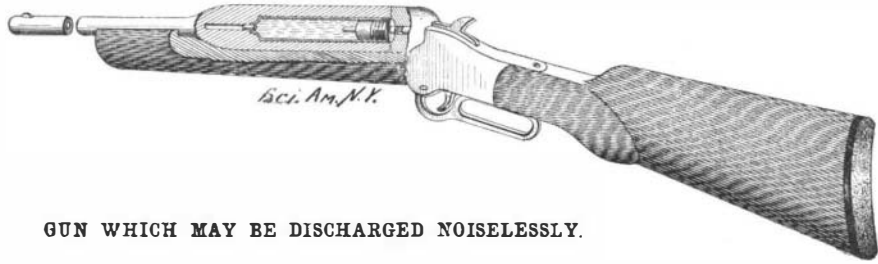




ODDITIES IN INVENTION.

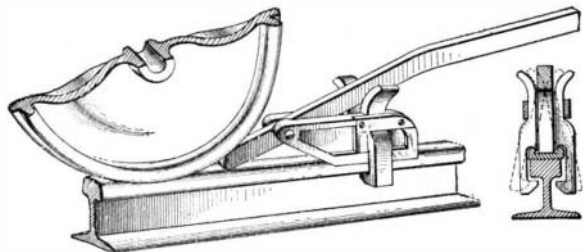
MEANS FOR EFFECTING NOISELESS DISCHARGE OF GUNS.—In the gun here illustrated a sudden expansion of the gases at the muzzle is prevented, thereby insuring a noiseless discharge. This is accomplished by interposing a liquid between the projectile and the powder charge. The liquid will serve to prevent or retard the escape of the gases, and thereby avoid the violent and sudden displacement of air. The gun barrel is provided with a piston chamber in which a piston is adapted to slide. Back of the piston is a shell which contains the powder charge. Between the piston and the projectile is sufficient liquid to at least fill the barrel of the gun, so that the projectile will be subjected constantly to a propulsive force until it passes from the barrel. All the parts may be contained in the cartridge, which will be handled in the usual manner. When the charge has been fired, the liquid serves first as a packing to prevent the escape of the gases generated. When the piston has reached the end of the cartridge the escape of the gases is controlled by a teat on the piston, which projects into the barrel. The gases are thus checked, and permitted but a slow flow through the barrel.



GUN WHICH MAY BE DISCHARGED NOISELESSLY.

When the charge has been fired, the liquid serves first as a packing to prevent the escape of the gases generated. When the piston has reached the end of the cartridge the escape of the gases is controlled by a teat on the piston, which projects into the barrel. The gases are thus checked, and permitted but a slow flow through the barrel.

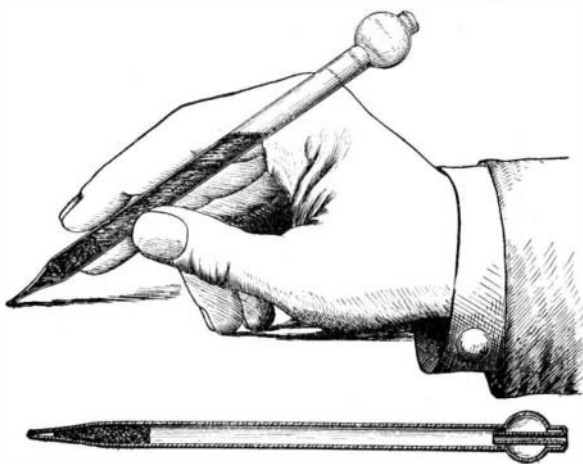
CAR MOVER.—A new device for moving cars has been invented by Messrs. H. C. Harrington and W. M. Towers, of Rome, Ga. It comprises a body portion between the arms of which the car moving lever is mounted. Two clamping devices are hinged to the side walls of the body portion. The upper ends of the clamping devices are turned outwardly from each other and at their lower ends they are provided with jaws. In operation the car mover is arranged on a track rail by moving the lever



CAR MOVER.

upwardly out of contact with the upper ends of the clamping devices as shown in dotted lines in the detail illustration. In this position with the flat base of the body portion resting on the rail the device is slid along until the forward end of the lever is moved well under the car wheel. Downward pressure is now exerted on outer end of the lever which serves to spread apart the upper ends of the clamping devices, thus causing the jaws to grip the head of the rail. With the car mover locked against rearward movement and the forward end of the lever under the wheel, continued downward movement of the free end of the lever will push the car wheel forward until the lever reaches the end of its stroke. The jaws are then released by raising the lever and the device may be moved forward to repeat the operation if desired.

