SEYMOUR ET AL. V. OSBORNE ET AL.

{3 Fish. Pat. Cas. 555.}[1]

Circuit Court, N. D. New York. July, 1869.[2]

PATENTS—RESULT—MEANS—"SUBSTANTIALLY AS DESCRIBED"—REISSUE—IMPROVEMENTS IN WELL-KNOWN MACHINE.

1. A claim for "the discharging the cut stalks and heads of grain from the platform D by means of the combination of the rake C with the lever B," etc., though in its strictly literal sense a claim for a result, which would he invalid, is a claim for a result produced by specific means; and under the rules which obtain in the construction of such claims, it should doubtless be held to be a claim for the described means, and valid to the extent of the invention of the patentee.
2. The qualification, "substantially as described." affixed to broad claims, is a qualification intended to mean much or little, as the interests of the patentees may require.
3. Though the action of the commissioner in receiving a surrender and granting a reissue is very strong prima facie evidence that the case was one in which a reissue was proper and lawful, the decision of the commissioner upon this point is not conclusive; and the more recent decisions very clearly indicate the opinion that many reissues have been improperly granted, and that the abuses arising therefrom have been such as to require a more rigid scrutiny in regard to the propriety and legality of the surrender and reissue of a patent.
4. To remove a useless appendage of a quadrant-shaped platform, or simply to change its position from the side to the rear of a cutting apparatus, required neither ingenuity or invention.
5. Claims too broad upon their face may he so restricted by the words "substantially as described," or words of similar import, that they may be considered valid to the extent of the invention of the patentees.
6. In determining the question of infringement, such claims must be considered in their restricted sense, and will not be infringed by devices differing in mechanical

construction, not operating in substantially the same way or upon the same mechanical principles, or which are not mere equivalents.

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7. When the improvements claimed are only improvements upon a well-known machine, the patentee can not treat as infringers others who have improved the previously-existing organizations by the use of a different device, arrangement, or combination, which, though performing the same functions, does it in a different, simpler, and better manner.

This was a bill in equity [by William H. Seymour and Dayton S. Morgan, against David M. Osborne, William A. Kirby and others] to restrain the defendants from infringing the following letters patent: 1. Letters patent [No. 8,192] for an "improvement in harvesting machines," granted to Aaron Palmer and S. G. Williams, July 1, 1851, reissued to them April 10, 1855 [No. 305], and again, in two divisions (Nos. 4 and 5), January 1, 1801 [No. 1,110]. These reissues having been assigned to complainants, one of them (No. 5) was again reissued to them May 31, 1864 [No. 1,682]. 2. Letters patent for an "improvement in reaping machines," granted to William H. Seymour, July 8, 1851 [No. 8,212], and reissued to him in three divisions (Nos. 1003, 1004, and 1005). These reissues having been assigned to complainants, No. 1004 was reissued May 7, 1861 [No. 1,177], and No. 1003 was reissued May 31, 1864 [No. 1,683]. The foregoing patents were extended for seven years from the expiration of the original term. 3. Letters patent [No. 10,459] for an "improvement in grain harvesters," granted to Aaron Palmer and Stephen G. Williams, January 24, 1854, and assigned to complainants. [For drawings of these patents, see Case No. 12,687.]

Geo. Gifford and E. W. Stoughton, for complainants.

David Wright, for defendants.

Before NELSON, Circuit Justice, and HALL, District Judge.

HALL, District Judge. The bill in this case alleges the infringement of one original and of four reissued patents; and it prays for an injunction and an account, and for a decree for the profits of the alleged infringements.

The defendants having answered the bill, voluminous proofs were taken; and in June last the cause was heard on pleadings and proofs. The continual pressure of other business has prevented an earlier decision.

On July 1, 1851, letters patent were granted to Aaron Palmer and S. G. Williams, upon a specification which stated that they had invented "a new and improved harvesting machine," and which sufficiently described the construction of the parts embraced within the claim of the patentee.

The invention thus claimed and patented was an improvement in the harvesting machine; the improvement consisting of new devices and a novel arrangement of parts, by which the cut grain was to be removed from the platform, and laid in gavels, by an automatic rake.

In the machine described, the inner edge of the platform on which the cut grain was to be received was straight, and the outer edge was curved. There was a straight fence or guard rising from the inner edge of this platform, and a curved fence or guard along and above its outer edge; and by and between these the cut grain was kept in its proper place when the machine and its automatic rake were in operation. An iron rail (marked "d" in the drawing), inclining upward as it extended toward the front of the platform, was properly supported above this outer or curved fence or guard. This rail did not extend forward quite to the point where the rake was to fall upon the platform in front of the cut grain, and it terminated at some

distance from the rear of the platform; and a short rail or gate was hinged to the rear end of the inclined rail just described. The rear end of this short rail or gate rested upon the curved fence or guard; and mostly, though not entirely, in the rear of the loose end of this hinged rail, and upon the rear part of the outer or curved guard, there was placed another short rail, having an upward inclination as it extended to the rear.

