JUGGLING AS AN ART.

Yank Hoe Tells How He Performs the Bewildering Tricks That Have Made Him Famous.

PRACTICE THE SECRET OF SKILL.

The Sword Feat in Which the Slightest Mistake or the Least Nervous Movement Means Murder.

PAPER BUTTERFLIES POISED IN AIR.

Butertaining the Andiences With Spinning Tops and Whirling Umbrellas.

(WRITTEN FOR THE DISPATCH.) How would you fit yourself to become lawyer? By study. How would you make of yourself a physician or painter? By

study, of course. That is the way to become a juggler. Study and study alone will fit a man for the stage with his eyes so trained, his hands so skilled and his nerves so steady that he can split a potato with a sword on the bare throat of his assistant, as I do daily upon the throat of my assistant, Omene. It requires years of patient practice before he can acquire the deftness of touch to fill empty boxes with ribbons, glasses and trinkets before the eyes of a critical audience so that the secret of his deception will evade discovery.

Those who have never given the subject thought may fancy that the spinning of a square block of wood upon the rim of a twirling umbrella is a feat easily accomplished. But let me tell you that it takes hours of daily practice for months and months together before it is done as easily as it appears to be. The simple spinning of a top; the causing of a bevy of butterflies to flutter gracefully in the air, hovering over a wase of flowers, now alighting for a moment to rest and now soaring high above the fan and the rolling of an egg on the edge of a closed fan, are tricks that take more study, more application and more patience than many a successful lawyer has ever given to the building up of his practice.

PARTLY BORN, PARTLY MADE. In this article I propose telling you what kind of study you need to become a juggler. If you follow my directions you may learn how the tricks are performed, but I cannot guarantee that you will ever be an expert artist. That depends upon your natural aptitude to that kind of work. A clumsy man, slow in his movements and sluggish in thought, can never be a stage performer. The successful juggler is quick as a flash, steady as a rock, and be measures distance and positions as accurately with his eyes as a chemist weighs out poison on his scales, Let me first tell you how I began my

stage career. I am an Italian and my pro-fession is that of a chemist. I have a drug store in Turin at the present time. I have always had a love for juggling. I used to practice the tricks or my own amusement. When the Shonoski Royal Japanese troupe of jugglers visited Italy I was interested in their exhibitions, and when I was offered the post of manager I accepted it. Here I



The Umbre la Trick.

had an opportunity to acquire still more knowledge of the business, and after two years of managerial work i became a performer. When I went to London, six years ago, I met Omene, my assistant, to whom I am indebted for much of my success. Omene is a native of Stamboul, Torkey, and is the widow of an Ruglish officer killed in the siege of Alexandria.

A JUGGLER'S PRACTICE ROOM,

Now come with me into a juggler's practice room. Oh, yes, jugglers spend a part of the day in practice, no matter how ad-vanced they may be. It will not do to let the muscles grow stiff or the nerves lose their strength. That slender cord suspended from the ceiling is the most use'ul appliance the juggler has in practicing the umbrells feats. This is how it is used. Do you see that shelf in the corner filled with rubber balls, square blocks of wood, plates and round bodied bottles? Did you notice that little ring in the center of the plates and blocks? No? That is an oversight, for without attaching the cord to that ring and suspending the object in the sir, the difficulty of learning these tricks would be

multiulied a score of times.

Why? I will tell you, The cord is long, as you have seen. The plate hangs so low that if you are not careful you will strike your head against it in walking across the floor. After the plate is suspended the juggler opens his long, thick-handled Japanese umbrells, and stooping beneath the plate so that it rests on the rim of the umbrells, he begins twirling the handle, at first slowly and then more rapidly, but all the time evenly. As the umbrella files around the plate begins to revolve on its rim. After it has acquired this motion the juggler gradually straightens his back until a little coll of slack cord circles around the protruding point of the umbrella. This is not learned in one day or a week or even a mouth, and hundreds of times in this practice the plate slips off or topples over.

THE UMBRELLA TRICKS.

