

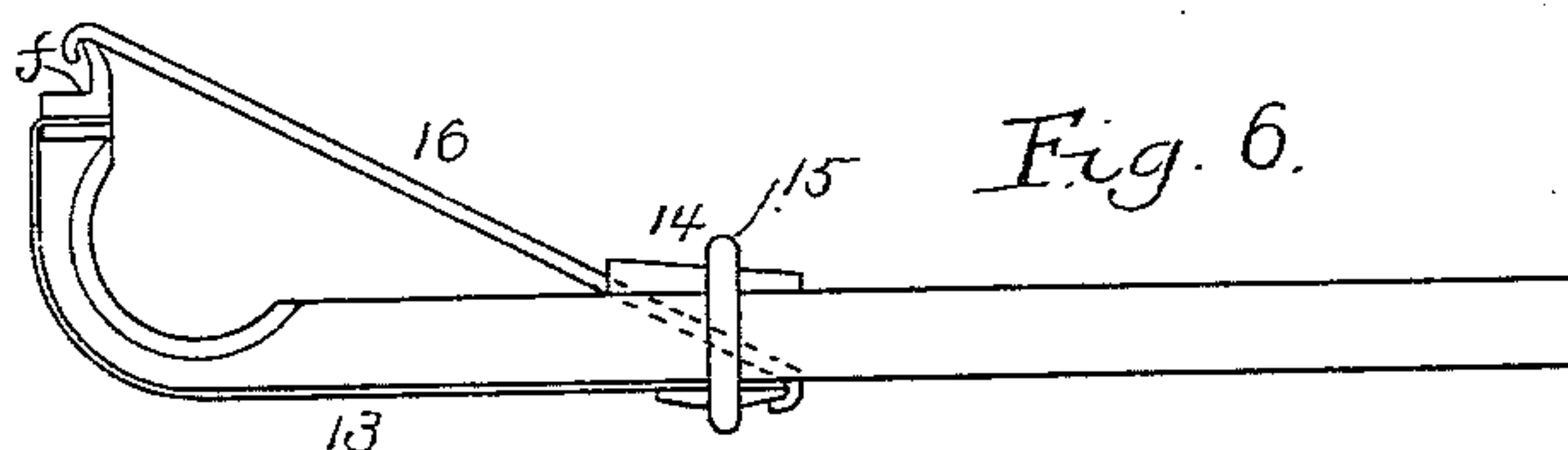
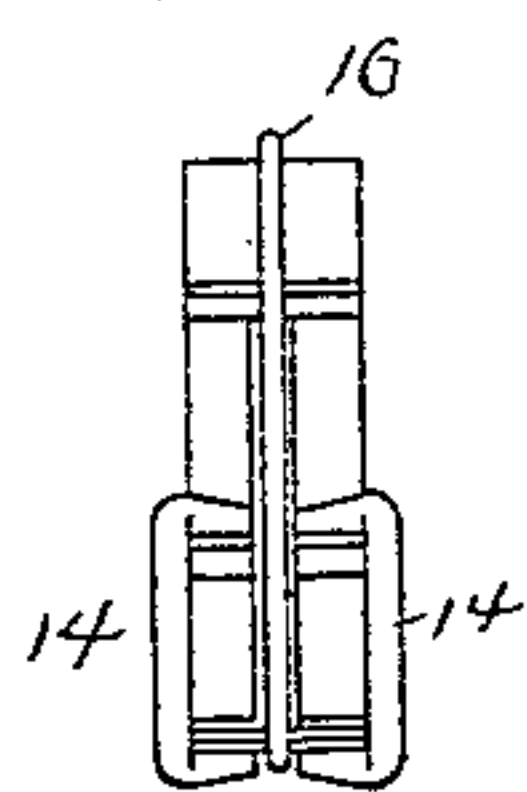
