

(No Model.)

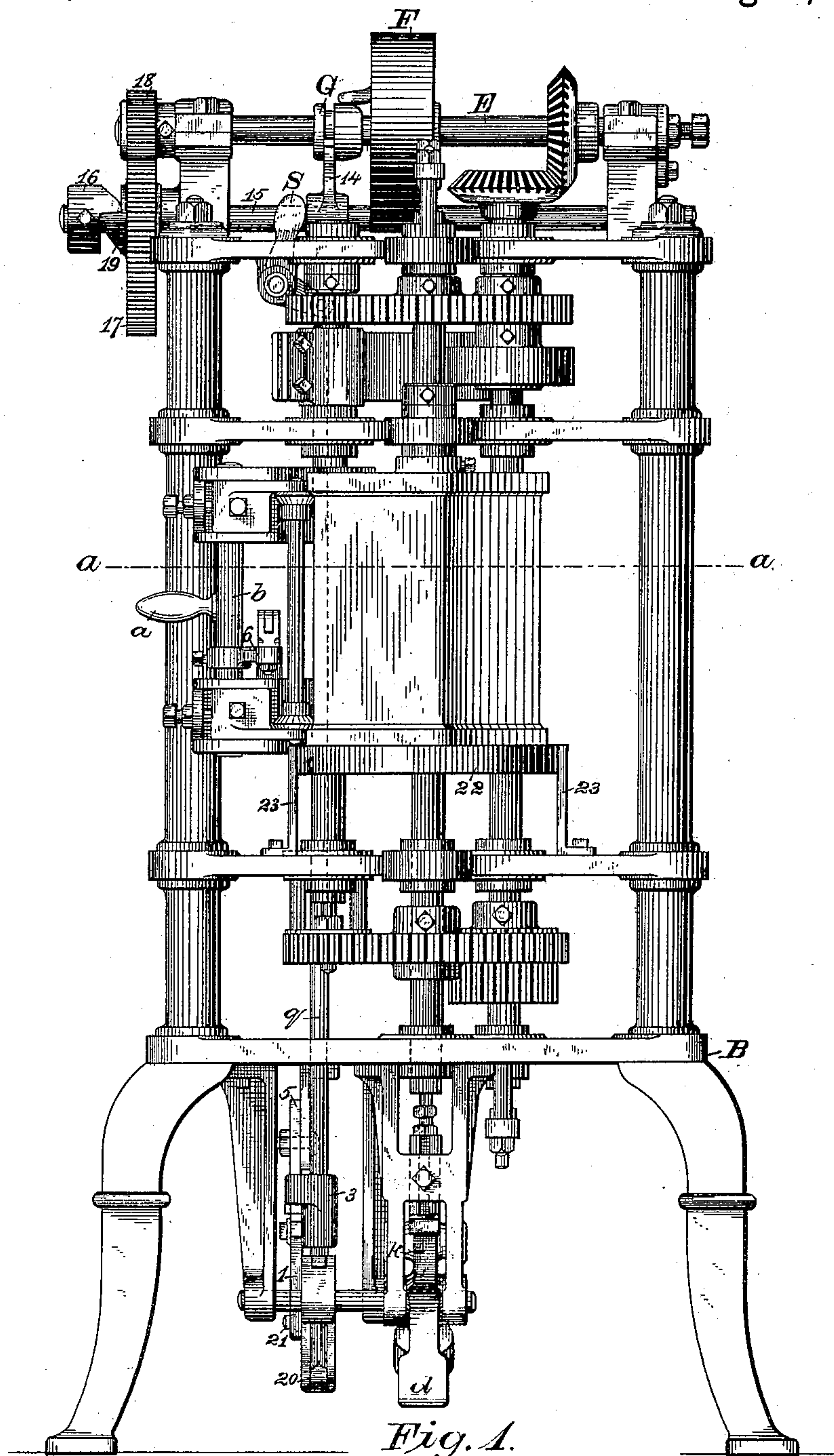
4 Sheets—Sheet 1.

G. H. PERKINS.

ROTARY MACHINE FOR CLOSING THE SEAMS OF SHEET METAL CANS.

No. 245,392.

Patented Aug. 9, 1881.



Attests.
J. H. Templin.
John D. Weyler

Inventor.
George H. Perkins
By his Attorneys,
W. C. Strawbridge,
J. Bonall Taylor.

