

(No Model.)

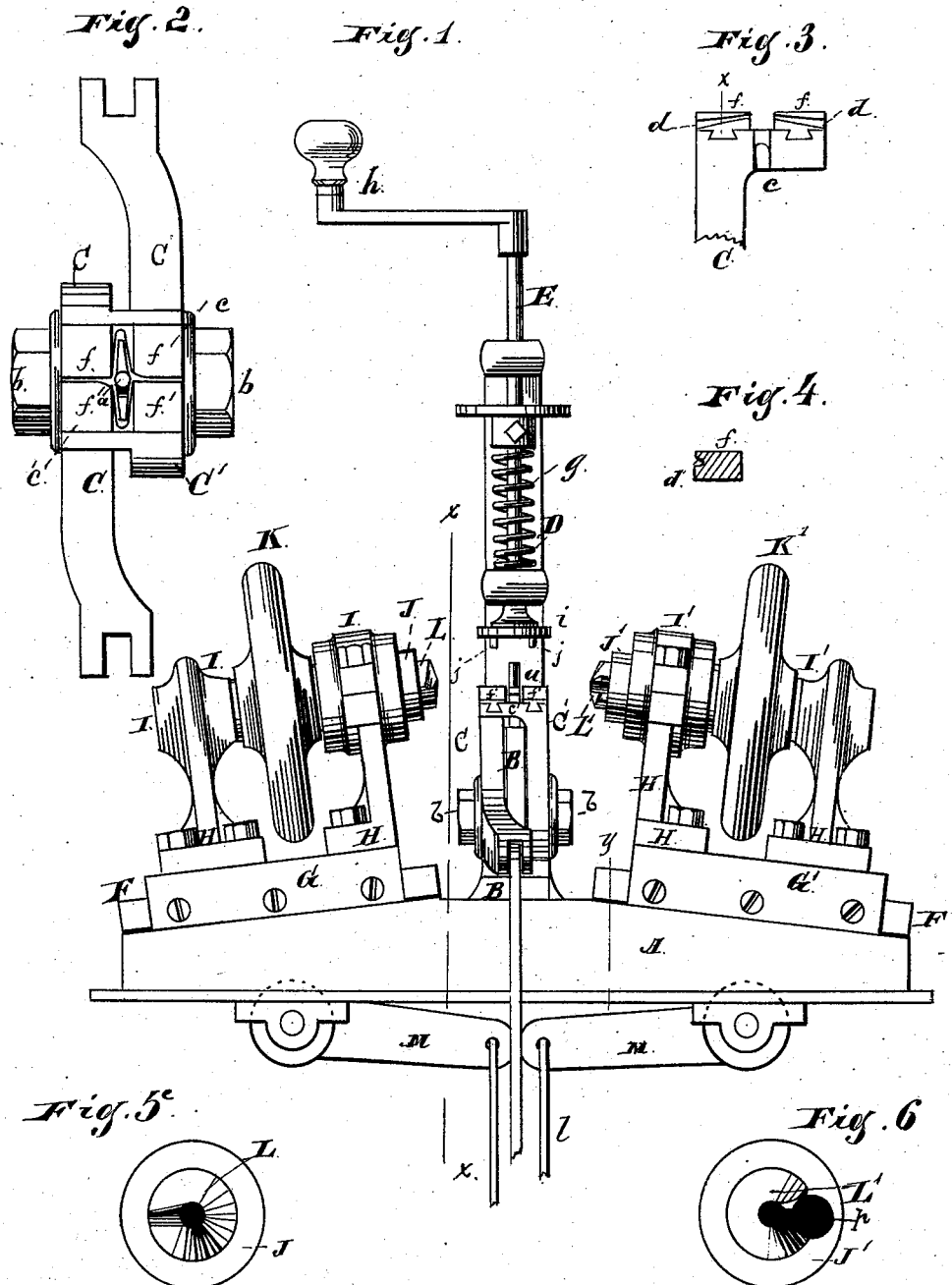
3 Sheets—Sheet 1.

R. FARIES.

MACHINE FOR FORMING INTERLOCKING EYES.

No.259,677.

Patented June 20, 1882.



Witnesses:  
Albert H. Adams,  
Edgar T. Bond

Inventor:  
Robert Faries.  
By West & Bond Attys.

(No Model.)

