

HULLING COTTON SEED.

Cotton seeds contain elements which are invaluable to the farmer as food for animals and as a fertilizer. The following table shows the relative value of different kinds of food, and, as will be seen, cotton seed stands highest on the list:

Kinds of Food.	Flesh Producing.	Fat Producing.
Turnips	1	5
Straw	3	16
Potatoes	3	17
Hay	8	50
Rye	11	72
Oats	12	63
Corn	12	68
Beans	22	60
Linseed cake	28	56
Bran and coarse mill stuff	31	51
Decorticated cotton seed meal	41	77

The importance of cotton seed as a food for animals is thoroughly recognized by Southern farmers, and its value as a fertilizer is unquestioned; but to utilize this article to the fullest extent it requires hulling, as the hulls are injurious to animals, and retard the decomposition of the seeds when used as a fertilizer. In view of these facts the importance of an efficient cotton-seed hulling machine will be at once recognized.

We give engravings of two forms of huller—a hand machine and a power machine—manufactured by Mr. David Kahnweiler, of 120 Center street, New York city. These machines have been largely introduced, and are favorably known all over the South. In addition to the sizes represented. Mr. Kahnweiler makes larger machines, having a capacity of 20 to 25 tons and upward per day. These machines are extensively used in oil mills. The smaller machines are used on plantations, the smallest ones being operated by hand, the larger by steam or horse power.

The judges at the Centennial Exhibition, in their report recommending the machine to the Commission for Awards, gave a very concise statement of the advantages of this huller, which we copy. It was recommended "for being well made and thoroughly efficient, supplying an increasing want on cotton plantations, namely, a means of preparing the cotton seed, by the removal of the shell and the cotton left by the gin, to be made into a highly valuable food. The mechanism is simple and the result satisfactory. The feed roller insures regular supply and prevents passage of nails, sticks, and other foreign matter which would injure the mill. The under roller or cutter head has a smooth surface, carrying eight knife sections; they are easily regulated to compensate for wear. The concave has three or four knives." The shell and kernel fall into a hexagonal revolving screen which permits the seeds to fall through, while the hulls are carried through the revolving screen and are delivered at the end. The hand machine has a capacity of 3 to 4 bushels per hour, and the power hullers for plantations will hull from 10 to 25 bushels per hour, according to the size. The steel knives on the cutter cylinder are made adjustable. The machine may be used to advantage in grinding and cracking corn, peas, etc.

It is believed that these machines will save the planter hundreds of dollars every year, enabling him to prepare his own feed and fertilizer. The old process of preparing cotton seeds as a fertilizer by exposing them in heaps to the action of the elements for months is wasteful of the most important fertilizing elements, and besides this many of the seeds are not killed, and will sprout. By employing a cotton-seed huller the seeds are at once deprived of power to germinate and are ready for immediate use as a fertilizer, and all of their nutritious elements are retained.

If desired, the meal and hulls may be permitted to mix as they are discharged from the machine by simply removing the hexagonal screen.

One of the recent improvements made in this machine is the adding of a countershaft, rendering the entire apparatus self-contained.

Progress in Japan.

Reviewing the industrial operations of the Japanese during the year 1880, the *Japan Mail* mentions the building of the Sapporo Railway; the two smelting furnaces at Kamaisi, delivering an output of some 700 or 800 tons of iron per mensem; the works of the harbor of Nobiru, almost completed; the weary tunnel at Kariyasu in Uzen, at last

carried through; the great aqueduct from the Inawashiro Lake achieved, and an immense area of country irrigated; the building of ships on western lines at the two dockyards of Kawasaki and Tokiyo carried on with increased industry; silk-reeling establishments erected in the three prefectures of Hiroshima, Aichi, and Shidzoka; the port of Mikuni opened to shipping; the works on the Tsuruga Railway progressing vigorously; the outcome of the coal mines in Kiushiu augmented; the docks of Nagasaki unceasingly occupied; and mining industries exceptionally active.

An Old Battlefield Uncovered.

During the spring rains in Georgia the Coosa River overflowed its banks, and in one place washed the soil from a

pairing what will undoubtedly prove to science one of the richest 'finds' ever made on the American continent. Among the countless number of Indian pipes found is one of great size and exceedingly fine workmanship, the bowl of which is carved with great skill into the form of a human head."

MISCELLANEOUS INVENTIONS.

Dr. Christian Heinzerling, of Biedenkopf, Germany, has patented an improved method of converting hides into leather, consisting in subjecting them to the action of a compound containing chromic acid and then treating the hides by a solution of stearine or similar fats.

