

AGRICULTURAL HINTS.

NEW USE FOR TILE.

How It May Be Employed for Sub-irrigation in Gardening.

The control of soil moisture, by storing up part of the water supply during a time of excessive rainfall for use at a subsequent drought, is a problem that has long occupied the minds of good cultivators. We have begun to realize that for general outdoor garden crops soil-soaking is the only effective method, and that mere surface sprinkling is apt to do more harm than good.

Our modern improved appliances for drawing water from wells by the use of wind-mills have made it feasible to fill, at comparative light expense, tanks constructed somewhat above-ground, and thus obtain the necessary water and pressure for flooding smaller areas in a short time.

Where acres are to be irrigated, however, arrangements of this kind will soon find their limit of usefulness, and

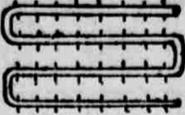


FIG. 1.

a more generous water supply is needed. This can sometimes be obtained by tapping a stream, pond or canal; or by damming a stream of water above the land to be irrigated. Opportunities of this kind are frequently met with, but they are seldom utilized.

Some years ago we obtained good results by damming a little stream or brook flowing by just above a one-eighth-acre patch of celery, the rows running with the natural slope of the land and letting near the whole of this water run along in little channels made by the hoe between the rows, until the whole ground had a complete soaking. It took tons of water, but the result was gratifying.

Ever since then we have been wishing to prepare a piece of land for underground irrigation, in somewhat the same way, as we find it described and illustrated in a recent number of *Drainage and Farm Journal*.

The use of common drain tile from two to three or four inches in size, says our contemporary, affords a very convenient and a successful method of underground irrigation.

Fig. 1 illustrates a continuous line of tile to be laid across the incline or slope of the land with very slight fall—sufficient to afford a slow current of the water. A portion of the water escaping through the joints of the tile rises by capillary attraction toward the surface

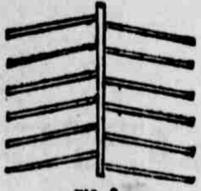


FIG. 2.

of the soil. The lines of tile are laid at depth of one foot or fifteen inches below the surface. The excavations for the tile may be made cheaply by plowing out the trenches, passing back and forth with the plow three or four times in the same furrow. Little labor will be required to bring the bottom of the trench to a regular grade. The lines of tile should be laid as close as ten feet apart; less will be better. The water turned in at the stand-pipe A will pass along the tile to the further end which is closed. As much as one acre may be included in one system if the surface configuration will admit of it. The tile of the upper end may be as large as five inches, falling off to four, three and two inches.

In the adoption of this or any other system, reference must be had to the inclination, minding always the law of gravity.

Fig. 2 illustrates a main tile four or five inches in size, or larger if necessary, with branches of smaller tile three inches or less, the outer ends being closed. The sizes of tile both for the mains and laterals may be reduced in size as the further end is approached. The water enters at stand-pipe A, following main pipe and branches to B.

Fig. 3 is a cross section showing the effect of under irrigation on the soil. The water naturally tends to sink in the soil, but not so deep as to go beyond



FIG. 3.

the feeding ground of the roots of the growing crop—the capillary action of the soil brings a portion to the surface. It is well to remark at this point, if two or three inches of the surface soil is kept very fine by frequent stirring that it will serve as a mulch to prevent the moisture evaporating so rapidly at the surface.

This system of irrigation has the advantage of cheapness of material, construction and the economy of water. In addition it supplies the water where it is needed without puddling the surface, and allows the cultivation to go on without hindrance.

A small area may be prepared at a time for underground irrigation at a reasonable cost, and when done it is a permanent improvement. A few hundred dollars and the labor required with care will put several acres in condition to test the efficiency of such system.

Fruits of Grape Culture.

The grape growers of California are keeping close watch of the Eastern markets and take every opportunity to make shipments at just the right periods. A San Francisco paper says that a car-load of Tokay grapes sold in New York recently for nearly \$3,500, and urges the growers of the State to pay more attention to supplying Eastern tables and leave the production of wine to those who have made it a study. Sound advice, say we.

