

AN IMPROVED DITCH MAKING MACHINE.

The invention illustrated herewith is designed to facilitate the making of ditches, with smooth and graded bottom, for the laying of drain tiles, sewer pipes, and all other purposes where such excavation may be required, the machine, as may be seen by the illustration, cutting out the work smoothly and evenly, and depositing the earth well to one side of the ditch.

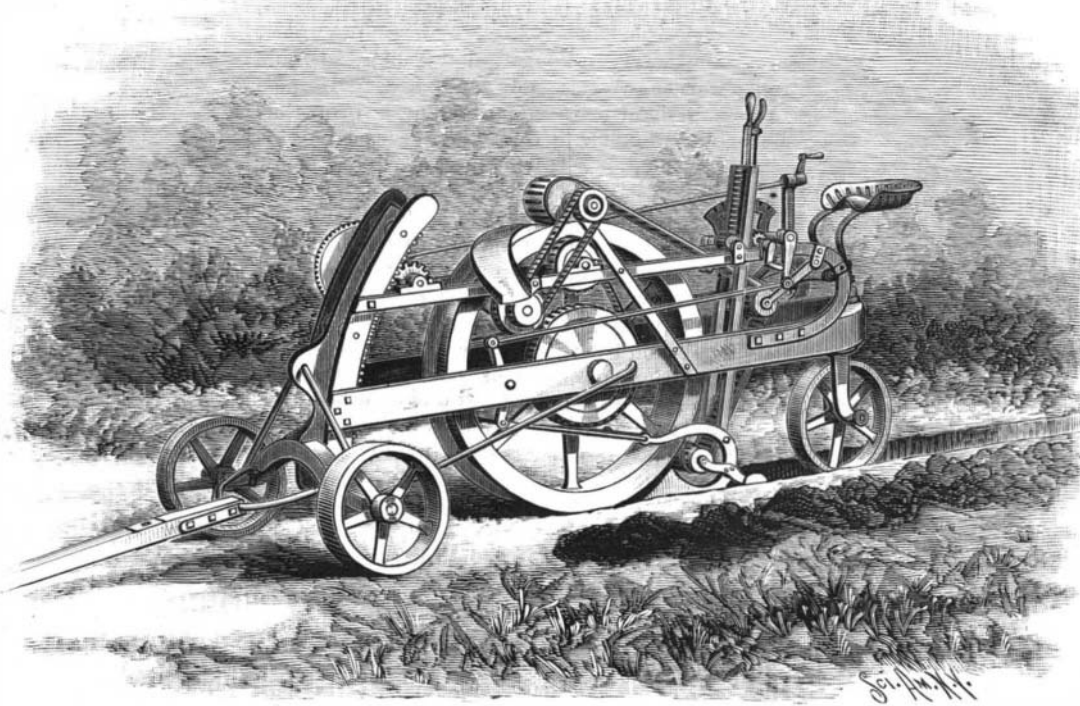
The frame of the machine consists of two pairs of side bars, connected at their rear ends by a curved bar, and at their forward ends attached to two parallel curved bars, there being on the inner sides of the latter pivoted rollers which rest and roll upon the side flanges of a central bar similarly curved, rigidly attached to the center of the arched front axle, the wheels of which travel on the ground at the opposite sides of the ditch. The rear end of the machine is supported by a caster wheel, and the rim of the large wheel journaled at the middle is grooved to form a channel in which the dirt is carried up from the bottom of the ditch. To the side of this wheel is secured a wheel carrying an endless chain, by which motion is communicated, through the intermeshing of the teeth of a chain wheel and another endless chain, to the chain wheel seen at the top of the picture, which operates the dirt-carrying chain, formed in a special way of plates and links, to bring up the earth from the rear of the plow. This chain passes backward and downward, over a pulley on a swinging support,

held back by a spring, to give the desired tension, thence slightly forward and down around a small wheel pivoted to supports attached to the standards of the plow, in such a position that the dirt raised by the plow will be carried up and between the chain and the channeled rim of the large wheel, and discharged upon the ground from the spout, the outer end of which is shown just over the front of the top of the large wheel, the inner end of the spout being so formed as to fit into the channel of the wheel and serve as a scraper to remove the dirt. To the rear of the plow are also circular rotary cutters, to shave off the sides of the ditch at the opposite sides of the furrow, so that the ditcher in its next passage can move freely and without binding, it being the design to have the machine obtain the required depth by driving back and forth in the ditch, cutting a few inches at a time, and grading the depth of cut by the foot rods at the driver's feet, by which the furrow can be made deep or shallow, as desired.