3 Sheets—Sheet 2.

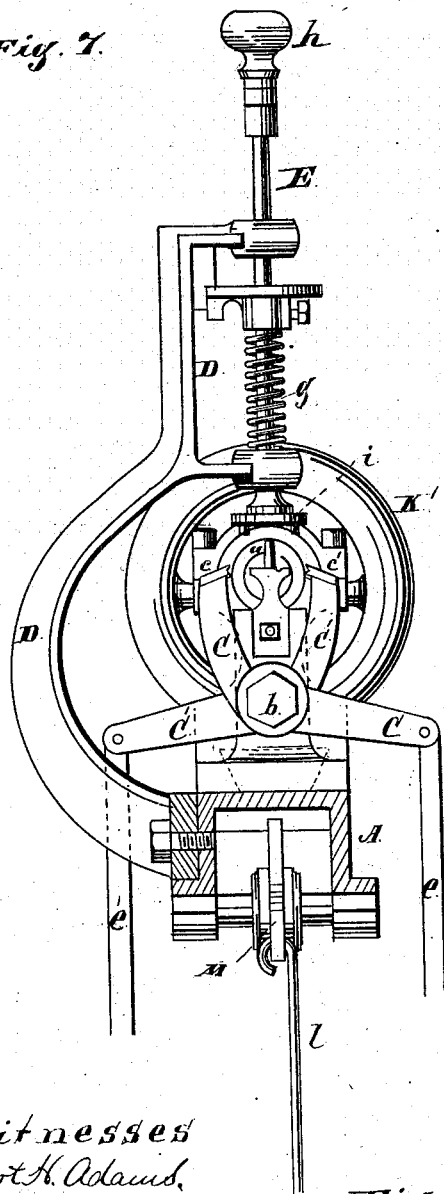
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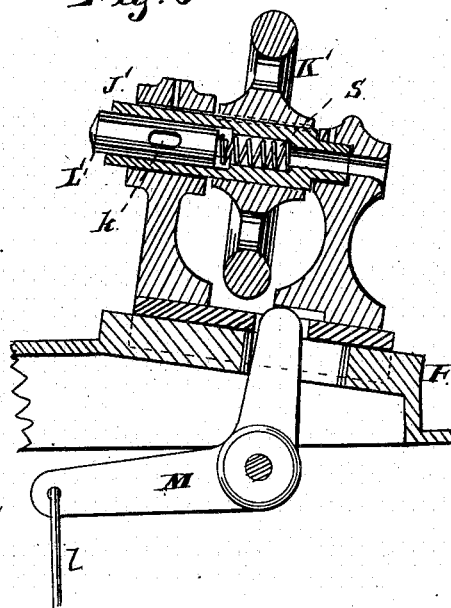
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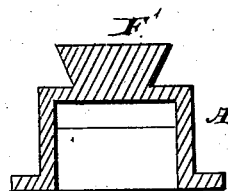
*Fig. 7.*



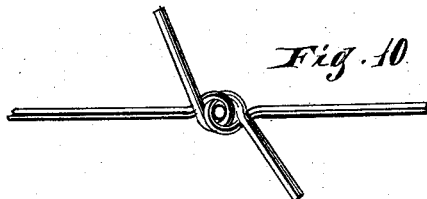
*Fig. 8.*



*Fig. 9.*



*Fig. 10.*



*Witnesses*  
*Albert H. Adams,*  
*Edgar T. Bond*

*Fig. 11.*



*Inventor:*

*Robert Faries.*

*By West & Bond Attys.*

(No Model.)

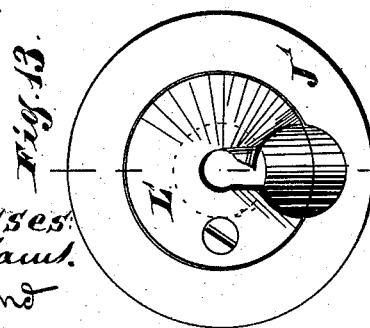
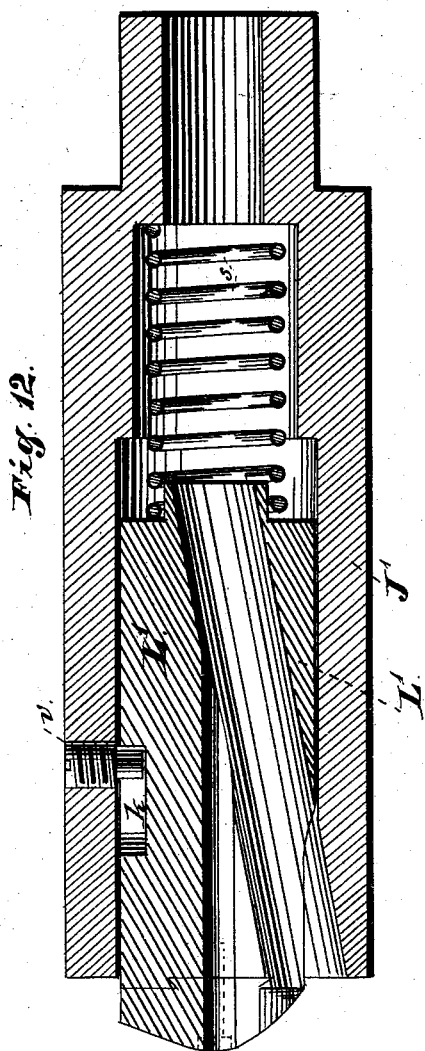
3 Sheets—Sheet 3.