The rake was moved forward and backward between the inner and outer fences, or guards, by means of an operating lever, to which it was connected by rods or arms of suitable length. This rake was placed some distance in front of the operating lever, and the connecting rods or arms were hinged upon this lever so as to allow the rake to rise and fall without regard to the plane in which the lever moved. A stiff rod or bar was firmly attached to the outer end of the rake-head, and extended outward beyond it so far as to rest upon the above-described rails which surmounted this outer fence or guard, or upon the upper edge of such fence or guard, as the action and movement of the machine required. The operating lever was forked at the inner end, and was hinged upon and supported in a horizontal position by a fulcrum pin between the inner fence or guard and the main or driving-wheel of the machine. This fulcrum pin passed through the two legs or branches of the lever, one of which branches extended a considerable distance above, and the other a somewhat less distance below the main body of the lever. On the inner end of each of these legs or branches were several teeth, which, respectively, corresponded with and meshed into an outer or an inner series of teeth or cogs cast within a recess on the side or face of the main or driving-wheel of the machine. As these series of teeth or cogs were on opposite sides of the wheel, and contained only the number of teeth or cogs required to give the desired motion to the operating lever, this

lever was moved forward when one of these series of teeth or cogs on the driving-wheel came, in the course of the forward movement of the machine, in proper connection with the lower branch or arm of such 1123 lever; and it was moved backward when the teeth upon the upper branch or arm of such lever came into proper connection with the other series of teeth or cogs upon such driving-wheel—thus giving to the lever, and consequently to the rake hinged upon it, the required reciprocating motion forward and backward above the platform.

In a machine thus constructed, the rake, when it reached its most advanced position, would be in advance of the forward end of the supporting rail, and would then fall by its own weight and rest upon the forward part of the platform. The supports of the inclined rail first before mentioned being so bent outwardly, or otherwise so constructed as not to interfere with the backward movement of the rod or bar extending outward from the end of the rake-head, the backward movement of the lever would carry back the rake with its teeth resting upon the platform. By this movement of the rake the cut grain would be raked along the platform and finally thrown or dropped from its inner side. When the bar or rod projecting from the outer end of the rake-head reached the under side of the rear end or rear part of the short or hinged rail, that end of such hinged rail would be forced upward until the rod or bar cleared it, when it would fall back into its place. As the rake was drawn still further backward, the projecting bar or rod would rise upon the upward inclination of the short rail in the rear until the teeth of the upper branch of the lever were no longer in connection with the series of teeth upon the driving-wheel, when the rearward motion of the operating lever would be suspended. Then almost simultaneously with this suspension, and as the driving-wheel revolved, the teeth of the upper

arm of the operating lever would be brought into connection with the other series of teeth or cogs upon the driving-wheel, and the operating lever and the rake would consequently advance toward the front part of the platform. The rear end of the short rail hinged on the outer edge of the platform having dropped into its place below the inclined rail at the rear of the platform, the rod or bar attached to the rake-head would ride the hinged rail and the outer-rail forward of such hinged rail (thus keeping the rake-teeth above the cut grain) until it reached the forward end of such outer rail, when the rake would again fall by its own weight until its teeth rested upon the front portion of the platform, ready, when the backward movement of the lever should begin, to repeat the movement just described.

The different parts of the machine described in such specification were shown upon the drawing which accompanied it; and they were indicated by letters referred to in such specification and in the claim of the patentees.

The claim was in these words: "What we claim as our invention, and desire to secure by letters patent, is the discharging the cut stalks and heads of grain from the platform D by means of the combination of the rake C with the lever B, and the cooperation therewith of the series of teeth p, q, on the face of the wheel A and the inclined rail d, rising above the curved guard of the platform D, substantially in the manner herein set forth."

This claim, though in its strictly literal sense a claim of a result which would be invalid, is a claim of a result produced by specific means; and under the rules which obtain in the construction of such claims, it should doubtless be held to be a claim of the described means—or rather of the particular organization and devices described by means of which the specified result is produced—and therefore valid

and effectual to the extent of the actual invention of the patentees.

On April 10, 1855, this patent was surrendered, and it was then reissued to Palmer and Williams, the original patentees, upon an amended or different specification.

There was no great difference between these two specifications in respect to the mode of construction recommended, except that it was said that the fence or guard on the inner edge of the platform might be made straight, or might be curved to correspond with the sweep of the inner end of the rake.

The claim, however, was considerably modified; the co-operation of the series of teeth p and q on the face of the wheel A, and the inclined rail d rising above the curved guard of the platform being no longer claimed as a part of the invention; and the modified claim was restricted to the use of the specified combination of the rake and lever when moved by gearing located within the inner edge or circle of the platform. This will sufficiently appear by a comparison of the two claims, the claim of the reissued patent being in these words: "What we claim as our invention, and desire to secure by letters patent, is, discharging the cut stalks and heads of grain from the main platform D, on which they first fall, by means of the combination of the rake C with the overhung lever B, moved by gearing located within the inner edge or circle of said platform, as herein set forth." This amended claim, unless restricted by the words "as herein set forth," to the devices and organization particularly described, seems to be much more extensive than that of the original patent, inasmuch as it covers the use of the combination of the rake and lever when moved by gearing of any description located within the inner edge or circle of the platform, instead of confining it to the gearing described in the original specification; and it seems to be intended to cover every such use, and to

prevent any evasion of the assumed rights of 1124 the patentees, on the ground that the fence or guard on the inner edge of the platform was curved instead of straight.

This reissued patent was obtained nearly four years after the original patent was granted, and when, it is to he supposed, the patentees were not ignorant of the precise character and extent of their invention, or of the best mode of embodying it for public use, whatever might have been the case at the time the original patent was granted. This reissued patent was, however, deemed insufficient to suppress the use of all devices which might be employed by others in the construction and operation of an automatic rake; and nearly six years after the first reissue, and nine and a half years from the date of the original patent, this reissued patent was surrendered, and was immediately reissued to the original patentees, in two patents, dated on the first day of January, 1861.