MATCHED TEAMS.

Their Value—How to Match Horses—The Business a Seller in Stock.

The value of well-matched teams over carelessly matched, especially carriage teams, is not generally given much intelligent thought. The matter was very clearly placed before me recently, says M. L. Hinos in *National Stockman*.

"I want to show you one of a span of horses which I have purchased. If you have time now come around to the stable. It's but a step." Thus spoke a friend, a prosperous jeweler, who has a great love for and good understanding of trotters and roadsters. Going to the stable I was shown a grandly built bay, with straight back, clean limbs, a fine head and beautiful black mane and tail. "If I can mate this fellow I can sell the span for a thousand easily," said the jeweler. "But where is his mate?" You said you had purchased a span." I was then given a little lesson in matched teams.

The span in question had been purchased by a wealthy woman, whose coachman knew nothing of the art of handling horses. The span were of the same weight, stood the same height, and had the same black points. They were called a well-matched span, but they were not. The one possessed a straight back; the other was inclined to "sway." One was four inches longer from center of the breast to tail than his mate, and as for their heads they were different in outline. Then the mate to the one shown me was, previous to being matched, driven single, and when sold had not been accustomed to the double harness. The coachman knew so little of his business that he could not make the horse keep in place. The horse was cranky and nervous, and the natural result was a runaway.

Of course after that the woman offered the span for sale. She had paid \$700 in cash and for them and accepted of the jeweler \$400 worth of diamonds for them. He saw they were poorly matched, and sold the poorer one to a grocer for \$250 and kept the better. He is now on the lookout for a perfect mate, and as he has a standing offer of \$1,000 for the span, once he gets a satisfactory mate, he can afford to pay \$400 for such a horse and make a handsome profit.

Matching horses is a science of itself. It is not enough to get horses of the same general look, if first-class prices are wanted. It took a friend and myself a year to find just the mate for a handsome carriage horse. In the meantime we saw hundreds of animals of which fifty might have been selected that would make fair mates. In matching, the eye of the true horseman is sufficient, but the inexperienced must depend a good deal on the tape-line. Measure from the top of the head to withers, from this point to the top of the hips and from here to the root of the tail. Measure the length of the legs from joint to joint, the length of the head, the distance between ears and eyes, the circumference of the body over the withers and around the flanks. Then measure the distance to the ground from the top of the head when elevated to its full extent, and don't forget to measure the stride. After these measurements have been satisfied see if the horses are matched in gait. If not try to overcome the difficulty, for that is an important matter. Once got a pair well matched and you will not hunt for a purchaser.

A HUSKING HORSE.

An Excellent Device That Saves Both Time and Labor.

I send you a sketch of a husking horse I am using, writes a contributor to *Farm and Home*. It is strong, light and handy. Fig. 1 shows a side view, and Fig. 2 the top. It is ten feet long and thirty-four inches wide. Legs two feet long. The side pieces are of 1x4 inch stuff, cross pieces the same, and legs 1x2 inch stuff, tapered. Legs are bolted or nailed to side pieces; cross-



FIG. 1.

pieces mortised in; legs braced to side rails. I put a thin board on top to keep fodder from sagging through. My mode of husking corn from the shock is as follows: I put two hands to each team and wagon, with high side boards on right hand side of wagon box, and a small box fastened to the left side of wagon box between the wheels.

We place a whole shock of corn on the husking-horse at a time, and throw the merchantable corn in the wagon, and the small nubbin, damaged ears and seed ears in the small box. I bundle and tie my fodder in small bundles and lay them to one side, and then pass on to the next shock. I claim by following this plan that I can do the work better, easier and save the fodder better than by any other way; and by husking direct into the wagon, I have my husked corn every night in the crib, and save having to pick it up off the ground. Sorting it at the time of husking is quite a saving of time. I always place

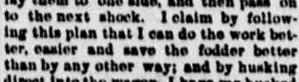


FIG. 2.

my seed corn where it will dry out and not freeze, and I always have good, strong seed.