FOUNTAIN PEN.—The simple form of fountain pen,



A SIMPLE FOUNTAIN PEN.

here illustrated, was designed with a view of producing an effective yet inexpensive instrument which could be readily filled with ink and which, when in inverted position in the pocket, would prevent leakage of the ink. The pen consists of an ink-holding barrel pointed at one end and provided at the other with a bulb into which a capillary tube projects. This tube forms an opening into the pen through which air can enter the chamber when the pen is in use and permit an even flow of the writing fluid through the small opening at the writing point. To fill the pen the point is inserted into the ink and suction is applied to the opposite end of the barrel. To prevent too rapid feed of the ink through the channel a packing of hygroscopic material, such as absorbent cotton, is placed in the barrel near the writing point. This packing, while permitting the barrel to be filled on the application of a vacuum, will also retard and control the flow of ink through the channel in the writing point.

ELECTRIC SWEATING-ROBE.—Among the recent inventions in medical apparatus is a sweating-robe heated by electricity for the treatment of such diseases as are susceptible to the influence of electricity applied



ELECTRIC SWEATING ROBE.

in the form of heat. The robe is made of two layers sewed together. A resistance wire arranged in zigzag folds is interposed between these layers. When in use the patient is wrapped in this robe, and a current of proper strength is passed through the resistance wire to generate heat. The arrangement of the wire poles is such as to evenly distribute the heat throughout the robe. By regulating the current varying degrees of heat may be obtained. On account of the zigzag disposition of the resistance wire, the robe may be readily rolled up into a small bundle.

PORTABLE POWER DEVICE FOR FARM WORK

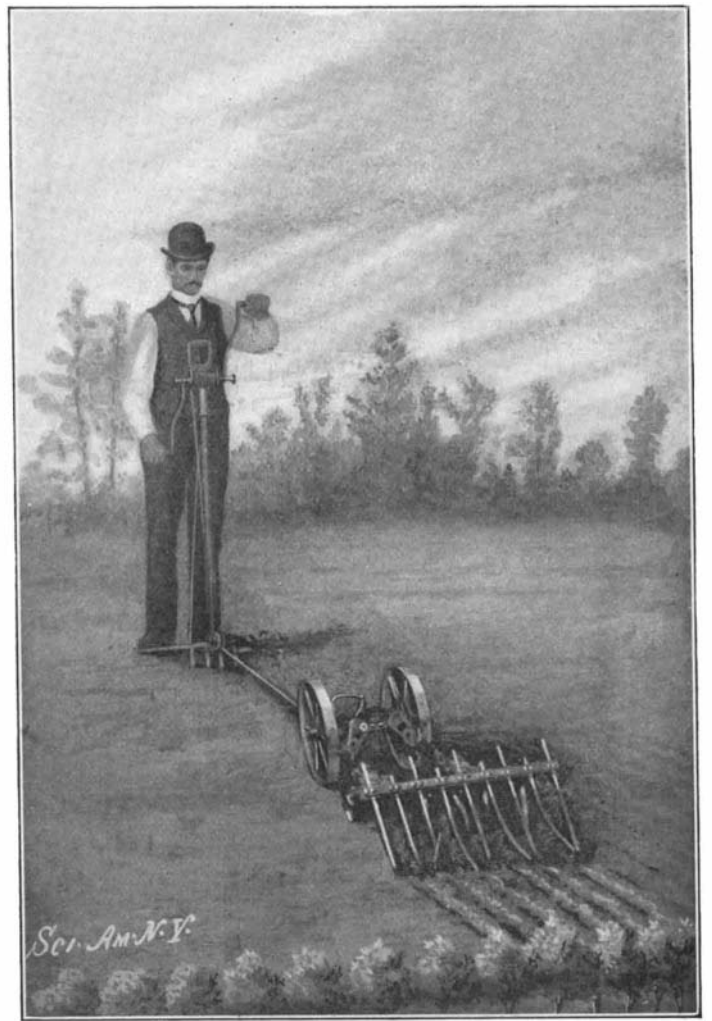
Notwithstanding the great advances already made in agricultural machinery, it is a fact that a great deal of the work on a farm, more particularly a truck farm, can be done only by the use of hand implements. The hand cultivator is particularly racking to the muscles because requiring, as it does, more than a single man's strength to force it steadily forward through the ground, the only way of operating it at all is by a series of intermittent forward pushes or blows, in which sufficient momentum is obtained at each push to hammer the hoe blades along through the ground. Obviously, then, more work could be done if the device were drawn steadily forward by means of a power-multiplying device. In order to be of practical value this device must be light, so that it can be easily carried about, and it must also be provided with an anchoring means by which it may be readily and quickly made fast. We illustrate an ingenious implement invented by Mr. David Lubin, of 278 West 113th Street, New York city, which was designed to meet the conditions above laid down. It consists of a winding drum and crank mounted on the upper end of a common fork. The tines of the fork, when buried in the ground, serve as an anchor, and the stability of the implement is further insured by a brace, which extends downward from the back of the fork handle and terminates in a light platform on which the operator stands. The weight of the opera-

