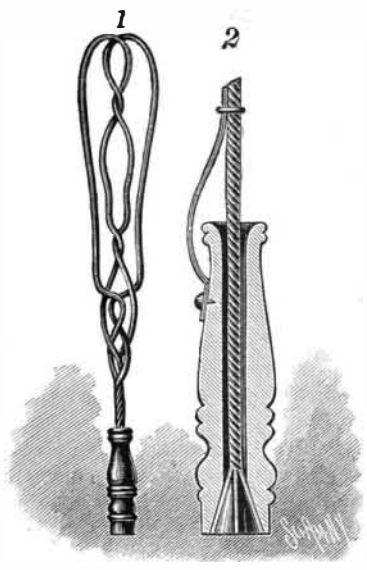
A NEAT AND EFFECTIVE CLOTHES BEATER.

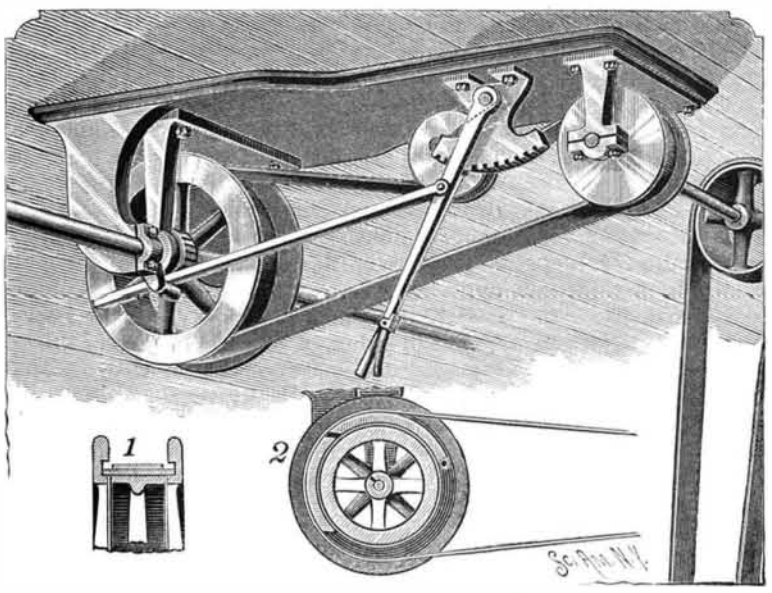
The illustration represents a light and simple device for switching or beating clothes, carpets, etc., which has been patented by Mr. Matthew Fitzpatrick, of Omaha, Neb. The beating portion of the implement is composed of two spring metal wires, bent and intertwined to form loops, as shown in Fig. 1. Near the handle portion the wires are twisted or braided to form a single body sufficiently long for insertion into the handle, shown in section, Fig. 2, and having a longitudinal aperture of a diameter greater than the twisted portion of the wires. The rear portion of the handle aperture is made flaring, whereby a plug may be inserted and driven to place between the separated inner ends of the wires to firmly fasten the beater portion to the handle. To assist in holding the wires in place and impart to them additional elasticity, a flat spring is held at one end by a screw or rivet to the handle and is attached to all the wires at its other end, near the point where the loop portion of the beater commences.



FITZPATRICK'S CLOTHES BEATER.

AN IMPROVED TENSION DEVICE FOR BELTS.

A device for attachment to any driving pulley, to dispense with the necessity of loose pulleys, and the use of a shifter in contact with the belt, is shown in the accompanying illustration, and has been patented by Mr. Anders G. Anderson, of Nestocton, Oregon. Fig. 2 shows a section through the drive wheel, and Fig. 1 represents the application on its periphery of a fender corresponding to about one-third of its circumference, this fender tying together disks loosely mounted upon the drive shaft at each side of the drive wheel. There is also a movable semicircular fender capable of sliding in the disks and upon the fixed fender, in connection with a friction pulley adapted for contact with the belt of the drive pulley, a lever being secured to the hanger of this pulley, with a pinion and rack attachment. To stop the revolution of the countershaft, the lever is thrown in the direction of the drive pulley, as shown in the illustration, throwing the hanger downward to such an extent as to elongate the belt. This movement of the lever also pushes forward a rod pivoted on the lever having rack teeth, which causes the disks at either side of the drive wheel to make a partial revolution, causing the two fenders to form a shield covering two-thirds of the drive pulley, whereby the belt is held out of engagement therewith.



ANDERSON'S TENSION DEVICE FOR BELTS.

RIFE'S AUTOMATIC HYDRAULIC ENGINE.

