MAIL CATCHING DEVICE.

Delivers and Receives Mail Bags From Moving Trains.

A new mail catching device which not only delivers mail bags to fast moving trains, but receives them as well, handling two or more bags as easily as one, is being installed on the Freeport division of the Illinois Central railroad.

The unique feature of the catching device is the baggy steel chain nets, which operate in the following man-

DEVICE IN OPERATIVE POSITION.

ner: Attached to the outside of the mail car is a square steel frame, to which the chain net is attached. This frame is made to swing on hinges attached to sliding bars so as to permit the device to be quickly shifted from one side of the car door to the other, according to the direction in which the car is moving. Attached to the lower outside corner of the frame is the one end of an iron rod, with the other end traveling on a bar attached to the car side containing a set of spiral springs so adjusted as to bear by compression the shock resulting from the frame and net catching the mail bags. On the same outside corner of the frame, below where the rod is attached, is a hook or finger for the attachment of the bags to be delivered.

The roadside device, which acts in conjunction with the one attached to the side of the car, is similar in all respects, except that the bags it delivers to the train are hung above the receiving net, while with the car device the bags hang below the net.

The illustrations show clearly how the device operates. One of them shows the car approaching the roadside catcher, with two bags in position to be delivered to the station and one

THE MAIL EXCHANGED.

bag in position to be delivered to the train. The devices meet as the train rushes past, and the exchange is made, the force of impact being absorbed in the slack of the chain net and by spiral springs. The reflex action of the springs throws the frames and chain nets back, as shown in the lower illustration, with the mail bag surrounded by the nets.—Popular Mechanics.

WIRE FENCE GATE.

Simple Method of Solidly Bracing the Side Posts.

The posts of a gate placed in a straight line of wire fence requires just as much bracing as a corner post. A very effective way and one that will not require much extra material is shown in the accompanying sketch.

The two posts of the gate will need to be extra long and well set in the

GATE POSTS BRACED.

ground. The tops of the posts are then tied with wire so as to hold them in a parallel position with the right width between for the gate. The fence wires are twisted tight and held to the posts with staples.—Popular Mechanics.

UTILIZING FISH WASTE

Expensive Processes Necesary to Save By-products of Salmon Fisheries

One of the problems that has long confronted the operators of fish canneries is how best to dispose of cannery waste. This waste is usually very heavy. In the case of humpback salmon, it has been stated that "the waste is from 40 per cent. to 50 per cent. of the round weight." The waste from the "red" salmon is rather less, but it constitutes a serious loss.

According to a Government estimate the waste at the Pacific Coast canneries amounted to 140,210 tons in one year, which, at values fixed at commercial operations, would amount to over two million dollars.

The products obtained from the reduction of the waste are fish scrap for fertilizer and fish oil. An average of several analyses of the raw waste from humpback salmon showed that it contained 3.02 per cent. nitrogen, 3.46 per cent. bone phosphate and 10.43 per cent of oil. At retail prices this would give a value of $20 a ton. It would seem desirable, therefore, to establish fish reduction plants in the neighborhood of the larger canneries to utilize the waste.

One difficulty, however, has been that the canning industry is carried on for only a short time each year, and, as the fish reduction plants are expensive, considerable capital would be kept idle during most of the year. On the Atlantic coast of the United States this handicap has been overcome largely by gathering in enormous quantities of menhaden, a species of herring, and converting these into fertilizer and oil. Nearly 50 factories, having a total invested capital of over $3,500,000, are engaged in this latter industry. In 1912, they produced 6,651,000 gallons of oil, valued at $1,551,990, and 88,520 tons of scrap valued at $2,138,165.

Again, the kelp resources of the Pacific coast, which are being investigated by Prof. Prince, are without doubt of great value, and may possibly be exploited to advantage by those operating the fish scrap industry. In any event, the utilization of fish waste will not be an entire success until the cost of the process of reduction is lowered, or means are found for keeping the plants in operation for longer periods each year. It is a field deserving close attention from those interested in Canada's fisheries. —A. D., in "Conservation."

