

(No Model.)

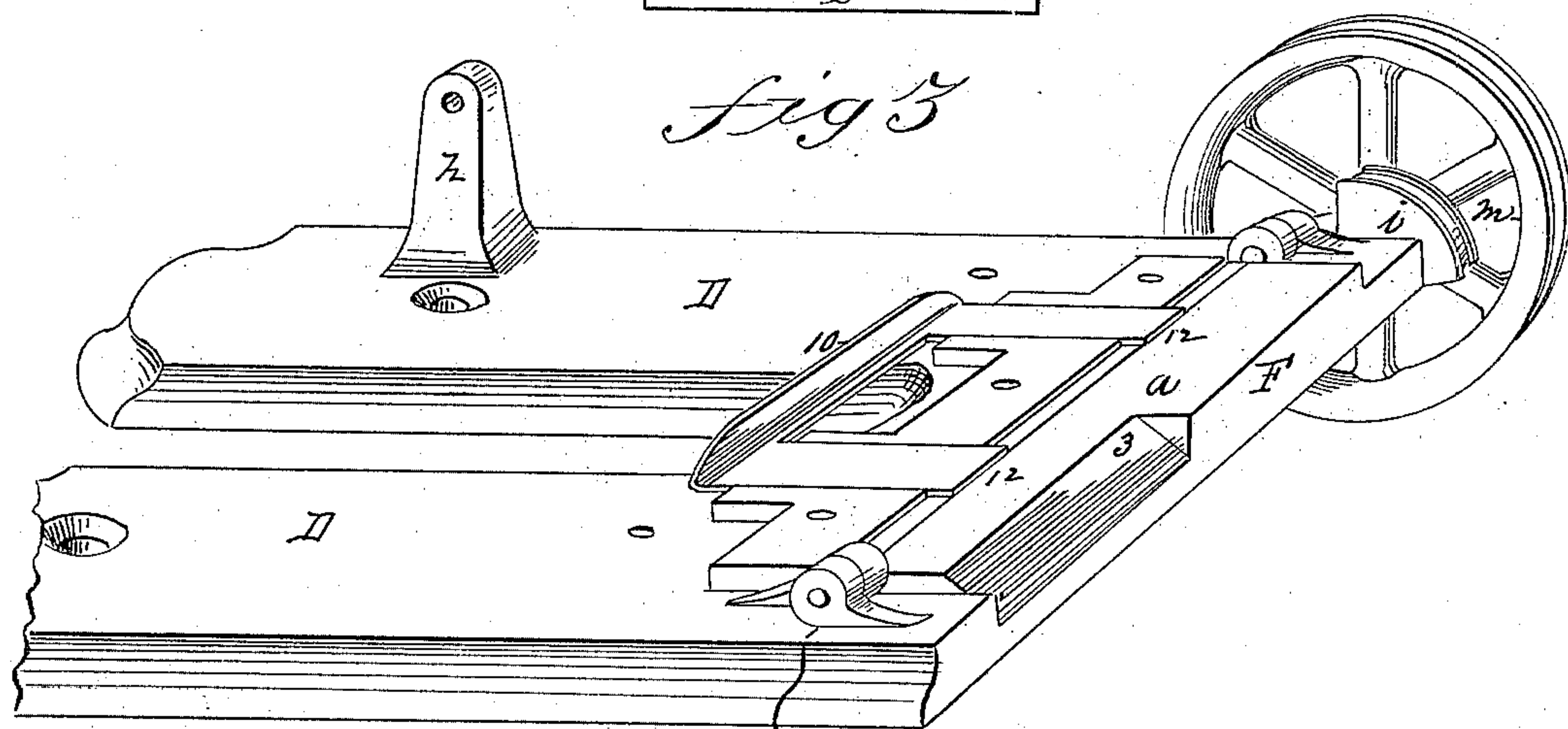
