

(No Model.)

2 Sheets—Sheet 1.

J. H. BARD.

MACHINE FOR SPLICING WIRE HOOPS FOR BARRELS, &c.

No. 359,004.

Patented Mar. 8, 1887.

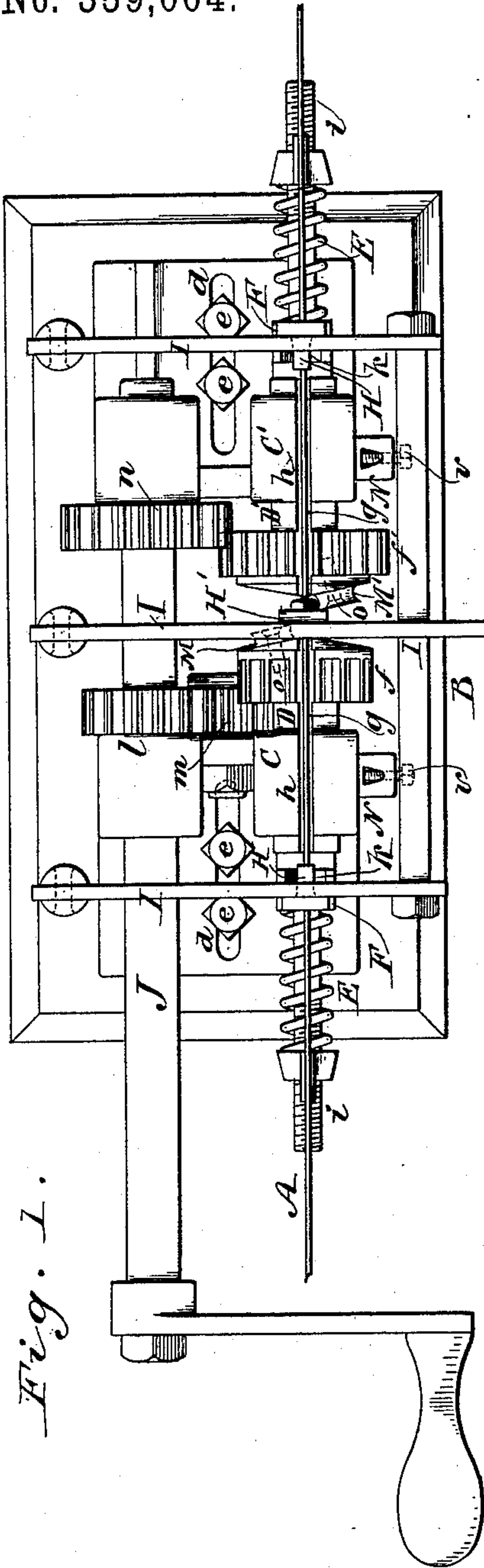


Fig. 1.