The claim in the first of these reissues (called in the bill reissue No. 4) is in these words: "What we claim as our invention is discharging the cut grain from a quadrant-shaped platform, upon which it falls as it is cut, by means of an automatic sweep-rake sweeping over the same platform, substantially as described."

This claim, unless the words "substantially as described," are held to impose restrictions which they would not impose under the ordinary rules of construction, is much more extended than that of either the original or the prior reissued patent, for the introduction for the first time of the term "quadrant-shaped," as a description of the platform, can hardly be considered as a restriction of the prior claims. The platform required under either of the prior patents was, necessarily (in substance), a quadrant-shaped platform as much as that described in this reissue; for the curved fence or guard at the outer edge, and which was necessary to the proper action of the rake and

the other parts described, made the platform quadrant-shaped, in substance and effect, without regard to the precise form of the outline adopted in its construction. The combination of the rake and operating lever, which was the prominent feature of the original and prior reissued patent, is not mentioned; and the limitation of the claim of the reissued patent to machines in which the rake and lever were moved by gearing, located within the inner edge or circle of the platform, is silently rejected. Indeed, this claim bears scarcely any resemblance to the claim of the original patent, which was, in substance, a claim of the combination of several elements, viz: the rake, the forked lever with teeth upon its upper and lower branches, the movement of which gave to the rake its reciprocating motion backward and forward, the two series of teeth or cogs in the face of the driving-wheel, and the curved rails at the outer edge of the platform which governed the vertical motion of the rake. The combination originally patented, and all its elements (unless it be the rake), are apparently forgotten; and the broad claim is made of "discharging the cut grain from a quadrant-shaped platform on which it falls as it is cut, by means of an automatic sweep-rake sweeping over the same," limited only by the qualification "substantially as described;" a qualification which is evidently intended to mean little or much, as the interests of the patentees may require. And in order to aid in giving it this flexible character, the specification states that the invention claimed under this patent, consists in arranging an automatic sweep-rake in such relation to a quadrant-shaped platform upon which the grain falls as it is cut, that it shall vibrate over the same at suitable intervals to discharge the cut grain upon the ground, and "that the accompanying drawings represent," not the invention itself, but "a convenient arrangement of parts for carrying out the object of our invention."

The claim of this reissue is so broad that there would seem to be no necessity for the other patent granted upon the last mentioned surrender, and reissue, if the broad claim just referred to could be maintained. Perhaps the just fear that this might be extremely doubtful, may be properly regarded as the reason why the other reissued patent was desired.

The other patent of the reissue of January 1, 1861, was not obtained without much difficulty, the application having been twice rejected. It was finally granted upon a report, which states that "the claim is in fact for the means made use of to free the platform from the fallen grain," and that "it covers the combination and arrangement of those means within the inner edge of the platform." This claim is in these words: "What we claim under this patent as our invention, is, sweeping the cut grain from the platform, upon which it falls as it is cut, by means of an automatic sweep-rake, moved by gearing located within the inner edge of said platform, substantially as described." This claim is more restricted than that of the other reissue of the same date, founded upon the same reissued patent, and is confined to eases in which the rake is moved by gearing located within the inner edge of the platform, while the other claim contained no such restriction. The omission of the term "quadrant shaped," in describing the platform, is not, for reasons already stated, deemed of much importance; and it is not easy to give any satisfactory reason for the application for this patent, if the other reissued patent could be sustained, as any infringement of this patent would be also an infringement of the other reissue of the same date, if the validity of the latter could be maintained.

Only the first named of these reissues of January 1, 1861, is now in force and relied on in this suit, the last having been surrendered and 1125 reissued to the plaintiffs as assignees under Palmer and Williams,

on May 31, 1864. In this last reissue, designated by the plaintiffs as reissue No. 1682, the claim is in these words: "What we claim under this patent as our invention is, the combination of the cutting apparatus of a harvesting machine with a quadrant-shaped platform arranged in the rear thereof, and a sweep-rake operated by mechanism in such manner that its teeth are caused to sweep over the platform in curves when acting on the grain, these parts being and operating substantially as hereinbefore set forth. We also claim the combination of a quadrant-shaped platform, a sweep-rake operated by mechanism which causes the rake to move in alternately opposite directions, an inclined rail to raise the rake, and a switch, these parts being and operating substantially as hereinbefore set forth." The switch here referred to, as one of the elements of the combination claimed, is the short or hinged portion of the rail denominated a short rail or gate in the original patent.

On this last reissue, also, the plaintiffs rely to sustain their suit, it being claimed that the defendants have infringed the first claim of this patent.

The several reissues above mentioned appear to have been granted upon petitions stating that the patents surrendered were inoperative and invalid by reason of a defective specification, which defect had arisen from inadvertence and mistake; but instead of this statement being verified by oath, the affidavit of the applicant, following such petition, states only his belief that such prior patent was not fully valid and available to him, and that the said error had arisen from "inadvertence, accident or mistake."

It was urged upon the argument, that these reissued patents were severally unauthorized, illegal and void; and as the question thus raised, if decided in favor of the defendants, must render any further discussion of the rights claimed under these patents entirely unnecessary, it will be first considered.