tor is thus used to good advantage, and an anchorage may be readily obtained which will stand up under a considerable pull, especially since the rope, which draws the cultivator, runs under a pulley close to the ground, before passing up to the winding drum. Our illustration shows the device in operation, drawing a small cultivator along the ground. In a recent test it was found that a hand cultivator of this make broke up an area of 28 square feet to a depth of 3 inches in 11½ seconds, figures that indicate the waste of energy due to the chopping operation of a hoe or the hammering motion of an ordinary hand cultivator. With the improved method the cut follows a straight line and is of a uniform depth and width; and as the operator precedes instead of following the machine, there is no treading on and repacking the earth just broken. No experience is required to operate the device, and a farmer need have no apprehension lest his plants be hacked to pieces through the carelessness of some green hand. The implement can, of course, be so geared as to operate with but slight effort on the part of the operator, and should prove useful even for women in the care of their flower gardens.

Extensions of Manufacturing Time on Canadian Patents.

It has been the practice of the Canadian Patent Office to grant extensions of manufacturing time on Canadian patents from year to year under section 37, subsec. (a) of the Canadian Patent Act, which reads: "That such patent and all the rights and privileges thereby granted shall cease and determine, and that the patent shall be null and void at the end of two years from the date thereof, unless the patentee or his legal representatives, or his assignee, within that period or any authorized extension thereof, commence, and after such commencement, continuously carry on in Canada, the construction or manufacture of the invention patented, in such a manner that any person desiring to use it may obtain it, or cause it to be made for him at a reasonable price, at some manufactory or establishment for making or constructing it in Canada." But in the decision in the recent case of Power vs. Griffin it was held that the Canadian Commissioner of Patents exceeds his authority in granting a second extension of manufacturing time; for, having granted one extension, he has reached the limit of his authority, and is without power to grant further extensions.

In the case at bar, the facts show that the Canadian patent was granted on August 11, 1899, and that on June 8, 1901, an extension of one year was granted from August 11, 1901, in which to commence the manufacture in Canada. This extension was held to be valid and within the powers vested in the Commissioner. In May, 1902, a second extension of manufacturing time was granted, but the Chief Justice held that having once exercised the power given to him by the statute, the Commissioner was *functus officio*. The Commissioner might have extended the time for more than one year, but he could not twice exercise



PORTABLE POWER DEVICE FOR FARM WORK.

the same power. The court was willing to remit the case back to the Exchequer Court, in order to give the patentee an opportunity to show that he had commenced the manufacture of the invention in Canada before the expiration of the first extension, although his counsel had failed to plead it in the lower court, and in the application for the second extension it was admitted that the patentee would be unable to commence the manufacture before the expiration of the first extension. It was held that when suing for infringement it was necessary for the patentee to show that he had commenced the manufacture in Canada within two years of the grant of the patent or before the expiration of a single extension of manufacturing time. In no case is the Commissioner empowered to grant the extension of manufacturing time for more than two years, and the manufacture should therefore be commenced within four years of the grant of the Canadian patent, under the most favorable circumstances. In several early cases it was held that as the declaring of a patent invalid because of non-manufacture was in the nature of a penalty, it should not be done except when the Canadian public had suffered because of the failure to commence the manufacture in Canada.