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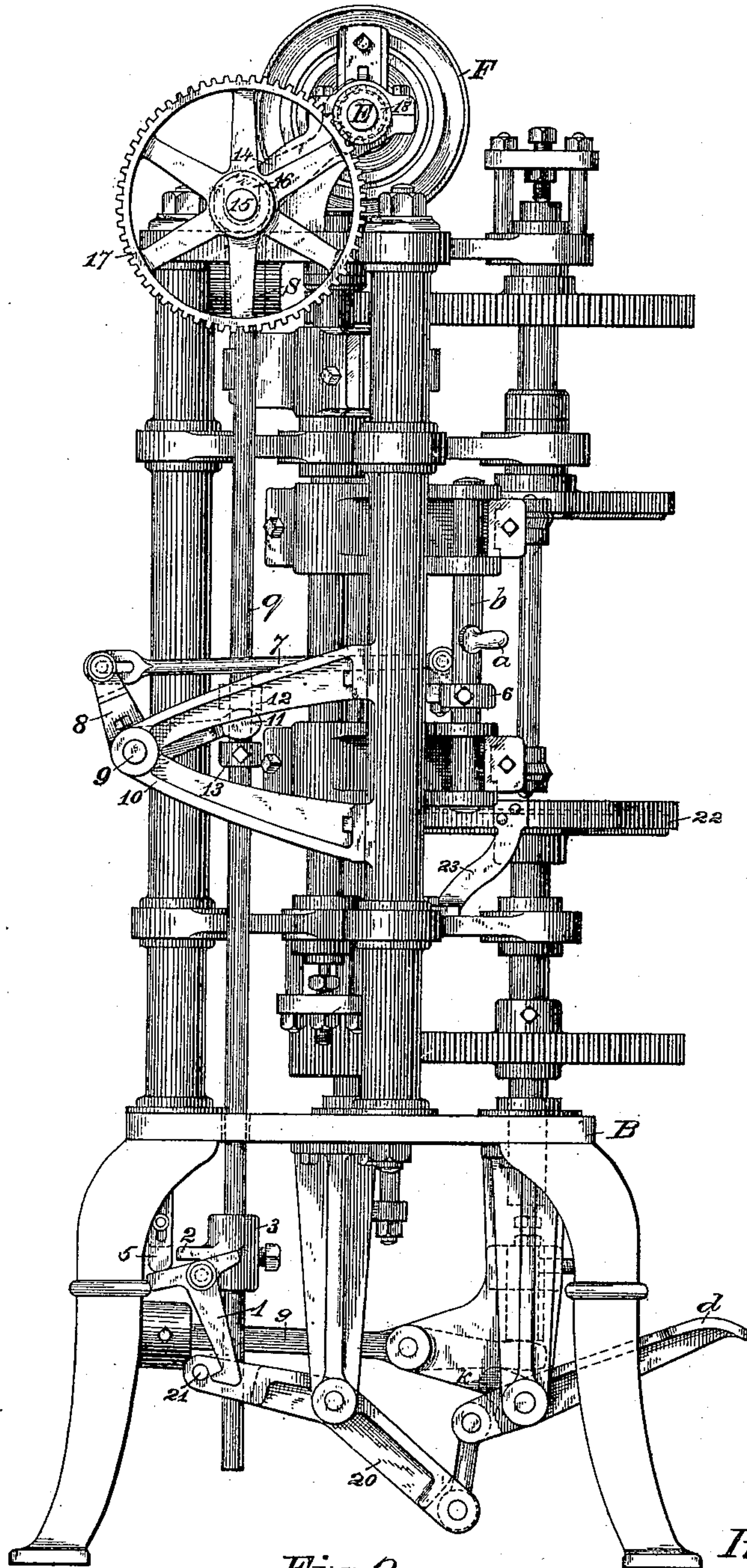
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Fig. 2.

