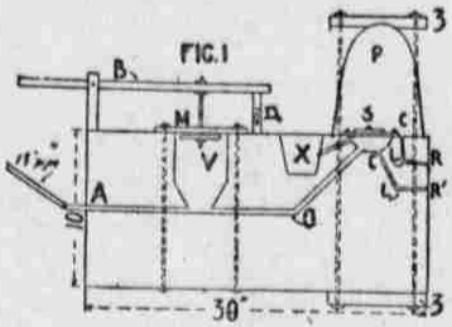


WOOD HYDRAULIC RAM

One Been on Duty Fifteen Months Without Stop.

Farmer Who Has Never Taken Course in Hydraulics Describes Pump He Made Himself—Illustrations Show Make-Up.

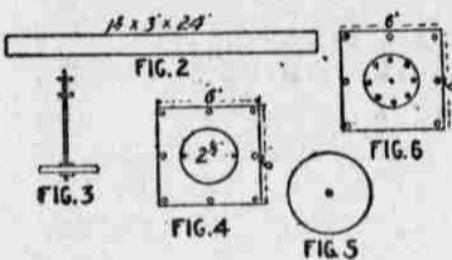
Some think that it takes a man who has had a course in hydraulics to put a hydraulic ram in operation, but I think that is a mistaken idea. I have never taken a course and have seen but one ram besides my own at work, yet I have a ram which has been on duty about fifteen months, day and night, Sundays not excepted. Further than this, it was made out of wood, and on my own place. This is the



way it was made, writes C. M. Gravelly in the Farm and Fireside.

I took a block of hard wood 10 by 12 by 30 inches. A 1 1/2 inch hole was bored from A to O, then from S to O, connected to A O at an angle. I mortised from M to A O a hole 4 1/2 inches at the top as shown at V. A saucer-shaped hole was cut out at S as shown in sketch. A lever (Fig. 2) was made and pivoted at B. In a plate of iron 3-16 inch thick a hole was cut (Fig. 4). This was bolted down at M, using common bolts. A piece of sole-leather was placed under it to answer for packing and also to deaden the stroke of the valve. A hole was cut in the leather the size of the hole in the plate.

Fig. 3 was suspended in mortise V (Fig. 1). Into a plate of iron (Fig. 6) eight 3/8-inch holes were drilled in a small circle. This was bolted down with lag screws over mortise at S. The leather valve (Fig. 5) was fastened over holes (Fig. 6) with a small bolt through center hole in plate and in valve, and fitted water-tight at the bolt. Packing was placed under the plate and all screwed down tight. At X a cut was made of sufficient depth and width to allow an air-tube to be inserted in a hole bored with a bit at a slight angle upward. This air-tube



was made of a small piece of pipe, plugged at one end with lead, with a very small hole placed in the plugging. At S was cut a circular groove to receive the air-chamber, which was an old stove-pot. (The pot was not exactly what I wanted, but was the best thing I had.) A strip of packing was put in the groove and the pot placed and bolted down. The timbers at 3-3 were placed at right angles to the body of the ram, the top one being hollowed out to fit the inverted pot.

The pot was fastened down with four long bolts that went through the timbers above and below. A 3/4-inch hole was bored downward and outward as shown at C Q and R R, being connected at L L. The piping was well threaded and screwed directly into the holes in the timber to sufficient depth to insure a good hold. After all these things were done the ram worked successfully.

In this particular case water enters the ram through A from a dam 10 feet higher than the position of the ram. The brace D prevents the valve from lowering too far. R comes from a spring which likewise supplies water to S. A check valve prevents the water from being forced back into the spring. The delivery pipe R, which leads to the house 600 feet away, is made of 3/4-inch pipe.

FARMING IS GREAT SCIENCE

Golden Rule Will Prevail in Spite of All—Land Owner Must Feed His Land to Keep Tenant.

There is a science, and art and a business of farming. Science tells this man that he should buy feeds to balance up the cow ration, but the business end of his operation indicates he thinks that he had better not do so.

This short-lease system is a bad habit, and must be overcome, but you will never get the long-term lease system by abusing the landlord and his farm. The man who takes best care of the farm he rents stays the longest and makes the most money. To spend our time on half-bred cattle and half-bred acres is a waste of foolishness, and no man who does any thinking will do it.

If a land owner is not willing to feed his acres well no sensible man will rent his farm, and just as no land owner with any business ability will rent his farm to a man who will not feed his cattle well and intelligently. There are people on both sides who do these things, but they are both losers in the long run, and are the violent kickers.

GET WATER BY A WINDMILL

Small Areas May Be Irrigated in This Way—Centrifugal Pump is Recommended as Best.