But you do not begin learning this feat with a plate or a block of wood. You first use the rubber ball and then take up the other articles in turn. After a while you expert. I throw the ball into the air and eatch it on the revolving umbrella. I toss the block of wood high above the top of the curtain and as it comes down the um brella sends it spinning, end on end, until it looks like the fly-wheel of a locomotive and makes a whirring sound like a bee in flight. Now it spins in one spot and now it shoots around the umbrella like a racer off for the goal. I change the movement of the handle and it stops. Then a toss and up it flies. I

my bow, The trick is done.

Now for the top tricks. They look simple enough. It almost seems like wasting time to describe how they are done. That is the way they look-from the front of the stage. If you are of that opinion try one of them. Do not let me undeceive you when you can so easily undeceive yoursel . Take a large, heavy Japanese top, with a long rounded top and a thick rounded stem.

Twist this stem beneath the palms of your hands until the top begins to hum. Even that is perfect. First you show your audience that is perfect, and days of practice, that the potato is real by throwing it down.

R. R. and cool off.

too. But the trick is not begun. You are as yet but little further than you were when you fastened the ball into the hanging cord and began to turn your umbrella handle. THE ART OF SPINNING A TOP.

The top hums. You touch your fingers to its sides and you withdraw them quickly, as if you had touched something that was very hot. Now comes the knack of picking up the top and doing so without stopping it.

Gently now; one finger and a thumb are
enough if you only have the skill. Lit it
up quickly, before it burns, and drop the
point into the palm of your hand. Now incline your hand just a trifle, and as the top
drifts toward the adgreeach, it on the other cline your hand just a trifle, and as the top drifts toward the edge catch it on the other hand. Slowly? Yes, very slowly at first, but when you are sure of yourself, when you have given to the top impetus enough to make it sing, do it quickly. Toss it up and eatch and then toss it up again and again until its motion dies out on your hand and it totters and falls on its side like a drunken man. drunken man.

When you have learned to spin the top When you have learned to spin the top and catch it on your hand you are ready to learn to balance it on the edge of a closed fan or a billiard cue. This requires a nicety of touch. You must be an equilibrist as well as a top spinner. Hold the fan steadily. Put the top down gently. As it alides over to one side turn the fan as slightly as possible to the other side and it slowly comes back to the center. Do this for a month, an hour a day? Not a quarter of that time unless your muscles are made of iron and your nerves of steel. Fifteen minutes with the fan and top will make you shake as with the palsy the first time you shake as with the palsy the first time

vou try 1t. You have it at last. Now incline your fan point downward and the top hums down toward the floor. Raise the point and it returns to your hand. The billiard cue will call into play all you have already learned and more too. The addition will be patience chiefly. To balance a top on the rounder side of a cue takes practice. To make it travel to the chalked point and back again to the butt requires months and even years of work. But it can be done.

A TRIP SKYWARD Let us take the cord now. This is sus-pended from the ceiling. Wrap it around



The Butterfly Feat, the revolving point one turn and start the top on a trip toward the clouds. How is this done? By spinning the top to its ut-most speed and by holding the cord just

taut enough. It is not nearly so hard to do as the cue trick, but it has work enough about it to keep you employed for a month Here is a neat trick. Roll an egg end over end up and down the edge of a closed fan. This is comparatively simple. First cut a very shallow groove in the fan. Then boil your egg hard, or if you cannot do that shake it well, so that the yolk and white are thoroughly mixed. Now place it in the groove, and by giving the lan a little outward push you can make the egg roll over. Keep on with these little pushes until the egg reaches the end. Then reverse the movement, pull instead of push and it comes back to the starting point. An expert egg roller can take a perfectly round rubber ball and roll it back and forward on the fan without using a groove, but it is imp

to do it with an egg.
You have often witnessed the butterfly trick and you have probably often wondered at the skill of the performer. If you have ever left the theater to try the experiment of keeping half a dozen tissue paper butterflies balanced in the air by the movement of your fan your wonder has been doubled. Now I am going to tell you a secret. There is a deception practiced in this trick. It is not so difficult as you think it is.