The present case holds that under the old law, which was in force when these cases were decided, the Commissioner had final say as to whether this section of the patent law was observed and the courts did not have jurisdiction to overrule the liberal decisions of the Commissioner. Under the law now in force, the question can be reviewed by the higher courts in Canada, and, as has been stated, they require a strict compliance with the statute.

From the above it will be seen that all owners of Canadian patents should use the greatest possible care in future in working their patents in Canada within two years, or in case extension is procured, this extension should be procured for a period of two years instead of one year, as has been hitherto the practice. Those who have already obtained extension of working time in Canada should make special note of the fact that it will be impossible for them to procure a second extension.

Brief Notes Concerning Patents.

George Craig, an aged inventor of Lyons, Mich., has invented a scheme by which he says that watchmen in banks and other similar institutions will be entirely dispensed with. His invention consists of a secret chemical compound stored in the door of the

vault, which being feloniously opened allows an overpowering stench to fill the room, overcomes the intruder and renders him unconscious, in which condition he remains until he is discovered.

A collapsible lifeboat invented by Valdemar Engelhardt was recently tested by order of the Navy, War, and Treasury departments. The boat is 20 feet long and 6 feet wide. It has collapsible gunwales $2\frac{1}{2}$ feet high. It is claimed for it that it can be easily handled and stowed away. The sides are composed of canvas braced by stanchions. Around the gunwales is woven a fabric of waterproof material lighter than cork. The inventor claims that his boat is unsinkable.

During the recent shortage of coal the Standard Oil Company decided to make some experiments with the use of oil as fuel. The tests were made at the works at Greenpoint and Hunter's Point, near New York, and the result was so satisfactory that it is extremely probable that the oil burners will be adopted permanently and extended to the company's other works. The device used was the invention of Henry M. Pratt, one of the millionaire directors of the company, who has worked in every capacity in many of the different yards of the company, in order to familiarize himself with the details of the work done at the different plants.

Among the recent pamphlets issued from the Census Office is one entitled "Patent Growth of the Inventive Arts, 1870-1900," which contains a great deal of interesting information about the patent system of this country. It states that the Bell telephone patent was the one which made the greatest amount of money, and the next best record was that of the four-motion feed for sewing machines. The latter is said to have netted its owners \$32,000,000. The patent was first issued in 1850 for the term of fourteen years, and was twice renewed for terms of seven years. The authorship of the American patent system is discussed, and the credit is allowed to rest between James Madison and William Pinckney. Both offered orders which were allowed to go to the committee, and a clause finally reported and adopted which embodied the ideas of both gentlemen.

An automobile in which there is a total absence of belts, chains, or gearings has been designed by two New Yorkers, C. J. Dorticus and E. W. Schneider. The only noticeable feature of the vehicle is the construction of the wheels, each one of which contains an electric motor in the hub. The current is supplied from a dynamo hidden in the seat of the carriage and driven by an oil engine. One of the advantages of this sys-

tem is said to be that there is almost no occasion for a vehicle becoming stranded on the road. Even if three of the motors should become disabled, which is almost out of the question, except in case of a smash-up, the one remaining motor is sufficient to bring the carriage home. The vehicle is steered by shutting off the current to the wheels on one side while it is applied to those of the other.

The Donvig life-saving globe, recently mentioned in the SCIENTIFIC AMERICAN, was tested on November 19 in the English Channel, while a stiff easterly gale was blowing. It is stated that the Norwegian inventor's device behaved well. The globe, without its crew, was first towed out to sea between Dover and South Foreland. A strong wind raised terrific seas, but the globe rode over the waves like cork. Capt. Donvig and three men boarded the globe after it had been towed into quieter water. The globe was then taken out to sea, where the force of the wind and seas was given full play. The globe and its occupants was cast off, but showed no inclination to roll over. After tossing about for 10 or 15 minutes, Donvig and one of the sailors emerged from a manhole, and, lashing themselves on the outside of the globe, set a small sail, which they pulled through the manhole after them. The air funnel on the globe was used as a mast. By means of this diminutive sail Capt. Donvig managed to steer the globe in a fairly straight course for several miles back to Dover Harbor.

