

Farm Implements

In a state where agriculture was the primary activity, it was only natural that emphasis would be given to farm implements. Approximately 590 patents, or more than one-fourth of those granted, were given for new or improved machines for preparing the land, plowing, planting, cultivating, harvesting, and milling the crops.

Many inventors also manufactured their products. For instance, H. H. Ballard, who patented a mole plow with H. McClure in 1861, became superintendent of the Mt. Pleasant Foundry and Machine Works. In 1864 S. D. Morrison and his sons established a plow works on Front Street, Fort Madison. He patented a plow in 1871, and one of the sons a three horse splinter bar in 1866.

Some brought experience gained in other countries. Henry Barnes of Franklin Township, Story County, was a native of Manchester, England. He received a patent in 1869 on a plate for making blanks for mold boards and shares for plows. He had started to perfect it before coming to Iowa.

William D. Harrah and Benoni S. Baldwin of Davenport patented a seed planter (primarily for corn) on August 9, 1859. The rotation of the leading wheels and their shaft caused markers to

strike the ground at suitable intervals. A sliding frame was operated by the wheels also. The seed dropped through holes and tubes at each stroke of the slides.

A hand corn planter was devised by D. H. Howell of Independence. Combining seed conveying tubes, seed boxes, and a seed distributing device, the planter could be manipulated by hand and two rows of corn planted simultaneously.

A corn planter invented by W. E. Rich, of New Providence, planted the corn in check rows. It also covered and rolled it at the same time. Charles R. Rand of Dubuque was really ingenious. He invented an interchangeable frame that could convert the implement at will into a corn planter, corn drill, grain drill, hay rake, hay tedder, cultivator, gang plow, or potato digger.

More cultivators than anything else—at least 111—were invented. R. D. Dodge of Adel connected the plows of the cultivator to each other and to the main frame so each plow would adjust itself to the unevenness of the ground entirely independent of the others. The plows, or part of them, could be given a side motion. In this way both sides of a hill of corn could be cultivated as closely as desired.

C. W. Stafford of Burlington patented a mole plow or cultivator in 1860. The *Farmers' Northwestern Almanac* for 1864 commented on it:

Now-adays the farmer by the judicious selection of

good machinery and implements, makes many of the old tedious and laborious operations of farming comparatively light and pleasant. Who would have thought twenty years ago of riding in a sulky to plow out corn. Mr. Stafford the inventor of the valuable machine . . . claims when he perfected it he had in view the following points: First, that the Cultivator should work well and thoroughly; Second, that it should be easily guided and managed by the operator; Third, simplicity of construction; Fourth, ease of draft; Fifth, riddance of manual labor. The driver controls the direction of this Cultivator with his feet in a very simple and effective manner, having both hands free at all times to manage his team. It will cultivate ten or fifteen acres per day.

Attached to the Cultivator is a *fender*, which effectually prevents the small corn from being covered. . . .

On his cultivator Jacob Reedy of Toledo arranged two rows of teeth so they removed clods and refuse from the corn and deposited them between rows. At the same time the ground was pulverized and leveled, leaving it in a condition most favorable to growth of the crop and destruction of weeds. "The completeness of its work, its cheapness and extreme simplicity of construction, all combine to make it one of the best implements for the cultivation of corn on our prairies," according to the *Des Moines Register*.

The paper reported that Reedy was a Tama County farmer of "rather unpretending appearance, but not entirely destitute of that peculiar Yankee characteristic which leads to whittling out of new forms from pine sticks with jackknives."

Some people apparently were critical of riding cultivators. S. G. Mills of Des Moines, who had patented his in 1866, wrote to the *Register* in June 1868, "All I ask is to have the farmer examine the Cultivator, and not be foolish enough to cry out *humbug!* until he has tried it."

Iowans came forth with many improvements for binders, reapers, and harvesters. Some were attachments to bind the grain, drop it in piles, etc. For instance, Thomas Boyd of Des Moines patented a harvester that discharged Indian corn or maize in shocks or bundles of any suitable or desired size.

Winfield Denton of Iowa City invented a device for loading hay on the wagon or cart, easily and conveniently without the necessity of hand pitching.

Once the crop was reaped and bound, it was necessary to separate the grain from the straw and chaff. The grain separator of J. C. Parmater and E. H. Bowen of Vinton was made of a series of zinc and wire screens.

Several invented potato diggers. Ira Curtis of Des Moines intended to start manufacturing his immediately after he got his patent on April 6, 1869. One observer wrote, "This new anti-back-breaker will dig up all the potatoes and sack them as it trots along, and is drawn by two horses. It's a 'cute' invention and competent judges say it will do all that is claimed for it."

