

blast or reverberate the liquid or sub-divided fuel and the steam and the gases arising therefrom, and cause the same to come into intimate contact with fresh portions of the solid or porous carbonaceous material. 6th. The combination, in a furnace for burning liquid or sub-divided fuel and decomposing steam, of a decomposing retort and combustion chamber adapted to hold solid or porous carbonaceous material, the said decomposing retort and combustion chamber being made in sections of fire-bricks or other refractory materials, whereby it may be located in the furnace without removing the front or any other portion of the same. 7th. The combination, in a furnace for burning liquid or sub-divided fuel, of a decomposing retort and combustion chamber, adapted to hold solid or porous carbonaceous material and provided with a series of reverberating and deflecting surfaces on its interior, and a suitable injector for introducing liquid or sub-divided fuel, whereby the gases generated therefrom are caused "to hug" the surface of the carbonaceous material. 8th. The combination, in a furnace for burning liquid or sub-divided fuel, of a decomposing retort and combustion chamber adapted to contain solid or porous carbonaceous material with an atomizing injector, for injecting liquid or sub-divided fuel into said retort and chamber, and suitable air passages whereby air, if necessary, may be introduced into the retort and combustion chamber, in conjunction with the liquid or sub-divided fuel with or without steam, and cause to reverberate over and "hug" the surface of the solid or porous carbonaceous material for the purpose of completing the combustion and intensifying the heat. 9th. The combination with the combined decomposing retort and combustion chamber, of an injector whereby atomized or sub-divided fuel in conjunction with a current of steam or air, or both, may be supplied to said retort and combustion chamber.

No. 12,506. Improvements on Harvesters Gavellers. (*Perfectionnements aux moissonneuses engrèbeuses.*)

Albert S. Hoyt and Edward R. Millard, Chicago, Ill., U. S., 16th. March, 1881; for 5 years.

Claim.—1st. The combination, with the elevator of a harvester, of an intermittently moving receiving apron. 2nd. The combination of the elevator and receiving apron with a drop having one or more prongs and adapted to be raised and lowered. 3rd. The combination of the receiving apron with mechanism adapted to automatically stop and start said apron. 4th. The binders table M extended upwardly at the back and provided with slots *m m'*, in combination with the compressor N arranged to operate in connection therewith to form the gavel. 5th. In combination with the gavel forming mechanism of a harvester, a wire grain receiver projecting through the slotted binders table, arranged to lift any grain that may have fallen thereon out of the way of the re-turning compressor. 6th. The combination of devices for receiving the cut grain, and continuously operating devices for elevating the same, with devices for retaining or holding the grain on the receiver, while a separation of the grain to form the different gavels or sheaves is effected by the elevator.

No. 12,507. Improvements on Governors for Vulcanizing Apparatus. (*Perfectionnements aux gouverneurs des appareils à vulcaniser.*)

William E. Gwyer, New York, U. S., 16th March 1881; for 5 years.

Claim.—1st. In governors for vulcanizing apparatus, the combination of a spring opened gas-cock or valve, and a spring fitted for movement by the pressure in the steam box to close the cock. 2nd. The combination with the gas supply pipe of vulcanizing apparatus, of a cock or valve fitted for being closed by connections actuated directly by the pressure in the steam box. 3rd. The flexible diaphragm *b*, lever *g* and gas-cock having its stem connected with the lever combined together, and with hollow plug *A*, adapted for connection to the shell of a vulcanizer. 4th. The governor for

vulcanizers, consisting of the hollow spring *C*, gas-cock or valve *i*, turn buckle connections *f*, gas pipe *K* and hollow plug *A*. 5th. The combination, with governors for vulcanizers actuated by steam pressure, of an automatic relief cock or valve, for escape of air from the steam space.

No. 12,508. Improvements on Plough Beams. (*Perfectionnements aux fleches des charrues.*)

James G. Cockshut, Brantford, Ont., 16th March, 1881; for 5 years.

Claim.—1st. A truss plough beam composed of the bars *A E D*, rivetted together and shaped as described, in combination with the plough head *G*, bolt *F* and ferrule *G*. 2nd. In combination with the plough head *G*, and clevis block or casting *B*, a truss girder plough beam. 3rd. The bars *A D* extending from the clevis block or casting *B* to the plough head *G*, and forming the top and bottom chords of a truss, in combination with the braces *E*, rivetted to, and set between the two bars *A D*, forming a truss girder plough beam.

No. 12,509. Improvements on Candy Packages. (*Perfectionnements aux sacs à bon-bons.*)

Warren B. Howe, Chicago, Ill., U. S., 17th March, 1881; for 5 years.

Claim.—1st. The concave package-wrapper former of triangular, or of other shape, adapted to give shape to, and permit the folding of the wrapper. 2nd. A package former having a triangular or other shaped recess adapted to receive, hold and maintain the wrapper and contents, so that said wrapper may be folded and closed. 3rd. In the formation of packages, a pyramidal shaped wrapper consisting of a sheet of paper folded, or otherwise formed and adapted to be packed with its contents in a cylindrical receptacle. 4th. The described method of packing stick candy etc., in triangular shaped packages, consisting of first placing the wrapper *D* in the recess *B*, then placing the stick candy in the paper in said recess, until the bulk attains approximately the shape of said recess, then creasing and folding the wrapper against the ends of the sticks of candy, and finally removing the wrapper and contents from the recess, and completing the folding of the wrapper upon the candy to hold it in shape.

No. 12,510. Improvements on Apparatus for Breaking Flax, Hemp, &c. (*Perfectionnements aux appareils à tiller le lin, le chanvre, &c.*)

George Milliken, Philadelphia, Pa., U. S., 17th March, 1881; for 5 years.

Claim.—1st. A rotating cylinder *D*, having an open or perforated periphery, and a fluted or grooved roller meshing with it. 2nd. The roller *K*, rotating on its axis on reciprocating bearings or arms, whereby the roller, as it rotates, is carried forward and backward on the cylinder *D*. 3rd. The gearing *E F*, imparting rotary motion to the cylinder *D*, in combination, with the driving shaft *C* with clutch mechanism, whereby the cylinder may be stopped at any point without stopping other motions of the machine. 4th. The swinging arms *J* carrying the roller *K*, in combination with the cranks *G*, adjustably connected to the arms *H*. 5th. The apron *L*, and cylinder *D*, in combination with gearing operated by the wheel *K*, meshing with the fluted or grooved periphery of said cylinder.

No. 12,511. Improvements on Milk Coolers. (*Perfectionnements aux garde-lait*)

Ole C. Nunbson, Black Earth, Wis., U. S., 17th March, 1881; for 5 years.

Claim.—1st. A can *A*, tapering from top to bottom and divided into two chambers by diaphragm *D* and tube *E*, and provided with cover *F*, cap *G*, rim *H*, tube *I*, gauges *K L* and faucets *M N*.