

GEORGIA TILL BASKET AND PADUCAH FACTORY.

The achievement of Emmet Horton in making a machine which, working automatically, will construct from 18 to 22 peach baskets per minute, is not merely a remarkable thing in itself, but has a sweeping influence on the culture and marketing of fruits and vegetables, particularly through the South.

Probably no industry has in the past been more subject to vicissitudes than the growth of fruit. It has had to run the gauntlet of all kinds of weather and great variation in the prices to be obtained for the ripened product, while at the same time it has been at the mercy of wholly inadequate facilities for securing packages in which to deliver the product to the consumer.

During the season which has just closed it is roughly estimated that three hundred million quarts of strawberries rotted on the vines, because the grower could not procure baskets at any price to move them to market, and during this same season it is reported that in the State of Georgia fully enough peaches for ten million baskets never reached market for the same reason.

These conditions of inadequacy in the basket supply do not demonstrate that there are not enough people who will work for wages to make the necessary supply of baskets, but in view of the uncertainty of the volume of product to be shipped, and the necessarily low price at which the baskets must be supplied, a good fruit season finds the growers with only a small proportion of their supply of baskets contracted for, since they themselves cannot tell what the volume of their crop will be until close to the maturing of the fruit, with the result that there is a scramble for basket supplies during a good fruit season and none of the hand-working machinery is in a position to respond with sufficient rapidity to the sudden demand.

Nearly everybody now is familiar with the oblong baskets about 4 inches high and 7 inches wide in which the Georgia peaches are shipped to market. This basket has become the most freely recognized carrier for peaches and tomatoes from southern fields

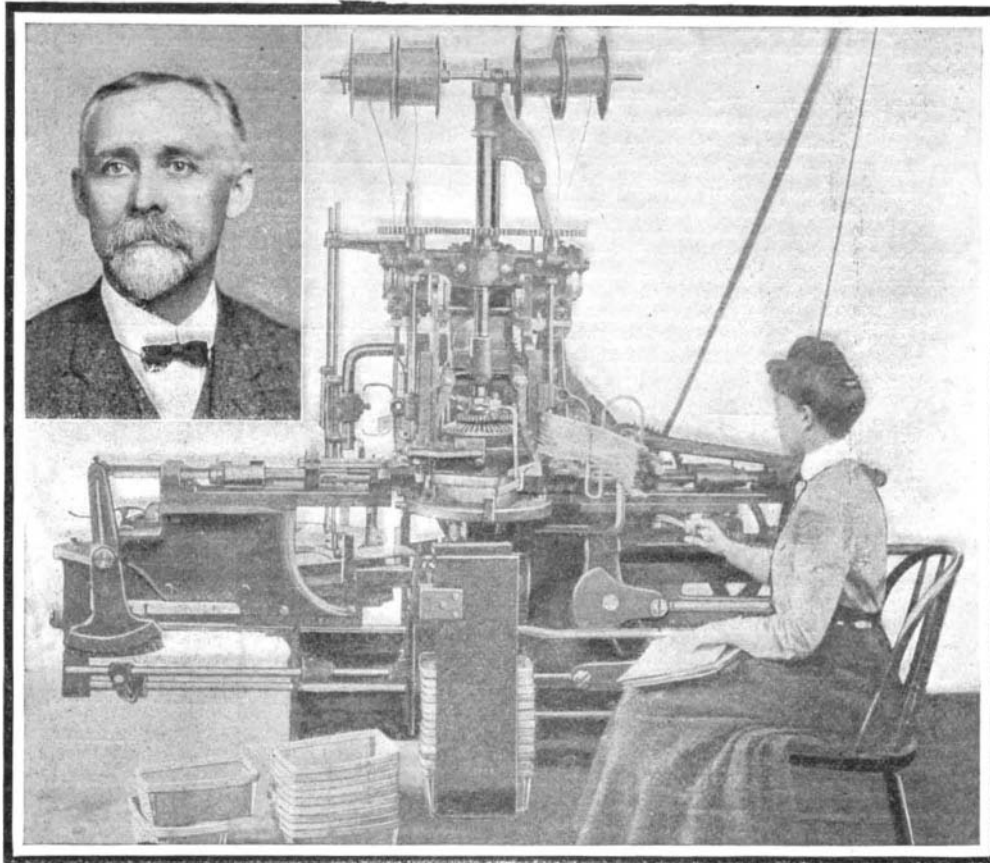
to all markets. The consumption of these baskets during twelve months is now several hundred millions. It is a class of basket which was little used up to six or seven years ago, so that the especial need for machinery to make this particular basket did not begin to manifest itself until about the year 1900. In