THE BEAUTIFUL BUTTERFLY FEAT. When the performer comes out on the stage and cuts out of a piece of paper his ollection of butterflies he has conce his hand a long hair from a woman's head. It is so thin that it is invisible from a distance. He folds the ends of this in his first butterfly. The second is fastened a few inches lower down and so on until all are tied together in a row. The other end of the hair is then attached to the juggler's chin or torshead by a bit of flesh-colored wax. or torehead by a bit of flesi When he begins to wave his fan and send the breeze wherever be may choose the but-

That seems simple enough, does it not? But if you want to see how hard it is just

terflies cannot soar beyond the length of their



Cutting a Potato in Halves.

try. It is true that the butterflies cannot fly away from you, but that fact does not lessen the difficulty you will have in making things fly at all. It requires weeks of practice to be able to start them in a of practice to be able to start them in a natural way, and to keep them suspended in the air for any length of time takes many weeks longer. Now comes the difficult part of the trick—to make them alight on a vase of flowers and hover over a bouquet at your will takes months of time. When it is once learned, however, it makes one of the prettiest feats in the juggler's repertory.

SHOWER OF SNOW FLAKES. When the trick is ended I usually give to it a dramatic finish. I crush the it a dramatic finish. I crush the butterflies in my hand and by sleight of hand I substi-tute for them a quantity of little bits of white paper. Then opening my hand I fan vigorously, and to the surprise of the audience the crumpled butterflies are trans-formed into a shower of snow flakes that descend to the stage, covering me com

pletely in their fall, The most difficult feat that I accomplish, and indeed the most during trick I have ever seen, is by far harder to learn than any that I have described. Before you attempt it I caution you to be more certain of your nerves, more sure of your skill than you have ever been before. The slightest mistake, the fraction too much of an ounce of

power, and you are a murderer.

These are your properties: A sword with an edge keen as that of a razor, a potato fresh from market, an assistant who does

on the floor or by letting them examine it. Next you satisfy them that the sword is sharp by cutting a playing card into pieces before their eyes, as though it were a slice

EASY TO COMMIT MURDER. Your assistant then kneels down before you, with her neck bared. You place the potato upon the warm flesh, shield your eyes from the light, balance your sword in your hand, measure the distance of the stroke and its strength. Then s—ip, a flash, your assistant tosses her head and the potato falls on the floor divided in the middle, cut through to the very edge of its thin skin.

Still more difficult is the front cut. Your assistant lies outstretched on her back, her



The Fair Omene

head hanging over the edge of a stool. The petato is placed on the throat and the thrust is made. You must not look into her open eyes. You must not look at your sword. Watch the potato and strike quickly and surely. I frequently tried this trick in England, but Omene never allowed me to make the throat cut until we came to New York.

Does it make her nervous? If it did I would surely kill her, for the slightest shiver on her part, the least movement of her head, would cause a fatal accident. She was nervous before I began the trick, but when it was once begun her nerves were as steady as my own.

The way to practice this feat is to begin

with a rubber ball resting on a table. After you have learned to strike it directly in the center every stroke try potatoes. When you can cut through them, stopping the blade the instant the skin is penetrated, and when you can do this, not 99 times out of 100, but every time you try it, you are ready for your living block. YANE HOE.

NO DRINKS TO BE SOLD.

Retail Grecers' Association Will Make Its Picnic a Family Affair.

The Pittsburg Retail Grocers' Association are determined that their annual picnic on August 6, at McKee's Rocks, will be a family affair, and that there will be no objectionable features in or about the grounds. At a meeting held the other day a resolution was passed that they will employ county detectives and that all persons found selling intoxicating drinks in or about the grounds will be prosecuted to the full extent of the law. The handsome excursion steamer Mayflower has been chartered and

will make hourly trips to the grove.

Among the features that will be intreduced for the amusement of the crowd will be the display of \$300 worth of Japanese fireworks to be conducted by Theodore Heil. There will also be a pie-eating match, a bicycle race, an onion-eating match, sack race, potato race and other sports. A please ant time is promised those who attend.

PANIC IN A RESTAURANT.

The Building Sinks, the Windows Break and the Customera Flor.