CLEAN MILK METHODS

Brush the cow's udder and wipe with a dry cloth; use clean water and dry with a clean towel.

Milkers should wash their hands with soap and water and dry with clean towel.

Whitewash the cow stable at least twice yearly.

Feed no dusty feed until after milking.

Remove all manure from cow stable twice daily.

Keep barnyard clean and have manure pile at least 100 feet from the stable.

Have abundant windows in cow stable to permit sunlight to reach the floor.

Arrange a proper system of ventilation for the cow stable. King system is suggested.

Do not use milk from any cows suspected of garget or any udder inflammation. Such milk contains enormous numbers of bacteria.

Use abundance of ice in water tank for cooling milk.

London Change Seats

It costs considerably more to become a member of the Stock Exchange nowadays than in the days when its headquarters were at "Old Jonathan's", in Cornhill. Serving for four years as a stockbroker's clerk reduces the cost, but an outsider has to pay an entrance fee of 500 guineas, and to find three members who for four years will be responsible for $2,500 apiece, this being forfeitable on the event of the new member being "hammered" during the period. In addition, the candidate must buy three Stock Exchange shares, the price of which is about $950 per share, and he must purchase from some retiring member a nomination. This can now be bought for about $440.

Debts of Canadian Cities

Toronto, debt per capita	$130
Montreal, debt per capita	136
Ottawa, debt per capita	243
Hamilton, debt per capita	209
Woodstock, debt per capita	88
Winnipeg, debt per capita	264
Edmonton, debt per capita	318
New Westminster, debt per capita	341
Port Arthur, debt per capita	425

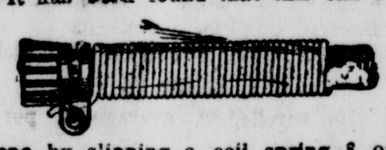
PREPARING FOR LAWN

Spring planting makes the new grass to become well established before frosts arrive, but fall planting has this advantage that any weeds coming up will be killed before they can seed. Of the two plans spring seeding is the most recommended. Before putting the seed on the ground it answers to thoroughly well prepare the soil. All weeds, roots, stones and rubbish must be removed. It is an excellent plan to put the surface soil through the sieve, so as to get a dressing of an inch deep or so, of perfectly clean soil all over. If the soil is a very poor one, some well rotted manure must be mixed in with the sifted soil or at any rate kept near the surface. After the soil has been carefully levelled with the rake it should be rolled, or carefully trodden or beaten down. It must then be raked over gently again. This raking must be very carefully done so that the surface is left absolutely level and free from even a single small stone. For this purpose employ the back of the rake when the soil is fairly dry.

Your Garden Hose

Garden hose most always breaks near a coupling when it reaches the stage where constant wear begins to tell. The life of a line of hose can therefore be somewhat prolonged if some method is found of preventing such breaks.

It has been found that this can be



done by slipping a coil spring 8 or 10 inches long over the hose at the point where the couple is made and fastening the spring to the band around the pipe. The spring prevents the hose from being twisted at too sharp an angle and holds it so firmly that a break is almost impossible.

Decline in Animals

A recent German census of animals shows a decline in five years of more than two per cent. of beef cattle, of more than one per cent. of swine and of almost 25 per cent. of sheep.

TREATING DISEASES OF HORSES' FEET

Simple Treatment For Common Foot and Leg Troubles

In sore shins the trouble appears as swelling, generally on the front of the cannon bone in young race horses.