The plow standards are curved forward in hook shape, and to their ends are pivoted rods which pass forward

ing of the other foot lowering the plow to cut a deeper furrow.

It being the design of the machine that the front wheels shall travel on the ground at either side of the ditch, while the others travel in the trench as it is being made, the connection of the frame with the front axle is made in such way that the large wheel, with the plow and other attachments, can be readily raised and lowered, by the turning of the crank in front of the driver's seat, the shaft leading therefrom being connected with a beveled gear wheel and a pinion wheel firmly attached to the frame, and engaging the rack teeth on the curved bar rigidly attached to the forward axle.



POTTER'S TILE DITCHER.

With this construction the driver can readily lower the forward end of the frame, lowering thereby also the large wheel and plow to remove another slice of earth from the bottom of the ditch, and can raise it when desired. The machine is designed to cut from 150 to 200 rods of ditch per day, from two to three feet deep, with smooth and graded bottom, requiring for this the labor of only one man and a team of horses.

This invention has been patented by Mr. Herman I. Potter, of Leonardsburg, O., who should be addressed for further particulars.

AN IMPROVED PORTABLE BED.

A light and easily set up portable bed is shown in the accompanying illustration, in which Fig. 1 gives a view in perspective, Fig. 2 a representation of the angular spring wire forming the head rest support, and Fig. 3 a sectional detail of the middle part of one of the main stay rods at the side. The four corner posts have each a lower pointed part, a larger middle section, and a reduced top rod or bar, the middle section of each post having near its lower end screw eyes, from which side and end ropes, with snap hooks at their ends, connect the four posts together. The head and foot posts are also connected by the stay rods, each made of two rods, held together in the middle by the hollow sleeve shown in Fig. 3. The head posts are united by a removable stay, over which slips a welt on one end of the canvas mattress, which passes at the foot over a roller, which has at each foot post a ratchet wheel engaging a pawl, the roller ends being adapted to receive a small crank arm by which the roller can be turned and the mattress drawn taut. The foot and head pieces each consist of a canvas strip, stretched from one head or foot post to the other, with welts at their ends fitting over the reduced top parts of the posts. The adjustment of the angular spring wires supporting the head rest will suggest itself, the loop at one end slipping over the smaller top part of the post, and the other end being reduced to fit into an aperture in the side rod, a canvas strip stretched from side to side forming the head rest, and being attached to the wires by welts on each end of the strip. The parts of the bed can be quickly disengaged from each other, and all conveniently rolled within the mattress for transportation.

This invention has been patented by Mr. Joseph M. Strout, of Portland, Me.

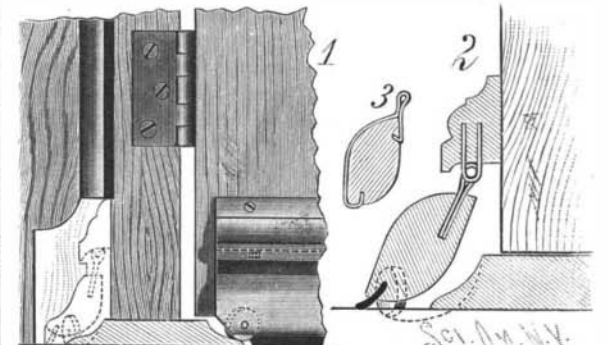
Money in Circulation.

At the present time, deducting the money held by the Treasury and the banks, the amount of circulation really in the hands of the people can hardly fall, says the *Baltimore Sun*, much short of \$900,000,000, or about \$16.25 to every man, woman, and child in the country. This amount amply suffices for the business needs of the United States, supplemented, as it is, by the use of checks and drafts. So extensive is the use of checks and drafts at the present time, alongside of coin and other recognized forms of money, that it may be questioned whether the quantity of cash in a community is as much now as formerly a measure of its prosperity. On the 17th of September, 1881, the total receipts of the national banks in New York, in other reserve cities, and of the banks elsewhere in the United States, aggregated \$295,233,779, but of this amount only 1.38 per cent was in gold, 0.17 per cent in silver, and 4.36 per cent in paper currency, while 94.09 per cent were in checks, drafts, etc. In New York city less than one per cent of the payments were made in gold or in currency, while 98.86 per cent were in checks and drafts. In the banks elsewhere, and not in the reserve cities, 3.31 per cent of all payments were made in gold, 0.68 in silver, 14.27 per cent in currency, and 81.74 per cent in checks and drafts. From this exhibit of the amount of business transacted in one day and in a few cities by means other than gold or silver coin or currency, it is evident that the silver enthusiast and the

greenbacker may very well overestimate the importance of their respective hobbies.