I wish to add one thing more in favor of husking direct into the wagon instead of throwing the corn on the ground. I save all the corn that is shelled off in husking, which is lost by throwing the corn on the ground. Furthermore, the picking up of the corn is a back-ache job and a disagreeable job, too, when a snow or rain has fallen on it, which is often the case.

A duck recently killed near Jamestown, N. Y., has caused great excitement in that region. In its crop was found a piece of gold quartz. The bird had been feeding on the borders of Chautauqua Lake near by, and it is claimed that an examination of the locality revealed many more specimens of rich, gold-bearing quartz.

THE MARRIAGE AT CANA.

Christ's Miracle of Turning Water Into Wine.

Sermon by Rev. T. DeWitt Talmage, Preached Upon the Historic Spot—The Lessons of the Marriage Feast.

Cana of Galilee was one of the points visited by Rev. T. DeWitt Talmage in the Holy Land, and the following discourse was on his programme for delivery there, founded on the text:

"Thou hast kept the good wine until now."—John 1, 12.

Standing not far off from the demolished town of what was once called Cana of Galilee, I bethink myself of our Lord's first manhood miracle, which has been the astonishment of the ages. My visit last week to that place makes vivid in my mind that beautiful occurrence in Christ's ministry. My text brings us to a wedding in that village. It is a wedding in common life, two plain people having pledged each other, hand and heart, and their friends having come in for congratulation. The joy is not the less because there is no pretension. In each other they find all the future they want. The daisy in the cup on the table may mean as much as a score of artistic garland, fresh from the hot-house. When a daughter goes off from home with nothing but a plain father's blessing and a plain mother's love, she is missed as much as though she were a Princess. It seems hard, after the parents have sheltered her for eighteen years, that in a few short months her affections should have been carried off by another; but mother remembers how it was in her own case when she was young, and so she braces up until the wedding has passed, and the banqueters are gone, and she has a good cry all alone.

Well, we are to-day at the wedding in Cana of Galilee. Jesus and His mother have been invited. It is evident that there are more people there than were expected. Either some people have come who were not invited, or more invitations have been sent out than it was supposed would be accepted. Of course there is not enough supply of wine. You know that there is nothing more embarrassing to a housekeeper than a scant supply. Jesus sees the embarrassment and He comes up immediately to relieve it. He sees standing six water pots. He orders the servants to fill them with water, then waxes His hand over the water, and immediately it is wine—real wine. "Taste of it, and see for yourself; no logwood in it, no strychnine in it, but first-rate wine."

I will not now be diverted to the question so often discussed in my own country—whether it is right to drink wine. I am describing the scene as it was. When God makes wine He makes the very best wine, and one hundred and thirty gallons of it standing around in these water pots—fine so good that the ruler of the feast tastes it and says: "Why, this is really better than anything we have had! Thou has kept the good wine until now." Beautiful miracle! A prize was offered to the person who should write the best essay about the miracle in Cana. Long manuscripts were presented in the competition, but a poet won the prize by just this one line descriptive of the miracle.

The unseasonable water saw its God and blushed.

We learn from this miracle, in the first place, that Christ has sympathy with housekeepers. You might have thought that Jesus would have said: "I can not be bothered with this household deficiency of wine. It is not for me, Lord of Heaven, of earth, to become caterer to this attend to." Not so said Jesus. The wine gave out, and Jesus, by miraculous power, came to the rescue. Does there ever come a scant supply in your household? Have you to make a very close calculation? Is it hard work for you to carry on things decently and respectably? If so, don't sit down and cry. Don't go out and fret; but go to Him who stood in the house in Cana of Galilee. Pray in the parlor! Pray in the kitchen! Let there be no room in all your house unconsecrated by the voice of prayer. If you have a microscope, put under it one drop of water and see the insects floating about, and when you see that God makes them, and cares for them, and feeds them, come to the conclusion that He will take care of you and feed you, oh, ye of little faith!

A boy asked if he might sweep the snow from the steps of a house. The lady of the household said: "Yes, you seem very poor."

She says: "I am very poor."

