

J. M. CRAWFORD.
MANUFACTURE OF BLANKS FOR HARROW-TEETH.

No. 193,641.

Patented July 31, 1877.

Fig. 1

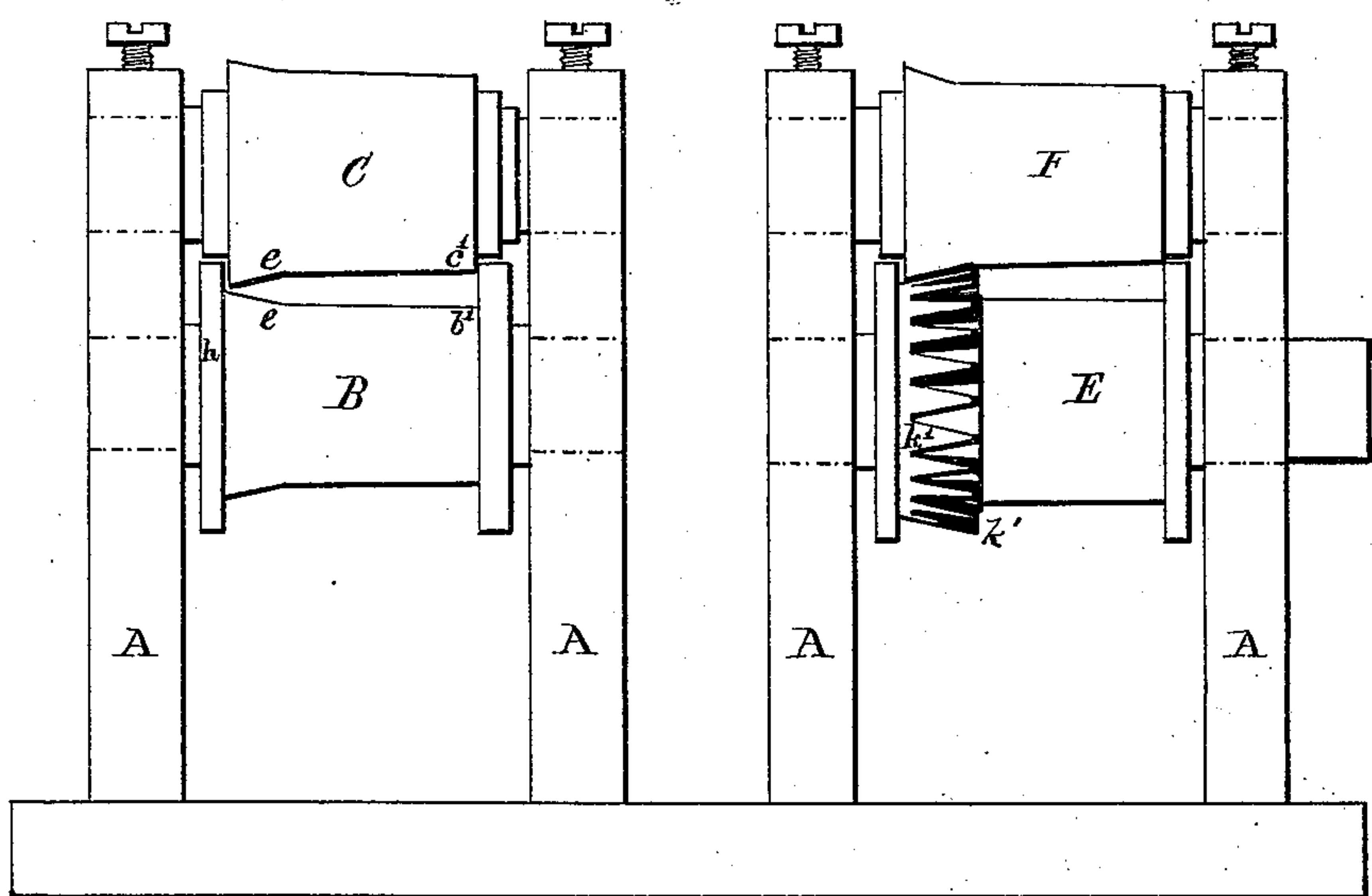


Fig. 2

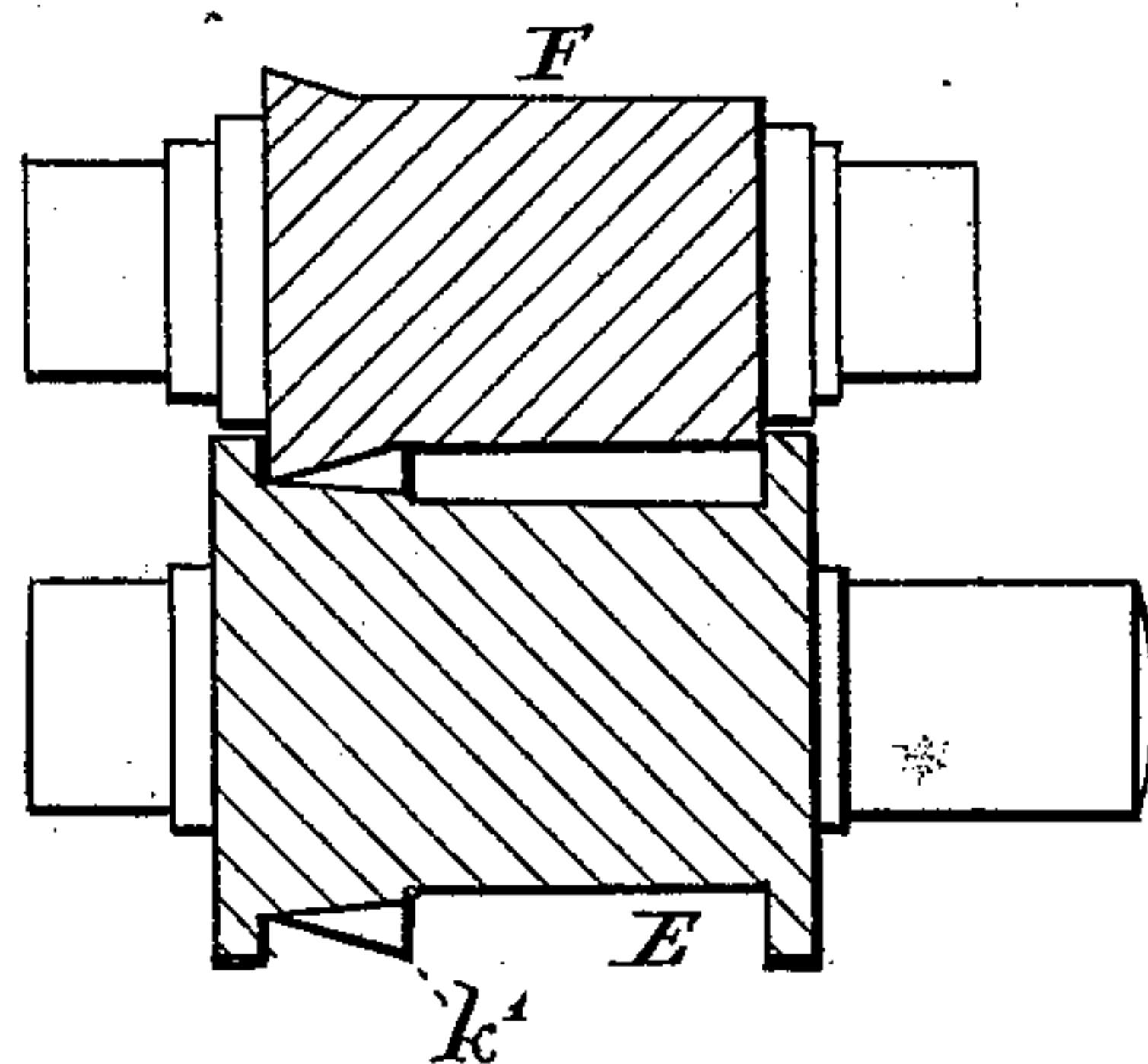
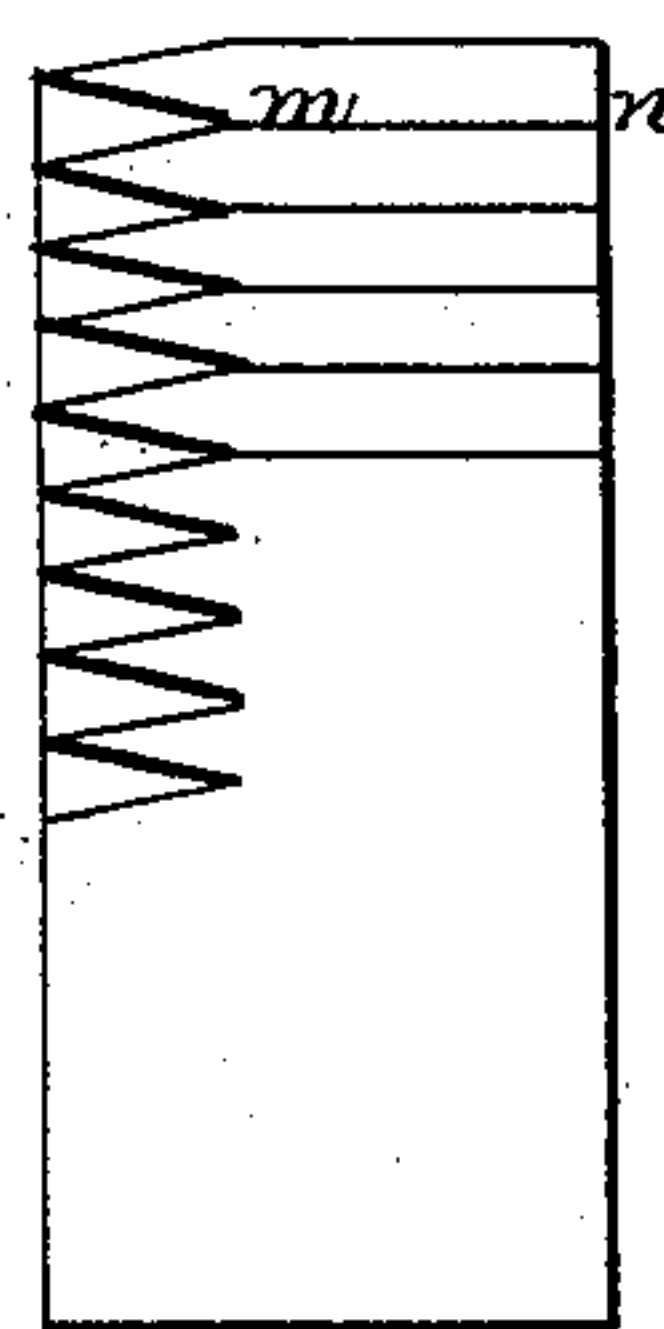


