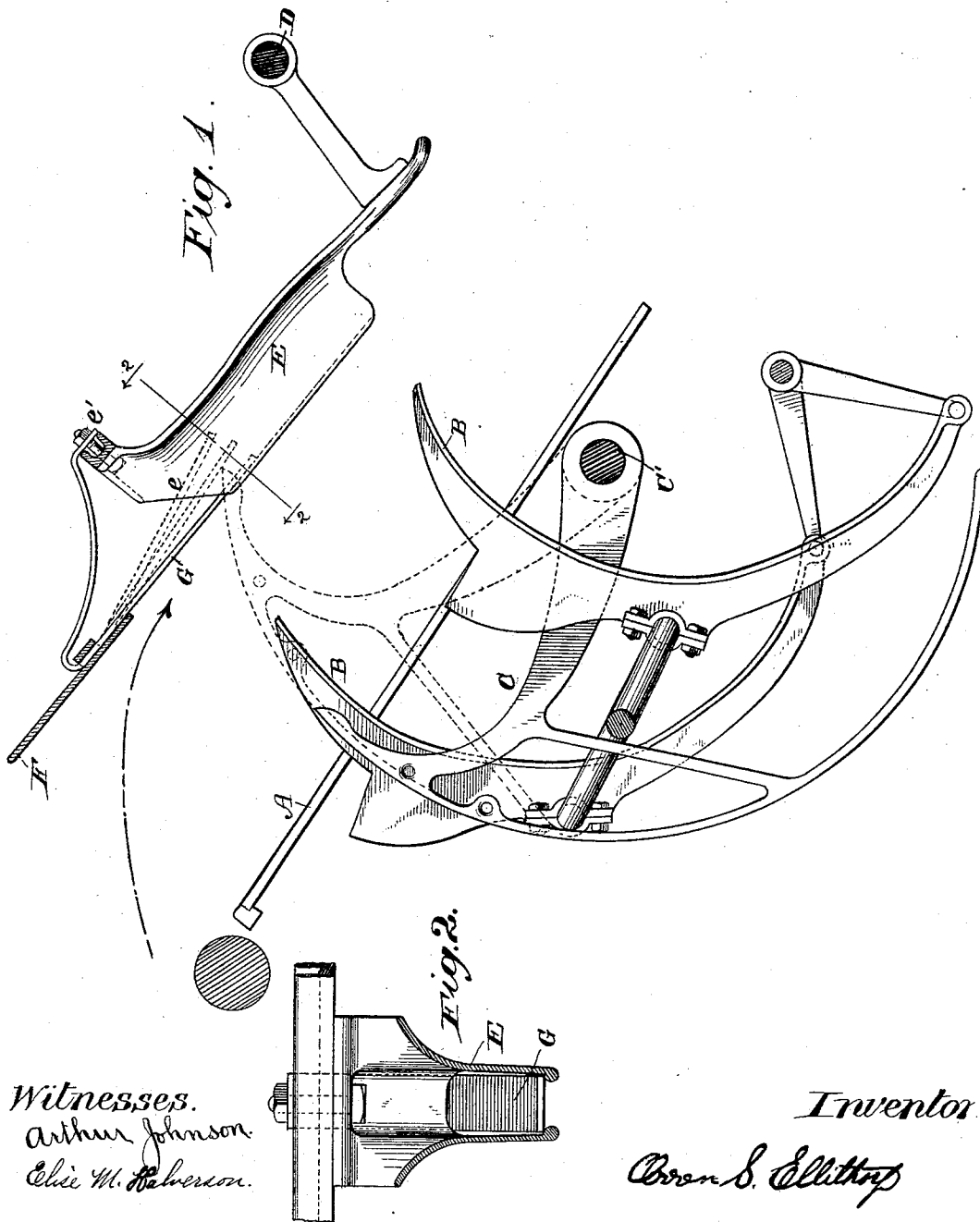


(No Model.)

O. S. ELLITHORP.
SELF BINDER.

No. 486,440.

Patented Nov. 22, 1892.



Witnesses.
Arthur Johnson.
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ORREN S. ELLITHORP, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WILLIAM DEERING & COMPANY, OF SAME PLACE.

SELF-BINDER.

SPECIFICATION forming part of Letters Patent No. 486,440, dated November 22, 1892.

Application filed December 3, 1891. Serial No. 413,883. (No model.)

To all whom it may concern:

Be it known that I, ORREN S. ELLITHORP, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Binders, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a rear sectional elevation of the parts forming the throat through which the grain is compacted, of the packing devices, and of the needle. Fig. 2 is a detail view showing the construction of the parts forming the upper part of the throat through which the grain passes.

I have shown only so much of what is known as the "Appleby binder" as is necessary to illustrate my invention, and as it is a machine well known in the art I will refer to the general construction but in general terms.

A is the binder-table, down which the grain is fed by the packers B and B.

C is the needle, adapted to rock upon the shaft C'.

D is the knotter-driving shaft, upon which the knotter-frame E is centered.

F is the usual grain-deflector. This deflector, with the elastic continuation G and the lower edge of E, forms the upper portion of the grain-throat. The part G is a spring adapted to support the lower edge of the grain-deflector F by its being bolted indirectly to the knotter-frame at e' and rests within the slot formed in the knotter-supporting frame E, into which the needle passes.

In grain-binders of the class which my invention is designed to embody the packers run continuously and the needle has a rearwardly-extending portion which is adapted to form a cut-off and hold the grain above the point of the packers, the latter never reaching above the arc of the needle; but as the straws often lie criss-cross across the needle, and for other reasons not necessary to explain, the packers engage them and draw them tightly against the back of the needle. As the needle is moved upward the straws thus tightly drawn are carried into the angular space between the top of the needle and the

usual guide, which I have replaced by the spring G. Being thus tightly drawn they are wedged with great force by their frictional contact with the needle into the triangular space and an accumulation formed which often chokes the binder.

I so shape the cheek-pieces of the knotter-frame E, as shown at e, and provide the spring G. I prefer to place its lower end relative to the needle, as shown in Fig. 1, so that the needle will strike its lower end and force it upward; but whether the needle force it upward or the grain accumulating at the angle force it upward the result of its presence is that it gives way and does not allow the grain that is drawn into the angle to become tight enough to have any perceptible choking action. If a stiff rod were used in the place of the spring G and placed high, the tendency to choke would be somewhat reduced, but there would not be a substantially-straight guide for the grain, as in case of the use of a spring, which will fall so as to be in line with the other portions of the upper guide. The importance of this will be understood when the fact is taken into account that the grain is thrown by the elevating devices in the direction shown by the long dotted arrow, and any angular part such as would be present near where the needle penetrates the slot would be an obstruction to the free flow of the grain.

In Fig. 1 the spring is shown in full and dotted lines in three positions, the lowest dotted position being substantially that to which the needle raises it and the uppermost dotted position being that to which it may be forced by a wad of grain drawn tightly against the back of the needle, and hence carried forward against the upper end of the knotter-supporting frame E.

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

1. In a grain-binder, the combination, with the binder-table, the packing devices, and the needle, of the knotter-frame E, supported above the table, a fixed grain-deflector substantially in line with and above the knotter-frame, with a space between the two, and a spring extension of the deflector to close said

space and adapted to yield under unusual pressure.

2. In a grain-binder, the combination, with the binder-table, the packing devices, and the
5 needle, of the knotter-frame above the table, said frame having the beveled or inclined portion *e*, the grain-deflector in line with the

lower part of the knotter-frame, and an elastic extension of said deflector supported within the knotter-frame.

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Witnesses:

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