He says: "Don't you sometimes get discouraged, and feel that God is going to let you starve?"

The lad looked up in the woman's face and said: "Do you think God will let me starve, when I trust Him, and then do the best I can?" Enough theology for older people. Trust in God and do the best you can. Amidst all the worries of housekeeping go to Him; He will help you to control your temper, and supervise your domestic, and entertain your guests, and manage your home economies. There are hundreds of women, weak, and nervous, and exhausted with the cares of housekeeping. I commend you to the Lord Jesus Christ as the best adviser and the most efficient aid—the Lord Jesus who performed His first miracle to relieve a housekeeper.

Learn also from this miracle that Christ does things in abundance. I think a small supply of wine would have made up for the deficiency. I think certainly they must have had enough for half of the guests. One gallon of wine will do; certainly five gallons will be enough; certainly ten. But Jesus goes on, and He gives them thirty gallons, and forty gallons, and fifty gallons, and seventy gallons, and one hundred gallons, and one hundred and thirty gallons of the very best wine.

It is just like Him, doing every thing on the largest and most generous scale. Does Christ, our creator, go forth to make leaves? He makes them by the whole breast full; notched like the fern, or silvered like the aspen, or broad like

the palm; thickets in the tropics, Oregon forests. Does He go forth to make flowers? He makes plenty of them; they flame from the hedge, they hang from the top of the grapevine in blossoms, they roll in the blue wave of the violets, they toss their white surf into the spirals—enough for every child's hand a flower, enough to make for every brow a chaplet, enough with beauty to cover up the ghastliness of all the graves. Does He go forth to create water? He pours it out, not by the cupful, but by a river full, a lake full, an ocean full, pouring it out until all the earth has enough to drink, and enough with which to wash.

Does Jesus, our Lord, provide redemption? It is not a little salvation for this one; a little for that, and a little for the other, but enough for all—"Whosoever will, let him come." Each man an ocean full for himself. Promises for the young, promises for the old, promises for the lowly, promises for the blind, for the halt, for the outcast, for the abandoned. Pardon for all, comfort for all, mercy for all, Heaven for all; not merely a cupful of gospel supply, but one hundred and thirty gallons. Ay, the tears of godly repentance are all gathered up into God's bottle, and some day, standing before the throne, we will lift our cup of delight and ask that it be filled with the wine of Heaven; and Jesus, from that bottle of tears, will begin to pour in the cup, and we will cry: "Stop, Jesus, we do not want to drink our own tears!" and Jesus will say: "Know ye not that the tears of earth are the wine of Heaven?" Sorrow may endure, but joy cometh in the morning.

I remark further, Jesus does not shadow the joys of others with His own griefs. He might have sat down in that wedding and said: "I have so much trouble, so much poverty, so much persecution, and the cross is coming; I shall not rejoice, and the gloom of my face and of my sorrows shall be cast over all this group." So said not Jesus. He said to Himself: "Here are two persons starting out in married life. Let it be a joyful occasion. I will hide my own griefs. I will kindle their joy." There are many not so wise as that. I know a household where there are many little children, where for two years the musical instrument has been kept shut because there has been trouble in the house. Alas for the folly! Parents saying: "We will have no Christmas tree this coming holiday because there has been trouble in the house. Hush that laughing up-stairs! How can there be joy when there has been so much trouble?" And so they make every thing consistently doleful, and send their sons and daughters to ruin with the gloom they throw around them.

Oh, my dear friends, do you not know those children will have trouble enough of their own after awhile? Be glad they can not appreciate all yours. Keep back the cup of bitterness from your daughter's lips. When your head is down in the grass of the tomb, poverty may come to her, betrayal to her, bereavement to her. Keep back the sorrows as long as you can. Do you not know that son may, after awhile, have his heart broken? Stand between him and all harm. You may not fight his battles long; fight them while you may. "Throw not the chill of your own dependency over his soul; rather be like Jesus, who came to the wedding hiding His own grief and kindling the joys of others." So I have seen the sun, on a dark day, struggling amidst clouds, black, ragged and portentous, but after awhile the sun, with golden pry, heaved back the blackness; and the sun laughed to the lake, and the lake laughed to the sun, and from horizon to horizon, under the saffron sky, the water was all turned into wine.

