

IMPROVED SAND CONVEYOR.

Rufino C. Garcia, San Antonio, Texas, assignor to himself and Aug. Robin.—This invention relates to a machine constructed for taking up and conveying sand into a suitable receptacle. The machine may be pulled by hand or horse power over the sandy ground, the same being first loosened by a series of detachable teeth. A drum is provided with a number of circumferential cutting knives, and constructed of sufficient weight to sink them into the sand, and pack the same tightly in the spaces or sections between the knives, and is retained in the sections and carried up between the knives to scrapers, passing them over to an inclined plate that is secured rigidly on side supports of the tongue frame, and over a hinged apron to a suitable receiving box, which is supported on the tongue of the machine, and is readily dumped or removed when filled with sand. In this manner sand for various purposes is readily taken up and collected in cheap and effective manner, requiring only one attendant, either for driving the horse or pulling and discharging the machine.

IMPROVED GAS-WASHING APPARATUS.

William M. Cosh, Conshohocken, Pa.—The form of this apparatus is similar to the ordinary gas-washing box, and has an inclined longitudinal partition, which, in a transverse direction, is horizontal. A shelf or partition extends from a point near the outlet gas pipe near to the opposite end of the washing box. Plain transverse ribs or brakes project downward from the under surface of the shelf, and notched transverse ribs are placed between these ribs and project in the same direction. An inlet gas pipe leads from the gas generator, and projects downward through the partition, and an outlet gas pipe leads from the washing box. There is an overflow pipe, through which the water may escape; and a blow-off pipe for removing the water when required. A door is hinged to the lower end of the shelf, and is capable of being thrown against the end of the box by gas pressure. The operation is as follows: The box is filled with water, so as to completely cover the inclined shelf, and the supply is maintained by a spring tube, in the usual way. Gas is forced in through the pipe and follows the under surface of the shelf or partition toward the outlet pipe. In its passage it is deflected by ribs, and thrown down a number of times before reaching the upper end of the partition. By this means the gas is brought into contact with a greater surface of water than in boxes of ordinary construction.

IMPROVED VALVE GEAR FOR STEAM ENGINES.

James H. Davis and William White, Winnsborough, Tex.—The object of this invention is to furnish an improvement in steam engines which shall be so constructed as to give a full application of the steam and a free exhaust at regular intervals, which will enable the engine to be easily reversed, can be easily attached to any engine, which will enable an engine to be worked by water pressure, will run smoothly and with very little friction, and will be very durable. The crank wheel is made with a projection rim, to the inner surface of which is attached, or upon it is formed, an oval or double inclined projection or cam. The projection or cam at each half revolution of the wheel strikes against one or the other of two pins, which have rollers placed upon them to diminish friction, and are attached to a sliding bar at such distance apart that they may be struck alternately by the projection, to give a reciprocating movement to the bar. The bar slides in the bearings in the supports, and to it is attached the stem of the inlet valve, which slides in the steam chest and admits steam into the ends of the cylinder alternately. The end of the bar is pivoted to the end of an arm rigidly attached to an upright rock shaft, which is provided with two rigid arms projecting in opposite directions, and at right angles with the arms. To the ends of the arms are pivoted the outer ends of the stems of the outlet or exhaust valves, which are placed at the ends of the cylinder, and from which the exhaust steam passes directly down into the heater. The rock shaft is provided with a handle to enable it to be turned to reverse the engine.

IMPROVED TIME LOCK.

John B. Overmyer and James A. Huston, New Lexington, O.—The object of this invention is to so improve the time lock that the setting of the lock is facilitated and accomplished in a simple manner without interfering with the time pieces that work the bolt-releasing mechanism, and also the stop mechanism, arranged to be thrown at a certain fixed time in automatic manner. The invention consists of a time lock in which the releasing nut is moved by time mechanism to throw out the lever stop and release the bolt at the proper time, the nut being reset by a toothed drum gearing with the toothed nut. The lever stop is retained in position by the bottom arm of a pivoted lever that is automatically worked by the pointer of the nut engaging an adjustable rick of the retaining lever. To secure the reliable working of the lock, two or more time movements and releasing devices may be arranged, so that in case one timepiece should stop the other would release the bolt. By a proper adjustment of the disk the bolt may be thrown, while the stop is retained in raised position by an arm until the pointer, bearing against the disk, carries the arm back and allows the stop to drop. Thus the additional facility of the automatic throwing of the stop of the time lock at a certain fixed time may be accomplished, which adds greatly to the usefulness and convenience of the lock.