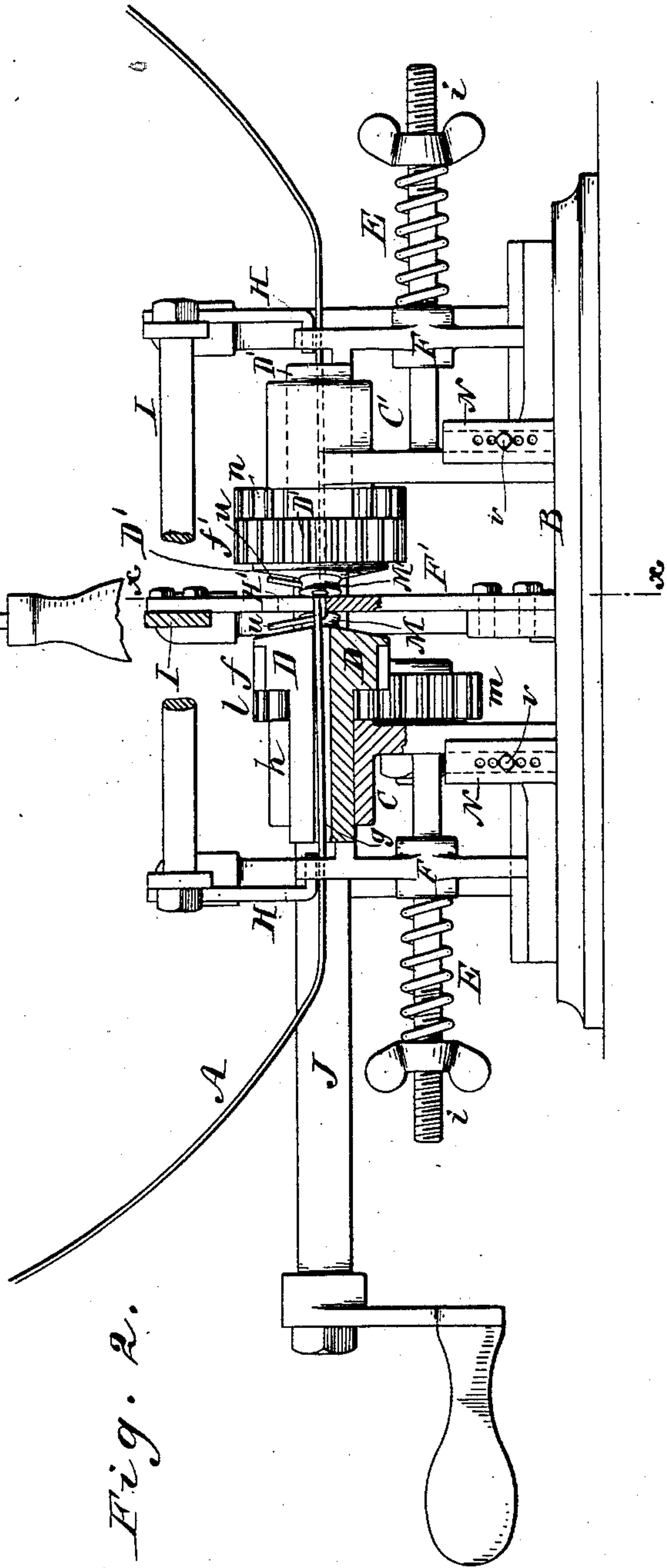


Fig. 2.

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Fig. 3.

