

much lessened. Another part of this invention consists in constructing percussion fuses with a quantity of sand, or emery, locked up, or shut off from communication with the fulminate, so that the same is not in danger of explosion until the shot strikes the object aimed at. There is also an improved arrangement for preventing windage of the shot and obtaining rotary motion of the projectile through the gun, all of which are additions to the long list of improved projectiles for which the war has created a demand.

Sewing Machine.—Patentees: F. W. Grote and C. O. Tietjen, of New York City.

This invention consists in a novel device for extending the loops of the upper or needle thread on the under side of the material sewed and carrying the locking thread through them. Also in a novel construction of the feed apparatus; also an improved "take-up" for drawing up the slack of the loops of the upper thread through the cloth sewed. Also an improved arrangement of the tension; these several parts constitute a new and efficient sewing machine.

Attaching Metallic Eyelets to Cloth, &c.—Patentee: Charles E. Howard, of Bridgewater, Mass.

This invention relates to an improved method of applying and fixing metallic eyelets securely in cloth, leather, or other material. The machine is self-feeding, and by placing a number of eyelets in a box and working a treadle with the foot, the eyelets are delivered under a die which closes them over. All the motions are obtained from the treadle, and the work is most expeditiously performed. An engraving of this machine may be seen on page 33, Vol. VII. (new series) of the SCIENTIFIC AMERICAN; large quantities of them are now being made to order.

Boiler for pulping Vegetable Substances.—Patentees: W. F. Ladd, of Tarrytown, N. Y., and S. A. Walsh, of New York City.

In this improved apparatus the material to be reduced to pulp is treated either with or without alkali, and is at all times submerged in the liquor or solution employed in the boiling process. By an arrangement of a perforated diaphragm in the boiler the material is kept at a certain point while the liquor rises above it, and the heat is applied either by a coil of steam, or by a travelling furnace arranged to run back and forth under the boiler; this furnace can be removed when it becomes necessary to stop the boiling; the contents can then be discharged through a gate into any suitable receiver.

Projectiles for Ordnance.—Patentee: C. W. Stafford, of Burlington, Iowa.

This patent covers what is known as the "Stafford shot and shell," a projectile which is now much used in Government service. These shot and shell are steel bolts, solid for the shot and bored out for the shell, surrounded by a wooden casing to reduce windage, and obtain increased velocity of the bolt by having a small punching area, combined with a large superficial area exposed to the action of the charge. There is also a peculiar flange at the base which is packed with twine or hemp and saturated with talow. This prevents windage and, in connection with the flange, causes the shot to rotate in the bore of the rifle. An engraving of these shot and shell can be seen on page 209, Vol. VIII. (new series) of the SCIENTIFIC AMERICAN.

Obtaining Printing Surfaces, Dies and Substitutes for Photographic Negatives.—Patentees: Paul Schulze, and Frederick W. Billing, of Brooklyn, N. Y.

The object of this invention is to procure a cheap substitute for wood engraving, so that by the aid of the electrotype process surfaces can be obtained which may be printed from. To this end a composition of various substances is employed which may be coated on glass, metal, or precious stones, and by subsequent processes, such as washing, being submitted to the action of acids, etc., the drawing is brought out in relief or the design is sunk in the material worked as may be desired without cutting any of the design by hand. Processes of this nature are exciting much interest at this time, and it is believed that ere long the costly and slow labor of wood engraving will be superseded by quicker and cheaper methods.

Machinery for cutting Corks.—Patentee: Isaac Goodspeed, of Norwich, Conn.

This ingenious invention relates to an improved means of cutting bottle or other corks out of slabs of

the same, either cylindrical or of any desired taper. This is done by the use of changeable patterns attached to the spindle carrying the cutters. The cutters are applied to the spindle so that they have a motion lengthwise, while they and the pattern also have a rotary motion given by the carrying spindle. By using double patterns, so that the cutters are held at different distances from the carrying spindle, a shell or ring-shaped cork may be cut without waste as the centre cork can be used for a stopper also. There are also ingenious arrangements for adjusting the cork-bark and holding it while worked upon, which renders this machine a most useful one.

MISCELLANEOUS SUMMARY.

STATISTICS OF ARDENT SPIRIT MANUFACTURE.—The total value of all kinds of distilled liquors made in the United States in 1860, was \$24,243,171. The State of New York stands first of all the States as the manufacturer of whiskey, highwines and alcohol. Illinois stands next and Ohio next. Kentucky, where all the "Bourbon" is supposed to come from, makes but 3,000,000 gallons of whiskey, highwines and alcohol. The whole country produces less than 3,500,000 gallons of gin and brandy per annum, and about 4,000,000 gallons of what is called New England rum. The total value of malt liquors manufactured in the country, in 1860, was \$18,001,125. New York manufactures more malt liquors than any other State; Pennsylvania stands next, Ohio and California are the great wine-producing States as yet; the former producing, in 1860, 562,640 gallons, and the latter 494,516 gallons.

A PHILADELPHIA exchange represents that the coal companies are busily enlarging their facilities in every direction, and that the product of coal in 1864 will be greatly increased. The article concludes thus:—"Not only Pennsylvania capitalists, but those of New England and New York, are actively engaged in the enterprise. The price of coal must fall." [No doubt it will, in summer, when no one wants it.—Eds.]

A TERRIBLE accident lately occurred in St. Louis, at the launch of an iron-clad. The vessel went off the ways suddenly, and the anchor being thrown over, several persons were caught in the coils of the chain attached to it and drawn overboard. Only one of them, however, was drowned.

