J. S. JONES.

Grain Binder.

No. 48,690. Patented July 11, 1865.

Fig. 2

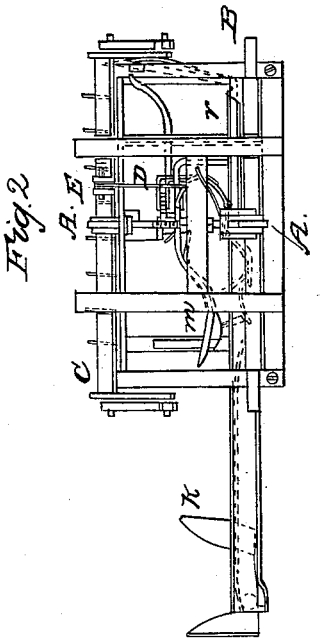


Fig. 3

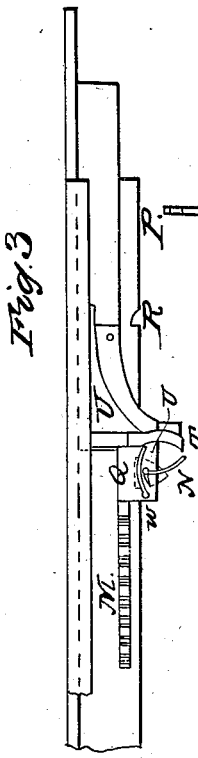


Fig. 4

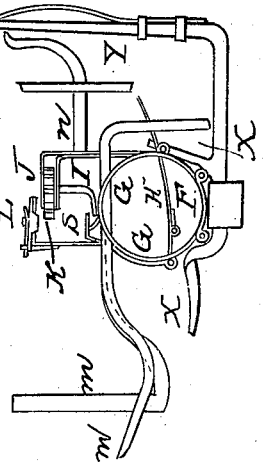
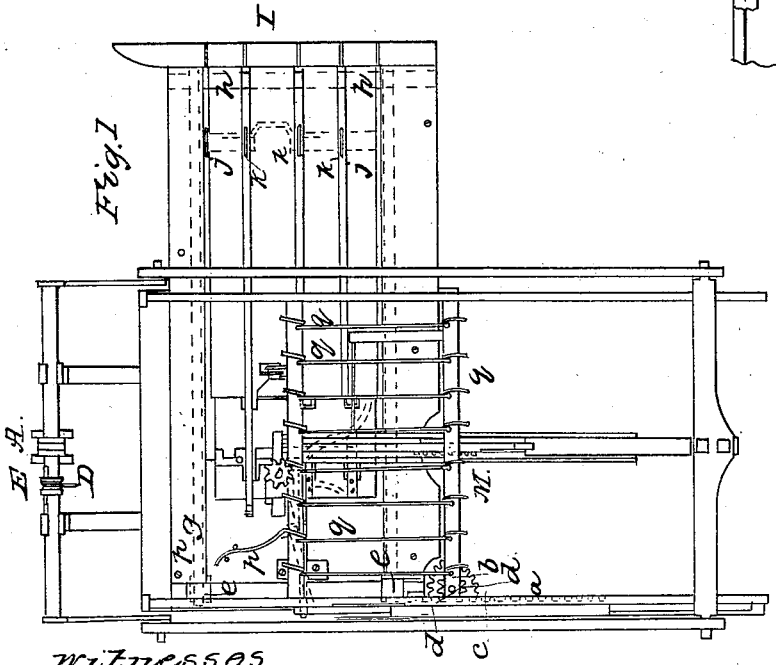


Fig. 1



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN S. JONES, OF COVINGTON, INDIANA.

IMPROVEMENT IN BINDING ATTACHMENTS TO REAPING-MACHINES.

Specification forming part of Letters Patent No. 48,690, *dated July* 11, 1865.

To all whom it may concern:

Be it known that I, JOHN S. JONES, of Covington, in the county of Fountain and State of Indiana, have invented new and useful Improvements in Raking and Binding Grain; and I do hereby declare the following to be an exact and full description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the devices that bind and drop the sheaf on the ground, by twisting the band under a rod, tucking it, and holding the sheaf and the band firmly until it is tucked, and removing the sheaf by the devices that tuck the band.

Figure 1 represents a top view of the machine. Fig. 2 represents a front view; Fig. 3, a sectional view of slide, hand, fork, and triangle. Fig. 4 represents a view of the sheaf-bed, with its wings.

