No. 637,761. Patented Nov. 28, 1899.

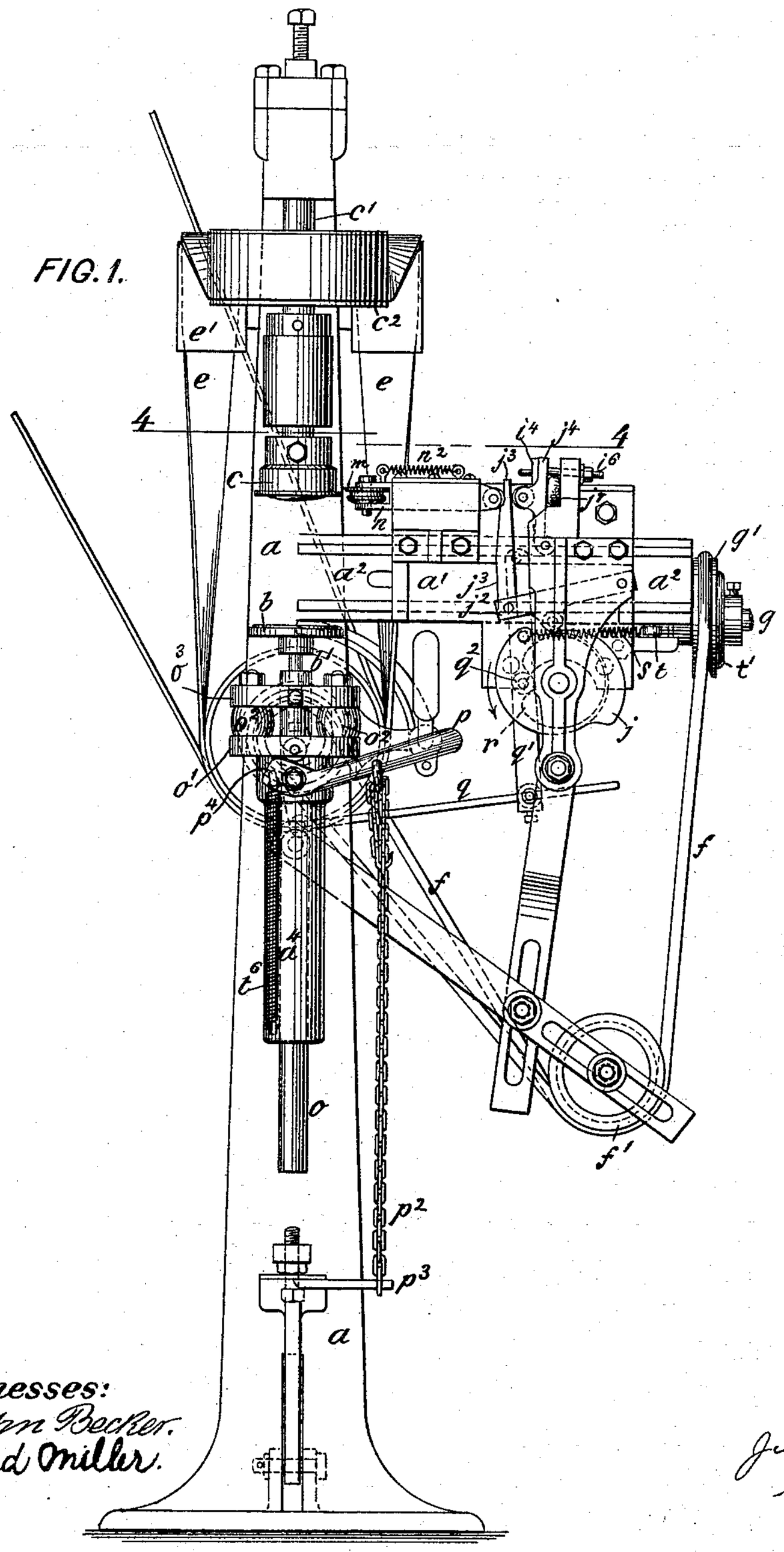
J. BRENZINGER.

