

S. D. Locke,
Grain Binder.

No. 51599

Patented Dec. 19, 1865

Fig. 2.

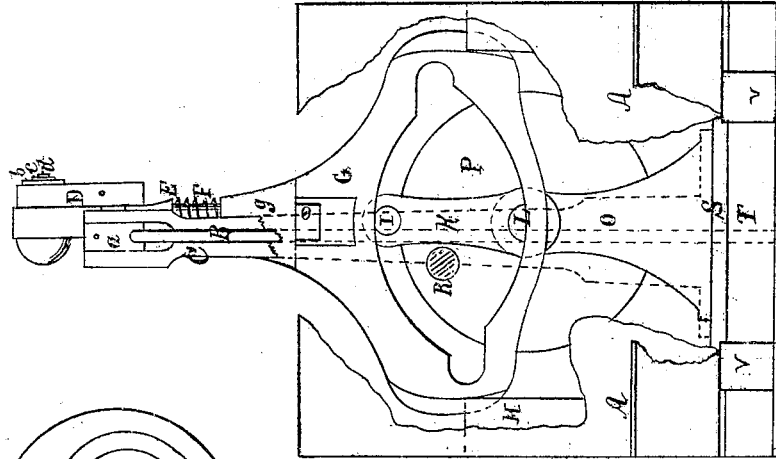


Fig. 3.

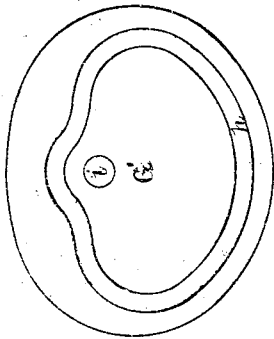
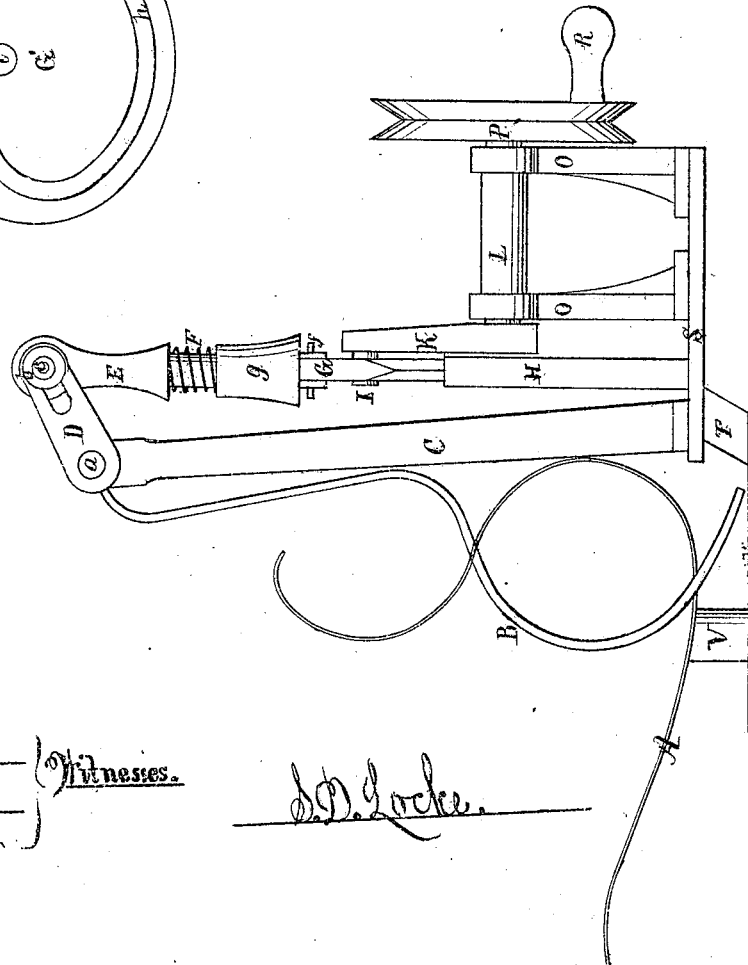


Fig. 1.



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X. M. Bemis } *Witnesses.*

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UNITED STATES PATENT OFFICE.

SYLVANUS D. LOCKE, OF JANESVILLE, WISCONSIN.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. 51,599, dated December 19, 1865; antedated June 19, 1865.

To all whom it may concern :

Be it known that I, SYLVANUS D. LOCKE, of the city of Janesville, county of Rock, and State of Wisconsin, have invented a new and useful machine known as a machine for compressing the gavels or unbound bundles of grain on a grain-binding machine; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, like characters referring to like parts in each figure.