Every farmer could afford to pay from \$1.50 to \$6 an acre for the increase in yield that irrigation would give. That is the estimate placed on the cost of irrigating small areas, by H. B. Walker, drainage and irrigation engineer with the Kansas Agricultural college.

A centrifugal pump is the best adapted where a great amount of water is required. A three-inch pump will require a four to eight horse power engine to pull it. Oil is the cheapest fuel. The coal steam engine would burn would exceed more than three times the cost of oil fuel. An ordinary engine burns a pint to two pints of oil for each horse power every day.

If a patch to be irrigated is less than two acres, a windmill can be used to good advantage. It should have a 40 to 60 foot tower and the wind wheel should be 12 or 14 feet in diameter. The wind cannot always be had at the time the water is to be pumped, so a reservoir must be used. It is a good plan to have a reservoir in any system where the well supply is limited. The soil soaks up too much water as it runs down the ditches in small streams, so the water is pumped into large ponds, and at the proper time the field or patch is covered at once. In this way, the water gets to the plants quickly, instead of wasting by seepage and evaporation.

Sources of water by irrigation are rivers and natural water courses, wells and stored storm water. Their importance is in the order named. Before you buy your machinery for irrigation, be sure of your well. It must be never failing, even in the severest droughts. The depth of the well should not be more than 80 feet. If it is deeper than that too much power would be required to lift the water.

PUMP WATER FOR IRRIGATION

Implement Should Be Judged by Total Efficiency and Relation of Water Discharged to Fuel Used.

A pump is not to be judged by the amount of water it discharges, but by the total efficiency and the relation of the water discharged to the amount of fuel consumed. The runners of centrifugal pumps can be bent a very little, causing the pump to discharge a very much increased volume, and yet it will not be a paying proposition as compared with a smaller discharge that requires less power.

It is very important to deal with a responsible firm, one able and willing to make good when a pump fails to perform the work it has been estimated to do, so many factors enter into the case that pumps will not give the same satisfaction often in cases where circumstances seem almost exactly alike. A good firm will, if they make a mistake in furnishing a type of pipe unsuited to the work, make good the mistake.

While on this subject of efficiency it may be mentioned that windmills will not do the same work where the average velocity of the wind current is unsuited to them, and it is very important to discover what the average velocity is before establishing an unsuitable type.

Some railroads are installing wind gauges, and from these an approximation can be made.

DAIRY NOTES

If the cows lack salt, you'll have churning troubles.

A grade cow of inferior breeding is not qualified to drop a good calf.

Selection is the foundation upon which a good dairy herd must be built.

The farmer seldom goes wrong when he follows the path of the good dairy cow.

The unclean separator on the farm is often the cause of poor butter in the market.

It is cheaper to warm the drinking water than to let the cow do it with 60-cent corn.

A good cow with poor management is little better than a poor cow with no management.

The comfortable cow requires less feed than one that must struggle against discomfort.

The beauty of the dairy is that if it is well managed it brings a profit every day in the year.

If cream is raised by pan-setting and the milk freezes the loss will soon be large enough to pay for a cream separator.

If you carry over a few feet of silage next spring you have no cause to fear dry and short pastures later in the summer.

An increase in feed will show an increase of milk, but there will be no gain in richness, for richness cannot be fed into milk.

After providing plenty of windows and a good system of ventilation, the next thing to put in the cow stable is a coat of whitewash.

The amount of food that will put \$1 worth of fat on a steer will make a lot more than \$1 worth of butter fat if fed to a good cow.

Overworking of butter after it has "come" causes it to become salty. Stop the churn when the butter gathers in lumps about the size of a pea.

Beauty and uniformity in the dairy cow may not add much to the milk yield, but they certainly add value when it comes to selling the stock.

THE KITCHEN CABINET



WE ARE constantly reminding ourselves not to waste money, but are we as careful of wasted time, wasted talents and wasted opportunities?

CAREFULNESS IN LITTLE THINGS.

Most people are sufficiently watchful of the large leaks in household management, but the little leaks are those that often sink the great ship. It is necessary that a certain amount of care and thought should be directed toward even the simple processes of housekeeping, to make the machinery run smoother. If we are visitors in a home we do not care to hear the wheels go round, the most perfect running machinery, especially in the home, is the noiseless kind. The taking proper care of supplies after purchasing is hardly secondary in importance to intelligent buying.

Perishable food should never be bought in large quantities beyond the needs of the family.

Food left in paper bags that come from the markets are more apt to be flavored by the chemicals present in the paper. This is especially true of foods containing moisture.