A WEATHER STRIP FOR THE BOTTOMS OF DOORS.

The invention herewith illustrated is designed to provide a device which is automatic and noiseless in its action. Fig. 1 represents a longitudinal vertical section through the door frame, with the casing and door partly broken away, illustrating in positive lines the application of the device upon an open door, and in dotted lines the position of the strip when the door is closed, Fig. 2 being a transverse vertical section through the applied strip. To the lower portion of the door is attached a moulding, with a recess on its under side, in which is a series of staples. The weatherstrip, of wood or other suitable material, is of rectangular form, with its opposite corners rounded, as shown, carrying eyes in the top, by which, with the aid of a rod, it can be hinged with the staples on the under side of the moulding. In the curved lower edge of the weather strip is inserted a strip of rubber, and in the corner of the strip next the hinged side of the door, in the under edge, is journaled a roller, which travels noiselessly upon the saddle as the door is opened and shut, as the door is closed the roller dropping into recesses formed for it, and the weather strip fitting in the concave surface of the saddle, forming a complete seal. Fig. 3 shows the



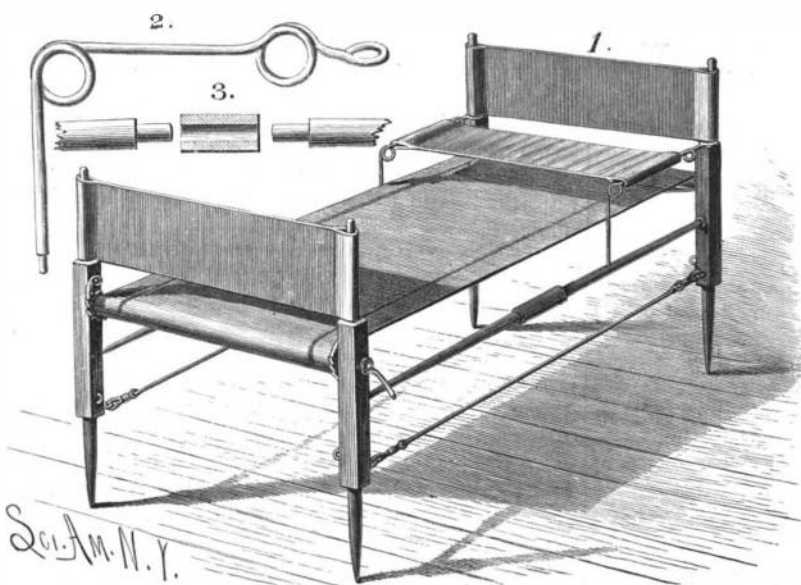
ALLAN'S WEATHER STRIP.

strip made with a metal facing, in which the facing and strip are made integral.

This invention has been patented by Mr. William R. Allan, of Pittston, Pa.

A Large River Cargo.

The largest load ever taken by a single steamboat down the Mississippi reached New Orleans, La., recently. The *Joseph B. Williams* had the tow made up on the Ohio River, consisting of 39 boats and barges loaded with coal; the load, 826,011 bushels of coal, or 31,388 tons. The steamer is attached to the rear of the tow, guiding and controlling it in the current. It would take about 2,000 freight cars and fifty engines to bring the load by rail.



STROUT'S PORTABLE BED.

to levers pivoted in front of the large wheel. To the upper ends of these levers are pivoted rods, which run back to crank arms upon a short shaft, to which is attached the upright lever seen in front of the driver's seat, and next which is a spring lever pawl, by which the pitch of the plow can be regulated and the lever held in its position. Between the plow standards is also pivoted an upright bar with rack teeth, engaging with gear wheels attached to cranks, upon which rest the driver's feet, the pushing of one foot forward raising the plow to cut a shallower furrow, and the push-