the spring of this year ten machines of this class were put to work in the Mergenthaler-Horton Basket Machine Company's factory at Paducah, Ky., with the result of demonstrating, first, the capacity of the machine with one girl operator to deliver fully twelve times as many baskets per day as that same operator could make by hand; second, to manufacture these baskets out of a class of wood which heretofore had not been available by hand process, namely, out of gum lumber, thus lessening the cost of the material employed and benefiting the product by turning out a basket uniform in size and absolutely free from the objections which have been steadily experienced by fruit growers with the baskets made from the yellow or pitch pine tree.

The vital effect of the introduction of the till basket machine in the manufacture of baskets for Georgia peaches can be fairly well estimated when it is known that the year 1905 brings into bearing something like ten million new peach trees, within the limits of the State of Georgia alone. It is figured that at least twenty baskets of this size are required for an average yield of a peach tree, thus making estimates of an increase of demand for baskets of this class next year of two hundred million, and there is no one who is familiar with the facilities for making baskets throughout the southern country who does not know that these facilities cannot respond to this increase of demand, even if every existing factory started at once to make

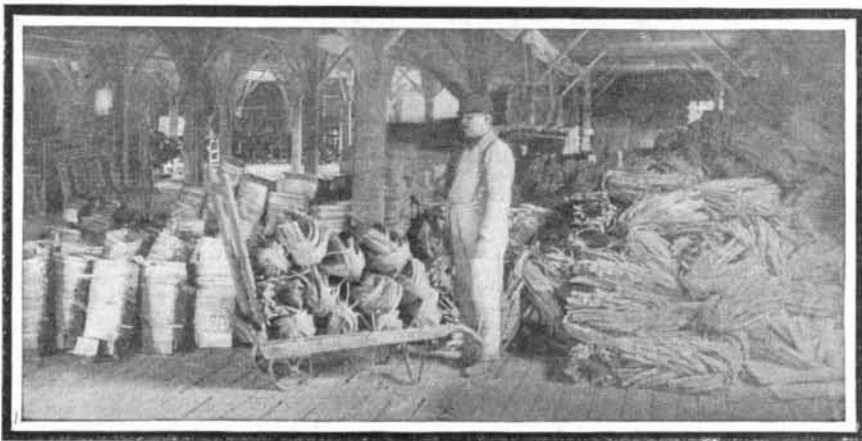
the supply required. It is only by the use of these machines that the fruit growers of Georgia next year will be able to secure the carriers in which to take their goods to market.

At the factory of the Mergenthaler-Horton Basket Machine Company at Paducah, Ky., situated on the banks of the Tennessee River where it flows into the Ohio, the supply of gum timber is floated down the Tennessee River, the logs hoisted up to the sawing machinery, cut into four-foot lengths and dropped into steaming vats where they remain over night. The next day the logs, averaging in diameter from 24 to 40 inches, are placed on a veneer machine, and the



Emmet Horton and His Latest Fruit-Basket-Making Machine.