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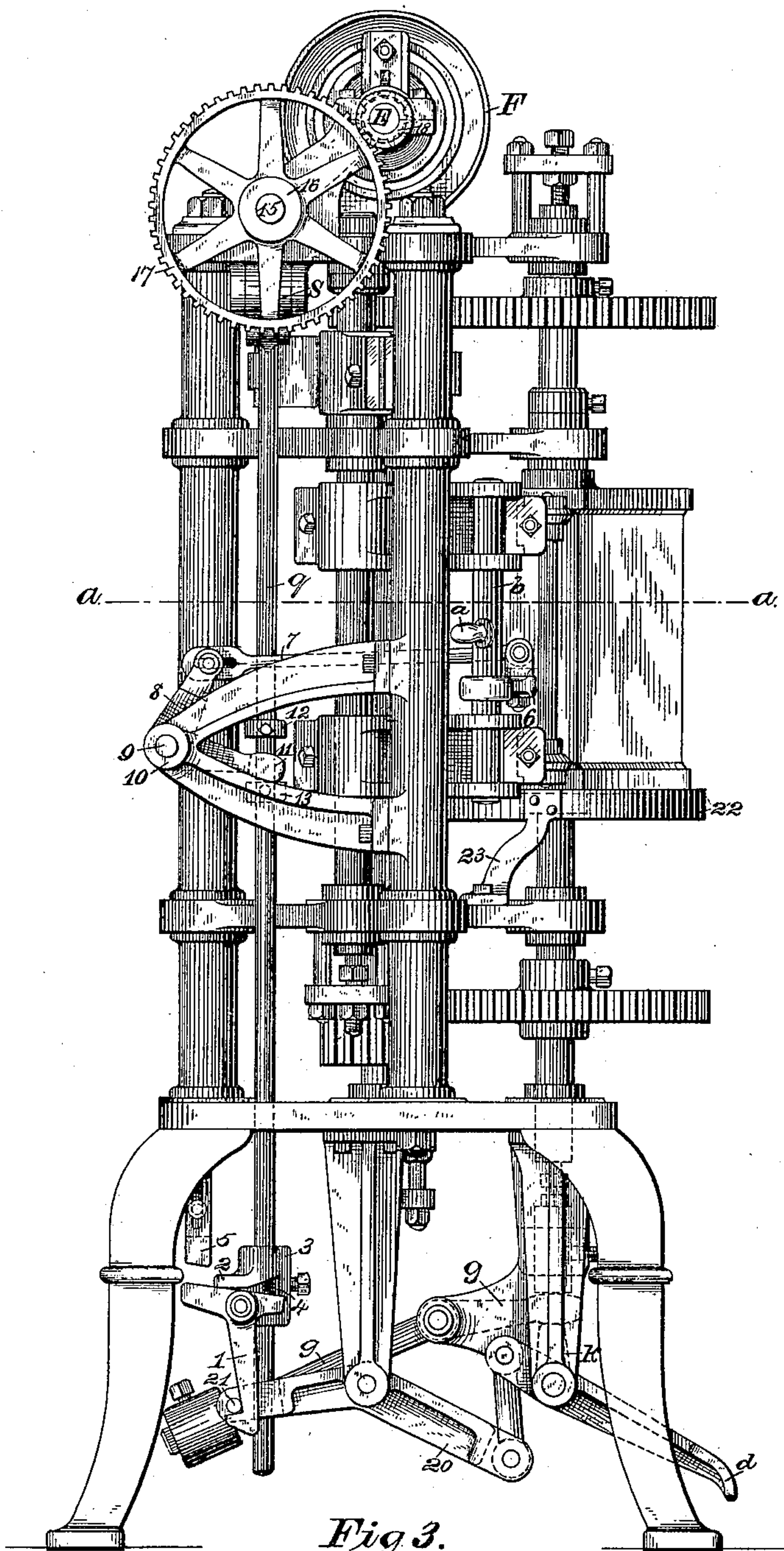


Fig. 3.

