



Reported Officially for the Scientific American. LIST OF PATENT CLAIMS Issued from the United States Patent Office FOR THE WEEK ENDING SEPTEMBER 6, 1853.

HEMP AND FLAX BREAKING MACHINES—By O. S. Leavitt, of Maysville, Ky. I do not limit myself to the precise construction and arrangement of parts specified, as I have only described the mode of application which I have essayed with success.

MACHINE FOR DISTRIBUTING AND COMPOSING TYPES—By Wm. H. Mitchell of Brooklyn, N. Y. I do not claim arranging the composing apparatus so that each type has to travel nearly the same distance to the point of delivery from the point at which it is dropped, as this has been effected by grooves, but I am not aware of any apparatus in which a combination of belts has been arranged with a view to all the types taking an equal time to travel from the point of deposition to the point of delivery, thereby carrying the types with certainty, and avoiding all liability to stick or get into disorder.

MACHINE FOR EDGING LEATHER STRAPS—By James Barnes, of Franklin, N. Y. I claim the combination of the parallelogram and inverted dividers, as a regulating gauge to work in front of the edge of a curved knife, so that strips of leather of different widths may be rounded to feather edges, with the triple fastening of the change of knife or any part of the machine, the whole being as described.

PRINTING PRESSES—By Victor Beaumont, of New York City. I do not claim a type cylinder or any particular mode of holding the type in place or the using any portion of the periphery of the type cylinder for a distributing surface.

IRON CAR BRAKES—By Stephen Morse, of Springfield, Mass. I claim the spine having the point of suspension and socket, with the open spaces and brace plates, in combination with the rubber or friction surface plate, as set forth.

BRICK MACHINES—By Hiram Sands, of Cambridge, Mass., and Gary Cummings, of West Derby, Vt. We do not claim the mode of operating the mould carriage by means of a crank acting upon bars running across or attached to the mould carriage, as that has been employed before in the brick machine of James Dane, patented October 24, 1848; nor do we claim the mode of operating the pressing piston, by means of a lever, actuated by revolving cams, and connecting rod; nor do we claim the arrangement thereof with the cam shaft made to pass beneath the pug mill, and thus operate the mould carriage by means of a reversing gear applied to said shaft, as the like arrangement is contained in the patent of Dane, Healy & Cummings, Aug. 5, 1851; ante-dated June 17, 1851.

SAW MILLS—By Andrew Ralston, of West Middletown, Pa. I claim, first, sawing logs or other descriptions of timber into lumber by means of a reciprocating saw operated in a horizontal position, as set forth.

GRINDING AND SHAPING METALS—By Samuel Darling, of Bangor, Me. I claim the combination of the holder of the article to be ground with a grindstone or grinding disc, as set forth, so that the article and the stone will change positions relatively to each other during the operation in three directions, namely, towards each other, and parallel with and transverse to the axis of the stone.

SEALING PRESERVE CANSISTERS—By Henry Hunt, of Brooklyn, N. Y. I claim excluding air from articles put up in closed canisters, or other vessels, by providing the canister or other vessel with a metallic tube, or its equivalent, attached thereto, and after the air has been exhausted through said tube, pressing it together airtight, that it may be the sole fastening of the joint permanently air-tight, as described.

HORSE COLLARS—By Jos. R. Lindner, of New York City. I claim the union of the home plate and collar, in combination with the lock plates, as set forth.

PRINTING PRESSES—By Charles Montague, of Pittsfield, Mass. I claim a combination and arrangement of the cylinder and bed, that whilst one sheet is receiving its impression, the sheet to receive the next impression will be carried upwards upon a roller, nearly to the bed, for the purpose of being in readiness to commence receiving its impression the moment after the bed starts upon its next forward movement, as set forth.

PAPER FILLS—By Daniel Winslow, of Westbrook, and Ferley D. Cummings, of Portland, Me. We do not claim a file or bill holder, as made of two plates of wood or pasteboard, or metal, held together and upon the file of paper by one or more elastic bands; but we claim the combination of the plates with the elastic bands, so arranged as that the side edges of the top plate shall be bent down upon the bands and hold them securely, while the side edges of the bottom plate are turned, but left far enough from the bottom plate for the bands to move freely between them and the said plate, the edge lips of both plates being so bent inward, and rounded on the corners as to prevent the bands from being chafed or worn, as described.

MACHINES FOR SPLITTING LEATHER—By Charles Weston, of Salem, Mass. I claim the arrangement, as described, for exerting a constant and uniform pressure upon the leather, and at the same time allowing the spring plate to yield to the inequalities of the hide, the same consisting in a spring rack for holding the arm which is connected to the spring plate, by the turning shaft and cams, as set forth.