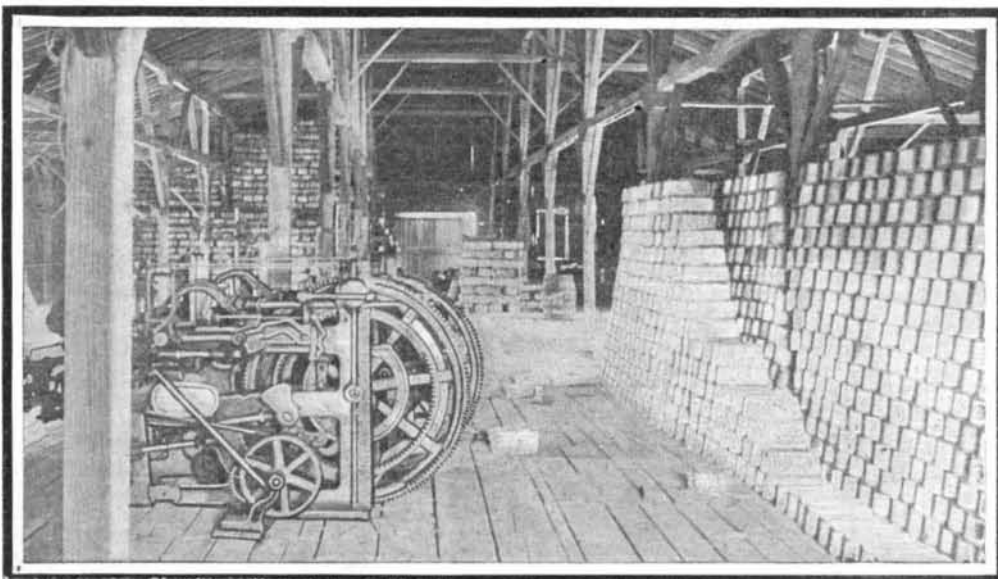
1902 Mr. Emmet Horton, who had made a life-work of inventing and constructing automatic basket-making machinery, particularly for the handling of grapes and berries, turned his genius toward the construction of a machine for the manufacture of these particular baskets, known as the Georgia oblong till. In the fall of 1902 Mr. Horton made his first till basket machine, constructing it along wholly different lines from any of his other machines, and in January, 1903, turned it over to the factory of the Mergenthaler-Horton Basket Machine Company for trial, and three months later, some slight changes having been made, construction was started upon a number of these machines. In



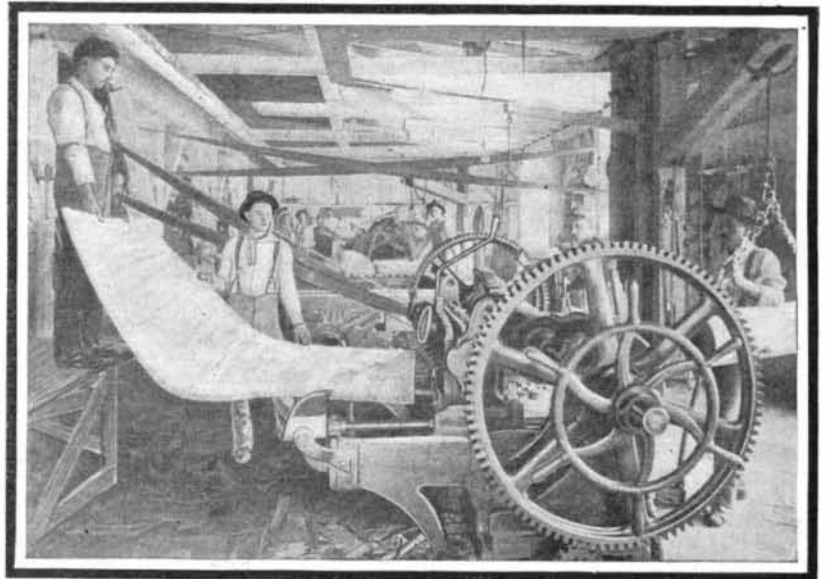
The First Floor of the Warehouse.



