

therein, substantially as shown and described. 16th. In an autographic register, the combination with shaft E<sup>1</sup> and filing frame thereto attached, and bar G<sup>1</sup> connected therewith of the shaft A<sup>1</sup> and arm K<sup>1</sup> to operate said bar G<sup>1</sup>, which bar is curved at its outer end, and pin e<sup>1</sup> to support the same so that said bar G<sup>1</sup> will be tripped during its operation, substantially as shown and described.

**No. 38,200. Vise. (Etau.)**

The Armstrong Manufacturing Company, assignees of Arthur Wise Cash, Bridgeport, Connecticut, U. S. A., 3rd February, 1892; 5 years.

*Claim.*—1st. In a vise, a stationary jaw and a stationary rack, combined with a movable jaw, a pawl carried thereon and engaging the rack, a cam interposed between the movable jaw and the pawl, and means for operating the cam, substantially as described. 2nd. In a vise, a base provided with a jaw and with a rack, in combination with a movable jaw, an eccentric pivoted to the movable jaw, means as a handle for operating said eccentric, and a pawl carried by said eccentric and engaging the rack on the base, substantially as described. 3rd. In a vise, the base provided with a stationary jaw and rack, in combination with a movable jaw complementary to the fixed jaw, an eccentric carrying a pawl and fulcrumed to the movable jaw, and a pair of lugs, one carried by the eccentric and the other by the pawl, whereby the latter may be moved upon its centre. 4th. In a vise, the base having a fixed jaw and a rack, in combination with the longitudinally sliding jaw, the handle having oppositely projecting hubs pivoted to the movable jaw eccentric to the hubs, the gravitating pawl pivoted to said hubs, and means as a handle for the operation of said hubs, substantially as specified.

**No. 38,201. Breast Collar. (Harnais à poitrails.)**

Thomas White Fisher and Jacob Joel Leiser, both of Helena, Montana, U. S. A., 3rd February, 1892; 5 years.

*Claim.*—1st. A breast collar constructed in two corresponding sections, a detachable link-bar intervening said sections, and latch devices connecting the link-bar and the collar sections, substantially as set forth. 2nd. The combination, with a breast collar constructed in two corresponding sections attached at their rear ends to traces, and a shoulder strap supporting said sections, of a curved link-bar, bifurcated at its ends and provided between said ends with transverse pins, and latch devices on the collar sections adapted to detachably engage said pins, substantially as set forth. 3rd. The combination, with a breast collar constructed in two corresponding sections, and a curved link-bar intervening said sections, having bifurcated ends and transverse pins between said ends, of latch devices on the collar sections, consisting of hook-shaped lugs adapted to engage said pins, pivoted latch dogs adapted to engage said lugs, and finger springs holding the dogs in engagement with the lugs and pins, substantially as set forth.

**No. 38,202. Roller Bearings. (Cousinet anti-frottement.)**

Charles Dickinson Menecy, Albany, New York, U.S.A., 3rd February, 1892; 15 years.

*Claim.*—1st. The combination, with a bearing-box and axle, of a series of tube-form rollers that in length are shorter than the bearing-box, with said rollers arranged to be in axial alignment with the axle, and to break joints or lap past each other at their inner ends, with rods arranged to pass through said rollers to alternately interweave or interlock said rollers around the axle between the latter and the bearing-box, substantially in the manner as and for the purposes set forth. 2nd. The combination, with a bearing-box and axle, of tube-form rollers that in length are shorter than the bearing-box, with said rollers arranged to be in axial alignment with the axle, and break joints at their inner ends, with two rods passing through each of the rollers that are in alignment with each two of the rollers, where breaking joints at the ends of the rollers in alignment with each other in connected series around the axle between the latter and the bearing-box, substantially in the manner as and for the purposes set forth. 3rd. The combination with the axle A made with the shoulder J, the end ring D, and rings M of the bearing-box B, made with the sleeve S, the tube-form rollers R<sup>1</sup> and R<sup>2</sup>, arranged between said bearing-box and axle, so as to be in axial alignment with the latter, but to break joints and lap past each other at their ends, and the rods T, arranged to pass through said rollers from end to end of the bearing, substantially in the manner as and for the purposes set forth. 4th. The combination, with the axle A, made with the shoulder J, the end ring D, and rings M of the bearing-box B, made with the sleeve S, the tube-form rollers R<sup>1</sup> and R<sup>2</sup>, arranged between the bearing-box and axle, so as to be in axial alignment with the latter, but placed so as to break joints or lap past each other at the ends, and the rods T, made with the end flanges F, and arranged to pass through said rollers from end to end of the bearing, substantially in the manner as and for the purposes set forth.

**No. 38,203. Mechanism for Forming Wire Strands.**

(Appareil pour former les torons de fil de fer.)

George P. Rishell, Hornellsville, New York, U. S. A., 3rd February, 1892; 5 years.

