

Electric Door Openers for Use in Asylums.

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The idea of providing some means of instantaneous release for inmates of asylums, in the event of fire or panic, has occupied my attention and study for some time past. The necessity of furnishing some certain method of release will be quite apparent, tending as it will to relieve apprehensions existing in the minds of many patients—notably new admissions of a mild type of disease, and convalescent patients, both of which classes are quick to appreciate their surroundings, and for whom the terrors of fire are very potent. Reflecting, as they do, upon the fact that they are locked on one side and barred upon the other, the disquietude occasioned by their situation must certainly be prejudicial to the chances of a speedy recovery, at all events it militates against the equanimity which might obtain were their fears on that score relieved.

The utility of this system will be readily appreciated by all familiar with the management of institutions of this character, more particularly by those connected with the smaller asylums, where the number of attendants is apt to be proportionately small, as it effectually removes the risk of attendants becoming panic stricken, and in consequence forsaking their charges. I was most forcibly impressed on this subject of speedy release in case of fire by a conversation with a female patient in this asylum—a woman of superior intelligence. In the course of conversation, she said to me, "Doctor, what is to become of me if a fire should break out on this ward? I am virtually caged in this room." I replied, "You would immediately be released by the attendants in charge of the ward." She returned, "I wish I could persuade myself that such would be the case, but unfortunately I am tortured by the doubt that the 'girls' would lose their presence of mind and, thinking only of their own safety, would leave us to our fate." I allayed her fears as best I could, but the impression remained with me until I decided to leave open the doors on that ward—a convalescent ward—which I did, with a few exceptions.

I then considered that this way out of the difficulty was not solved in the case of the great majority of the inmates, and accordingly I began to reflect upon the subject of securing some means of controlling all the doors instantaneously and simultaneously, and which, moreover, would place the safety of the patients in most trustworthy hands. I entered into correspondence with superintendents of various asylums throughout the country to ascertain if any system was in operation, mechanical or otherwise, whereby a number of doors could be opened simultaneously. I received negative replies in every case. The system in use in penal institutions was the only one known, and that was to be deprecated on account of the association suggested. The idea of using compressed air was then entertained, and was abandoned for that of electricity.

I consulted with an electrician, and together we ascertained that a door opener operated by means of electricity was in use in large apartment houses, having superseded the mechanical device formerly employed, but that its operation was confined to one door. It was argued that if a single door could be controlled by this means, an indefinite number could be operated similarly, provided sufficient battery power were used. The lock referred to was sent for, put in place and connected, and it operated satisfactorily for a time, suddenly it failed, and upon investigation it was found that the lock not being incased, small particles of dust and plaster had dropped into it and crippled its working mechanism.

Moreover, it was determined that the lock was not built with an idea of resisting sufficiently force which would likely be exerted upon it, also that the spring push, which was secured higher up on the door, was too much of a toy affair and could be tampered with by patients so inclined. Another lock was procured, which was stronger in every way, in construction, and possessed the advantage of embodying the lock and spring push in one piece, also being so constructed as to render it incapable of being toyed with or its mechanism to be interfered with by mischievous patients. The same objection presented, however, viz., it not being incased. This we remedied by means of plates on all sides.

I addressed the board of trustees of this asylum on the subject of providing a means of certain and speedy egress in case of fire, setting forth the dangers of relying solely upon the presence of mind of the attendants in such emergencies, dwelling on the defective condition of the mechanical locks which have been in constant use since the establishment of the institution, moreover, explaining minutely the perilous situation of the patients, which could not be fully appreciated by those dwelling in houses where window grating was unknown. I also endeavored to impress sufficiently the fact that the number of attendants was of necessity proportionately small, and the time consumed in unlocking doors separately, provided the attendants preserved their composure, would be necessarily considerable and possibly hazardous.

The gentlemen of the board, appreciating the force

of the arguments adduced in favor of the system, and being strongly alive to the necessity of neglecting no practicable means to provide protection to the inmates, granted me the power to equip ten doors and operate them for a period sufficiently long to demonstrate beyond a doubt the feasibility of the scheme. Ten doors were accordingly fitted out in this manner, and they have been in successful operation for a considerable period, and give undoubted promise of fulfilling the work required of them.