APPARATUS FOR PURIFYING GAS—By William Wigston, of New York City. I claim constructing the scrubber or heat with a cavity, to receive the gas above the surface of the fluid, and partly submerged passages leading from the said cavity through the sides of the float to allow the escape of the gas from the cavity, and cause its distribution over the surface of the fluid in thin streams to produce a diffused contact with the fluid, as described.

MACHINERY FOR CUTTING AND BENDING METALLIC DISCS—By Elliot Savage (assignor to Franklin Roys & Edward Wilcox) of Berlin, Conn. I claim the combination and arrangement of the roller M with the roller B, and the bending roller, so as to operate together, and independently of the clamps, as specified.

SHINGLE MACHINES—By Elijah Valentine, of Palmer, Mass. (assignor to Abel Bradway, of Monson, Mass.) I claim the series of rollers &c. placed above the platform, when they are combined with the ledges, which rise from the sides of that portion of the platform that receives the rived shingles to be operated upon, and so arranged that when a rived shingle is first carried forward, the said rollers will be elevated above its upper surface by the said ledges, and when the driver is drawn back, it will at the same time pass from under the said shingle, and

from under the rollers, thereby allowing the shingle to fall upon the platform, and the rollers to fall in succession upon the upper surface of the shingle, for the purpose of giving to the said shingle such a shape and position upon the platform, that it will be carried outwards again by the next forward movement of the driver and be operated upon by the dressing knives, as set forth.

FOR THE WEEK ENDING SEPTEMBER 6, 1853. STRAW CUTTERS—By Jas. T. Asbury, of Taylorsville, N. C. I claim the combination of the three cutting knives, as described, with the recessed arms, whereby one-third of the feed of straw is cut successively by each knife, the protruding uncut portion passing through the recesses in the arms during the operation, as specified.

NUT CRACKERS—By Philo Blake, Eli W. Blake & Jno. A. Blake, of New Haven, Conn. Ante-dated March 6, 1853. We do not claim the use of jaws forced together by a lever, to crack nuts, since that device is found in the common nut cracker; nor do we claim the mere divergence of the jaws, irrespective of their position in relation to the axis of motion, since the jaws of the common nut cracker diverge when opened to receive a nut; and it also diverges in a plane which is at right angles to the axis of motion, and consequently nuts of different sizes are received between them at different distances from the axis; whereas, the jaws of our instrument diverge in a plane which is parallel to the axis of motion, and consequently nuts of different sizes are received between them, at the same uniform distance from the axis of motion, which condition, or a near approximation thereto, is indispensable to the cracking of nuts of different sizes, between jaws whose motions are limited by stops in both directions, as described.

Second, we claim, therefore, first, the divergence of the jaws in a plane which is parallel to the axis of motion, as described, whereby nuts of different sizes, are all received at a uniform distance from the center of motion.

Second, we claim the divergence of the jaws in a plane parallel to the axis of motion in combination with the two stops, collectively, which limit the motions of the movable jaw, as described.

Third, we claim the divergence of the jaws in a plane parallel to the axis of motion in combination with their extension beyond the supports of the axis whereby the line of the axis of motion is brought in close proximity to the acting faces of the jaws, without impairing free access to introduce and remove the nuts.

In the foregoing claims we do not intend to confine ourselves to a strict parallelism between the plane of the jaws and the axis of motion, since it is obvious that some variation therefrom would not defeat the object aimed at, by approximating to parallelism in distinction from placing the plane of the jaws at right angles to the axis of motion, as in the common nut cracker. Indeed we have contemplated as a possible improvement the placing the outer ends of the jaws a little further from the axis of motion than the other end, with a view to have them act on large nuts, through a space somewhat greater than in smaller ones.

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IRON CAR BRAKES—By Stephen Morse, of Springfield, Mass. I claim the spine having the point of suspension and socket, with the open spaces and brace plates, in combination with the rubber or friction surface plate, as set forth.

BRICK MACHINES—By Hiram Sands, of Cambridge, Mass., and Gary Cummings, of West Derby, Vt. We do not claim the mode of operating the mould carriage by means of a crank acting upon bars running across or attached to the mould carriage, as that has been employed before in the brick machine of James Dane, patented October 24, 1848; nor do we claim the mode of operating the pressing piston, by means of a lever, actuated by revolving cams, and connecting rod; nor do we claim the arrangement thereof with the cam shaft made to pass beneath the pug mill, and thus operate the mould carriage by means of a reversing gear applied to said shaft, as the like arrangement is contained in the patent of Dane, Healy & Cummings, Aug. 5, 1851; ante-dated June 17, 1851.

SEALING PRESERVE CANSISTERS—By Henry Hunt, of Brooklyn, N. Y. I claim excluding air from articles put up in closed canisters, or other vessels, by providing the canister or other vessel with a metallic tube, or its equivalent, attached thereto, and after the air has been exhausted through said tube, pressing it together airtight, that it may be the sole fastening of the joint permanently air-tight, as described.