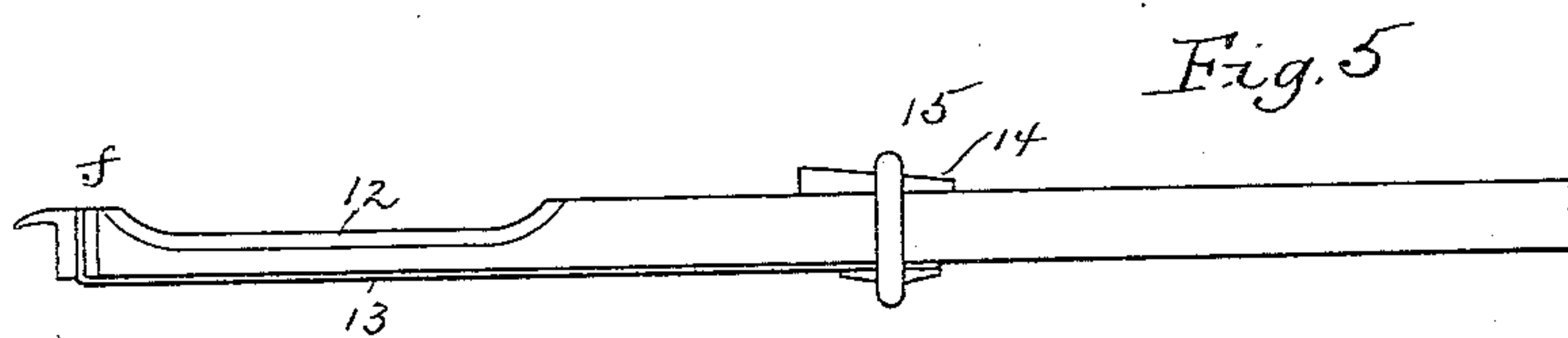
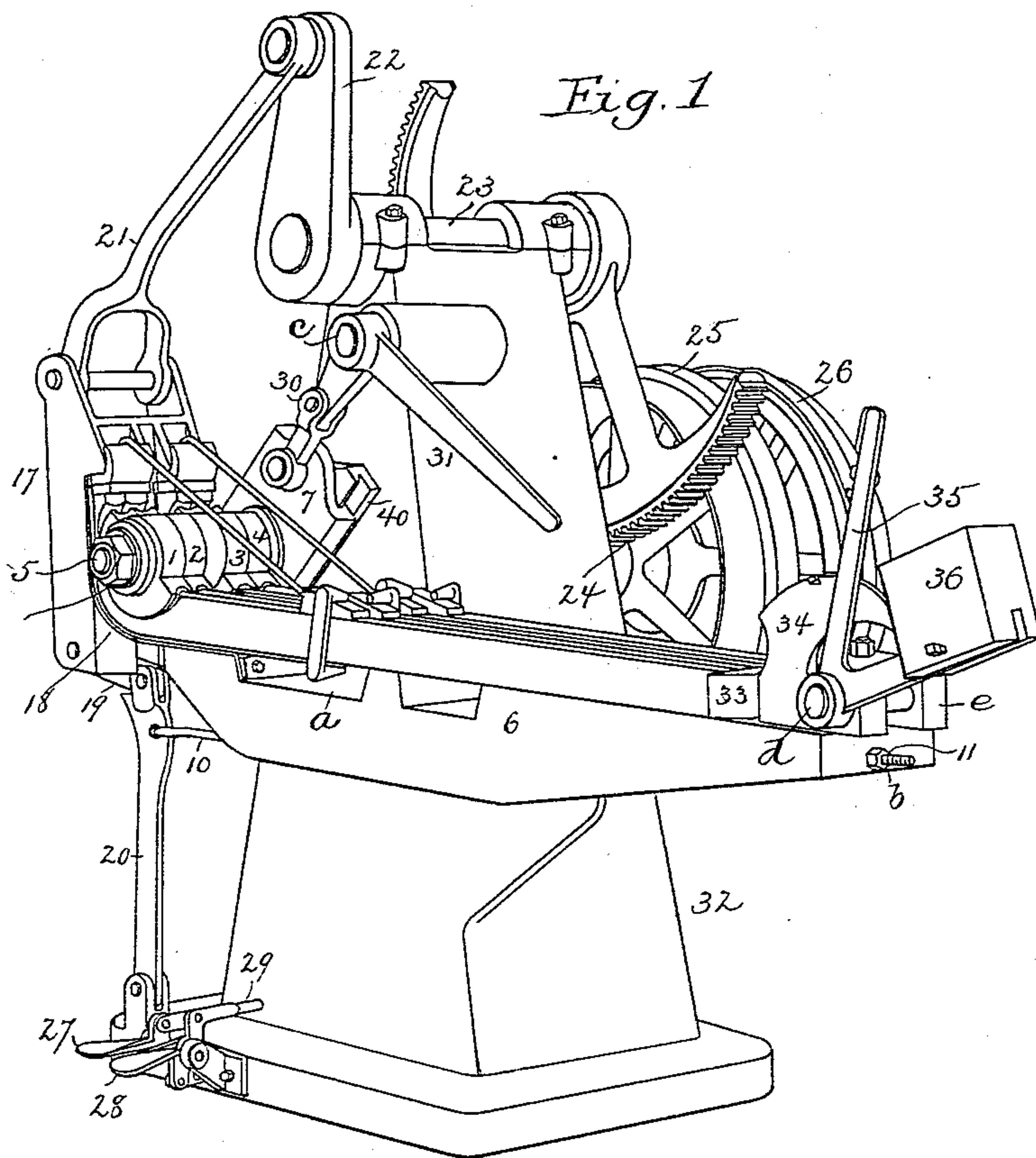
(No Model.)