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# UNITED STATES PATENT OFFICE.

ROBERT FARIES, OF DECATUR, ILLINOIS, ASSIGNOR TO CHAMBERS, BERING & QUINLAN, OF SAME PLACE.

## MACHINE FOR FORMING INTERLOCKING EYES.

SPECIFICATION forming part of Letters Patent No. 259,677, dated June 20, 1882.

Application filed February 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FARIES, residing at Decatur, in the county of Macon and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Machines for Forming Interlocking Eyes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is an enlarged detail, showing the clamping-jaws closed. Fig. 3 is an inside view of one of the jaws. Fig. 4 is a section of that part of Fig. 3 indicated by line *x*. Fig. 5 is an end view of one of the spindles. Fig. 6 is an end view of the other spindle. Fig. 7 is a vertical cross-section at line *x* of Fig. 1, looking to the right. Fig. 8 is a central vertical longitudinal section of the parts represented, being one end of the machine. Fig. 9 is a detail, being a section of the parts represented, taken at line *y* of Fig. 1. Fig. 10 is an enlarged view showing the position of the wires when the eyes have been formed. Fig. 11 is an enlarged view showing a complete knot. Fig. 12 is an enlarged horizontal sectional view of the shaft and spindle through which the wires pass. Fig. 13 is an enlarged end view of the same.

My improvements relate to machines for forming interlocking eyes and knots on check-row chains for corn-planters.

Heretofore in machines of this class the parts in which the wires are held while being operated upon have been in a horizontal position, and when the ends of the two wires upon which the two eyes are to be formed have been brought to place in the machine it has been necessary for the operator to bend up the end of each wire by hand in order to bring the ends of the wires into a proper position to be acted upon by the machinery. The jaws of such machines, as heretofore constructed, have each been made, so far as I know, of two separate parts, pivoted to an upright. In such older machines the devices used for twisting the wires after the eyes have been formed are materially different from those which I have adopted.

The present invention consists of novel combinations and arrangements of parts, which will be hereinafter fully described in detail,

and set forth in the claims, a preliminary description of the same being deemed unnecessary.

In the drawings, A represents a base, upon which the principal working parts of the machine are placed. This base A is supported upon a frame or suitable standards and at a proper distance from the floor, which frame or standards are not represented.

B is a standard, secured at the center of the base A and projecting upward therefrom, upon the top of which standard is a pin or stud, *a*. Upon the sides of this standard are pivoted, at *b*, bell-crank levers, C C'. Upon the upper end of each of these levers is a clamping-jaw, *c*. Each jaw has a central recess upon the inside, and also upon the top, with longitudinal grooves *d* in the face, one upon each side of the center, and standing at an angle, as represented in Fig. 3, each groove being inclined a little downward from the center. These levers C C' are operated by means of a treadle or lever, with which they are connected by bars or rods *e*, which treadle and the connection of the rods *e* therewith are not represented, as a mechanic of ordinary skill will be able to construct these parts without instruction. In practice I make each jaw proper of two pieces, *f f'*, Fig. 3, secured to the tops of the bell-crank levers by dovetailed connections, the object of which is that in case these parts *f f'* become worn and unfit for use they can be easily removed and replaced. Otherwise the levers C C' and parts *f f'* might be made from a single piece of metal.

D is a curved standard, secured by means of bolts to the back side of the base A. The upper end of the standard is directly over the stud *a*, and it carries two bearings, in which a bolt, E, moves, which bolt is encircled by a retracting-spring, *g*, and is provided with a handle, *h*. This bolt has both a vertical and rotary motion in its bearings. On its lower end is a head, *i*, having a hole in its center to receive the pin *a*. The under side of this head *i* is provided with two projecting pins, *j*.

F F' are two dovetailed blocks or ways, secured to or made a part of the base A.

G G' are two blocks fitting and moving upon the ways F F'.

Supported upon and secured to each of the sliding blocks G G' are two standards, H, provided at their upper ends with bearings I. In each pair of bearings is a hollow shaft, J J', (see Fig. 8,) and on each shaft is secured a wheel, K K', the hub of which fits between the bearings I. In the inner end of each shaft J J' are spindles L L'. These spindles are both hollow, and L' is provided with an enlarged opening, p, through it, through which a completed knot can pass. (See Figs. 6 and 13.) This opening does not extend straight through the spindle, but runs from near the periphery upon the inner end diagonally to the center at the outer end.