CAN HEADING MACHINE.

(Application filed Aug. 28, 1899.)

(No Model.) 4 Sheets—Sheet 1.

FIG. 1.



Witnesses:
John Becker.
Fred Miller.

Inventor:
Julius Brenzinger
by his attorneys
Roeder & Briesen

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FIG. 2.

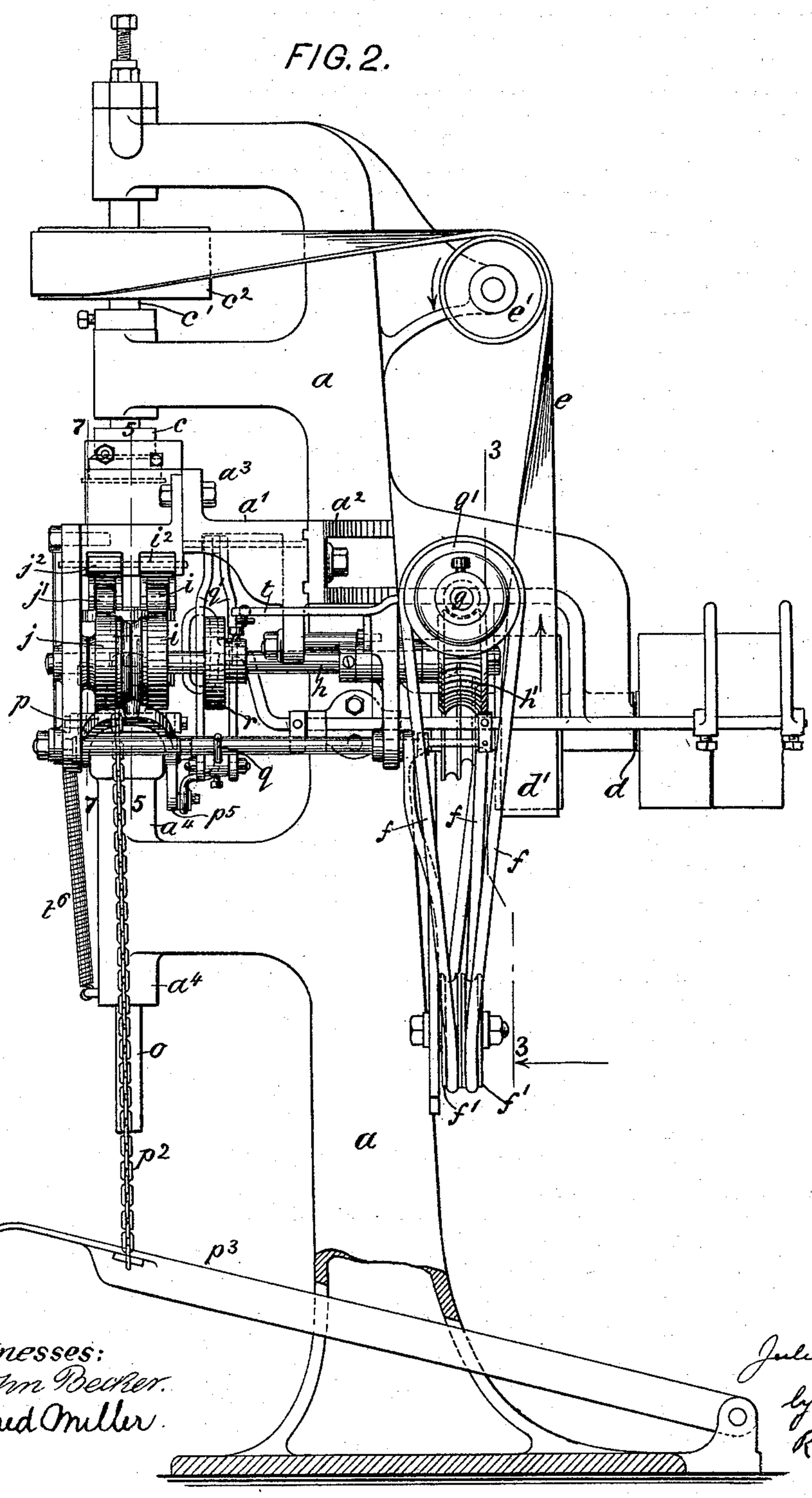

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FIG. 3.