Fig. 3



Witnesses.

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JOHN M. CRAWFORD, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MANUFACTURE OF BLANKS FOR HARROW-TEETH.

Specification forming part of Letters Patent No. 193,641, dated July 31, 1877; application filed May 14, 1877.

To all whom it may concern:

Be it known that I, JOHN M. CRAWFORD, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Machines for Making Blanks for Harrow-Teeth, which improvement is fully set forth in the following specification and accompanying drawing, in which—

Figure 1 is an elevation of the machine. Fig. 2 is a section through the second pair of rolls. Fig. 3 shows the blank after having passed through both pair of rolls.

My invention consists in forming blanks for harrow and rake teeth, and for similar articles, by passing the plate through rolls formed as herein described, which first give the plate a cross-section similar in form to the longitudinal section through a harrow-tooth, then passing the plate through another pair of rolls, which make V-shaped indentations in the edge of the plate. The teeth can then be cut off and finished by hand or dies.

A A are housings, upon which are mounted a pair of metal rolls, B C. The lower one, B, is turned by power, and the upper one runs by friction only, as is customary in rolling sheet-iron; or both rolls may be run by power, if desired. These rolls for a portion of their length are parallel or slightly conical in form, being smallest in diameter at the ends *c' b'*. At a point, *e*, near to the opposite end, they are enlarged at a sharper angle, and meet in contact near the flange *h* of the lower roll. This form, it will be observed, leaves a space between the rolls B C similar in form to the longitudinal section through a harrow-tooth, and a plate passed through the rolls receives this form.

In this stage of the process the teeth could be sheared, sawed, or punched from the plate; but I prefer to pass the plate through another

pair of rolls, E F, which are similar in general outline to the rolls B C. There is this difference, however: the lower roll E has at the end which points the teeth V-shaped projections *k'* around its entire circumference, which indent the edge of the plate, as shown in Fig. 3, thereby forming, in conjunction with roll F, a tooth pointed on all four sides.

The point of the tooth is still further improved if the upper roll F has similar projections, which enter a short distance into the V-shaped cavities of the lower roll E, gearing into it like a cog-wheel, thereby cutting out the thin web of metal which would otherwise be formed. The plate in this form is ready to be cut, sawed, or sheared into teeth upon the lines *m n*. (See Fig. 3.) The teeth thus made have a sharp taper toward the point, and a long taper toward the head, so that they will drive tight into their sockets.

The rolls may be made double the width shown, and then the plates from which the blanks are to be cut would be tapered and pointed on both sides or edges, instead of on one side only, as shown in Fig. 3.

I claim—

1. The pair of rolls E F, one of them being formed with longitudinal V-shaped projections *k'*, for rolling blanks suitable for harrow-teeth.
2. An improvement in the art of making harrow-teeth, which consists in first rolling the blank, by means of the rolls B C, into the shape in cross-section of the longitudinal section of the harrow-tooth, and then indenting the edge thereof by means of the rolls E F, by displacing the metal, all as described.

JOHN M. CRAWFORD.

Witnesses:

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