Twelve Grape Basket Machines at Work.



The Second Floor of the Warehouse where Goods are Stored.



Two Large Veneer-Cutting Machines.

vener is the same day worked up into baskets and the baskets are placed in the drying house to be shipped the following day. Thus the ordinary course of manufacture by machine is that the second day from the river the log has become baskets, and is on its way to the fruit grower.

Because of this rapid process, the gum timber can be utilized; with any slower process it would curl up and not work successfully. This fact has prevented the manufacturers who make baskets by hand from availing themselves of the inexhaustible supplies of this particular lumber, which is the cheapest lumber in the world. In contrast to it, for the special purpose of making fruit baskets, the yellow pine has many disadvantages. In the first place, the trees are much smaller, and the cost is about double. In the next place, there is a distinct odor which frequently injures the flavor of the fruit. In the third place, very frequently indeed the yellow pine baskets, when newly made and exposed to a hot southern sun, exude some of its resinous sap, which is of course very injurious to the fruit packed in the baskets. Many consumers of peaches and tomatoes will probably never know how much they have to thank the inventor of the automatic basket-making machine for this one accomplishment alone which enables them to get these products in baskets absolutely sweet and clean and free from all contamination.

The Mergenthaler-Horton Basket Machine Company is making every effort to multiply equipment of these machines to meet the growth of demand. It is planning the erection of one or two more factories on a large scale to house and operate machines as fast as they can be constructed, locating such factories within the reach of the supply of gum lumber, and as close as possible to the fields where the heaviest demand arises. Florida will need during the months of January, February, and March about 2,000 carloads of these baskets, Cuba during the same period about 500 carloads; Texas, and Arkansas follow with heavy demands, then comes Georgia. This article refers particularly to the important invention of the machine for making the Georgia till basket, and the other wonderful machines made by Mr. Horton for the manufacture of berry baskets and grape baskets can be touched upon only casually. The machines for making each of these different kinds of baskets are arranged on lines wholly independent of each other. Some of them have demonstrated new mechanical principles, and the Patent Office has allowed claims for new mechanical movements.

Mr. Horton's latest improved machine for making the quart strawberry basket is remarkable for many things about its construction, but its great commercial value is undoubtedly its power of delivering over 30 completed quart baskets per minute. The latest mechanism for this machine was planned to turn out nearly 40 baskets per minute, but at this speed it was found to be difficult to get the completed basket under all circumstances entirely cleared from the form before the wood for the succeeding basket entered the machinery. Consequently to make a machine for steady commercial use, it was found necessary to slightly reduce the speed so that to-day the final quart strawberry basket machine is being put together by Mr. Horton at the machine shop in Elmira registered to a speed of 32 completed baskets each minute, or nearly 2,000 per hour. The earlier quart berry basket machines have progressed from a speed of 12 baskets

per minute up to a speed of 22 baskets per minute, which are the ones now in operation by the Mergenthaler-Horton Basket Machine Company people at their Paducah plant. These machines turn the four sides of the basket successively to the stapler, whereas the latest machine has staples on two sides, so that one turn of the basket completes the work. The company is expecting to have 20 of the latest machines turning out baskets in good season for next year's berries, to prevent, if possible, the tremendous loss the growers experienced this year, and incidentally to add largely to its revenues. One girl operator handles this machine.