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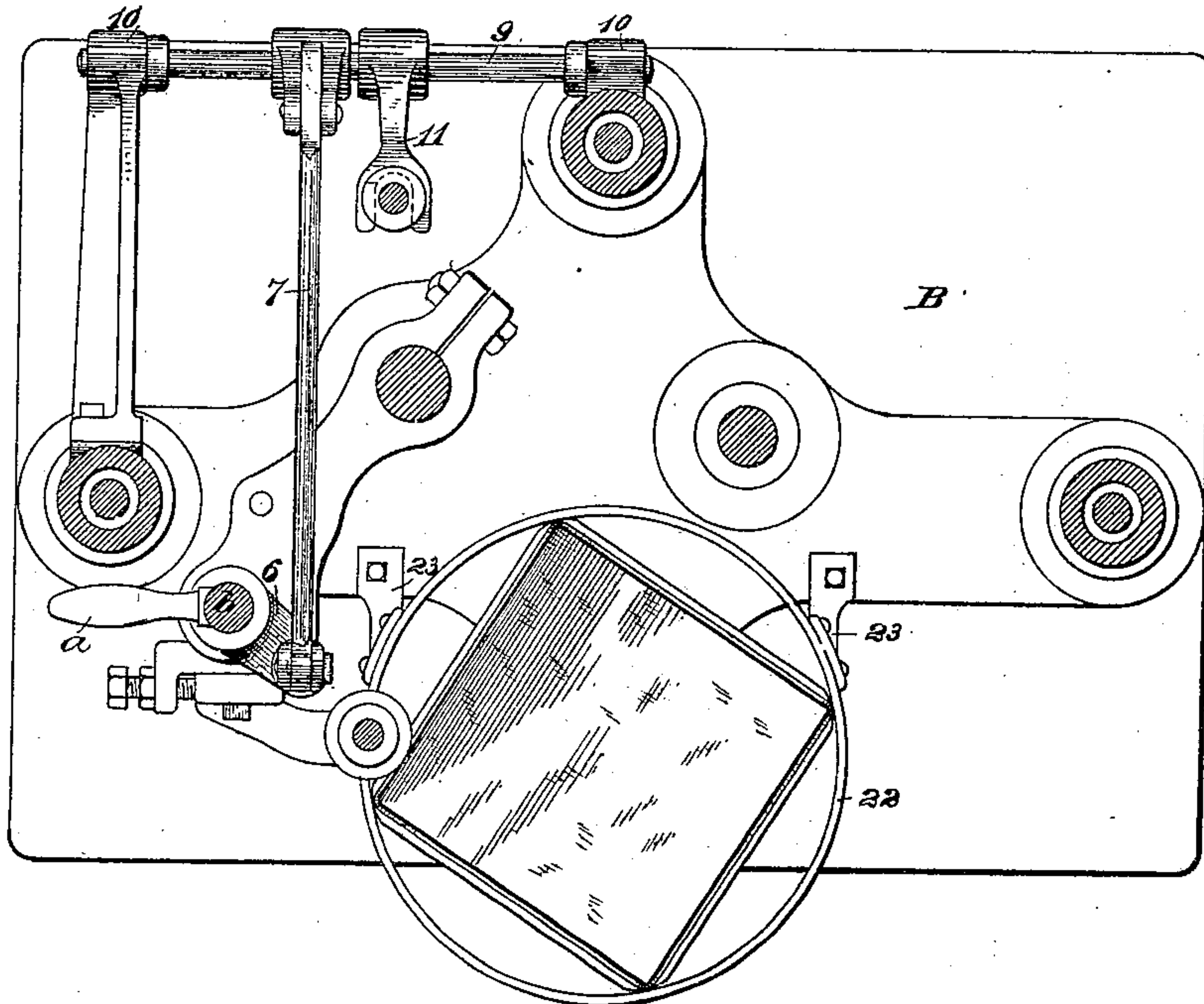


Fig. 4.

