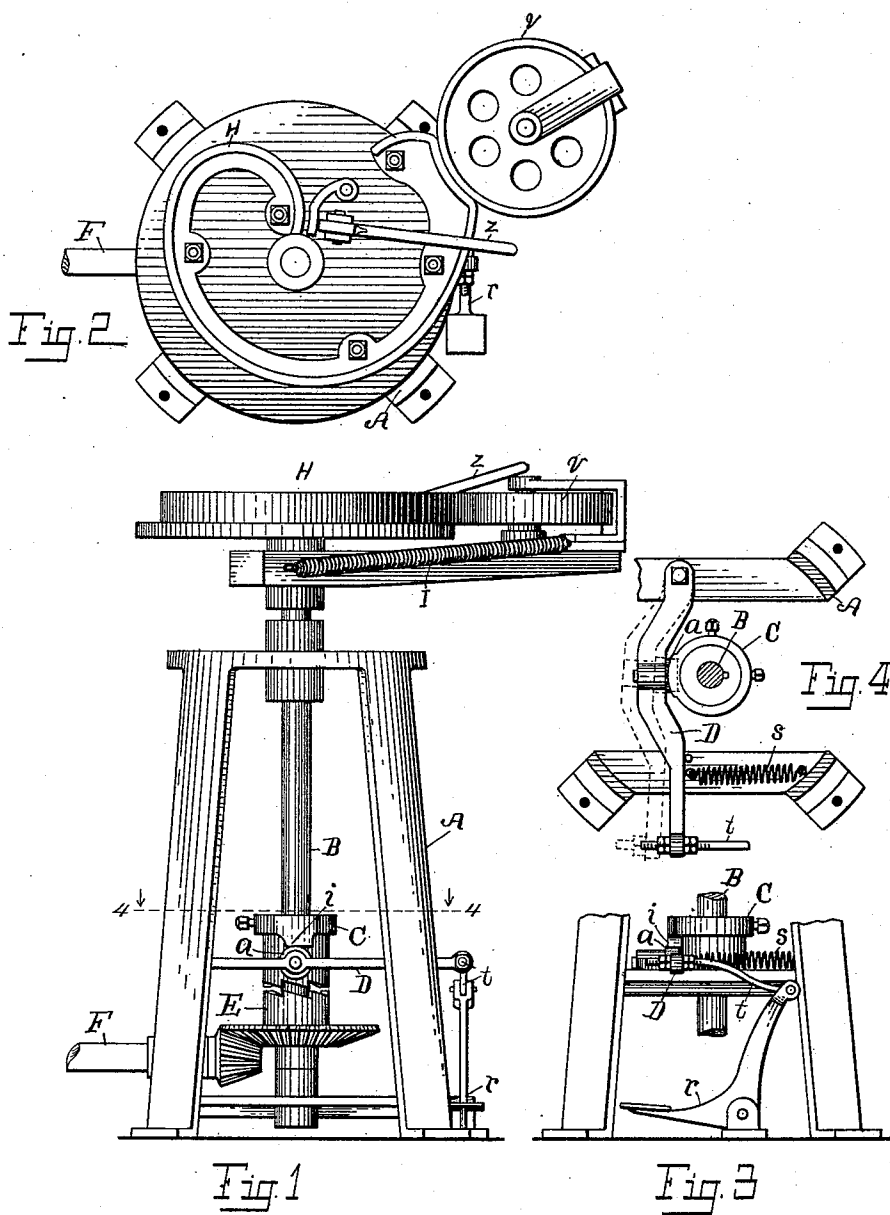


(No Model.)

H. M. BRINKMAN.
MACHINE FOR BENDING HARROW TEETH.

No. 472,960.

Patented Apr. 12, 1892.



Witnesses:

Walter S. Hood.
Marion Longyear.

Inventor.

Herman M. Brinkman.
By *Lucius C. West*
Att'y.

UNITED STATES PATENT OFFICE.

HERMAN M. BRINKMAN, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO THE HARROW SPRING COMPANY, OF SAME PLACE.

MACHINE FOR BENDING HARROW-TEETH.

SPECIFICATION forming part of Letters Patent No. 472,960, dated April 12, 1892.

Application filed January 18, 1892. Serial No. 418,375. (No model.)

To all whom it may concern:

Be it known that I, HERMAN M. BRINKMAN, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Machine for Bending Spring Harrow-Teeth, of which the following is a specification.