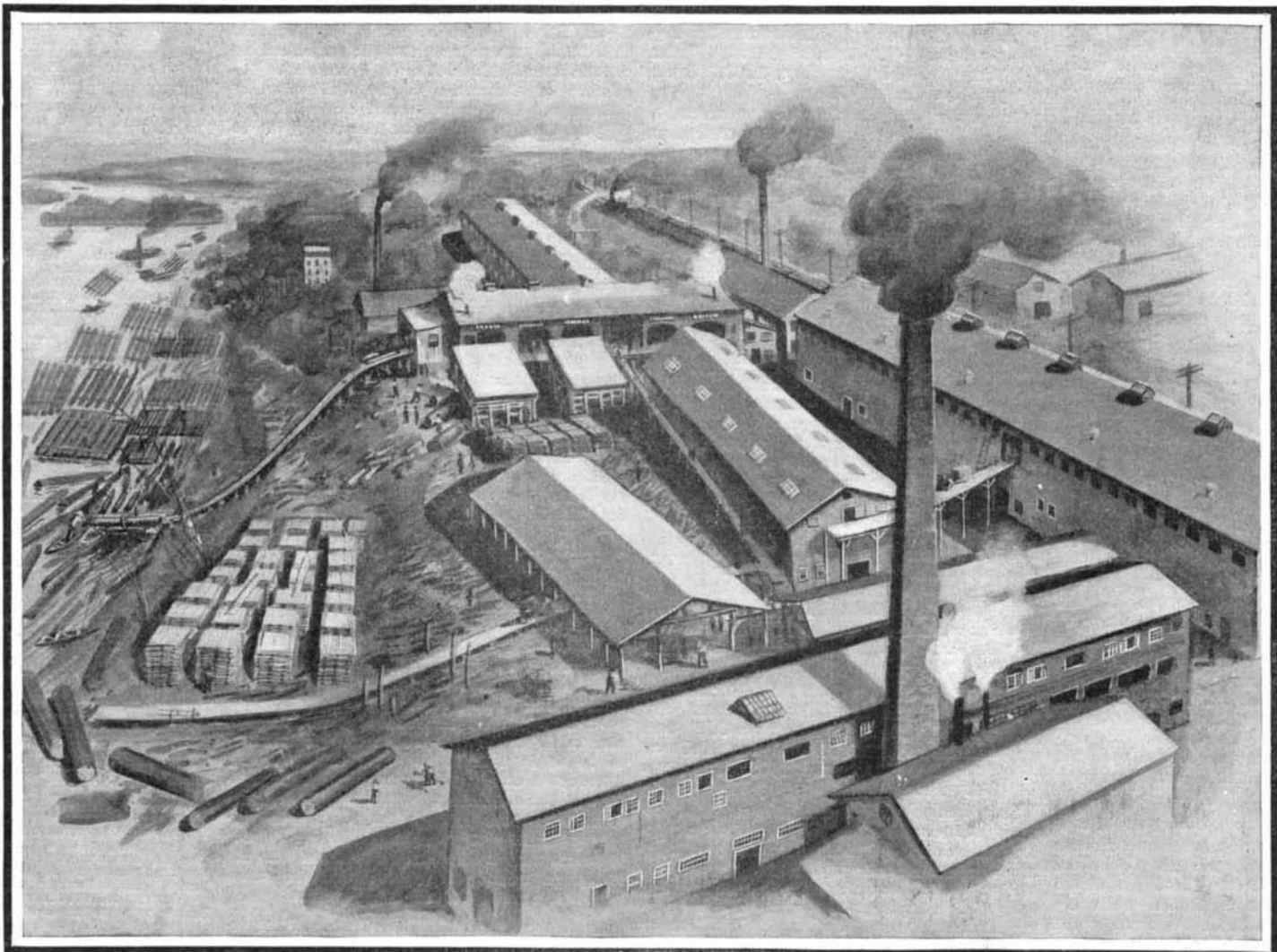
The machine for making grape baskets was quite fully described in these columns two years ago, and needs no extended mention here. In practical operation in the factories its efficiency has been demonstrated. It is scheduled to make 4,200 baskets per day, and actually can be depended upon for about 3,600 baskets per day with the varying skill of the operator. These baskets are of a much more substantial character than the baskets for peaches and berries. They have to be made strong enough to travel independently without being crated in freight cars.

