

JAMES YOULL.

Binders for Harvesters.

No. 118,091.

Patented August 15, 1871.

Fig 1

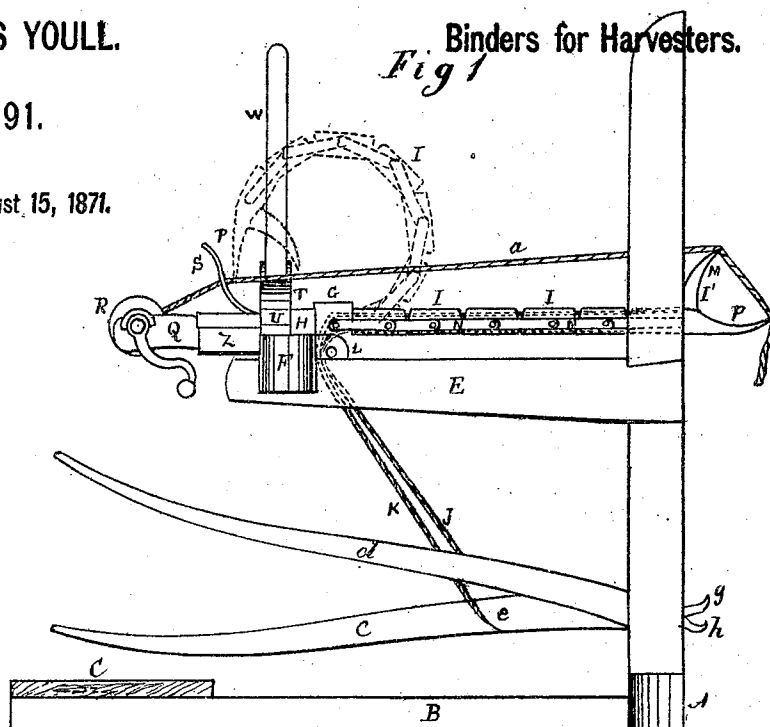


Fig 4

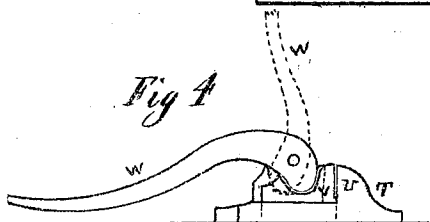


Fig 3

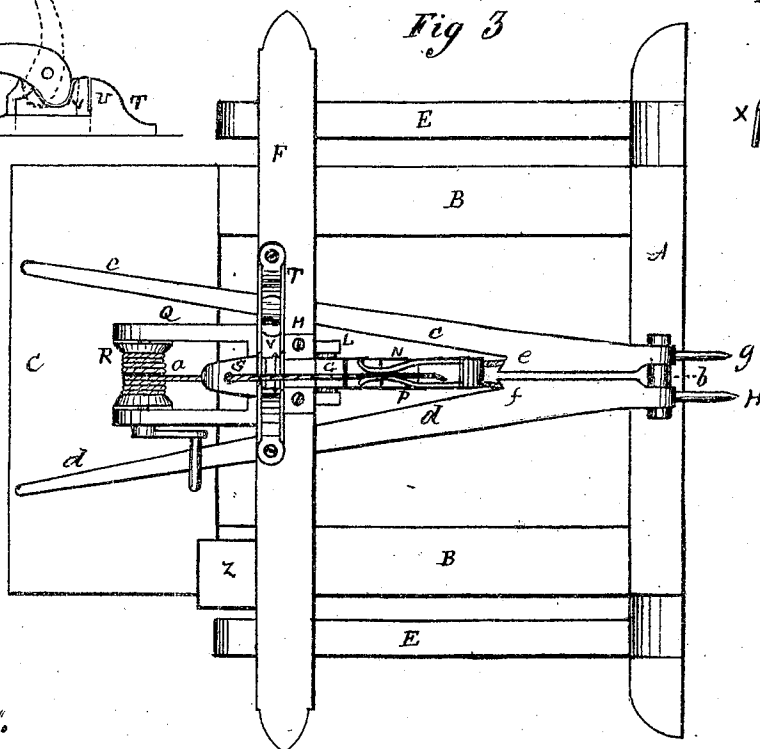
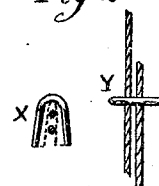


Fig 2



Witnesses.

Wm. Seaman

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James Youll.
By his Atty. J. Dennis.

UNITED STATES PATENT OFFICE.

JAMES YOULL, OF MANCHESTER, IOWA.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. 118,091, dated August 15, 1871.

To all whom it may concern:

Be it known that I, JAMES YOULL, of Manchester, Delaware county, in the State of Iowa, have invented a new, useful, and Improved Apparatus for Binding Grain on Harvesting-Machines; and I hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawing forming part of this specification.

The nature or essence of my invention consists in the particular construction and arrangement of devices forming the improved apparatus for binding grain described in the following specification and represented in the drawing.

Figure 1 is an elevation of one side of my improved binding-machine. Fig. 2 is the staple or gripe for fastening the band-twine around the grain. Fig. 3 is a plan or top view of the machine. Fig. 4 is a side elevation of the clamp for closing the gripe and cutting off the band-twine. The drawing is made on the scale of two inches to one foot.

