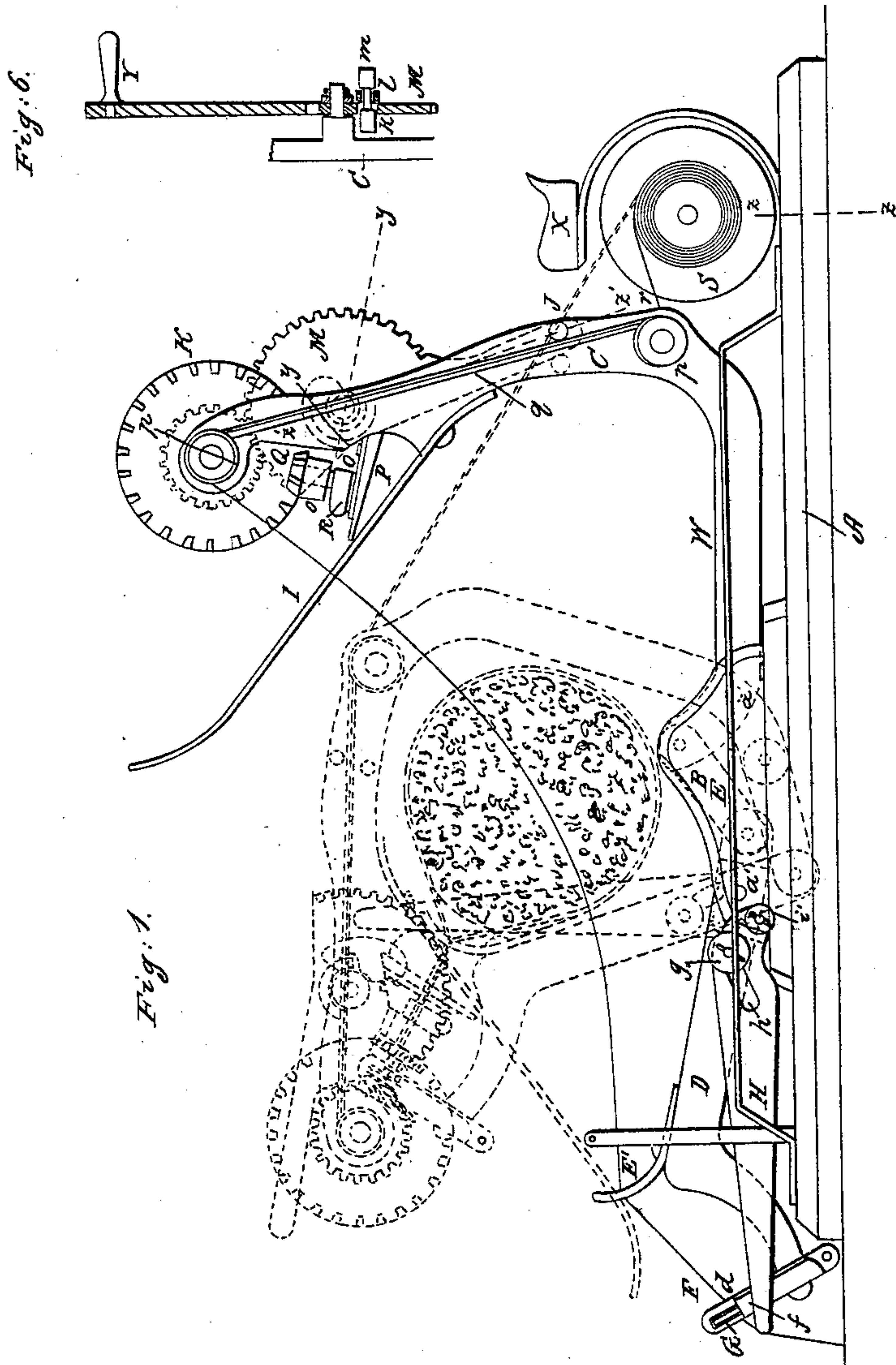


HARRAH & JONES.

Grain Binder.

No. 39,096.

Patented June 30, 1863.



Witnesses:
J. V. Coombs.
G. W. Reed.

Inventors:
W. D. Harrah.
H. P. Jones.
per Munn & Co.
Attorneys.

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[illegible]

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Fig. 7.