The 13th section of the act of 1836 [5 Stat. 122], which authorizes the surrender and reissue of patents, provides, in substance, that when any patent "shall be inoperative or invalid, by reason of a defective or insufficient description or specification, or by reason of the patentee claiming in his specification as his own invention, more than he had or shall have a right to claim as new, if the error has or shall have arisen by inadvertency, accident, or mistake, and without any fraudulent or deceptive intention, it shall be lawful for the commissioner, upon the surrender to him of such patent, to cause a new patent to be issued to the said inventor for the same invention, for the residue of the period then unexpired for which the original patent was granted, in accordance with the patentee's corrected description and specification," etc.

It must be conceded that the action of the commissioner, in receiving a surrender and granting a reissue, is very strong prima facie evidence that the case was one in which a reissue was proper and lawful, but the decision of the commissioner upon this point is not conclusive; and the more recent decisions very clearly indicate the opinion that many reissues have been improperly granted, and that the abuses which have grown out of fraudulent or improper reissues have been such as to require a more rigid scrutiny in regard to the propriety and legality of the surrender and reissue of a patent. Burr v. Duryee, 1 Wall. [68 U. S.] 531, 579; Case v. Brown, 2 Wall. [69 U. S.] 320; Sickles v. Evans [Case No. 12,839]; Cahart v. Austin [Id. 2,288].

It would seem to be quite clear upon the patents and proofs in this case, that the original patent to Palmer and Williams was not in any just sense inoperative or invalid. The specification was full and complete, and it is believed that the claim fully covered and completely protected the actual invention of the patentees. It is true that it did not claim a quadrant-

shaped platform, nor the combination of such a platform with the cutting apparatus or other operating parts of a harvesting machine; but it is conceded by the plaintiffs that the quadrant-shaped platform was not then new, and that it had been before used by Seymour. And it had been described in combination with a revolving automatic rake in the prior patent to Platt. But independently of these circumstances, the particular form or outline described was not, we think, then the subject matter of a patent. The size and particular form of the platform, whether square, rectangular, or otherwise shaped, was simply a question of mechanical construction, depending upon the form, construction, and operation of the other parts of the machine; and the actual invention of Palmer and Williams was confined to the devices and organization by which the automatic rake was effectually operated and made to produce the desired result. No one who had any pretension to mechanical skill, or even to practical good sense, could have been stupid enough, after placing the circular fence and rail on the old-fashioned rectangular platform, to leave the useless wood outside that fence and rail, to add unnecessarily to the weight of the machine and consequently to the force required for its operation. To remove this useless wood, or simply to change the position of Platt's quadrant-shaped platform to the rear of the cutting apparatus, required neither ingenuity nor invention.

It is also quite certain that the patentees had neither invented nor contemplated any device for the operation of an automatic rake, other than that specifically described and claimed in the specification. That was a meritorious and valuable invention, and it was amply protected by the original patent. In short, it is believed that there is no ground upon which a surrender and reissue of this patent can be maintained.

It may be useful, though unnecessary, to refer 1126 to some of the modifications of the claims of

the patentees, as exhibited in these reissued patents, and to some circumstances which indicate that they were made for the purpose of covering subsequently invented devices, or different forms of construction, which had been observed in other machines. The patent to Seymour, hereinafter mentioned, had secured to him the exclusive use of certain devices for operating the automatic rake, the most material and most essential portions of which were located at or near the outer edge of the platform; and the same liberality which would extend the claim of Palmer and Williams to all devices for operating the rake by gearing located within the inner edge or circle of the platform, would extend that of Seymour to all gearing located at or near its outer edge. If the broad claims of the reissues of Palmer and Williams' patent could be maintained, the efforts of all other inventors to produce superior devices, if not effectually suppressed, would be rendered comparatively fruitless by a combination of these two patents, and of the reissues granted upon their surrender from time to time, and by the danger of protracted and expensive litigation under them.

The idea of claiming a quadrant-shaped platform had not occurred to the patentees, either at the time of the application for the original patent, or at the time of the application for the first reissue; and in the specification annexed to the first reissue (and, in fact, also in those annexed to the last reissue), the inner fence or guard, which, for all substantial and practical purposes, marks and defines the real outline of the side of the platform on which it rests, may, it is, said, be either straight or curved. Besides, upon the original drawing or model of Palmer and Williams' invention, the platform deserves the appellation of quadrant-shaped as little as that above referred to, which would be bounded by two circular lines (one convex and one concave) and two straight lines.

In all the specifications the claims are, in their literal terms, of the operation or result of the devices or invention which might have been claimed, rather than of the invention itself; but in the original patent the claim is so qualified and limited that the claim could doubtless have been maintained. The claims under the reissued patents of January 1, 1861, are not so restricted and qualified; and the broad claim to the exclusive right of discharging cut grain from a quadrant-shaped platform, on which it falls as it is cut, by means of an automatic sweep-rake, operated by mechanism and sweeping over the same platform, is put forth, subject only to the limitation, "substantially as described," which is to be claimed to be of very great or of very little importance, as the interest of the patentees may require. This form of claim was properly characterized and condemned in Burr v. Duryee [supra], and much that was said by Air. Justice Grier, in delivering the opinion of the court in that case, might be properly repeated in this.

The claims under the reissue of the other patent of 1861, as made in 1864, are not of the same objectionable character, but they are broad enough, if they can be maintained, to cover nearly every form of construction and mode of operation which could be adopted in the construction and use of an automatic rake upon any existing form of the ordinary harvesting machine; and certainly these claims would cover many subsequent inventions, of which these patentees, at the time of their application for their original patent, had not the slightest conception—inventions so entirely different from theirs that there can be no possible doubt but that, so far from being identical, they are entirely different in construction, character, and mode of operation. Indeed, neither of these claims could be sustained as being a claim of the same invention as that described in the original patent, except by force of the words "substantially as described," or words

of similar import; and the case of Burr v. Duryee is deemed sufficient authority for the conclusion that these claims under the issue of the Palmer and Williams patents are void unless these claims can be held to be restricted to the devices originally described and claimed.