A A are cog-wheels on the main shaft B and crank-shaft C. The cog-wheels A are connected by a suitable chain or strap passing over them to operate the machine. D is a lever to move a key, E, from side to side, to throw the machine in and out of gear, and permit the wheel to turn while the crank-shaft C remains stationary. F is the sheaf-bed, in which the grain is gathered and bound. G G are two curved wings, attached by hinges to the bed, that close and fall back in every revolution of the machine, and form a cylinder when closed. H is a spring extending through the cylinder above the bed, for the purpose of packing the straw and forming the sheaf in proportion to the amount of straw that is gathered. I is a rod under which the band is twisted. It may be of any shape. J is a slotted pinion that twists the rod. One of the wings G holds one end of the band under a spring-catch, L, while the grain is crowded in the bed; it then brings the end up and inserts it in the slotted pinion J in time for the twist. M is a rack that turns the slotted pinion J. N is a hand that shoves the ends of the band, presses them down on the top of the sheaf, tucks them under the band, and carries the sheaf back by the band and drops it on the ground. The motion and reaction of the hand are produced by a triangle, Q, changing its position as the slide P moves back and forth. Q is the triangle, a three-cornered plate, operating on the same shaft with the hand; and as the slide moves back and forth, the plane above the triangle Q holds it in its position. As it passes over the notch R in its reverse motion, its corner catches, reversing its sides and position; its lower corner strikes the flange S of the wing G as it passes from under the forward ends of the plane, that throws the hand down on the top of the sheaf, with the ends of the band under it, and as the motion of the slide P is reversed the side of the triangle is likewise reversed. T is a fork that holds the sheaf while being tucked and carried off. The fork and hand are both pressed down by a spring, U, above the fork. The fork is raised by a lever, V, laying over the shaft between the hand and the triangle, there being an eccentric, W, on said shaft, raising the lever V as the shaft turns to bring the hand in position to commence the tuck. X is an elevator that lifts the wings G of the sheaf-bed. It is moved by the ends of the shaft Y striking it, pushing it back, holding it there, passing over it, and letting it drop the joint in its upright lever, being held by its spring, is to let it stop, move sidewise, to permit the shaft Y to pass it in its return motion. *a* is a rack that drives the rake. It works on the pinion *b*, the relative size of which pinion, with the bevel-wheel *c*, will be determined by the width of swath to be cut. This bevel-wheel works to the bevel-pinion *d*, moving it and the chain-wheels *e e* on the roller *f*, to which it is attached, over which chain-wheels *e*, the chains *g g* moving the rake back and forth. The chains, two in number, pass round another roller, *h*, at the extreme end of the grain-table *i*, with their two ends each passing over the rake-head, and fastened to it on the opposite side from which they came. *j* is the rake. Each end of the head is in the form of the diamond, and runs in a groove as it advances toward the sheaf-bed. The teeth *k* stand up, leaning forward. A slot, *l*, in the rack-shaft *a* permits the rake to remain stationary while the wings of the sheaf-bed are lifted and closing the grain. The reverse motion of the rake throws the teeth on their back. By reversing the face of the diamond in the groove, their lower corners striking an offset in the groove, and the action of the chain rolling it from the top, the rake passes back in its horizontal position under the top of the grain-table to its fur-

ther extremity. The motion is there reversed. The same cause that throws the teeth on their back is also reversed, bringing them again to their upright position as they move again toward the sheaf-bed, coming up through an opening between each plank that forms the top of the grain-table. *m* are rods to hold the grain down while it is pressed by the wings of the sheaf-bed. *n* is a moving shaft to support the slotted pinion J while the twist is being made. It is moved by being hit by a tooth of the rack *a*, and is brought to its position again by a spring, *p*. *q* is the wire-bed, made of any material, on the top of the machine, which holds the straw for making the bands. *r* is where the driver's seat is intended to be placed.

The platform, the standards through which the driving and the crank shafts run, the frame that supports the moving machinery, and the top, bottom, back, and extreme end of the grain-table are intended to be made of wood, all the rest to be made of iron. It can be attached to any of the reapers now in use, directly behind the driving-wheels. The grain-table will take the position of the grain-table now used, with the sickle-teeth attached to it as they are now attached to them. The growth of straw in the field about to be cut will determine about the length of travel necessary to make a sheaf. The relative size of the chain-wheels on the driving-shaft and on the crank-shaft must then be determined; there should be several on each shaft. The binder takes his seat and places the bands in position as each sheaf is made; as the wings fall back, the one next the rake is stopped halfway; while there the end of the band is inverted before it falls farther; he then passes the end he is about to place in the slotted pinion on the side farthest from him of the twisting-rod, so that when the opposite wing brings up the end first placed, the rod will be between the two; when he wants to travel farther before binding, he will touch the lever D and hold it during his pleasure.

I claim—

1. The combination of the rack *a*, pinion *b*, wheel *c*, bevel-pinion *d*, curved wings G, spring H, hand N, fork T, and triangle Q, for the purposes set forth.

2. The rod I, or its equivalent, in combination with the twisting devices J and K, for the purpose described.

3. The arrangement of the sheaf-bed F and its wings G, in combination with the elevator X, that lifts them, the device Y, that operates that elevator, the rods *m*, that lay over the sheaf-bed, holding the straw down while the wings press it.

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Witnesses:

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