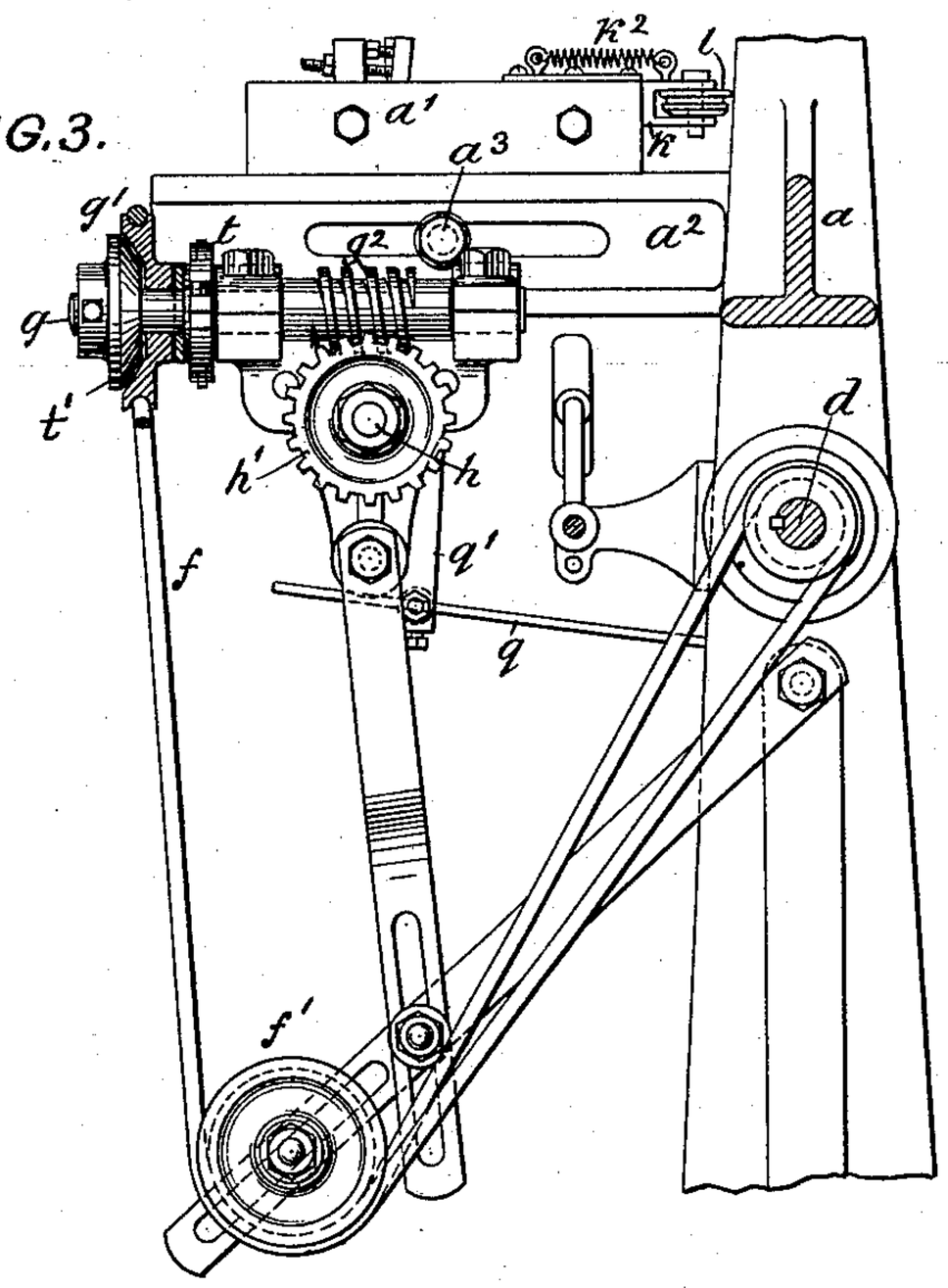