I will describe briefly the device used and the method of its application for use in asylums. The lock is set into the door jamb, and operates in connection with the bolt of the mechanical lock, which is of course situated in the door. In this manner, the bolt of the mechanical lock is slid behind the bolt of the electrical apparatus and held there securely by it until the current is turned on, when the electrical bolt recedes into the lock and releases the mechanical bolt. At the same instant a mechanical device, situate in the lock, in the form of a powerful spring push, and which, by the way, is up to the highest state of tension when the door is locked, is released, and acting upon a small brass plate fastened to the door, serves to throw it a distance of three feet. The door is thrown open with its bolt shot and immovable and cannot be closed again except by means of the key, as the electric bolt is immovable save when influenced by the current. This forms an advantage in preventing viciously inclined patients from securing themselves in their rooms or inveigling attendants therein and imprisoning them, as might happen in case a spring latch were used, as was suggested to me at one time.

The device has the appearance of an ordinary lock, and nothing in connection with the system is objectionable as tending to suggest disagreeable associations, as the wires are all concealed under the mouldings of the door frames and carried through the floor to the ceiling below in the basement, and along it to a locked cabinet containing the cells. At present the ten doors are operated by means of eight cells, the ordinary Bell battery with sal ammoniac solution being used. A test of the apparatus is practically made every morning, as the patients are released in this way, and in case of any imperfect working the defect can be immediately traced and corrected, so as to insure its efficiency in any event. The push buttons are located in the attendants' rooms and are operated at that point, but in order to make assurance doubly sure the wires are to be carried to the superintendent's office and are to be controlled from that point also. It is intended also to have a separate button to operate the exit and fire escape doors, which will be used solely in case of emergency. This arrangement will provide a perfectly free exit from the building as well as from the sleeping rooms.

I have recently introduced a fire drill among the patients, so that at a given signal they hasten to the hall and form in a double column, when they are counted by the attendants and marched to the fire escape. It may seem an incredible statement, but the great majority of our patients respond promptly to this drill. I would say that in carrying this out I have relied greatly on the force of habit, which obtains as prominently among the insane as among the sane, and is quite effective in this instance. I am digressing, but I merely wished to call attention to the value of a drill of this kind in connection with the means of release provided by the electric system of door openers and the advantages resulting from their combined operation.

The subject of the safety of inmates of institutions of this kind is one that is deserving of serious reflection on the part of all interested in the care and treatment of this unfortunate class, and the apprehension of the patient for his or her release in case of fire or panic is certainly worthy of our consideration. If any means can be devised which will tend to promote a feeling of security in minds diseased and morbidly apprehensive, I am of the opinion that nothing of practical value in this direction ought to be disregarded or overlooked.—*American Journal of Insanity.*

Another Chance for Inventors.

According to the *Virginia City (Nev.) Enterprise*, the fortune that awaits the inventor of a successful dry-placer machine, or any method by which the gold in the loose dirt on the hills and mountains of Nevada can be separated, will make the present wealthy men of the world have, by comparison, dismal anticipations of the poorhouse. The experiment has often been tried, and as often the result has been only partially successful, often sufficiently encouraging to induce continued effort, but never so far has a profitable working test been made. Frequent failure, however, does not discourage those who have a conception of the possibilities, and detail after detail of discovery and improvement will be made until dry working is achieved.

Owing to the specific gravity of gold, which enables us to collect it by the use of water, wind will probably be the chief agent of separation. The numerous contrivances for that purpose now in existence depend

more or less upon the principle by which grain is separated from chaff, and the experimenters have usually directed their attention to modifications of the form and structure of the familiar winnowing machine.