2 Sheets—Sheet 1.

C. SEYMOUR.
WOOD BENDING MACHINE.

No. 560,008.

Patented May 12, 1896.



WITNESSES:

G. F. Downing
S. G. Nottingham

INVENTOR,

Charles Seymour
By M. D. Leggett & Co.,
Att'ys

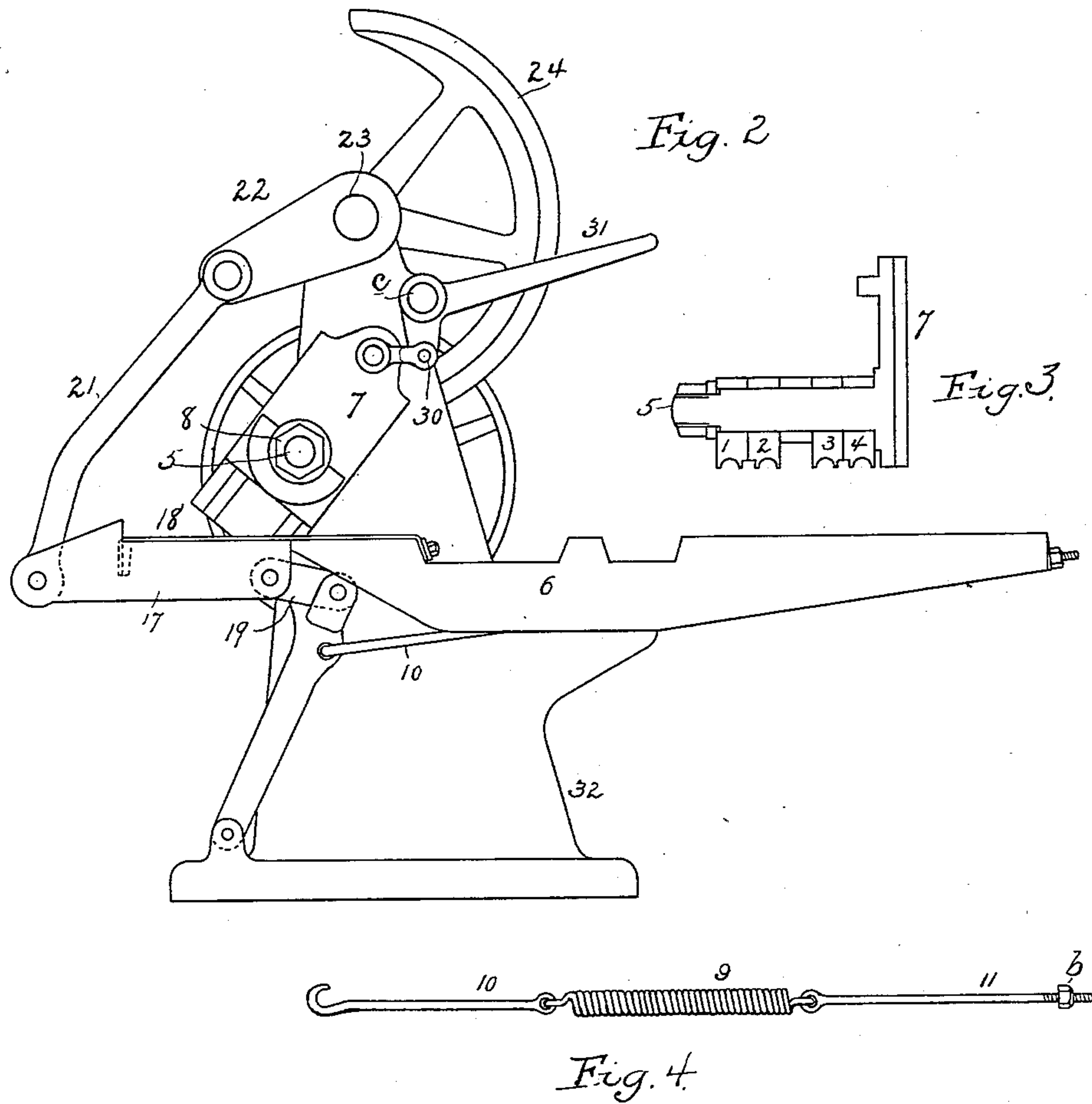
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Attorneys

