negative film is punched and rolled up into the little black box, which goes on the top of the camera, it is taken out and exposed. Then, with the impression of some interesting view on it, it comes back again to the laboratory ready for development. Here appears a problem which would make most professional photographers ponder a long time before attempting. It is how to handle a negative sixty feet long. But the matter is simple enough, once the necessary skill is obtained. Two men take the exposed film into the dark room and begin operations. There are several large round jars present, and troughs which reach clear across the side of the room. After developing and fixing solutions are put in the jars and trough and the work begins. Starting at one end, the film is rapidly fed into the long trough, being run back and forth until it is all placed in layers in the developer. When, starting again with the same end as at first, it is drawn out of the developing solution at the same rate as it entered, and is run into a jar of water to wash. By that time the proper amount of development is obtained,

and the film next goes into the fixing solution, emerging from that to be soaked in the washing tanks in the drying-room. In the drying-room are loops and strings of film sufficient to decorate a theater. The room is fifty feet high, with the ceiling made so that the films may be hung easily from it. Here, after the long negatives are washed, they are fastened about until thoroughly dry and ready for printing. When they are taken down, some of them are marvels of workmanship, not having a flaw large enough to be seen with a microscope.

When a good negative is secured, the work of producing positive transparencies suitable for the projection machines is begun. This requires a remarkably clever scheme for printing through the negative film on the positive film. The work is accomplished by the use of a special device by means of which the two films are pressed together and unrolled just a small aperture, which lets in daylight. In the instant of time which elapses while the films are passing the opening the printing is done. Then follows a process of developing the transparencies similar to that used on the original negative, and a suitable film for the projection machine is secured.

The projecting machines known as the vitascope, magniscope, vitascope, biograph, cinematograph, and similar names consist essentially of a bright light, some lenses, and a means of moving the film across in front of the light. As the long transparency runs past the lenses, each picture stops a fraction of a second, while the light is suddenly thrown through it on the screen. Then for another small fraction of a second the light is shut off, the film moved ahead again, and another picture flashed on the screen. This operation is carried on so fast that the eye practically cannot separate one view from another, and the projected image is made to appear to move. Of course, the lenses magnify the size of the picture enormously.

In order to have the pictures appear steady on the screen and without the sudden jerking which is so trying to the eyes, it is of the greatest importance that the holes which are punched in the film should be exactly perfect. As stated, it is in this matter of holes and feed mechanism that the differences in the various makes of machines lie and on which the several varieties base their peculiar claims to superiority. Some work by hand power and some by electric motors. Some use electric light, and some calcium light. To the public, however, the proof of the pudding is in the eating, and the machine which gives the steadiest and best views is the one most in favor, whatever its mechanical construction.

Mr. Amet is convinced that the production of moving pictures is yet in its infancy, and hopes for great things. The introduction of some successful method of color photography, such as that reported to have been discovered across the water, will greatly add to the attractiveness of the views. By a possible phonographic attachment these colored views may be run with the sounds of some successful method of color photography, such as that reported to have been discovered across the water, will greatly add to the attractiveness of the views.



HOURS OF GREATEST AND LEAST ACTIVITY IN

As shown on the telephone chart.

PULSE OF THE CITY.

Telephones as Thermometers of the People's Doings.

NOVEL RECORD IS KEPT.

System of Charts Which Tell an Interesting Story.

THROBS OF THE BUSY TOWN.

Changing Phases of Life at Morning, Noon, and Night.

EFFECT OF WEATHER AND TRADE.

IN the big telephone building at the corner of Washington and Franklin streets sits a man who has his hand continually on the pulse of Chicago. Like a trained physician he takes note of every pulsating throb that marks the ebb and flow of life in this monster community, and is ever on the watch to ascertain the cause of any abnormal movement. It is his duty to regard the city as a great patient, and make accurate diagnosis of its condition. To this end he feels the pulse of Chicago hourly, and enters the results of his observations in carefully kept records. These are tabulated into charts once a month, and then bound into book form for preservation, the whole forming a library the like of which can be found nowhere in the world outside of this city.

Pulse Feeling by Telephone. Feeling the pulse of an entire community by telephone; taking an hourly record of the business of Washington and Franklin streets, millions of people is a novel feat and few men would care to undertake. When to this is added a system for ascertaining the cause of any unusual movement in the city, by means of which one man sitting alone in his office is enabled to stay positive and unerringly just what is taking place in a territory covering 183 square miles, it becomes a matter which fills the ordinary being with awe and leads to the question of how it is made, and orders for goods given. If he were to be shut up in a dark room and cut off from direct communication with the outside world he would not be able to say accurately whether or not extreme heat or cold or storm had been reached. The various gradations of the twenty-four hour day—morning, noon, and night—with all their peculiar changes and conditions are as to the person who walks the streets and has them brought directly under his eyes.

How the Thing is Done.

General Manager Hubbard of the Chicago Telephone company has devised and perfected this interesting work. There are over 13,000 telephones in daily use in this city, generally on the 10th, an exact number of exchanges. The largest of these is the main exchange at Washington and Franklin streets, where the reports from all the branches are sent for compilation into chart form. Every operator has with him a ready hand a pegboard, on which he keeps tab of the number of calls answered each hour. From these boards the record is copied into books, and once a month, generally on the 10th, an exact number of telephone calls by the 1,000. The telephone day begins at 1 a. m., and starting at this hour the expert drafts a heavy line, which indicates the number of calls made for each of the twenty-four hours, a separate sheet being drawn for each exchange. To the uninterested these charts simply show the volume of business, just as similar diagrams used in the business pits on the Board of Trade. As explained by General Manager Hubbard, however, they take on a wider and more important meaning, and, when once understood, give an interesting and incontrovertible index to many phases of life.

“Hump” Hours of the Day. In the telephone service,” said Manager Hubbard, in explaining his charts, “rushes of business are known as ‘humps.’ Thus we have the morning ‘hump,’ the afternoon ‘hump,’ and the evening ‘hump.’ Thus we chart now before us and you will see that at 1 a. m. the business of the day was at the minimum—virtually nothing was being done. Nearly all the good people of Chicago accept the night work as were abed and the city was quiet. The only telephone calls were those made by the newspaper men, and but few operators were on duty. There is little change from this condition until about 3 o'clock or a trifle later when you will notice there is a ‘hump,’ but not a very big one. This is caused by the night police reporters sending in their last items for the night in time to catch the forms for the next