

(No Model.)

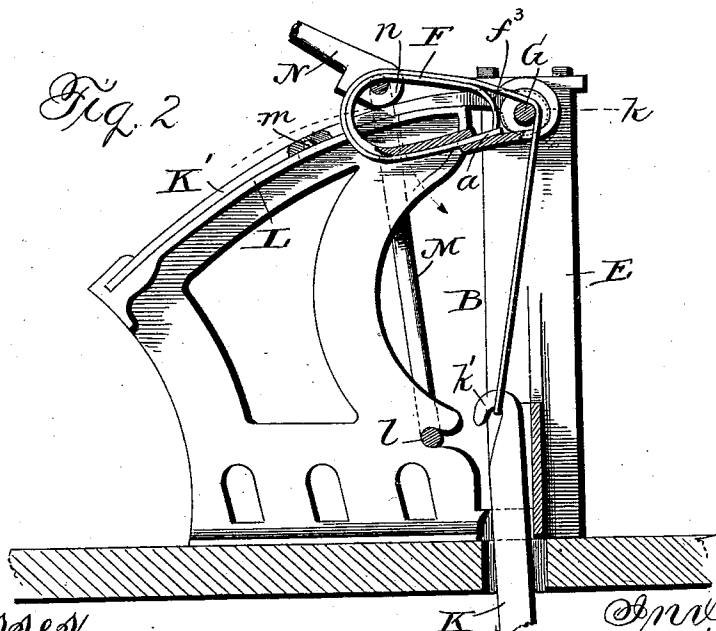
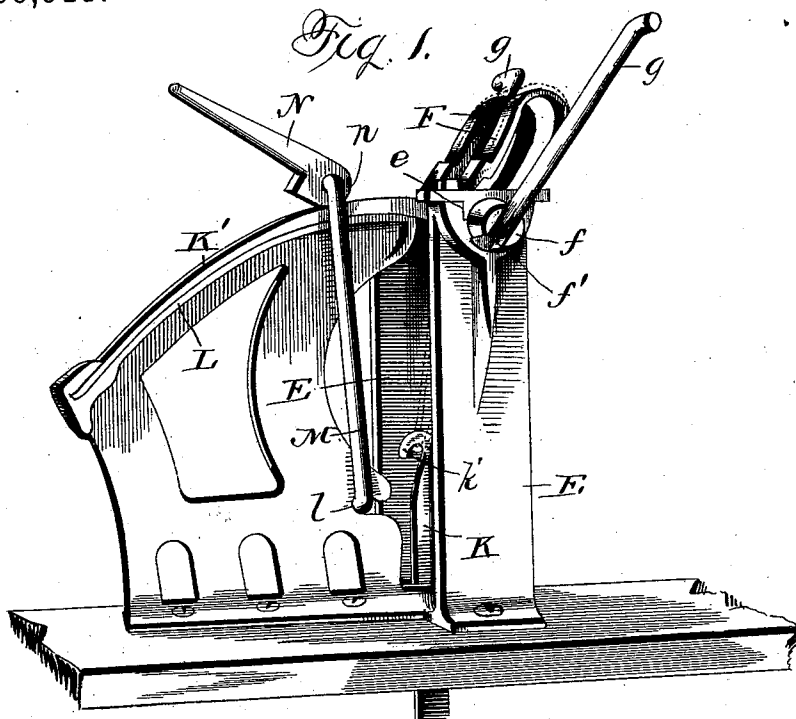
2 Sheets—Sheet 1.

M. D. KREMER.

MACHINE FOR MAKING SPRING WIRE BROOM HOLDERS.

No. 469,911.

Patented Mar. 1, 1892.



Witnesses  
C. J. Williamson  
A. L. Hough.

