

(No Model.)

R. MUNROE.
FLANGING MACHINE.

No. 330,141.

Patented Nov. 10, 1885.

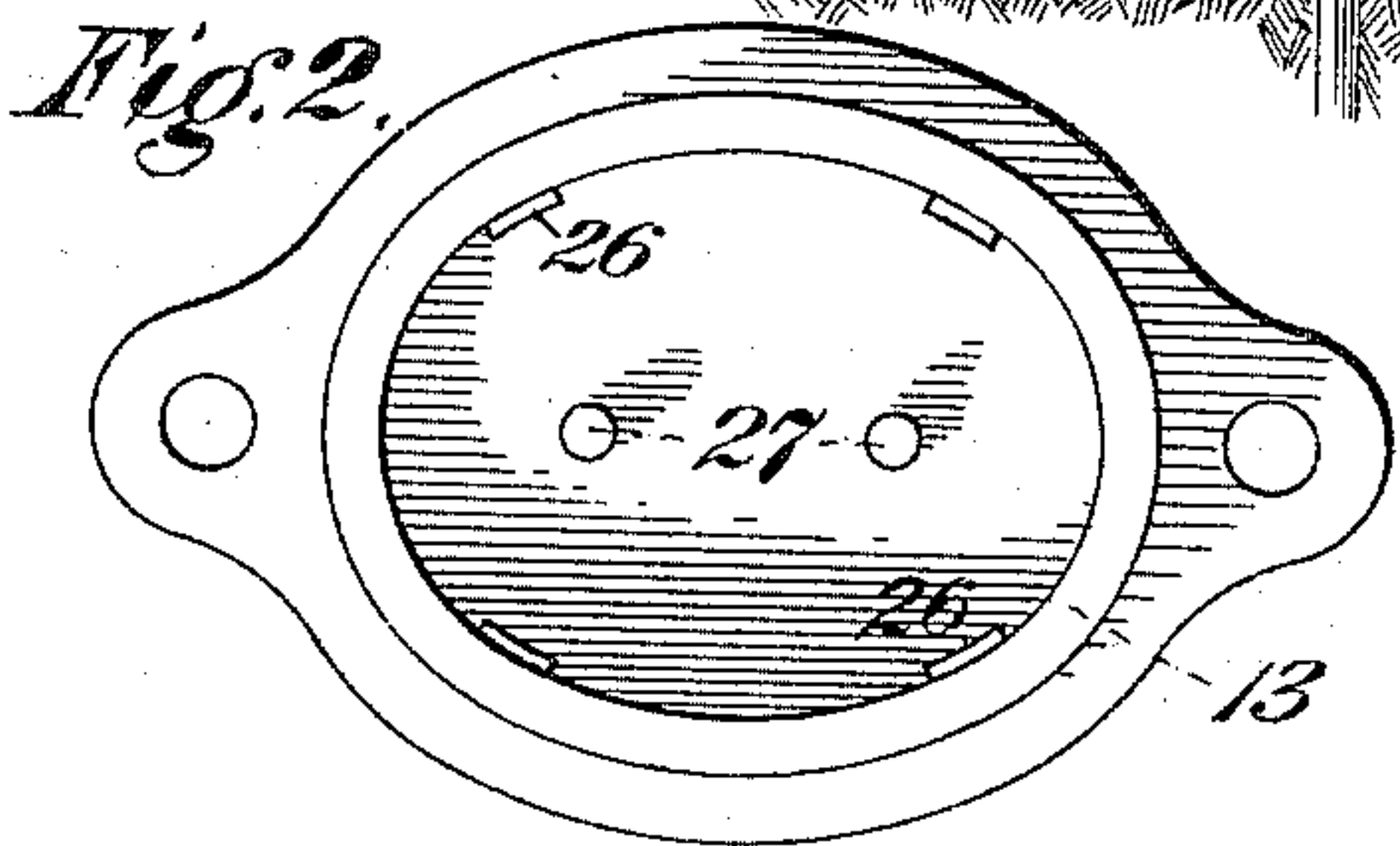