It is the result of concussion on hard ground, and much resembles a splint in both cause and treatment, but differs in that it is diffused or scattered over a large surface, whereas a splint is smaller and more confined. A splint, too, is on the side of the bone, while sore shins are always in front. It may be produced by even a single gallop, therefore suspect this if the colt goes lame immediately after a sharp burst of speed, and remember that it will increase with exercise. As in splints he walks soundly but drops when trotted. When examining him, if the hand be passed down the front of the bone he will flinch when the spot is touched. In such an early stage as this, when there is practically nothing to be seen at a mere glance, many jump to the conclusion that the trouble is in the shoulder. Later on a swelling is seen on the front of the bone, but by this time much damage may have been done unless care has been taken.

The treatment is practically the same as for a splint.

1. Take off the shoes and give him perfect rest.

2. Bathe with hot water then change suddenly to cold water, and use this freely.

3. Use the same blister as in splints: Biniodide of mercury, two parts; lard or vaseline, eight parts.

Jockeys frequently use cocaine to hide this disease just before a race, but they thus intensify the trouble and turn what might have been a simple case into a serious one.

TO PREVENT FIRES

Place a metal stove board on the wood floor under the stove, and extending at least twelve inches in front of the ash-pit door. Protect all walls and partitions within two feet of any stove with a metal shield, leaving an air-space between the shield and the wall. Leave no kindling or other wood in the oven over night. Do not hang clothes too near the stove or stovepipes.

See that the lengths of stovepipes are well fitted together, free from rust holes and parted seams, wired firmly and fitted perfectly into the chimney. Stovepipes passing through partitions, walls, floors, attics and roofs are dangerous at best. Where these must pass through partitions, walls or floors, always use a large, ventilated double thimble. You should examine the stovepipes in the attic. They may come apart or rust. Fluff and spider webs are likely to gather on and around them, to be set on fire when you least expect it.

Chimneys should be built from the ground up, and never rest on wood supports. The settling of the woodwork will cause cracks in the chimney. Nor should the chimney walls be used to supports joists or other woodwork. Soft brick and poor mortar are often responsible for defects in the chimney. Use a good quality of brick and cement mortar. Chimney walls should be at least eight inches thick, the flue of ample size and lined with fire clay or terra cotta. Never stuff up the flue holes with rags or paper, nor cover them with anything but a metal stock. Chimneys should be cleaned frequently.

Protect all woodwork above and around boilers or furnaces within three feet, with a metal shield, also all woodwork near furnace pipes. It is best to rivet the lengths of furnace pipe together to prevent dismounting. The pipe should fit perfectly into the chimney. Examine the pipe frequently for rust holes or other defects. Keep them free from dust, fluff and spider webs, which are easily ignited.

Defective stoves, boilers, furnaces, pipes and chimneys should be promptly repaired or replaced. Beware of overheating stoves, boilers, furnaces and pipes.

Ashes should never be placed in wooden receptacles or bins, on wood floors or against wood partitions, walls, fences, buildings or any other woodwork. Use metal receptacles only, and dump ashes away from all buildings.

Care Well For Hens

To know what a hen is doing is a requisite to the improvement. When it is known that a hen produces from 50 to 60 pounds of eggs in a year it means that she must be fed so as to assist her in doing so. She should have the kind of feed that contains the elements of the egg in their most available form. Well cared for hens should give at least a 60 per cent. supply of eggs. Hudson says laying hens should never be so fat as to prevent the gizzard being felt. If food is given in excess of what is required to support life, it is disposed of mostly in three ways; some hens put on flesh, some fat, and some lay eggs. The flesh can be found in the breast, wings and thighs, the fat in the stern and abdomen, and the eggs in the best.

Picking Good Layers

A writer in an Australian paper, in writing about picking out the best layers, said they cannot be infallibly detected by their appearance, but a first class layer is never a drowsy, lazy-looking bird. On the other hand it is bright looking and active, is early on the forage in the morning, and late in going to roost at night. Her eye is usually bold and bright, and her comb very firm and blood red. But the Australian writer says he has had some extraordinary layers which had very little in outward appearance to distinguish them from birds of ordinary laying capacity.