HORSE COLLARS—By Jos. R. Lindner, of New York City. I claim the union of the home plate and collar, in combination with the lock plates, as set forth.

PRINTING PRESSES—By Charles Montague, of Pittsfield, Mass. I claim a combination and arrangement of the cylinder and bed, that whilst one sheet is receiving its impression, the sheet to receive the next impression will be carried upwards upon a roller, nearly to the bed, for the purpose of being in readiness to commence receiving its impression the moment after the bed starts upon its next forward movement, as set forth.

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APPARATUS FOR PURIFYING GAS—By William Wigston, of New York City. I claim constructing the scrubber or heat with a cavity, to receive the gas above the surface of the fluid, and partly submerged passages leading from the said cavity through the sides of the float to allow the escape of the gas from the cavity, and cause its distribution over the surface of the fluid in thin streams to produce a diffused contact with the fluid, as described.

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requisite or desirable, as the condition of the cotton or other circumstances may require, so as to discharge the seed, or facilitate the falling from the rollers after the cotton is drawn off by the rollers.

Second, giving to the feeding aprons, or equivalent feeding devices, different velocities, for the purpose of spreading, distributing, or drawing apart, the balls of cotton, so that sand and dirt may fall out, and not be carried to the ginning rollers.

Thirdly, passing the cotton after it is ginned between double aprons, or equivalent devices, when said aprons or devices move with less velocity than the ginning rollers, for the purpose of compressing and making more compact the cotton after it is ginned.

MAKING TWISTED GUN BARRELS—By Thos. Warner, of Chicopee, Mass. I claim, first, a new manufacture of gun barrels, made out of solid bar, with the fibres of the metal having a gradually increased twist from the inside to the outside, as specified.

And in the process I claim making twisted barrel by twisting a bar of metal of the required size, when in a heated state, and then boring out the caliber, for the purpose specified.

PADDLE WHEELS—By Benj. Irving, of Green Point, N. Y. I claim arranging and combining the doaks so as to form a series of buckets, of rhombic, or substantially similar form, as set forth.

We would state, that we have seen a working model of this paddle wheel tested with a model of those in common use, and the test was favorable to the new wheel. We would like to see this wheel fairly tried for some time on a steam ship or steamboat, in order that all its qualities might be fully tested, in comparison with the common radial bucket wheel.

STRAW CUTTERS—By Thos. Allison, of Milton, N. Y. I do not claim cutting straw in an oblique direction by means of spiral knives set obliquely around the periphery of a cylinder which has its axis set parallel with the axis of the feed trough, and which operate in combination with a parallel feed roller.

But in the construction and arrangement of the adjustable feed roller, which is made gradually tapering from its ends to its center, or middle, in the line of a curve, and arranged at an angle to the axis of the feed trough, and made to operate in combination with the cylinder of straight knives, and thereby facilitate the operation of the machine, as set forth—this arrangement rendering the machine less expensive and more easy to be managed and kept in order.

[This is a very simple improvement and is likely to take the place of spiral knives which have been so much in use; it operates on the same principle but under a different construction.]

CORN SHELLERS—By L. H. Davis, of Kennet Square, Pa. I claim the introduction of the wheels and arms attached to the springs, and regulated by the screws, as described, for the purpose of stripping the ear of the kernels, as specified.

I also claim the flanges upon the gear covering for protecting the gearing from the admission of shelled corn, as set forth.

CORN SHELLERS—By Porter Dickinson, of Amherst, Mass. I claim the combination of the revolving spring shellers, with the tooth rollers, operating as described.

IRON CAR BRAKES—By Stephen Morse, of Springfield, Mass. I claim the spine having the point of suspension and socket, with the open spaces and brace plates, in combination with the rubber or friction surface plate, as set forth.

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stances, which facilitate the action of the tannin, and, at the same time, prevent the extractive matter of the decoction from injuring the leather. One of the most convenient sources of tannin is the ordinary "Terra Japonica," or catechu of commerce, and it is especially adapted to my process, as the chemical substances which are mixed with it prevent it from having any injurious effect upon the leather, however strong the decoction be made. To tan with this substance, prepare a solution of one hundred and seventy pounds of japonica in a sufficient quantity of soft water to receive one hundred calf skins. This solution is best prepared by steeping the japonica in hot water and straining the liquor through a cloth when cold. To this liquor add eleven pounds of sulphate of potash and six pounds of alum (double sulphate of alumina and potash.) The bated skins are immersed in this liquor after the grain has been set by a weak tanning liquor, a greater or less period, according to their thickness and porosity. Sheep skins are thoroughly tanned by an immersion of from one to ten hours in the liquor. Calf skins require to be immersed from one to six days, and hides require a proportionably longer period, which varies from six to twenty days.—After the first hundred skins have been tanned, there is still much tannin left in the liquor as well as a part of the alum, and the whole of the sulphate of potash; it is therefore brought up to its original tannin strength by the addition of japonica alone, and is employed to tan a succeeding parcel of skins.

