

(No Model.)

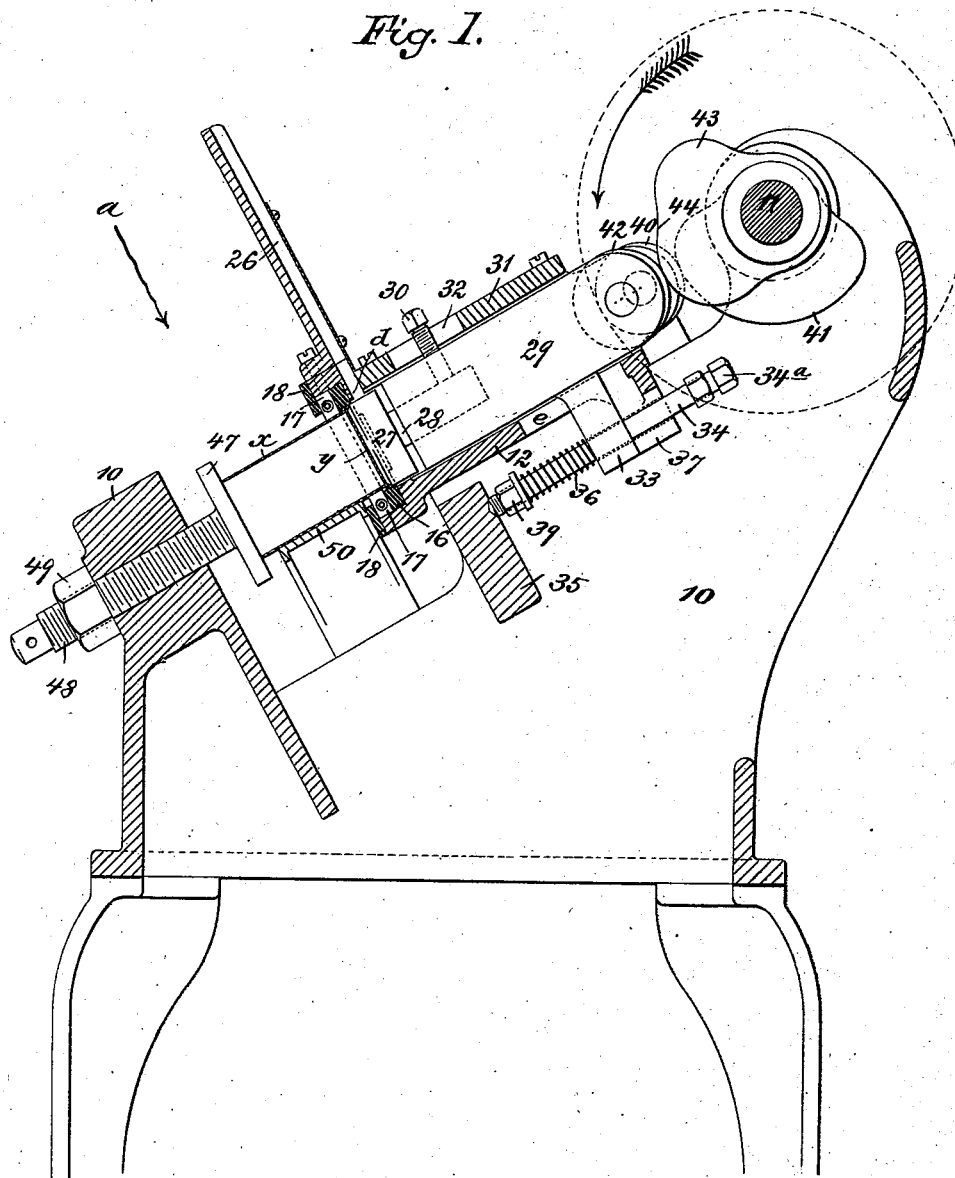
3 Sheets—Sheet 1.

F. M. LEAVITT.
CAN HEADING MACHINE.

No. 382,538.

Patented May 8, 1888.

Fig. 1.