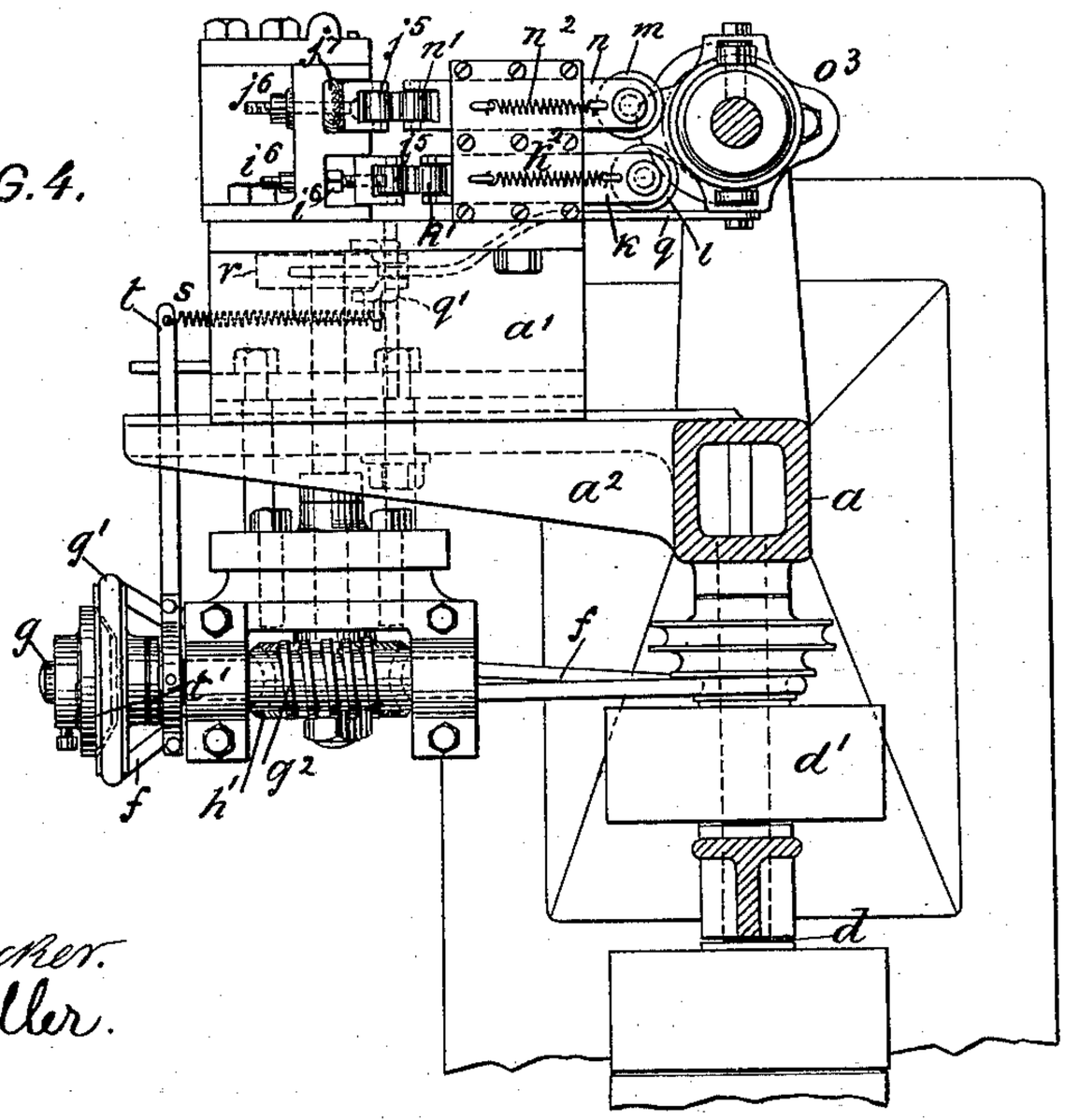