But, leaving the invention of Palmer and Williams for the present, another series of patents will now be considered.

On July 8, 1851, a patent was granted to the plaintiff, Seymour, for new and useful improvements in reaping machines.

In the specification annexed to this patent it is said: "The platform, instead of being made in a square form, extending only three or four feet back of the sickle, as heretofore, is extended back in a circular form; that the grain, instead of being raked off behind the machine, as heretofore, making it necessary to take up each swath as it is cut, is swept off in a circle and dropped far enough from the standing grain to be out of the way of cutting the next swath." The specification further says: "The grain is raked from the machine by means of a rake that is made to travel back and forth in the following manner: To one end of the rake-rod is attached a pinion of 12 cogs, may be more or less, that meshes into the internal spur-wheel, which causes the rod to revolve. This rod has a universal joint a few inches from the pinion. This short section of the rod is supported in a horizontal transverse position by two bearings that are attached to the wheel frame. To the other end of this rake-rod is attached a pinion with cogs or some irregular surface to correspond with the oblong track. As the rod revolves, the pinion travels in the oblong circular track. The rake-rod extends through the pinion and projects out a little, say a half an inch, more or less, as the pinion comes to the upper side of the track. The end of the rake-rod rests on the upper side 1127 of the

guide which holds the pinion up into the upper side of the track, and causes it to pass from 3 to 4 as the rake-rod revolves. Then the rake-rod passes around the end of the guide and under the under side of it, and holds the pinion down into the under side of the circulating track, and causes it to return back to 3 again. The rake is attached to the rake-rod by the three attachments through which the rake-rod revolves. The rod passes through one or more of the attachments, and extends out beyond the pinion into the groove in the center of the guide. It extends out a little further than the rake-rod, that it may keep in the groove at all times. When the pinion is against the upper side of the track, the rod holds the rake down on the grain; when the pinion passes down the rod, holding into the groove, raises the rake up and holds it up until the pinion passes up to the upper side of the track, where the rake falls on the grain and is held down until the grain is swept off. This application of the power to the rake will allow the extension of the cutting and raking surface with little additional expense."

The description thus given may, perhaps, be better understood, in the absence of the proper drawing, if it be stated that the reciprocating motion of the operating lever was caused by its continued revolution, while its outward end was moved backward and forward by the meshing of the cogs of a wheel firmly attached to the outer end of such lever, into a series of cogs projecting upward from a bar which curved along near the outer and curved edge of the quadrant-shaped platform, and into another series of cogs projecting downward and placed at a distance above this lower series of cogs about equal to twice the diameter of such cogwheel. These upper and lower series were connected at each end by a semi-circular bar, with cogs of the same character upon the inner side, so that on reaching the front end of the lower bar, or series of cogs, the cog-wheel attached to the end of

the lever would be carried up along the cogs, on the inner side of the semi-circular bar, until it struck the upper series of cogs, and would then be carried back to and down the semicircle in the rear, and then again back to the front and around as before. A bar passing through the arms which connected the rake-head with the operating lever, by a hinge joint near the middle of the length of such arms, and fitting into a slot or open space between guide-bars placed parallel to and equidistant from the upper and lower cogged bars, or series of cogs, was thereby kept in the same plane, while the rise and fall of the operating bar at one end of such arms produced a reversed motion of the rake-head at the other end. With this explanation, and the description above copied, the operation of the rake, and of the machinery by which its movements were to be produced, will probably be understood.

The device thus described is very ingenious, and operated beautifully in the model, but it is probably too complicated in its structure, and too liable to be clogged, or otherwise injuriously affected by the falling or standing grain, to compete successfully with the more simple arrangement adopted by the defendants.

The claim made in the specification annexed to this patent is in the following words: "What I claim as my invention, and desire to secure by letters patent, is the rake attached for raking the grain from the machine without hand labor, constructed and operated substantially as described.

This patent was surrendered on the 10th of July, 1860, and was reissued in three parts, Nos. 1003, 1004, and 1005. The claims in these reissued patents, Nos. 1003, 1004, and 1003, were respectively as follows: No. 1003, "What I claim as my invention is: first, supporting the arm or lever of a vibrating sweep-rake at each end, substantially as described; second, operating an automatic sweep-rake, by gearing on both ends thereof, in combination with the platform

of the harvesting machine for delivering the grain in gavels, substantially as described;" No. 1004, "The combination of the arm, rod, or lever, which carries a vibrating sweep-rake, with a guide-rod, which forms a moveable fulcrum for the rake-head, substantially as described, for the purpose set forth;" and No. 1005, "The arrangement of a quadrant-shaped platform, immediately behind the cutting apparatus, so as to receive the cut grain as it falls, and from which it is discharged in the arc of a circle substantially as described."

On the 7th day of Hay, 1861, this reissued patent, No. 1003, was surrendered and reissued. The claim in such last mentioned reissue is for "a quadrant-shaped platform, arranged relatively to the cutting apparatus substantially as herein described, for the purpose set forth." This reissue is called No. 72 in the plaintiff's bill.

The above No. 1004 does not appear to have been reissued; but it is not relied upon by the plaintiffs in this suit.

