E. DEDERICK.
Grain-Binder.

No. 201,228. Patented March 12, 1878.

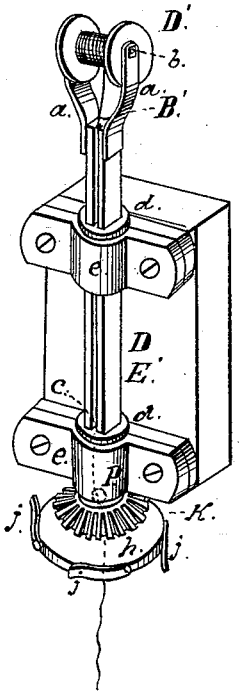

Fig. 1.

WITNESSES:
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UNITED STATES PATENT OFFICE.

EZRA DEDERICK, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. **201,228**, dated March 12, 1878; application filed November 24, 1877.

To all whom it may concern:

Be it known that I, EZRA DEDERICK, of the city of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Grain-Binders; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the accompanying drawing represents a perspective view of my invention.

The object of my invention is to furnish improvements in a certain machine for binding grain automatically with a cord, for which machine I have received Letters Patent of the United States bearing date October 30, 1877, numbered 196.640, and which machine is more fully set forth and described in the specification which accompanies and forms a part of said Letters Patent, the office of this device more particularly being to hold and twist the binding-cord, and it is intended as an improvement upon and a substitute for the device for said purpose described in said Letters Patent, herein referred to by the same reference-letters.

D′ is a spool, for holding the binding-cord B′. The spool is attached to the shaft E′ by metallic springs *a a*, which serve to regulate the tension of the spool. The tension may be increased or diminished by turning the nut *b* forward or backward.

The shaft E′ is square, and is provided with a groove, C, for the accommodation of the cord B′, and thus serves the purpose of the hollow shaft previously used, as described in the specification attached to said patent, and the single shaft E′ serves the purpose of both shafts E′ and W′ therein referred to. The same object attained by the vertical movement of the shaft W′, shown in said patent, which operates upon the outside of the shaft E′, is by this device attained by the vertical movement of the single shaft E′ through its own journals *d d*, to which it is loosely fitted. The journals *d d* revolve with the shaft E′ in the boxes *e*. The journals *d d* are provided with flanges both above and below their boxes, which serve to secure them in their boxes as the shaft E′ moves upward and downward through them.

I also substitute the disk *h*, provided with springs *j*, for the twisting-claws F′ in said patent described, which disk is secured to the shaft E′, its office being to hold and twist the ends of the band together when united around the bundle.

K is a pinion, attached to the revolving-journal *d*, through which motion is communicated to the shaft E′, and through the center of which the shaft E′ also operates upward and downward.

There is an opening, P, through the center of the disk *h*, extending upward through the end of the shaft E′ and out at the groove C, for the accommodation of the cord B′.

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

1. In a grain-binder, the combination of rotating shaft E′, having longitudinal groove *c*, journals *d d*, and opening P, with devices for supplying the cord which is to be used for binding the grain, substantially as set forth.

2. The disk *h*, provided with springs *j*, in combination with the shaft E′, substantially as shown and described.

3. The tension-springs *a*, as combined with the shaft E′ and the spool D′, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EZRA DEDERICK.

Witnesses:
K. SHAWVAN,
C. BEYER.