No. 714,407. Patented Nov. 25, 1902.

J. A. SHARP.

CORD CARRIER FOR SELF BINDING HARVESTERS.

(Application filed May 11, 1901.)

(No Model.) 2 Sheets—Sheet 1.

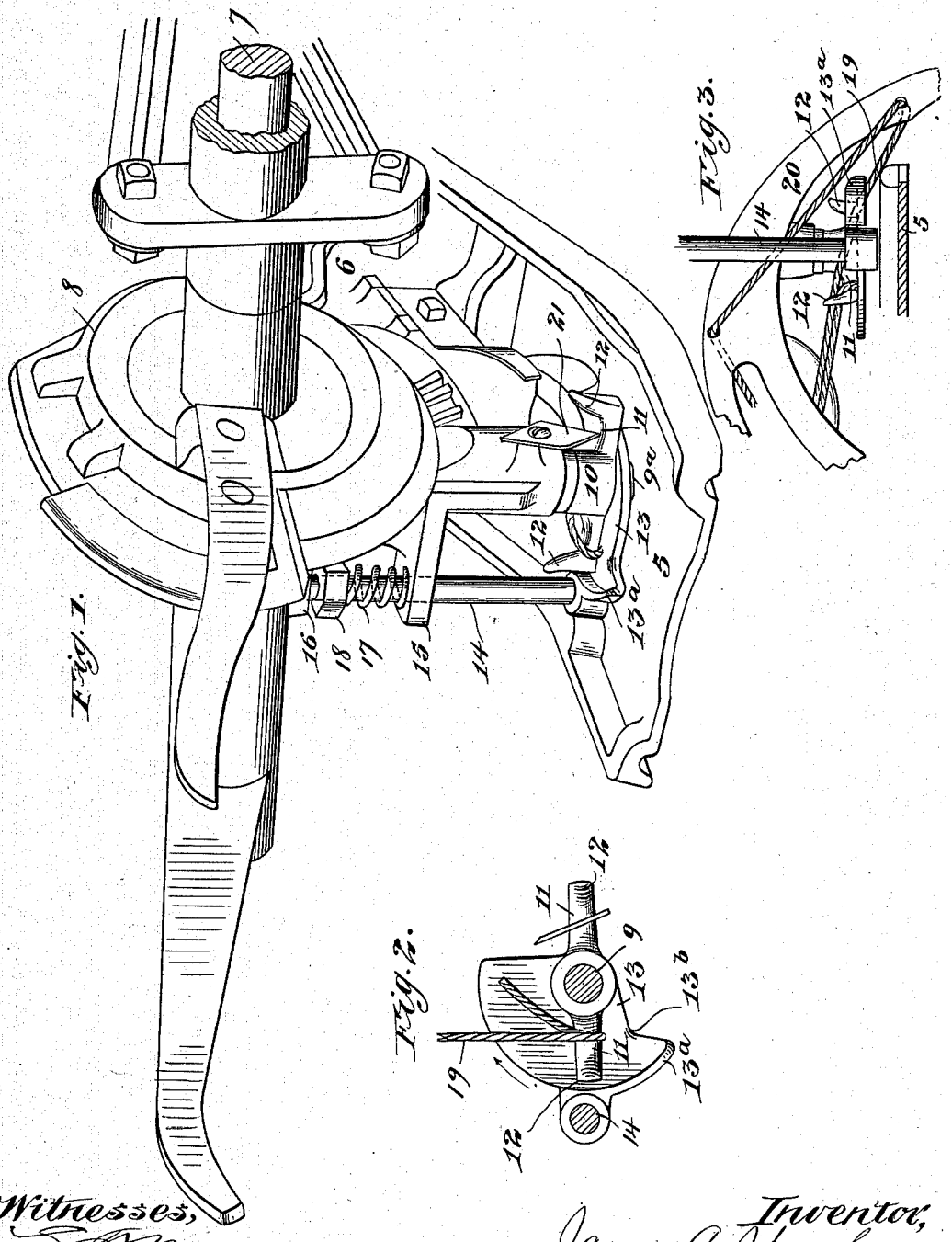


Fig. 1.

Fig. 3.

Fig. 2.

Witnesses,
E. S. Mann,
G. H. Forsyth

Inventor,
James A. Sharp
By Offield, Towle, Linthicum
& Offield's.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 714,407. Patented Nov. 25, 1902.

J. A. SHARP.

CORD CARRIER FOR SELF BINDING HARVESTERS.