On the 31st day of May, 1864, the above reissued patent, No. 1003, was surrendered and reissued as No. 1683. The claims in the last mentioned reissue are: "First. The combination in a harvesting machine of the cutting apparatus (to sever the stalks) with a reel and with a quadrant-shaped platform located in the rear of the cutting apparatus, these three numbers being and operating substantially as set forth. Second. The combination in a harvesting machine of the cutting apparatus with a quadrant-shaped platform in the rear of the cutting apparatus, a sweep-rake, mechanism for operating the same, and devices for preventing the rise of the rake-teeth when operating on the grain, these five members being and operating substantially as set forth." 1128 These reissues of the patent originally granted to William H. Seymour, in 1851, were granted upon petitions and affidavits that the prior patents

were not fully available, etc., substantially like those before referred to as those upon which the several reissues of the Palmer and Williams patents were severally granted.

On the 3d day of July, 1805, the reissued patents above designated as No. 72 and No. 1683 were extended for seven years from and after the 8th day of July, 1865, and they are relied upon by the plaintiffs, who allege that they have been infringed by the defendants.

The general form, scope, and object of the claims of the several reissues of the Seymour patent need not be particularly remarked upon. They are substantially of the same character as those contained in the reissues of the Palmer and Williams patent, and must be governed by the same principles; and much that has been said in respect to the reissues of the Palmer and Williams patent will therefore apply with equal force to the reissues of the patent of Seymour.

But there is still another patent under which a claim is made by the plaintiffs, and this will now be referred to:

On the 24th day of January, 1854, a patent was issued to Aaron Palmer and Stephen G. Williams for an improvement in grain harvesters. The specification annexed to this patent described a method of hanging the inner and outer bearing of the shaft or axis of the reel, used in harvesters, upon the forward and projecting ends of two horizontal beams supported by posts, crossing each other in the form of an X, set upon or attached to the frame of the machine at a point so far in the rear of the cutting apparatus as not to come in contact with the standing grain. The outer bearing of this shaft was near the middle of its length. The reel was made with this shaft nearly five feet long, with one set of arms projecting from the middle, and another set from the end of the shaft at right angles; and to the outer end of those arms are attached ribs

running parallel with and projecting outward beyond The shaft and over the standing grain nearly half their length—thus covering the width of grain within the scope of the cutting apparatus.

One of the claims in this patent is, of "the method of hanging the reel so as to dispense with any post or reel bearers next to the standing grain, as herein described; thereby preventing the grain from getting caught and held fast between the divider and reel supporter;" and it is insisted by the plaintiffs that this claim has been infringed by the defendants.

Before either of the inventions patented by Palmer and Williams and by Seymour, as hereinbefore stated, were made, and on or before the 22d day of November, 1848, one Nelson Platt made his petition and specification to obtain a patent. On the day last mentioned he made the required oath, that he believed himself to be the original and first inventor of the improvement in the harvesting machines described in such specification; and on this petition and specification a patent was issued, bearing date June 12th, 1840. The priority of Platt's invention is not denied.

The machine described in Platt's specification was extremely complicated. It had a quadrangular platform directly in the rear of the cutting apparatus, and a quadrant-shaped platform at the inner or stubble end of the quadrangular platform. These platforms were double, with spaces between the upper and lower portions to allow the head of an automatic rake to move and turn between such upper and lower portions. The upper portions of these double platforms were slotted, so that the rakes might pass through these slots and move with the head of the rake, which moved between the upper and lower parts of the platform. The specification also fully described two automatic rakes, and the gearing required for their operation when attached to and working with a

harvesting machine. The head of one of such rakes moved from side to side across the swath cut, and under the upper portion of the double quadrangular platform, which had slots therein to allow the teeth of the rake to pass through when turned upward perpendicular to the platform, and to be carried across the length of the platform while in that position in order to move the grain to the stubble side of the quadrangular platform and to the edge of the conjoined quadrant-shaped platform. When this was accomplished, the teeth were turned downward through the upper quadrangular platform and out of the way of the fallen grain; and the rake was then moved by the machinery to the proper position for its teeth to be again turned up from their horizontal to their vertical position, when they were again turned upward by the machinery, and the rake carried the cut grain to the edge of the quadrant-shaped platform as before. The second rake was attached by one end of its head to a cogged quadrant, in such a manner that it might be turned upon its own axis, at the same time that it was swung through the arc of vibration of the quadrant, to carry the grain received from the first rake over the second or quadrant-shaped platform, and deposit it behind the latter on the ground. In order that the ends of the teeth might be carried above and placed behind the grain or grass delivered by the first rake on the second platform, they were turned to a horizontal position when moving forward by a weighted lever, in which position they remained until brought over and behind the grain to be removed by them, when the teeth were again turned to a vertical position and the rake moved in such manner as to rake off the 1129 grain which had been delivered by the first rake on the second platform.

The devices for operating these rakes were fully described, and the claims of the patentees were as follows:

"1. What I claim as my invention, and desire to secure by letters patent, is the combination of a series of removable cutters with the links of an endless revolving chain which carries them successively into contact with the grass or grain to be cut, substantially as herein described, whether the cutters be contiguous or placed at intervals upon the chain.

"2. I claim making one end of each cutter sharp, in order that by pressing against the adjacent end of the next cutter straw, grass, or other intervening obstructions may be cut in two and allowed to pass out, the cutters thus freeing themselves from obstructions which might otherwise choke or break them.

"3. I also claim placing the bundles or sheaves of grain at right angles to the path of the machine by means of a second rake (H) combined with the first, substantially as herein set forth.