Cereals of all kinds should be kept in glass jars, tightly covered, in a cool place.

Flour is highly absorbent and should be kept in a dry cool place.

Butter and milk should never stand uncovered.

Coffee should be bought in small quantities and ground as needed.

Eggs are porous, and for this reason should never be placed near food of strong flavor.

Soap should be unwrapped and piled in an open place to dry.

Fruit should be spread out to prevent decay, and all portions of decayed fruit should be at once removed.

Oiled papers that come in cracker boxes and other foods for wrapping should be carefully saved. They are useful for many things, wrapping sandwiches, eggs and are especially good after the second use, for cleaning flat irons while ironing.

One of the old-fashioned wire coffee stands make the best kind of a trivet for use in boiling puddings in a cloth. It is sufficiently high to hold the pudding well up from the bottom of the kettle.

When making ginger cookies, try a cup of coffee left from breakfast for the liquid instead of milk. The flavor is excellent with ginger.



SOME HOT BREAKFAST DISHES.

For a cold frosty morning a hot cake is most acceptable. Waffles are cakes that are more wholesome than the ordinary griddle cakes as they are cooked crisp and brown.

Waffles.—Mix and sift one and a fourth cups of flour with a fourth of a teaspoonful of salt and half a teaspoonful of soda. Separate the whites and yolks of two eggs, beat well and add one cupful of thick sour milk to the yolks; stir in the dry ingredients and add three tablespoonfuls of melted butter. Cut and fold in the whites of the eggs and bake on a well-greased waffle iron.

Oatmeal Muffins.—Mix and sift together one and one-half cups of flour, four teaspoonfuls of baking powder, one-half teaspoonful of salt, two teaspoonfuls of sugar. Cut in one-fourth of a cup of butter, add a half of a cup of milk gradually, one beaten egg and two tablespoonfuls of melted butter, with a cup of cooked oatmeal. Bake in muffin rings placed in a buttered pan.

Breakfast Savory.—Have ready two tablespoonfuls of butter, half an onion, a cup of diced bread, five eggs, a teaspoonful of salt and a few dashes of pepper; melt the butter in a saucepan, add the chopped onion and fry brown, add the diced bread, brown this, add salt, pepper and put into the other mixture, toss with a fork until the eggs are set. Serve immediately.

Baked Riced Potatoes.—Riced potatoes are excellent if put again through a ricer and placed in a buttered baking dish with plenty of seasonings and baked a delicate brown.



Not the cry, but the rising of the wild duck impels the flock to follow him in its upward flight.

—Ancient Chinese Saying.

DISHES A LITTLE OUT OF THE ORDINARY.

Variety is the spice of life, and often a change of food, a different manner

of serving and garnishing it will awaken a sluggish appetite.

When serving a baked or fried fish, and wish to add a sauce to further the food value and make it more attractive, try:

Green Sauce for Fish.—Make a good rich white sauce, using much rich milk, or better, cream in the making. Melt two tablespoonfuls of butter, add an equal amount of flour and when thoroughly cooked add a cup of rich milk or thin cream. Cook until smooth, add yolk of egg, beaten, and two tablespoonfuls of cooked spinach put through a sieve. Season well with white pepper and salt and fold in a quarter of a cup of thick whipped cream just before serving.

Baked Corn With Minced Meat.—Into two large cups of corn put a cupful of minced chicken or ham, one-half cup of thin cream; season with salt, pepper and onion juice, add one egg beaten. Mix and put into a baking dish, cover with crumbs and bake. Dot with bits of butter and serve.

Combination Salad.—For this salad there is a wide range, as one may use almost any vegetable or fruit. Too many kinds of either fruits or vegetables are not good to serve, or too many colors. A few string beans that have been marinated in a little French dressing and added to potato salad, makes a good combination.

Any little left-overs like corn or bits of green peppers are also an addition to a plain potato salad. One should not forget to add a little shredded onion for flavor to almost every vegetable salad.

A few cut-up dates or figs or raisins added to an apple salad, or in fact almost any fruit salad.

The pineapple is delicious to the taste, a remedy for indigestion and an all-round good fruit tonic. In combination with grape fruit it makes a most delectable salad with French dressing.



Nothing is hopeless to determination.

This earth belongs to us to do with as we fare.

—Herbert Kaufman.

SOME COMPANY SALADS.

When serving luncheon or dinner to a few friends, one likes to have a salad that is a little unusual for the occasion. Here are a few to choose from:

Goldsmith Salad.—Take a half cup of apples minced fine, one-fourth of a cup of minced celery, a fourth of a cup of chopped hickory nut meats, a fourth of a cup of chopped green pepper and olives mixed. Serve in green pepper cups and garnish with mayonnaise dressing.

