

Lake Steamers.

The Owego is the fastest steamer on the lakes, having made the run from Buffalo to Chicago, 889 miles, in 54 hours and 15 minutes—16.4 miles per hour. With her sister ship, the Chemung, she has the finest coefficient of displacement of any steamer on the lakes, and on her regular runs develops more power than any other lake vessel. At 80 revolutions and with 160 pounds of steam the Owego's engines, the largest on the lakes, developed 2,606 horse power. Her engines are 28, 42½, and 72 by 54 inches stroke. Smaller steamers make 12 and 14 miles an hour with from 1,200 to 1,400 horse power and carry almost twice as much. This is only an example showing the great amount of power required to add a mile to the normal speed.—*Marine Review.*

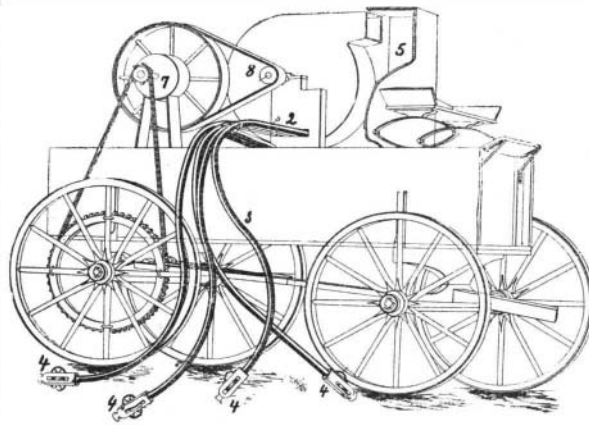
NEW BROAD STREET STATION AT PHILADELPHIA.

We show in this issue a perspective view, reproduced from the architect's drawing, of the new passenger station of the Pennsylvania railroad at Broad Street, Philadelphia. The drawing explains itself and little description is necessary. It will be observed that the existing station, which appears at the extreme right of the cut, will remain of the same height as at present. The most novel feature of the completed building will be the arcade, extending over a portion of the sidewalk throughout the entire front and a part of the sides. At the extreme left of this arcade is a platform extending out to the curb line. This platform is on the track level and affords a convenient means of transferring baggage from the station to wagons without lifting it. The currents of arriving and departing passengers are entirely separated, the main exit being on the Market Street side. The east front has a large number of entrances. The principal entrance for the offices in the upper stories will be at the main entrance, corner of Broad and Market, and at the corner of Fifteenth and Filbert. Definite plans for the upper floors have not yet been made, but it is estimated that there will be about 200 offices, so as to accommodate all the officers and clerks now housed at Fourth and Walnut Streets.

The train shed is 307 feet by 707 feet, and will be 140 feet high at the center. The main arches have a clear span of 294 feet and a clear height of 104½ feet. The structure will require 3,000 tons of iron, and there will be about 1¼ acres of glass in the roof. The officers of the road, who have made careful comparisons, state that this train shed will be the largest in the world, larger even than those of the Midland, the London, Chatham & Dover, and others in London.—*Railroad Gazette.*

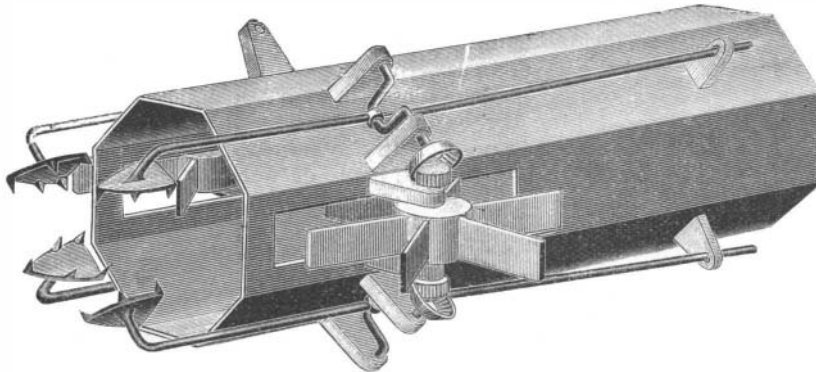
AN IMPROVED COTTON PICKER.

The cotton picking machine shown in the illustration is of simple and inexpensive construction, as com-



HYDE'S COTTON PICKER.

pared with many other devices which have been brought forward for facilitating the gathering of the



HYDE'S COTTON PICKER—MECHANISM OF THE PICKER."

cotton crop, and is designed in its operation to simulate the action of the hand as nearly as possible. The improvement has been patented by Mr. Thomas B. Hyde, of Taylor, Texas. The apparatus is mounted in a wagon to be drawn over the field, a fan case, 1, being connected with tubular conveyers, 2, having flexible extensions, 3, at the ends of which are the "pickers," 4, the mechanism of which is shown in one of the views. The power to operate the fan is preferably obtained by belting from one of the wheels of the vehicle to a spring motor, 7, the latter being connected by another belt with the fan shaft, 8, the cotton being drawn up through the flexible tubes, by the suction thus made, to a suitable receptacle, 5, whence it may

also be delivered into the wagon, 6. An electric or other motor may be employed, if desired, in which power may be stored to operate the fan while the wagon is at a standstill long enough to permit the picking of all the cotton within reach. It is designed that four or more of the pickers shall be connected with the tubular conveyers on each side, each operator holding in each hand a picker, which is held successively to the different heads of the cotton plants in reach. The picker is inclosed in a shell having a handle to be grasped by the operator, a sleeve in this shell having a slot in each side, in which work oppositely arranged fans. The shafts of these fans carry pinions, which operate cranks attached to reciprocating arms on the sides of the sleeve, the front ends of these arms being bent inwardly and terminating in claws or fingers. The small fan wheels in the pickers are rotated by the suction caused in the conveyers as the main fan is revolved, and a rapid reciprocating motion is thus communicated to the picker arms, the toothed jaws of which detach the cotton from the boll and throw it back, the wings of the small fan wheels aiding in taking the cotton from the picker jaws, and the suction carrying the picked cotton through the flexible tubes to the receiver. The inventor of this machine has lived in the cotton country all his life, and the improvement is the result of much experimenting. It is said that by the use of this apparatus one man can pick 1,000 pounds of seed cotton in a day of ten hours.

Varnish for Celluloid Negatives.

We are often asked for a formula for a varnish for negatives on celluloid films that will not attack the celluloid. Here is one that answers well in our hands: White lac, or pale orange lac, four ounces; methylated spirit, eight ounces. When dissolved, add liquor ammoniac, six ounces, and boiling water half a pint, and afterward a drachm and a half of glycerine.

This solution may be filtered, or it may be allowed to stand and settle and the clearer portion decanted. It will generally have a somewhat opalescent or turbid appearance, but that may be disregarded, as it will not affect the negative. The mode of using is this: After the negative has been fixed and washed, it is thoroughly drained. The varnish is then poured into a dish and the negative immersed and allowed to soak for a few minutes. It is then taken out and pinned by one corner to the edge of a shelf or other convenient article to dry. This varnish will also answer for negatives on glass, and it may be applied while the film is still moist; but, on the whole, for glass negatives a good spirit varnish is to be preferred.



NEW BROAD STREET STATION OF THE PENNSYLVANIA RAILROAD, PHILADELPHIA PA