

## WEEKLY SUMMARY OF INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

## SUGAR-MAKING MACHINE.

This invention consists in subjecting sugar cane or saccharine juices to the action of fumes of burning sulphur. The fumes are supplied in thin sheets or streams from a retort, and the juices fall in spray or minute particles through said fumes. The inventor proposed, as a modification of his invention, that the sulphur fumes be forced through the juices. This is a very useful invention; it defecates and clarifies the juices to such an extent (at the first operation) that the subsequent clarification and defecation by any of the salts, alkalies or acids, are rendered very easy and expeditious. This invention has been patented by the inventor's executrix, Mrs. Nancy P. Brashear, of the parish of St. Mary, La.

## IMPROVEMENT IN PROJECTILES FOR RIFLED ORD-NANCE.

John Webster Cochrane, of this city, has patented an invention which consists in fitting a projectile with a hollow case, jacket or band, having within it a chamber or the reception of gunpowder, gun-cotton, or other explosive substance, to be ignited by fire from the charge of the gun, for the purpose of causing the said case, jacket or band to be, at the same time, expanded toward the bore and rifle grooves of the gun, and compressed around the projectile, and thereby preventing windage between the projectile and the bore and grooves, and causing the rotary motion derived by the case, jacket or band from the rifle grooves, to be imparted to the projectile. It also consists in the employment, in combination with an expanding jacket or case applied to a projectile, of an outer covering of copper or other wire cloth, to constitute a packing between its exterior surface and the bore and grooves of the gun.

## IMPROVED MACHINE FOR FORMING HAT BODIES.

This invention consists in a novel way of distributing and presenting the fur to the "former," whereby the fur is deposited on the former with a very even graduation, and by a very simple means. It also consists in a peculiar arrangement of the driving mechanism of the former, its suction chamber and slide, whereby the former may be drawn from its working position, and its rotations automatically stopped for the removal of the formed body, and shoved back again in working position, and automatically set in motion to receive the fur for the formation of the succeeding body. It further consists in the use of revolving cards or pickers, placed within a stationary and concentric shell, also provided with cards or pickers, and used in connection with fan blades or wings for properly disintegrating the fur or loosening its fiber, and discharging the same over and around the former. The inventor of this improvement is Richard Fitzgerald, of Newark, N. J.; the assignee is James Booth, of the same city.

## IMPROVEMENT IN SEWING-MACHINES.

Edwin Clark, of Windsor, Vt., has patented an improvement in that class of sewing-machines which is known as the "double-looped stitch." The invention consists in a novel and very simple mode of operating the needle, whereby the stitch-making operation is rendered more certain than in many other machines for making the same kind of stitch.

## IMPROVED ROTARY CUTTER HEADS.

J. P. Tice, of Baltimore, Md., has taken out a patent for an improvement in the above machine, which consists in having the cutters placed in such relation with a cylinder, or a segment of a cylinder, as to prevent any undue action of the cutters on the "stuff," so that the former cannot follow the grain of the wood and draw it suddenly along, thereby spoiling the work and endangering the hands of the operator. The invention also has for its object a perfect operation of the cutters on the stuff, so that the latter will be cut smooth and with a good finish, and the cutters allowed to be adjusted on their arbors as the nature of the work may require; the invention serving as a guide for the setting thereof. An engraving of a machine with this cutter head attached may be found in No. 21, present volume of the SCIENTIFIC AMERICAN.

## IMPROVEMENT IN MELODEONS.

The object of this invention is to make the melodeon and other reed instruments of the same class capable of greater expression than those heretofore constructed; and, to this end, it consists in providing the instrument with what may be called "swell valves" (one for each key), so applied in connection with levers, or their equivalents, that they can be operated at the pleasure of the player by the action of the keys in playing, for giving any desired degree of swell or expression to any note, irrespectively of the preceding or succeeding notes, or of the other notes of the chord. Charles G. Burke, of Utica, N. Y., is the inventor of this improvement.

## IMPROVED CARDING-ENGINE.

This invention consists in certain improvements in feeding and forwarding the cotton from the "lap" to the main cylinder in carding-engines, and differs essentially from all others hitherto in use for the same purpose, where feed rollers and "lickers-in," commonly so-called, are employed, by dispensing with the use of both and substituting in lieu thereof a small cylinder clothed with strong, coarse card teeth, as a regulator for the uniform delivery of the lap and as a worker to the feeder; said feeder operating in connection with the regulator-cylinder, and, at the same time, serving to card on two other workers of different diameters, by reason of the invention of a working and clearing and delivering cylinder to the main cylinder; said working cylinder serving also to card on the main cylinder. The whole arrangement gives four working or carding points, instead of one, at the place where the cotton is first introduced. This appears to be a most excellent improvement. The inventor (Jephtha Dyson, of Fulton, S. C.), who is the patentee of the celebrated "Dyson's Stripper," has spent nearly his life time in cotton factories, and therefore knows what is wanted.