FIG. 4.



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(No Model.) 4 Sheets—Sheet 4.

FIG. 5.

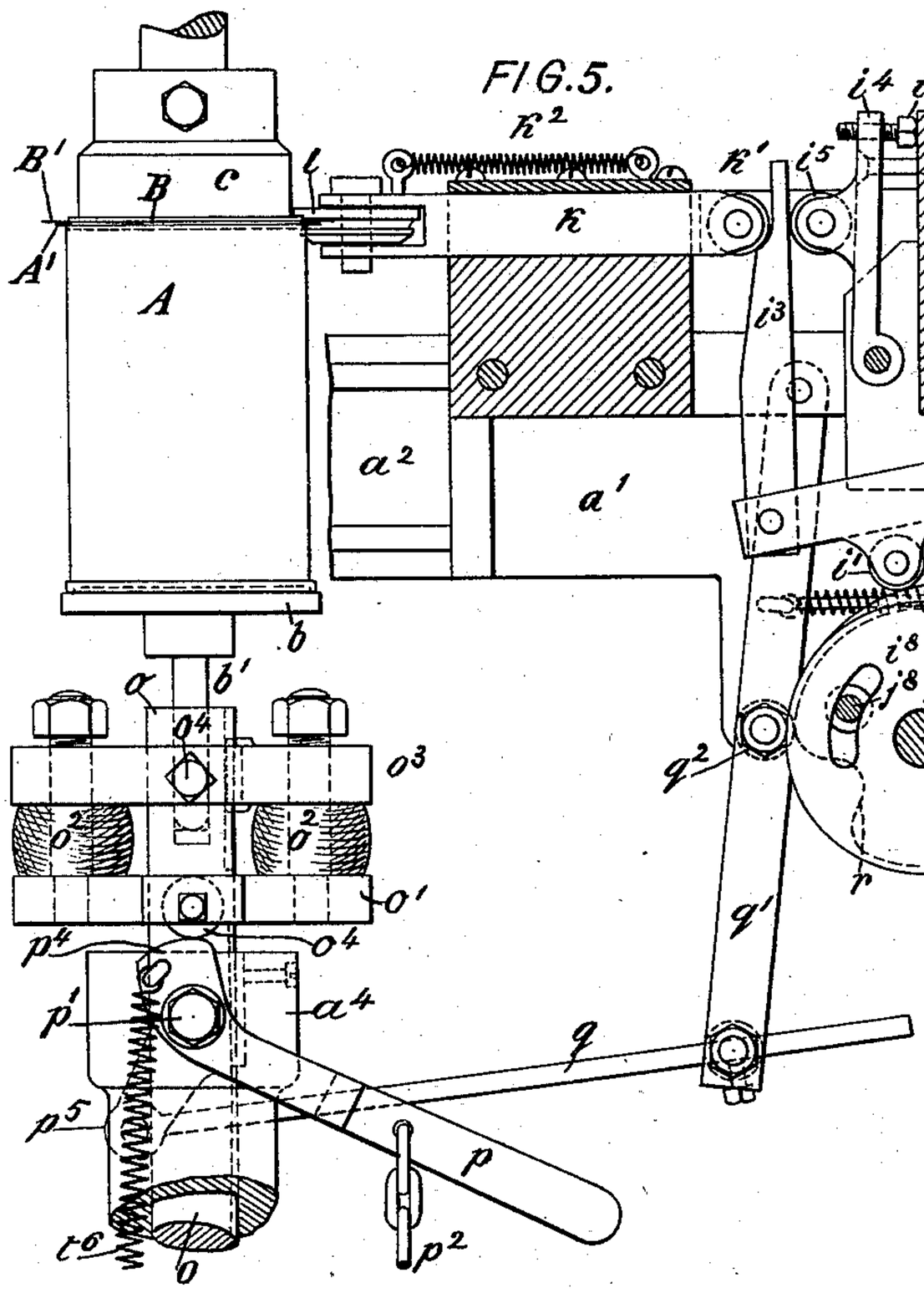

FIG. 6.

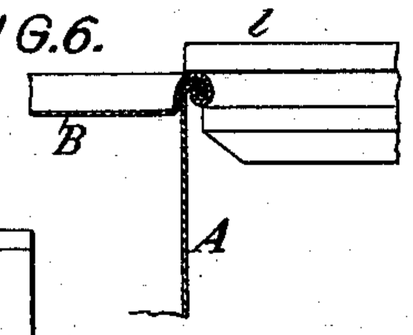

FIG. 8.

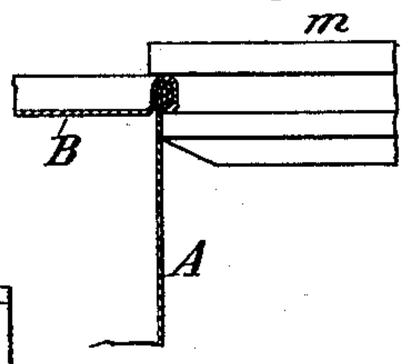

FIG. 7.

Witnesses:
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Fred Miller

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UNITED STATES PATENT OFFICE.

JULIUS BRENZINGER, OF NEW YORK, N. Y., ASSIGNOR TO MAX AMS, OF SAME PLACE.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 637,761, dated November 28, 1899.

Application filed August 28, 1899. Serial No. 728,687. (No model.)

To all whom it may concern:

Be it known that I, JULIUS BRENZINGER, a citizen of Germany, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Can-Heading Machines, of which the following is a specification.

This invention relates to an improved machine for securing can-heads to flanged can-bodies by a double lap-joint.

The machine produces a large output, forms a perfect air-tight joint, is readily adjustable, and does not require skilled attendance.

In the accompanying drawings, Figure 1 is a front elevation of the machine; Fig. 2, a side elevation thereof; Fig. 3, a vertical section on line 3 3, Fig. 2; Fig. 4, a horizontal section on line 4 4, Fig. 1; Fig. 5, an enlarged section on line 5 5, Fig. 2; Fig. 6, a detail of part of roller 1; Fig. 7, an enlarged section on line 7 7, Fig. 2; and Fig. 8, a detail of part of roller *m*.

The letter *a* represents the frame of the machine, and *b* is the rotatable platform on which the can-body to be headed is supported. Above this platform is arranged a chuck *c*, adapted to bear upon the can-head and to rapidly rotate body and head simultaneously while they are subjected to the action of the seaming-rollers.