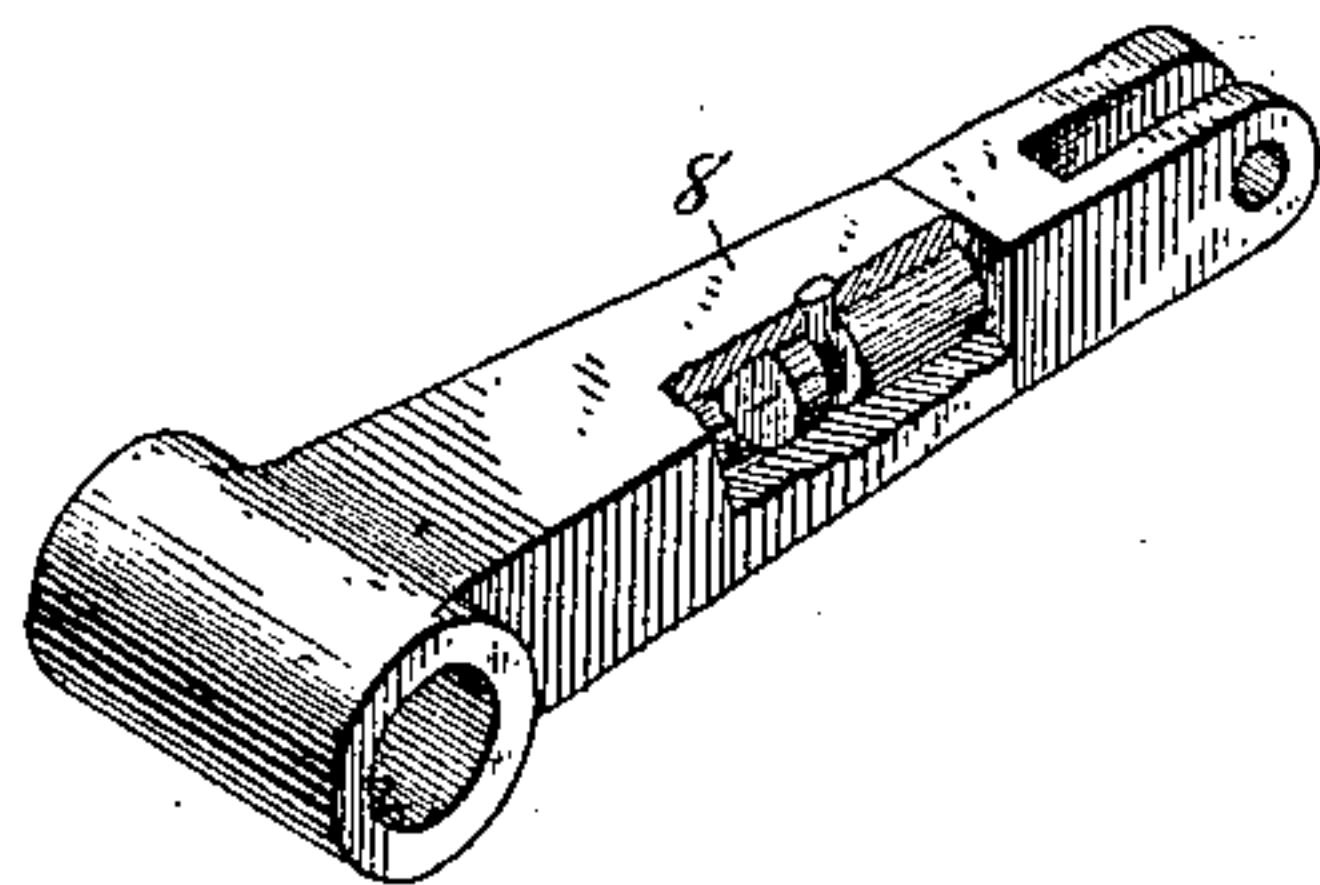


Fig. 5.

