

REDUCING THE FRICTION OF JOURNALS OF AXLES ON RAILWAYS—J. K. Denning, of New York City, assignee of Leon Joseph Pomme De Mirimondi, of Paris, France. Patented Aug. 23, 1856. I claim the arrangement for the semi-boxes for resting on the journals of the friction rollers within the upper part of the main part of the main journal box, and entirely enclosed within the said main box, substantially as described, in combination with the axle journal on which the rollers rest to sustain the load, as described.

I also claim taking the lubricating matter from the looser part of the main box, and applying it to the journals of the rollers by the projections at the ends of the axle journals.

I also claim the method of lubricating the journals of the rollers, and the periphery of the axle journal and the rollers, by the projections on the axle which in rotating take the lubricating matter from the reservoir in the main box, and apply it to the journals of the rollers above, that the drippings therefrom may lubricate the periphery of the rollers and axle journal, substantially as described.

WATCH CASES—Elihu Bliss, of Newark, N. J. Patented April 13, 1856. I claim arranging the push piece which passes through the pendant, substantially as described, in combination with the pin, h, and so as to operate the spring catch to the closed bizzle of the outer case, when the face of the watch is in either position, as set forth.

I also claim arranging the case of the watch which contains the movement, and which carries the dial within a surrounding ring or rim, so that it can be turned within the said ring and in the plane thereof, substantially as described and for the purpose set forth.

I also claim arranging the journals by which the body of the watch is attached to an outer case, and on which it turns reversed so as to leave the works of the watch free to be shifted in its surrounding ring, substantially as described.

DESIGNS.

STONE PLATES—Samuel D. Vose, of Albany, N. Y. Four cases.

Notes on the Progress of the Paddle and Screw.—No. 3.

Having thus noticed the paddle-wheel generally, as to when it was introduced, how it was turned, and where it was placed, I may proceed to consider various plans and inventions relating to its several parts; but it is to be distinctly understood that I refrain from comparing the relative merits of these different suggestions.

Beginning, then, with the shaft and wheel, as a whole, we find that Tremeere (1801) and Robinson (1826) supported it on a stage, to be raised and lowered by ropes. For the same purpose Melville (1845) used a cogged sector, and Drake (1851) employed screws. The connecting rod had a screw joint, which allowed the rod to accommodate its length to the varied distances between the piston rod and the shaft. Coles (1839) supported the shaft on friction wheels.

To enable the engineer to use only one wheel at a time, Gough (1828) put each on the shaft of a separate engine, while in Field's plan (1841) the wheel was disconnected by moving it and the part shaft horizontally. For the same purpose Wilkinson (1835) moved a sliding crank plate along the divided shaft, until the crank pin locked into it. Brunet (1843) used a sliding ring and bolts; Thomas (1851) employed wedges and a friction cushion. In Seaward's plan (1840) the parts were coupled by friction surfaces, screwed up to close contact. Trewhitt (1840) tightened a friction strap by cutters; Bodmer (1843) and Borrie (1843) used cog wheels; Scott Russell's patent (1853) gearing, worked by the motion of the shaft, is applied to the *Leviathan*. Price (1823) used intermediate wheels to regulate the relative speed of the engine shaft and paddle shaft. The groove and stud apparatus of Parlour (1838) gave the wheel twice the speed of the engine shaft. Murdock (1839), Brown (1842), and Bodmer (1844), had plans somewhat similar.

The modifications of the wheel itself are difficult to classify. Barton (1820), Sang (1852), Bellford (1853), and many others, made it a buoyant drum. Stevens (1827) put floats on three arms, not in the same plane. Springs were introduced by Adams (1839 and 1855) to ease concussion. Skene (1827) had side plates on the rims. In Taylor's plan (1840) one wheel might be covered from the water by a shield. Essex (1838), by dividing the wheel horizontally, folded back one part by hinges on the rim; while in Drake's plan (1851) the arms fold on hinges, like a fan. Galloway (1832) and Herbert (1855) attached an additional wheel, by a short shaft jointed to the outer end of the other, so that the rims of the wheels approached water, and were more apart at the upper edges. Daubeny (1840) made the second outside wheel turn slower than the inner one, but in a parallel plane.