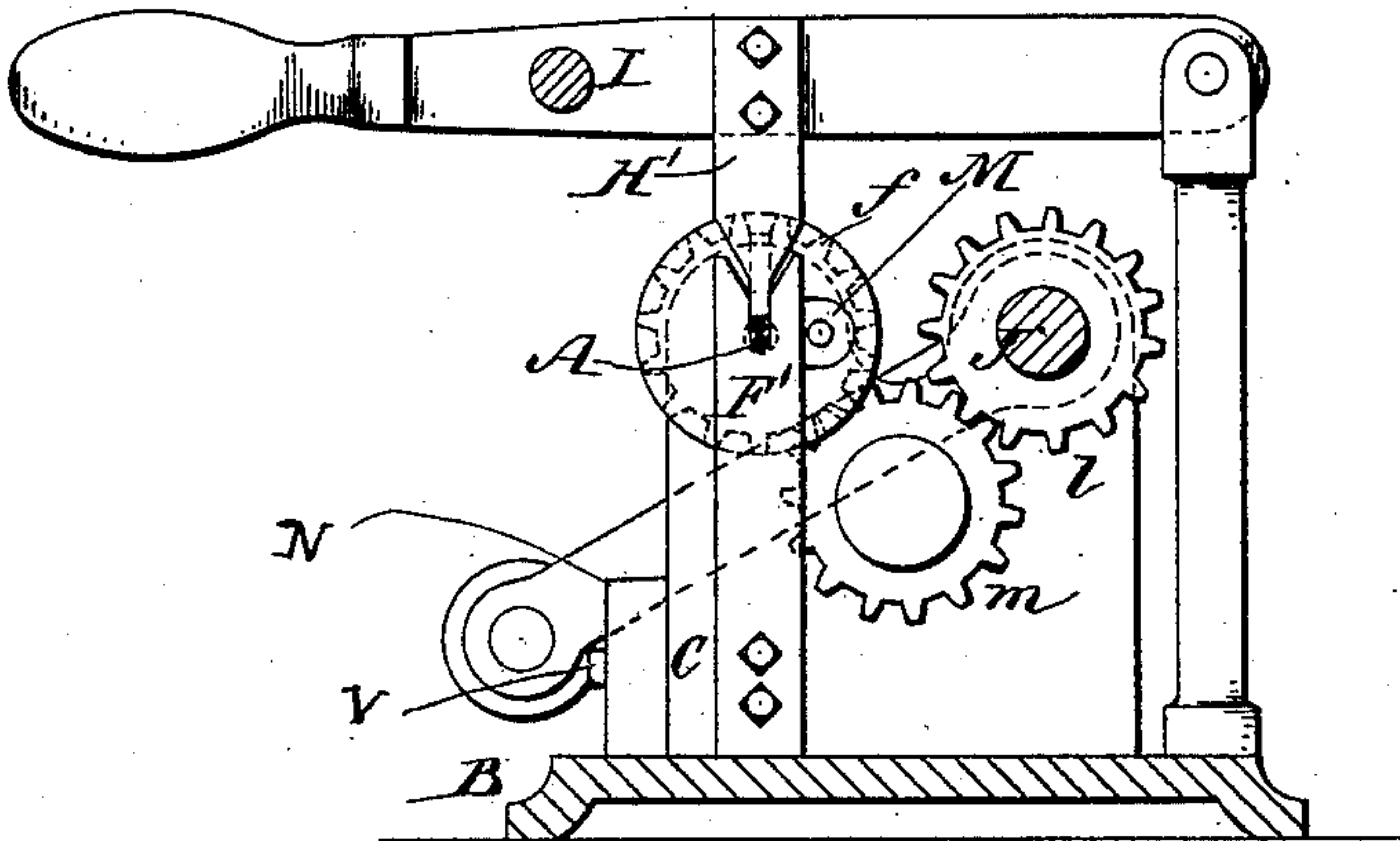


Fig. 5.

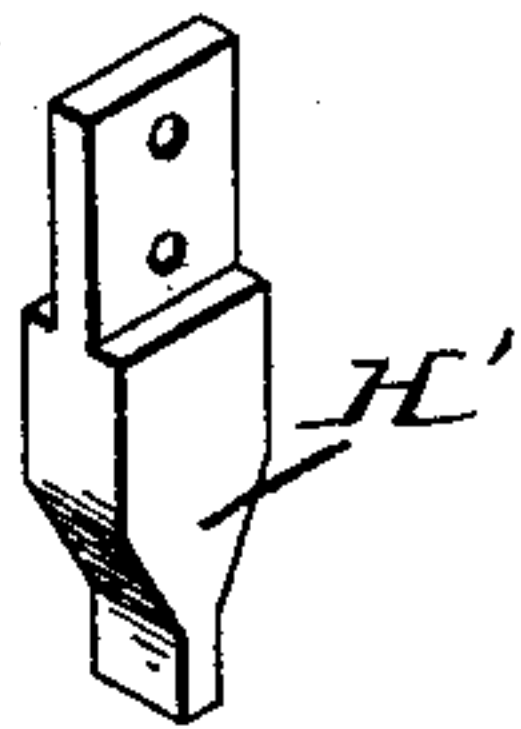


Fig. 4.