Mr. Joseph H. Clyde, of Atlantic, Iowa, has patented an improvement in pantaloons, the object being to prevent the protrusion in front and wrinkling in rear in the knee portions of the legs of pantaloons, and also the uneven wearing of the seat portion.

In the manufacture of scrap-books and other books of a similar character it is necessary to provide guards or spacings between the sections of the book, and this is usually done by inserting the sections between folded strips of paper, and the sections and strips being afterward secured together, the strips form the guard between the sections. Mr. Frank Bowman, of Brooklyn, N. Y., has patented a device which obviates these difficulties of manufacture, and reduces the expense, and produces a stronger and better appearing scrap-book.

A cheap, simple, and effective trap, to be placed over mole or gopher "runs," for the purpose of destroying the animals, has been patented by Henry W. Hales, of Ridgewood, N. J.

An improved chalk holder for billiard tables has been patented by Mr. John Jefferson, of Columbus, O. The invention consists of cords, weights, and pulleys attached to and moving in suitable casing and tubes attached to the gas fixture, chandelier, or other object over the billiard table, the chalk being suspended above the table by the cord. It may be drawn down to a convenient position for use, and when released will be automatically returned to place.

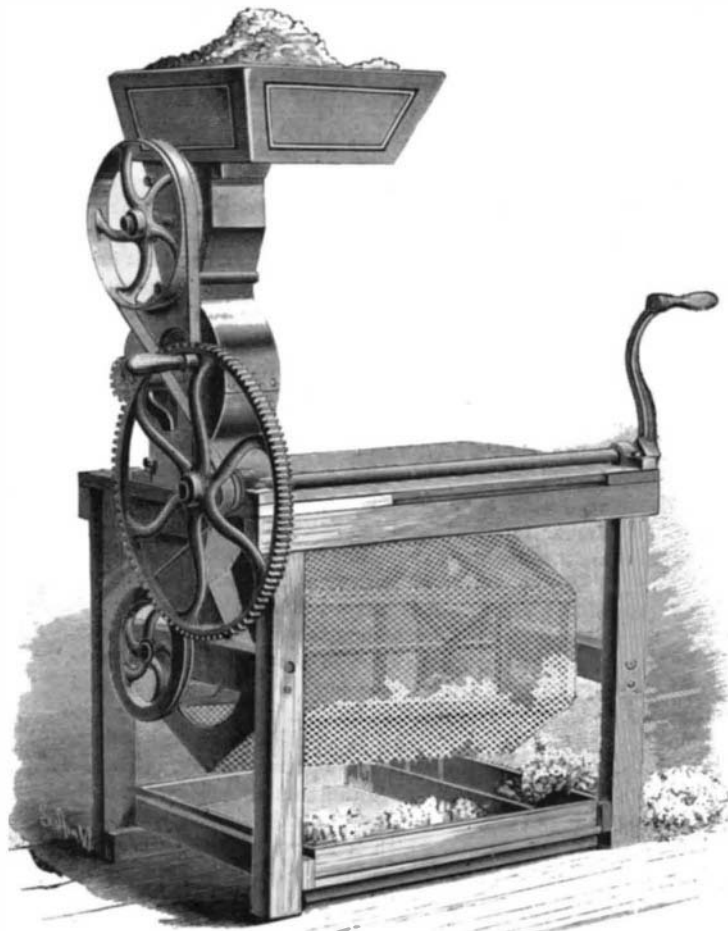
An improvement in cryptography has been patented by Mr. Charles G. Burke, of New York city. The invention consists in the use of four characters, differing in form or color, which, when used in combination with a scale consisting of three horizontal parallel equidistant lines and spaces, represent intelligible sounds, which are convertible into words and sentences, and may be substituted for and made the equivalent of the English language.

Messrs. Green E. Hood and Charles W. Tift, of Albany, Ga., have patented a cotton-seed planter and guano distributor so constructed that it can be readily adjusted to plant more or less seed, or distribute more or less guano, and to cover the seed to a greater or less depth, as may be required.

An improvement in wool carding machines has been patented by Messrs. William E. Bosworth and H. Wallace

Bosworth, of Lexington, Ky. The object of this invention is to obviate the trouble experienced in carding machines from the wool getting under the creel spools and thereby becoming tangled, stretched, and broken; also, to prevent accumulation of wool on the guides of the carding machine where the rolls enter, so that free passage of the rolls shall not be hindered.