UNITED STATES PATENT OFFICE.

CHARLES SEYMOUR, OF DEFIANCE, OHIO, ASSIGNOR TO THE DEFIANCE MACHINE WORKS, OF SAME PLACE.

WOOD-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 560,008, dated May 12, 1896.

Application filed May 31, 1895. Serial No. 551,245. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SEYMOUR, of Defiance, in the county of Defiance and State of Ohio, have invented certain new and useful Improvements in Wood - Bending Machines; and I do hereby 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.

My invention relates to an improvement in machines for bending wood, and is designed more particularly for bending plow-handles.

In the machines in common use for bending plow-handles the forms around which the timbers are bent are supported between bearings. Such a construction is objectionable in that it is difficult to place the timbers in position to be bent and also difficult to remove them after the bending operation. The object of my invention is to overcome this objection or difficulty by so constructing and arranging the several parts that the timbers can be readily and quickly placed in position for bending and as readily removed after being bent.

My invention consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved machine. Fig. 2 is a view in side elevation of my improved machine. Fig. 3 is a detached view of block 7. Fig. 4 is a detached view of spring *g* and the connecting-rods. Fig. 5 is a view of one of the handles before it is bent. Fig. 6 is a similar view after bending, and Fig. 7 is an end view of the same.

32 represents a hollow cast-iron frame, gradually decreasing in size upward, and provided with a flanged base. The frame carries all the operative parts of the machine and is provided at a point approximately midway its length with the table 6. This table 6 can be integral with or attached to the frame 32, and is of a length sufficient to carry the main stem or body of a plow-handle. I have shown the table as of a width sufficient to receive two pairs of plow-handles, but the width is immaterial, and it might be increased to accommodate more than two pairs or decreased for less than two pairs.

The table is recessed on its upper surface, as

at *a*, to accommodate the clamps 15 and also for the attachment of one end of the steel strap 18. This strap is of the same width as the table 6, and is attached at its outer end to the platen 17, which latter, when in the position shown in Fig. 2, forms a continuation of the table 6. This platen 17 is hinged by a link 19 to the lever 20, which latter is pivoted at its lower end to the base of frame 32, and is held from retreating or moving from table 6 by the steel strap 18, which latter, as shown, overlaps the adjacent ends of the table and platen. The outer end of the platen 17 is connected to the bifurcated lower end of pitman 21, the upper end of the lever being mounted on the crank 22, fast on the shaft 23.

Shaft 23 is journaled in bearings on the upper end of frame 32, and carries at its outer end the segment 24, which meshes with a pinion. (Not shown.) The pinion is mounted on a shaft carrying two frictional clutch-pulleys 25 and 26, which latter are driven in opposite directions by frictional devices, belts, or other suitable gearing. The clutches are actuated to lock the pulleys to the shaft by the treadles 27 and 28, the rods 29, and levers (not shown) in the rear of the machine.

The parts 19 and 20, above referred to, operate to hold the platen 17 snugly against the timbers during the first half of the process of bending, after which and until the process is completed the parts 9, 10, and 11 serve to keep up the required stress. The part 9 is simply a coiled spring, while the parts 10 and 11 are rods attached to the opposite ends of the spring. The rod 10 is provided with a hook at its front end for engagement with the lever 20, while the free end of the rod 11 passes through the outer end of table 6, and is adjustably held in position by the nut *b*.