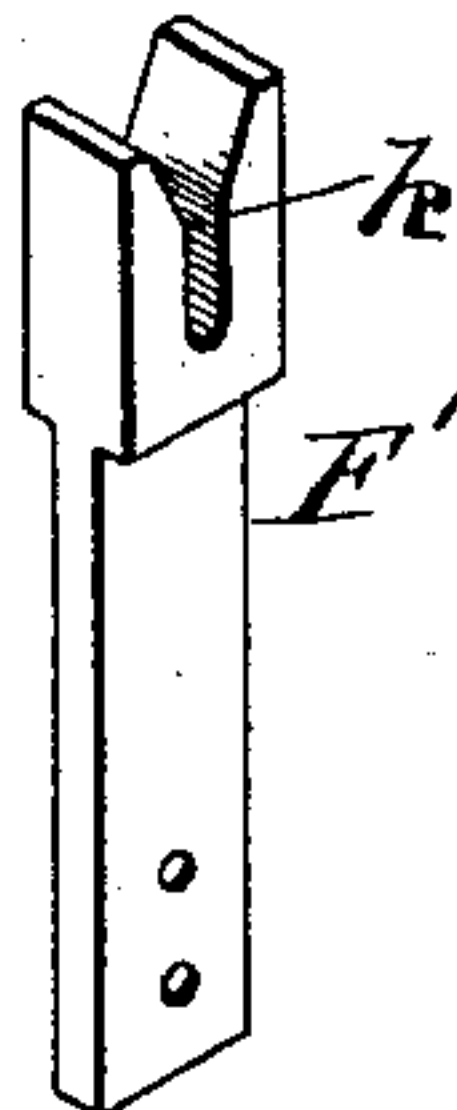


Fig. 6.