A technical drawing showing a cross-section of a mechanical assembly. The drawing includes a vertical wall on the right, a horizontal base with a slot, and a curved component labeled 'A' that fits into the slot. Other components are labeled with letters: 'B' is a small rectangular part on the base; 'C' is a horizontal bar; 'D' is a vertical pin; 'E' is a small rectangular part on the wall; 'F' is a small rectangular part on the wall; 'G' is a small rectangular part on the wall; 'H' is a small rectangular part on the wall; 'I' is a small rectangular part on the wall; 'J' is a small rectangular part on the wall; 'K' is a small rectangular part on the wall; 'L' is a small rectangular part on the wall; 'M' is a small rectangular part on the wall; 'N' is a small rectangular part on the wall; 'O' is a small rectangular part on the wall; 'P' is a small rectangular part on the wall; 'Q' is a small rectangular part on the wall; 'R' is a small rectangular part on the wall; 'S' is a small rectangular part on the wall; 'T' is a small rectangular part on the wall; 'U' is a small rectangular part on the wall; 'V' is a small rectangular part on the wall; 'W' is a small rectangular part on the wall; 'X' is a small rectangular part on the wall; 'Y' is a small rectangular part on the wall; 'Z' is a small rectangular part on the wall.

Inventors:

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UNITED STATES PATENT OFFICE.

W. D. HARRAH AND H. P. JONES, OF DAVENPORT, IOWA, ASSIGNORS TO
THEMSELVES AND IRA M. GIFFORD, OF SAME PLACE.

IMPROVEMENT IN BINDING ATTACHMENTS FOR REAPERS.

Specification forming part of Letters Patent No. 39,096, dated June 30, 1863.

To all whom it may concern :

Be it known that we, W. D. HARRAH and H. P. JONES, of Davenport, in the county of Scott and State of Iowa, have invented a new and Improved Grain-Binding Attachment for Reapers; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of our invention; Fig. 2, a plan or top view of the same; Figs. 3, 4, 5, and 6, detached sections of parts pertaining to the same, taken respectively in the lines $x x$, $y y$, $z z$, and $z' z'$, Figs. 1 and 2; Fig. 7, a detached view of a part pertaining to the invention.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a grain-binding device which may be attached to a reaper and operated by an attendant with the greatest facility, so as to firmly bind the sheaves with wire, each sheaf being bound at one operation, or with a single manipulation, as hereinafter fully shown and described.

To enable those skilled in the art to fully understand, construct, and operate our invention, we will proceed to describe it.

A represents a portion of the platform of a reaper, on which the socket or head B is secured, and in which the lower parts of two arms, C D, are secured by pins $a a$. The lower ends of these arms are connected by a link, E, and the lower end of the arm C is turned upward, as indicated by the dotted lines in Fig. 1, so that when the arm C is moved forward and backward the arm D will have a similar movement communicated to it—that is to say, the arms will move toward and from each other simultaneously.

The arm D is of curved form, as shown in Fig. 1, and it has a guide-plate, E', attached to it, which is of curved form, and provided at its outer end with a notch, b , as shown in Fig. 2. Said arm D also has a clamp, F, attached to its outer end. This clamp is composed of a fixed bar, c , which is attached to the arm D and a pivoted bar, d , the front part of which is kept pressed against the front part of c by means of a spring, e , as shown in Fig. 3.

Within the bar d there is fitted a catch, G, which is simply a hook kept in contact with the front part of the bar c by means of a spring, f , as shown in Fig. 3. Through the arm D, near its lower part, there passes a rod, g , at right angles. The ends of this rod pass through slots h , which are made obliquely in two bars, H H, the lower ends of which are fitted loosely on horizontal pins $i i$, which project from the socket or head B, as shown clearly in Fig. 2. These bars H H, in consequence of being thus arranged and connected with the arm D, are made to rise and fall with it. The arm C is also of curved form, as shown in Fig. 1, and it has a plate, I, attached obliquely to it, said plate being slotted longitudinally nearly its whole length, as shown at j in Fig. 2. This plate I forms a shield, and its use will be presently seen. There are also two handles, J J, attached to the arm C at right angles, and there is a bevel-toothed wheel, K, at its outer end, to which a pinion, L, is attached concentrically. Into this pinion L a half or segment wheel, M, gears, the axis of which is affixed to the arms C. This segment-wheel M has a curved slot, k , made through it and to the outer side of M. Adjoining the slot k there is attached a cam, l , which operates a lever, N, having a knife, O, at its front part. The lever N is bent in right-angular form, and the part m of said lever passes through the slot k , the cam l fitting in a slot in m . (See Fig. 5.) The knife O works over a plate, P, which projects from the front of the arm C, said plate having a slot, n , made longitudinally in it, as shown in Figs. 2 and 4.