IMPROVED HYDRAULIC ELEVATOR.

George Ball, Springfield, Ill.—This invention is designed to furnish an apparatus for removing iron piles, steel ingots, and other heavy pieces of iron or steel from heating furnaces; also for removing, in packing-houses, dead animals from scalding vats, and for other purposes; and the invention consists of a steam or hydraulic ram, connected by suitable transmitting pulleys and ropes with standards of the different furnaces, the ram being operated by starting cords connected to the steam entrance valve, and provided with devices for exhausting the cylinder and cushioning the ram piston. For the purpose of removing a pile or other body from the furnace the cushioning and exhaust rod tappets on the ram are adjusted to give a stroke equal to one half length of the distance to which the pile is to be moved. The buggy is placed under the fore plate of the furnace door when the heater's helper takes the tongue attached to the chain, introduces them into the furnace, and grasps the pile. The helper assumes a position near the starting rope, and, when all is ready, pulls the same, at first gradually, to take up the slack of the same. Steam is thereby admitted into the cylinder of the ram, the piston propelled upward, the line of rope taken up, and the pile delivered on the buggy in good shape. The starting rope is then released by the helper, so that the spring of the lever shuts off the steam, exhausting that in the cylinder, and causing the piston head to return to its original place, ready for the next pull. In case the spring should fail to work, the whole stroke is made by the piston, until the crosshead strikes the exhaust tappet, accomplishes the exhaust, and shuts off the steam, bringing the piston back to rest.

IMPROVED GIN SAW FILING MACHINE.

Albert S. Eastham, Navasota, Texas.—This invention relates to improvements in machines for filing the saws of cotton gins in a reliable, rapid, and uniform manner; and the invention consists of a revolving circular file, that is withdrawn by suitable mechanism to admit the intermittent feeding of the gin saw one tooth, which is accomplished by a feed hand and drag or check pawl. The edges of the saw teeth are sharpened by means of reciprocating files at both sides of the saw. The rotary file is thrown out of the teeth of the saw when the saw-feeding device moves the saw, being again raised to filing position in the next notch. The file lever is weighted in suitable manner, so as to carry the rotary file back into filing position as soon as the lever is released by the rear arm of the rock lever. The rotary file is pressed against the saw with equal force, whether the same is in or out of circle, or by the weight of the file lever, which weight is moved back or forward thereon to obtain the desired pressure of the file on the saw. All the saws on the cylinder can be brought to the same diameter and in circle by placing the circular file to the saw most out of circle,

and to that part of the saw nearest to the center of oscillation, and passing a pin through the rear end of file lever and the rear guide post of the same.

IMPROVED TRACTION ENGINE.

Leander Walker, Dallas, Texas.—This invention has relation to traction engines for running on common roads and rails, and to be used for drawing plows, and as a motive power generally. The nature of the invention consists mainly in transmitting motion to the driving and transporting wheels by means of the friction of a long rotating shaft inclosed inside of elongated hubs of said wheels. The invention further consists in combining friction pressure wheels with the hubs of the driving wheels for increasing the friction on the latter, as will be explained. By means of the screws the wheels can be very forcibly pressed against the hubs, and any desired degree of friction produced. The power which drives the wheels acts through the medium of the axle, which may turn faster than the wheels; consequently the amount of friction can be so regulated that the wheels cannot slip on the ground, however great may be the power applied to turn the axle.

IMPROVED CANAL BOAT.