Land Preparation

Harrows (17): Atwood, New Sharon; Benson, Belle Plaine; Depeny, Hamburg; Friedemann (2), Waverly; Heffner, Homer; Hollingsworth, Mt. Pleasant; Kilgore, Washington; Lewis, Elkader; Lezott, Osage; Marinus, Whait & Whait, Independence; Osborn, Mt. Pleasant; Paddington, Springville; Reimer & Asbahr, Davenport; Safley, Mt. Vernon; Swanson, Swede Point; Taylor, Golden Prairie.

Harrow and cultivator combined (2): Bressler, LaFayette; Whait & Whait, Independence.

Harrow and seed drill: Underwood, Grand River.

Harrow, drill, grass seeder, and roller: Long, Osage.

Land roller (3): Cole, Fredericksburgh; French, Crawfordsville; Tompkins & Dougal, Van Buren.

Stalk cutters (12): Flack, Columbus City; Gordon, Washington; Kuh, Jefferson; Leslie, Ft. Madison; Lewis & Munger, Malcolm; Miller, Stanwood; Nebergall, Tipton; Ryder, Wapello; Wilde, Washington; Wilde & Wilde, Washington; Wood, Pella; Wright, Ft. Madison.

Plows

Plows (ditching, gang, garden, hand, sulky, mole, etc.) (59): Bagley, Tipton; Ballard & McClure, Mt. Pleasant; Blanchard, Iowa Falls; Bond, Marshalltown; Canfield (2), Lyons; Clifton, Lyons; Cummins, Leon; Cummings & Childs, Boonesborough; Donaldson, Toledo; Edgell, Alexander & Alexander, Independence; Fox, Oskaloosa; Freeman, Bloomfield; French & French, Keokuk; Furnas, Ononwa; Glass, McGregor; Hammer & Gordon, Lisbon; Hammitt & Miller, Toledo; Harris, Des Moines; Harrell, Clarinda; Hess, Lyons City; Hoit, Cedar Falls; Hunt (2), Muscatine; Ingalls, Independence; Karr, Mt. Pleasant; Knight, Boone; Kynett, Lisbon; Levee, West Point; Lyon, Harrisburgh; McConnell (2), Marengo; McCool (2), Guthrie Center; McWhinnery, Winterset; Miller, Mt. Pleasant; Miller, Sherman; Miller, Iowa Falls; Morrison, Ft. Madison; Morton, Oxford; Peters & Pauley, Keokuk; Pond, Independence; Primmer, Vinton; Rams, Keokuk; Rankin, Middletown; Rayl, Agency City; Reedy, Toledo; Romann & Peterka, Wilton Junction; Rhinehart & Gaston, Oskaloosa; Skinner, Davenport; Smith, Cedar Falls; Stafford, Burlington; Stephens, Agency City; St. John, Keosauqua; Von Achen, Bloomfield; Wilde, Washington; Wilson & Haworth, Iowa Falls; Wing, Earlville; Winton, Marion.

Plow colter: Gibson, Springfield.

Plow moldboard: Gaines & Scott, Fairfield.

Plow point: Kniphals, Davenport.

Plow scraper: Leach, Camanche.

Plow shovel (3): Smith, Des Moines; Trowbridge, Waterloo; Wilcox, Maquoketa.

Plow wheel (6): Borland (2), Charleston; Bingham & Pond, Waterloo; Cochrane, Indianola; McCool, Guthrie Center; Stevens, Donnellsen.

Planting the Crop

Grain drill (10): Blood & Uhrich, Independence; Bucknell, Decorah; Cormick, Independence; Edgell, Martin, Kellogg & Alexander, Quasqueton; Evans, Newton; Gould, Winterset; Ingalls, Independence; Pond, Independence; Rand, Dubuque; Smith, Unity.

Seeders (34): Baldwin & Aborn, Independence; Bates, Centre Point; Beal & Beal, Lester; Churchill, New Hartford; Clark, Castalia; Clark & Whitney, Independence; Cozad, Corydon; Culley, Jefferson; Deyo, Strawberry Point; Douner & Stuart, Monmouth Twp., Jackson Co.; Field, Keokuk; Harrah, Baldwin & Jones, Davenport; Hathaway, Independence; Ingalls, Independence; Lewis, Elkport; Lower, Albia; Lyle, Clarksville; Matlock, Augusta; McGlew, Des Moines; Melendy, Delhi; Miller, Stanwood; Miner, Chariton; Morehouse, Davenport; Morton & Spaulding, Des Moines; Notestein, Salem; Paddington, Springville; Pierce, New Providence; Rate, Woodbridge; Root, Keokuk; Sackett, Monticello; Tedford, Hartford; Todd, Quasqueton; Wilson, Winterset; Weitman, West Union.