Inside of the shafts J J' are chambers, in each of which is located a coil-spring, s.

The spindles L L' are each provided with a slot, k, into which the end of a screw-pin, v, enters, which screw-pin v passes through the hollow shaft, as shown in Fig. 12. This construction connects each spindle with the shaft in which it is located, so that the two rotate together, but also permits a little longitudinal movement of the spindle.

The ends of the spindles are provided with grooves or projections to receive or catch the ends of the wires while they are being twisted after the eyes have been formed. The blocks G G' can be moved toward the center of the machine by means of bell-crank levers M and a suitable treadle, with which the levers are connected by rods l. This treadle and the connection of the rods therewith are not shown, as any competent mechanic can easily construct the same. The blocks G G', being placed at an angle, will, when free, move back from the center of the machine by gravity; but, in addition to this, I provide springs connected with the treadle and with the connecting-rods l, to assist this movement of the blocks G G'. These springs I have not shown, as I make no claim therefor.

In use the wire from which the chain is to be made is first cut into sections of suitable length, and the sections—one at a time—are passed through the shaft J and spindle L, and after the knot has been formed it is passed out through the spindle and shaft upon the opposite side of the machine, the free end of the wire being left so as to project from the inner end of the spindle L', and then another section of wire is to be inserted through the spindle L. To form the interlocking eyes on the ends of the sections the adjacent ends of two sections of wire are to be placed one upon each side of the stud a, each projecting far enough beyond the stud to furnish a sufficient quantity of wire to form an eye and one-half of the knot. The jaws c c are then to be clamped upon the wires, so as to hold them firmly in place. Since the spindles stand at an angle the wires will stand at an angle, and the ends will project upward a little and will be in proper position to be acted upon to form the eyes. The sliding bolt E is then to be pressed downward, the stud a entering the

hole in the center of the head i, and the pins or projections j will pass down by the wires. Then by turning the bolt E nearly or quite once around on its axis by means of the handle h the projections j, coming in contact with the wires, will carry their ends around the stud a, forming an eye on each section, the eyes interlocking with each other, as shown in Fig. 10. The bolt is then to be released, and it will be raised out of the way by the action of the spring g. Then by means of the proper treadles acting upon the blocks G G' the spindles L L' are to be brought up to the jaws c c, and the ends of the wires will pass respectively into the grooves upon the ends of the spindles L L'. Then by rotating the wheels K K' in opposite directions the ends of the wires will be wound or coiled around that portion of each wire next to the eye, forming a knot and joint, as shown in Fig. 11 of the drawings.

The arrangement of the spindles so that they will stand at an angle with the base instead of parallel thereto, as heretofore, is an important feature in actual use, because thereby the ends of the wires are brought into a proper position to be acted upon to form the interlocking eyes without manipulation by hand. The arrangement of the spindles so that they yield a little longitudinally is also a very desirable feature, because the ends of the spindles can be brought into contact with the sides of the jaws with less liability of injury to the faces of the spindles than when they are rigid, and this also allows the spindles to move back as the coil is formed.

I provide suitable stops for the purpose of limiting the distance to which the blocks G G' are moved away from the center of the machine, but have not shown such stops, as they may be applied in various ways.

I am aware that a patent has been granted to Alden Barnes, No. 230,604, for a machine similar in many respects to that which I have shown and described, and I do not claim to have invented anything which is shown and described in the said patent to Barnes.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a machine for forming interlocking eyes and knots on check-row chains for corn-planters, the inclined ways f f' and blocks G G', carrying the bearings I I', in combination with the shafts J J' and spindles L L', substantially as and for the purposes specified.

2. In a machine for forming interlocking eyes and knots on check-row chains for corn-planters, the combination of the hollow shafts J J', arranged opposite each other, the springs s, arranged therein and the hollow spindles L L', arranged within the shafts and acted on by the said springs, and having their projecting ends constructed to turn the ends of the wires, said spindles having independent longitudinal movement within but revolving with the shafts, substantially as described.

3. In a machine for forming interlocking

eyes and knots on check-row chains for corn-  
planters, the levers C C', provided with jaws *cc*,  
each jaw being provided with inclined grooves  
*d d*, in combination with the standard B, all  
5 constructed and operating substantially as and  
for the purpose specified.

4. In a machine for forming interlocking  
eyes and knots on check-row chains for corn-  
planters, the inclined hollow shafts J J' and  
10 the yielding spindles L L', located in such shafts

and rotating therewith, in combination with  
the standard B and bell-crank levers C C', each  
provided with a jaw, *c*, all constructed, ar-  
ranged, and operating substantially as and for  
the purposes specified.

ROBT. FARIES.

Witnesses:

HENRY A. WOOD,  
L. L. BURROWS.