This engine (or ram) is very simple in its construction, and is designed to be kept in order at little or no expense. It is self-operating and constant in its action and has performed good work for elevating a continuous supply of water for irrigation, small towns, railroad tanks, factories, country residences, stock yards, etc. The engraving represents the size known as No. 30, weighing 250 pounds, and fitted for 3 inch drive pipe and 1¼ inch discharge pipe. One inch discharge pipe can be used where circumstances favor it.

On account of the raised base an automatic air feeder is drilled in the elevated base; this does away with taking off the air chamber to exhaust the air, which has to be done, when the old style is used, as often as once a month.

When working at full capacity, under an average fall of four to seven feet, the ram uses from 30 to 35 gallons per minute, but it is easily regulated to suit the flow from spring or stream to fifteen gallons per minute if necessary. Many of this kind are at work under various conditions, the fall on the ram varying from 15 inches to 15 feet, and forcing water from 15 to 250 feet high, and in some places to a distance exceeding one mile. For every foot fall this ram will elevate water twenty feet.

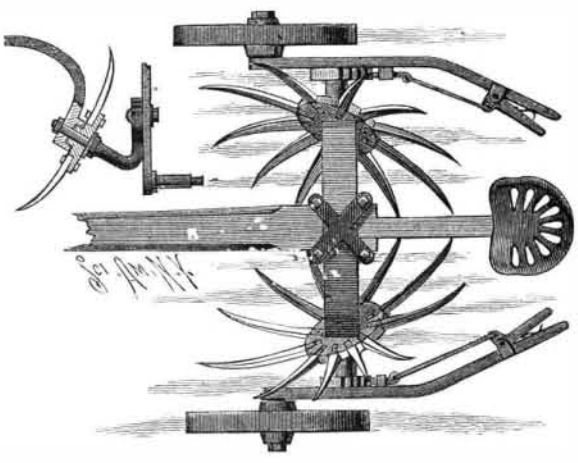
In Fig. 2 is shown the construction of the hydraulic engine, the air chamber being removed. The lower section or base is clearly shown, as well as the double-acting attachments, and how connected for properly delivering the spring water into the ram so that it may be forced, in a pure condition, by the power of the creek or river water, to any desired place. The spring water is conducted through the spring supply pipe, M, and check valve, O (which prevents its return), and is delivered into the base, B, directly under the delivery valve, which being removed shows the open end of the pipe from which the spring water flows, filling the entire elevated portion of the base with spring water, down to the place where the creek or river water discharges through the escape valve; so that when this valve closes, the entire force of the moving column of creek or river water through the drain pipe is exerted upon the spring water, driving a portion through the delivery valve into the air chamber, J, and is discharged through the pipe, P, to any required place. When the creek or river water has expended its force and recoils, a new supply of spring water promptly follows, replacing the portion just driven into the air chamber ready to be forced by the repeated action of the creek or river water.

The spring supply pipe, M, is provided with an overflow pipe, N, through which the spring water may momentarily escape when the check valve is closed, preventing any check or stoppage in the flow from the spring, being always ready to enter the ram and promptly follow the creek or river water the moment it recedes.

Additional particulars and an illustrated catalogue will be furnished free of charge by addressing Rife's Hydraulic Engine Manufacturing Co., Roanoke, Va., who are the sole owners and manufacturers.

AN IMPROVED POTATO DIGGER.

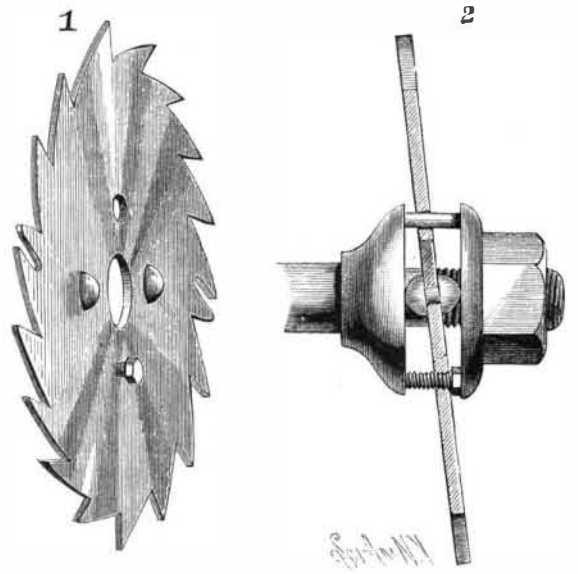
The illustration shows a plan view of a machine for digging potatoes and other vegetables, in which rotary forks are employed having radial tines adapted to occupy oblique positions in upward directions away from each other, while capable of being adjusted vertically. It is a patented invention of Mr. Charles H. Ayres, of Hightstown, N. J. The central portion of the frame is a saddle-like structure, secured by a clip to the draught beam, and united at its lower end on each side with a cranked arm, the inner end of each of which forms a pivot or axle for the rotary forks to turn upon, while their outer upturned ends have pivoted to them levers by which the main frame is raised or lowered to adjust the forks. The forward ends of these levers carry the axles upon which the running wheels turn. The small figure shows a partial sectional elevation of one side of the machine, illustrating its raising and lowering lever. The forks are thus adjustable also in backward directions toward each other, to gradually dig into the row from opposite sides and approach or come together in the rear, thus causing them to act as diggers and lifters and cleaners of the potatoes, and making the whole machine complete as a plow, without the aid of cultivator teeth in advance to break up the ground ahead of the forks.



