Sheet 1 - 2 Sheets.

A. Sherwood.

Grain Binder.

No. 25308 Patented Aug. 30, 1859.

Fig. 1.

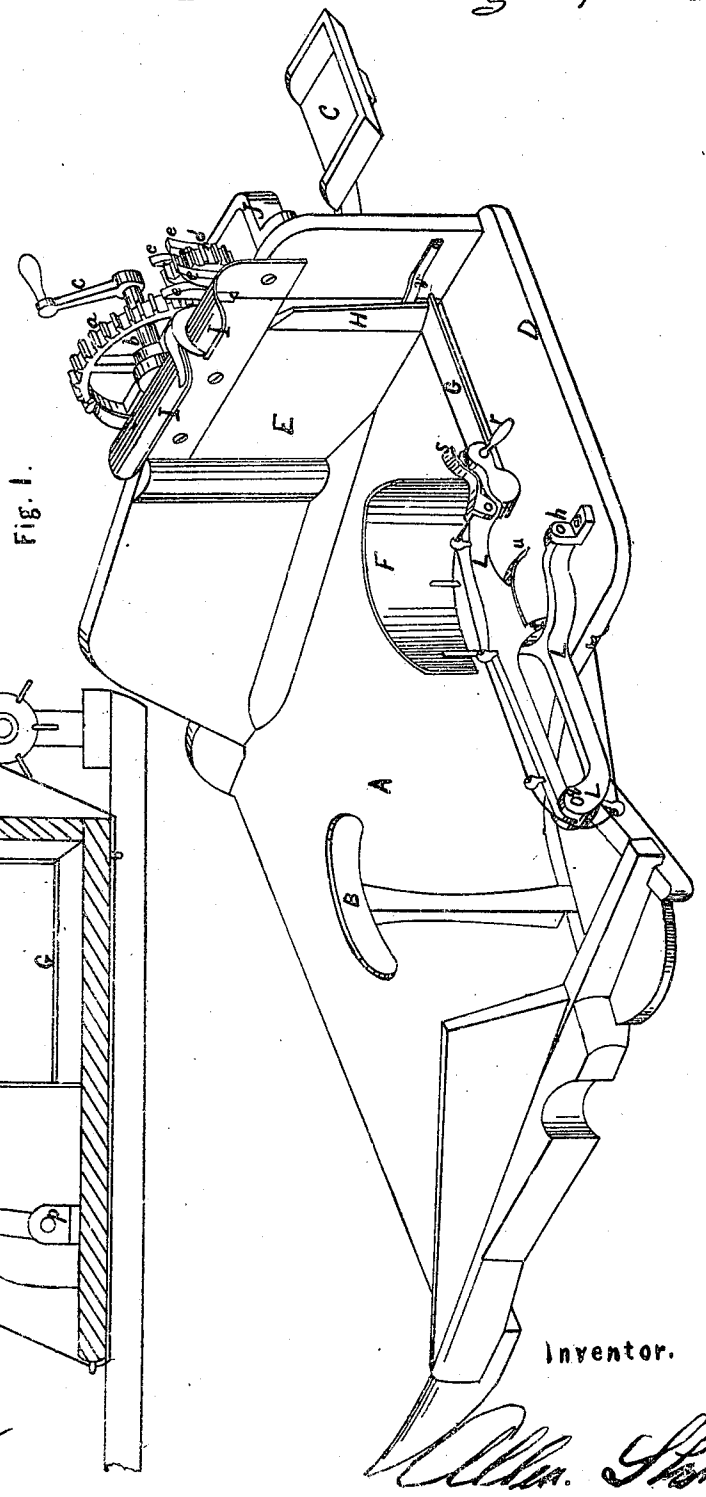
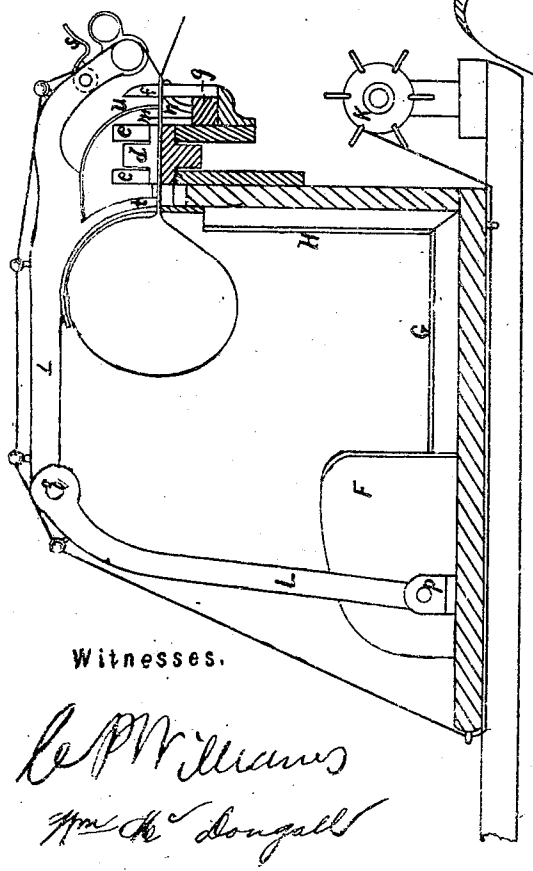