Almost a panic was caused on Smithfield street at 2:30 yesterday afternoon, by the sinking of one corner of the Vienna Coffee House, No. 536 Smitnfield street, The sinking was caused by the excavation for the new Kappel building on the adjoining lot. The corner of the foundation sank nearly an inch causing the front wali to settle and a large plate glass window to crack with a report like a gun. People were frightened on the street, and hastily ran to the opposite

The Building Inspector ordered the pavement in front of the excavation to be closed up for fear of a cave-in. The damage done will not amount to much.

KILLED IN A COLLIERY.

Two Miners Crushed by a Cage Through an Engineer's Carelesaness.

SHENANDOAH, August 2.-John O. Boyle and Charles Mulhern were instantly killed this morning in the shatt of Packer colliery No. 5, at Rappahannock, operated by the Lehigh Valley Coal Company.

The engineer lowered instead of hoisting the cage and the two miners were crushed

An Elevator Burned.

LA CROSSE, August 2.- The A. A. Freeman Company's large stone elevator and mill was destroyed by fire at noon to-day. The loss is estimated at \$300,000; insurance, \$180,000. Mr. Freeman is a resident of New York.

Portunate Inventors.

Higdon & Higdon, patent lawyers, 127 Fourth ave., Pittsburg, and LeDrott building, Washington, D. C., report these pat-ents just granted. Wesley Coulter, sashents just granted. Weslev Coulter, sashfastener; J. A. Kurtz, manufacture of glass;
J. J. Turnez, shoe; A. Wurts and O. H.
Baldwin, lightning arrester; G. M. Irwin,
design of Pittsburg and Allegheny; Henry
Byrom, Bradford, garbage receiver; C. D.
Huff, Dallas, thill coupling; W. J. Lohr,
Johnstown, whiffletree attachment; T. S.
Minniss, Meadville, combined headrest and
cane.

IT may be a summer story in regard to those 34 tableware actories being sold to an English syndicate, but nevertheless it is a fact in regard to those etchings, engravings, etc., that were sold last week at the art store of J. J. Fuchs, 1710 Carson st.

Can Find Nothing Better.

No substitute for pure beer for a health-ful summer drink has yet been found. Z. Wainwright & Co.'s beer has attained the highest popularity here. Families can be supplied direct by sending a postal card, or order by telephone 5525.

Progress Gas Heaters For warming houses and progress gas stove

for laundries are the most economical gas savers in the market. Call for particulars on James C. Thompson, 640 Liberty ave-Bargains. Summer suitings and trouserings at Pit-

sirn's, 434 Wood street. Towers, 200 dozen pure linen huck towels, our regular 15c quality at 10c apiece.

BARGAINS, bargains offering in all de-partments now during sammer clearing sale, TTSSU HUGUS & HACKE.

GOLD is going out while silver is coming in for etchings, engravings, mirrors, etc., at the art establishment of J. J. Fuchs, 1710

TONIC OF HARDSHIP. A Popular Theory of Success That is Wrong, and Even Cruel.

LIFR'S WORK IS HARD ENOUGH.

Men Who Go High Despite Adversity Would Go Higher Without It.

SIMPLE LITTLE DEEDS THAT COUNT

WRITTEN FOR THE DISPATCH. This is the nineteenth century. The human race, according to its own way of thinking, has gathered in most of the wisdom and knowledge that are to be had. So much the better; for we may hope it will soon have time to sort over and make final selection of the things it has in possession. When it sets about that let it deal first of all with its superstitions. It has accumulated formidable lot of them; and it holds on to them with willful tenacity. It refuses to give them up, even for the enlightened beliefs it talks so glibly about. It is like a rambling child who, in coming through the lanes and pastures, has filled its ittle hands with all the worthless weeds

they can hold. Entering the garden at last, where things grow worth the plucking, it will not throw away all its weeds even to make room for the roses and lilies. A good many it has cast aside, but a good many it

Starvation as a Tonic.

One of the lesser superstitions which is still cherished, and which does as much mischief in its way as many of the greater ones, is the belief in starvation as a tonic. True, the medicine is always commended to somebody else. The one who recommends it is not anxious to receive its benefits; but he is sure the other patient would not do half so well under any other treatment. The case of a man known to some of us who knew Pittsburg a good many years ago, will illustrate the point. He was born in an alley and had sordid poverty for his only inheritance. Privation and hardship formed the experience of his childhood. Privation and hardship, with more work than he had strength for added to them, formed the experience of his boyhood and youth. Necessity was the atmosphere he breathed.

