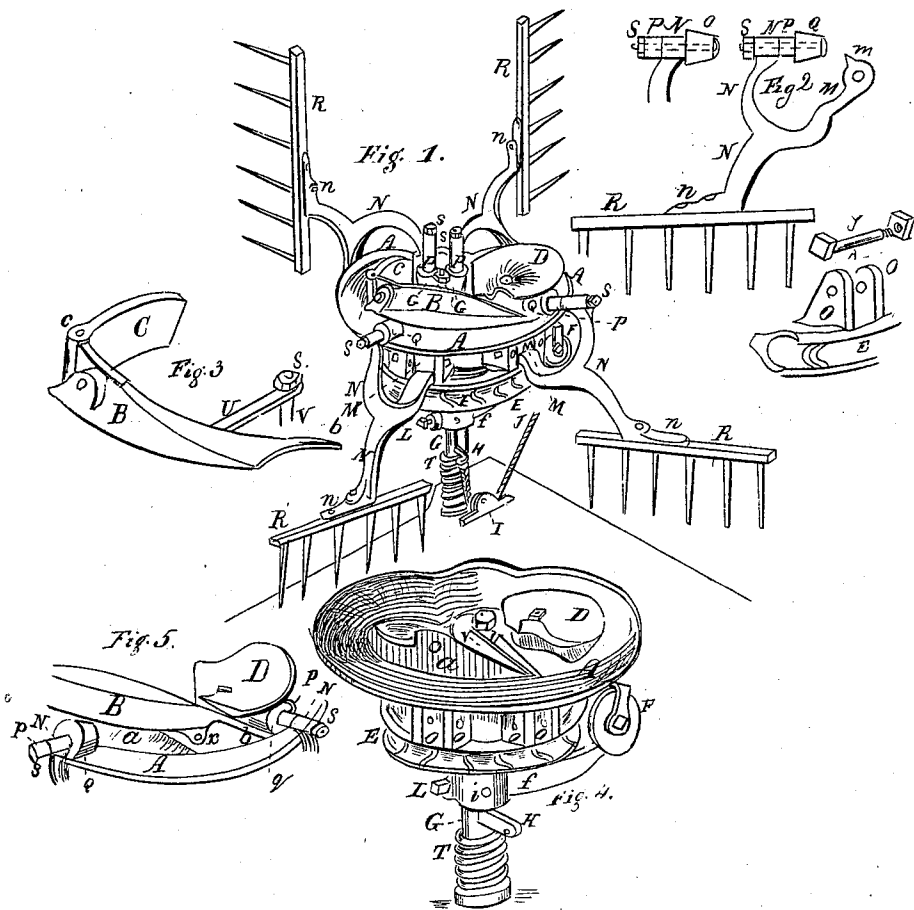


D. B. Shirk
Harvester Rake.

No 100,078.

Patented Feb 22, 1870.



Witnesses.

W. B. Niles
Jacob Stauffer

Inventor.
Darius B. Shirk

UNITED STATES PATENT OFFICE.

DAVID B. SHIRK, OF BRUNERSVILLE, PENNSYLVANIA.

IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. 100,078, dated February 22, 1870.

To all whom it may concern:

Be it known that I, DAVID B. SHIRK, of Brunersville, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in the Construction of Automatic Rakes for Harvesters, of which the following is a specification:

The nature of my invention consists in the arrangement of the several switches, connecting-arm and sliding shaft, and the manner of shifting the traversing-pulleys by a cylindrical washer, so combined as to bring the whole of the action governing the rakes above their hinged connection below the camway, and that while the rakes can be adjusted to adapt them to the standing grain for gathering the desired size of a sheaf in thin spots, the action of the automatic adjustment is readily shifted, so that the rake performs the office of a blind at the option of the driver with ease.

The drawings illustrate the construction.

Figure 1 is a perspective view of all the parts combined; A, the fixed camway; B C, hinged switches; D, a fixed segment; E, the grooved chain-pulley; F, the guide chain-pulley on its supporting-arm *f*; R, the rakes, with their two parted arms M N, the lower arm M hinged between lugs O, between the flange or cam A, and chainway E. The upper rake-arm is provided with a conic friction-pulley, Q, a cylindrical washer, P, secured by a headed bolt and nut, *s*. The whole is supported on a single column or stationary shaft, G. This shaft is hollow for the reception of a sliding shaft, having an arm, H, projecting through an oblong slot below, which arm is provided with an eye for a cord, J, and rests against a spring, T.