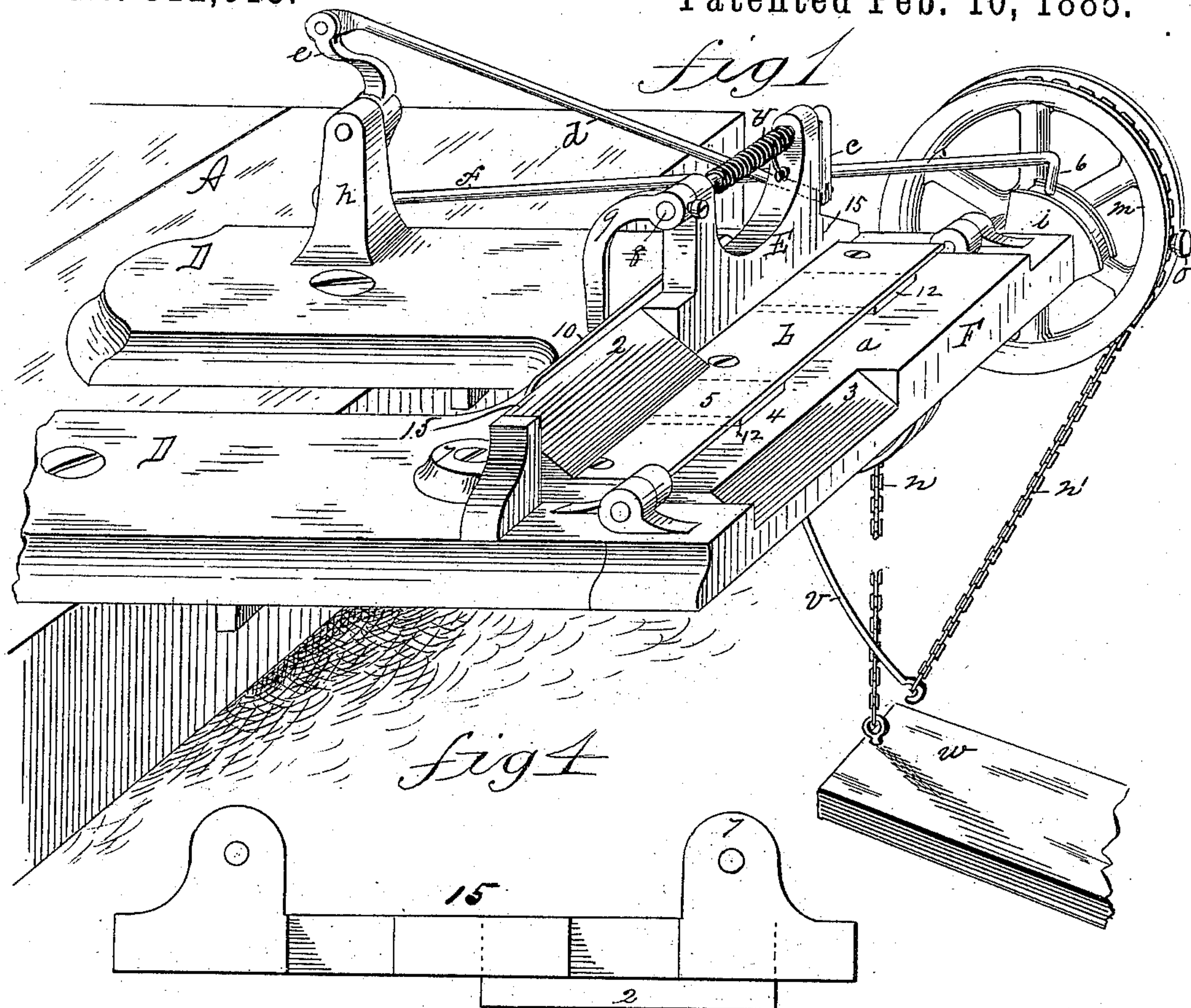
2 Sheets—Sheet 1.