*Claim.*—1st. In a mechanism for forming with strands, the combination, with centrally-cleft circular bearings having permanent

diametrical channels, of divided twisting-heads adapted to move in said bearings, each part of said twisting-heads, carrying one of the wires, substantially as described. 2nd. In a mechanism for forming wire strands, the combination, with centrally cleft circular bearings having permanent diametrical channels, of divided twisting-heads arranged and turning in said bearings and provided with depending guide-points through which the wires are carried, substantially as described. 3rd. In mechanism for forming wire strands, the combination, with centrally-cleft circular bearings, of divided twisting-heads having curved guide-plates lying and moving in outer channels in the cleft-bearings, and provided with central depending guide-points lying and moving in central concentric portions of the cleft-bearings, and having openings to conduct the wires, and means, substantially as described, for operating the twisting heads, substantially as described. 4th. In mechanism for forming wire strands, the combination, with centrally-cleft circular bearings having their axes converging, of divided twisting-heads having supports for spools carrying the wires and provided with gear-teeth at or near their upper ends, shafts parallel with the axes of the circular bearings and having intermeshed fûtre-gears at their converging ends and spur-gears at the other ends meshing with the gear-teeth on the divided twisting-heads, one of said shafts on each half-bearing being prolonged and provided with a spur-gear, and a shaft having a driving-gear meshing with both spur-gears, substantially as described. 5th. In mechanism for forming wire strands, the combination, with centrally-cleft circular bearings of divided twisting-heads having supports for spools containing the wire, means for imparting circular movement to said divided heads, and curved arms overhanging the same and carrying the wires forming the filling, the extremities of said arms having opposite periodical movement in the line of the channel dividing the bearings, substantially as described. 6th. In a machine for forming wire strands, the combination, with centrally-cleft circular bearings and divided twisting-heads having spool-supports and provided with tension devices from which the wires pass through central depending guide-points, of spur-gears meshing with gear-teeth formed upon the other faces of the divided twisting-heads, and curved arms mounted on oppositely-turning gears to throw the arms periodically in opposite directions in the line of the channel dividing the bearings, said arms having grooves for the filling-wires, substantially as described. 7th. In mechanism for forming wire strands, the combination, with centrally-cleft circular bearings, each half being composed of curved concentric portions curving through less than a semicircle, of divided twisting-heads having spool-supports, and provided with plates lying and moving between the eccentric portion of the bearings, and having also depending guide-points moving on the concave face of the inner portion of the bearing, the slots or channels dividing the twisting-heads, and the bearings being brought into coincidence twice during each revolution of the twisting-heads, and curved arms carrying the filling-wires, their points overhanging the channel between the cleft-bearings, said curved arms having a periodical movement in opposite directions in the line of the channel dividing the bearings, substantially as described. 8th. In mechanism for forming wire strands, the combination, with a bearing divided diametrically by a vertical channel or slot, of twisting-heads arranged in said bearings and composed of separate similar parts, each part having a spool-support, and being divided or separated from the opposite part by a channel which coincides periodically with the vertical channel of the bearings, curved arms having channels for the filling-wires, their extremities overhanging the channels dividing the bearings, gears on which the ends of said arms are mounted, and means for automatically producing a periodic opposite and partial revolution of the said gears, to throw the arms periodically in opposite directions in the line of the channel dividing the bearings, substantially as described. 9th. In mechanism for forming wire strands, the combination, with cleft circular bearings, of centrally divided twisting-heads having spool-supports, gears meshing with gear-teeth on the outer faces of the twisting-heads, means for continuously operating said gears, curved arms laying the filling-wires and carried by oppositely revolving gears, a compound gear driving the same by one of its members, a yoke-shaped rack engaging the other member, a vibrating lever supporting the journal of the compound gear, a bar vibrating said lever, and a dish having a cam-race in which lies a roll on the end of the bar, substantially as described. 10th. In mechanism for forming wire strands, the combination, with cleft bearings and divided twisting-heads moving therein to twist or spin the cables of the strand, of curved arms carrying the filling-wires and mounted upon oppositely periodically, and partially rotating spur-gears, a compound gear from which the motion of said spur-gears is derived, a yoke-shaped rack, between the toothed arms of which the other member of the compound gear lies, a lever raising and lowering the rack, a dish having a cam-race operating said lever, a movable bearing supporting the compound gear, and a lever actuated by a cam-race on the opposite side of the disk actuating the rack-lever, substantially as described. 11th. In mechanism for forming wire strands, the combination, with bearings divided by central or diametrical channels and having their axes inclined, of twisting-heads each divided diametrically into two similar independent parts, each having a spool-support and provided with a series of teeth upon the outer surface gears, meshing with said teeth and driving the twisting-heads, and adjustable guide-rolls over which the wires run as they come from the twisting-heads, substantially as described. 12th. In a machine for forming wire strands, the com-