AYRES' POTATO DIGGER.

AN IMPROVED WABBLE SAW.

The illustration represents a simple and efficient device by means of which the angle of the saw may be quickly changed and fixed. It is a patented invention of Mr. Lewis B. Rogers, of Mount Vernon, N. Y. Fig. 1 shows one side of a saw adapted for such



ROGERS' WABBLE SAW.

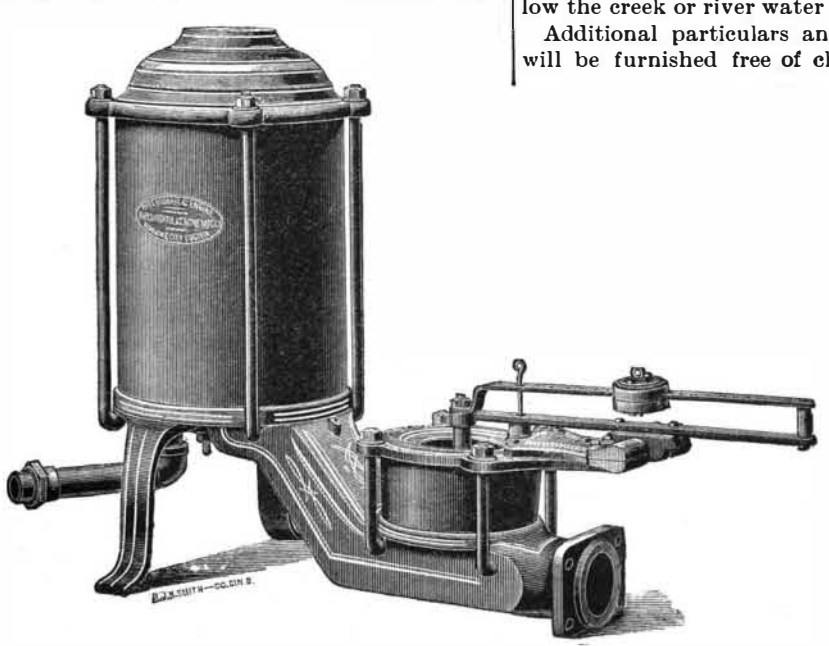


Fig. 1.—RIFE'S AUTOMATIC HYDRAULIC ENGINE.

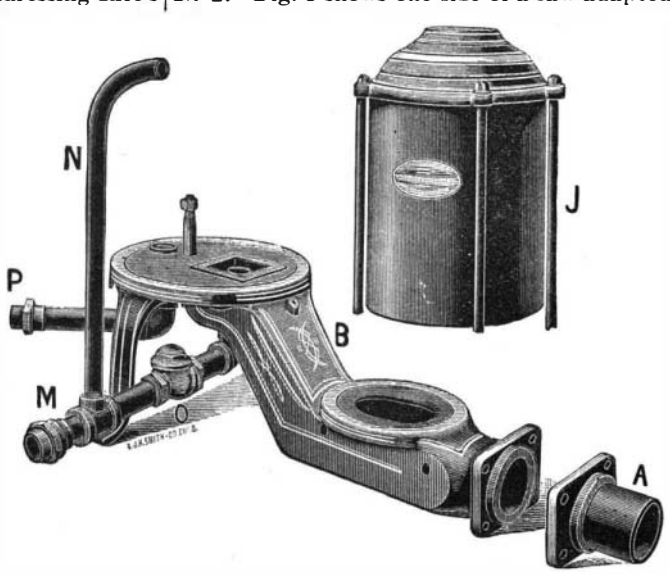


Fig. 2. RIFE'S HYDRAULIC ENGINE DISCONNECTED TO SHOW CONSTRUCTION.