This invention has for its object the construction of certain means below described and claimed for operating that class of bending-machines in which the form is revolved for giving a circular or curved formation to the strip of metal to be bent—such as, for instance, in the construction of spring-harrow teeth and the like.

In the drawings forming a part of this specification, Figure 1 is a side elevation; Fig. 2, a plan view of Fig. 1; Fig. 3, a broken elevation looking against Fig. 1 from a point at the right, and Fig. 4 a sectional plan on line 4 4 in Fig. 1.

Referring to the lettered parts of the drawings, A represents an upright frame in which a vertical shaft B has bearings. To the upper end of this shaft B is attached a form H, around which the strip of metal is to be bent in the ordinary manner of operating such machines, and in which machines is employed a lever *z* for clamping the end of the metal against the form at the starting-point, and also in which is employed a roller *v*, so held by a spring I that its periphery will traverse the line of the periphery of the form (with the metal strip between) during the operation, which operation will be readily understood, since such machines are in ordinary use, so far as bending a strip of metal into a curved or circular form is concerned. At the lower end of the shaft B and attached thereto is a fixed portion E of a clutch, which portion is provided with a beveled gear, which gear meshes with a beveled gear of a power-shaft F for imparting rotary motion to the shaft B. Above the fixed portion E of the clutch is a vertically-sliding portion C of said clutch, so arranged on the shaft B that while it will rise and fall vertically it will turn with said shaft. The contiguous faces of both portions of the clutch are provided with the ordinary saw-teeth surfaces, adapted to engage each other when the sliding portion of the

clutch is lowered. The vertically-sliding portion of the clutch is provided on oneside with a downwardly-projecting lug *i*.

Transversely across the frame and pivoted at one end thereto (see Fig. 4) is a lever D, which lever is provided with a cam-roller *a* at a point to come in contact with the downward projection *i* of the vertically-sliding portion C of the clutch, as clearly shown in Fig. 1. This lever D is held in proper position in relation to the clutch by a spring *s*, one end of said spring being attached to said lever D, the other to the frame A, Figs. 3 and 4.

At *r* is shown a bell-crank treadle pivoted at the base of the frame or to the floor upon which said frame stands, the upper end of said bell-crank treadle being connected with the end of the lever D by a connecting-rod *t*, Fig. 3.

When the parts are in the position shown in the drawings, with the downwardly-projecting lug *i* resting on the cam-roller *a* of the lever D, the form is at rest, because the two parts of the clutch are disengaged from each other.

In the operation the operator by stepping on the treadle *r* throws the lever D, with its cam-roller *a*, laterally against the resistance of the spring *s*, disengaging said roller from the lug *i* and allowing the sliding portion C of the clutch to fall and engage with the lower portion E of said clutch, which is under motion, at which time the contraction of the spring *s* automatically brings the lever D, with its wheel *a*, back to its normal position, so that when the shaft B, with its form H, has made one revolution the lug *i* of the sliding portion of the clutch will run up onto the cam-roller *a*, which disengages the parts of the clutch and stops the movement of the form, although the propelling mechanism still keeps under motion. Of course this action has bent one strip of metal, at which time said bent strip of metal is taken out of the form and the operation just described repeated.

A machine thus constructed requires only one downward trip of the treadle by the foot of the operator and the clamping of the ends of the spring by means of the lever *z* against the form to perform each successive operation.

While, as before indicated, similar bending

forms are well known, and a clutch *per se* is not new, the peculiar construction and combination of the operating parts, in connection with the latter and the form, facilitates the operation and produces a simple and cheap machine.

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

- 10 In a bending-machine, the combination of an upright revoluble shaft having attached to its upper end a form, a fixed portion of a clutch attached to its lower end, a vertically-sliding portion of a clutch on said vertical
15 shaft above the fixed portion of the clutch, said sliding portion being provided with the

cam-lug, a transverse lever bearing a cam-roller in position to engage said lug, a pivoted foot-treadle, a connecting-rod connecting the upper end of said treadle with said lever, a 20 spring holding said lever in its normal position, and a power-shaft gear connecting with the fixed portion of the clutch on the upright shaft, substantially as set forth.

In testimony to the foregoing I have here- 25 unto subscribed my name in the presence of two witnesses.

HERMAN M. BRINKMAN.

Witnesses:

CLAUDE R. JAMES,
A. R. TROWBRIDGE.