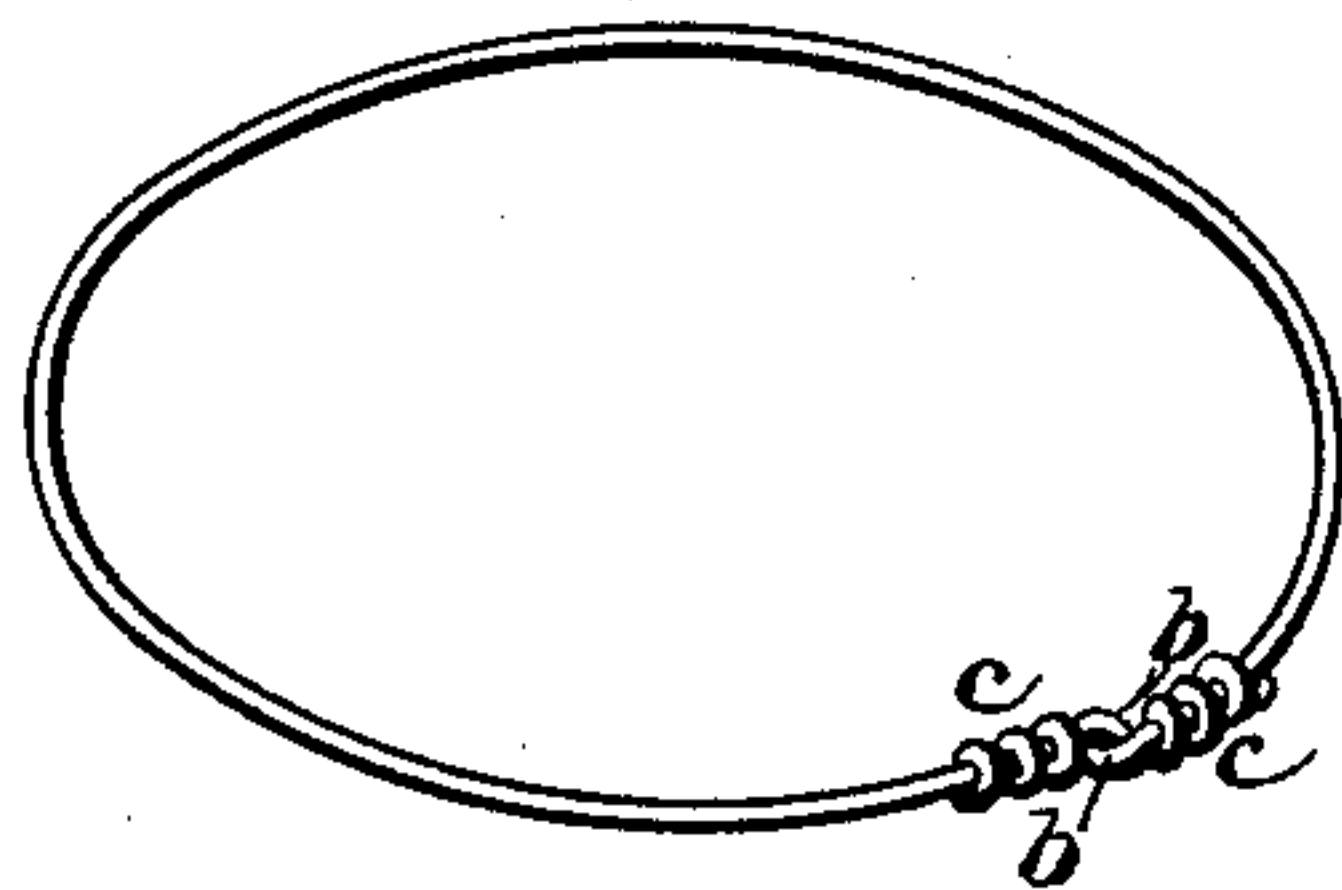
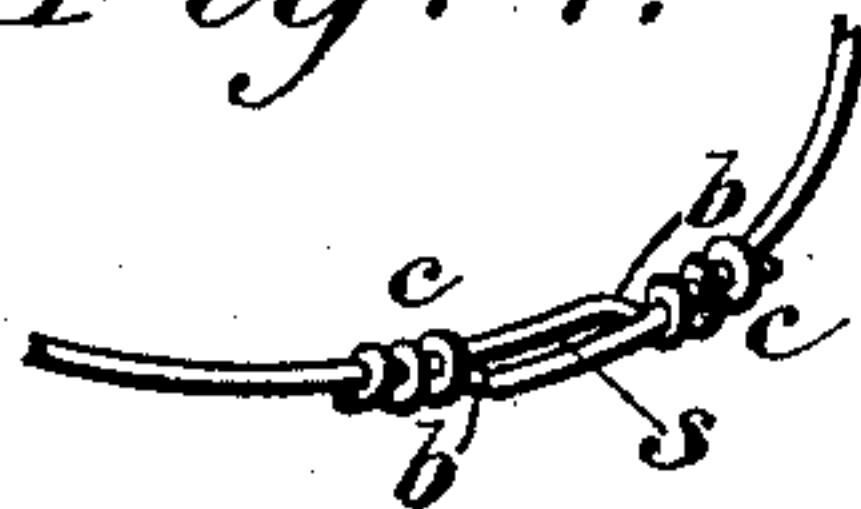