Rotary motion is imparted to shaft *c'* of chuck *c* from pulley *d'* of power-shaft *d* by belt *e*, running over idlers *e'* and over pulley c^2 of shaft *c'*. The power-shaft *d* also drives by belt *f*, running over idler *f'*, a pulley *g'* loose on shaft *g*. This shaft is provided with a worm g^2, that engages a worm-wheel *h'*, fast on shaft *h*, and is adapted to intermittently drive said shaft in manner hereinafter specified. The shaft *h* carries two cams *i j*, that are adapted to project the seaming-rollers toward the work in the following manner: The first cam *i*, Fig. 5, is engaged by a roller *i'* of a lever i^2, to the forward end of which is pivoted an upwardly-projecting wedge i^3. This wedge when rising bears against the roller *k'* of a slide *k*, in the forked forward end of which the first seaming-roller *l* is pivoted. Thus the roller *l* engages the flanges A' B' of the can-body A and cover B, and its profile is so formed that it will bend them into a double lap-seam, Fig. 6. When the cam *i* allows lever i^2 and wedge i^3 to drop, the slide *k* will be drawn back by spring k^2. In order to permit a delicate adjustment of the roller *l* with relation to the work, I form back of wedge i^3 an adjustable abutment, consisting of a pivoted bar i^4, carrying antifriction-roller i^5 and adapted to be fixed at different inclinations by set-screws i^6. The cam *j*, Fig. 7, actuates the second seaming-roller *m* in a similar manner by roller *j'*, lever j^2, wedge j^3, roller *n'*, and slide *n*, in the forward end of which the roller *m* is pivoted. The profile of this roller is such that it will flatten or compress the seam doubled by roller *l*, Fig. 8, so as to form a flat air-tight joint. The abutment of wedge j^3 is formed by the pivoted bar j^4, carrying roller j^5 and bearing against an elastic cushion or spring j^7, the bar j^4 being adjustable by bolt and nut j^6. This elastic abutment permits the roller *m* to hug the contour of the can-body at the side seam and closely compress the lap-joint over such seam, so that imperfections in the joint and jamming are avoided.

The cam *i* is keyed to the shaft *h*, while the cam *j* is adjustably attached to cam *i* by means of set-screws j^8, engaging elongated slots i^8 of cam *i*. Thus the relative position of the cams can be readily adjusted to adjust the movement of the seaming-rollers in their relation to one another.

In order to permit the slides to be set to can-bodies of different diameters, the shaft *h* as well as the abutments and slides are supported by a carriage *a'*, movable upon bracket a^2 of frame *a* and held in position by set-screw a^3, Fig. 3. The support *b* of can A is provided with a spindle *b'*, stepped into the upper end of a sliding bar *o*, embraced by sleeve a^4 of frame *a*. The bar *o* is surrounded by a sliding collar *o'*, Fig. 5, that constitutes the support for a pair of springs o^2, over which is arranged a collar o^3, adapted to be adjustably clamped to bar *o* by set-screw o^4. After the can has been placed upon platform *b* the latter is raised, so that the can-head is

pressed tightly against chuck *c*. The raising of the platform is effected by means of a forked lever *p*, pivoted to sleeve a^4 at p' and engaging with its eccentric end p^4 a pair of rollers o^4 of collar *o'*. The lever *p* may, if desired, be connected by chain p^2 to a treadle p^3. When the lever *p* is swung down, the eccentric p^4, by bearing against rollers o^4, will lift rod *o* through collar *o'*, springs o^2, and collar o^3, and will thus press the can-head against the chuck *c*. The springs o^2 will form a yielding bed to compensate for slight differences in the height of the can-bodies. The connection between the can-support and the worm-shaft *g* is such that when the can-support is raised the shaft will be once rotated to rotate cam-shaft *h* and project the seaming-rollers *l m* successively against the work. After the cam-shaft has made a complete rotation and the slides have been drawn back by the springs k^2 n^2 the worm-shaft is arrested to arrest the seaming-rollers in their rearmost position, and the can-support is lowered ready to receive a fresh can-body. The construction for effecting these results is as follows: The lever *p* is provided with an arm p^5, connected by rod *q* to lever *q'*, carrying roller q^2, that is engaged by a third cam *r*, fast on shaft *h*. To lever *q'* is secured one end of a spring *s*, containing a core-rod *s'* and secured at its other end to a lever *t*, actuating clutch *t'*, by means of which the loose pulley *g'* can be coupled to its shaft *g*. When the lever *p* is depressed to raise the can-support, the lever *q'* will be so vibrated that the draw on spring *s* will shift lever *t* to couple pulley *g'* to shaft *g*, and thus advance the rollers *l m* successively against the work. Meanwhile the roller q^2 will engage cam *r*, and when the shaft *h* has made a complete turn the roller will be forced into the receding section of the cam-surface by a spring t^6, secured to lever *p*. This will cause lever *q'* to be so vibrated that the core-rod *s'* will push against the clutch-lever *t* to shift clutch *t'*, release pulley *g'* from shaft *g*, and arrest shafts *g h*.