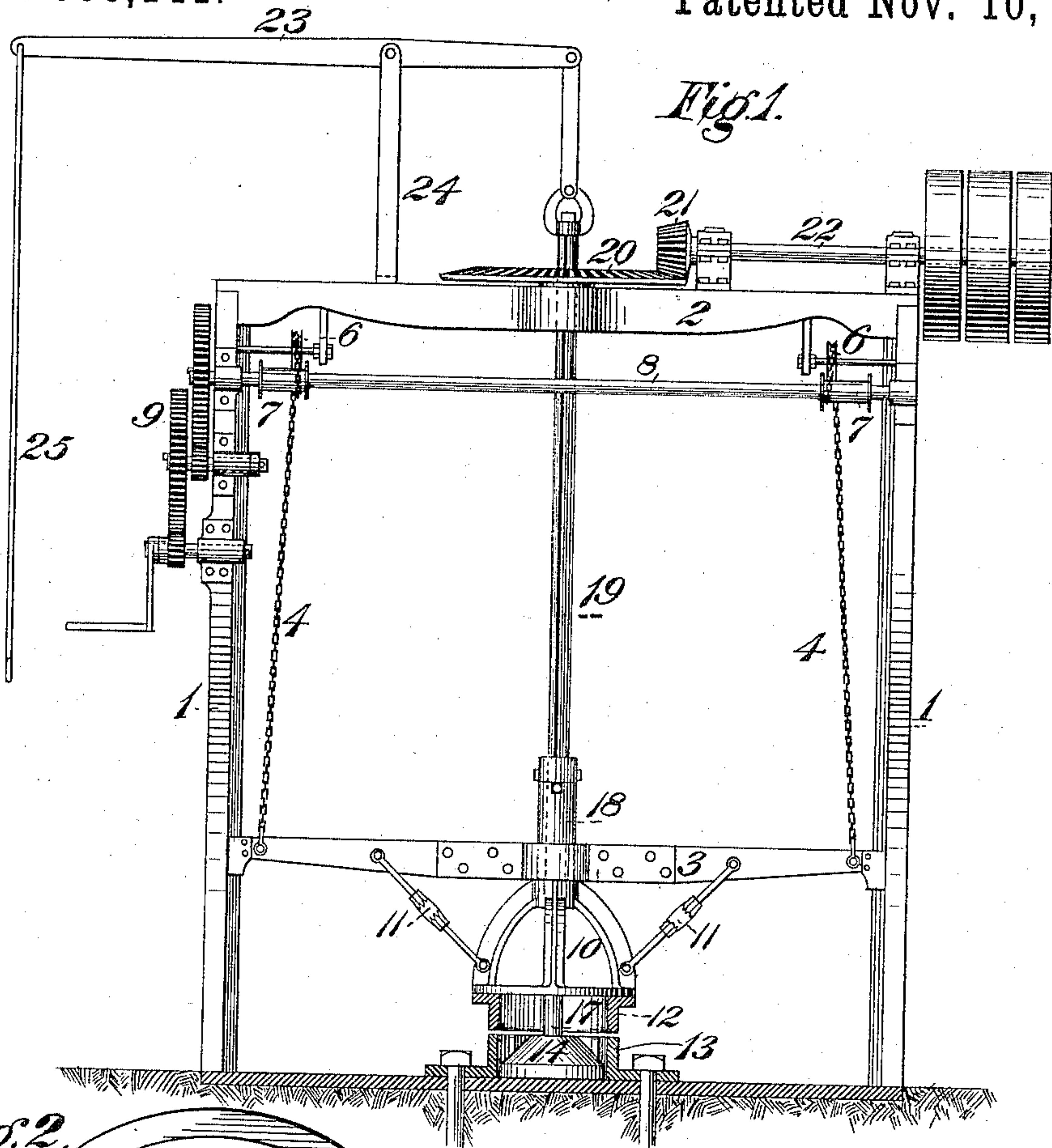
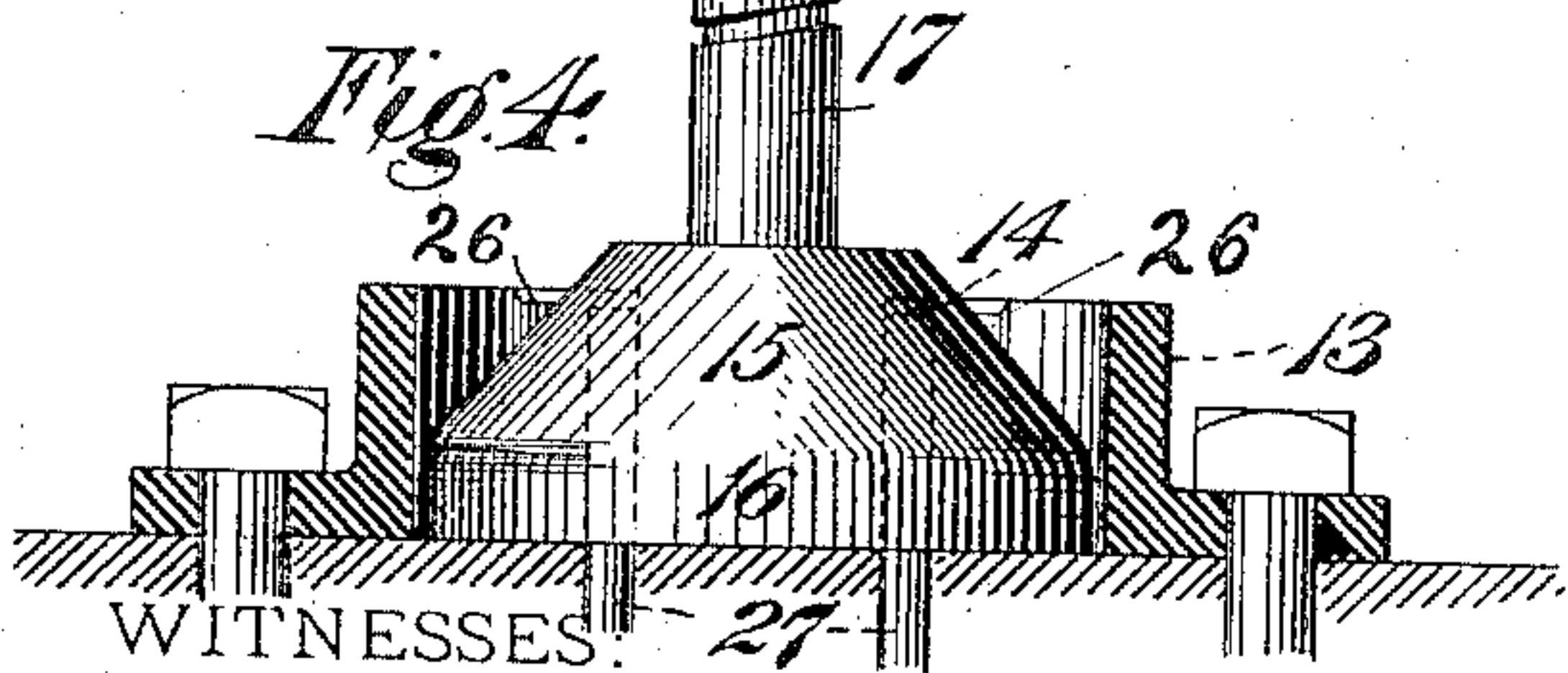