Secured to the front face of frame 32 and in an inclined position is the guide 40, on which is mounted the sliding block 7. This block 7 carries the stem 5, on which the forms 1, 2, 3, and 4 are secured and held in position by the nut 8. While I have shown the stem as being integral with the sliding block it is evident that it might be removably secured thereto and accomplish the same result. The forms 1, 2, 3, and 4 are located approximately over the juncture of the table 6 and platen 17, and the sliding block 7, carrying the stem

5, is connected at its upper end to the link 30, which latter is in turn pivotally connected to the toggle-lever 31. This toggle-lever 31 is journaled on a bearing *c*, carried by the frame 32, and by throwing the lever to the position shown in Fig. 2 it will be seen that the block carrying the forms is elevated, thus permitting the ready introduction and removal of the timbers or handles to and from the machine. By depressing the lever 31 the block 7 and forms thereon are lowered until the latter are in close proximity to the handles or timbers to be bent.

33 is a tail-block connected by link or otherwise to the eccentric-shaft *d*, mounted in bearings *e* on the outer end of table 6. Secured to this shaft *d* is the lever 35, carrying the weight 36, which latter operates through the medium of the eccentric-shaft to hold the block 33 against the ends of the timbers or handles. If, however, the end stress on the timbers should be excessive, the weight 36 is overcome, thus permitting block 33 to retreat slightly and thus relieve the excess of end pressure on the handles.

The timbers of the proper length and size to form handles are cut away, as at 12, the edge of the cut-away portion being rounded or convex, as shown. They are then steamed to soften the wood, after which the steel straps 13 are applied, as shown in Fig. 2. Each strap 13 is of a width sufficient to accommodate a pair of handles, with a space of about one-half an inch between them, and each strap is provided with a flanged block *f*, which rests against the ends of a pair of handles, while the opposite end of the strap is clamped to the pair of handles by a clamp 15 and wedges 14, as shown in Figs. 2, 3, and 4. The handles, clamped as shown in Fig. 2, are then placed on table 6 and platen 17, with the flanged block adjacent to the outer edge of the platen, after which the sliding block 7, carrying forms 1, 2, 3, and 4, is lowered until the forms rest on or in contact with the handles. Now by depressing one of the treadles the shaft 23 is turned to the right, which operates to elevate the platen and bend the ends of the handles around the forms 1, 2, 3, and 4, the under faces of the sections of the handles being supported during the operation of bending by the strap 18, before referred to. After the handles have been properly shaped the machine is stopped by releasing the treadle. A rod 16 is then connected at one end to the flanged block *f*, carried by strap 13, and connected at its other end to the clamp 15, after which the platen is lowered by depressing the other treadle, which operates through rod, lever, and flanges, before referred to, to reverse the direction of movement of the shaft 23. The sliding block 7 is then elevated by shifting the lever 31. The handles are thus free to be removed, their shape being retained by the strap 13 and rod 16 until dry.

It is evident that numerous slight changes might be resorted to without departing from the spirit and scope of my invention. Hence I would have it understood that I do not limit myself to the precise construction herein shown and described; but,

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

1. In a wood-bending machine, the combination with a table, a platen, and a flexible connection between the two and secured to both, of movable vibratory supports for each end of the platen, a spring extending from one of these parts to the frame of the machine and a form around which the article operated upon is bent, substantially as set forth.

2. In a bending-machine, the combination with a frame, a platen, and a strap extending from one to the other, of a swinging arm, a link extending from the outer end of the latter to the outer end of the platen, and means for supporting the other end of the platen, substantially as set forth.

3. In a bending-machine, the combination with a frame, a platen, and a strap connecting the two together, of a swinging arm, a link extending from the outer end thereof to the outer end of the platen, and a vibratory lever to which the opposite end of the platen is pivotally connected, substantially as set forth.

4. The combination with a frame, a lever pivoted to the frame, and a platen pivotally connected at one end to the lever, of a strap secured to the frame and to the platen, a form, and means for swinging the platen to bend the article operated upon, around the form, substantially as set forth.

5. The combination with a frame, a lever pivotally connected therewith, a platen supported at one end by the lever a spring connecting said parts, and a flexible strap extending from the frame to the platen, of a form, and means connected with the platen for swinging the latter to bend the material operated upon around the form, substantially as set forth.

6. The combination with a frame, a slidable form, a toggle-lever pivoted to the frame, and a link connecting this toggle-lever to the form for operating the latter, of a lever, a platen pivotally connected therewith and supported at one end thereby, a spring connected with said lever, a flexible strap extending from the frame to the platen, and means for swinging the platen, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES SEYMOUR.

Witnesses:

GEORGE A. ENSIGN,
GEORGE W. DEATRICH.