But in this youth there was not only the

spark of life, but another spark which all the muddy waters of adversity could not quench. He had the unconquerable impulse to rise. He had not only the will but pulse to rise. He had not only the will but the strength to fight circumstances and con-quer them. He made the struggle for life, and along with that he made the struggle for what life has to give. In both strug-gles he won. He had a hunger for knowl-edge as strong as the hunger for bread and meat. By dint of tremendous work he con-trived to satisfy both hungers. He had am-hition as strong as the instinct to knowledge. bition as strong as the instinct to keep alive.
If he could do this last it seemed all that a boy so circumstanced could do.

He Won the Victory.

But that was not enough for him. If he lived his ambition must live also. And it did. It lived and was nourished somehow. And finally it wrought out its own success. In spite of all the terrible load he had to carry, the boy climbed the ladder up which his ambition led him. Before middle age he was well toward the top of it, and when he was well toward the top of it, and when he died he had reached a fairly commanding height. In other words, this poor boy not only managed to live, but he fought his way into one of the learned professions and won conspicuous success for himself there.

And here the superstition I have spoken of comes into play. Other men boasted of this man's success. Here was a fine example of what starvation can do when given in large dozen as a tonio. This man started

in large doses as a tonic. This man started in the gutter and reached the upper air. He did it all himself. Nobody helped him when he needed help. Nobody encouraged him when he needed encouragement. Afterward, yes. But not then, when a little help or a little encouragement would have

A Triumph Doubly Triumphant. He would have done much better. This boasted tonic was a poison, and not a medioine. This man happened to have vitality enough to conquer its effects, and to live and grow in spite of them. The poison did not help, it hindered him. The vitality that might have gone to the ripening and per-fecting of a healthy life was largely used up in combating noxious influences. The strength that might have served to carry the

know of his regretful conviction that his measure of success would have been many times greater if he had not been handicapped by so crushing a weight. He, at least, was not convinced that hunger is the best diet for hard-workers; and he ought to

have known, it anybody.

And suppose he had a little less strength; a little less courage; a little less ambition. Suppose his constitution had failed to quite conquer the poison. Suppose he had been compelled to give up the fight before victory had come his way. Then he would have been that most pathetic and tragical of human beings—a man who has striven to the utmost limit of his strength and endurance, and failed at last. He would still have deserved well of fate, as all men do who strive with honest energy, but he would have got only the cold shoulder from her.

Men Who Fight and Fall.

There are myriads of such men; men who have done their best in the conflict with adversity only to sink down at last in hopeless defeat and surrender. If the fight had been a little less hard they would have won. If the load strapped upon their shoulders had been a little less heavy they could have kept their feet under it and staggered on to kept their feet under it and staggered on to the resting place of success. Surely such men deserve something better than to be overwhelmed in the dust. Their efforts nave earned for them some wholesome re-turn. They have struggled hard enough, if the conditions were a little more kind, to win the recompense of moderately fulfilled hopes. Yet the conditions are as they are; so the poor fellows have to go the wall. If so the poor fellows have to go the wall. If they could have saved some of their strength at the start they might have had enough left to carry them to the finish. These men who fail because the prelimi-

nary struggle exhausts them may not be geniuses. Probably they are not extraordipary men in any way. But they are men worth keeping on their feet and out of the mire of utter failure, if that could be done. They have fought just as hard and as vali-antly as the men of genius who succeeded, and it is hard that they have to go to the prison stockade after all

The Basis of Evolution. The answer to all this is, of course, the rvival of the fittest. The man who deerves to win, wins. The man who fails do serves to fail, or else he would have won. That is all right. The world has no use for he man who isn't strong enough and tough enough to take all the blows that can be laid

upon him, and to come up smiling in spite

EVERY DAY SCIENCE.

stition; and that it may be the most brutalty cruel of all the superstitions known to this generation of men?