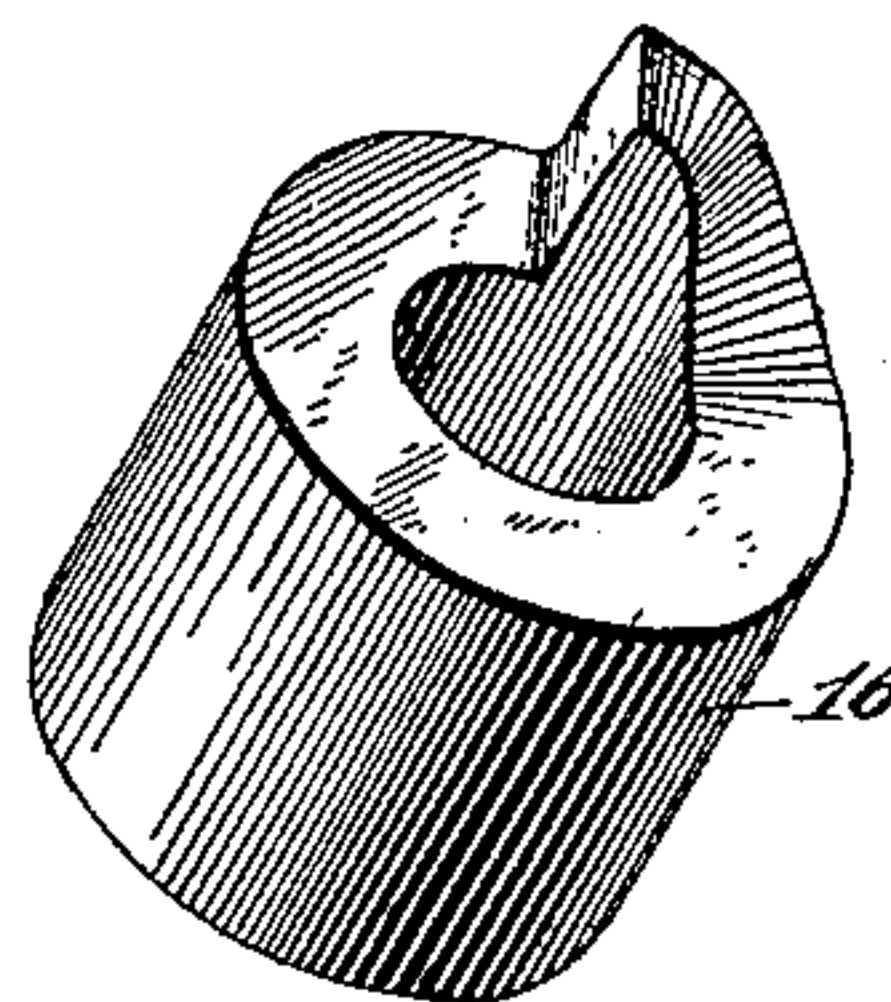


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE H. PERKINS, OF PHILADELPHIA, PENNSYLVANIA.

ROTARY MACHINE FOR CLOSING THE SEAMS OF SHEET-METAL CANS.

SPECIFICATION forming part of Letters Patent No. 245,392, dated August 9, 1881.

Application filed February 17 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PERKINS, of Philadelphia, Pennsylvania, have invented an Improvement in Rotary Machines for Closing the Seams of Sheet-Metal Cans, of which the following is a specification.

This improvement relates, in general, to the class of mechanisms employed to secure the heads upon the bodies of sheet-metal cans, in which seaming-rollers are caused to bear against the seams to be closed while the can is rotated against them.

It relates specifically, and in the present case is applied, to a machine invented by Edmund Jordan, of Brooklyn, New York, and patented to him in and by Letters Patent No. 236,499, dated January 11, 1881, the said machine being designed for the closing of the head-seams of rectangular, square, hexagonal, or other sheet-metal cans not being circular or oval, and embodying in its organization the following instrumentalities in combination—namely: first, a pair of head-plates conformed to the shape of the head of the can to be closed and adapted by suitable means together to retain and rotate the can; second, seaming-rolls; and, third, mechanism whereby the seaming-rolls are retained against the seams of the heads and in close conjunction therewith throughout the entire length of the seams, of whatever outline the seams may be.

My improvement consists in an attachment to the Jordan machine, hereinafter described, designed, first, to start the machine into action after the can has been clamped by means of the treadle; and, secondly, to effect the release or unclamping of the can after its seaming and the stoppage of the machine.

It further consists in a guard or gage applied, in combination with the lower head-plate, to secure the accurate placing of the can with regard to the head-plates.

For a thorough comprehension of the improvement reference is to be made to the Letters Patent to Jordan, above referred to, as the present improvement is applied to precisely such a machine as is represented and described therein, and as a redescription of the entire machine would be redundant in a specification describing my present improvements.

In the accompanying drawings, Figure 1 is

a front elevation of a Jordan heading-machine embodying my improvements, and representing the parts in the position which they occupy when the can is clamped in place. Fig. 2 is a side elevation of the same, the can being removed from the machine and the parts being in the position which they occupy when the head-plates are apart and in readiness for the placing of the can between them. Fig. 3 is a similar view of the same, with a can clamped in place and all the parts in the positions which they then occupy. Fig. 4 is a sectional top-plan view on the line *a a* of Figs. 1 and 3. Fig. 5 is a perspective detail, partially broken to show construction, of the swiveled crank, operated by the connecting-rod. Fig. 6 is a perspective detail of the ratchet-release, by the operation of which stoppage of the machine and the unclamping of the can are effected.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings, *q* is a clutch-operating rod, a vertical rod connected at its upper extremity with the horizontal arm of the clutch-operating crank *S*, whose pivot is in the upper frame-work, and passing downward through the base-plate *B* of the frame-work. It is provided at or near its lower extremity with a treadle-trip, 1, pivoted thereto in the manner shown—that is to say, beneath a laterally-extended ledge, 2, formed upon an adjustable collar, 3, set upon the rod.