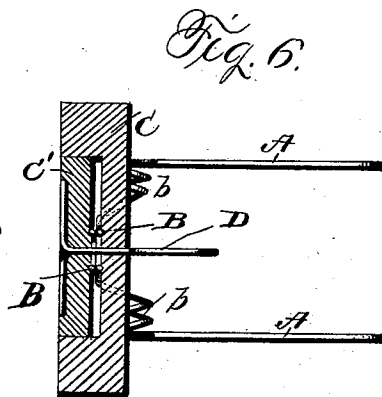
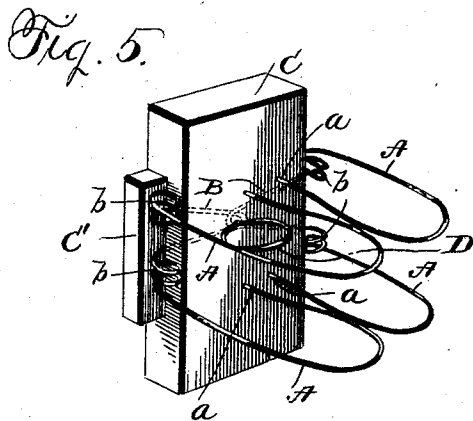
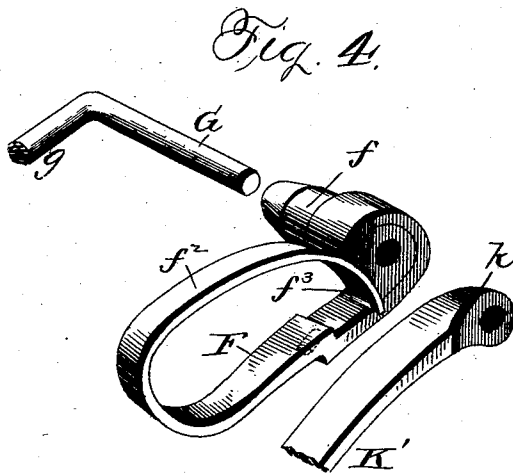
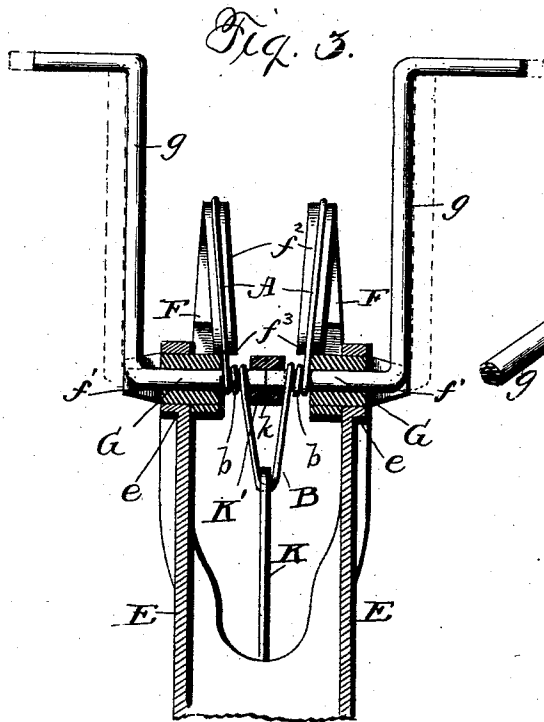
Inventor  
Michel D. Kremer  
by Franklin H. Hough  
his Attorney.

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# UNITED STATES PATENT OFFICE.

MICHEL D. KREMER, OF NEW MARION, INDIANA.

## MACHINE FOR MAKING SPRING-WIRE BROOM-HOLDERS.

SPECIFICATION forming part of Letters Patent No. 469,911, dated March 1, 1892.

Application filed October 15, 1891. Serial No. 408,840. (No model.)

