

to be applied to the arbor, and contained and folded beneath the outer case of a watch; 2nd. The combination with the thumb-piece C and plate B, of a spring E.

No. 7927. Improvements on Harvesting Machines.

(*Perfectionnements aux faucheuses-moissonneuses.*)

Melville P. Newis, Richmond, England, 21st September, 1877, for 5 years.

Claim.—1st. The use in combination with the forward part 31 of the platform, of curved form, on to which the stalks are moved into position for being gathered up into a bundle or sheaf, 2nd. The combination with the curved rearward part 34 of the platform, of the reciprocating fork and guides, whereby the cut stalks that have been moved on to the said part 34 of the platform are gathered together, are held whilst they are bound, and are subsequently delivered, 3rd. The combination of apparatus for forming simultaneously two loops in the binding material, and means whereby one end of the binding material is passed through said loops, 4th. The use, in combination with a carrier whereby binding material is carried round a collection of stalks, of loopers arranged to form two loops in the said binding material, and reciprocating pincers whereby the ends of the binding material that has been carried round the collected stalks is passed through the said loops; 5th. The use, in combination with the loopers and reciprocating pincers, of a pusher, whereby the loops that have been formed by the loopers are caused to pass on to the binding material to form the knot, whilst the end of the binding material is held by the reciprocating pincers; 6th. The combination with a shaft 59 and an arm furnished with means for carrying binding material round a collection of stalks, of a portion 49 fixed on said shaft, a quadrant 48 operated and geared with said pinion 49 for causing the apparatus, whereby the end of the binding material is held to pass at the proper intervals around the collected stalks, and a ratchet 146 and pawl 147 for preventing the return movement of the arm; 7th. In combination with the compound or adjustable arm 51 and means for intermittently rotating it, the tube 52, twine carrier pincers 53, their sleeve f and tube 52, the knife holder 55 and knife 56, arranged to slide backwards and forwards in the recess e in the underside of the stem, and jaws of the pincers, 9th. The combination with the tube 52, the twine carrier pincers 53 and other parts, the rod or tail piece 57, arranged to slide in supports or guides, and the spring 58, whereby said rod or tail piece is kept in its outward position, 10th. In combination with the sleeve f, of the pincers 53, the sliding rod or tail piece 57, and means for keeping said rod or tail piece in its outward position, the lever 71 with its projections or tappets 72, 73 and means for operating said lever; 11th. The use, in combination of two loopers, and means for rotating the same in opposite directions, so as to form two loops in the twine or binding material simultaneously; 12th. The looper 82 with its slot formed with straight parts 87 and 88, and a curved part 85 passing three-quarters round the looper, in combination with the fixed pin or projection 26, whereby the loopers is partially rotated as it descends; 13th. The looper formed at its lower part with a shoulder 94 and opening 104 for the passage of the pincers 89 and sheath 107, and terminating in four prongs or projections; 14th. The combination with the looper for simultaneously forming two loops, of the loop lifter 67 on the shaft 66, and means for operating the same, so that it shall raise the twine or binding material, to enable the reciprocating pincers to pass freely between

the two loops; 15th. The combination with the loopers 82 83, shaft 66, and loop lifter 67, of the reciprocating pincers 89, their sheath 107 and the pusher 103; 16th. The combination with the cylindrical stem piece 89a with its lug d, the jaws 89b, means for forcing the same apart, and the springs 89c on the outer sides of said jaws, of the sheath 107 with its stud piece 111, slot d, and slots 107a, 17th. The combination with apparatus for simultaneously forming two loops in twine or binding material, and apparatus whereby one end of said binding material is passed through said loops, of a tension device whereby the formation of the knot is completed, and the end of the twine or binding material is presented to the twine carrier pincers, 18th. The use, in combination of the guide 133 slotted arm 135, with its pulley 134 and holding device 137; 19th. In combination with the striker 148 c the looper frame, and the striker 141 of the rake lever the holding device constructed with two flat discs h and i, with rounded edges axis K, with quick thread and nut l, with its projections n o and their respective pins, 20th. In combination with the guide 133, slotted arm 134 and holding device 137, the pulley 142, its rod, spring, and tube 143, pulley 144 pulley 97 roller 98 and the slide 96, operated for exerting the necessary tightening action, 21st. The combination with the reciprocating fork 122 duplex lever 118, and means for operating same, of the connecting rod 121 with its spiral spring 124, 22nd. The combination with the cam 125 on the shaft 17 of the slide 126 lever 127, shaft 128 and guides 129 130, 23rd. The combination with the loop lifter lever 63, the twine carrier pincer levers 70 71, the looper operating slide 76, the tension device lever 92, the pusher lever 99, the pincer operating lever 105, the pincers sheath lever 109, the reciprocating fork lever 118 and the guide operating slide 120 of the loop lifter operating device 60, 61, and the cams 62 91 99 105 108 116 117 and 125 keyed together on the grooved shaft 17, and arranged to be moved together along said shaft by the bracket 59 of the movable frame 37.

No. 7928. Boiler Flue and Water Pipe Cleaner.