S. A. PHILLIPS.

MACHINE FOR BENDING TIN ROOFING CLEATS.

No. 312,013.

Patented Feb. 10, 1885.



WITNESSES :

J. D. Tarfield,  
M. A. Bennett.

fig 5

INVENTOR

Stanley A Phillips

BY

Henry A. Chapin

ATTORNEY

(No Model.)

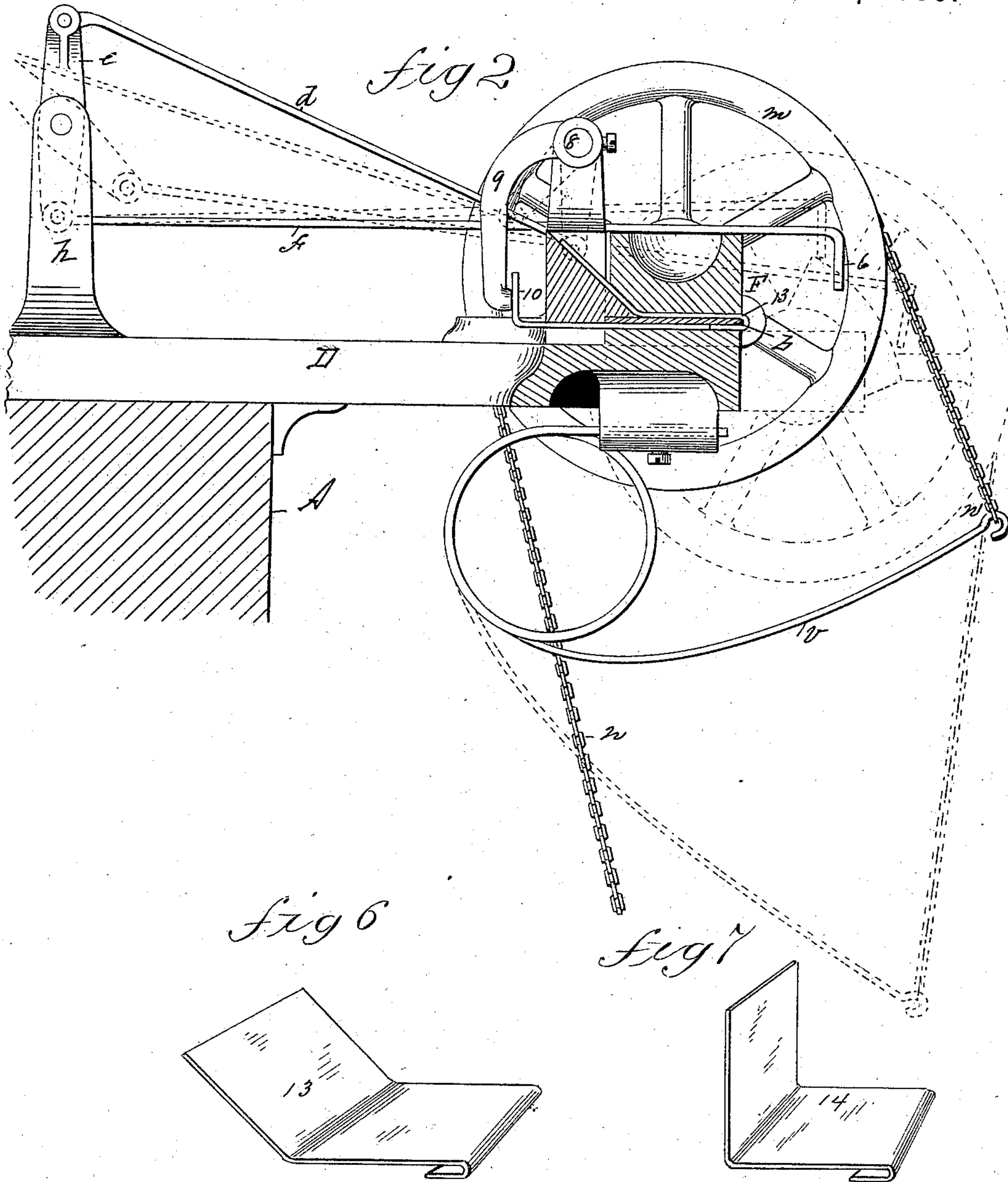
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INVENTOR

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# UNITED STATES PATENT OFFICE.