The nature of my invention consists in the employment of a yielding or elastic arm to compress the loose or unbound bundles of grain in a grain-binding machine, so that thereby bundles of unequal size are compressed with the same yielding though equal force.

The nature of my invention consists, also, in the combination of a cam producing an intermittent motion with a reciprocating, yielding, or elastic compressing-arm and a curvilinear grain-guard, allowing the different operations of compressing the bundles and securing the bands around them to be done alternately.

To enable others skilled in the mechanic arts to construct and operate my machine, I will refer to the accompanying drawings, in which—

Figure 1 is a side view of my machine, showing the manner of its attachments to a grain-binding machine. Fig. 2 is a view at right angles to Fig. 1, with the grain-guard A, compressing-arm B, and standard C cut away, so as to more fully show the operating-cam G and connections. Fig. 3 represents another form of the operating-cam.

The grain-guard A, Figs. 1 and 2, is made curvilinear, as shown, to aid in gathering and compressing the loose grain. The compressing-arm B is secured to the shaft *a*, which takes bearing in the standard C. The crank or arm D, attached to the shaft *a*, is operated by the connecting-rod E, on the end of which is the cam G. The connecting-rod E slides freely up and down in the rounded upper portion *g* of the cam G, and is prevented from being withdrawn by the pin *f*. A regulating-nut, however, is preferable to the pin. The

office of the spiral spring F is to allow the connecting-rod E to shorten or lengthen sufficiently when operating to permit the arm B to adjust itself to the size of the bundle within the grain-guard A. The crank K is attached to the driving or supplementary shaft L of a grain-binding machine, and works, by means of the wrist-pin I, in the cam G, imparting to it a reciprocating motion.

The standards or guides H H have grooved ways, into which the cam is fitted, and in which it slides or travels when in operation. I prefer, however, to make cam with grooves traveling on raised ways in H H.

Another form or equivalent of the cam G is shown in Fig. 3, in which G' is the body of the cam, *h* the cam-groove, and *i* the center of motion, or an orifice into which is inserted the driving-shaft. This form of the cam will impart the same motion to the compressing-arm B as the cam G, Figs. 1 and 2, but, when used, must be attached to the shaft L instead of to the connecting-rod E. It is necessary, also, when this form is used, to extend the connecting rod, or rather the rounded upper portion *g* of the cam G, downward in the form of a plain rod, with a wrist-pin on the end, working in the cam-groove *h*.

The same intermittent motion to the arm B may be effected by a cylindrical cam secured to a vertical shaft, or rather to a shaft running parallel to the connecting-rod.

S, T, and U represent the base or bed plate of a grain-binding machine, while V V are supports to the grain-guard; O O, bearings or boxes for the shaft L; P, a driving wheel or sheave, and R a crank or handle.

It will readily be seen that when the shaft L revolves, the crank K drives the cam G downward, taking with it the connecting-rod and raising the compressing-arm B, at which time the bundle of loose or unbound grain is raked against the guard A, when the shaft and crank, continuing to revolve, force upward the cam G, driving downward the arm B against the bundle, and compressing it with the full force of the spring F. When the full force of the spring F is expended, if the cam continues to ascend, the spring allows the connecting-rod to shorten until the crank reaches its upward limit, when, owing to the peculiar

construction of the cam, the parts are all retained in the position last described sufficiently long to permit the band to be secured around the bundle, when the arm B is again raised to allow the discharge of the bundle and the admission of another, the connecting-rod E again assuming its original length. The spring F may be made of rubber or other elastic material, and the intermittent cam, as here described, may be employed to operate a rigid as well as an elastic reciprocating compressing-arm. It is also unimportant whether the upper portion of the cam slides in the connecting-rod, or the reverse, or, indeed, however they may be attached, so long as the elasticity of the arm B is retained.

A machine constructed as above described combines the advantages alike of an elastic

strap and a rigid compressing-arm, without either the difficulties attending the operation of the one or the non-elasticity of the other.

What I claim, and for which I desire Letters Patent of the United States, is—

1. The combination of a yielding or elastic compressing-arm with a curvilinear grain-guard, substantially as and for the purpose set forth.

2. The combination of a cam producing an intermittent motion with a reciprocating, yielding, or elastic compressing-arm and a curvilinear grain-guard, substantially as and for the purpose set forth.

S. D. LOCKE.

Witnesses:

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