(Application filed May 11, 1901.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

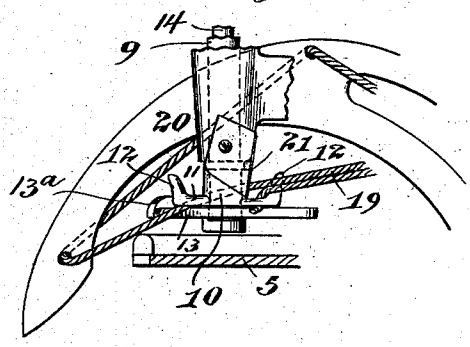


Fig. 2a.

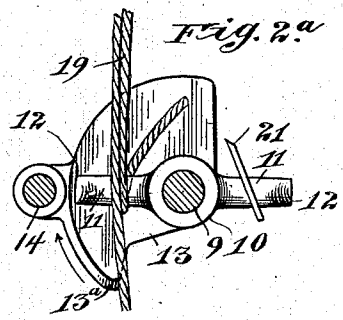


Fig. 2b.

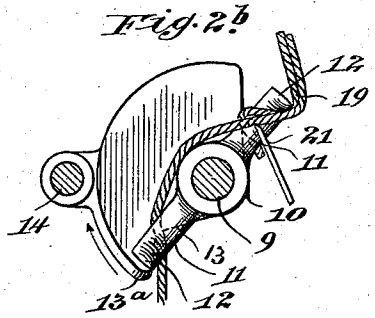
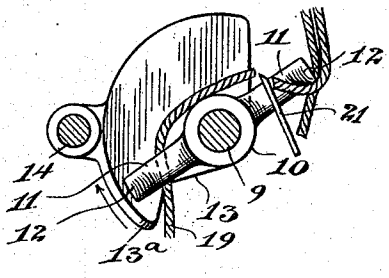


Fig. 2c.



Witnesses,
L. Smaw
G. H. Toney

Inventor,
James A. Sharp
By Offield, Towle & Linthicum
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES A. SHARP, OF HARVEY, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES F. CRAVER, OF HARVEY, ILLINOIS.

CORD-CARRIER FOR SELF-BINDING HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 714,407, dated November 25, 1902.

Application filed May 11, 1901. Serial No. 59,727. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. SHARP, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cord-Carriers for Self-Binding Harvesters, of which the following is a specification.

The subject-matter of this invention is an improved cord-carrier for self-binding harvesters; and the object of the invention is to provide a cord-carrier of simple construction which shall be effective to carry the cord into the path of the knotter-hook, so as to insure its being grasped at the proper time, while holding the cord sufficiently taut to prevent a loose knot being formed. The cord-holder is of such construction that it serves to present a single strand of the cord to the knife in order to sever it after the knot is tied, while it permits the cord to yield sufficiently to supply the proper length of cord and without subjecting the latter to undue tension.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view, partly in broken section, of the breast-plate, knotter driving-shaft, and gearing, showing also the cord-carrier and a spring-supported presser-plate. Figs. 2, 2^a, 2^b, and 2^c are plan views of the yielding presser-plate and cord-carrier, the supporting-rod of the former and driving-shaft of the latter being in section and showing various positions of the parts; and Figs. 3 and 4 are broken side elevations of the same parts from opposite sides and showing the needle with a cord threaded therethrough in its extreme forward position.

In the drawings, 5 represents the slotted breast-plate, the forward end only of which is shown, and 6 a casting affording in its upper end a bearing for the knotter driving-shaft 7, on which is mounted the cam-gear 8. The casting also affords a bearing for the vertically-arranged carrier-shaft 9, whose upper end will be provided with a suitable pinion, driven by the gear 8. Upon the lower end of the shaft 9 is mounted so as to revolve therewith the cord-carrier, having a central hub 10, radial arms 11, and upstanding points 12. The lower surfaces of these arms are preferably flat, while their upper surfaces are preferably rounded, so as to prevent cutting the strands of the cord. The upstanding points 12 preferably have an outward inclination and project laterally over a presser-plate 13, carried upon a sliding pin 14, passing loosely through an aperture in the bracket 15 and also loosely supported or socketed at its upper end in the casting 16, forming a part of the bearing for the knotter driving-shaft. A spring 17 encircles the pin 14 and has a bearing at its lower end upon the bracket 15, while a nut 18, threaded upon the pin 14, forms an abutment for the upper end of the spring, and the latter serves to hold the plate 13 in sufficiently close contact with the lower surface of the arms 11 to engage the cord shown at 19 and feed it toward the knotter-hook. The cord is threaded through the needle 20 in the usual manner, and in the forward movement of the needle one strand of the cord is laid across one of the arms 11, as shown in Figs. 3 and 4. When the needle is at the forward limit of its movement, the lower strand of the cord which has been laid over the cord-carrier arm extends in a plane intersecting the plane of the lower surface of the cord-carrier and the upper surface of the presser-plate, so that upon the revolution of the cord-carrier arm the cord is impinged between the arm and the plate and as the revolution continues is carried forward toward the knotter-hook. (See Figs. 2 and 2^a.) Simultaneously the strand of the cord previously engaged and fed forward by the other arm and also the strand which is laid across said arm are carried around the former into position to be released and the latter into contact with the knife 21, (the knot having previously been tied,) whereby the cord is severed. (See Figs. 2^c and 4.)