Apple, nuts and celery served in head lettuce is a simpler salad and one that is generally liked. Mayonnaise may be served with this or a plain, less expensive, boiled dressing.

Salad plants contain but little nourishment. Their chief value lies in the mineral salts they contain, and when mixed with dressings of oil they are of as much value to the system as food.

Lettuce and green vegetables, if allowed to stand in a dressing, will wilt, so it is best to keep the lettuce crisp and fresh, and serve it freshly prepared.

Grape Fruit or Pomelo Salad.—There is no fruit salad equal in deliciousness to that prepared with carefully-removed sections of grape fruit added very gently to celery and nuts, and mixed with mayonnaise. Sometimes even the nuts will crush the fruit and the utmost care should be used in mixing the salad, otherwise the juice is crushed from the fruit and the salad is watery and unsightly.

Grape Fruit and Cherry.—Cut the ripe fruit in halves, using the large cherries when obtainable. Cut the grape fruit and remove the sections with care; let stand a few moments in French dressing to season. Serve with mayonnaise on lettuce and garnish with maraschino cherries.

Nellie Maxwell.

A Novel Salad.

A delicious and dainty salad—good at all times—is made by laying a slice of canned Hawaiian pineapple on a lettuce leaf. Heat a knife and spread cream or neufchatelle cheese over the pineapple; arrange pointed strips of pimento like the petals of a pansy over the cheese; heap mayonnaise in the center and put a stuffed olive on top.

Obedient Girl.

Mrs. Goaph—My daughter, you should cultivate a sweeter disposition toward the young men. Remember that "vinegar never catches flies."

Miss Goaph—But, mamma, you always caution me not to permit any of my young men to call.

Watts, Franklin—Love your neighbor as yourself, but don't take down your fence.

COST OF GRAIN GROWING IN CENTRAL CANADA

A careful canvass made of a number of men farming in a large way indicates that even with the extreme expense of harvesting the crop, which has been produced and put on the market for less than 55 cents a bushel. The average freight rate is not over 13 cents per bushel. This would make the cost of production and freight 68 cents and would leave the farmer an actual margin on his low-grade wheat of 17 1/2 cents and for his high-grade wheat of 19 1/2 cents; and though this is not as large a profit as the farmer has every right to expect, it is a profit not to be despised, and which should leave a very fair amount of money to his credit when all the expenses of the year have been paid, unless the value of low-grade wheat sinks very much below its present level. A matter of importance to the prospective settler is that of the cost of production. The following table has been prepared after careful investigation:

Interest on 320 acres, value \$30 per acre, 3 years at 6 per cent interest.....	\$1,720.00
Interest on horses, machinery, wagons, ploughs, harrows, etc., to operate 320 acres—say \$2,500 for 3 years.....	450.00
Getting 320 acres ready for crop first year, doing one's own work, with hired help, about \$3.50 per acre.....	1,120.00
Getting 320 acres ready for crop, second and third year, about \$1.25 per acre per year, or \$2.50 per acre 2 years one's own work and hired help.....	800.00
Seed per year, wheat, per acre \$1.25, 3 years.....	1,200.00
Seeding, 320 acres, 25 cents per acre, 3 years.....	240.00
Twine, 320 acres, 30 cents per acre, 3 years.....	288.00
Harvesting, 320 acres, 30 cents per acre, 3 years....	288.00
Marketing, 320 acres, estimate 20 bushels per acre per year for 3 years, 3 cents per bushel, or 9 cents per bushel for 3 years....	576.00
Threshing 320 acres, estimate 20 bushels per acre per year for 3 years, 6 cents per bushel per year or 18 cents for 3 years.....	1,152.00
Total.....	\$7,834.00

By wheat crop farm 320 acres for 3 years, average 20 bushels per acre per year for 3 years, or a total of 60 bushels, = 19,200 bushels at 80 cents per bushel..... \$15,360.00
Balance to credit of farm after 3 years operation, \$2,563.00 per year..... 7,526.00

"To operate 480 acres would cost less in proportion, as the plant required for 320 acres would do for the larger farm, and the interest on plant for the extra 160 acres would be saved."

The figures given may be open to criticism, but they will be found to be reasonably accurate, with a fairness given to the expense columns. There are those who profess to do the work at a much less cost than those given.

Another Duty.

"You are my wife's social secretary?" he asks of the beautiful creature who is seated at the small desk in the study. "Yes, sir," she smiles. "I am supposed to take Mrs. Bilrup's place in as many social details as possible."