STANLEY A. PHILLIPS, OF AMHERST, MASSACHUSETTS.

## MACHINE FOR BENDING TIN-ROOFING CLEATS.

SPECIFICATION forming part of Letters Patent No. 312,013, dated February 10, 1885.

Application filed November 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, STANLEY A. PHILLIPS, a citizen of the United States, residing at Amherst, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Machines for Bending Tin-Roofing Cleats, of which the following is a specification.

This invention relates to improvements in machines for bending tin-roofing cleats, and is in the nature of an improvement upon my patent of September 30, 1884, No. 305,757, the object being to improve the bending-bar and its abutment-block to adapt them to a greater variety of work, and to improve the mechanism for operating said bar; to provide an improved knocking-out slide and means for operating the latter.

In the drawings forming part of this specification, Figure 1 is a perspective view of a machine for bending roofing-cleats embodying my improvements. Fig. 2 is a side elevation, partly in section. Fig. 3 is a view of the bed and turning-bar of the machine, showing the knocking-out slide thereon, some of the upper parts of the machine being removed. Figs. 4 and 5 are views of detail parts, and Figs. 6 and 7 show the different forms of cleats bent by the machine.

In the drawings, A is a table or bench on which the machine is secured in a position to be operated, and of which D is the bed.

F is the turning-bar, hinged to the front end of the bed D, having near one end a flat surface, *a*, and near the opposite end a combined flat and inclined surface, respectively numbered 4 and 5.

Attached to one end of the turning-bar F is a grooved pulley, *m*, and a grooved segment, *i*, of a pulley is attached to said bar between the end thereof and the pulley *m*. The bed D, directly back of the bar F, is grooved to receive the arms 12 of the knocking-out slide, as shown in Fig. 3. A piece, 15, on which is the standard E and the inclined face 2, is secured to the bed just back of said grooved portion thereof. Said piece having the standard E thereon, is shown in bottom view in Fig. 4. A plate, *b*, is secured on the said grooved part of bed D, covering the arms 12 of the slide 10, thereby forming operating passages for said arms, and the front edge of plate *b* (see Fig. 2)

is sufficiently raised above the plane of the surface *a* on bar F to permit of sliding under it the end of the strip of tin which is to be bent to form a cleat.

As shown in Fig. 1, the arms 12 of the slide 10 reach to the front edge of plate *b*, when it is driven forward, as hereinafter described, the slide being free to be pushed back by crowding the end of a piece of tin under plate *b* and against the end of one of said arms 12. The rear end of the slide 10 is turned upward behind the piece 15, as shown in Fig. 1. A chain, *n*, one end of which is attached to a treadle, *w*, passes partly around wheel *m* from its rear side, and is secured at a point on the periphery of said wheel by a pin, *o*, and from the latter the chain continues, and its end *n'* is attached to the end of a spring, *v*, which is secured under the bed D. A hammer, 9, adapted to strike against the rear end of slide 10, is secured on a shaft, 8, which has a reciprocating rotary motion in suitable bearings in the standard E, and said shaft has an arm, *c*, fixed on its outer end. A coil-spring, *y*, on shaft 8 has one end attached to the latter, and the other end to standard E, as shown in Fig. 1. A lever, *e*, is pivoted centrally on the side of the standard *h*, and to its lower end is attached the rod *f*, having a hook, 6, on its free end, which is adapted to rest on the grooved edge of segment *i*, and to engage with the latter at the front end of its groove, and be knocked out of engagement by the opposite end of the segment-edge when the latter swings up and strikes said rod back of the hook. The upper end of lever *e* is connected with the end of arm *c* on shaft 8 by the rod *d*. Thus when segment *i* engages with hook 6, as aforesaid, lever *e* swings and draws up the hammer 9 against the resistance of spring *y*, and when said hook is knocked off from the segment, spring *y* acts to swing shaft 8 and drive the hammer 9 against the slide 10 with sufficient force to drive it forward, causing the ends of arms 12 thereon to strike the end of a cleat between plate *b* and the bed and knock it clear from the machine.