Fig. 3.



Witnesses.

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Wm. C. Dougall

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Allen Sherwood

Sheet 2-2 Sheets.

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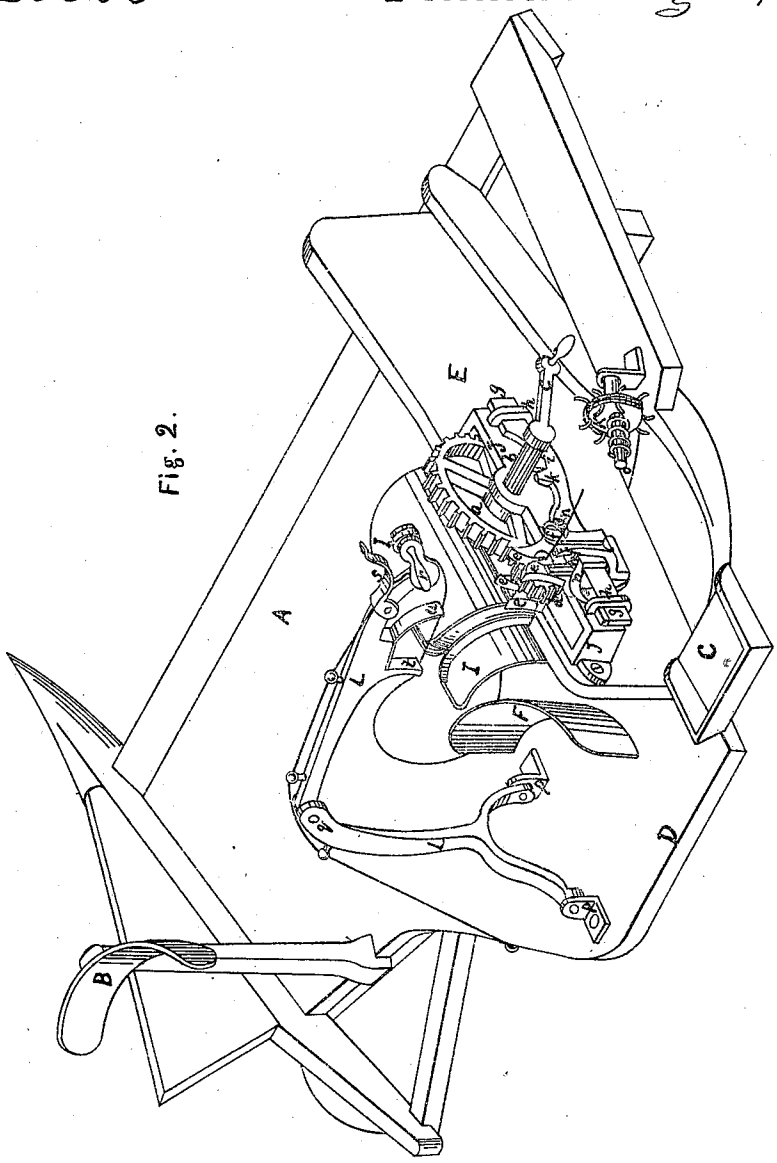


Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

ALLEN SHERWOOD, OF AUBURN, NEW YORK, ASSIGNOR TO E. P. SENTER, A. H. GOSS, WM. HILLS, AND AMERETTA SHERWOOD, OF SAME PLACE.

IMPROVEMENT IN GRAIN-BINDING MECHANISMS.

Specification forming part of Letters Patent No. 25,308, dated August 30, 1859.

To all whom it may concern:

Be it known that I, ALLEN SHERWOOD, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Grain-Binding Mechanism; and I do hereby declare the following to be 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, in which—

Figure 1 represents a perspective view taken from the rear outside corner of a harvesting-machine platform, and showing the binding apparatus connected thereto. Fig. 2 represents a perspective view taken from the rear inside corner of the platform, and showing the mechanism for binding the grain on that side of the platform. Fig. 3 represents an end elevation of the binding mechanism, taken from the rear of the platform.