The strength of the grip of the cord-carrier may be adjusted by the adjustment of the nut 18, so as to permit the cord to be drawn upon by the knotting mechanism in excess of the normal feed of the carrier where the size of the bundle requires such additional length of cord. The cord-carrier shaft 9 is extended below the cord-carrier, as shown in

Fig. 1, sufficiently to pass through an aperture in the plate 13, thus affording a guide for the plate, as shown at 9^a.

It will be seen that the plate 13 has a curved upstanding flange 13^a, which also serves to guide the cord and prevent its escape laterally as the needle is withdrawn. The forward edge of the plate is preferably arranged obliquely to the path of the needle, and the flange 13^a extends forwardly, so as to produce a notch 13^b, into which the cord is guided by the flange.

My improved cord-holder is very simple in construction and effective and certain in its action. In the delivery of the cord it does not make any difference whether the cord be loose or taut or whether the point of the needle be deflected or straight. So long as the cord is carried below the plane of the bottom of the cross-head it will be engaged by the arm thereof. If the cord be required faster than it would be fed by the carrier, it will be drawn around the arm. Irregularities in the cord will be taken care of by the yielding of the presser-plate. The upstanding point of the arm serves to guide the cord as it is carried forward by the needle and also serves to deflect the cord into contact with the knife. Only one strand of the cord is cut; but the end of the other strand is held until the cutting is effected.

It will be observed that the knife is positioned with its cutting edge above the rear edge of the presser-plate and between the axis of the carrier and the upstanding point of the arm. This position enables one strand of the cord to be carried against the knife by the upstanding point of the arm, while the other end of the cord is still held beneath the body of the same arm. (See Fig. 2^b.) It will also be observed that the presser-plate and knife are so positioned and the movements of the carrying-arm and needle so timed that the cord is laid across the forward edge of the plate before the arm of the carrier reaches it and that one strand of the cord is carried against the knife just before the other strand is freed from the presser-plate.

It will be observed that the presser-plate is substantially of quadrant form except that its body and its flange 13^a are extended at one corner to serve to retain the cord in place as the needle is withdrawn.

The carrier feeds the cord twice during each complete revolution of its cross-head and the severed end of the cord has free escape.

The cross-head is narrow and leaves the cord entirely free except at a single point between the hub and the outer end of the carrying-arm. Thus while the feed is certain and effective the carrier presents no notches, pockets, grooves, or other inclosed spaces and no extended contacting surfaces likely to become clogged or in which the cord may become entangled.

I claim—

1. In a self-binding harvester and in combination with the needle or binder-arm thereof, a cord-carrier comprising a revoluble shaft, cord-carrying arms mounted on said shaft and having upstanding terminal points, a yielding presser-plate disposed parallel to the lower surface of the arms, said plate being substantially quadrant-shaped, and a cord-severing knife located above the rear edge of the plate considered with respect to the direction of rotation of the arms and within the circular path of the upstanding point of the arm, and the needle and cord-carrier shaft being so timed that a strand of the cord is laid across the forward edge of the plate by the needle and engaged by one of said arms before another strand of the cord is carried against the knife, substantially as described.

2. In a self-binding harvester and in combination with the needle or binder-arm thereof, a cord-carrier shaft having arms provided with upstanding terminal points, a yielding presser-plate located beneath said arms, said plate being substantially quadrant-shaped and having its forward edge disposed obliquely to the path of the needle, a knife arranged above the rear edge of the presser-plate considered with respect to the direction of rotation of the arms, the cord-carrier shaft and needle being so timed that the cord is laid across the front edge of the presser-plate and the shaft is then turned whereby one of the arms is caused to engage a strand of the cord while the other arm carries another strand against the knife, substantially as described.

3. In a cord-carrier, the combination with a rotary carrier-shaft, of a cross-head mounted thereon and comprising a central hub and lateral arms, a quadrant-shaped presser-plate having a peripheral flange terminating in a forwardly-extending point considered with respect to the direction of rotation of the arms and the forward edge of the plate having a notch therein, a supporting-pin for said plate, guides for said pin, a spring surrounding the pin and tending to draw the presser-plate into contact with the lower surface of the arms, and an adjusting-nut on the pin for varying the tension of the spring, substantially as described.

JAMES A. SHARP.

Witnesses:
C. C. LINTHICUM,
J. LEWIS CREAMER.