I learn from this miracle that Christ is not impatient with the luxuries of life. It was not necessary that they should have this wine. Hundreds of people have been married without any wine. We do not read that any of the other provisions fell short. When God made the wine it was not a necessity, but a positive luxury. I do not believe that He wants us to eat hard bread and sleep on hard mattresses unless we like them the best. I think, if circumstances will allow, we have a right to the luxuries of dress, the luxuries of diet and the luxuries of residence. There is no more religion in an old coat than in a new one. We can serve God drawn by golden-plated harness as certainly as when we go afoot. Jesus Christ will dwell with us under a thatched roof; and when you can get wine made out of water, bring as much of it as you can.

What is the difference between a Chinese mud hovel and an American home? What is the difference between the rough bear skins of the Russian boor and the outfit of an American gentleman? No difference, except that which the Gospel of Christ, directly or indirectly, has caused. When Christ shall have vanquished all the world, I suppose every house will be a mansion, and every garment a robe, and every horse an arch-necked coursier, and every carriage a glittering vehicle, and every man a King, and every woman a Queen, and the whole earth a paradise; the glories of the natural world harmonizing with the glories of the material world, until the very bells of the horses shall jingle the praises of the Lord.

I learn further, from this miracle, that Christ has no impatience with festal joy, otherwise He would not have accepted the invitation to that wedding. He certainly would not have done that which increased the hilarity. There may have been many in that room who were happy, but there was not one of them that did so much for the joy of the wedding party as Christ Himself. He was the chief of the banqueters. When the wine gave out, He supplied it; and so, I take it, He will not deny us the joys that are positively festal.

I think the children of God have more right to laugh than any other people, and to clap their hands as loudly. There is not a single joy denied them that is given to any other people. Christianity does not clip the wings of the soul. Religion does not frost the flowers. What is Christianity? I take it to be simply a proclamation from the Throne of God of emancipation for all

the enslaved; and if a man accepts the terms of that proclamation and becomes free, has he not a right to be merry? Suppose a father has an elegant mansion and large grounds. To whom will he give the first privileges of these grounds? Will he say: "My children, you must not walk through these paths, or sit down under these trees, or pluck this fruit. These are for outsiders. They may walk in them." No father would say any thing like that. He would say: "The first privileges in all the grounds, and all of my house, shall be for my own children." And yet men try to make us believe that God's children are on the limits, and the chief refreshments and enjoyments of life are for outsiders, and not for His own children. It is stark atheism. There is no innocent beverage too rich for God's child to drink; there is no robe too costly for him to wear; there is no hilarity too great for him to indulge in, and no house too splendid for Him to live in. He has a right to the joys of earth; he shall have a right to the joys of Heaven. Though tribulation, and trial, and hardship may come unto him, let him rejoice. "Rejoice in the Lord, ye righteous, and again I say, rejoice."

I remark again that Christ comes to us in the hour of our extremity. He knew the wine was giving out before there was any embarrassment or mortification. Why did He not perform the miracle sooner? Why wait until it was all gone, and no help could come from any source, and then come in and perform the miracle? This is Christ's way; and when He did come in, at the hour of extremity, He made first-rate wine, so that they cried out: "Thou hast kept the good wine until now." Jesus in the hour of extremity! He seems to prefer that hour.

In a Christian home in Poland great poverty had come, and on the week day the man was obliged to move out of the house with his whole family. That night he knelt with his family and prayed to God. While they were kneeling in prayer there was a tap on the window pane. They opened the window, and there was a raven that the family had fed and trained, and it had in its bill a ring all set with precious stones, which was found out to be a ring belonging to the royal family. It was taken up to the King's residence, and for the honesty of the man in bringing it back he had a house given to him and a garden and a farm. Who was it that sent the raven tapping on the window? The same God that sent the dove to feed Elijah by the brook Cherith. Christ in the hour of extremity!