Let us next turn attention to the floats or

paddle boards, and first as to those that are immovable on the wheel. Floats of the simple rectangular radial form were the earliest in use. Pitot (1729) put floats in planes tangential to the surface of a cylinder on the shaft; Perkins (1829) placed them at an angle to the shaft; Sharpley (1856) aggregated them into one continuous spiral rib; Galloway (1832) used two sets of floats, inclined in different directions; Chatterton (1842) and Stevens (1851) inclined each float in an opposite direction to the next, which projected beyond it at one end. Brooman (1852) put the oblique floats with one end further from the shaft than the other; Carter (1832) put a valve between each pair of inclined floats. This was to let out the back water, which was effected in Pickworth's plan (1836), by louvre boards in the float, in Elvey's (1837) by a valve, and in Woodley's (1839), by holes bored diagonally through the float. Galloway (1835) divided the float horizontally, and put the parts successively in advance of each other. In Gemmel's plan (1837) the middle part was foremost, and Jones (1847) made the parts to overlap.

The edges of floats were curved by Robertson (1829), Ruthven (1830) made them of a barrel shape, and there is scarcely any other form which has not been proposed for them at one time or another. Hollow floats were used by Berry (1831), to condense the steam conducted through the arms.

Floats were made movable, for reefing, shipping, and feathering. For reefing, Parr (1825) made the floats slide on the arms with joints. Galloway (1843) placed the movable pieces on a separate inside wheel, moving laterally on a hollow shaft; and Brunet (1843) placed them on different sides of the arm. Massie (1836) dividing each float into parts with parallel bars, caused one set to move over the other for reefing. For attaching the floats, Hamond (1844) used wedges, while screws were employed by Brown (1847).

Hall (1839) and Bird (1842) protruded them by a fixed spiral groove. They might be folded on hinges in Tremeere's plan (1801), and were worked through screw rods by Holebrook (1838). In Leeming's plan (1835) and Newton's (1843), each float protruded during part of every revolution. Redmund (1838) made them fall back by hinges as they revolved. Each float ran out and in by its buoyancy in Oxley's plan (1845).

"Pass the Pepper."

Of all the aromatics which are partaken of by man as flavorers to his food there is none more common than pepper, and when unadulterated, its tendency, in small quantities, is rather to aid digestion than otherwise. The three important peppers commonly found on the dinner table are white, black, and cayenne, all natives of the tropics. They are much used (to stimulate digestion) by their human brethren—those hot and choleric old nabobs who confer a benefit on the world by living in hot climates far removed from the haunts of civilized life. Thus the *chow-chows*, *curries*, and other hot dishes so relished by your yellow-faced East and West Indians owe their flavor and pungency to the amount of pepper that they contain.

There is one variety of the genus *Piper* to which the white and black peppers belong (cayenne being a member of the genus *Capsicum*—called so, by the bye, from a Greek word which signifies to bite); this variety is a great favorite with housekeepers and cooks, and has received from them the flattering name of "all-spice," as it combines in itself the flavor of cloves, nutmeg, and cinnamon; it grows plentifully in Jamaica and other American islands, where it was first discovered by the Spaniards, who gave it the name of *Pimenta de Jamaica*. The French call it the "round clove."

Black pepper is cultivated in large quantities in Malacca, Java, and especially at Sumatra, the trade of these places being almost exclusively in these spices. A pepper garden

during the ripening of the pod is a lovely sight, being a large plot marked out into regular squares of six feet, in each of which are planted young trees called *chinkareens*, that serve as props to the pepper vines. When the prop has reached twelve feet high, it is cut off and the vines planted, two to each prop. A vine is three years in coming to maturity, and the fruit, which grows in long spikes, is three or four months in ripening. The berries are plucked as soon as ripe, and spread on mats upon the ground to dry, by which process they become black and shriveled, and are imported here as black pepper. In this city, and distributed throughout the States, are many mills where pepper is ground, and, we are sorry to say, it often sophisticated with burnt crust of bread and other adulterations.

The Sumatrans once did a genuine Yankee trick in connection with pepper, which is worth recording. They steeped the pepper corns in water until their shells or outer coat burst and then drying them without it, sold for three times the price of the black, as a different species, to the East India Company, who then monopolized the pepper trade. The company, having swallowed the story, made the buyers swallow it too, and ever since we have had the two peppers, white and black, both coming from the same plant, but one possessing its coat, and the other being deprived of that useful appendage, and so weakened in its pungency. The effect of pepper is stimulative and carminative, and as a condiment it seems not only to add a peculiar flavor of its own to dishes into whose composition it may enter, but also to develop the flavor of the other ingredients. Taken in small quantities it warms the whole system, but if a large dose be placed on the palate, it seems to burn the tongue, and throw the whole mouth into a perfect glow. As a medicine it has been proved beneficial in cases of vertigo, paralysis, and intermittents. The pungency depends on the presence of an aromatic resin, which can be extracted by ether and alcohol, and partially by water.