The bevel-wheel K, at the outer end of the arm C, gears into a pinion, Q, which is on a shaft that passes through a bearing, o , at the front side of the arm C, and to the lower end of the shaft of said pinion Q there is attached a slotted arm, R. (Shown in Figs. 1, 2, and 7.)

The arm C has two pulleys, $p p'$, inserted in it at one side, and a groove, q , is made in said arm to receive a wire, r , which passes over said pulleys. This wire is wound upon a reel, S, the axis or shaft of which is secured in an upright, T, on the platform A. U is a bent arm or lever, having its fulcrum at s , and having the outer end of its lower part resting upon a spring, V, through the medium of a set-screw

t, as shown clearly in Fig. 5. This spring *V* causes the upper end of the arm or lever to press against the side of the reel *S*, and the pressure of said arm or lever against the side of the reel may be regulated as desired by adjusting the set-screw *t*.

To the platform *A*, and at each side of the socket or head *B*, there is attached a horizontal bar, *W*.

The operation is as follows: At the commencement of the operation the arms *C D* are thrown outward from each other, as shown, (see more particularly Fig. 1,) and the wire *r* is drawn through the groove *g* in the arm *C*, passed through the slot *j* in the plate *I*, and its end secured in the clamp *F*, as shown in Fig. 1. The grain is then raked over on the bars *W W*, so as to rest transversely thereon and upon the wire *r*, and the operator on a seat, *X*, which is over the reel *S*, shoves forward the arm *C*, and the arm *D* and the bars *H H* move toward *C*, the bars *H* being shoved forward in advance of the arm *D*, in consequence of being connected with the arm *D*, as previously described.

The grain is gathered into a compact form between the bars *H H* and the arm *C*, and when *C* is fully shoved forward the wire *r*, just below the outer end of the arm *C*, is forced between the bars *c d* of the clamp *F*, and both parts of the wire above the grain are forced into the slotted arm *R*, and also into the slot in the pinion *Q* and bearing *o*, and into the slot *n* in the plate *P*, over which the knife *O* works. The plate *E* forces or draws the parts of the wire into these slots as the two arms *C D* approach each other. The operator moves the arm *C* forward by grasping the handles *J J*, and when said arm reaches the extent of its forward movement and the wire is disposed as described, the operator grasps the handle *Y*, which is attached to the segment-wheel *M*, and turns it, and thereby rotates the slotted arm *R* and causes the wire above the grain to be twisted, and at the termination of the twist the cam *l* on the segment-wheel *M* will actuate the knife *O* and cut off the wire above the twist. The arm *C* is then drawn

back, the sheaf removed, and the operation repeated.

It will be understood that the wire *r* is engaged with the clamp *F* at the completion of each forward movement of the arm *C*; consequently the wire requires to be adjusted in the clamp *F* at the commencement of the operation only.

When the levers *C D* are closing, the friction of the lever *U* holds or prevents the reel from turning, and the wire *r* is thereby held back, the slack of the wire being taken up, said slack being equal to the distance between the reel and the back pulley in the arm *C*. If there is not enough wire off the reel to bind the sheaf, a sufficient quantity will pass off from the reel, the friction of the lever *U* not being so great as to prevent this. As the operator draws back the arm *C* he presses his foot on the lever *U*, so as to relieve the reel therefrom and admit of the latter delivering a sufficient quantity of wire to bind the succeeding sheaf.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The two arms *C D*, arranged and connected together as shown, in connection with the bars or gatherers *H H*, for the purpose of gathering the grain in compact form for binding, as herein set forth.

2. The clamp *F*, formed of the fixed bar, *c*, pivoted bar *d*, and catch *G*, in connection with the rotary twisting-arm *R* and knife *O*, as and for the purpose described.

3. The combination of the gearing *Q K L M*, cam *l*, and lever *N*, arranged as shown, for rotating the twisting-arm *R* and operating the knife *O* at one operation or manipulation, as set forth.

4. The pressure arm or lever *U*, arranged as shown, and in connection with the reel *S*, to operate as and for the purpose herein set forth:

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H. P. JONES.

Witnesses:

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