ANOTHER death from inhaling nitrous oxide gas, recently occurred in Vermont. The victim was a young girl, seventeen years of age, remarkably robust in constitution and health. Deaths from the employment of this agent seem to be multiplying rapidly.

APPLICATIONS have been filed with the Controller of the Treasury Department for 215 National Banks. This new system of banking is becoming very popular; and at the rate it is progressing, it must soon altogether supplant the State system.

MR. G. LEVERICH, of Trenton, N. J., is the agent, simply, of Powers's Rifling Machine, recently illustrated in the SCIENTIFIC AMERICAN (page 113), and not "sole agent and maker," as therein stated.

A LARGE fire which recently occurred in Gloucester, Mass., was only checked by the timely arrival of a steam fire-engine; the hand-engines being frozen up and disabled.

\$15,000,000 worth of gold dust, it is reported, is now in Idaho territory, awaiting transportation to the States.

FOUR "blockade-runners" were recently destroyed off the coast of Florida and North Carolina, by the *Sassacus*, a new naval vessel.

ENGINEERS desirous of entering the Volunteer Navy may apply immediately, in person, to the Chief Engineer of the Yard.

The Iron Propeller "Havanna."

Messrs. Neafie & Levy, of Philadelphia, Pa., are now building a large iron propeller of 1,336 tons; the length of the vessel is 240 feet, breadth of beam 34 feet, and depth of hold to spar deck 22 feet; draft of water at load line, 15 feet 6 inches. The frame is constructed of wrought-iron plates, 7-8ths and 1-16th thickness on an average, and is fastened with 3-4th rivets 2½ inches apart; the floors are shaped something like the letters Z and an inverted L, and are molded 4 inches, sided half an inch. The frames are 18 inches apart at centers. There are also three

water-tight bulkheads, and the beam-ties on the spar deck are of wrought-iron plates.

The ship is to be driven by one of Mr. John Baird's engines, having a vertical cylinder of 60 inches diameter, and 5 feet stroke of piston. There are two tubular boilers in the hold, having water bottoms and lagged with felt. The propeller is cast-iron, is four-bladed, and is 15 feet in diameter. The ship is built according to the most approved principles, and is expected to be creditable to all concerned in her construction.

RECENT SOUTHERN INTELLIGENCE.

Since our last issue we are in receipt of a file of Richmond and North Carolina papers, from which we select the following items:—

Gold is quoted by the Richmond *Examiner* at twenty-two hundred per cent premium and silver at nineteen hundred. One hundred dollars in gold will buy \$2,200 of Confederate Seven-per-cent Bonds!

THE bakers have increased the price of baker's loaves from fifty cents to one dollar; and at the same time, decreased the bulk and weight to about half the former size. Flour in Richmond is \$250 per barrel, sugar \$7 to \$8 per lb.

THE Richmond quotations of prices current go all over the Confederacy; and in a great measure regulate the value of produce everywhere. If flour goes up in Richmond any day ten dollars a barrel, it will go up in Buchanan the next day about the same amount; although, but for the Richmond rise, the price in Buchanan might have remained stationary for six months. The case is the same with all commodities, including money. Distance and circumstance may modify the proposition as to particular localities; but, as a general rule, the market quotations at a great centre of commercial operations and intelligence like Richmond, exert a controlling influence over prices throughout the Confederacy."

A DOZEN cases of runaway slaves are almost daily reported to the police. The abscondings of slaves are increasing in number and frequency, and the owners of such migratory and uncertain property must look to their whereabouts."

RICHMOND is the Southern 'Mecca,' and everybody a pilgrim, it would seem. The hotels are full; the boarding-houses are overflowing. There is nothing to eat and not a room for rent, yet everybody has a contented stomach and a couch to stretch himself upon. It has, ever since the war, been a mystery what important business brings everybody and his kin to Richmond. One would suppose the stupendous price of living would drive them away or hurry them back, if they must come. On the contrary it woos them, and foolish people rush into Richmond like crazy craft into the vortex of a maelstrom. What it is they find so attractive in Richmond is an inexplicable puzzle to sensible, plodding folks. It may be for the experience of the indescribable sensation of living at the rate of twenty or fifty dollars per day at the hotels; of drinking 'blue ruin' at the rate of two dollars at the restaurants; of being pulled up every half-hour by the 'conscript hawk' or driven distracted by the music of the iron keys of the Jeff. Davis pianos; or being robbed once in every twenty-four hours, with the nightly chance of a knock-down or a tumble into the Basin. If these are not the attractions, our query 'What brings so many idle people to Richmond?' is still unsolved."

MANY of the fattest and bravest men in the Confederacy are afraid to go into the army lest they should be unwieldy or incapable of rendering service. This is a mistake. Some exceedingly fat men are now in the service. Gen. Humphrey Marshall served for two years. But to set the matter at rest, we need only cite the example of Chapiin Vitelli, one of the ablest generals who accompanied Ava to the Netherlands. Stroda says of him: 'He was equally distinguished for his courage, his cruelty and his corpulence. The last characteristic was so remarkable that he was almost monstrous in his personal appearance. His protuberant stomach was always supported in a bandage suspended from his neck; yet, in spite of this enormous impediment, he was personally active on the battle-field, and performed more service, not only as commander but as subaltern, than many younger and lighter men.' Be of good cheer, therefore, fat men; procure your bandages, and go in!"