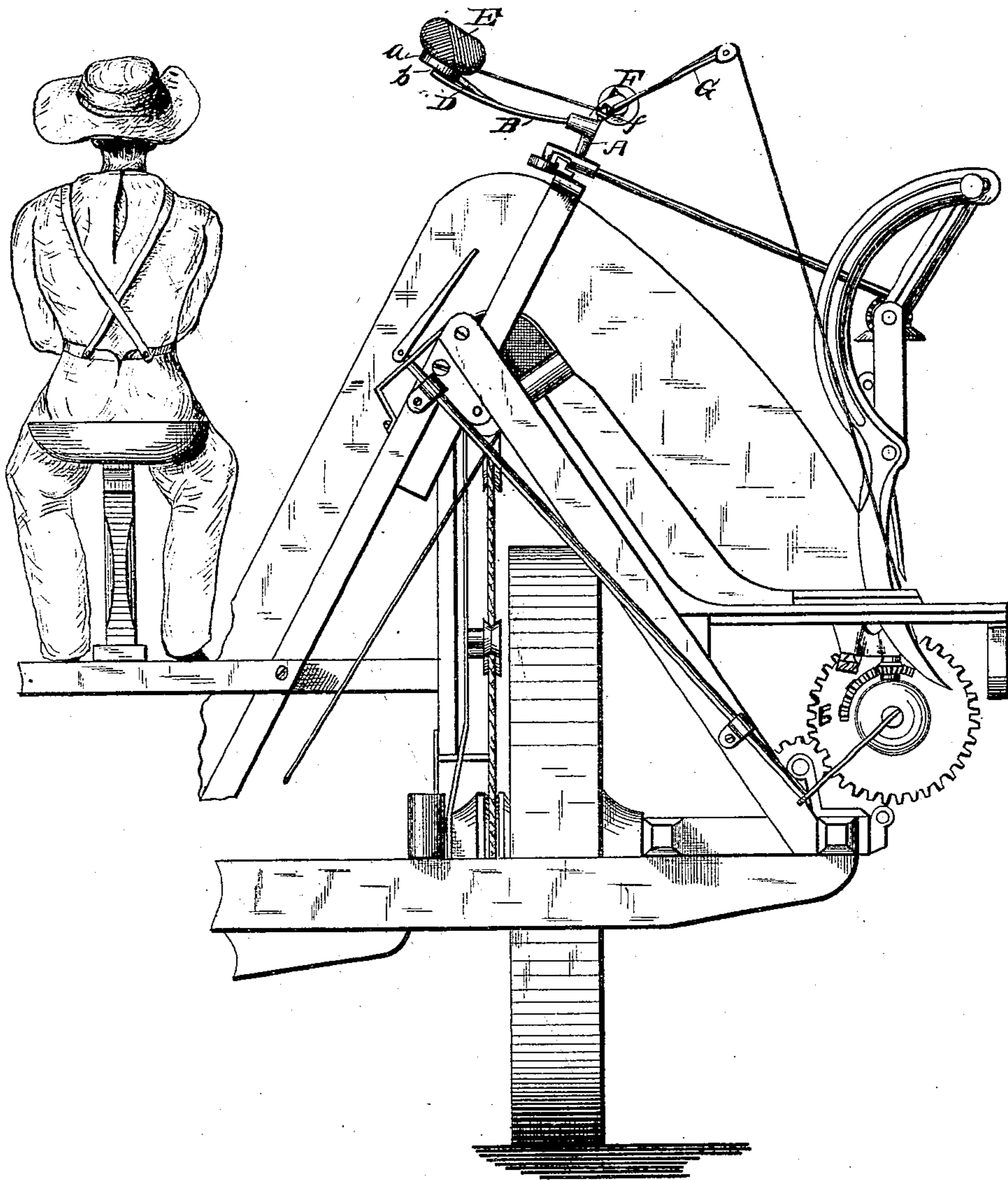


S. D. LOCKE.  
HARVESTER BINDER.

No. 246,322.

Patented Aug. 30, 1881.