William P. Fest, Chicago, Ill.—The object of this invention is to furnish a new construction of canal boat, and improved system of propelling the same, by which the water is not agitated in the least, and the washing of the banks prevented, the propelling mechanism being arranged with equal facility in new or old boats, so as to enable them to travel at considerable speed and in either direction. The invention consists of a canal boat having a central water channel extending at the bottom of the boat from the bow to the stern, and admitting and discharging the water through apertures of equal size in the hull of the vessel. A spiral propelling screw is arranged inside of the water channel at the center of the boat, and the channel divided into arms or branches back of the same, that unite to a single channel before the water leaves the boat. The boat may be propelled with considerable speed in forward direction, and also reversed, as the screw works equally well in either direction; but when the boat is required to be regularly propelled in both directions, a second set of branch channels has to be arranged at the front part of the boat, in connection with side and lateral gates, for establishing either communication with the central channels or with the branch channels. The entire propelling apparatus of the boat takes up but a small space at the bottom of the boat, and may be built at comparatively small cost, furnishing thereby a canal boat that may be run as a towboat or as a regular canal steamer, which, by the perfectly still state of the water at the discharge opening of the stern, has not the least injurious influence on the canal banks.

IMPROVED CAR BRAKE AND STARTER.

Alexander Winston, Fayette, Iowa.—The object of this invention is to provide for street cars and other purposes an improved rotary cumulative brake, by which the power lost in stopping the car is stored and utilized for starting the same; and the invention consists of friction wheels worked by contact with the car wheel when applied by the brake lever, producing the winding up of one or more springs, and the locking of the same by pawl and ratchet devices on the shafts of the friction wheels until the pawls are released by a treadle, and the power stored up in the springs applied to the wheels for starting the car. The brake mechanism may be used in either direction, the friction wheel shafts sliding in guide slots of the car frame. As soon as the car is desired to be started the brake lever is held in backward direction, so as to press the friction wheels against the car wheels, but at the same time a treadle, operated by the foot, lifts one pawl out of the ratchet, said pawl releasing, by its pivot joint, the second pawl, so as to throw the joint power of the springs on the friction wheels, and by the same on the car wheels, assisting thereby materially in starting the car. The springs of one shaft coil in opposite direction to that of the other, so as to admit the cumulative working of the brake and starting device in either direction.

IMPROVED ENGINEERS' PLOTTING TABLE.

Albert R. Crandall, Lexington, Ky.—The object of this invention is to furnish for engineers and surveyors an improved plotting table, by which the field notes may be plotted in rapid and accurate manner at a saving of time, and without taxing the eyes to injury in the least; and it consists of a sliding and slotted table carrying the plotting paper, in connection with a base disk and the foot or clamp of the protractor and retaining weights. The foot or clamp and the protractor are arranged on a shaft vertically above the center of the base disk, the shaft having a prick point at the lower end for marking the stations. A suitable lever arrangement raises alternately the weights from the paper, and lowers the foot clamp of the protractor, or raises the foot clamp and lowers the weights, which adjust themselves by pulleys on the concave arms. The protractor turns the paper, and is adjusted by hand, and by a tangent screw and spring clamp, to the vernier. The foot clamp carries a thread, adjustable by screws, in line with the zero points of the protractor, to set the paper by and to detect errors in case any should occur. The sliding table is operated by a micrometer screw, whose head is divided at the circumference, being arranged to turn freely on the shank of the screw, and also to be clamped to a fixed head by a thumb screw, so that each measurement may start from the zero point of the head.

NEW MISCELLANEOUS INVENTIONS.

IMPROVED FIRE ESCAPE LADDER.