## IMPROVEMENT IN HAY-MAKING MACHINES.

This invention consists in the employment of a friction roller or rollers attached to the ends of a reel shaft, which rollers are brought in contact with the inside surface of projecting rims of the driving-wheels, and by a peculiar manner of hanging the reel, will be brought to act upon the friction rollers, and keep them in contact with the said rims with sufficient force to create the necessary amount of friction to keep the reel in rapid rotation under all ordinary circumstances; but when the teeth or tines of the rakes come in contact with an obstruction, the rollers will slip upon the rims until the obstruction is passed. This invention also provides for the raising and lowering of the reel of rakes, by the driver, for avoiding obstructions, and for transporting the machine from place to place. It further consists in a novel device for contracting or extending the teeth of the rakes simultaneously. J. C. Stoddard, of Worcester, Mass., has received a patent for this improvement. See engraving in No. 23, present volume of the SCIENTIFIC AMERICAN.

## IMPROVEMENT IN SEWING-MACHINES.

The inventor of the above improvement (George W. Mitchell, of Jackson, Tenn.) claims a novel and very simple combination of mechanism for driving the needle and shuttle or looper, whereby a sewing-machine is much simplified. The invention also consists in a certain novel and very simple construction of and mode of applying an elastic presser to confine the cloth or other material to the work-plate or bed of the machine, whereby it is made capable of operating as a feeder without any joints or other fittings. And it further consists in a novel contrivance through which the needle arm is made to operate upon the presser, for the purpose of producing the feed movement.

## IMPROVED MODE OF SECURING WOODEN ROLLERS TO SHAFTS.

The printing-rollers employed in the manufacture of paper-hangings by machinery are commonly made of wood, and one shaft is made to serve for several rollers of different patterns, which are changed as occasion may require, and much difficulty has been experienced in so fitting and securing the rollers that they may be removed and replaced as often as desired, and always be perfectly concentric with the shaft. The object of this invention is to overcome this difficulty; and, to this end, it consists in a certain combination of conically-bored bushes fitted into the ends of the rollers, conical sliding collars

fitted with feathers and grooves both to the shaft and bushes, and nuts fitted to screw-threads on the shaft, by which the truth of the several rollers upon the shaft is insured, and provision is made for adjusting the rollers lengthwise upon the shaft. The inventor of the above useful improvement is Theodore Van Deventer, of New Brunswick, N. J.

## RAILROAD SPIKE.

This invention consists in giving to a rail spike head a peculiar shape, and also a supplemental lip projecting out behind its head, for allowing the insertion under it of an edged crowbar for drawing out the spike. It also consists in so forming the head of the spike that it will keep the nut guards in place, and securely lock them under the nuts of the rail bolts where nut bolts are used; and so that the heads of the spikes will fit beveled-shaped recesses in the nut-fastenings and brackets, or brace-bearing-pieces, and not only keep them in place, but prevent them from tilting or moving in any direction. Besides, the peculiar-shaped head given to these rail spikes is much stronger, and will adapt itself to all the various requirements of the ordinary hold-down spikes. G. W. R. Bayley, of Brashear, parish of St. Mary, La., is the inventor. A patent for this invention has been secured in England through the Scientific American Patent Agency.

## WATER-WHEEL.

This invention consists in the peculiar means employed in relieving the steps of the wheel shaft of the weight of the wheel, and the pressure of the water on the buckets of the wheel, thereby greatly reducing friction. Also, in the use of a packing ring applied to the wheel and casing, for the purpose of compensating for any irregular movement of the wheel, and allowing the same to run water-tight. A gate or regulating-plate is also employed below the wheel, and arranged so as to regulate or control the discharge of water from the wheel, and obtain in all cases the maximum power due to the head, whether it be greater or less. This invention also consists in the peculiar form of the buckets for the purpose of retaining the water within the wheel, or preventing the water from being deflected upwards as it strikes the buckets. The inventor is James P. Collins, of Troy, N. Y.

**COTTON LATITUDES.**—The production and growth of cotton is a monopoly of climate, it cannot be successfully cultivated, except between the latitudes of 30 and 35 degrees; extending from the Atlantic to the Pacific oceans—a region of earth's surface 240 miles in width, and 2,000 in length. Much of this region is incapable, from sterility and other causes, to profitably cultivate this staple. It follows, as necessary consequence, that as the amount of cotton lands diminish, the remainder are rendered more valuable.

A postal arrangement has just been proposed for carrying the United States mails to the Brazils, from and to this port. An efficient new line of steamers will soon be equipped to ply between New York and Rio, touching at St. Thomas, Bahia and Pernambuco. We ought to have had a line of steamers on this route years ago. We do a large amount of business with Brazil, and nine-tenths of our commercial correspondence has hitherto been maintained through the British mail lines. Our commerce with the South American States has been too much neglected by our government.

**NEW STEAM FIRE-ENGINE.**—The Chicago papers give glowing accounts of a new steam fire-engine which has lately been built for that city by Messrs. Silsby, Mynderse & Co., of Seneca Falls, N. Y. With a pressure of 60 lbs. steam, it threw a horizontal stream 340 feet out of an inch nozzle and 50 feet of hose. With  $1\frac{1}{2}$  inch nozzle, it threw a perpendicular stream 150 feet.

**NEW MINERAL REGION.**—Very rich gold, silver and copper mines have just been discovered in Carson Valley, Cal. The Placerville *Observer* states that \$4,400 of gold and \$1,100 of silver were obtained from a ton of quartz. There are vast ledges of the silver ore, which on an average will yield about \$5,000 to the ton.

**THE CIGAR STEAMER.**—This steamer, as we learn by our Baltimore exchange, has made a trip to Norfolk, Va., where she now is, and where a series of experiments are to be made under the direction of Messrs. Winans.