A spiral, 4, between a shoulder on the trip and the ledge on the collar, operates to retain the trip in the position indicated in Fig. 3, except when a vertically-adjustable stop-bar, 5, encounters a right-angular projection or head of the trip and causes the compression of the spiral and the deflection of the trip into the position represented in Fig. 2, the action being consequent upon the upward movement of the clutch-operating rod.

b is the eccentric-shaft of the Jordan machine, operated by means of a lever-handle, *a*, the action of which shaft, as described in the Jordan patent, is to tighten in the seaming-rolls against the seams of the can to be closed. In the position of parts represented in Fig. 2—that is to say, when the head-plates are apart and the can not in place—the position of this handle *a* is to the front of the machine, as shown

in Fig. 2. When a can has been placed between the head-plates and clamped by the action of the clamping-treadle *d* the machine with my improvement applied is set into action by throwing back this handle *a* in the manner hereinafter described.

Affixed to the eccentric-shaft *b* is an arm, 6, Fig. 4, extending in an opposite direction from the handle, and carrying by means of a swivel-connection the forward extremity of a connecting-rod, 7, horizontally placed in the machine, extending backwardly and connecting with a swivel-crank, 8, erected upon a horizontal rock-shaft, 9. This horizontal rock-shaft 9 is supported in the bearings 10, and carries, in addition to the swivel-crank 8, the bifurcated crank 11, which embraces the clutch-operating rod, and operates the same by means of collars 12 13 thereupon.

It is obvious that a movement of the lever-handle *a* backwardly will be attended with the drawing forward of the connecting-rod, and thereby, through the medium of the rock-shaft 9 and bifurcated crank 11, with the throwing down of the clutch-operating rod *q*. It will also be attended with the throwing down of the lower arm of the clutch-operating crank *S* and the deflection to the right hand of the vertical arm thereof, so as to move the clutch *G* against the driving-pulley *F*, thereby start in action the driving-shaft *E*, and thereby the machine. The upper arm of the clutch-operating crank *S* is simply borne against the lower slide-connection, 14, of the clutch, so as to force it by contact into bite.

The lower slide-connection, 14, of the clutch is affixed to a shifter-rod, 15, suitably journaled in slide-bearings in the head of the machine. The left-hand extremity of this shifter-rod is provided with a ratchet-release, 16, (shown in detail in Fig. 6,) rigidly affixed thereto. When the shifter-rod is thrown to the right hand through the action of the clutch-operating rod, as described, the ratchet-release 16 is also thrown to the right hand and brought against the outer face of a spur-wheel, 17, which runs loosely upon the shifter-rod. This spur-wheel is engaged with a pinion, 18, upon the driving-shaft *E*, and their relative proportions are such that the pinion 18 makes five revolutions to one of the spur-wheel 17. The spur-wheel is provided with a ratchet-release tooth, 19, affixed to the exterior face thereof, which, upon every fifth revolution of the spur-wheel 17, causes the lifting or endwise retreat of the ratchet-release 16 and the consequent shifting of the shifter-rod back again to the left hand, and thereby also causes the release of the clutch, the deflection of the clutch-operating crank *S*, the raising of the clutch-operating rod *q*, and the return of the handle *a* to its front or first position. In the last-named position the parts remain until a further movement of the lever-handle *a* causes the shifting of the shifter-rod 15 once more to the right and the consequent placing of the ratchet-re-

lease in the path of the ratchet-release tooth. When the clamping-treadle *d* is depressed and the parts brought from the position which they occupy in Fig. 2 into that represented in Fig. 3 a treadle-lever, 20, pivoted in the base of the frame-work, has its rear extremity thrown down into the position shown in Fig. 3. In this position it remains until after the action of the lever-handle *a* in the starting of the machine has thrown down the clutch-operating rod, and until such downward movement of the rod has caused the treadle-trip 1 to catch over a pin, 21, upon said backward extremity of the treadle-lever 20. Upon the next upward movement of the clutch-operating rod by the action of the ratchet-release the trip 1 tilts the lever 20 and throws up the clamping-treadle *d* into the position shown in Fig. 2 or in position for use again in clamping of the can. By the throwing up of the treadle the lower head-plate is also caused to descend, so as to unclamp the can, such descent being due to a deflection of the toe *k* from beneath the balance-lever *g* of the Jordan machine. Upon said ascent of the clutch-operating rod the stop 5 deflects away the treadle-trip 1 from engagement with the pin 21, and thereby sets free the treadle-lever 20 and permits the next action of the clamping-treadle to take place without the restraint of the trip.