In the drawing, A is the main sill or beam to or in which the bars B B are fastened to support the floor C for the laborer to stand on that attends the machine. The posts D D are also fastened in the beam A to support the arms E E, which carry the bar F, as shown in the drawing. The block G is made in the form shown in the drawing, and fastened to the bar F by the bracket H. To form a flexible gathering-arm to gather the gavel and carry the band around to it, I make a series of blocks, I I, with square ends for one-half their width, and bevel off the other half and perforate them lengthwise near each edge for the cords J and K to pass through them and into the block G, and through it over the pulleys in the stand L fastened to the bar F. The outermost block I' of the series I is provided with an arm, M, with a notch across the end for the band-twine *a* to lie in when it is carried out by the extension of the arm. The block G and the blocks I I are all perforated for the pins of the chain-links N, which are placed each side of the blocks, and pins are put through the links and blocks, and the ends of the pins hammered to form heads outside the links, thus forming a chain of flat links on each side of the series of blocks. The ends of the links which lie next to the blocks are slotted lengthwise so as to permit the cord J to pull the square ends of the blocks

I I together to straighten the arm, or the cord K to pull the beveled ends of the blocks together, and bend the arm to gather or clasp the gavel and carry the band-twine around it. The outer block I' has a pair of spring-fingers, P, fastened to it, which catch and hold the band-twine and carry it out on the arm when it is straightened to receive the grain, and when it is bent to clasp the gavel it carries the band-twine around the gavel. The stand Q is fastened to the bar F to carry the crank-shaft of the spool R, which carries a supply of band-twine, *a*. The guide S is also fastened to the bar F, and the twine *a* passes through it and across the score or notch in the stand T. (See a side elevation in Fig. 4.) This stand T has a rigid jaw, U, and a movable jaw, V, which is traversed to and from the rigid jaw by the lever W, which vibrates on a pin in stand T. The jaws U and V each have a V-shaped groove to receive the legs of the clamping-staple or gripe X, shown in Fig. 2, which is placed between the jaws in the grooves while the arm is straightening, so that the twine *a* will be drawn across it, (the gripe X,) so that, when the end of the twine held by the fingers P is brought over the gavel and placed in the gripe the laborer can depress the lever W and close the gripe onto the two ends of the band-twine, as shown at Y, Fig. 2, and hold them both fast in the gripe, perfecting the sheaf. There is a sharp edge on the side of the stand next to the guide S, and the sharp corner of the jaw V passes it when the jaw is brought up to close the gripe, and shears or cuts off the twine after the spring-fingers P have taken a new hold of that portion of the twine next to the guide S. The box Z is fastened to the bar F to carry the gripping-staples X. The end of the lever W is made in the form shown in Fig. 4, where the side of the stand is left off to show the end of the lever and the notch in the jaw in which the end of the lever works as it traverses the jaw V. The stand *b* is fastened to the sill A to form the fulcrums of the levers *c* and *d*, which extend back over the floor C, so that the laborer can work them with his feet. The cords J and K, after leaving the pulleys in the stand L, pass down under the notches *e* and *f* in the levers *c* and *d*, and along the grooves in the under sides of the levers to the horns *g* and *h* on the ends of the levers, where they are fastened.

To operate this binder, the laborer stands on

the floor C, and fills the spool R with banding-twine, and puts the end through the guide S and between the fingers P; then presses down the lever *d* with his foot, which straightens the gathering-arm into a groove or opening in the platform that receives the gavel of grain, and after the gavel is laid over the arm and band-twine the laborer presses down the lever *c* with his foot, and draws the cord K, which curves the gathering-arm into the position shown by dotted lines, gathering the gavel into a bundle and carrying the band-twine *a* around it, and bringing that portion of the twine between the fingers P and arm M into the griping-staple in the stand T, which staple was placed in the stand while the gavel was being put over the arm. The laborer now seizes the crank with his right hand, and turns the spool R to tighten the twine around the gavel and draw it into the spring-fingers P, while with his left hand he depresses the lever W, which closes the gripe X on the band and fastens the ends together, and at the same time cuts off the twine, leaving the end next to the spool in the spring-fingers to be carried out as the arm is straightened. The laborer now applies his right foot to the lever D to straighten the arm which releases the bundle, which may be removed when the laborer places a new staple, X, in the stand T under the band *a*, and continues to repeat the above-described operation.

I contemplate that the gathering-arm blocks may be made thicker, so as to use four or more cords, either with or without the links on the side of the blocks, or that flat metal bands may be used instead of the cords in the blocks of the gathering-arm.

Having described my improvements or improved binder, I claim—

1. The jointed gathering-arm, composed of the blocks I I, constructed and operating substantially as described.

2. In combination with the above-claimed arm, the spring-fingers P and notched arm M, for seizing, holding, and carrying the band-twine, substantially as described.

3. The arrangement of the stand T, slide V, and lever W for closing the griping-staple on the band and cutting the band-twine, substantially as described.

4. In combination with the gathering-arm, the spool R and crank for holding, carrying, and tightening the band-twine, substantially as described.

5. In combination with the gathering-arm, the levers *c* and *d*, constructed substantially as described, for operating and working the gathering-arm, as set forth.

Witnesses:

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BENJAMIN S. WHITE.