The lifeboat invented by Mr. J. Mitchell of Manitoba, was recently launched at Dartmouth, N. S., and tested by Capt. Bloomfield Douglas, R. N. R. The boat, which is cigar-shaped, was launched from a wharf 14 feet above the level of the water. After showing the easy manner in which the boat could be rowed, the crew made a test for the purpose of proving that the boat was self-righting. With the efforts of a number of men pulling on ropes, attached to both ends, the boat was overturned. Almost instantly, it recovered its proper position. The lifeboat is capable of seating 25 persons comfortably, but can hold more. Since the boat is entirely closed, its occupants cannot perish from exposure. The boat need not be launched from a sinking ship; for it is provided with a suspending rope which runs through its entire length on the interior, through holes at both ends of the boat, and which is attached to the davits. When all the passengers have been received on board the little craft, the rope is cut from the inside, so that the boat drops and is free. A full description has been published in the SCIENTIFIC AMERICAN.

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

CORN HARVESTER AND SHOCKER.—L. L. FREEMAN, KENNEDY, Minn. An economic construction of harvesting implement is provided by this invention, which is adapted to remove the ears of corn from the standing stalks and convey them to automatically-operating husking devices. The husked corn is then conveyed to an elevator which discharges the ears into a wagon or other vehicle traveling with the implement.

BAND-CUTTER AND FEEDER.—H. J. FORTNER, Hazleton, Iowa. This invention provides an improved band-cutter and feeder arranged to properly cut the bands of the sheaves, to spread the same after the band is cut, and to feed the grain to the drum of the threshing machine in quantities corresponding to the capacity of the drum, thus preventing over-feeding and consequent bad threshing of the grain.

DEVICE FOR COMPRESSING CORN-SHOCKS.—R. W., R. R. and B. E. JOSLIN, Manchester, Iowa. This device is especially adapted for compressing corn-shocks at any point in the height of the shock, and will hold the shock under compression until it can be tied. The construction of the device is such that it may be economically and readily applied and can be operated by one individual.

ADJUSTABLE STACK-PROTECTOR.—A. QUARRIE, Oak Lake, and T. M. MORGAN, J. S. GIBSON, and C. S. COATSWORTH, Brandon, Canada. Among other things this invention has for its object the provision of a cover adapted to be placed over a stack in such manner as to hinder rain or snow from injuring the material forming the stack and also to effect the saving of labor to the farmer in that the latter will not be required to lift or pitch the sheaves of grain as high as in ordinary stacks. The cover is so arranged that the wind cannot enter and blow it off.

STRAW-STACKER.—C. H. BRUNGER, Geneseo, Ill. The construction of this straw stacker is such that it is capable of being used in connection with any separator. The straw will be carried from the hopper to the stacker without injury to the straw, and the action of the racking mechanism will not be effected by any lumps of straw upon which it is required to act.

DISK GRAIN-DRILL.—J. W. SMITH and J. M. COUGHLIN, Liberty, Ind. This invention has for its object to provide a grain-drill which will be simple, compact and efficient. Heretofore in devices of this char-

acter the seed conduit has been usually located on the convex side of a concavo-convex disk and made in one piece. In the present invention the seed conduit is made in two sections, the upper one being located on the concave side of the disk, and the lower section on the convex side, the two sections communicating through a hollow hub carrying the disk.

CULTIVATOR.—F. L. LEE, Farmington, Mich. The cultivator is especially adapted for the cultivation of beets and is operated by a check wire—the same, for example, which was employed to operate the device depositing the beet seed. In this manner the ground between the beets, and quite close to the beets, is dug up or cultivated and the cultivator blades or hoes are automatically guided at the proper time around the beets, thus preventing them from touching or in any manner injuring the plants.

HAY-STACKER.—C. W. NICKELL, Jamesport, Mo. An improved hay-stacker of simple and durable construction is provided in this invention. The implement is so designed that the load can be easily raised and lowered without the necessity of backing up the draft animal used. The apparatus comprises essentially three parts, to wit, a support or mast, a fork-carrying boom, and a power mechanism for raising or lowering this boom. These parts are so designed that they can be detached one from the other, so that the entire apparatus can be readily transported.

Engineering Improvements.

ROTARY ENGINE.—S. E. CAROTHERS, Conroe, Texas. In the present invention the rotary piston is operated concentrically within the cylinder and is provided with blades which bear against the inner surface of the cylinder. Sliding abutments serve to divide the space between the cylinder and the piston body into chambers which are at the same time properly connected with the steam inlet and the exhaust. The abutments are withdrawn to clear the piston blades by a cam movement.