Mr. Horton has devoted a large part of his life to the inventions which are all controlled by the Mergenthaler-Horton Basket Machine Company. In laying out his till basket machine, the basis of his calculation is the number of feet which the belt must travel while

of the blanks. The form is then further rotated in such manner as to cause the bands to be wrapped around the outside of the body-blanks at their upper edges, and then these bands are secured to each other and to the body-blanks by staples made from wire, just before they are driven, the nailing mechanism being so operated as to give a relatively long stroke when attaching the bands to the long sides of the oblong basket and a relatively short stroke when attaching the bands to the ends of the basket. After the blanks have been bent around the form by the die and the bands have been attached, the die is lowered and carried away to one side to receive a new set of body-blanks. As soon as the bands are nailed to the body-blanks the basket is complete, and the form is lowered to deposit the completed basket in a chute, the basket being stripped from the form by hooks carried by the upper end of the chute. The completed baskets are stacked in the chute one above the other, and when a predetermined number has been reached, the pile of baskets is automatically removed from the chute and deposited upon a trough, from which they may be removed by hand or automatically.

The form carries band-receiving hooks with which co-operate spring-pressed dogs that serve to hold the bands in the hooks. The hooks are mounted to turn about horizontal axes, whereby they may be at one time held up to receive the bands and at another time turned to permit the discharge of a completed basket.

Gearing is provided which is automatically actuated to move the hooks at the proper time. Plungers insert the bands into the hooks and engage a completed basket and eject it from the form after the band-receiving hooks have been reversed or turned downward. These plungers, it should be mentioned, are made to swing on horizontal axes, so that after they have completed their downward movement and commenced to move upward they swing inward, so as to clear the bands which have been made to engage with the form and also the bands which are being fed by



VIEW OF THE MERGENTHALER-HORTON BASKET MACHINE COMPANY'S PLANT AT THE INTERSECTION OF THE OHIO AND TENNESSEE RIVERS, PADUCAH, KY.

one basket is being made, and before the next one is on the form. From this basis all of its movements are calculated, and are done with such nicety that the first till basket machine he made ran successfully the first day the belt was put on it. This is the more remarkable because this is the machine in which an absolutely new mechanical movement is used.

The same mechanism which is used in making the oblong till basket is to be applied to the manufacture of machines for making the square California fruit basket.

The following description may, therefore, be considered that of a typical machine: The body blanks for the basket are arranged in two piles in receptacles at one side of the machine, to which receptacles they are fed at intervals by automatic mechanism operated as soon as the supply of blanks in the receptacles is exhausted. A blank is lifted from each pile and deposited on a die, one blank being placed crosswise of the other, and when thus crossed the blanks are carried by the die into position under a form of the general shape of the interior of the basket. Two bands for each basket are fed to the form, and, by a partial rotation of the form, are wrapped around it. After this the die is raised, causing the body-blanks which it carries to be bent around the form and to inclose those portions of the bands wrapped around the form. At this time the body-blanks are secured to each other by a staple driven centrally through the bottom

the band-feeding screws. This swinging movement of the plungers is obtained by means of rods which are made to pass vertically through friction devices and which are pivotally connected with the plungers at points to one side of their pivots.

How soon the company which controls all of these patents and machinery will be able to enter the California field is not known. It would seem that an equipment sufficient to take care of the growth of demand for all classes of fruit baskets east of the Rocky Mountains would consume all of the energy of the big organization for two or three years. But these are the days of achievement, and it may be that the California field will get the benefit of Mr. Horton's genius before two years more. The foreign patents on the machines invented by Mr. Horton are owned by the Emmet Machine Company and cover nearly every country on two continents where timber is grown of sufficient size and character to make this class of baskets.

The inventions in basket-making machinery made by Emmet Horton, and before he died, by Ottmar Mergenthaler, of linotype fame, constitute an unusually perfect safeguard against competition for the company which owns them, because no other inventors have ever been able to make a basket machine successfully, and Mr. Horton's inventions now have so fully covered the entire field that the company may well feel protected in every way by the possession of these patents on these great inventions.