Similar letters of reference where they occur in the several figures denote like parts of the machine in all of them.

One of the principal features of my invention consists in the fact that my grain-binding apparatus may be connected to any mowing-machine already constructed without changing any of its material parts, or it may be removed therefrom and leave the machine as perfect as it originally was, its attachment or removal in nowise changing the construction or character of the mowing-machine as a whole. Its operation is in part manual and in part automatic.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents the platform of a harvesting-machine and B the raker's stand affixed thereto. C is the binder's seat. It is located in rear of the drive-wheel and in close proximity to the delivery point or place on the platform, so that as the sheaf is bound it may be easily delivered onto the ground, to make room for the gathering in of the next gavel that is to be bound. It is difficult to describe the location of this binder's seat by its proximity or otherwise to any of the parts of a harvesting-machine, as they are so much varied in their arrangement, and my binding apparatus is applicable to any of the generally known and used machines, and can be connected to or removed from them without any detriment to their use in other respects. The delivery-point on the platform or the position of the raker on the machine, are the only points that restrict or define the proper location of the binder's seat.

In the platform, as herein represented, and with the raker stationed at B, the delivery would be at or near the point D, and hence I arrange the binder's seat so that this point D shall be convenient for both the raker and the binder at their respective positions; and thus I in no manner change the location of the raker or the point of delivery, leaving them as free to be used without the binding apparatus as before it was applied. The machine need not be altered in any of its essentials, nor need it be specially constructed for the reception of my binding apparatus. On the contrary, I make the binding mechanism independent of any form of machine, and connect it to or with any of the forms of machines already constructed. Or, I can remove it from any machine to which it has been applied, and leave the machine with all its parts or facilities for ordinary delivery, the same as they were originally.

In addition to the fence E, which is ordinarily made on the main frame side of the platform, I attach a curved shield or guide-piece, F, (so that it may be easily removed when required,) just far enough from the fence E to allow a good-sized gavel to lie between them. Across this space, and along the side of the fence, are inclined battens or strips G H, under which the binding-wire (shown in the drawings) passes, to prevent the grain from catching on them as it is drawn into the proper position to be clasped by said wire. On top of the fence there is a shield, I, which projects over sufficiently far to catch the grain and prevent it falling into the gearing. This shield performs another function, viz: it serves as a guide to the binding-lever, to enable it to properly bring and introduce its part of the wire into the twisting apparatus, where the

end of the wire was previously placed, as will be presently described. To the back of the fence is connected the mechanism by which the tie is made in the wire. It consists of a frame, J, for supporting it and for holding it to the part of the machine where it is to be connected. In this frame is hung a cog-wheel, *a*, on a shaft, *b*, to which a crank, *c*, is affixed. This cog-wheel gears with and turns a pinion, *d*, which has a slot in it to receive the wire, and near it are guides *e e*, to direct the wire into said slot. The center of this pinion I make of steel, so that it will not wear away, by twisting the wire, as readily as the ordinary cogged-gear metal does. *f f* are another set of guides, between which the parts of the wire that are to be twisted together pass. *g* is a bar that is worked back and forth through its guides *h* by a cam, *i*, on the shaft *b*, which cam strikes against a detent, *k*, on said bar. To this bar is connected a vertical cutter, *m*, that has a cutting-edge on both of its sides, said cutter traveling past the slot in the pinion *d*, at the proper time to cut off the wire after the tie is made. *n n* are bent arms secured to the traveling bar *g*, and one or the other of them is always in place to receive the wire when it is laid in the slot of the twisting-wheel *d*, and prevent it from dropping too low. The extent of traveling motion given to the bar *g* is defined by stops, against which it comes, and these stops are so arranged that the slot in the twisting-wheel shall always be on top or in the proper position to allow the wire to enter it. This whole twisting and cutting apparatus is screwed to the fence by its frame J, and can be removed at any time when not required to be used.

K is a spool for holding the binding-wire. It may be prevented from too freely turning on its bearing *o* by spring pressure, or by the person in charge of the binding apparatus, who may apply his foot to it, and thus allow it to give out and hold onto the wire, as occasion may require.