"4. I also claim moving or turning the first rake by cords, chains, or belts, arranged and operated as described, or in any other substantially similar manner.

"5. I also claim vibrating the second rake (H) and turning the teeth as herein set forth, whether the devices employed to effect these movements be such as described or others equivalent thereto.

"6. I also claim changing the frequency of the alternations of the rakes by means of cones of wheels (3, 4, 5), and pinions (3, 4, 5), or other equivalent device, for the purpose of varying the size of the sheaves as herein set forth."

The last mentioned patent having been assigned to the plaintiffs in this suit, was by them surrendered, and it was reissued to them in four separate patents on August 31, 1838. The first, second, and fifth of the six claims contained in the specification, annexed to one of these reissued patents, were in the following words:

"First, combining with a machine for cutting grain and gathering it upon a platform (A) a raking

mechanism which at suitable intervals sweeps the grain off the platform, changes the direction of its stalks relative to the path of the machine, and discharges it upon the ground in gavels, substantially as herein set forth.

"Second. The employment of a sweep or vibrating rake, operating in such manner that while sweeping the grain off the platform and discharging it upon the ground, it will change the direction of the stalks as described."

"Fifth. The construction and arrangement of a sweep-rake, and the mechanism for operating it, in such manner that it is carried back and forth and its teeth raised and lowered without support at the outer end."

The claims contained in the remaining three reissued patents, obtained by the plaintiffs on the surrender of the original patent to Platt, are not now all before us, nor if they were, would it be necessary to examine them except to see how far they were in conflict with the broad claims now insisted upon, and contained in the reissues of the patents to Seymour, and to Palmer and Williams. If they were of the same character as those above given, it is difficult to perceive upon what grounds the reissued patents relied on in this case can be valid, if Platt had invented, in November, 1848, all that is now covered by the claims of the reissues of Platt's patent, made upon the application and for the benefit of the present plaintiffs.

The construction and operation of the rakes contained in the machines manufactured by the defendants, and which are complained of as an infringement of the patents relied on by the plaintiffs, are quite simple, when compared with the construction and operation of either of those described in the plaintiffs' patents. In the defendants' machines, the rake is not connected by long arms and hinged joints to

a separate operating lever, by which it is to be dragged and pushed back and forth over the platform; there is no arrangement or device at the outer or grain side of the machine to give to the rake its reciprocating motion backward and forward, or its motion up and down in order to pass over the cut grain in its forward motion, and to place it in contact with such grain in its backward movement, and the construction and mode of operation of the rake, and of the gearing which gives it its proper motion, are substantially, if not entirely, different from those of either of the machines described in the plaintiffs' several patents.

In this machine of the defendants the rake-teeth are set in a lever or beam, the outer portion of which forms the rake-head, and the outer end of which moves over the platform from front to rear in the arc of a circle; and the rake so formed removes the cut grain from the platform to the ground. This lever or beam extends inward some distance beyond the rake-teeth, and is there firmly attached longitudinally to a shorter bar or frame of metal which moves horizontally upon a pivot fixed just inside of the periphery of a horizontal wheel placed between this pivotal point and that portion of the lever or beam which contains the teeth of the rake. The metal bar or frame attached to the inner end or extension of the beam which forms the rake-head, is also so arranged as to move up and down upon another pivot placed directly above the point of the pivot first mentioned. This horizontal wheel has a series of cogs on its upper face and near its periphery, and there is another series of cogs on the inner face of the driving wheel. The cogs on these 1130 wheels mesh into cog-wheels at the end of a shaft extending from one of these wheels to the other, and the motion of the driving-wheel is thus communicated to the horizontal wheel before referred to. On the upper face of this horizontal wheel, and just within the series of cogs near its periphery, is

a wedge-shaped cam of a curved form, not very far within and parallel to the periphery of the wheel, and from its highest point a pin projects upward through a slot which runs along on one side of the short bar or metal frame before described, from near the pivots before referred to, a distance nearly equal to the diameter of the horizontal wheel. On the under side of the metal frame or bar before mentioned and on each side of the slot before referred to, are cams, having curved faces extending downward, and so arranged as to come into contact and co-operation with the circular and wedge-shaped cam before described as extending upward from the upper face of the horizontal wheel.

The machine being in motion, and the raise at the front of the platform in its proper place to begin its backward movement, the beam on which the rake-teeth are fixed is carried backward by the pin upon the horizontal wheel moving in the slot before described, until it reaches the side of the platform. The lower portion of the cam on the upper face of the horizontal wheel having then come into contact with the cams on the sides of the slot in the metal bar or frame before described, the beam and rake are immediately, by the continued movement of the wheel and the combined action of the cams, lifted out of the way of the cut grain then upon the platform, and the beam and rake are moved round to the front of the platform. The highest portion of the cam upon the horizontal wheel having by this time been reached and passed, the beam falls, and the beam and rake again go through the movements just described.

The platform of the defendants' machine is not quadrant-shaped in its outline. It has four straight sides, but no two sides are parallel. Both on the stubble side and on the side next the standing grain, the platform narrows considerably as the lines extend to the rear, and the rear line of the platform inclines backward from the grain side to the stubble side so

rapidly that the fence or guard which extends along the grain side and rear of the platform is not only quite near the outer end of the rake where it reaches the front edge of the platform, but also at the time it reaches the rearmost corner of the platform at the stubble side of the machine.

This form of the platform with the fence or guard before referred to, makes the platform in effect a quadrant-shaped platform, although in its actual outline it does not approach much nearer the shape of an exact quadrant than the platform made by Hussey prior to the inventions of Palmer and Williams, and of Seymour.