*Fig. 1.*



*Attest,*  
*W. H. H. Knight*  
*W. Blackstock.*

*Inventor,*  
*S. D. Locke,*  
*by*  
*Le. Hice,*  
*Att'y*

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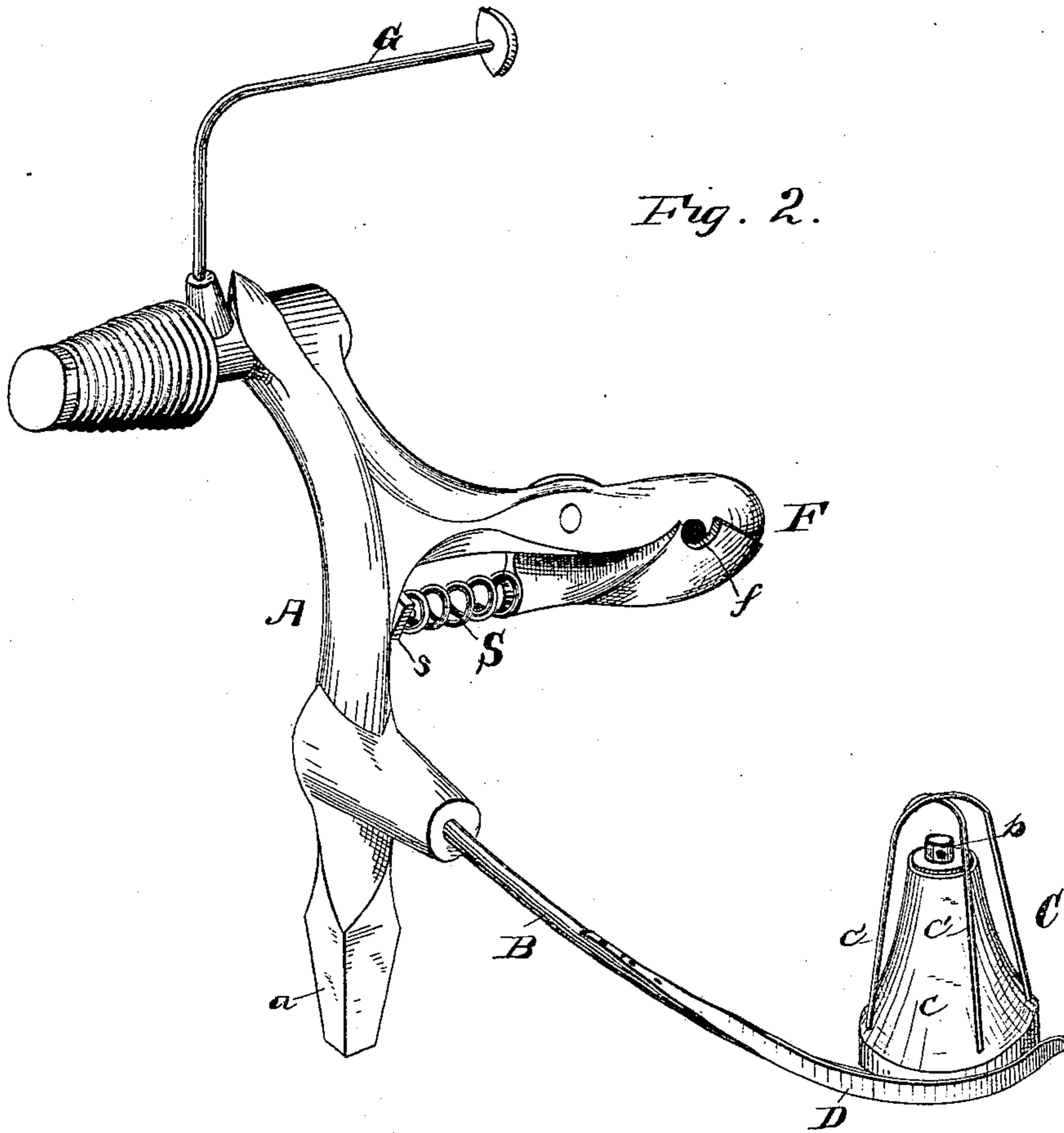


Fig. 2.

