J. F. APPLEBY.

Shaft and Sleeve Coupling.

No. 217,192. Patented July 8, 1879.

Fig. 1.

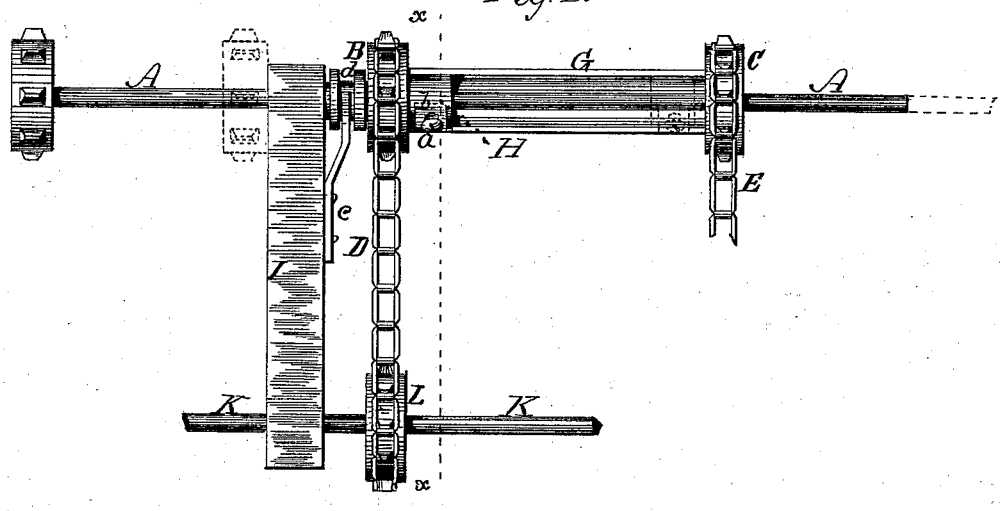


Fig. 2.

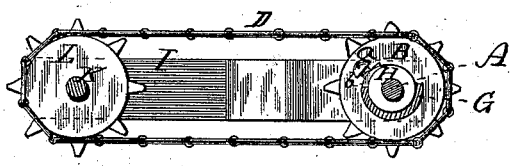
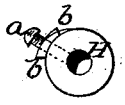


Fig. 3.



Witnesses

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JOHN F. APPLEBY, OF BELOIT, WISCONSIN.

IMPROVEMENT IN SHAFT AND SLEEVE COUPLINGS.

Specification forming part of Letters Patent No. **217,192**, dated July 8, 1879; application filed November 2, 1877.

To all whom it may concern:

Be it known that I, JOHN F. APPLEBY, of Beloit, in the county of Rock and State of Wisconsin, have invented an Improved Device for Communicating Motion to Self-Binders for Harvesters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of the improved device and of the parts of a harvester with which it is immediately connected; Fig. 2, a vertical section of the same in a plane indicated by the line *x x*, Fig. 1; Fig. 3, view of a part detached.

Like letters designate corresponding parts in all of the figures.

The object of my invention is to produce by simple means a self-adjusting device for communicating the motions from a fixed driving-shaft to the operative parts of a self-binding mechanism mounted on a movable or adjustable frame without disturbing any part of the machine; and the invention consists in substantially the following construction:

Let A represent the fixed driving-shaft mounted on a harvester for communicating the motions to the self-binding mechanism mounted on a movable or adjustable frame. As represented, these motions are communicated by two sprocket-wheels, B C, and two sprocket-chains, D E, the wheel and chain B D driving the needle and tying apparatus, as well as one of the packing-arms described in an application for Letters Patent previously filed by me in the Patent Office, and the other wheel and chain driving the other packing-arm described in the said application; but other gearing or belting devices may be employed for similar purposes, and the features of my improvement be applied thereto as well as to the construction represented.

For the purpose of adjusting the positions of the self-binding mechanism it is necessary that these sprocket-wheels, or their equivalents, (cog-wheels, pulleys, or whatever the means employed may be,) shall at different times assume different positions on the driving-shaft A, as indicated by two extreme positions in the drawings, one in full line and the other by dotted lines in Fig. 1. To effect this adjustment the sprocket-wheels B C, or their equivalents, are mounted on or connected by a sleeve, G, consisting of a half-cylinder, or thereabout, divided longitudinally, as shown, so that one side is entirely open. The inner surface of this open sleeve or hollow cylinder is considerably larger in diameter than the shaft A, the bearings of the sleeve or of the sprocket-wheels thereon being at the ends of the said sleeve. This open sleeve and space within it around the shaft A is for the purpose of admitting a coupler or driver, H, to be attached to the shaft by inserting it in the sleeve and then passing the shaft through it. It is or may be a simple short cylinder or block fitting upon the shaft, and secured firmly thereto by a set-screw, *a*, or its equivalent. Its periphery is small enough to move freely inside of the sleeve G without touching the inner surface of the same; but it has a projection or shoulder, *b*, on one side to strike against one edge of the sleeve and cause the same, with its sprocket-wheels, to revolve with the shaft; and the shoulder is double or abrupt on opposite sides to strike either edge of the sleeve and turn the same in either direction. This coupler does not interfere with the free longitudinal sliding of the sleeve on the shaft.

By this construction of the sleeve and coupler, first, a cheap device is produced, since the sleeve can be cast, and requires no subsequent finishing, and the coupler is of easy and cheap construction; and, second, a stronger coupling device is produced, since the coupling is applied at the periphery of the sleeve, and the strain of powerful leverage, as when it is applied on the shaft itself in the ordinary manner, is avoided, and with it a perfect freedom of longitudinal adjustment of the sleeve on the shaft.

In order that the sleeve may be caused to travel on the shaft simultaneously and equally with the adjustment of the binding apparatus in a parallel direction, and thereby always have perfect freedom of action of its connecting-gear, and avoid binding or breakage of the parts, the sleeve is connected with the binding apparatus by a rigid bar, I, preferably in the manner shown, it having a bearing surrounding the driving-shaft A, and another

bearing surrounding a motion-receiving shaft, K, which also has a sprocket-wheel, L, to receive the sprocket-chain D or its equivalent. This bar is secured to the frame of the binding apparatus, and moves laterally with the adjusting movements thereof; and since it is coupled to the sleeve G by a forked coupling-plate, *c*, secured to it, and fitting in a groove, *d*, of the sleeve, the latter is caused to travel in either direction along with the movements of the binding apparatus. This also serves to keep the shafts A K at the proper distances apart, and prevent the bending of either.

This sleeve is equally applicable when a single sprocket-wheel or equivalent driver is used as when two or more are employed.

This coupling device is also applicable in other connections and in other mechanisms, for different purposes. Instead of the entirely-open side of the sleeve for admitting the driver an opening just sufficient for the purpose, either in the side or end of the sleeve, will suffice.

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

1. An open sliding sleeve, G, with bearings at its ends, applied to a driving-shaft, A, constructed and operating substantially as and for the purpose herein specified.

2. An open sliding sleeve, G, and driver H, in combination with a driving-shaft, A, substantially as and for the purpose herein specified.

3. In combination with the coupling-sleeve G, a connecting-bar, I, traveling with the motion-receiving shaft K and the frame in which it is mounted, substantially as and for the purpose herein specified.

JOHN F. APPLEBY.

Witnesses:

J. S. BROWN,

A. A. HOSMER.