L is a lever fastened to the platform at *p* by a hinge-joint, on which it can freely move. This lever is bent around into the form shown in Figs. 1, 2, and 3, and has at about midway of its length a second hinged joint, *q*, for the purpose of allowing it to be folded down out of the way, as seen in Fig. 1, and its handle *r* be within convenient reaching distance of the binder on his seat C. The back of this binding-lever L is furnished with several guides, or dead-eyes, through which the wire is passed to keep it in proper position, and near its end there is a clamping device, *s*, by which the operator may stop the paying out of the wire when the lever is brought up and toward the twisting-wheel.

That the operator may not be required to specially guide and direct the wire in its several positions, I arrange several general guiding devices, which, when brought together, perform several duties which it would be extremely difficult for the binder to do by hand or even inspect; as, for instance, the shield I is slotted and flanged, as seen in Figs. 1 and 2, the slot allowing the wire to come down low enough into the twisting-wheel, and the flanges to guide the lever L into the proper position to guarantee the introduction of the wire, or the bringing of it over the proper point to be introduced into the twisting-wheel. *t u* are two arms on the under side of the lever L, which come upon the wire on each side of the twisting-wheel and force the wire down into its slot.

The operation is as follows: The end of the wire, having been passed from the reel underneath the platform, is brought up and passed through the dead-eyes on the back of the lever L, thence under the clamp *s*, and between friction-rolls in the end of said lever, said lever being folded down, as in Fig. 1. From the lever the wire passes under or behind the shield pieces or battens G H, through the slot in the shield I, and finally laid into the slot of the twisting-wheel *d*. A spring, *v*, may be used to hold the wire under the piece H. The apparatus is now in condition (as seen in Fig. 1) to receive the gavel that is to be bound up. The raker sweeps the grain around between the shield F and the fence E, so that the center, or thereabout, of the stalks shall lie over the strip G. When enough for a gavel has accumulated, the binder, from his seat, grasps the handle *r* and draws up the lever L, which draws the wire out from behind the ledges G H and passes it around the gavel, the strain on the wire being regulated by the clamp *s*, which will hold onto it or let it pay out, as the operator may desire, the position of the lever and the wire, when the gavel is about encircled, being shown in Fig. 2. The end of the lever is now brought down with the arms *t u*, in the position shown in Fig. 3, and the bundle is then tightly encircled by the wire, while the arms *t u* have pressed the portion of the wire between them into the groove of the twisting-wheel *d*, where an end of the same wire was previously placed. The operator, still holding on with his left hand to the lever, takes hold with his right hand of the crank *c* and gives it one turn or one revolution, which gives the cog-wheel *a* a revolution on its shaft, and one turn of the wheel *a* gives several turns to the twisting-wheel *d*, twisting the two portions of the wire tightly together and forming a tie. At about the termination of the rotation of the shaft *b* its cam *i* strikes against a detent, *k*, on the bar *g* and drives said bar before it. This moving of the bar *g* causes the knife *m* to move past the wires and sever them. The bundle is now bound, and, the wire cut, it is thrown onto the ground. The operator now places the end of the wire in the twisting-wheel, moves the lever into the position shown in Fig. 1, arranges the wire behind the ledges G H, and the machine is ready for another similar operation.

From this description of each individual operation the whole may seem intricate and require a considerable period of time to effect it. Such is not the case, for all that the binder does is to draw up the lever L with his left hand and turn the crank *c* with his right hand, and the whole thing is accomplished.

Having thus fully described the nature and object of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the shield F and lever L, both removable and located at one side of the delivery portion of the platform, so that the shield shall protect the lever from the cut material and form one side of an open-ended grain-receiver, (the fence E forming the other side thereof,) where the grain is deposited previous to being bound up, as described.

2. In combination with the raker's stand B and binder's seat C, the shield F and lever L, so arranged as that the raker from his stand may sweep the cut grain into the receiver, and the binder from his seat reach beyond the receiver to catch the lever L, as set forth.

3. In combination with the grain-receiver the inclined ledges G H, under which the wire is passed, so as not to catch or interfere with the entrance of the grain therein, as set forth.

4. The slot and flanges in the shield I, said flanges serving as a guide for properly bringing down the foot of the lever to insert the wire in the twisting-wheel, as set forth.

5. In combination with the lever L the clamp *s*, located in close proximity to the handle *r*, so that the binder, as he draws up the gavel, may check the paying out of the wire, and thus bring it tightly around the bundle, as set forth.

6. The combination of a removable shield and lever, F L, on the platform, with a removable twisting mechanism on the fence or side of the platform G, for the purpose of adapting an ordinary hand-delivery mowing-machine into a self-binder, or vice versa, without in any manner altering the parts which enables it to be so changed, except to attach or detach them, as set forth.

ALLEN SHERWOOD.

Witnesses:
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WM. MCDOUGALL.