LEVER AND CAM VALVE.

The mechanism of the valve represented by Figs. 1 and 2 differs materially from that in more general use for the purpose of regulating the flow of steam, water, oil, and gas. The ordinary globe valve and common tap are familiar to all; in the former, five or six complete turns of the hand wheel are necessary to fully open or close the circular seated valve; in the latter the plug must be turned half a revolution for a full opening or closing. In the valve here shown the opening and closing are effected by one quarter turn of the lever handle or wheel, whichever may be used. Fig. 1 is a perspective view of the exterior, and Fig. 2 an interior view, showing the valve and the valve chamber. The operation is as follows: The gate, A, moves on guides, B B, which are arranged to prevent friction by keeping the gate when moving from contact with the seat and wall of the

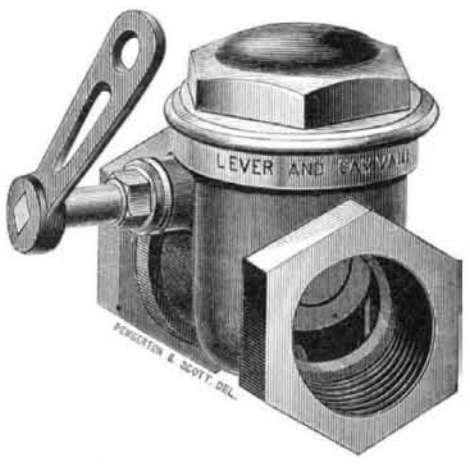


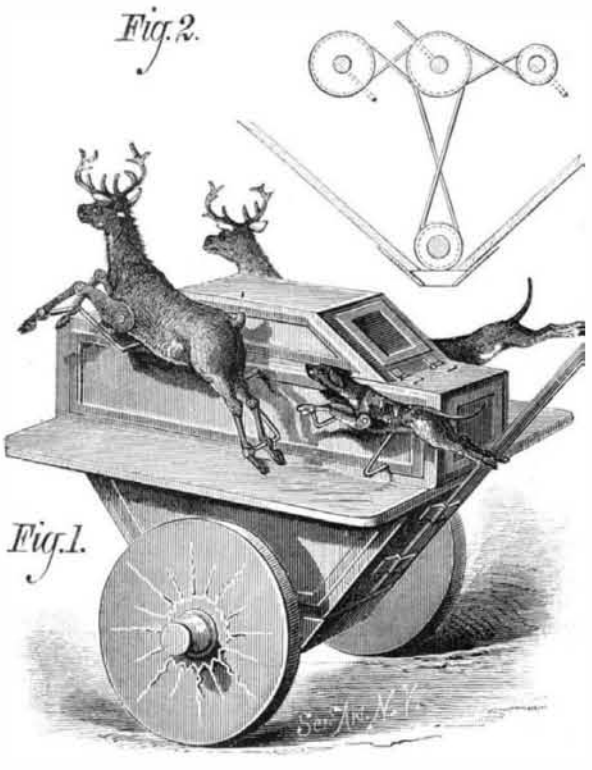
Fig. 1.—LEVER AND CAM VALVE.

valve chamber. The gate is opened and closed by means of the lever arm, C, attached to the rock shaft, D, and working in the slot, E. When the gate is nearly down, the cam, F, forces it forward and down to its seat. The advantages claimed for this mode of construction are that by the removal of the large cap every part of the valve is visible and can be examined, dirt and chips can be easily removed, and there is nothing in the valve itself to get out of order. There is a straight open passage the full size of the pipe. It is compact, as it only occupies one half the space of ordinary valves, and is so made that all the pressure bears on the back of the gate, and is therefore utilized in keeping the valve tight. There is freedom from friction. As soon as the gate leaves the seat it is entirely free. The wear of the packing in the stuffing box is very much reduced. The position of the handle shows at all times the position of the gate. In many positions in which valves have to be placed out of easy reach the lever movement may be readily operated by a rod or chain; and although the movement is quick, from the fact that it begins to shut off the flow of the fluid at once, but does not completely do so until the gate is fully closed, all water hammering or violent concussion is avoided.

