

Our observation in reference to the hay crop in Connecticut and western Massachusetts is, that, in consequence of the protracted dry weather in June, it will be light. The season opened favorably, but grass in the old fields was much stunted for want of late rains.

PHOTOGRAPHIC ITEMS.

NEW METHOD OF PRINTING.

The photographic world is at present greatly interested in a new method of printing pictures, lately made public by Mr. Joseph W. Swan, of England. On the 5th of April, 1864, he appeared before the London Photographic Society, and made a full statement of his new method, and presented a large number of beautiful specimens. The members of the society, among whom were many of the leading photographers of Great Britain, expressed their approbation of Mr. Swan's method, and pronounced the pictures in some respects superior to those which result from the present plan of nitrate of silver printing. There is a beauty in the gradation of the tones and a brilliancy of effect that cannot be imitated by the silver process. Specimens of the new pictures have been sent to this country. The editor of *Humphrey's Journal*, having examined some of them, says:—"The softness of tone, the accuracy of shading, and the peculiar color and glows, are strikingly pleasing at first sight, and do not become impaired by a more intimate inspection." The editor of the *Philadelphia Photographer* says of them:—"They are wonderful specimens of art, and are sure to make the old silver process so ashamed of its dark deeds that, like Judas, it will go commit suicide, and leave a name to be only despised when remembered." M. Gaudin, an eminent French photographer, speaking of Mr. Swan's pictures in *La Lumiere*, says that "it is impossible to imagine anything more perfect."

It appears to be the general opinion of the leading photographers of both hemispheres that the new process has something in it of great value. We hope that American photographers will not be backward in examining the subject, and putting it into practical use. The following is Mr. Swan's process:—

"The chemical principle is this, that gelatine, in combination with a salt of chromium, becomes insoluble in water after a short exposure to sunlight. This principle is capable of application to photography in many ways, one of the most obvious of which is to attach to paper a suitable tissue, and cover it with bichromated gelatine having a pigment mixed with it; expose this tissue to light, under a negative, and then wash away those portions of the coating not affected by the light. The exposed parts, having become insoluble, remain attached to the paper, and so produce a picture. The mixture of gelatine consists of one part of a solution of bichromate of ammonia (containing one part of the salt in three parts of water), two parts gelatine, one part sugar, and eight parts of water, with coloring matter added to produce the depth of tint required. The pigment used is Indian ink, either alone or mixed with indigo and carmine.

"The tissue is formed by coating a plate of glass or other smooth surface—first with collodion, and then with the colored gelatine mixture above described: the two films unite, and, when dry, may be separated in a sheet from the surface they were formed on. By this means a pliant tissue is obtained, which may be handled like paper, and may either be used in large sheets or cut up into pieces of any convenient size. The tissue, prepared in the manner described, corresponds with sensitive paper, and with proper appliances, the preparation of it need not be more troublesome than the double operation of albumenizing and exciting paper in the usual way. The tissue is much more sensitive to light than ordinary sensitive paper, and proportionately more care must be exercised to guard it from the action of light other than that which acts upon it while in the printing-frame. Like sensitive paper, too, it is better used soon after its preparation. The printing is done in the usual way, the tissue taking the place of sensitive paper, the collodionized surface being placed next the negative. The sensitiveness of the tissue may of course be varied by varying the proportion of the components of the gelatinous part of the tissue; but with the mixture given, the time of exposure re-

quired is only one-third or one-fourth of that which would be usually given with highly sensitive albumenized paper.

"The proper time for exposure can be determined pretty accurately, after a few trials; for, although there is not the same means of judging of the progress of the printing in the ordinary process, yet there is a far wider range between under and over exposure than in silver printing. It is no exaggeration to say that you may expose one piece of tissue twice as much as another, and yet obtain a good print from both; not perhaps quite so good as between the two extremes, but yet much more passable than would be the case with silver prints under and over exposed to the same extent. On taking the tissue from the printing-frame the image is faintly visible, and the next step in the process is to mount the tissue, with the collodionized face down, upon a piece of paper, or any other suitable material, to act as a support during development, and sometimes to form the basis of the picture, which may, if we please, remain permanently attached to this support, or may, if thought better, be afterwards transferred. There are several ways of mounting the tissue, and several adhesive substances may be used for the purpose, such as starch or a solution of india-rubber and dammar in benzole.

"After mounting, the tissue, with paper attached, is placed in water of about 100° Fah. The water presently begins to dissolve away the non-solarized portions of the gelatine, and in a few minutes the picture is fully disclosed. It is, however, advisable not to hurry the operation, but to give the water ample time to dissolve out the bichromate. It is also advisable to change the water three or four times. Leave the prints about two hours in the water. Where the picture has been over-exposed, longer immersion and hotter water will, in a great degree, rectify the mistake. Before finally removing the prints from the water, brush their surface lightly with a broad camel-hair brush; and, after taking them out, pour a stream of water over them to remove any loosely adherent particles of foreign matter that may by accident have got attached to the surface. The prints may then be hung up to dry, and are finished by being mounted on card-board and rolled, in the usual manner. Another way of proceeding is to remount the developed print, face downward, upon a second piece of paper or card-board—say with starch or gelatine—and, when this is dry, to remove the paper that was attached to the tissue previous to development; this can easily be done if the surface of the paper is moistened with benzole. In one way the image is reversed, and the collodion surface is downward; and in the other the image is not reversed, and the collodion film is uppermost. In practice, probably, the simpler mode will generally be preferred."