Fig. 7.



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UNITED STATES PATENT OFFICE.

JAMES HYMAN BARD, OF JACKSON, TENNESSEE, ASSIGNOR TO THE
AMERICAN WIRE HOOP COMPANY, OF SAME PLACE.

MACHINE FOR SPLICING WIRE HOOPS FOR BARRELS, &c.

SPECIFICATION forming part of Letters Patent No. 359,004, dated March 8, 1887.

Application filed June 7, 1886. Serial No. 204,350. (No model.)

To all whom it may concern:

Be it known that I, JAMES HYMAN BARD, of Jackson, in the county of Madison and State of Tennessee, have invented a new and Improved Machine for Splicing Wire Hoops for Barrels, Tubs, &c., of which the following is a full, clear, and exact description.

This invention consists in certain novel constructions and combinations of mechanism, substantially as hereinafter shown and described, for splicing or securing the ends of wire in the manufacture of wire hoops for barrels, casks, tubs, and other articles or vessels, and in which the ends of the wire are made with a lock that consists of a bend and a coil of the extremities of the wire loosely fitting upon each side of the bend, with or without a space between the two coils for the introduction of a spacing sleeve or wedge, as described in Letters Patent No. 325,809, granted to me September 8, 1885.

The invention may also be used for similarly splicing the ends of the wire for other purposes.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a plan view of a machine embodying my invention with a wire hoop in part in place, ready to be spliced or locked by the machine. Fig. 2 is a partly broken and sectional front elevation of the same. Fig. 3 is a vertical transverse section upon the line $x x$ in Fig. 2. Figs. 4 and 5 are views in perspective of certain interchangeable details, as hereinafter referred to. Fig. 6 is a perspective view of a hoop, as spliced by the machine, detached; and Fig. 7, a similar view of the same in part, under a modified construction of the splice or lock.

In order to better explain the construction and operation of the machine, a brief reference will first be made to the work which it is intended to perform, and which is illustrated in Figs. 6 and 7 of the drawings. In Fig. 6 A is a wire hoop, which is locked at its meeting-end portions by forming the same with a bend, as at b , and coils c at the extremities of the wire upon each side of the bend. The inner ends of the two coils are in this figure sup-

posed to meet when the hoop is on the barrel, &c.; but the hoop cannot stretch at the joint. In Fig. 7 the hoop is made adjustable, the splice, formed as described, being so wrapped on each side of the lap, between the two coils c , as to form a space, s , between its wrapping portions, which will leave the coiled ends free to slide to or from each other, thus making the hoop larger or smaller, as required. When this latter construction is adopted, then a spacing sleeve or wedge is inserted through the space s , and its inserted end bent down or over to keep the coils at a proper distance apart, all as explained in my Letters Patent aforesaid.

The machine, to which the first five figures of the drawing relate, may be worked either by hand or power. B is its base, upon which are mounted, at suitable distances apart and adjustable relatively to each other, as by slots d and screw e , two head-stocks or journal-blocks, C and C'. These blocks serve to carry independent cylinders D and D' in line with one another, and which not only are fitted to rotate within said journals or journal-blocks, but also to slide longitudinally therethrough. Said cylinders D D' are fitted or constructed at their inner ends with pinions $f f'$, and have longitudinal recesses g in them throughout their length, pinions and all, to receive down within them the two adjacent portions of the hoop A, to be spliced, the journals in which said cylinders work also having slots h to correspond.

The cylinders D D' are forced toward each other by adjustable springs E, which may be carried by rods i fast to the journal-blocks C C, and which press against sliding standards F, that bear against the outer ends of the cylinders D D'. These standards F have open-ended slots or notches k at their upper ends, down within and through which the wire of the hoop is placed, and there is another similar notched standard or plate, F', intermediate of the cylinders D D'. These three standards or devices assist in holding the wire in place and prevent it from dropping out of the slots g in the cylinders D D' when said slots by the rotation of the cylinders are in a downward position.

The wire is held while being spliced by three

followers or pressers, H H and H', brought to bear down upon the wire in the standards F F' by means of a hand-lever frame, I, or by any other suitable means that will cause the pressers to act as holders of the wire when in the standards or supports F F', and when being spliced, and will operate as opening and closing jaws relatively, to the wire of the hoop and standard or supports.

If desired, the wire supports or standards, especially the center one, F', may have a plain instead of a notched surface on top, representing the one jaw of a clamp for the wires, the holder or presser representing the other jaw, to bear down upon or rather upon the wire in between them.

J is the main or driving shaft by which rotary motion is communicated to the cylinders D D', as by two gears, l m, through the pinion f of the one cylinder, and a single gear, n, through the pinion f' of the other cylinder, thus causing the two cylinders to rotate in reverse directions simultaneously. The cogs or pinion portions f f' of the cylinders D D', and the gears with which they immediately connect, should be of such relative widths or sufficient widths that they will keep in gear with one another during the longitudinal movement of the cylinders.