Because certain ones, by supreme force of character, have made final conquest of adverse circumstances, shall we be wholly ruthless toward the weaker ones who have not supreme force? Their lives are full of suffering effort, and they are without the alleviation of success at last. Shall we therefore throw a gibe at them as they sink out of sight, and tell them the world had no use for such as they, anyhow? Plans for Securing Ideas in Utilizing the Power of Niagara.

Rights of the Majority.

And what right has the world to decide the matter? Is the world to have the unquestioned privilege of drawning all the kittens it does not choose to keep? Not so. Those who are marked for the drawning have the right to their own lives. If they may not become prize-winners at the world's bench show, they have still the right to be humble and comfortable mousers on their own account. And in this time of enlightened advancement there ought to be some way in which their honest and earnest endeavor would make them such. At least, all of us may make them such. At least, all of us may well forbear to taunt them with their failure. And there is this to be said, even of the great ones who do wrest success from cruel adversity: A man has a right to be happy as well as great. So it might be as well for those of us who are more fortunately placed to try what may be done to make the conditions a little easier for the great ones as well as the small ones. Even "the world" would find its account in that. It would be better served in the long run. The great would become still greater, and It would be better served in the long run. The great would become still greater, and the small and weak would have better strength for the doing of their humble work. The foot of the ladder is a very good place to start on the upward climb, if one happens to be there at the beginning. But even he who is able to step upon the middle rung to begin with finds the distance long and weary and dizzy to the top.

The lower ones need the stimulus of necessity. There will be plenty of that left for them, never fear. There is far less danger of their being over-helped than under-helped. Necessity will no doubt continue to prick them sharply enough for all stimulating purposes. The great danger

all stimulating purposes. The great danger is that necessity will prick them through the heart and they will tumble from the ladder

A Ministering Angel.

Here is a woman who has solved the problem in her own way. She, also, believes in the survival of the fittest. But she believes that the fittest to survive are those who try by all honest and carnest endeavor to keep life in themselves. They need not be those possessed of the most brute force. Those who cannot deal crushing, sledge-hammer blows for themselves, she believes in helping to strike such blows as will sufin helping to strike such blows as will suffice. She has money and leisure, and sorrow made her tender hearted for all in trouble. She wanted an interest in life, and she found that interest in helping to make life easier to those around her who found it hard. She did not undertake any great work. Nobody has ever seen her name in print. Even in her own little neighborhood she is not known as a professed apostle of benevonot known as a professed apostle of benevo-lence. But in her own little neighborhood she has found plenty of scope for her kindly work, as any other may find who goes about the search with human sympathy and Chris-

tian purpose, earnest to do some good even at the cost of some sacrifice. at the cost of some sacrifice.

In this case the sacrifice required is not a very great one. The time devoted to much of the work could be spared by a busy man, if he felt disposed to use it so. The principal outlay is an abundance of kindly and appreciative sympathy which makes the possessor quick to think of others, and keen to see and help their needs. Some money this woman gives away, out and out, but she does more good with the money she does not give away, using it for the benefit of those to whom she could not well give gifts.

Little Deeds of Love.

Little Deeds of Love. A widow in her neighborhood had an active and capable boy. She had no money and no influence; and the boy, who was at the foot of the ladder seemed likely to stay there. The other widow took the boy with her on a trip to the city, and when she came back she left him there. She had found a help or a little encouragement would have been like tidings of salvation to him. He took his tonic to the very dregs; and this is what it did for him! He wouldn't have done half so well if he hadn't had to go hungry in the beginning!

of a dozen men in the town who knew the boy could have done the same thing, but none of them did. A young girl of her acquaintance needed some means of self-support. She wanted to learn stenography and type-writing, but could not afford one of the farmers stated that he had examined the necessary dollars required for that purpose. This woman I speak of could not offer her a gift of the money, but she offered a generous loan without interest. The offer was accepted. The needed instruction was paid for and then a situation at fair wages was found for the girl. The situation is still held, and a weekly payment is made out of the salary toward liquidating the

strength that might have served to carry the man to far greater heights had to be expended in the struggle to get a start. When the start was fairly made the man was already without the best of his vigor. To a great extent he was worked out before he had reached the point where his work would tell most effectively.