Seeder and cultivator combined (18): Hall, Woodbridge; Doud, Ward's Corner; Hyer & Hudson, Iowa Falls; Ingalls, Independence; Johnson, DeWitt; Kellogg, Quasqueton; Kint, Hazleton; Long (2), Osage; Mott, Postville; Pond (3), Independence; Smith (2), Independence; Stouder, Clarinda; Whait & Whait, Independence; Woodward, Des Moines.

Seeder and harrow combined (2): Fairchild, Independence; Gray, Chariton.

Seeder and stalk cutter combined: Grant, Mt. Pleasant.

Planter, corn (46): Ackerman, Steamboat Rock; Adams, Birmingham; Barger & Barger, Border Plains; Bond, Marshalltown; Brent,

Muscatine; Busch, Brooklyn; Corbit, Bethlehem; Davis (2), Bloomfield; Dutcher, Blue Grass; Floyd, Bloomfield; Greely, Summit; Hines, Independence; Jeffcoat, Onawa; Howell, Independence; Humphreys, Oskaloosa; Maple, Chariton; Morris & Harrison, Maquoketa; Myers, Onawa; Nemmers, St. Donatus; Orr, Morning Sun; Paddington, Wau-beck; Parsons, Charles City; Pelham, Kirkville; Pierson, Macy & Moore, Grinnell; Porter, Hopkinton; Raines, Fremont; Rich, New Providence; Rider, Wilton Junction; Russell & Burdick, Mill Rock; Ryder, Wapello; Smith, Montrose; Stark, Nevada; Stark & Mitchell, Nevada; Stoddard, Muscatine; Stone & Archibald, Wapello; Study, Plum Hollow; Todd, Mechanicsville; Wallis & Wallis, Milton; Warfield, Muscatine; Waterman, Keokuk; Westerfield, Ft. Dodge; Whitaker, Davenport; Woolsey, Bloomfield; Wyeth, Bloomfield.

Planter, hedge: Tucker, Albia.

Planter, seed (8): Atwood, New Sharon; Baker, Hopkinton; Chrisman & Whitmer, Sugar Creek; Garretson, Clay; Harrah & Baldwin, Davenport; Lee, Camanche; Lewis, Elkader; Mills, Bloomfield.

Planter, walking: Earlywine, Centerville.

Planter, marking attachment for: Sawyer, Madison.

Planter, corn and cane: Fate, Boonesborough.

Planter and cultivator combined (2): Earlywine, Centerville; Sterrett & Reynolds, Ottumwa.

Planter and plow combined: McIsaac, Waterloo.

Planter markers (5): Corbitt, Des Moines; Dickle & Cowan, Ottumwa; Goltry, LaGrange; Johnson, Decorah; McKinley, Chariton.

Cultivating the Crop

Cultivators (111): Ament (2), Muscatine; Baltimore, Marble Rock; Bankson, Mt. Pleasant; Baum, Oxford; Baumann, Muscatine; Bird, Ackley; Blood, Hathaway & Beach (2), Independence; Blue, Winfield; Bohan, New Hartford; Botten, Oskaloosa; Canfield, Lyons City; Canfield, Sabula; Canfield & Hess, Washington & Lyons; Cass, Muscatine; Chapman, Cedar Rapids; Chapman, Newton; Churchill, New Hartford; Clark, Bloomfield; Cogswell, Maquoketa; Conley, Moingona; Conner & Conner, Troy; Copeland, Quasqueton; Cowan, Bloomfield; Culver, Gilbertsville; Cummings, Boonesborough; Davis, Bloomfield; Dawdy, Hamburg; Dodge, Adel; Doud, Forestville; Doud, Ward's Corner; Doyle (2), Waterloo; Earlywine, Centerville; Er-

