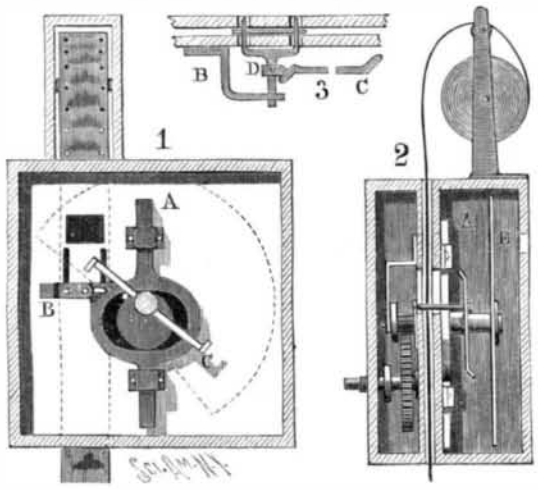
THE LUMIERE CINEMATOGRAPH CAMERA.

The popularity with which the art of moving or chrono-photography has been received has led to the invention of numerous devices for taking the original pictures expeditiously and with as portable and compact apparatus as possible.

One of the most recent cameras of this kind is that invented by the Lumiere Brothers, of Paris, France, which works on a somewhat different plan than that generally noticed and, at the same time, is quite simple and certain in its operations, occupying but little space.

The peculiar novelty of this instrument is the manner by which the film is carried forward intermittently, no sprocket wheel being used.

Referring to the illustrations, the film-moving device (Figs. 1 and 3) will be observed to be nothing more than two prongs arranged like a fork, D, which



Figs. 1, 2, 3.—FILM MOVING MECHANISM.

are alternately pushed through or withdrawn from the perforated ribbon film by a rotating bar, C, having the ends bent in opposite directions, impinging on one or the other sides of a wedge-shaped cam, D, attached to the shank or spindle of the moving fork. The film-moving fork is also attached to an arm of a reciprocating yoke piece, A, actuated by an eccentric (see Fig. 1), so that the moment a section of the perforated film has been carried down by the fork, the fork is immediately withdrawn from the film by the rotating bar, C, impinging the cam, D. The fork is then carried upward by the arm, B, attached to A, clear of the film, the distance of the eccentric movement, until the opposite end of bar, C, strikes the cam, D, and forces the forks into the film perforations; the part, A, then moving downward in the opposite direction, quickly carries, also by the fork, the film the distance of one picture. On the main actuating shaft is also arranged the shutter, E, Fig. 2, which rotates in harmony with the film-moving mechanism. Fig. 2 shows a vertical section of the machine. A is the film-operating part, E the shutter on the main shaft, there being on the rear end of the latter a pinion operated by the larger cog wheel, which is worked by a handle. On the upper end of the box is the supply of the sensitized ribbon, which passes downward between guides before the lens opening. The bent ends of the cam operating bar will be clearly seen. Fig. 4 illustrates the exterior of the instrument, showing more especially the way the film is carried through the machine. The use of the apparatus is shown in Fig. 5, where it will be observed supported on a tripod and its portable nature made manifest. The ingenious device for producing an intermittent movement without sprocket wheels or cogs is one of the features of the camera, while its lightness and facility of operation by simply turning a crank makes it adaptable for use in most any place. Parents with such a camera can preserve all the peculiar antics of their children or of pet animals and numerous other interesting incidents that are constantly occurring. The same camera can be converted into a projecting apparatus for throwing the moving pictures on the screen in regular sequence. The pictures taken with this apparatus are about an inch square. It should not be long before a hand camera based on the same idea should be in use, comparatively automatic, so that every time the tourist makes an exposure it will mean from forty to a hundred pictures at one release of the shutter trigger. The increased interest shown in this class of pictures certainly should stimulate the invention of various forms of portable chronophotographic cameras.

Fig. 5.—THE CINEMATOGRAPH CAMERA IN OPERATION.

Egyptian Archæology.

The Egyptian Museum of Antiquities, which, during Mariette's and Maspero's administrations, was located in the small Boulak palace, and afterward transferred by Mr. Grebeau to Gizeh, has outgrown its present home and is to be transferred once more. Mr. Dourignon, a French architect, has gone to Egypt to assume the direction of the work of construction in collaboration with an inspector of the Egyptian service. The funds needed for this vast enterprise had been appropriated last year, and work was about to begin, when Lord Cromer had all the appropriations laid aside and all the obtainable funds made available for the Dongola expedition. But now, after all, Cairo is going to have its new museum, says the New York Sun.

Such a building is very much needed. Since Mr. Jacques de Morgan arrived in Egypt, as director-general of the antiquities service, it has been his constant dread that all the invaluable treasures intrusted to his care might become the prey of fire. The Gizeh palace, where the museum of Egyptian antiquities is now located, is probably one of the most unsafe public buildings in the world. Its cost was enormous, sending to the shade the extravagances of the Albany Capitol. It was one of the last achievements of Khedive Ismail, when he was preparing Egyptian bankruptcy and his own downfall. I remember noticing, while visiting this palace, large openings in the walls, through which could be detected the composition of the walls, supposed to be made of stone. Instead of compact and solid material, trunks of palm trees, logs of wood, and rubbish of all sorts could be seen, all covered up with a thin outside coating of plaster most brilliantly decorated, a true picture, in fact, of modern Egypt. It was said, also, that the spaces between ceilings and floors were filled up in a similar way with all sorts of wooden debris. The Gizeh palace was in every respect a perfect fire trap.