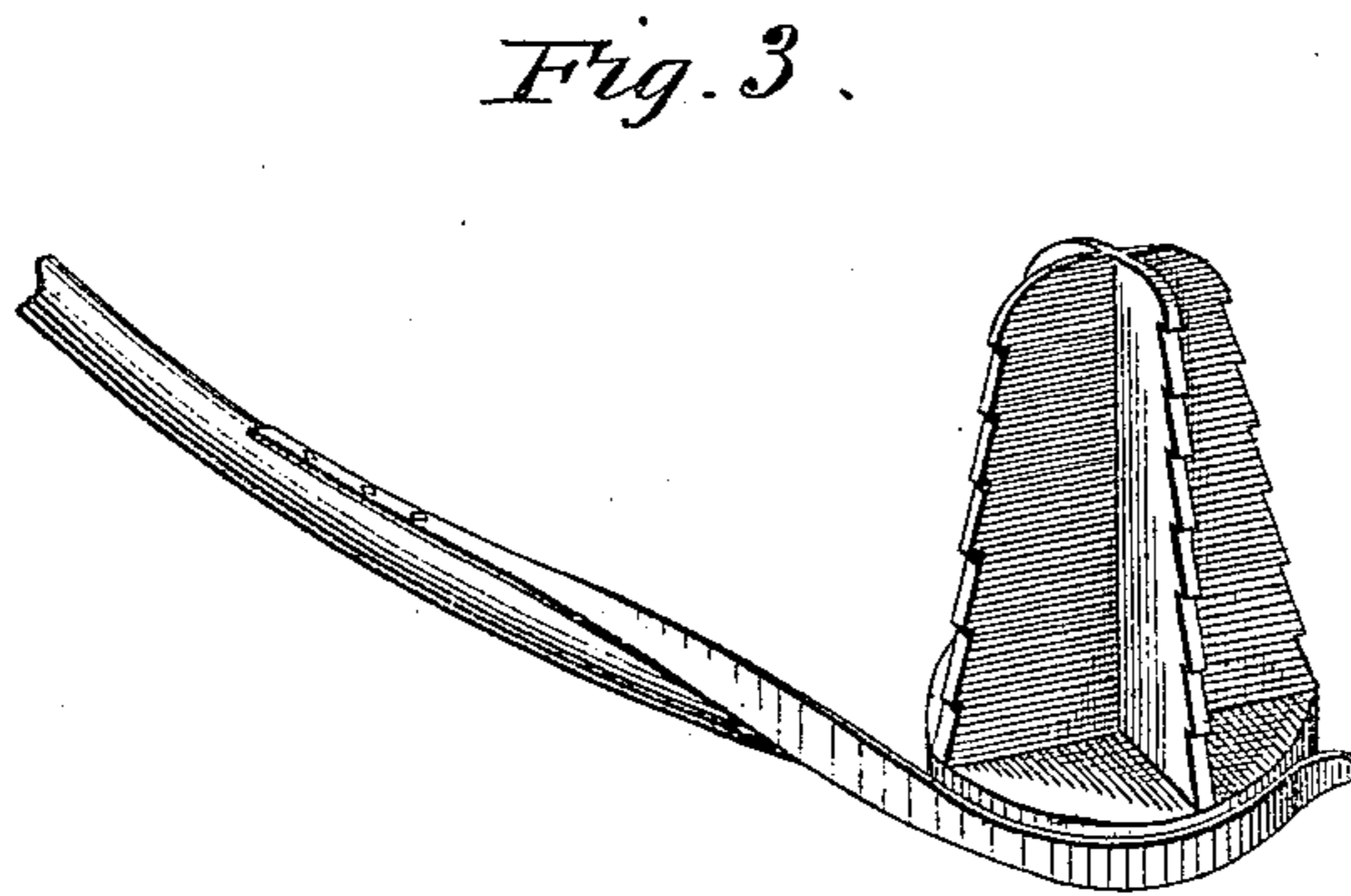


Fig. 3.

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Inventor,  
S. D. Locke,  
By L. Hill,  
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# UNITED STATES PATENT OFFICE.

SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

## HARVESTER-BINDER.

SPECIFICATION forming part of Letters Patent No. 246,322, dated August 30, 1881.

Application filed August 8, 1879.

*To all whom it may concern:*

Be it known that I, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented a certain new and useful Improvement in Harvester-Binders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear view of a portion of a harvester-binder, showing the application of my improved cord-holding devices. Fig. 2 is a perspective view of the cord-holding devices detached. Fig. 3 is a view of a modification of the holder shown in Fig. 2.

Similar letters of reference in the several figures denote the same parts.

In supplying the band-cord to the needle or band-carrying arm in harvester-binders heretofore in use it has been customary to wind the cord in a hollow ball and feed it from the center of the ball to the needle. It is desirable to make the balls large, so as not to be obliged to renew them any oftener than necessary; but in practice it is found that the balls, especially if large, collapse when partially unwound, and are liable thus to tangle and waste the cord and necessitate frequent stopping to renew the supply. To obviate these difficulties many have wound the cord upon revolving spools or reels, or in balls placed so as to revolve upon or with their support, and have fed the cord from the outside of the spool, reel, or ball to the needle. This has rendered it necessary that the draft of the cord should turn the cord-holder or ball—a mode of operation which involves much friction and an unequal tension on the cord.