Cayenne was first noticed on the coast of Guinea, and has been generally used by the natives of those climes in which it grows as a strengthener for the stomach. It is an extraordinary fact, but still true, that although savages may be unacquainted with the polite arts, they are generally well informed upon the subject of gastronomy, and to suit their sometimes peculiar tastes, they generally discover all the edible good things which their native soil affords. It cannot be denied that hunger and the palate are great equalizers, and the stomach, much as we abhor glutony, does much for civilization; in fact, his stomach and its wants distinguish man from the brutes, for, as Dr. Kitchener correctly observed, "Man is the only cooking animal."

The cayenne of commerce is the grain or seed of the capsicum ground and mixed with flour and then baked into little cakes in an oven; these are again broken up and mixed with more flour and placed in jars for sale. The tree or plant is very beautiful, and forms a great ornament to a garden, but it is very tender and requires much care. It is more pungent than either white or black peppers, and is often adulterated with logwood and mahogany sawdust and red lead; this latter can, however, be easily detected by placing a spoonful carefully in a glass of water, when, should it contain any red lead, it will from its specific gravity quickly drop to the bottom, while the cayenne will sink but slowly. A very pleasant drink may be made for these cold winter nights, and one that is healthy too, from pepper. Here is the recipe:—Place three or four lumps of sugar with half a teaspoonful of pepper in a tumbler and fill up with hot water; when the sugar is dissolved, drink. It is not only pleasant to the palate, but warms the whole body more effectually and quicker than any spirits. Those of our readers who try our recipe once will often, during the coming winter, when the fire burns

low, and they feel chilly generally, exclaim in the language of our caption, "Pass the pepper."

Compass Compensator.

The mariner's compass is often found to indicate wrongly from what is called "local attraction" affecting the magnet; this is peculiarly the case in iron ships. Calvin Kline, of Brooklyn, N. Y., has invented and patented this week an arrangement to correct or counteract this. The nature of the invention consists in the arrangement of one or more magnets in a horizontal position, below or above the needle of the compass, with opposite poles horizontally in line with the vertical center or axis on which the needle turns, and on the opposite sides thereof, by which arrangement the opposite poles of the magnet or magnets are caused to act upon the needle to force it into the same direction. It also consists in applying the so arranged magnet or magnets so as to make it or them adjustable on a center coinciding as nearly as practicable with the vertical axis on which the needle turns, that their poles may be made to point in any direction necessary to compensate for the local attraction, and may have their direction varied to meet any point or points of local attraction that may be produced by different cargoes or other causes. It further consists in providing for the adjustment of the so arranged and applied magnets in a direction parallel with the axis or vertical center on which the needle works, for the purpose of increasing or diminishing the intensity of their action according to the intensity of local attraction. Patents have also been obtained in England, France, and Belgium.

Tarring Rope Yarn.

John Stewart, of Brooklyn, N. Y., has invented an improved machine for tarring rope yarn, and assigned the invention to Charles Wall, 220 Front st., New York. The improvement consists in the employment within the tar vat of one or more series of sheaves or conductors, around which the yarns are bent in their passage through the tar, and by which they are conducted in such a manner as to cause them to pass through the tar in opposite directions, whereby they are caused to be more perfectly penetrated by the tar, and to keep the tar well stirred. The claim will be found on another page, as it was patented this week.

Knitting Machine.

F. Schott, of Brooklyn, N. Y., has invented an improved knitting machine, which has principally for its object the production of stockings and other knitted fabrics of a closer or more compact texture than those ordinarily produced by machinery. It consists in a series of improvements in those kinds of straight knitting machines in which the needle bed has a movement back and forth, to present the needles, one or more at a time, in regular succession into an operative relation with one or more feeders or thread conductors, and a corresponding number of stitch hooks. The claims will be seen on referring to our list this week.

Improved Sash-Fastener.

John Bestwick, Jr., of Dedham, Mass., has invented an improved sash-fastener, which consists of an eccentric or cam provided with a spring fitted within a proper box or case, and used in connection with a spring bolt. These parts are placed in the side strip of the sash, and the eccentric and spring bolt are in such relation to each other that the lowered sash will not only be retained at any desired height, but also locked when down or closed, and the spring bolt drawn back by actuating the eccentric. The invention was patented this week, and the claim will be found on another page.

We are indebted to Hon. John Cochrane, Member of Congress for this city, for many Congressional favors, and especially for copies of the Annual Report of the Commissioner of Patents.