The several methods of utilizing the air have at times been combined with amalgamating plates and with a moderate use of water, which is made to do continuous service. The failure in the sense of profitable working has usually been due to the relatively small quantity of metal saved; that is, the returns have not justified the outlay. There is no question as to the feasibility of making the weight of particles of gold operate in collecting themselves in a distinct mass. It is and always has been only the ratio between value received and value expended that must be overcome by the successful dry separator. Heretofore the wind has been supplied by artificial means, and its application has necessarily been limited. Some time the natural motion of the air will be applied on a large scale, and in such a manner that by a repeated fanning the dry earth may be blown away from the heavier metal. Great air concentrators will be devised that can be operated at an expense merely nominal, and the problem will be practically solved. When this is accomplished, the *Enterprise* adds, the wind, which, like the poor, we have always with us, will blow wealth and prosperity for Nevada.

PHOTOGRAPHIC NOTES.

A *New Developer* has been very successful in my hands. This new developer, which combines the delicacy which may be obtained by the use of pyro with a beautiful transparent steel gray tone, gives most uniform negatives of excellent printing qualities. The formula which I used is the following:

No. 1.—Water.....	1,000 c. c.
Sulphite of soda.....	250 grammes.
No. 2.—Water.....	1,000 c. c.
Carbonate of soda.....	250 grammes.
No. 3.—Water.....	1,000 c. c.
Carbonate of potash.....	250 grammes.

Now are mixed in a bottle:

No. 4.—Sulphite solution 1.....	200 c. c.
Pyrogallie acid.....	10 grammes.
Hydrochlorate of hydroxylamine.....	2 "

And in another bottle:

No. 5.—Soda solution 2.....	100 c. c.
Potash solution 3.....	100 "
To develop a plate of 13 by 18 centimeters I mix:	
Water.....	100 c. c.
Pyro solution 4.....	10 "
Solution 5.....	20 to 60 drops.

If I have to develop instantaneous pictures, I add at the very beginning 40 drops of solution 5 to the bath, but in the case of time exposures I begin with 20 drops, and, if the picture comes out slowly, I gradually add 5 drops at a time, as often as required with instantaneous exposures. This developer gives plenty of detail, and at the same time soft and brilliant negatives, if the alkalic solution, No. 5, is correctly employed, and neither too much nor too little of it is used.—*H. E. Gunther, in Photo. News.*

A *Brilliant Actinic Artificial Light*.—A writer in the *Chemiker Zeitung* has recently given the following formula for a penetrating light, which, it is stated, is visible in clear air for a distance of a hundred kilometers, or about 60 miles: Magnesium powder 20 parts, barium nitrate 30 parts, flowers of sulphur 4 parts, beef tallow 7 parts. The tallow is added in a melted state, and the mixture is sifted. This mass, filled in strong zinc cases ten centimeters high and seven in diameter, burns for twenty seconds with a light of 20,000 candle power. Making a rough estimate, this might weigh about a pound, and as it would be one-third magnesium, its cost is quickly seen. Of course such an immensely powerful light would be needlessly great for portraiture.—*British Journal of Photography.*

Depth Daylight will Penetrate Water.—In the month of March sunlight affects a sensitive dry plate sunk to a depth of 400 meters in the Mediterranean Sea. In September the distance is less by 20 meters.

Developer for Collodion Emulsion Plates.

Hydroquinone.....	165 grains.
Bromide of potassium.....	23 "
Citric acid.....	40 "
Sulphite of soda (crystals).....	1½ "
Water.....	20 oz.

Alkaline Solution.

Carbonate of soda.....	2 oz.
Carbonate of potash.....	2 "
Water.....	20 "

When the exposure is correct, use equal parts of each for the developer. If over-exposure is suspected, use half the quantity of the alkaline solution.—*Fred. W. Muncy, in the British Journal of Photography.*

A HISTORY of sugar was written in 1799 by Dr. Mosely. It states that sugar when first introduced into every country was used only medicinally. Pliny, the naturalist, leaves no room for doubt on this point. Even in Arabia, in the time of Avicenna (A.D. 980-1038), though sugar was an article of commerce from the East, there is no record of its being used for dietetic or culinary purposes for several centuries afterward. It was chiefly used to make nauseating medicines pleasant to take.