Henry B. Walbridge, Brooklyn, N. Y.—The object of this invention is to provide a portable and convenient ladder, more particularly designed for use as a fire escape, but which may be used for other purposes. In construction there is a pole, having a disk or bridge piece at or near its center, over which the stay rods are stretched, which rods are fastened to the pole near its ends, and serve to stiffen and strengthen it. In one end of this pole there is a pulley, and to the other end a crosstree is attached, which is provided with two spikes or points. This pole in the present case is hinged or pivoted to a truck. A jointed or rope ladder is attached to the crosstree by means of ropes or chains, and to the free end of the said ladder a rope or chain is attached, which runs over the pulley and downward toward the foot of the ladder, and is operated by hand or by means of a suitable windlass. A brace is pivoted to the pole which is inserted in the first joint of the ladder, to keep it the proper distance from the pole. In a case of fire, when invalids or timid persons are to be removed from upper parts of buildings, a box or basket is provided, which is secured to the ladder by means of a hook. This box, together with the ladder, may be raised and lowered by means of the rope or chain.

IMPROVED LAST.

John T. Poole, Benton, New Brunswick, Canada, assignor to Samuel J. Parsons.—The object of this invention is to furnish an improved device for securing the block to the last, which shall be simple in construction and reliable in use. This last is so constructed that when the block is pushed down into place in the recess in the last a hook and catch will engage with the rear and forward edges of a plate and fasten the bar securely. When the block is to be withdrawn, a hook is inserted in the hook hole in front of the upper arm of the catch lever, and as the hook is drawn upon the catch will be raised, which will allow the hook to be withdrawn from the plate and the block to be removed.

IMPROVED STIRRUP FOR OIL-WEEL MACHINERY.

Frans A. Segerdahl, Karns City, Pa.—Stirrups as ordinarily constructed for oil pumps are liable to breakage, and are a constant source of trouble and expense. The object of this invention is to provide a stirrup which shall obviate these difficulties. The side pieces of the stirrup and the bar receives the strap from the walking beam. Shoulders are formed by drawing in the side pieces to receive the pitman. Stays or braces are

formed on the stirrup, that extend from the lower end of the side pieces above the shoulder. The eyes thus formed are filled with wood or other suitable material, and the sides of the stirrup are drilled to receive bolts having beveled heads. Beveled washers having flanges that embrace the sides of the stirrup are placed under the nuts of the bolts. Stirrups as commonly made are not provided with the braces, and are constantly breaking at the shoulders. By means of this improvement this difficulty is entirely obviated.

IMPROVED ARTIFICIAL LEG.

Cornelius Collins, Albia, Iowa.—This invention consists in a novel construction of the ankle joint, whereby a perfectly free articulation is allowed without noise. The lower end of the block forming the lower portion of the limb is curved, leaving a reduced bearing, which will allow a free motion of the foot forward and backward as well as laterally. The front concave surface of the block rests upon a cushion, and is held down thereon by means of a joint formed of two bolts. The joint thus formed will allow free play, and the cushion will prevent shocks in walking. In rear of the joint is a hook, which is connected by an eye joint with a bolt fixed into the block. The hook enters a recess made through the foot section and engages loosely with a pin fixed into this section. This hook joint also allows the foot to articulate forward and backward, as well as laterally. The bottom of the foot is arched out and the space filled with hair, or some other suitable material which will prevent noise in walking and afford elasticity. The cushion thus formed is covered with a piece of leather, which forms the joint for the front section of the foot. This knee spring is a strong strip of india rubber, fastened in such manner that it will act to strengthen the leg when fixed.

IMPROVED CIGAR-BUNCHING MACHINE.

Charles H. Schneider, Cold Spring, N. Y.—This invention relates to an improved machine for making cigar bunches in rapid and uniform manner, so as to facilitate and expedite the manufacture of cigars; and the invention consists of a crank roller, a sliding roller, moving along brackets, with inclined parts and recesses, a lower adjustable roller, and of an endless band or apron, that passes around the rollers and revolves with the same. For working the machine, the binder is first placed upon the band or section of the apron between rollers, the sliding roller having been placed into forward position against the shoulders of the brackets. The filler, of any size, is then placed upon the binders, the fingers readily determining when the required quantity of tobacco is therein. The binder and fillers are then gradually pressed down between the two rollers, the sliding roller being brought forward on the inclines of the brackets until it comes into contact with another roller, when it drops into a slot and remains in fixed position therein. After the whole series of aprons has thus been filled the crank roller is revolved three or four times, and the bunches then taken out, being ready for the moulds. By arranging a number of aprons and rollers in one machine, the operator passes first along the entire series of aprons, and charges the same with binders and fillers, and turns finally the crank, forming the bunches, and throwing them out by a slight backward turn of the crank, enabling thus the turning out of a large number of uniform bunches in quick and economical manner.