The probings were made at Mr. J. de Morgan's request, to show to the commission the true condition of things, and the absolute necessity for a new museum, erected in accordance with the rules of a modern fireproof building. The commission and public opinion were so much impressed that the construction of a new museum was decided upon. It is to be erected at Cairo, with a frontage on the Nile, where it will be of easy access to visitors. This will facilitate the more economical transportation by water of the heaviest materials. The plans are simple and at the same time well adapted to the exhibition and safe keeping of antiquities.

Another item of news that will be of interest to travelers in Egypt is that a privilege has been granted by the Khedival government to the Belgian Tramway Company of Cairo to establish a line from that city to the Mena House and the Gizeh pyramids. In building this road the Khaling Canal will be filled up, and it is contemplated that this will improve the sanitary condition of the city. There is nothing so popular in Cairo as a ride on the old road to the pyramids. Every one who has visited Egypt has gone under the shade of its stalwart trees. This old road has a curious origin. It was built at a period of Egyptian history that reminds one of the "Arabian Nights;" when a magnetic Frenchman had brought to the land of the Pharaohs a mighty sovereign to attend the opening of the greatest commercial waterway of the world, fully aware that the canal was not free yet, but still trusting to his star and indomitable will to have it open in time. The ruler of this fairy-like land invited his imperial guest to a carriage ride to the Gizeh pyramids. No road existed from Cairo to the desert, and yet when the sovereigns went to see the pyramids the road was built and planted with shady trees. It had all been accomplished in a few days.

Nothing is more interesting than a talk with Brugsch Bey when the veteran of the memorable Mariette days is willing to entertain you of this strange period. He will tell you how Verdi was called upon by a Khedive's caprice, and "Aida" written in a few weeks to retrace the old days of Egypt. Nothing was spared to make a more vivid picture of the past. Mariette and Brugsch Bey himself were the stage painters, and the scenes were copied from the genuine records; while

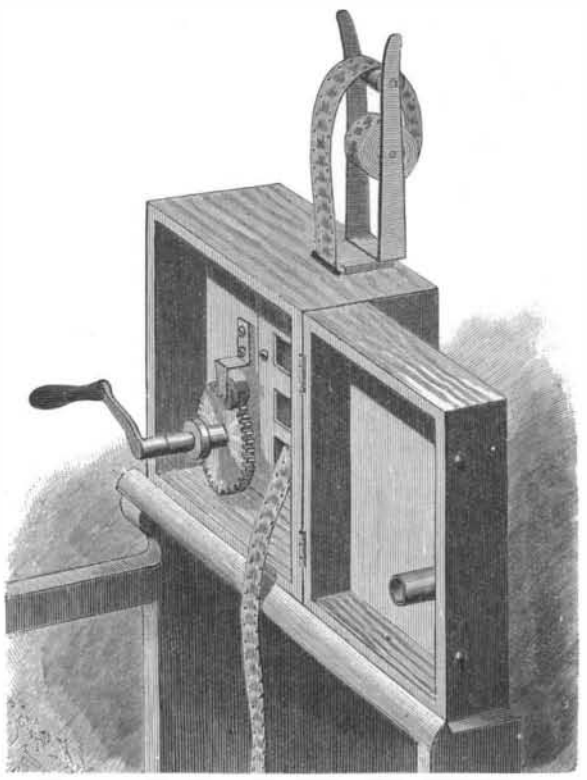


Fig. 4.—DRIVING GEAR AND FILM SUPPORT.

Nubia had to supply ballet dancers and her black cohort. Then the Egypt of the Pharaohs was revived at the will of this modern ruler.

So we will soon have to go to the pyramids in a plain street car. In spite of the majesty of its souvenirs, the Memphis necropolis will become a general picnic ground. But now that it is going to be more accessible to visitors, it is to be hoped that strict rules will be enforced for the preservation of its monuments. Nothing is more destructive to antique remains than tourists in their uncontrollable desire to substitute the world-known names of Jones, Smith and Brown for the less euphonic ones of Cheops, Kephren and Mycherinus. It has been found difficult to keep the base of the pyramids free from debris accumulated by ages; by a judicious tolerance, privileges should be given to tourists to take it away as mementoes, and the task would be accomplished speedily.

Freezing Point of Mercurial Thermometers.

Dr. J. A. Harker, in a paper recently read before the Royal Society on the determination of the freezing point of mercurial thermometers, stated that the method adopted is to cool distilled water in a suitable vessel to a temperature below 0 degree, to insert the thermometer, and then bring about the freezing of the water by dropping in a crystal of ice. The thermometer then rises, and finally attains a steady temperature, differing only very slightly from the true zero. The apparatus employed consists of two portions, the thermostat and the cooler. The former is a copper vessel, filled with either refined petroleum or a strong solution of common salt. The vessel communicates with the cooler, through which the liquid can be pumped by a rotary stirrer, and by this means it can be cooled and maintained for some time at about — 2 degrees. The distilled water to be frozen is contained in a glass tube of about 300 c. c. capacity. This is first placed directly into the circulating liquid, and cooled quickly to —0·5 degree or —0·7 degree. It is then transferred to a cylinder lined with polished metal, placed in the center of the thermostat. The thermometer whose zero is to be taken is then quickly fixed in position, the bulb and a considerable length of the stem above the zero being immersed in the water. A crystal of ice is dropped in, and the temperature quickly rises to the freezing point.