

and deliver the same across the table and on opposite sides of a carbon ribbon, arranged above said table with a winding apparatus, for drawing both of said strips of paper off the rolls and winding one strip inside the case, and delivering the other outside thereof, substantially as described. 2nd. In a ticket register in which a single roll stores and delivers two strips of paper across a table, the combination of such single roll and table with a roll M arranged to feed a carbon slit between and at right angles with the line of travel of both paper strips, as set forth. 3rd. In a ticket register, the combination of the single roll A, the roll D and the record roll G, with the hinged arm H, the transverse carbon roll M and the spring I, as and for the purpose set forth. 4th. A registering device provided with a single drum carrying two strips of paper, a table over which both strips are carried and separated by a single strip of carbon paper fed from a roll transversely across such table, means for diverting one of such strips of paper outside the case to be severed into pieces of equal lengths, and means for conducting and winding the other strips upon a record roll, as set forth. 5th. The combination of a roll A, roll D and table with the transverse roll M, roll F, friction roll G and spring I and with the operating keys, whereby both strips are wound upon and fed from a single roll A, as set forth.

No. 17,242. Fellow and Spoke Tighteners. (*Serre-jante et Serre-rayon.*)

Archimedes Galbraith, Amadore, Mich., U. S., 12th July, 1883: 5 years.

Claim.—1st. A fellow tightener consisting of a right and left threaded screw, two internally threaded bars, two pairs of serrated clamping jaws and two pairs of fastening or clamping bars H attached to said bars by bolts and nuts, substantially as and for the purpose described. 2nd. In a fellow tightener, the combination, with the right and left threaded screw A and bars B, of the serrated plates E, bolts *f* and nuts *g*, as shown and described. 3rd. In a fellow tightener, the combination, with the right and left threaded screw A and bars B, of the plates E provided with a serrated portion *e*, bolts *f* and nuts *g*, substantially as shown. 4th. The combination, with the screw A and bars B, of the fastening bars H and the bolts *h*, as shown and described. 5th. In a fellow tightener, the combination, with the right and left hand screw A and bars B, and clamping jaws E, of the fastening or clamping bars H and bolts *i* and *h*, for securing the jaws E upon the fellow, substantially as shown and described. 6th. The combination, with the screw A and bars B of the straps D provided with threads for the engagement of said screw, substantially as described. 7th. The combination, with the bars B of the cushions K, as shown and described for the purpose specified. 8th. The device for tightening spokes consisting of a cup adapted for passing on the end of the spoke and carrying a screw, substantially as shown and described. 9th. The combination of the cup *c*, screw *m* and nut *n*, substantially as described, for use as a spoke tightener or fellow expander.

No. 17,243. Improvements in Pulleys. (*Perfectionnements dans les poulies.*)

Wallace H. Dodge and George Phillon, Mishawaka, Ind., U. S., 12th July, 1883: 5 years.

Claim.—1st. A band pulley having a solid continuous rim A, and a hub B having a slit D in the plane of the axis and extending to an equal or unequal distance on either side thereof, and the two opposite radial arms C, and the clamping bolts E close to the hub, substantially as and for the purposes set forth. 2nd. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar and hub are slightly separated, as described, combined with clamp bolts G, whereby said hub is clamped upon the shaft in the manner set forth. 3rd. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar and hub are slightly separated, and clamping G combined with a separate thimble H to be placed intermediate to the shaft and pulley, as set forth. 4th. A separable pulley whereof, when the meeting ends of the rim are in contact, the meeting faces of the spoke bar are slightly separated and clamp bolts G combined with a separable split-thimble interposed between said shaft and pulley, substantially as set forth. 5th. A separable pulley A composed of wooden segments *a b c*, etc., as set forth, provided with a divided spoke-bar B, the meeting faces whereof are slightly separated, and clamp bolts G, whereby said parts may be drawn towards each other, for the purposes set forth.

No. 17,244. Improvements in Bretzel Cutters. (*Perfectionnements aux découpoirs de crague-nelles.*)

Theodore H. Butler, George W. Earhart and William M. Crawford, Columbus, Ohio, U. S., 12th July, 1883: 10 years.

Claim.—1st. A flat die for cutting bretzel having the bow *a*, the loops *a a*, the intermediate twisted portion and the ends *a3 a4* and provided with the central creaser *a5*, side creasers *a5 a5* and end creasers *a7 a7* projecting into the bow *a*, substantially as shown and described. 2nd. The combination of a die A, perforated as described, for the reception and passage of scraps and for the expelling studs F with said studs, the guide rods C, the base B provided with feet or projections *h*, the springs *h*, perforated plate D and the hand-piece E, substantially as shown and described. 3rd. A flat bretzel-shaped die having three off-bearing internal scrap passages or channels and perforations, for the expelling studs, in combination with the expelling studs, substantially as shown and described.

No. 17,245. Improvements in Wire Coiling Machines. (*Perfectionnements aux machines à rouler le fil de fer.*)

Edward W. Durkee, Mason, Ill., U. S., 12th July, 1883: 5 years.

Claim.—The combination, with the wire feeding and guiding devices and the spirally-grooved former, of the cap I having the form of a segment of a hollow cylinder, and fitted to the former and tightly secured thereto, as shown and described.

No. 17,246. Improvements in Match Machines. (*Perfectionnements aux machines à allumettes.*)

Herbert L. Hapgood, Athol, Mass., U. S., 12th July, 1883: 5 years.