He succeeded. Yes Possible of the struggle to get a start when the start was fairly made the man was already without the best of his vigor. To a great extent he was worked out before he had reached the point where his work would tell most effectively. doctrine that it does a man good to break his back with a heavy load and then knock him down and trample on him—because doesn't.

JAMES C. PURDY.

> An Eclipse at Atlantic City. New York Herald.]





Hamburg Figs for the Liver.

Habitual constipation and torpidity of the liver are functional derangements which should not be so long neglected as to generate actual disease. Hamburk Figs should be taken, and the deranged organs restored to health. 25 cents. Dose, one ng. At all druggists. T

A CAT MAY CONVEY DIPHTHERIA.

The Advantages of the Electric Motor Over the Steam Engine. A STEAM LAUNCH PROPELLED BY GAS

PREPARED FOR THE DISPATOR.

A part of the plan of utilizing the Niagara Falls is to transmit a portion of the power to the city of Buffalo, 18 miles distant. The project involves problems of great complexity. The hydraulic motors will be of a size not hitherto constructed, and the governing conditions are different from those comme ly met with where water power is utilized on streams of variable and limited flow. In the distribution of power, too, further problems arise. Power can be transmitted to great distances by Hirn's system of wire ropes as at Schaffhausen, and by water or air under pressure, as in the compressed air systems of Paris and Birmingham. In Switzerland and in this country great progress has been made in distributing power to distant points electrically. The choice amongst such methods of those which are the most economical and most likely to suit the wants of mill owners requires very careful consideration. Hence the company controlling the proposed operations has resolved to invite from certain selected engineers and engineering firms plans for the utilization at Niagara of 120,000 horse power, and to sub-mit the plans for an authoritative opinion to the judgment of a scientific international commission. The commission consists of some of the most eminent scientists and engineers in America, England, France and Ger-

Compactness of the Electric Motor. The electric motor is probably the simplest and most compact piece of machinery ever made for producing power. As much as 25 horse power of apparatus can be set up in a space less than five feet square, and where minimum of space is a desideratum this is an important point. There is only one moving part in the machine, i. e., the armature, and only one set of bearings. The wear is entirely confined to the one set of babbitt shells, the commutator and the brushes, all of which form but a small part babbitt shells, the commutator and the brushes, all of which form but a small part of the total cost of the machine, and all of which can be renewed when worn out at a comparatively small cost. When this minimum of moving parts is compared with the number of levers, valves, rods, etc., required by a steam engine, and the necessary accompanying wear and tear, the reason for the low repair account of the electric motor is manifest. The attendance required by an electric motor is very much less than that required by a steam engine, being in general confined to a few minutes' attention each day, while the steam engine requires the constant attention of a skilled engineer. The Engineering and Mining Journal gives the following comparison of a few points of a steam engine and an electric motor, each of 10 horse power capacity, as showing the greater simplicity and economy of the electric machine: Number of moving parts, 1 in the motor to 9 in the steam engine; number of wearing parts, 5 to 20; floor space in square inches, 8½ to 36; room occupied in cubic feet, 16 to 216; percentage of mechanical friction, 1 to 30; actual horse power percentage of indicated horse power, 100 to 80; quarts of oil used per week. ½ to 12. age of indicated horse power, 100 to 80; quarts of oil used per week, 1/2 to 12.

Diphtheria Conveyed by Cats. Investigations into the conveyance of diphtheria by domestic animals have revealed some curious facts. In one instance it was found that the case at issue had not been exposed to the disease, although there were no cases within a mile of the house. The medical attendant incidentally learned that there was a sick cat in the house that and another 15 from some throat trouble. One of the farmers stated that he had examined the throats of some of the cats and found them covered with a white memto house, and one diseased cat may be the means of carrying diphtheria to many children whom parents are taking every means to protect from danger. Another practitioner reports four most malignant cases occurring in one family. A kitten came to the house a few days before the disthe children. Through accident the mother discovered that the mouth and throat of the kitten were infested with false membranes, and therefore caused it to be killed; but too late to save herself and three little girls

Double Sashes in Rallway Cars.