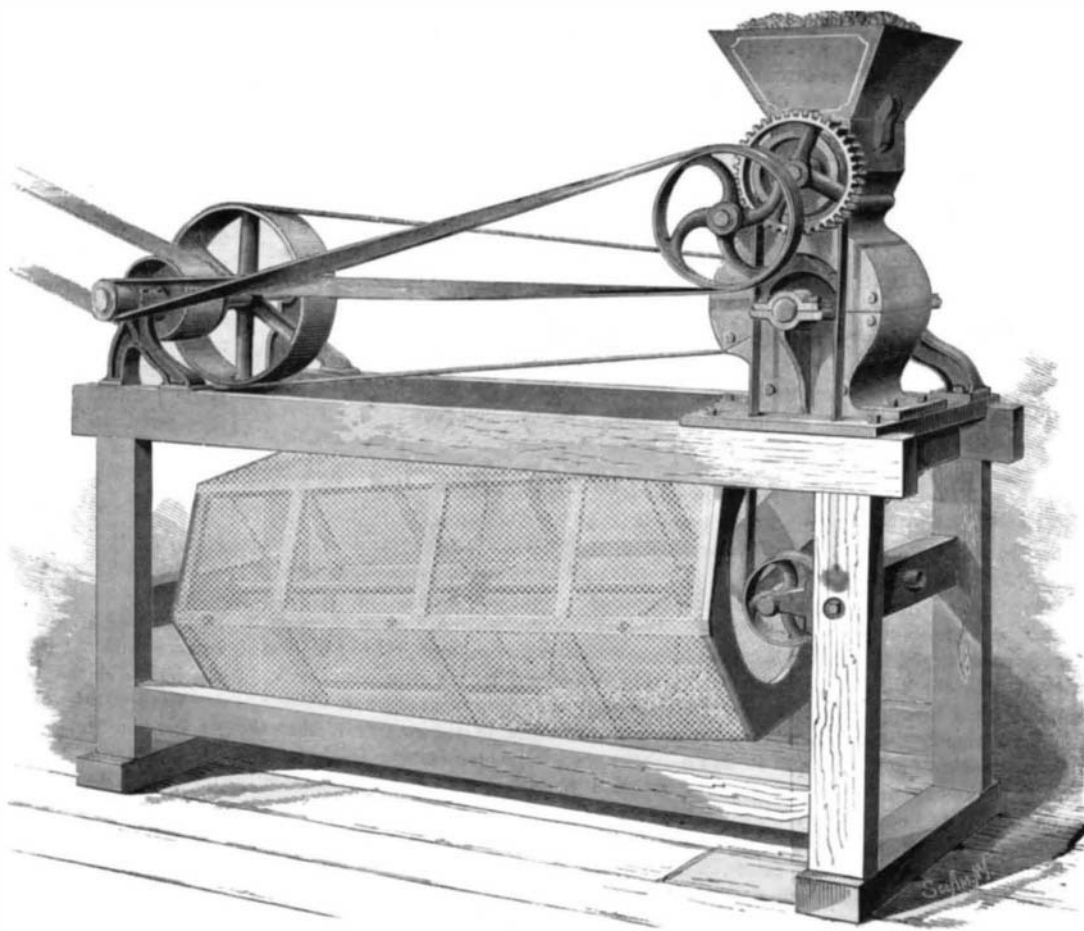
An improved watch-case spring has been patented by Mr. Joseph Canne, of Newport, Ky. The object of this invention is to provide a more durable watch-case spring, the spring part of which can be replaced, when broken, without renewing the body. This invention consists in forming the spring of sheet steel, having the thinner part toward the head instead of toward or near the body, as in other watch-case springs, so as to have the head on the most elastic part of the spring, and in lapping over the head instead of forging it, and in cutting away the lower edge of the spring portion for the purpose of increasing the elasticity of the spring and diminishing its stiffness. By using sheet steel for the spring no forging is required, and the strength of the spring is not

**HAND COTTON-SEED HULLER.**

considerable area. After the water subsided the washed land was found to be an ancient battlefield and burying ground. Part of the territory consisted of mounds, evidently fortifications. These were strewn with implements of aboriginal warfare, beads, and earthen vessels.

The remainder of the ground was covered thickly with skeletons, all perfectly exposed, and all in good preservation.

A press dispatch from Rome, Ga., dated April 2, says: "The place is attracting crowds from all directions, and it is almost impossible to prevent vandalism from seriously im-

**POWER COTTON SEED HULLER.**