Claim.—1st. The holder M provided with the trunnions *j j* and means of holding a gang of spur cutters *i i* and the planing cutters *r* and *r1*, in combination with one or more removable washers *s s* fitted to each trunnion, substantially as and for the purposes described. 2nd. The combination of the slide F provided with the abutments V and V₁, the holder M mounted by its trunnions *j j* and *j1* in bearings on said slide, and provided with means of holding a gang of spur-cutters *i i*, and mechanism for imparting to said holder an intermittent oscillating motion. 3rd. The combination of the reciprocating slide F, the holder M, the forked and slotted lever N, the stops O and P, and means of locking the lever N in a vertical and an inclined position. 4th. The combination of the slide F, the holder M, the forked lever N provided with the curved slot *n*, the pin *l*, the stops O and P, the spring Q provided with the detent notches *p* and *p1*, and the roll *q*, all arranged and adapted to operate substantially as and for the purpose described. 5th. The combination of the slide F, cutter-holder M mounted by its trunnions in half boxes formed in said slide, the removable half boxes *t t*, the pivoted caps T T, the lips *u u*, the section F₁ of the slide F pivoted as set forth, and the screw *w*, all arranged and adapted to operate substantially as and for the purposes described. 6th. The combination of the slide F, the holder M, the lever N, the stop-levers O and P, the springs *k* and *k1* and the stops or abutments *o* and *k2*, all arranged and adapted to operate substantially as described.

No. 17,247. Pneumatic Grain Elevator. (*Élévateur pneumatique des grains.*)

Lyman Smith, Kansas, Mo., U. S., 12th July, 1883: 5 years.

Claim.—1st. The combination of the elevating grain tube, the exhaust tube with a combined vacuum chamber and receptacle, the said tubes being enlarged at their connecting ends with the said chamber, said chamber having a baffle plate, and the exhaust pipe having a deflecting lip *c t*, substantially as described. 2nd. In an elevator for grains or other material, the combination of the exhaust chamber provided with a baffle plate, an elevating tube, an exhaust tube, the latter being slightly above the former and having a downwardly projecting lip by means of which baffle-plate, lip, &c., position of tubes, the heavier material is made to take a downward current, while the lighter particles are separated therefrom and made to take an upward current, substantially as described. 3rd. In an elevator for grain or other material, the combination, with a vacuum chamber forming a receptacle for the grain, of the elevating and exhausting tubes connected therewith and the tubes *f f*, the latter being provided with air-induction and eduction valves, substantially as described. 4th. The combination, with a combined vacuum chamber and grain receptacle, of the tubes *f f* and with air communicating tubes arranged to be alternately opened and closed for destroying the vacuum in the said tubes, substantially as described. 5th. The combination, in an elevator consisting of the combined vacuum and receptacle chamber, the tubes *f f*, said tubes being provided with inwardly and outwardly opening valves arranged to open automatically, said tubes communicating with the exhaust chamber by independent means, as set forth. 6th. The combination, in a grain elevator, consisting of the vacuum and grain receiving-chamber, the tubes *f f*, the alternating opening and closing valves and the air cut-off valves G G₁, all operating together in the manner set forth. 7th. The combination, in a grain elevator, of the tubes *f f*, the mechanically connected opening valves G G₁, 3 and 4, and the air-pressure closing-valves 1 and 2, substantially as described. 8th. The combination, in a grain elevator, of the tubes *f f* and the automatically operating valves 1, 2, 3 and 4, and the slide-valves G G₁, arranged to open and close duplex air parts by the movement of the said valves 3 and 4, as set forth and described. 9th. The process described of elevating and delivering grain consisting in, first, elevating it by automatic power, then separating it from the air current equalizing the pressure in the induction tube and vacuum chamber, then shutting off the vacuum pressure from said tube and admitting air above the grain to be delivered. 10th. The combination, with a grain elevator, of a separating trap or vessel interposed between the vacuum-chamber and the blower, whereby the grit, sand, chaff and other foreign substances are prevented from entering the blower, substantially as described. 11th. The combination, in a pneumatic grain operator, of the vacuum-chamber and a blower with the dust trap arranged on the exhaust pipe between the vacuum chamber and blower, the trap being provided with a dust separating device in the manner shown and specified. 12th. The combination, in a pneumatic elevator consisting of the vacuum-chamber, the blower, the trap arranged between the said blower and chamber, said trap being provided with valves for discharging its contents without interfering with the air current passing through the trap, substantially as shown and described. 13th. The combination, in a pneumatic elevator consisting of the vacuum-chamber, the blower and the trap interposed between the blower and chamber, and in communication therewith, the said trap being provided with a separating device and discharge valves, in the manner shown and described. 14th. The combination, with the suction feed-pipe of a pneumatic grain elevator, of the mouth-piece having an outer air supply-pipe closed at its bottom and open at its top, the said outer pipe being sufficiently below the grain pipe to permit the air to be sucked in below the grain, thereby utilizing its power, said pipes having grain inlet apertures, substantially as described. 15th. The combination, in a grain elevator, of the air supply pipe with a grain controlling valve or thimble, for graduating the grain supply to the feed pipe, substantially as described. 16th. The combination, in a grain elevator, of the air inlet pipe, the grain inlet tubes or apertures, the controlling thimble or valve with the flexible tubing having contracted sections for increasing the velocity of the contents passing through the tubes, substantially as set forth. 17th. A pneumatic tube consisting of straight and bent sections or elbows, the said bent sections being contracted for the purpose of increasing the velocity of the contents of the tube passing through them, substantially as specified. 18th. The combination, in a grain elevator, of the air supply pipe, the mouth-piece of the grain