In consequence of the decided addition to the comfort of travelers of double sashes in passenger cars, by reason of the prevention of the admission of cold air in winter and dust in summer, several railway companies have decided to use double windows altogether in future, and this conclusion has probably been hastened by the fact that many of their best day coaches and chair cars rival special cars in the richness of their plushes and interior decorations, and they cannot afford to have such fittings rapidly destroyed by the dust. The com-parative ease with which a car fitted with also a consideration. They not only prevent cold air leaking in where it is not wanted, but they also interpose a layer of comparatively still air between the warm double windows can be heated in winter is air in the car and the cold atmosphere outside, thereby preventing the loss of considerable heat by conduction and convection.

To Supplant the Steam Engine. A steam launch containing a quadruple expansion gas or vapor has just been experimented upon. The gas is supposed to be generated by evaporating oil in a closed retort in much the same way as steam is raised in a boiler. Several oils, however, are mixed together, and the exact composition of the combination is kept secret. The gas, after passing from the generator, is used in the cylinders, and after doing the work there is returned to the boiler and consumed as fuel, being condensed, however, on its way to the firebox. The launch is said to be about 16 feet long, and it is claimed that the engine will develop about 12 horse-power, which would be sufficient to propel the boat at a rate of six to ten miles an hour.

The use of dry lubricants for bearings in places where oils and grease are objection able or where contact with fire may occur, is becoming better understood, and graphite in one form or another is now in general use. It has been employed on various kinds of machinery with uniform success. Mica also, in a dry pulverized state, has given satisfactory results in many cases. Self-lubricating bearings, consisting of metal shells filled with compounds of graphite or mica, have also operated with complete estisfaction.

Rapid Concentration of Solutions. An apparatus which deserves some attention from those engaged in chemical pursuits upon him, and to come up smiling in spite of them. The world can spare the weak- lings. It wants only men of fire tempered fiber. Even gentle hearted men—men who would interest themselves in behalf of a hunted dog or an over-driven horse—talk in hat way. Does it not occur to them that hey may be proclaiming still another super- level gentle proclaim has been putented in England. It is called

being worked by hand, and heated by small gas jets, being, in fact, the size suitable for

Improvement in Gas Retorts.
Special attention has been lately devoted to inventions relating to the manufacture of gas, and one which is now being brought gas, and one which is now being brought forward is the use of vertical fireclay retorts, tapered internally toward the top. Half wayup each of the three sets of three retorts is arranged a firebrick arch, which is divided into sections by the vertical retorts. The reason of the adoption of this arch is to concentrate the heat from the furnace as far as can be in the lower portion of the arch. The heat passes under the firebrick arch into the upper part, and then into the flue. Under each row of these retorts is placed a drawplate, having circular holes cut in it which correspond with the retort bottoms. The solid part of the plate is normally under the bottom of the retort. Circular pans containing water are placed under each drawplate hole to insure that the retorts shall be sir-tight. In discharging the retorts the drawplates are pulled along, so as to bring the holes in them directly under the bottom of the retort. It is claimed that this allows of the coke falling out without any "tickling." The coal is supplied to the retorts from hoppers placed above.

Avoidance of Danger From Fire. A new departure has been taken in the A new departure has been taken in the plans for the new building for the Congressional Library in that the whole of that immense structure will contain no fire. The building will of course be heated, but the heat will be located outside the building. Vaults will be constructed in the grounds, where the fires and boilers will be placed, and the hot air will be carried into the library building by means of pipes. By this means complete protection against fire is secured. is secured.

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James T. Powers in, "A Straight Tip." "Money Mad." "White Slave." "Mr. Barnes of New York." "McCarthy's Mishaps," "My Aunt Bridget." "The Twelve Temptations." Maggie Mitchell. Gus Williams and John T. Kelly, in

"You and I." NOTE—The box office will be open at 9 A. M. NEXT SATUEDAY (August 9), and continue open thereafter as usual.

DLAYERS' LEAGUE-BASE BALL-Exposition Park, PITTSBURG VS. BROOKLYN, July 31. Aug. 1, 2, 4.

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