

glazed earthen pan, well stirring, after which he allows it to rest until he desires to pass it into the moulds. When he is manufacturing candles of 6 to the pound, he uses from 20 to 23 threads for the wick, and for those of 5 to the pound from 28 to 34 threads. By these means he obtains candles, one pound of which will give light for 80 to 85 hours, and which, while in whiteness and consistence almost equal wax, will not cost more than the commonest candles now made.

1442. R. HARLOW.—*Improvements in the fire bridges and tubes of steam boilers, and in the manner of applying the same.* Dated June 7, 1861.

The patentee claims the application and adaptation of a fire or water space bridge to boilers for the generation of steam (constructed after the manner as described), and composed of a series of small thin tubes, with the various modes of connecting the same with the upper and lower bodies of water in a steam boiler. And as regards the fixing of tubes in the interior of flues of cylindrical boilers, he claims only the application and adaptation of two or more portable or movable tubes to the flues of steam boilers, whereby they may readily have their powers increased, and the circulation improved, and the flues materially strengthened.

1507. J. WATT.—*An improved mode of converting vegetable fibrous substances into pulp.* Dated June 12, 1861.

This invention relates to a peculiar mode or process for converting vegetable fibrous substances into pulp, and consists in subjecting the vegetable fibrous substances to the action of proto-carbonate of soda, or bicarbonate of soda, or proto-carbonate of potassa, or of potassa, bicarbonate of soda, or soda ash, in solution in water, by heating the whole to the boiling point, and boiling the same until the fibrous substance has been so acted upon that, on being washed and treated with an aqueous solution of chloride of lime or chloride of soda, it is converted into pulp.

1543. T. GRAY.—*A new method of bleaching coloured rags and vegetable fibres.* Dated June 17, 1861.

The patentee claims the steeping and immersion of the substances to be bleached in a solution of muriatic acid and water, previously to their being submitted to the action of bleaching liquor.

1548. T. ROUTLEDGE.—*Improvements in the manufacture of paper.* Dated June 17, 1861.

This consists in the preparation of half-stuff (paper pulp) and paper from Esparto or Spanish grass (comprising spartum lignum, stipa terracissima, dis or alfa), the same being applicable to straw and other raw fibrous substances. The general details of the process are the same as specified in a patent (No. 274.) dated 2nd February, 1860, the improvement consisting in that portion which relates to the preparation of the leys employed in boiling Esparto or other raw fibres, and in order to preclude the presence of lime in the caustic state, or even to much causticity in the leys.

1578. J. FAULDING.—*Improvements in locomotive engines.* Dated June 19, 1861.

This consists in so combining the mechanical parts of a locomotive engine that all the momentum resulting from the working of the various parts of the engine shall be on the longitudinal central line

of the locomotive. To effect this object the patentee places the two cylinders of the locomotive at right angles to each other or thereabouts, and unites the connecting rods of each to one central crank pin on the driving axle.

1852. J. CULLEN.—*Improvements in preserving wood and iron.* Dated June 19, 1861.

Here a composition, consisting of coal tar, quick-lime, and charcoal, is used. The charcoal is reduced to a fine powder, and such is the case with the quick-lime; these materials are to be well mixed together and subjected to heat. To preserve wood, the composition is heated, and the wood is immersed therein.

1591. R. A. BROOMEN.—*Improvements in pianofortes, parts of which improvements are applicable to other musical instruments and to apparatuses worked by pedals.* (A communication.) Dated June 20, 1861.

One of the great drawbacks to the perfection of the pianoforte as a musical instrument is the non-continuity of the sound, which, owing to the arrangement of the hammer, only lasts a stated time. To overcome this defect the inventor adds to the instrument an arrangement somewhat similar to the bow of a violin, which he causes to act separately or simultaneously with the hammer. To the intermittent percussive he adds a continuous action, and produces continuous sounds without in any way lessening the effects usually produced in pianofortes.

1633. M. A. F. MENNONS.—*A new or improved construction of caloric engines.* (A communication.) Dated June 26, 1861.

This invention consists in a new or improved combination of known machinery applied to the construction of locomotive, stationary, marine, and other engines. The essential elements of this combination, in which heated air is the motive agent, are:—1. A ventilating apparatus, by means of which cold air is thrown into the body of the engine. 2. A furnace, composed of a metallic cylinder, provided with a horizontal grate carrying the fuel, with vertical grated apertures, giving passage to the air supplied by the ventilator. 3. A turbine, mounted on a horizontal shaft, and driven by the dilated air mingled with the gaseous products of the combustion. 4. A regenerating apparatus, by means of which the cold air supplied by ventilator is progressively heated to a given point, while the temperature of the hot air escaping from the turbine is reduced in the same proportion.

1679. J. G. WILSON.—*Improvements in the means or apparatus employed for feeding steam boilers with hot water.* Dated July 2, 1861.

This consists in the application of a valve to the said tubes or feeding apparatus, so arranged and connected with the boiler that, when the pump ceases to force the water through the tubes, the valve will open to the water in the boiler, and allow it to circulate in the tubes, and thus prevent explosion or damage to the tube.

1694. J. PETRIE.—*Improvements in machinery or apparatus for washing and drying wool, cotton, and other fibrous materials requiring similar treatment.* Dated July 3, 1861.

This refers, 1, to a method of driving such feed aprons of machines for washing wool, &c., as are