Trouble came. You were almost torn to pieces by that trouble. You braced yourself up against it. You said: "I will be a stoic, and will not care," but before you had got through making the resolution it broke down under you. You felt that all your resources were gone, and then Jesus came. "In the fourth watch of the night," the Bible says, "Jesus came walking on the sea." Why did He not come in the first watch? or in the second watch? or in the third watch? I do not know. He came in the fourth and gave deliverance to His disciples. Jesus in the last extremity!

I wonder if it will be so in our very last extremity. We shall fall suddenly sick; and doctors will come, but in vain. We will try the anodynes and the stimulants and the bathings, but all in vain. Something will say: "You must go." No one to hold us back, but the hands of eternity stretched out to pull us on. What then? Jesus will come to us, and as we say, "Lord Jesus, I am afraid of that water; I can not wade through to the other side," He will say, "Take hold of my arm; and we will take hold of His arm; and then He will put His foot in the surf of the wave, taking us all down, deeper, deeper, deeper, deeper, and our soul will cry: "All thy waves and billows have gone over me." They cover the feet, come to the knee, pass the girdle and come to the head, and our souls cry out: "Lord Jesus Christ, I can not hold Thine arm any longer." Then Jesus will turn around, throw both His arms about us, and set us on the beach, far beyond the tossing billows. Jesus in the last extremity!

That wedding scene is gone now. The wedding ring has been lost, the tankards have been broken, the house is down; but Jesus invites us to a grander wedding. You know the Bible says that the church is the Lamb's wife, and the Lord will, after awhile, come to fetch her home. There will be gleaming of torches in the sky, and the trumpets of God will ravish the air with their music, and Jesus will stretch out His hand, and the church, robed in white, will put aside her veil, and look up into the face of her Lord the King, and the bridegroom will say to the bride: "Thou hast been faithful through all these years! The mansion is ready! Come home! Thou art fair, my love!" and then He shall put upon her brow the crown of dominion, and the table will be spread, and it will reach across the skies, and the mighty ones of Heaven will come in, garlanded with beauty and striking their cymbals; and the bridegroom and bride will stand at the head of the table, and the banqueters, looking up, will wonder and admire and say: "That is Jesus the bridegroom? But the scar on His brow is covered with the coronet, and the stab in His side is covered with a robe!" and "That is the bride! The weariness of her earthly woe lost in the flush of this wedding triumph!"

There will be wine enough at that wedding; not coming up from the poisoned vats of earth, but the vineyards of God will press their ripest clusters, and the cups and the tankards will blanch to the beam with the Heavenly vintage, and then all the banqueters will drink standing. Esther having come up from the buxantian revelry of Ahasuerus, where a thousand lords feasted, will be there. And the Queen of Sheba, from the banquet of Solomon, will be there. And the mother of Jesus, from the wedding in Cana, will be there. And they all will agree that the earthly feasting was poor compared with that. Then, lifting their chalices in that holy light, they shall cry to the Lord of the feast:

Thou hast kept the good wine until now.

FIRESIDE FRAGMENTS.

—Nut Padding: One cupful of sugar, one-half of a cupful of butter, two cupfuls of flour, one-half a cupful of cold water, three eggs, one and one-half teaspoonfuls of baking powder, one-half a cupful of whole wheat meal, added the last thing. Bake and eat with sauce.

—Heartburn may be relieved almost instantly if half a teaspoonful of table salt be dissolved in a wineglass of cold water and then drunk. When the eyes are tired and weak, if they are bathed in slightly saline water they will soon become soothed.

—Fresh air, sunlight, good and sufficient food, pure water, out-door exercise, temperance in all things, and a cheerful disposition, are the chief remedies in nature's pharmacopoeia, and are worth more than all the drugs and medicines of the shops.—*Popular Science News*.

—Corn Meal Drop Cakes: Two cups of corn meal moistened with scalding water and quickly cooled below scalding point, one cup of flour, two teaspoonfuls of baking powder, two eggs, one-half cup of milk, one teaspoon of salt. Drop into hot lard and fry a delicate brown.—*New England Farmer*.