ickson, Swede Bend; Fanning & Legler, Burlington; Frank (2), Webster City; Furnas & Furnas, Ononwa; Furnas, Ononwa; Gillespie, Burlington; Given, Hutsonmiller & Gilbert, Des Moines; Grant, Mt. Pleasant; Gross, Manilla; Harper, Salem; Harper, Hillsborough; Harvey, Volga City; Herman, Mt. Vernon; Herrick, Grinnell; Jenkins, Cottonville; Johnson, Maquoketa; King, Princeton; Kynett, Lisbon; Leffler, Highland Twp., Washington Co.; Lynch (2), Davenport; Lynch & Raff, Davenport; Marinus, Independence; McClintock, Glenwood; McCormick, Muscatine; McDermott, Ogden; McDonald, Nevada; McGlew, Des Moines; Mead & Stevenson, Denmark; Mills, Bloomfield; Mills, Des Moines; Moody, Montezuma; Morgan (2), Delhi; Neisler, Indianola; Norton, Prairie City; Parmele (2), Davenport; Paul, DeWitt; Perry, Muscatine; Poling, Guthrie; Pond, Independence; Potter, Fairfield; Rate, Tipton; Rayl, Agency City; Reynerson (2), Pleasant Plain; Rider, Wilton Junction; Roberts, Lyons; Robeson & Nash, Oskaloosa; Rockafellow, Muscatine; Sanders, Davenport; Sawyers, Orleans; Sawyers, West Grove; Sexton (3), Pella; Smith, Des Moines; Smith, Springdale; Smook, Nine Eagles; Stillwell, Fayette; Stover, Sandyville; Strickland, Talleyrand; Tietjens, Lyons; Tilden, Davenport; Thompson, Ottumwa; Wells, Lyons; Whait & Whait, Independence; Wilde, Washington; Wiles & Ginnes, Muscatine; Wilhelm, Muscatine; Wilcox, Delhi; Wilson, Hamburg; Witter, Sherrill's Mount.

Cultivator wheel: Earlywine, Centerville.

Harvesting the Crop

Corn husker (6): Briggs, Fayette; Hall (2), Woodbridge; Petersen, Davenport; Pond, Independence; Warren, Des Moines.

Corn sheller (5): Gould, Grinnell; Johnson, Marshall; Ketchum, Marshalltown; Kilgore, Washington; Seymour, Cedar Rapids.

Grain binder (14): Bull, Buckingham; Clinton (2), Iowa City; Harrah, Davenport; Harrah, Gifford & Johnston, Davenport; Hemperly & Barnes, West Liberty; Lottridge (2), Charles City; Mudgett, Camanche; Parker (2), Davenport; Ross, Bowen's Prairie; Warner, West Liberty; Youll, Manchester.

Grain cleaner and dryer (4): Booth, Dubuque; Overton, Knoxville; Sternberg, Webster City; Williams, Ottumwa.

Grain distributor: Haradon, Independence.

Grain riddle: Rowe, Atalissa.

Grain separator (15): Bates, Hardin; Chamberlain, Dubuque; Cox, Delhi; Custer, Bonaparte; Dunham, Fayette; Fergusson (2), Dubuque; Gaunt & Hinman, Keokuk; Kathan, Hardin; Lull, Hardin; Parmater & Bowen, Vinton; Rowe, Atalissa; Sylvester, Dubuque; Thomas, Cascade; Wells, Oskaloosa.

Grain weighers (10): Armes, Decorah; Brockett, Davenport; Burke, Grundy Center; Hill, Jefferson; Hines, Brown, Saterlee & Harden, Quasqueton; Howard, Belle Plaine; Stinson, New Bern; Taylor, Burlington; Widger & Reed, Fairfield; Wiley, Clayton.

Harvesters (35): Bailey, Wiscotta; Beele, Independence; Boyd, Des Moines; Bradley, Cedar Falls; Carrother & Carrother (2), Newton; Clinton, Iowa City; Clinton, Prather & Hutchison, Iowa City; Crossland, Spencer Grove; Emery, Cedar Falls; Field, Keokuk; Hamilton, Panora; Holt & Laflin, Cedar Falls; Holmes, Council Bluffs; Hospers, Pella, and Sellers, Keokuk; Kellar & Kellar, Buckeye; Kilgore, Washington; King, Salem; Knapp, Dubuque; Lyman (2), Independence; McCafferty, Waterloo; Mertz, Burlington; Parker, Davenport; Pressey, Dubuque; Risher, Oskaloosa; Rockafellow, Muscatine; Rurve, Walcott; Thorp, Waterloo; Wallis & Miller, Milton; Wheeler, Keokuk; Yates, Dubuque; Zimmerman, Oskaloosa.

Harvester attachments (binder, binder's table, dropper, etc.) (19): Barns, West Liberty; Beels, Independence; Bishop, Batavia; Chapman, Iowa Falls; Dixon & Sampson, Eddyville; Fowler (2), Davenport; Goddard (2), St. Ansgar; Harrah & Jones, Davenport; Harvey, Marshalltown; Jones, Clarksville; Ketchum (2), Marshalltown; Mitchell, Osceola; Price, Amana; Sharp & McClurg, Tama City; Shults, Waverly; Smith, Orford.