The operation is as follows: The flanged can-body A, with the head B superposed, is placed upon the platform *b*, and the latter is raised so that the head is pressed firmly against clutch *c*, by means of which head, body, and platform are rapidly rotated. The raising of platform *b* has coupled the shaft *g* to the power, and thus the cams *i j* are rotated to raise the wedges i^3 j^3 and advance the rollers *l m* successively against the work, so as to first fold and then compress the seam. After the shaft *h* has made a complete turn the engagement of concave part of cam *r* with roller q^2 will cause the clutch *t'* to be shifted so as to uncouple pulley *g'* and arrest shafts *g h*. At the same time the lever *p* will be so vibrated as to lower its end p^4 and permit the platform-support to drop and disengage the can-head from the clutch *c*. The can which is now finished is removed and replaced by a new one, when the operation is repeated. The machine works with great accuracy and smoothness, is easily tended, and produces a very large output.

What I claim is—

1. In a can-heading machine, a seaming-roller, a slide carrying the same, a cam, and a wedge adapted to be actuated by the cam and engage the slide, substantially as specified.

2. In a can-heading machine, a seaming-roller, a slide carrying the same, a lever, a cam engaging the same, and a wedge pivoted to the lever and adapted to engage the slide, substantially as specified.

3. In a can-heading machine, a seaming-roller, a slide carrying the same, means for actuating said slide, and a yielding buffer, engaging the slide-actuating means, substantially as specified.

4. In a can-heading machine, a seaming-roller, a slide carrying the same, a wedge adapted to engage the slide, a cam for actuating the wedge, and a yielding buffer engaging the wedge, substantially as specified.

5. In a can-heading machine, a pair of seaming-rollers, a pair of slides carrying the same, a pair of cams, a pair of levers successively operated by the cams, and wedges pivoted to the levers and adapted to engage the slides, substantially as specified.

6. In a can-heading machine a roller adapted to fold the seam, a roller adapted to compress the seam, a pair of cams, and wedges actuated by said cams and adapted to successively advance said rollers, substantially as specified.

7. In a can-heading machine, a rotatable platform, a movable bearing for supporting said platform, a pair of seaming-rollers, and means for advancing the rollers against the work by the raising of the bearing, substantially as specified.

8. In a can-heading machine, a rotatable platform, a movable bearing for supporting said platform, a pair of seaming-rollers, means for advancing the rollers against the work by the raising of the bearing, and means for automatically lowering the bearing, substantially as specified.

9. In a can-heading machine, a rotatable platform, a movable bearing for supporting the same, a worm-shaft, a loose pulley mounted thereon, a clutch operated by the bearing and adapted to couple the pulley to its shaft, a cam-shaft intergeared with the worm-shaft, slides actuated by the cam-shaft, and seaming-rollers carried by the slides, substantially as specified.

10. In a can-heading machine, the combination of the following elements: a driving-shaft, a worm-shaft, a cam-shaft intergeared therewith, a pair of cams mounted on the cam-

shaft, slides actuated by the cams, seaming-rollers carried by the slides, a rotatable platform, an adjustable platform-support, means actuated by the platform-support for coupling the driving-shaft to the worm-shaft, and means for automatically lowering the platform-support, substantially as specified.

Signed by me at New York city, New York, this 21st day of August, 1899.

JULIUS BRENZINGER.

Witnesses:
F. v. BRIESEN,
FRED MILLER.