*To all whom it may concern:*

Be it known that I, MICHEL D. KREMER, a citizen of the United States, residing at New Marion, in the county of Ripley and State of Indiana, have invented certain new and useful Improvements in Machines for Making Spring-Wire Broom-Holders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in machines for making spring-wire broom-holders, and it aims to provide a simple and easily-operated device for the manufacture of spring-wire broom-holders of a construction hereinafter specified; and to this end it consists in the machine constructed and operating substantially as and for the purpose hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my machine. Fig. 2 is a vertical longitudinal section on a line passing through the center. Fig. 3 is a transverse section upon a line passing through the crank-shafts, the parts being in a different position. Fig. 4 is a detail perspective view of one of the crank-shafts and the former operated by it. Fig. 5 is a perspective view of the broom-holder to be made. Fig. 6 is a section of the same.

The broom-holder to be made, as shown in Fig. 5, consists of two spring clamping-jaws made of wire, each of which consists of two horizontally-disposed loops A, connected by a V-shaped portion B, a coil *b* being formed at the junction of each leg and one of the loops, and all in one continuous piece of wire. The V-shaped portion constitutes the means for securing the pair of loops to a supporting-block C, such portion being arranged in a vertical plane and at a right angle to the loops. The two jaws are arranged so as to be in the same horizontal plane with the free ends of the loops *a* thereof, adjacent to each other. The broom-handle is thrust in between said

ends, which, because of their own resiliency and the coils *b*, will admit and bear against the same with sufficient force to retain it. The outer ends of the loops are practically semicircles to enable them to be readily separated by the broom-handle. The two jaws are secured to the block C by overlapping the points of their V-shaped portions on one side thereof and passing through the space between them a fastening device, consisting of a piece of wire formed into a ring D with two extensions. The latter pass through the said overlapped ends after being passed through an opening in the block C, with the ring D on the outside thereof, and after passing through said ends are bent down against the back of a smaller block C'. Preferably a recess is provided in the back of the latter to contain said V-shaped portions and the block C', so that the rear face of the latter will not project beyond the rear side of the block C. The spring D, besides forming a part of the fastening device, also serves to limit the inward movement of the broom-handle and prevents the same from coming into contact with the wall or other surface to which the holder may be attached.

My machine is adapted for use in forming the spring clamping-jaw, consisting of the pair of parallel loops A, the V-shaped portion B, at a right angle to the latter, and the coils *b* at the junction of the other parts, and it will now be described.

E E designate two parallel vertical standards having each at its upper end a boxing or bearing *e* for journaling an approximately elliptical former F of substantially the shape of one of the loops A. Said formers F have each an outwardly-extending gudgeon or hub *f*, by which it is journaled in one of the boxings *e* and which has such length as to extend beyond the outer face thereof. Passing through an axial opening extending entirely through each gudgeon *f* is a shaft G, on whose outer end is a crank *g*. Said shafts, for a purpose hereinafter described, are capable of longitudinal movement in and out in the gudgeons, and when at the inner limit of their movement are designed to rotate the hubs or gudgeons *f* and their formers F. To

enable this to be done, a slot or recess  $f'$  is formed diametrically through the projecting portion of the gudgeon  $f$ , into which the radial or cranked portion  $g$  of the crank will pass when moved inward, and will when so rotated cause the rotation of the gudgeon  $f$  and the former  $F$ . The lengths of the shafts  $G$  are such that when moved wholly inward their inner ends will come together midway between the standards  $E$ . The formers consist each of an open frame, as shown, and have an elastic or spring portion  $f^2$ , that terminates in an abruptly-curved free end  $f^3$ , which extends toward a rigid portion of the former near its gudgeon, being movable to and from the same. Said elastic portion does not lie in the same plane as the remainder, but is bent slightly inward toward the center of the machine. Thus constructed, a piece of wire to form the jaw is bent into a  $V$  shape, and the free end of one end of the  $V$  is passed through an opening in an offset of the rigid portion of one former  $F$ , the same being in a horizontal position between the curved end  $f^3$  of the elastic portion  $f^2$  and said rigid portion, and the free end of the other leg of the  $V$  is likewise placed with reference to the other former, which is of course parallel to its mate. The wire is then bent around both of the latter and over the shafts  $G$  and down the sides thereof opposite said formers, and a hook  $h'$  on a vertically-movable bar  $K$  is engaged with the point of the  $V$ . Said bar is movable by means of a treadle, (not shown,) and when moved downward will carry with it the part of the wire which is free to move, resulting, before the free ends of the legs on the  $V$  can be drawn out of the openings in the formers, in the parts adjacent to the elastic portions  $f^2$  being placed in engagement with the latter and moving them until their curved ends  $f^3$  bite and bind the free ends of the wires against the rigid portions of the formers  $F$ . The more tightly the wire forming the loop-blank is drawn down the more tightly will its free ends be held. By rotating both formers  $F$  the coils  $b$  of the jaw will be formed around the shafts  $G$ , and the jaw thus completed, as the formers should be stopped in their original horizontal positions, so that the remaining portion of the  $V$  will be left at a right angle with the loops  $A$ , which will be found upon the formers.