Harvester-rake (13): Barns, Oskaloosa; Buckwalter, Davenport; Crane & Johnston, Ottumwa; Fowler, Davenport; French, Independence; Glass & Glass, McGregor; Heuermann, Sternberg & Stuhr, Davenport; Irvine, Parkersburgh; Mendenhall, Fairfield; Reister, Washington; Rodman, Lyons; Stewart, Ft. Madison; Underwood, Muscatine.

Hay loading and unloading (18): Angell, Clermont; Barber, Camanche; Denton (2), Iowa City; Fell & Mattock, Maquoketa; Gower, Lime Spring Station; Jewett, Sand Spring, & Bowen, Bowen's Prairie; Lewis & Durbin, Iowa City; Long, Delaware Center; Loudon, Fairfield; Parker, Buffalo Grove; Purviance, Keosauqua; Sehorn, Iowa City; Toof, Ft. Madison; Terrell, Oskaloosa; White, Columbus City; Zimmerman, Colfax.

Hay rack (3): Condra, Genoa; Denis & Grassel, Osceola; Downing, Mitchell.

Hay rake (5): Brown, Ononwa; Crellin, Marshalltown; Long, Eddyville; Morris, Maquoketa; Skunk, Des Moines.

Hay rake and loader (5): Armstrong & Jeffcoat, Onawa; Elarton & Thomas, Hillsborough; Harper, Hillsborough; Lewis, Durbin & Lewis, Iowa City; Reister, Washington.

Hay shockers and stackers (5): Louden (2), Fairfield; Plymate, Freeland; Terrell, Oskaloosa; Wallace, Keokuk.

Horse rake (5): Davis, Ft. Madison; Kayso & Kayso, Independence; Marlin, West Liberty; Sherman, Ft. Dodge; Toof, Ft. Madison.

Potato digger (7): Cannon, Keokuk; Curtis, Des Moines; Hoag, Muscatine; Ross, Washington; Sherwood, Ottumwa; Soules, Cresco; Wheeler, Mallory.

Power press, hay: Weed, Muscatine.

Reaping and mowing machine (2): Clark, Castalia; Hoit, Cedar Falls.

Sheaf band cutter (2): Haines, Farley; Young, Waverly.

Stacker, chaff and straw: Loomis, Fairfield.

Straw cutter (7): Hoit (2), Cedar Falls; Lundy, Marshalltown; Odell, Winterset; Park, Germanville; Parker, Winterset; Schreck, Des Moines.

Threshers, grain, and attachments (10): Averill, New Oregon; Carleton, Indianola; French, Washington; Kane, Tivoli; Murphy, Dubuque; Rentgen & Humes, Keokuk; Shearer, Drakesville; Sumner, Oskaloosa; Thompson, Horton; Workman, Fairfield.

Winnower, grain (3): Larrabee, Clermont; Shafer, Burlington; Thomas, Cascade.

Milling Grains

Fanning mills (9): Averill, New Oregon; Foster, Des Moines; Hutchins, Syracuse; Kane, Tivoli; Kelly & Franklin, Decorah; Littlefield, Lewis; Randell, Des Moines; Tush, Manchester; Wilcox, Chariton.

Feed mill: Myers, Lyons City.

Grain elevators and conveyors (4): Lemon, Polk City; Loudon, Fairfield; Lowden, Cedar Twp., Van Buren Co.; Rush, Marengo.

Grinding mill (4): Finch, Cedar Falls; LaPort, Clarinda; Replogle, Moulton; Sherwood, Independence.

Hominy mill: Fahrney, Deep River.

Maize, preparation of, for grinding: McCrosby, Monroe.

Mill bolts (4): Choat & Rich, Cedar Falls; Hanna, Keokuk; White (2), Des Moines.

Millstones, parts for (8): Dolsen, Waterloo; Gray, Dubuque; Heffner, Independence; Henderson & Henderson, Albia; Hurd, El Dorado; Rowe, Atalissa; Smith, Princeton; Wohlenberg, Lyons.

Steamer, grain (5): Ballard & Sargent, Mt. Pleasant; Hanna, Keokuk; Hunt (2), Sioux City; Lehmann, Columbus City.

Smut machine (6): Jordan, Burlington; Marshman & Foulke, Carlisle; Philips, Burlington; Thompson, East Davenport; Woodward (2), Burlington.