Such being the construction of my improved attachment, it is obvious that the operation of the machine as to the clamping of the can through the medium of the clamping-treadle *d* is wholly the same as that of the Jordan machine, but that the action of rotating the eccentric by the lever-handle *a* is coupled with the elevation of the clutch-operating rod and the consequent throwing into action of the clutch, whereby the machine is started; while it is further obvious that the revolution of the driving-shaft *E* through the action of the pinion 18, spur-wheel 17, ratchet-release tooth 19, and ratchet-release clutch 16 causes the release at the proper time of the clutch and the elevation of the clutch-operating rod, so as to throw the eccentric-shaft out of its tightening-set, throw back the handle *a* to its front position, and replace the clamping-treadle in position for the clamping of the second can.

22 is a guard or gage, supported upon brackets 23 and surrounding the lower head-plate. Its form is well shown in the plan in Fig. 4, it being a circular ring of the exact size of a circle projected around the corners of the can to be closed, and adapted to embrace the same. It is a gage to secure an exact adjustment of the can between the head-plates as the can is introduced into the machine. It is also a safety device which prevents the possibility of the rotating corners of the can from catching into the clothing of the operator.

Having thus described my invention, I claim—

1. In a machine for closing the seams which secure the heads to the bodies of rectangular,

square, hexagonal, or other sheet-metal cans not circular or oval, the following instrumentalities, in combination: first, a pair of head-plates formed to the shape of the heads of the cans to be closed, and adapted by suitable means together to retain and rotate the can; second, seaming-rolls; third, mechanism whereby the seaming-rolls are set and retained against the seams of the heads and in close conjunction therewith throughout the entire length of the seams; and, fourth, mechanism whereby, first, the machine is set in action, and whereby, secondly, the machine is stopped, one head-plate moved away from the other to unclamp the can and the tightening-eccentric which sets the seaming-rolls unset.

2. In a machine of the class above recited, the combination of seaming-rolls suitably mounted, an eccentric-shaft adapted to set the seaming-rolls against the seams of the can to be closed, a clutch-operating rod, a clutch, and means for connecting the clutch-operating rod and the eccentric-shaft, whereby, when the seaming-rolls are set, the clutch is thrown into action.

3. In a machine of the class above recited, the combination of seaming-rolls suitably mounted, an eccentric-shaft adapted to set the seaming-rolls against the seams of the can to be closed, the connecting-rod, the clutch-operating rod, the shifter-rod, the clutch-operating crank, the ratchet-release, and the ratchet-release tooth, the arrangement being such that upon the lift of the ratchet-release the clutch-operating rod is elevated and the eccentric-shaft revolved, as and for the purposes set forth.

4. In a machine of the class above recited, in combination with the shifter-rod provided with a ratchet-release and the slide-connection of the clutch, the spur-wheel provided with a ratchet-release tooth and gearing with the pinion upon the driving-shaft, whereby, upon any predetermined number of revolutions of the driving-shaft, the shifter-rod is moved so as to set free the clutch.

5. In a machine of the class above recited, the combination of the clutch-operating rod, the treadle-trip, the treadle-lever, the clamping treadle, and means for elevating the clutch-operating rod, as and for the purposes set forth.

6. In a machine of the class above recited, in combination with an angular corner rotatable head-plate, a fixed circular ring surrounding the corners of the head-plate, but independent thereof, which constitutes both a gage and a guard for the can, substantially as shown and described.

7. In a machine of the class above recited, the combination of the ratchet-release, shifter-rod, clutch-operating crank, clutch-operating rod, treadle-trip, treadle-lever, treadle, and means for actuating the ratchet-release, whereby, upon the endwise actuation of the ratchet-release through the medium of the above-named combined instrumentalities, the treadle is set for action, substantially as set forth.

In testimony whereof I have hereunto signed my name this 15th day of February, 1881.

GEORGE H. PERKINS.

In presence of—

J. BONSALE TAYLOR,
WILLIAM H. HALL.