In this machine of the defendants, the reel is supported by a single upright post pivoted at its lower end upon the inner portion or standing grain side of the main frame of the machine, nearly opposite the driving wheel, and at a considerable distance in front of the cutter bar. Being thus pivoted, it is adjustable in such manner that the reel can be moved backward or forward, and temporarily fastened in such position as may be required. By means of two short arms or posts rising from each end of a connecting beam or bar, either straight or curved, which is attached crosswise to this single post in such manner as to be adjustable up and down as required by the height or condition of the grain to be cut, the reel is supported in its horizontal position, one of the bearings being at the stubble end of the shaft and the other near the middle, there being no support at the outer end of the reel. The reel shaft is extended beyond the arms of the reel on the stubble side, through the upper ends of the short arms before referred to, and it is made to revolve by means of a wheel on its extreme inner or stubble end, connected by proper means with the driving-wheel. The reel shaft has, therefore, no support at its outer end, or at any point over the standing grain, but this method of support does not

dispense with a post or reel bearer on the side of the frame next the standing grain. It is apparent that this method of hanging the reel is an improvement upon the plaintiffs' method of hanging it in respect to the adjustable features of the defendants' organization, and it is supposed that it is also an improvement in so far as it diminishes the weight of the machine. The infringement claimed consists in the construction, sale, and use of the defendants' machine of the character just described.

In considering this case upon this question of infringement, it is unnecessary to determine that the reissues of the Seymour patent, or of that of Palmer and Williams, are void; but the case may be disposed of upon the assumption that the claims in the several reissued patents are so restricted by the words "substantially as described," or words of similar import, that they may be considered valid to the extent of the actual inventions of the several patentees.

In regard to the first of Palmer and Williams' inventions and patents, and also in regard to the Seymour invention and patents, it may be said in general terms that the inventions of the patentees are not embraced in the machines manufactured and sold by the defendants.

These devices are not the same in form or in substance. Indeed, they are not even similar in their form or modes of construction or operation. They are entirely different 1131 in mechanical construction, and do not operate substantially in the same way, or upon substantially the same mechanical principles; and the difference does not result from the substitution in the defendants' machine of mechanical equivalents for the devices invented by Palmer and Williams, or by Seymour. This sufficiently appears by a comparison of the several devices; and a very slight examination of the models produced at the hearing was sufficient to satisfy us that no infringement of the patents just

refered to had been established. Eames v. Cook {Case No. 4,239}; Morris v. Barrett {Id. 9,827}; Rapp v. Bard {Id. 11,577}; American Pin Co. v. Oakville Co. {Id. 313}.

The several inventions claimed were only improvements upon a well-known machine; the plaintiffs were not the first who had invented and described an automatic rake in combination with the cutting apparatus and other parts of harvesting machines, and the patentees can not treat as infringers others who have improved the previously existing organizations by the use of a different device, arrangement or combination which, though performing the same functions, does it in a different and more simple and better manner. It is well settled that the inventor of the first improvement can not successfully invoke the doctrine of equivalents to suppress other improvements which are not colorable imitations of the first. McCormick v. Talcott, 20 How. {61 U. S.} 405; Burr v. Duryee, 1 Wall. {68 U. S.} 573.

The doctrine just stated is also applicable in its full force to the claim made under the original patent to Palmer and Williams, which claims the described "method" of supporting the reel of a harvesting machine; that is, the described mode or manner, or the described means of supporting the reel. Boulton v. Bull, 2 H. Bl. 463, 478. The use of entirely different means of support does not constitute an infringement; and though the result or end attained may be the same, the means used in the defendants' machine for supporting the reel are not, in form or substance, the same as that described in the Palmer and Williams patent, nor are they such as would be suggested by the reading of that patent. In the Palmer and Williams machine, the reel is supported by four posts, two of them crossed in the form of an X, resting on the outer side of the main frame of the machine, and the other two crossed in the same manner, resting

on the inner or stubble side of the frame, and by bearers attached to the heads of these crossed posts, extending a considerable distance forward from the most advanced upper ends of these posts. On the drawing, these cross-posts appear to rest on the frame at points on each side of the driving-wheel, nearly opposite to the cutting apparatus and the axis of the driving-wheel respectively.

In the defendants' machine, as has been stated, there is but a single post rising from the frame for the support of the reel. It rests upon the inner or standing grain side of the frame at a point considerably in advance of the cutting apparatus, and it has the adjustable features and the cross-beam and short posts or arms before described.

This method of supporting the reel is not in substance the same as that described in Palmer and Williams' specification, and it does not dispense with a post next to the standing grain, as stated in the claim of Palmer and Williams' patent, although such post is placed next the standing grain to be immediately cut, and not next the standing grain included in the swath to be cut during the next round of the machine.

In our opinion, the method of supporting the reel adopted in the defendants' machine is not that described and claimed in the Palmer and Williams patent, nor do we consider it a colorable evasion of that patent.

Upon the whole case, then, the plaintiffs' bill will be dismissed with costs.

{On appeal to the supreme court, the decree of this court was reversed. 11 Wall. (78 U. S.) 516.}

{For other cases involving these patents, see Seymour v. Marsh (Case No. 12,687); Marsh. v. Seymour, 97 U. S. 349.}

[1] {Reported by Samuel S. Fisher, Esq., and here reprinted by permission.}

[2] {Reversed in 11 Wall. (78 U. S.) 516.}