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Machine for heading Bolts.—This invention relates to a machine for heading bolts in which the bolts are held stationary by means of two jaws while their heads are exposed to the successive action of a series of heading dies striking the sides and the top of each head; these heading dies are adjustable to suit heads of different sizes, and they are operated by hinged spring dogs which are connected to a foot lever in such a manner that by stepping on the same the dogs are successively thrown in working position causing two of the heading dies to act first on two opposite sides of the head, and the second pair afterwards; and, finally, the vertical die is set in motion and caused to act on the top of the head; and by these means all sides of the head and its top are smoothed without moving the bolt in the jaws. The foot lever connects with a guide lever, the position of which is determined by a cam groove in the circumference of a revolving drum in such a manner that the foot lever is prevented from throwing the spring dogs in gear with the heading dies at the wrong point. Finally, the connection between the foot lever and hinged dog acting on the vertical heading die is made by means of a spring rod, and a yielding bolster is inserted between said dog and its connection with its

crank shaft, in such a manner that the dogs of the horizontal dies will be thrown in gear before that of the vertical die; and in case said vertical heading die meets with an undue resistance it is allowed to yield, and injury to the working parts of the machine is prevented. James Minter, of Worcester, Mass., is the inventor of this improvement.

Preserving Meat.—This invention consists in exposing the meat to be preserved before it is put up in packages, to a heavy pressure in such a manner that nearly all the water not chemically combined with the meat and a large quantity of air contained between the various pieces and in the pores of the same is expelled before the meat is put up in the packages, and by these means the principal agents of putrefaction are removed and its bulk is considerably reduced. It consists, further, in a press-bar provided with a hinged end and movable screw top, in combination with a follower, and also with a frame fitting to the end of said press-box, capable of receiving and holding the mouth of the package to be filled with meat in such a manner that by removing the top of the press-box the meat can be easily introduced, and by closing down said top it can also be readily compressed to agree with the size of the package; and after it has been compressed, by opening the movable end of the press-box and putting the package in its place, the compressed meat can be easily forced into the package without exposing the latter to any undue strain or pressure. W. C. Marshall, of New York city, is the inventor of this improvement.

Propeller.—This invention consists in providing a vessel with an iron frame at its stern to form a support for the rear end of the propeller shaft, and also in constructing the rudder stem in such a manner that it may be connected with the propeller shaft back of the propeller wheel. The object of the invention is to obtain a propeller which, with its necessary connections, will be fully protected from shot and also from drift-wood and ice, afford superior facilities in guiding, backing and turning a vessel, convenience in repairing, and which may be operated with but little labor. O. C. Phelps, of New York city, is the inventor of this improvement.

The claims of the following notices appeared in the list issued July 5, 1864:—

Cultivator.—This invention relates to that class of cultivators which are intended to straddle a row of corn or other plants, and which are so constructed that the plows can be readily depressed in or raised from the ground by the action of a hand-lever from the drivers seat, and also adjusted to cut in the ground to any desired depth. The plows are adjusted to beams which can be raised and lowered, and they are made reversible so that the dirt can be thrown in either direction. The frame is made in two sections, which can be adjusted further apart or closer together according to the width of the furrows or distance of the hills. A. G. Tucker, of Richview, Ill., is the inventor of this improvement.

Treating Gum for the Manufacture of Varnish.—The object of this invention is to facilitate the fusion and ebullition of such gums as are generally used in the manufacture of varnishes and for other purposes. The gums used in the manufacture of varnishes, etc., are generally exposed to the heat of a coal fire in copper kettles or boilers varying in size; the fire is placed in close proximity to the bottom of the kettle, and the melting of the gums is mostly limited to the bottom of the kettle or boiler. By the ebullition of the gum at the bottom a large quantity of the same, either fused or not, is forced up against the sides of the kettle or boiler, where it rapidly parts with a portion of its caloric and becomes resolidified. In this state it can be remelted with great difficulty, and a poor and dark varnish is the result. This disadvantage is avoided by the application of a jacket of a good non-conductor for heat to the body and cover of the kettle and also by the use of an exhauster so that the melting takes place at a pressure lower than that of the ordinary atmosphere. John Johnson, of Saco, Maine, is the inventor of this improvement.

COMMUNICATION WITH WASHINGTON.—Persons wishing to take out patents may relieve themselves from all anxiety respecting the transit of their models to Washington by sending them, with all their patent business, to Munn & Co., 37 Park Row. Pamphlet of information free.