Valves of this description are at present constructed from half inch to four inches in diameter, and are applicable for steam, water, oil, gas, etc. Special valves are also made for use on the Swift Connecting Fire Stand Pipes. They are made by John S. Leng, No. 4 Fletcher street, New York city, who may be addressed for further information.

AN INGENIOUS TOY.

An ingenious mechanical contrivance, which may be used



as a toy for children, or, by simple modification, as an attractive sign for dealers in sporting goods, is represented in the annexed engraving. It represents a deer chased by a hound, and to both animals a rapid life-like motion is given by means of the arrangement of gearing shown in Fig. 2. The revolution of the wheels when the toy is dragged along by the handle sets the pulleys in motion, or when the device is used for a sign the wheels might be rotated by a miniature engine. The invention is attractive and amusing, and should be popular among the children

For further information address the inventor, Mr. J. R. King, 182 Robert St., St. Paul, Minn.

MILK AS A SUBSTITUTE FOR BLOOD TRANSFUSION.

Notwithstanding the fact that the possibility of preserving life by means of the introduction of the blood of a healthy individual into the circulation of one suffering either from great loss or impoverishment of the vital fluid has been known from the remotest antiquity, and that the operation of "transfusion" has been practiced with more or less frequency from those periods up to the present time, and often with good results, and despite the fact that nearly every physician readily admits the great advantages to be derived from the operation in many cases, it must be admitted that we hear of remarkably few instances where it is resorted to, even by its most strenuous indorsers. Even in a large city like New York many of our boldest and most skillful surgeons have never ventured to perform the operation, preferring to take other chances of saving the patient's life rather than risk the dangers and difficulties attending the transfusion of blood. The great tendency of blood to coagulate, and the known fact that a particle of serum or of a small quantity of atmospheric air entering the circulation during the process is sufficient to cause death, seems to deter the boldest from hazarding the experiment except in desperate cases. Could another vital fluid be found free from the disadvantages that attend the use of blood, while possessing all the life-giving properties of the latter, it is manifest that it would prove a great acquisition to the practice of surgery, and tend to make a procedure now little used much more popular, with results prolific in good. Dr. T. Gaillard Thomas has communicated to the New York *Medical Journal* a paper to prove "that in the milk of the cow, and probably also in that of other mammals, we possess just such a fluid." Dr. Thomas' paper is given up chiefly to the presentation of cases in which the injection of milk into the venous blood as it goes to the heart, has been tried by him upon the human being with marked success. But before describing these successful experiments he proceeds to silence the prejudice that would naturally arise to such a proceeding, by pointing out the fact that while chemically inferior to blood, which is identical with the fluid to be augmented and improved, milk is more allied to chyle (the material of which nature makes blood) than any other fluid with which we are acquainted; and in injecting milk into the veins we are imitating nature very closely in one of her most simple physiological processes.

Twelve cases are now on record in which milk has been injected into the general circulation in place of blood, 3 by Hodder, 2 by Howe, 7 by Thomas. In one instance only did evil results insue (one of Howe's cases), and this should hardly be considered, since decomposed milk was employed; and this, like decomposed blood in "transfusion," would almost surely be followed by fatal consequences.

Basing his conclusions, then, upon his experience, and in no degree whatever upon theory, Dr. Thomas sums up as follows:

1. The injection of milk into the circulation, in place of blood, is a perfectly feasible, safe, and legitimate procedure, enabling us to avoid the dangers and difficulties of the latter operation.

2. None but milk removed from a healthy cow within a few minutes of the operation should be employed. Decomposed milk, like coagulated blood, is poisonous, and should not be used.

3. A glass funnel, with a rubber tube attached to it, ending in a small canula, is better, safer, and more attainable than a more elaborate apparatus, which is apt, in spite of all precautions, to admit air to the circulation.