IMPROVED GAME APPARATUS.

James F. Spence, Brooklyn, N. Y., assignor to himself, Calvin E. Davis, and Royal P. Wilkins.—This invention relates to games which are played with balls; and the nature of the invention consists, first, in a circular table having a central conical depression, surrounded by an inclined shelf and inclosed by a rim or guard, which is of convolute form, with one or more gates or openings leading upon the shelf, the said central conical depression being provided with radial channels flaring outwardly and adapted to receive the balls which are projected on the table, and to indicate by figures the different amounts won by the players; second, in a blowpipe of novel construction, which is provided with a spring in its enlarged end, and adapted for propelling the balls upon the table by blowing through the pipe with the mouth.

IMPROVED HAIR CRIMPER.

John Leeming, Poughkeepsie, N. Y.—The object of this invention is to provide an inexpensive, efficient, and convenient device for crimping hair. It consists of a hairpin, similar to those in common use, differing only in having the bent part that unites the two prongs straight. Around this portion a wire is wound several times, and its ends are twisted together, forming a tongue, which is a little longer than the hairpin. This wire is made of flexible material, preferably of copper. The hair is interwoven with the prongs of the hairpin in the usual way, and the wire is bent around it. This device is small and light, and quickly and easily applied, and the hair may be crimped near its roots, and without the use of clamps.

NEW AGRICULTURAL INVENTIONS.

IMPROVED HAY ELEVATOR.

Julius L. Malcolm, New Athens, O.—The object of this invention is to facilitate the hoisting of the hay from the wagon to the mow in quick and convenient manner, the carriage being returned and locked after the load is dropped to the starting point above the wagon; and the invention consists of a track beam of inverted T-shape hung from the rafters of the barn and supporting the wheeled carriage. The pulley over which the hoisting rope passes has side projections, which are engaged by a fulcrum lever with end catches for supporting the load. The catch lever has a pendant stirrup that is raised by the sheave of the fork, so as to release the catch lever from a stop block of the track, and drop the same on the projections of the pulley, to retain load below the carriage until it arrives at the point where it is to be dropped. The catch lever is released from the recessed and curved stop block of the track by the contact of the sheave of the hay fork when the load is hoisted up to the track. The sheave raises the pendant stirrup of the catch lever, and throws the same out of the stop block, so as to clear the same and admit the forward motion of the carriage along the track. The catch lever engages then the catch pulley, and suspends thereby the load below the carriage. When the load arrives at the point where it is to be dropped, the trip cord is pulled and the fork opened. The carriage returns then along the inclined track, or by the action of the weighted cord, to its place above the wagon, where the catch lever is raised from the projections of the pulley by passing along the curved stop block, so as to release the pulley and admit the lowering of the fork to the wagon to be reloaded and hoisted as before.

IMPROVED GRAIN CRADLE.

George E. Clow, Seymour, Ind.—This improvement relates to providing a socket for the post of the cradle head, and to the construction whereby said socket is made adjustable and detachable, the object being, first, to enable the angle of the cradle head to snath and scythe to be changed at will, and second, to enable the parts composing the cradle to be separated for shipment.

NEW TEXTILE INVENTIONS.

IMPROVED CLOTH-MEASURING MACHINE.

William D. Porter, McComb, O.—This invention relates to a machine or apparatus in which cloth or other kind of fabric can be measured while being wound upon a roller. The board forming the center of a bolt of cloth or other fabric is clamped endwise between two aligned and axially adjustable rotary shafts, and as the cloth unwinds it passes over a reel, by which its length is measured, and is then wound upon a roller arranged parallel to the reel. In being unwound from said roller, it passes between two rolls and is thereby pressed and smoothed before being rewound upon the board.