Fig. 2 shows the parts of the rake, the arm M, with its eye for the bolt *y* to be secured between the lugs O. There is also a check-lug, *m*, on the head to prevent the rake from falling over the desired position; S, the nut; P, the shifting-washer; Q, the conic pulley; Fig. 3, the hinged switches, shown detached. B has an inclined plane and prolonged by a tongue, *b*, hinged behind horizontally to the raised portion *a* of the fixed camway A, Fig. 4. This switch B has also a lug, *x*, Fig. 5, on the inner side beneath, with an eye for the finger or connecting-arm U attached to the central sliding shaft V above. A vertically-

hinged switch swings freely and is closed or opened by the conic pulleys Q accordingly as they are made to traverse the inner or outer track of the camway A or switch B.

Fig. 4 shows the camway, &c., (with the switches B C removed, as also the rakes;) the sliding shaft V, with its connecting-arm U and lower projecting arm H.

Fig. 5 shows the position of the segmental cam D and hinged switch B, with one pulley, Q, on the prolonged tongue *b*. Said pulley is set in by introducing the washer P between the conic pulley and the eye of the arm N. The other pulley Q is shown traversing the outer camway A by having the washer P placed outside of the eye of the arm N.

The several figures with their letters of reference give a clear idea of the construction and arrangement of the parts.

The operation is readily inferred, that if either one or all the rakes are desired to sweep over or clean the platform, it is only necessary to remove the burr S, change the washer P from the inner to the outer side of the eye in the upper arm N of the rake-holder.

It will be seen that by throwing the pulley Q out so as to traverse the outer edge of the cam A, they will pass under the switch B, which is always open when the spring T is below the arm H and the cord-pulley I, as shown in Fig. 1. If it is preferable to have the switch B always down or closed, the pulley I can be inserted into the hole *i*, (shown in the collar of the arm *f*;) fastened to the shaft G by a binding-screw, L, and the spiral or other kind of a spring, T, placed above the arm H and the cord J, used in like manner, in the one case for opening and in the other for closing the switch B, so that if either of the rakes set for clearing the platform are desired to act as a blind, it is only necessary to operate the sliding shaft V H by a foot-lever or cord and pulley I J by hand to close the switch, when the pulley Q (set for the outer portion of the camway) will mount up the inclined plane brought down by its edge extending upon the outer track, as the prolonged tongue *b* always comes in the track of the pulley set for the inner track when the switch is up. Thus, the driver can readily control the action of the rakes, and, however thin the grain may stand, it may remain undisturbed until the

desired bulk for a sheaf has accumulated, while the rakes and blinds otherwise would have their regular motions, according to adjustment.

The grooved chainway E, with its lugs as usually made or cast, speedily wear out. To prevent this I have also adopted a means of chilling the casting and giving to the surface a steel-like hardness, and greatly increasing the durability of the same.

I am not aware that the chilling was ever before used for that purpose. I am aware, however, that car-wheels and plowshares are so chilled. I am aware, also, that camways are made of various forms, and that a hinged switch, differing substantially in construction and office, is also used on automatic rakes for harvesters; but I am not aware that a single hollow shaft for a sliding spring-shaft was ever before used to actuate a switch, nor double-armed rake-holders, provided with adjustable washers for changing the action of conic pulleys; nor the use of a vertical loosely-hinged switch, operating as set forth, besides minor parts which are deemed new and useful, to govern and regulate the action of the rake or blind motion with ease and certainty; nor am I aware of any raking attachment on harvesters in which all the cams and rake-motion are produced above the connection of the rakes.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the two-armed rake-holder M N, one arm hinged between the lugs O and the other arm free, when said arm is perforated for a headed bolt and provided with an adjustable cylindrical piece or washer, P, and conic pulley Q, in the manner and for the purpose shown and specified.

2. In combination with the adjustable washer and pulley P Q, the arrangement of the horizontally-hinged switch B, vertically-swinging switch c, fixed segmental cam D, in combination with the main camway A for governing the motion of the rakes or blinds, in the manner and for the purpose set forth.

3. In combination with the switch B and its prolonged tongue b and lug z, the arrangement of the connecting-arm U, sliding shaft V, with the projection H for operating the switch B at pleasure, in the manner and for the purpose described.

4. The combined arrangement of the camway A with its segment D, switches B C, lugs o, and grooved chainway E, adjustable chain guide-pulley F, when all are supported on a single shaft or column, G, which is slotted and perforated for a central shaft, V, in the manner and for the purpose set forth.

DAVID B. SHIRK.

Witnesses:

WM. B. WILEY,
JACOB STAUFFER.