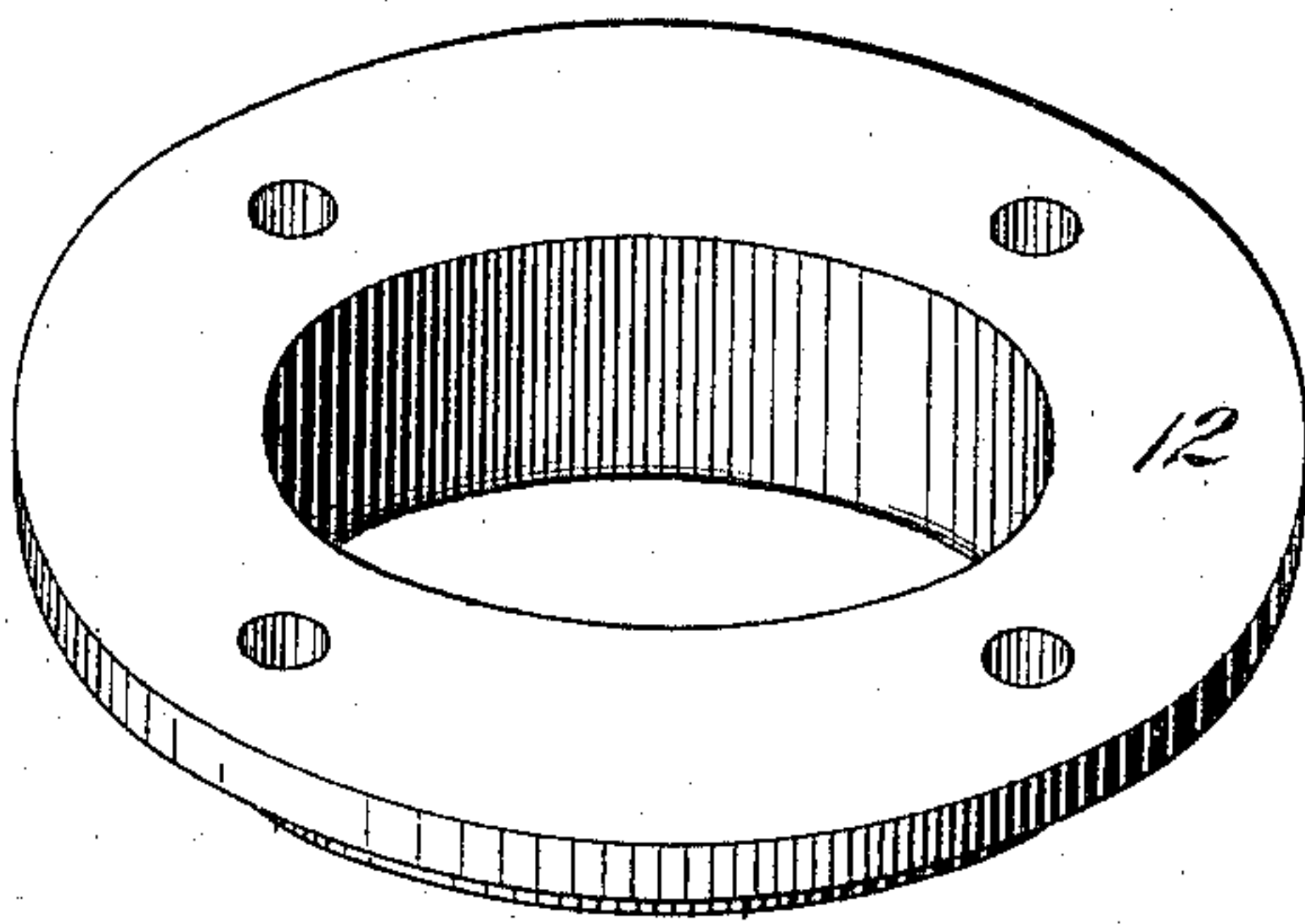