—Batter Bread: Two eggs, the whites beaten separately; a small cup of flour, the same of milk; mix yolks, flour and milk into a smooth batter; stir in a teaspoonful of butter, melted, and a little salt and the whites of the eggs beaten till they stand high, and a teaspoonful of baking powder; mix gently after the whites are in; bake well in a buttered pan in a very hot oven.—*Christian Union*.

—Lemon Honey: Beat the yolks of six eggs until light, add gradually, beating all the while, one pound of powdered sugar. Beat a quarter of a pound of butter to a cream, add it to the yolks and sugar, beat well, and then stir in carefully the well-beaten whites of four eggs. Pour this into a double boiler and stir continually over the fire until the mixture is about the consistency of very thick cream; take from the fire and add the grated rind of one and the juice of two lemons, mix and turn into a stoneware or china bowl to cool.—*Yankee Blade*.

An exchange gives the following useful hints: "If the chimney catches fire run to the salt-box, and empty it out upon the flames; they will be reduced as by magic, and further steps can be taken to subdue the outbreak. If soot falls upon the carpet or rug, do not attempt to sweep until it has been covered thickly with dry salt; it can then be swept up properly and not a stain or smear will be left. If any thing happens to catch fire, either whilst cooking or otherwise, throw salt upon it at once to prevent any disagreeable smell."

VARIETY IN NEEDLES.

Something About Those Used by Mechanics of Every Description.

A needle is a little thing, hardly worth mentioning, in fact, but the daily consumption of them in the United States is 4,200,000. About one-sixth of these are made in Brooklyn, but the greater part of the needles we use come from Redditch, England.

There are needles which all wig-makers use. They are as delicate as a hair and shaped like a fish-hook. There is a tambour needle and the needle for shirring machines; the great sail needle, which has to be pushed with a steel palm the knitting machine needle with its little latchet; the arse and crewel needle, and the long instrument which the milliners use.

Then there is the surgeon's cruel outfit, the probing needle, made for hunting after bullets or internal sores; the post-mortem needles, of various curves and sizes; the half-lip needle; the long acupuncture pins; for pinning gaping wounds in place; all the needles for eye, head and body, long, short, curved once, twice or three times. Then the veterinary surgeon has his case of needles, too. The upholsterer is a favored man. He has needles on half curve and on the quarter curve round points and sword points, long eyes, round eyes, egg eyes and counter-sunk eyes. The cook is not left out of this trade, but has a curious, straining needle, made for carrying melted butter or savory sauce right into the very heart of a fowl or roast, being hollow and large at the end where the butter is poured in. There is also the larding needle, which sews large pieces of meat together or fastens a bit of fat deep in a lean piece of meat. One of these was invented by a French chef. The other was made to meet the demands of butchers who cook large quantities of meat for the free-lunch restaurants, and who wish to sew their meat into good shape, so that it will cut well. The collar-maker's needle is not unlike the upholsterer's. This netting needle has a little branch at each end, and with it goes a broad "mesh" of ivory or polished wood. The knife-point hem needle, with its broad blade, was invented to suit the men at the Chicago Stock Yards. The broom-maker's needle, like the sailor's, has to be pushed with a steel palm. That which the millers use has a spring eye which the heavy thread enters when the side of the eye is pressed.

A novice could never guess how to use the needle made for sewing soles on shoes. The glove needles are marvelously fine affairs, though even the daintiest of them have three-cornered points. The knitting or astrachan needle wants no mention.—*American Artisan*.

Electric Fire Engines.

Present indications point to the adoption of the electric fire engine in the near future. The combination of the electric motor and the pump would supply a want that is constantly arising, that of a portable engine for mills, factories, etc. A small electric motor attached to a suitable pump, such a combination as has been produced by several of the motor companies, mounted upon a light truck, that can be easily moved to any part of a factory by two or three men and there connected to the Lydiant and to electric terminals, and used to throw water to any part of the building, ought to find extensive use in the manufacturing districts of the country especially.—*Chicago Inter Ocean*.