In the process above described, the sulphate of potash induces so rapid an action of the tannin upon the skin that the extractive matter of the vegetable substance from which the tanning liquor is made, has not time to act; this is peculiarly the case when japonica is the substance employed, as it is well known that if bated skins be submitted to a liquor made from it alone, in the ordinary manner, they are spoiled, for the catechuic acid injures the animal fiber, while, by combining sulphate of potash with the liquor, the injurious influence of this acid is prevented. The alum improves the quality of the leather, as a portion of the alumina of the alum combines with the gelatine of the skin and adds greatly to the impermeability of the leather. Alum is not essential in tanning calf skins.

If japonica cannot readily be obtained, tanning liquor may be prepared from sunac, or the various barks generally employed, by adding to the decoction sulphate of potash alone, or sulphate of potash and alum.

Leather tanned by the process above described is remarkable for its pliability, strength and impermeability. The former of these properties is believed to result from the absence of vegetable extractive matter; the strength results from the fact of the animal fiber being uninjured by the process; and the impermeability is due both to the thorough action of the tannin and to the alumina combined with the leather.

Having thus described my process of tanning leather, what I claim as my invention, and desire to secure by Letters Patent, is the combination of sulphate of potash with the tanning liquor, substantially in the manner and for the purpose herein set forth.

[We have tested, for six months, a calf skin tanned by this process, in a pair of boot uppers. It has proved to be excellent wearing leather. It was stated to be tanned by this process in six days; but the skin was no doubt a good one, independent of the method by which it was tanned.]

We cannot—in a chemical point of view—see what superior effects can be produced in tanning by the sulphate of potash, any more than the chloride of sodium (common salt), the use of which has been long known to tanners, excepting some change takes place in the sulphated salt itself, whereby the sulphur unites with the skins and produces a vulcanizing effect—which change cannot take place by the process described, so far as our experience and reasoning extend.

When the bating is accomplished they are ready for the tanning liquor, which may be prepared from any vegetable substance from which tannin is usually obtained by adding to the decoction of the substance certain chemical sub-

stances, which facilitate the action of the tannin, and, at the same time, prevent the extractive matter of the decoction from injuring the leather. One of the most convenient sources of tannin is the ordinary "Terra Japonica," or catechu of commerce, and it is especially adapted to my process, as the chemical substances which are mixed with it prevent it from having any injurious effect upon the leather, however strong the decoction be made. To tan with this substance, prepare a solution of one hundred and seventy pounds of japonica in a sufficient quantity of soft water to receive one hundred calf skins. This solution is best prepared by steeping the japonica in hot water and straining the liquor through a cloth when cold. To this liquor add eleven pounds of sulphate of potash and six pounds of alum (double sulphate of alumina and potash.) The bated skins are immersed in this liquor after the grain has been set by a weak tanning liquor, a greater or less period, according to their thickness and porosity. Sheep skins are thoroughly tanned by an immersion of from one to ten hours in the liquor. Calf skins require to be immersed from one to six days, and hides require a proportionably longer period, which varies from six to twenty days.—After the first hundred skins have been tanned, there is still much tannin left in the liquor as well as a part of the alum, and the whole of the sulphate of potash; it is therefore brought up to its original tannin strength by the addition of japonica alone, and is employed to tan a succeeding parcel of skins.

In the process above described, the sulphate of potash induces so rapid an action of the tannin upon the skin that the extractive matter of the vegetable substance from which the tanning liquor is made, has not time to act; this is peculiarly the case when japonica is the substance employed, as it is well known that if bated skins be submitted to a liquor made from it alone, in the ordinary manner, they are spoiled, for the catechuic acid injures the animal fiber, while, by combining sulphate of potash with the liquor, the injurious influence of this acid is prevented. The alum improves the quality of the leather, as a portion of the alumina of the alum combines with the gelatine of the skin and adds greatly to the impermeability of the leather. Alum is not essential in tanning calf skins.

If japonica cannot readily be obtained, tanning liquor may be prepared from sunac, or the various barks generally employed, by adding to the decoction sulphate of potash alone, or sulphate of potash and alum.

Leather tanned by the process above described is remarkable for its pliability, strength and impermeability. The former of these properties is believed to result from the absence of vegetable extractive matter; the strength results from the fact of the animal fiber being uninjured by the process; and the impermeability is due both to the thorough action of the tannin and to the alumina combined with the leather.

Having thus described my process of tanning leather, what I claim as my invention, and desire to secure by Letters Patent, is the combination of sulphate of potash with the tanning liquor, substantially in the manner and for the purpose herein set forth.

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