"Well—er—she doesn't seem to be coming downstairs this morning, and it has always been her custom to kiss me good-by when I start for the office."—Judge.

Happy Future.

Apreros of the marriage at Reigate of Alfred Gwynne Vanderbilt and Mrs. Hollis McKim, a New York man said on the Olympic: "I met Vanderbilt at the Metropole at Brighton a few days after the ceremony, and I said to him, by way of a joke: "Well, is the course of true love going to run smooth?"

"Smooth and straight," said he. "There are banks on both sides, you know."

Cole's Carbolic quickly relieves and cures burning, itching and torturing skin diseases. It instantly stops the pain of burns. Cures without scars. 25c and 50c by druggists. For free sample write to J. W. Cole & Co., Black River Falls, Wis.

Thinking has often made me very unhappy, acting never has. Do something; do good if you can, but do something!—Mrs. Gaskell.

Constipation causes many serious diseases. It is thoroughly cured by Doctor Pierce's Pleasant Pellets. One a laxative, three for cathartic.

A pretty girl doesn't have to propose during leap year, and a homely one is afraid to—but there's the strenuous widow.

FILES CURED IN 6 TO 14 DAYS. Your druggist will refund money if it fails to cure any case of itching, burning, bleeding or protruding files in 6 to 14 days. 50c.

You can flatter silly girls by calling them flirts.

It's easier to look wise than it is to deliver the goods.

He is a poor chauffeur who doesn't know what he is driving at.



Keeps Your Stove "Always Ready for Company"

A bright, clean, glossy stove is the joy and pride of every housekeeper. But it is hard to keep a stove nice and shiny—unless Black Silk Stove Polish is used. Here is the reason: Black Silk Stove Polish sticks right to the iron. It doesn't rub off or dust off. Its shine lasts four times longer than the shine of any other polish. You only need to polish one-fourth as often, yet your stove will be cleaner, brighter and better looking than it has been since you first bought it. Use

BLACK SILK STOVE POLISH

on your parlor stove, kitchen stove or gas stove. Get a can from your hardware or stove dealer. If you do not find it better than any other stove polish you have ever used before, your dealer is authorized to refund your money. But we feel sure you will agree with the thousands of other up-to-date women who are now using Black Silk Stove Polish and who say it is the "best stove polish ever made."

LIQUID OR PASTE ONE QUALITY

Be sure to get the genuine. Black Silk Stove Polish costs you no more than the ordinary kind. Keep your grates, registers, fenders and stove pipes bright and free from rusting by using BLACK SILK ABRAVING ENAMEL. Brush free with each can of enamel only.

Use BLACK SILK METAL POLISH for brassware, nickel, tinware or brass. It works quickly easily, and leaves a brilliant surface. It has no equal for use on automobiles.

Black Silk Stove Polish Works STERLING, ILLINOIS



Relieves Backache Instantly

Sloan's Liniment is a great remedy for backache. It penetrates and relieves the pain instantly—no rubbing necessary—just lay it on lightly.

Here's Proof.
"I had my back hurt in the Boer War and in San Francisco two years ago I was hit by a street car in the same place. I tried all kinds of dope without success. Two weeks ago I saw your liniment in a drug store and got a bottle to try. The first application caused instant relief, and now except for a little stiffness, I am almost well."
FLETCHER NORMAN, Whittier, Calif.

SLOAN'S LINIMENT

is the best remedy for rheumatism, neuralgia, sore throat and sprains.

Miss E. Rim of Brooklyn, N.Y., writes: "Sloan's Liniment is the best for rheumatism. I have used six bottles of it and it is grand."

Sold by All Dealers. Price, 25c., 50c., and \$1.00.



KOW-KURE

MAKES COWS PROLIFIC

Don't sell your barren cow to the butcher. Kow Kure, the great cow remedy, will make her productive and prolific. Kow Kure is a medicine for cows only—a positive cure for ABORTION, SCOURS, MILK FEVER, LOST APPETITE, and all other ailments that make cows sickly and unprofitable. Send today for free book, "More Money From Your Cows."

DAIRY ASSOCIATION CO., MFRS.

Lyndonville, Vt., U. S. A.



FOR WALLS AND CEILINGS. KEYSTONIA AND KEYSTONIA CEILINGS. USES ON LINE PAINT: DOES LIKE WALL PAPER, YOU CAN WASH IT. A beautiful illustrated book of 24 colors and photographs sent free. Send your name and address to the KEYSTONIA VARNISH CO., Brooklyn, N.Y.

TAKE A DOSE OF PISO'S THE BEST MEDICINE FOR COUGHS & COLDS