The inner ends of the cylinders D D', or faces of the pinions f f', may either be rounded or flat; but said parts are fitted with dogs M M', arranged to one side of the axial line of the cylinders to catch the wire to make the splice or wrap. These dogs may be variously constructed; but it is preferred to make them of removable grooved wheels, free to revolve around independent axes or spindles oblique to the axial line of the cylinders, these wheels being of a size to suit the requirements of the wire used. Such wheels admit of being oiled on their axes and surfaces to prevent any scraping and friction on the wire as they revolve while making the wrap. The spindles on which they turn may be screws o, so as to make them detachable for the purpose of interchanging them with other dogs to suit different-sized wires being worked. The standards or supports F F' may also be interchangeable with others, likewise the journal-blocks C C, to carry different-sized or slotted cylinders D D', to adapt the machine to work different-sized wires. Especially should this interchangeable provision be made for the plate or central support, F', and the central presser or holder, H'. Thus these may be formed of detachable thin plates, as in Figs. 1, 2, and 3, when the coils c of the hoop are designed to be closed to or come in contact with one another, as in Fig. 6 of the drawings; but when a spacing-space is desired to be left in between the coils c, as in Fig. 7, then broader presses or holders and supports, H' F', as represented in Figs. 4 and 5, should be substituted for them, in order to form the coils at the necessary distance apart—that is, on opposite sides of the presser or holder and central wire-support.

Prior to introducing the wire to the cylinders its opposite ends are turned or bent over, as shown at u u in Fig. 2, to provide for the coiling of the wire by the dogs M M'. The lengths of these bends will vary according to the number of coils or wraps it is designed to give the ends of the wire, a short number of coils requiring a diminished length of bend and an increased number of coils a greater length of bend, the size of the wire, too, having some bearing upon the requisite length of bend. To thus bend the wire as required, its two ends are inserted down within gaging and bending devices N N, adapted to different-sized wires and provided with adjustable screws or stops v v, against which the ends of the wire rest, and the two portions of the wire outside of the gages afterward turned down or over the upper or outer ends of the gaging and bending devices to make the required bends u u.

In the operation of the machine the right-hand or one end portion of the wire is first inserted to its place and pushed down to the bottom of the notch k in the middle standard or plate, F', and so that its bent end u reaches over to the dog M of the opposite or left-hand cylinder, D. The left-hand or other end portion of the wire is then similarly inserted to its place and pushed down within the standard or plate F', and so that its bent end u reaches over to the dog M' of the other or right-hand cylinder, D'. The holder or holders H H' are next brought down to bear on the wire, the springs E adjusted to give the requisite tension, and the working devices, if necessary, oiled, when by turning the shaft J in a suitable direction the coiling-dogs M M' will operate on the bent ends u u of the wire to splice the latter, as required.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the notched uprights and the holding frame or bars, of the slotted longitudinally movable and rotating cylinders having the coiling rolls or projections, the roll or projection of one cylinder being arranged at the right of the axial line, and the roll or projection of the other cylinder being arranged at the left of the said line, substantially as and for the purpose set forth.

2. The combination, with the slotted longitudinally movable and rotating cylinders, of the sliding followers or uprights, with their upper ends adapted to bear against said cylinders, the fixed rods, and the springs mounted upon said rods and bearing against said followers, and bearings or nuts upon said rods, substantially as and for the purpose set forth.

3. The combination, with the slotted supports, the holding frame or bars, notched uprights, and the slotted longitudinally movable and rotating cylinders, of the sliding uprights with their upper ends adapted to bear against said cylinders, the fixed rods, and the springs arranged upon said rods and bearing against said sliding uprights, and bearings or nuts upon

said rods, substantially as and for the purpose set forth.

4. The combination of the standards or wire supports F F F' and the pressers or holders H H H' with the reversely-rotating and longitudinally-sliding cylinders D D' and the coiling-dogs carried by said cylinders, essentially as herein set forth.

5. In a machine for splicing and coiling the ends of wire, as described, the gaging and bending devices N N, for bending the ends of the wire preparatory to coiling them about each other, substantially as specified.

6. In a machine for splicing or coiling the ends of wire, the combination of the reversely-rotating slotted cylinders D D', fitted to freely slide longitudinally in their bearings, the coiling-dogs M M', carried by said cylinders, the springs E E, the wire supporting plates or standards F F F', the holders or pressers H H H', and a movable frame carrying said holders or pressers, essentially as herein set forth.

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Witnesses:

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