Fig. 3.



WITNESSES:

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ROBERT MUNROE, OF ALLEGHENY, PENNSYLVANIA.

FLANGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 330,141, dated November 10, 1885.

Application filed September 14, 1885. Serial No. 177,000. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MUNROE, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Flanging-Machines, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view in front elevation of a flue forming or flanging machine. Fig. 2 is a plan view of the guide for the forming or flanging tool. Fig. 3 is a perspective view of the plate-clamp or female former. Fig. 4 is a sectional view of the guide, the flanging-head or mandrel being shown in elevation.

In forming and flanging flue and other openings in metal of a contour other than circular, it is difficult with the devices now in use to correctly form such openings, on account of the liability of a rotary displacement of the mandrel during the flanging operation.

The object of the invention herein is to provide for the rigid retention of the flange-mandrel as against rotary movement during the forming or flanging operation; and to this end my invention consists, in general terms, in the construction and combination of parts, substantially as hereinafter described and claimed.

The frame of the machine consists of the posts or uprights 1 and the cross-bar 2, the inner edges of the uprights 1 being suitably constructed to form ways or guides for the movable cross-head 3. This cross-head is raised or lowered as desired, by means of the chains 4, secured to the cross-head, and, after passing over the guide-pulleys 6 to the drums 7, said drums being secured to the shaft 8, mounted in bearings on the uprights 1, and driven by a suitable train of gearing, 9, as shown. A cage or frame, 10, is attached to the cross-head 3 by the stay-rods 11, and to the underside of the cage or frame is bolted the annular clamp-ring or female former 12. On the bed-plate of the machine is bolted the stationary annular clamp 13. The clamp-ring 12 and the annular clamp 13 are given an internal shape or contour corresponding to that of the flanging head or mandrel 14, which is made of an oval or other irregular shape, as

desired, in outline. The upper portion of the flanging head or mandrel is given the shape of a truncated cone, as at 15, the main portion being made cylindrical or straight, as shown at 16. The flanging head or mandrel thus constructed is attached to a rod, 17, threaded at its upper end for engagement with the nut 18, secured to the lower end of the shaft 19, which extends up through the cross-bar 2 and the gear-wheel 20, mounted on the cross-bar. The shaft 19 and gear-wheel 20 are connected together by a spline and groove, thus permitting of independent longitudinal movement of the shaft through the gear-wheel, which intermeshes with the pinion 21 on the shaft 22, said shaft being driven by any suitable power. The upper end of the shaft 19 is connected by a swivel-joint to one end of the lever 23, pivoted on a post, 24, in the upright 1, the opposite end of said lever being provided with a depending operating-handle, 25.

On the inner walls of the stationary annular clamp 13 are formed guide ribs or lugs 26, which bear against the flanging head or mandrel, and prevent any rotation thereof while being raised; or, in lieu of the ribs 26, two or more guide-pins, 27, may be secured within the annular clamp, and entering corresponding holes in the flanging head or mandrel will prevent any rotation thereof.

In operating the above machine, the nut 18 is rotated until disengaged from the threaded rod 17. The nut and shaft 19 are then raised by pulling down on the handle 25, and at the same time the cross-head 3 and cage 10 are raised through the medium of the gearing 9 and the chains 4. The plate to be flanged is then slipped over the rod 17, a hole of less diameter than that to be formed by the flanging operation having been first cut in the plate, and is adjusted upon the lower stationary clamp. The cross-head and cage are then lowered onto the plate, and the nut 18 is lowered down into engagement with the threaded rod 17, and the shaft 19 and nut 18 are rotated through the medium of the gear-wheel 20. The rotation of the nut will not only draw the rod and flanging head or mandrel up, but will also press down upon the hub of the cage, and thereby cause the clamp-ring or female

die 12 to press hard upon the plate and hold the plate in position.

The flanging head or mandrel is rigidly held by the guide-ribs 26 during its upward movement as against any tendency to rotation which might be imparted thereto by the action on the nut 18 on the threaded rod 17, or by any inequalities of the plate being operated on. These guide ribs or pins also serve to prevent any lateral movement of the flanging-head during the operation of the machine.

I claim herein as my invention—

1. In a flanging-machine, a flanging-head, in combination with guides located within the lower stationary clamp and constructed to

hold the head or mandrel as against any rotary movement, substantially as set forth.

2. In a flanging-machine, a flanging-head, in combination with a lower stationary clamp and guides formed on the inner wall of said clamp, and constructed to hold the head or mandrel as against rotary movement, substantially as set forth.

In testimony whereof I have hereunto set my hand.

ROBERT MUNROE.

Witnesses:

DARWIN S. WOLCOTT,
R. H. WHITTLESEY.