(*Nettoyoir des tubes des chaudières et des tuyaux d'eau.*)

Joseph S. Godfrey Jackson, Mich. U.S., 21st September 1877 for 5 years.

Claim.—1st. A cutting blade pivoted at or near the middle, 2nd. The spiral cutting blade, pivoted at or near the middle and attached to adjustable springs, 3rd. The springs B having a portion of their length arched near the middle in combination with a nut and screw threaded rod for expanding the same, 4th. The combination of the spiral cutting blades C pivoted at or near the middle to the springs B the springs B arched a portion of their length near the middle nut E, screw threaded rod D and head A.

No. 7929. Machine for Preparing the Edges of Soles.

(*Machine à polir les tranches des semelles.*)

James H. Busell, Boston, Mass., U.S., 24th September, 1877, for 5 years.

Claim.—1st. The combination of the tool C and its shaft B with the guide G and its flexible shaft, 2nd. The combination of the tool C guide G and annular tool K, 3rd. The revolving and guide G, so mounted that it may have a motion bodily in addition to its revolving motion; 4th. The tool C consisting of a hub with a series of blades, each dovetailed into it.

Lists of Patents issued up to 16th October, 1877, but not yet Officially published in the Patent Office Record.

No. 7930. Jno. B. Tibbitts, Hoosick, N. Y., U.S.A., "Apparatus for Propelling Cars," 25th September, 1877.

No. 7931. J. Bliss, Jersey City, N.J., and F.O. Badger, Brooklyn, N.Y., U.S.A., "Process of Treating Blood," 25th September, 1877.

No. 7932. H. Knight, Liverpool, Eng., "Manufacture of Pigments," 25th September, 1877.

No. 7933. J. D. Johnson, Richmond, Que., "Vacuum Railway Brake," 25th September, 1877.

No. 7934. B. S. Wells, Byron, Ont., "Loose Grain Loading Fork," 25th September, 1877.

No. 7935. D. Felton, Manchester, Eng., "Process of Waterproofing Paper and other Ligneous Tissues," 25th September, 1877.

No. 7936. Jas. Amess, Rosemount, Ont., "Window Fire Escape," 25th September, 1877.

No. 7937. N. W. Brown, Whitby, Ont., "Reaping Machine," 25th September, 1877.

No. 7938. S. T. Packham, Newmarket, Ont., "Grind Stone Frame," 27th September, 1877.

No. 7939. J. Solomon, Solomon's Island, Md., U.S.A., "Motor Spring," 27th September, 1877.

No. 7940. E. Burstow, Horsham, Eng., "Railway Key," 27th September, 1877.

No. 7941. David Shields, of Long, and R. Z. Liddle, of Albany, N.Y., U.S.A., "Oil Stove," 27th September, 1877.

No. 7942. E. Mets, Rochester, N.Y., U.S.A., "Musical Flying Top," 27th September, 1877.

No. 7943. U. Cummings, Buffalo, N.Y., U.S.A., "Process for Manufacturing Lime and Cement," 27th September, 1877.

No. 7944. J. H. Morris, Seward, Nn., U.S.A., "Animal Trap," 27th September, 1877.

No. 7945. C. Holland, Chicago, Ill., U.S.A., "Hydrocarbon Burner and Gas Generator," 27th September, 1877.

No. 7946. E. De F. Waterbury, Rockford, Ill., U.S.A., "Measuring Rule," 27th September, 1877.

No. 7947. D. Shields, Sing-Sing, N.Y., U.S.A., "Oil Stove," 27th September, 1877.

No. 7948. A. A. Stinson and C. T. Sahin, of Montpelier, Vermont, U.S.A., "Double-Acting Spring Hinge," 27th September, 1877.

No. 7949. T. A. McDonald, Durham N.S., "Lace Fastenings," 27th September, 1877.

No. 7950. S. Horsford, Halifax, N.S., "Ice Creeper," 27th Sept., 1877.

No. 7951. S. Mahr, Quebec, Que., "Telegraph Alarm Box," 27th September, 1877.

No. 7952. H. Mott, (Assignee of W. M. Edmunds, Troy, N.Y., U.S.A.,) "Spring Bed Bottom," 27th October, 1877.

No. 7953. W. Buchanan and D. C. Lyall, N.Y., U.S.A., (Assignees of D. W. De Forest, Brooklyn, N.Y., U.S.A.,) "Cigarette Making Machine," 2nd October, 1877.

No. 7954. R. W. Semple and G. A. Shaw, Toronto, Ont., "Door," 2nd October, 1877.

No. 7955. J. Sager and A. Gerlach, Monroe, Mich. U.S.A., "Fruit Picker," 2nd October, 1877.

No. 7956. A. F. Gue and G. F. Field, Boston, Mass., U.S.A., "Car Brake," 2nd October, 1877.

No. 7957. J. E. Stong, Newtonbrook, Ont., "Farm Gate," 5th October, 1877.

No. 7958. H. Sherman, Flushing, Mich. U.S.A., "Dividing and Siding Hook Combined," 5th October, 1877.

No. 7959. N. N. Horton, Kansas, Miss., U.S.A., "Reclining Chair," 5th October, 1877.