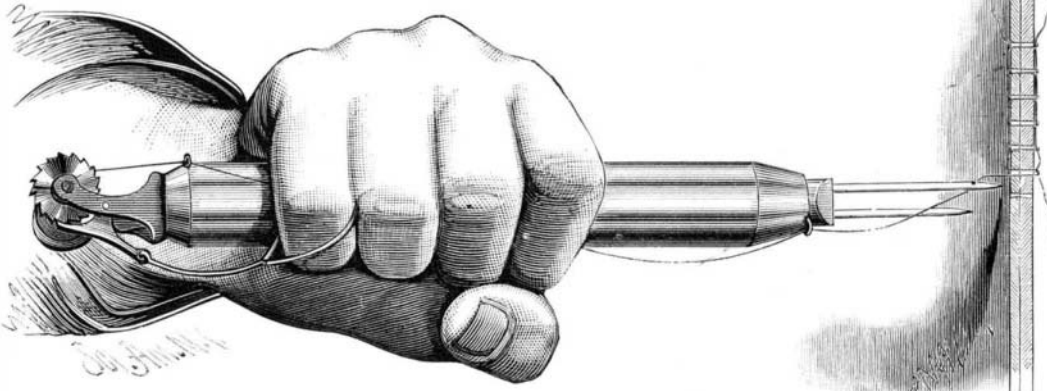


NOVEL HAND SEWING TOOL.

The engraving shows a novel tool for hand sewing recently patented by Mr. J. P. Council, of Council's Station, N. C. In using this tool a hole is first made with the awl, which is then withdrawn, and the threaded thread carrier introduced, the awl at the same time making a second hole, and so the work continues, the carrier following in the holes made by the awl. As the carrier, having carried the thread through the hole, is withdrawn, the thread forms a loop through which a threaded spindle is passed, and then the carrier is wholly withdrawn to close the loop upon the thread from the spindle, and in this manner the stitch is made.

As this tool is used the thread will freely unwind from the spool whenever it is required, and the operator, by keeping one of the fingers on a loop attached to the pawl, can at will permit or check the revolutions of the spool.

This tool is used when fine and accurate work is required. The awl makes a hole whenever the thread carrier enters the preceding one, consequently the holes are all made at equal distances apart, and the stitching presents a neat appearance.



HAND SEWING TOOL.

Pipe Lines for Tan Liquor.

In view of the exhaustion of bark in the neighborhood of large tanneries, and the cost of hauling such bulky material from distant woods, it is proposed to connect tanneries with good bark locations by means of pipe lines. Grinding mills and leaching tanks could be set up where the bark is produced, and the tan liquor conveyed to the tanneries through pipes of wood or lead. Iron pipes would not answer, as the tan liquor would corrode the iron and become blackened. The cost of pipe lines of four-inch bored logs is estimated at \$1,000 a mile. It would thus be cheaper to bring the liquor to existing establishments than to move the tanneries.

Composition of Diastase.

The elementary composition of diastase has been determined by Zulkowski; he extracted it from malt by glycerol, and then precipitated it by alcohol; it was purified by repeated washings with alcohol, and was redissolved and reprecipitated several times. Eventually a product perfectly soluble in water was obtained, which had the following composition:

Carbon	47.57
Hydrogen	6.49
Nitrogen	3.16
Oxygen	37.64
Ash	3.16
Sulphur	traces.

American Wheat in Russia.

Russian journalists appear, says the London Telegraph, to be just now painfully exercised by the announcement that two American steamers, laden with grain, have entered the port of Revel for the purpose of discharging their cargoes, a circumstance hitherto without precedent in the annals of Russian commerce. That Russia would never need to import cereals from foreign countries has heretofore been a firmly established article of popular faith throughout the Czar's dominions. So rapid, however, has of late years been the falling off in productiveness exhibited in the agricultural districts of the empire that the seemingly impossible has at length come to pass, and Northern Russia is importing wheat from the United States. It is but justice to the Russian press to acknowledge that it has been profuse of warnings with respect to the probable consequences of slovenly and unintelligent farming, persistence in old-fashioned and exploded systems of cultivation, reluctance to invest capital in modern agricultural improvements, absenteeism, and other laches which have practically disqualified Russian grain growers from competing for foreign custom with their transatlantic rivals. But Russian buyers and peasant farmers alike were so immutably possessed by the conviction that Russia was the predestined granary of Europe that they calmly ignored these salutary monitions. They are now stricken with amazement and consternation by proof positive, such as is afforded by the importation of American grain into Revel, that the cereal yields of Northern and Central Russia no longer suffice to meet the consumptive requirements of the native population. Germany, too, is giving to America the preference over Russia for what grain she finds it necessary to import from abroad, on the reasonable grounds that the American wheat is at once cheaper and of better quality than the Russian. On the whole, Russian agriculture is just now at an extremely low ebb, and its future promises to prove even gloomier than its present.