Soap and Automobile

Soaps of any kind will not harm the running gear of an automobile. Of course some discretion is used in rinsing the parts free of any of the cleaning agent after the dirt is removed. Wheels will stand a moderate use of soap, but require much care to see that they are not scratched by indiscriminate use of the sponge.

A WALRUS ON LAND.

The Awkward and Bulky Creature Is Almost Helpless.

As might be expected, a walrus is about as helpless on land as a canal boat. It is with no little difficulty and much hitching and floundering that he drags his huge bulk upon a sandy shore even with the boosting he gets from behind by the breakers as they roll in and dash against him.

His hind flippers are of little use on land, and on sand or pebbles, where his front flippers do not hold well, the labor of floundering forward is so great that he never stirs beyond the edge of the water and usually lies with his body half awash, with the salt spray dashing over him like torrents of rain. On solid rock or ice he gets along much better, and often a herd will spread several rods back from the water's edge.

The females and younger walruses have far less development of neck to incumber them and therefore enjoy more freedom of motion than the old males, who actually seem a great burden to themselves. These creatures are strictly social in their habits and always go in herds, whether traveling, feeding, fighting or resting ashore. In the days before the slaughter of all living creatures became a ruling passion in the breast of man the Pacific species inhabited the whole of Bering sea and strait in herds which often contained thousands and even tens of thousands of individuals.

Gave Himself Away.

A man who is steadily employed finally had a day off and decided to go fishing, taking his luncheon with him. When he reached the creek he discovered that he had dropped the lunch packet somewhere on the road and hastened back to look for it. Presently he met a husky negro, who was looking happy and picking his teeth.

"Did you find anything on the road as you came along?" asked the gentleman.

"No, sah," answered the negro. "I didn't find nothing. Couldn't a dog have found it and eat it up?"—Everybody's.

Cleopatra's Pearl.

Most persons know the story that is told of Cleopatra to illustrate her luxurious habits of living—that she dissolved in her wine a precious pearl. No one seems yet to have questioned what must have been the effect upon the drink, but scientists scoff at the possibility of such solution. The fact is pearls are not soluble in wine. The most powerful vinegar affects them slowly, and never entirely dissolves them, for the organic matter remains behind in the shape of a spongy mass that is larger than the original pearl.—New York Press.

Forcing Plant Growth.

The method of forcing plants by treatment with ether, as first suggested by Johannsen, is now extensively used on a commercial scale for the purpose of securing out of season flowers and fruit. This process, however, will in all probability soon be replaced by the equally effective and less expensive method just described by Professor Molisch in a pamphlet called Das Warmbad. The only treatment required is that of immersing the shoots by inversion in water at 30 to 35 degrees C. for nine or twelve hours and afterward keeping the plants in a dark, moist chamber at a temperature of about 25 degrees until the leaves commence to appear, after which the plants are grown under ordinary greenhouse conditions. Lilacs, azaleas, spiraeas, etc., treated as above during the middle of November were in bloom at Christmas or early in January, whereas untreated plants of the same kind had not commenced to move.

Her Last Card.

"I want a new bonnet, but my husband says he can't afford it."

"Is that final, do you suppose?"

"He says it is, but I won't know until tonight."

"Going to get a definite answer then?"

"Yes. I'm going to settle it one way or the other. I'm going to start to cry when he gets home, and if that doesn't work there'll be no new bonnet."—Detroit Free Press.

All's Fish For the Doctor's Net.

"Why, the size of your bill," cried the angry patient to the doctor, "makes me boil all over!"

"Ah!" said the eminent practitioner calmly. "That will be just $20 more for sterilizing your system."—Ladies' Home Journal.

Purpose and Success.

It is the old lesson—a worthy purpose, patient energy for its accomplishment, a resoluteness undaunted by difficulties and then success.—W. M. Punshon.

It is seldom that punishment, though lame of foot, has failed to overtake a villain.—Horace.