In operating my machine to bend cleats of the form shown in Fig. 7, numbered 14, a piece of tin-plate of rectangular form has its end forced under plate *b* opposite the flat surface *a* on bar F. Treadle *w* is then operated, turn-



ing wheel *m*, segment *i*, and the bar, bringing the latter over so that face *a* lies on the top of plate *b*, the tin-plate being thereby bent over the edge of plate *b*, as shown in Fig. 2, and the part between said bent portion and its opposite end being bent at right angles, as shown by the cleat 14, between the bar *F*, plate *b*, and the front side of standard *E*. When the treadle is released, spring *v* rolls bar *F* back to its starting position, as in Fig. 1, and said movement is followed by the blow of the hammer 9 against slide 10, as above described, whereby the bent cleat is knocked off from the machine.

To bend a cleat, 13, such as is shown in Fig. 6—that is, one in which its main portion is not bent at right angles, but at an incline—the piece of tin which is to form the cleat is placed on the machine, as before stated, but between the inclined faces 2 and 3, so that when the bar *F* is turned over the piece will be clamped and bent between the faces 2, 5, 4, and 3, whereby it is given the requisite form. The bent cleat is knocked out, as before stated.

For forming cleats of both of said forms, the piece 15 forms the abutment against which the free end of the tin strip is forced by the folding-bar *F*.

By feeding cleat-strips to both ends of bar *F*, both forms of cleats 13 and 14 can be bent at the same time.

What I claim as my invention is—

1. In a machine for bending metallic-roofing cleats, the combination of the folding-bar *F*, having the faces 4 and 3, the plate *b*, the abutment 15, having the inclined face 2, the slide 10, and means, substantially as described, for giving the folding-bar a reciprocating rotary

motion, and for driving the slide toward the folding-bar after the cleat has been bent, substantially as set forth.

2. In combination, the folding-bar having its face part *a* at right angles to the front edge of the bar, the face 4, in a plane with the face *a*, and the face 3, at an incline to the face 4, the plate *b*, the abutment 15, having a portion of its side adjoining said plate at right angles thereto, and a portion thereof, as face 2, at an incline to the plate, the slide 10, having arms 12, and means, substantially as described, for giving the folding-bar a reciprocating rotary motion, and for driving the slide toward the folding-bar after the cleat is bent, substantially as set forth.

3. In combination with the cleat-folding mechanism, substantially as described, the slide 10, having arms 12 thereon, the hammer 9, and mechanism, substantially as described, operated by the movements of the folding mechanism for causing the hammer to strike the slide, substantially as set forth.

4. In combination, lever *e*, rods *d* and *f*, the latter provided with hook 6, segment *i*, shaft 8, having thereon arm *c*, and the hammer 9, the spring *y*, slide 10, and means, substantially as described, for reciprocally rotating said segment, substantially as set forth.

5. In combination, wheel *m*, segment *i*, chain *n*, secured at a point on said wheel the treadle *w*, spring *v*, rod *f*, having hook 6 thereon, slide 10, the hammer 9, shaft 8, arm *c*, spring *y*, rod *d*, and lever *e*, substantially as set forth.

STANLEY A. PHILLIPS.

Witnesses:

JOHN JAMESON,  
N. H. LEE.