LUBRICANT ATOMIZER.—C. C. BALDWIN, Moline, Ill. Means are provided in this invention for lubricating the valves and interiors of steam engine cylinders, pump cylinders, or like portions of other motors using live steam, air, gas, etc., as a motive agent. The device employed is adapted to reliably distribute oil in an atomized condition to the interior parts of the steam motor requiring periodic or continuous lubrication.

Hardware.

SPIRIT-LEVEL.—L. DESMARAIS, New York, N. Y. In this spirit level the spirit tube is adjustable and easily removed. The spirit level comprises a pair of revolvable sleeves disposed concentrically to each other, one of these sleeves being provided with a spirit tube, and means controllable at will for rotating one of these sleeves independently of the other.

CURTAIN-FIXTURE.—C. B. LAKIN, Washington, D. C. The object of the present invention is to provide a novel construction by which a curtain may be raised and lowered, as usual, may be secured with its roller at the top of the window, or at any lower point, and can be readily operated from one position to the other in such manner as to admit light from the upper or lower portion of the window, or from both upper and lower portions.

WIRE-STRETCHER.—B. MYERS, Groveport, Ohio. A tool which can be conveniently applied and operated for stretching wire is provided by this invention. The jaws of this wire stretcher are so arranged as to grasp the wire simultaneously the entire length with equal pressure throughout, thus preventing the wire from being kinked or nicked.

Heating, Ventilating and Plumbing.

OIL-BURNER.—W. S. JENKINS, Cleburne, Texas. Mr. Jenkins' invention relates to improvements in oil burners particularly for use with steam boilers. The construction of the burner is such that a very high degree of heat may be produced with a comparatively small amount of hydrocarbon oil, and in which very little steam is required for vaporizing the oil.

OIL-BURNER.—C. W. SIEVERT, Los Angeles, Cal. An improved device for burning oils has been invented by Mr. Sievert. The device is adapted more particularly for burning the heavy oils, such as crude petroleum, and it comprises certain novel features of construction by which the oil is effectively gasified and mixed with air so as to produce thorough combustion.

VENTILATOR.—G. G. BRITTON, Anniston, Ala. The invention relates to improvements in ventilating cowls for use on buildings and other places. The device is so arranged that the entrance of wind, from whatever direction it may blow, is effectually excluded, so that the outside air will not have any effect on the draft through the tubular ventilator stem.

Mechanical Devices.

YIELDING ROLL.—B. F. CONKLE, Junction City, Ohio. Mr. Conkle's invention is an improvement in yielding rolls for use on planing machines and the like, wherein it is desired to form the roll in sections, each section being capable of an independent yielding movement so the different sections may adjust themselves to the varying thickness of the material fed to the machine.

STEAM-SHOVEL.—F. FRANZ, Wallace, Idaho. This invention relates to machines for shoveling and conveying earth, rock and like substances. The shovel travels along a boom which may be swung to any desired position and conveys the earth to an endless conveyer. The endless conveyer carries material up an incline and dumps it from the high end of the conveyer into any suitable receptacle.

BOOKBINDING-MACHINE.—W. E. BLAUVELT, Brooklyn, N. Y. This machine is designed to affix the crash, the head bandings and the paper lining to books preparatory to the final binding. The machine in addition to the mechanism for performing the above mentioned functions in the sequence named, has a novel and simple device for folding the head bandings, inserting the cord and cutting the material in proper lengths from a roll. After affixing the head bandings the book is transferred by the machine to the device for applying the paper lining, the paper being first drawn through an adhesive and cut to the required length. While the machine is in constant operation, each applying device is performing its particular function on a book and therefore the work is rapidly done. Each applying device comprises two platens which operate on the material with a lateral rubbing and smoothing motion, thus insuring a smooth and well finished product.

POWER-HAMMER.—H. FELDUS, Hallam, Neb. This power-hammer, which is of a very simple construction and is very effective in operation, is more especially designed for light work, such as hammering plowshares, plow points and other articles. The arrangement is such as to enable the operator to control the hammer for the latter to strike quick, sharp blows, or slow, light blows, according to the nature of work under treatment.

DITCHING-MACHINE.—CLEMENTINE CHAPMAN, Dolores, Colo. Among the improvements provided by this invention is the provision of a simple, compact, and cheap machine, which is especially adapted to the work of cleaning out irrigating and draining ditches, so as to restore them to a good condition for service.