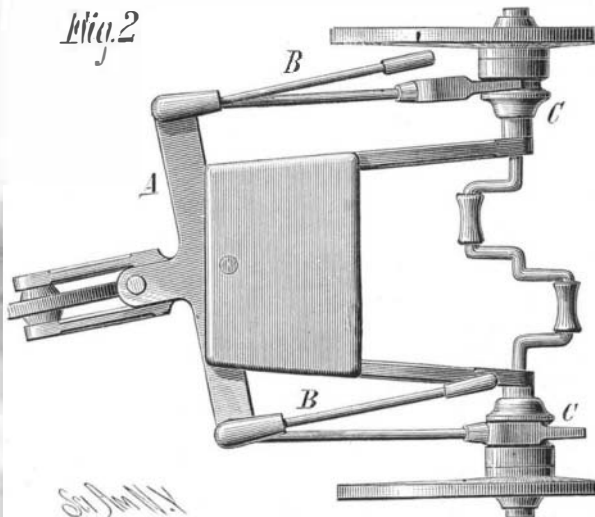
Sick Horses in Boston.

Not a little inconvenience and alarm have been caused in Boston by a recurrence of the distemper which was so fatal among horses in 1872. Hitherto the deaths have been few, but the disease is rapidly spreading, and in the large stables of express companies, omnibus and horse railroad

companies, and the fire department, a large portion of the horses are sick. The disease is described as a specific epizootic fever of a low type, accompanied by inflammation of the throat and air passages.

IMPROVED VELOCIPEDE.

The bicycle has been perfected in mechanical details, and



PERKINS' VELOCIPEDE.

is now well adapted to the purposes of locomotion, as indicated by the large and rapidly increasing demand for them in this and other countries. It seems, however, that while a great deal of inventive talent and ingenuity have been exhibited in perfecting these carriages for men and boys, most of the efforts thus far made toward adapting a similar

natural position, admits of the free use of the limbs in propelling the carriage, and affords a perfect and easy control of its direction. The difficulties heretofore experienced in guiding a carriage having one or both crank wheels fixed to the axle has been effectually overcome by the inventor, and the rider, as she supports herself and guides the carriage by the same movement, releases the wheel making the inner curve, whether running forward or backward, and sets both rigidly on the shaft when running straight ahead.

The plan view, Fig. 2, shows the arrangement of the various parts. The caster wheel, A, is operated by two handles, one at each side of the rider, and the swinging bar attached to the caster wheel support is connected with two shipper rods, B, which are capable of engaging with the clutches, C, on the crank axle.

Whenever one of these shipper rods is thrown forward by the movement of the guiding handles the wheel on that side of the carriage is released so that it may run

loose on the axle. Further information may be obtained by addressing the patentee and manufacturer, Mr. N. S. C. Perkins, Norwalk, Ohio.

MISCELLANEOUS INVENTIONS.

An apparatus for use in connection with a scale, or applied to a scale beam, for the purpose of multiplying the weight as indicated by the position of the poise, by any desired figure of a fixed gauge, and indicating the result in figures, has been patented by Mr. Charles E. Allen, of Mansfield, Pa.

An improved rudder for vessels has been patented by Mr. Frank G. Mareglia, of Lussinpiccola, Austria. The object of this invention is to provide sailing vessels with means for steering, whereby the course of the vessel may be changed without making leeway; also to provide for shipping and unshipping the steering devices when not required for use.

An improved velocipede has been patented by Mr. Henry Schlüter, of Stapleton, N. Y. The object of the invention is to connect the saddle and stirrup levers of a velocipede with the cranks of axle in such a manner that the dead-point shall be avoided.

Mr. William Robinson, of Bodega (Smith's Ranch P. O.), Cal., has patented a gate so constructed that it can be opened by the wheels of an approaching vehicle, by persons upon horseback or on foot, and which is operated by a positive movement.

Mr. John P. McDermott, of Galveston, Texas, has patented a telephone which enables one to hold conversation in any position and listen without inconvenience to lectures, etc., without others in the vicinity hearing, and to prevent other sounds from interfering with those to be heard, and at the same time allow absolute freedom of the hands when speaking and hearing.

Mr. John Collins, of Brooklyn, N. Y., has patented a compound for lining gas generators, acid chambers, and fountains for mineral waters, the use of which will avoid the expense and labor involved in the ordinary method of lining said vessels.

A method of laying underground telegraph wire, and forming conduits therefor progressively, which consists in laying cement or concrete in a trench around a tubular core or mandrel containing the wires, and sliding the core forward upon the wire as the conduit is completed, has been patented by Mr. Seth E. Coddling, of New Bedford, Mass.

An improved mechanism for converting reciprocating into rotary motion has been patented by Mr. Tommaso Donato of New York city. The invention consists in a rocking lever having one or two segmental racks attached thereto, which act upon sliding racks having a connecting rod of a crank pivoted between them, whereby the reciprocating motion of the rocking lever is converted into rotary motion, and the power is greatly augmented by the difference in the leverage of the rocking lever and the segmental racks, and is then transmitted to driving wheels by intermediate geared wheels.

Messrs. Alonzo H. Kimball and Charles H. Kimball, of Littleton, Mass., have patented a road scraper and grader so constructed that it may be readily adjusted to cut the ground to any desired depth,

to give any required crown to the road, to move the soil without becoming clogged, and which is held firmly against side movement.

Mr. Albert Wilcox, of Clarence, Iowa, has patented an improved clamp for harrow frames, which saves labor in the construction of harrow frames and avoids weakening the bars of the frames in securing them together.



PERKINS' VELOCIPEDE.

machine to the needs of ladies and girls have not proved satisfactory. The chief objections brought against these machines are the position of the rider, the unnatural action of the muscles in propelling them, and the difficulties connected with guiding the apparatus.

The invention shown in the annexed engravings overcomes these difficulties and gives the rider a graceful and