My object is to remedy all these evils; and to that end I build up the ball by winding its strands diagonally or obliquely to the axis of its central opening, in the usual and well known manner. I then arrange the ball upon a revolving standard or holder, which is provided with some kind of tension or brake to prevent it from rotating easily, and I incline the standard or ball-holding device to the line of draft upon the cord sufficiently to compensate for the oblique position of the cord in the ball and

enable the draft to act equally all around. The cord unwinds from the outside of the ball, and is led through between spring-jaws, thence up over a spring-tension take-up arm, and thence to the needle or band-carrying arm, where it is applied to the gavel and tied off in any approved manner.

In the drawings, A indicates a standard having a polyhedral foot, *a*, adapted to be set in a suitable socket in the harvester or binder frame, or attached thereto, so that the standard and the mechanism supported thereby are rigidly held in the proper position for their work. This standard is provided at one side with a long curved arm, B, bent up at its extreme outer end, as shown at *b*, to form an inclined spindle, upon which rotates a tapering ball-holder, C, constructed in any suitable manner, and acted upon by a spring-brake, D, which permits its rotation when sufficient force is applied.

The ball-holder may be constructed in the form shown in Fig. 2, the body of it being made of wood, as represented at *c*, surrounded by bent springy wires *c'*, which permit the ball to slip on easily, hold it firmly when on, and prevent it from collapsing when nearly unwound; or said cord-holder may consist of a casting having notched ribs, as shown in Fig. 3.

The force of the brake D may be made adjustable by any suitable means, if preferred.

The ball E is placed on the holder C, and the cord M is led thence through between spring-jaws F, thence up over or around a spring take-up arm, G, and thence to the wire-carrying arm.

The force with which the spring-jaws are pressed together is preferably regulated and adjusted so that the tension exerted on the cord may be proportioned to the strength of the latter. Such regulation and adjustment are effected by means of a spring, S, and set-screw *s*. One end of the spring bears against an arm of the pivoted jaw, and the other end is held by the head of the set-screw, which is peculiarly formed for this purpose. By turning out the set-screw the spring is caused to press the jaws more tightly together, and they will consequently exert a greater tension on the cord, while by turning it in the reverse is the case.

By guiding the cord from the ball to a fixed point, *f*, and arranging the ball at such an inclination to that point as to substantially equal the obliquity of its strands to its own axis, it will, when the cord is drawn, tend to turn around until the unwinding strand extends in a plane nearly at right angles to the line of draft from the point *f*, and then the cord will unwind from it regularly and easily, with no more rotation of the ball than is necessary to keep the unwinding strand at the angle aforesaid. The ball can thus be made of any required size and unwound without collapsing or tangling. It can also be very easily applied and removed. All parts of the device are simple and durable, and will remain in working order for a life-time.

So far as the principle of operation is concerned, it will be observed that it is only necessary to hold the ball up so that the cord can freely unwind around and under it, keep its top clear, adjust its inclination to the line of draft so as to about equal the inclination of its strands to its own axis, and allow it to move, not too freely, but easily enough to adjust itself to the draft, as described. I regard the application of this principle or mode of operation as falling within the limits of my invention, however the details and devices may differ from those herein described, which are shown only as illustrating one means for carrying the principle into practice.

I claim as my invention—

1. In a harvester-binder, an obliquely-wound ball arranged upon an axial spindle or holder

at an inclination to the line of draft upon the cord, and capable of turning slightly to adjust itself to the unwinding of the cord, whereby the ball is maintained in the proper relative position to the draft of the cord and the cord is unwound from it in the manner substantially as described.

2. In a harvester-binder, the ball-holder, tapering from the bottom upward, in combination, substantially as described, with the inclined spindle upon which it is mounted, and with a brake applied to its lower end, and a cord-guide arranged to lead the cord obliquely from the ball, whereby the cord is unwound about the axis of said ball and the holder turns to compensate for change in the direction of the loops on the ball, as set forth.

3. The standard A, arm B, inclined spindle *b*, ball-holder C, formed to enter and hold the cord by its central opening, and brake D, acting upon said holder, combined substantially as described.

4. The cord-holder, constructed of the tapering block *c*, and bent spring-wires *c'*, arranged to rotate on a spindle, and provided with a brake, D, substantially as described.

5. The combination of the tension-jaws F, the spring S, bearing against lugs on the frame and lower pivoted jaw, and the set-screw to adjust the stress of said spring upon the jaw, substantially as described.

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Witnesses:

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