4. The intra-venous injection of milk is infinitely easier than the transfusion of blood. Any one at all familiar with surgical operations may practice it without fear of great difficulty or of failure.

5. The injection of milk, like that of blood, is commonly followed by a chill, and rapid and marked rise of temperature; then all subsides, and great improvement shows itself in the patient's condition.

6. Lacteal injections need not be limited to cases prostrated by hemorrhage, but may be employed in disorders which greatly depreciate blood, as Asiatic cholera, pernicious anæmia, typhoid fever, etc., and as a substitute for diseased blood in certain affections which immediately call for the free use of the lancet, as puerperal convulsions, etc.

7. Not more than eight ounces of milk should be injected at one operation.

In conclusion, Dr. Thomas states that after lengthy consideration and considerable experience he would be false to his own convictions if he did not predict for "intra-venous lacteal injection" a brilliant and useful future.

Dr. Brown-Sequard.

The eminent physiologist, Dr. Brown-Séquard, has been selected as the successor of Claude Bernard in the professorship of the College of France. The qualifications of Dr. Brown-Séquard for the vacant office are beyond question, and his appointment will be hailed as a graceful recognition of scientific work not yet adequately appreciated. Perhaps few individual investigators have done more to elucidate the obscure features of brain and nerve organization than Brown-Séquard; certainly scarcely any physician has contributed so largely to the understanding and rational treatment of morbid conditions. The profession in England, and we believe on the continent, will be gratified by the choice which has been made; and science will look with confidence for the completion of investigations which Dr. Brown-Séquard has still on hand.—*Lancet.*

Odd Uses of Paraffin.

The cheap chocolate cream drops sold by peddlers on the streets are treated with paraffin to give them gloss. Chewing gum is made of paraffin, and one manufacturer thus consumes 70,000 lbs. of the material yearly. Paraffin is

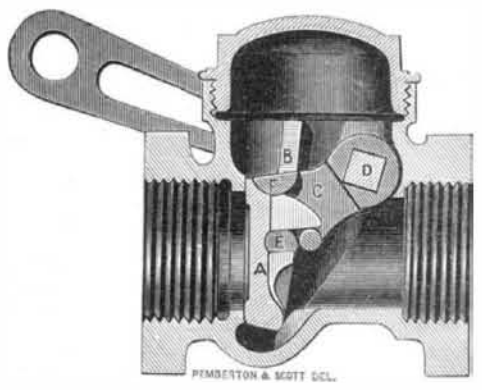


Fig. 2.—LEVER AND CAM VALVE.

also used for impregnating match sticks, sizing various fabrics, coating the interior of wine and beer barrels, preserving fresco paintings, and waterproofing silk. For the last purpose it is dissolved in naphtha, and it is said that ice cream may be spilled on rose or violet colored silk so prepared without injury to the fabric. In the south of France paraffin is now largely used to replace lard in retaining the odor of flowers, by being fused with the petals.

American Institute Exhibition.

The forty-seventh exhibition of this Institute will open September 11, in this city. Parties having novelties which they intend to bring to public notice should at once address the General Superintendent for blanks and information. The medals, it is said, have been increased, and special awards will be made upon a number of articles.

Solidification of Petroleum.

A most curious effect on even the lightest petroleum oils is produced by the addition of powdered *Saponaria* (a herbaceous plant belonging to the family of Caryophyllus). On digesting the powder in water and mixing it with the oil the latter forms a very thick mucilage, so that the flask in which the experiment is made may be inverted without its contents flowing. It is still more singular that if a few drops of carbolic acid be added and the mucilage agitated it becomes in a few minutes perfectly limpid.

A SIMPLE FIRE ESCAPE.

The annexed engraving represents a simple fire escape of English invention, its object being to catch persons who are compelled to precipitate themselves from the upper stories of burning buildings. It consists simply of a net sustained on poles, which are held up by persons on the ground. Con-

trivances of this kind kept at police stations ready for instant use on an alarm of fire, might be the means of saving many lives.