To remove the completed article, it is simply necessary to slide the two shafts  $G$  outward out of the coils to free the point of the  $V$  from the hook  $h'$  and to disengage the free ends of the loops from the formers, which, as the normal tendency of the end  $f^3$  of the elastic portion  $f^2$  of the former  $F$  is away from the rigid portion as soon as the pressure is removed therefrom, can readily be done.

For the support of the inner ends of the shafts  $G$ , I have provided a movable curved

elastic bar  $K'$ , having an end  $l$  with an opening adapted to be placed in alignment with said shafts before they are moved inward to enable them to rotate the loop-formers, so that the inner ends of the shafts may enter such opening, and which may be moved out of the way to enable the free withdrawal of the completed jaw and the insertion of wire for another. Said bar is mounted upon and attached at its inner end not having the opening to a curved frame  $L$ , upon which it is caused to rest and be held, when in its shaft-supporting position, by means of a link  $M$ , which embraces said frame, being pivoted thereto at one end at  $l$  and having attached at its other end a handle  $N$ , having a portion  $n$ , by which it is fastened to the link. Said portion  $n$  of the handle  $N$  bears against and clamps the bar  $K'$  to the frame  $L$ , when it engages said bar farthest from its point of attachment to the latter; but when swung toward the said point of attachment said bar  $K'$  is free to move and, being elastic, does move to a position out of the way when not in use in supporting the shafts  $G$ . On the face of the frame  $L$  is a tapered projection or lug  $m$ , which enters an opening or recess in the bar  $K$  to insure its being placed properly in alignment with the shafts  $G$ .

My machine is preferably mounted upon a bench, which the operator can straddle, so as to enable him to most conveniently operate the treadle to move the hooked bar  $K$  and the cranks to form the coils. It may be observed that the wire to form the coils  $b$  is taken from the leg portions of the  $V$ .

The machine is simple in construction, has but few parts, is easily operated, enables the rapid manufacture of the wire jaws, and renders it certain that all produced will be exactly alike.

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

1. In combination, the wire-loop formers having a wire clamping or holding part, the longitudinally-movable shafts to rotate said formers, and a movable bar to partially support the shafts at their inner ends, substantially as described.

2. In combination, the wire-loop formers having a relatively-fixed and a relatively-movable part forming a wire-clamp, means for causing a wire blank to operate said movable part, and means to rotate said formers, and longitudinally-movable shafts and movable bar, said shaft being located and arranged to rotate the formers, and the movable bar to support the inner ends of said shafts, substantially as described.

3. In combination, the wire-loop formers, the gudgeons thereon having recesses in their outer ends, and the crank-shafts in said gudgeons adapted to be moved into and out of

engagement with said recesses, substantially as described.

said shafts at their inner ends, substantially as described.

4. In combination, two wire-loop formers having means to hold each the end of a wire blank, the vertically-movable bar to draw said blank to conform to said formers, the longitudinally-movable shafts to rotate the latter, and the movable bar to partially support

In testimony whereof I affix my signature in presence of two witnesses.

MICHEL D. KREMER.

Witnesses:

NICHOLAS CORNET,  
CORY DICKERSON.

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