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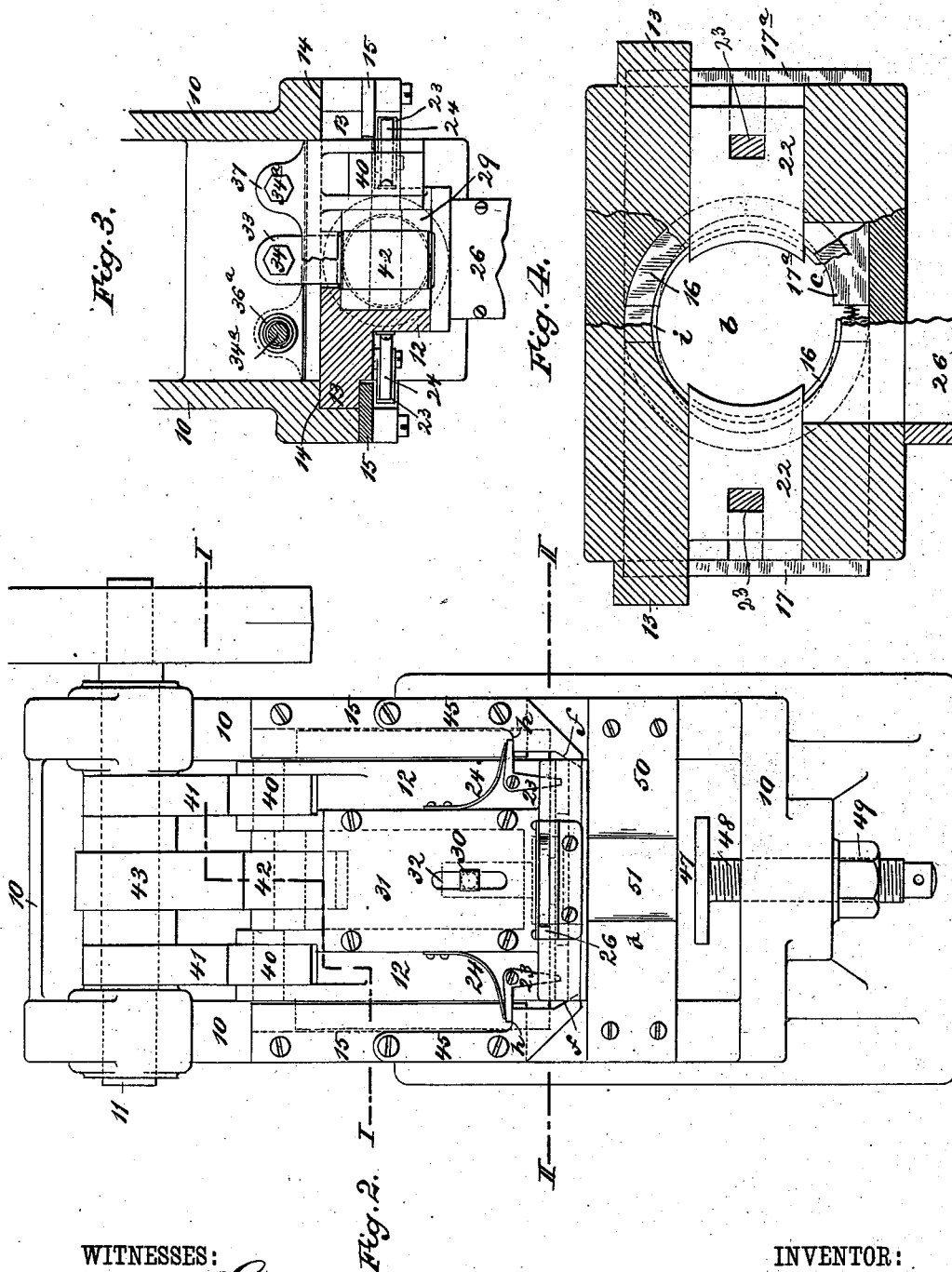
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CAN HEADING MACHINE.

No. 382,538.

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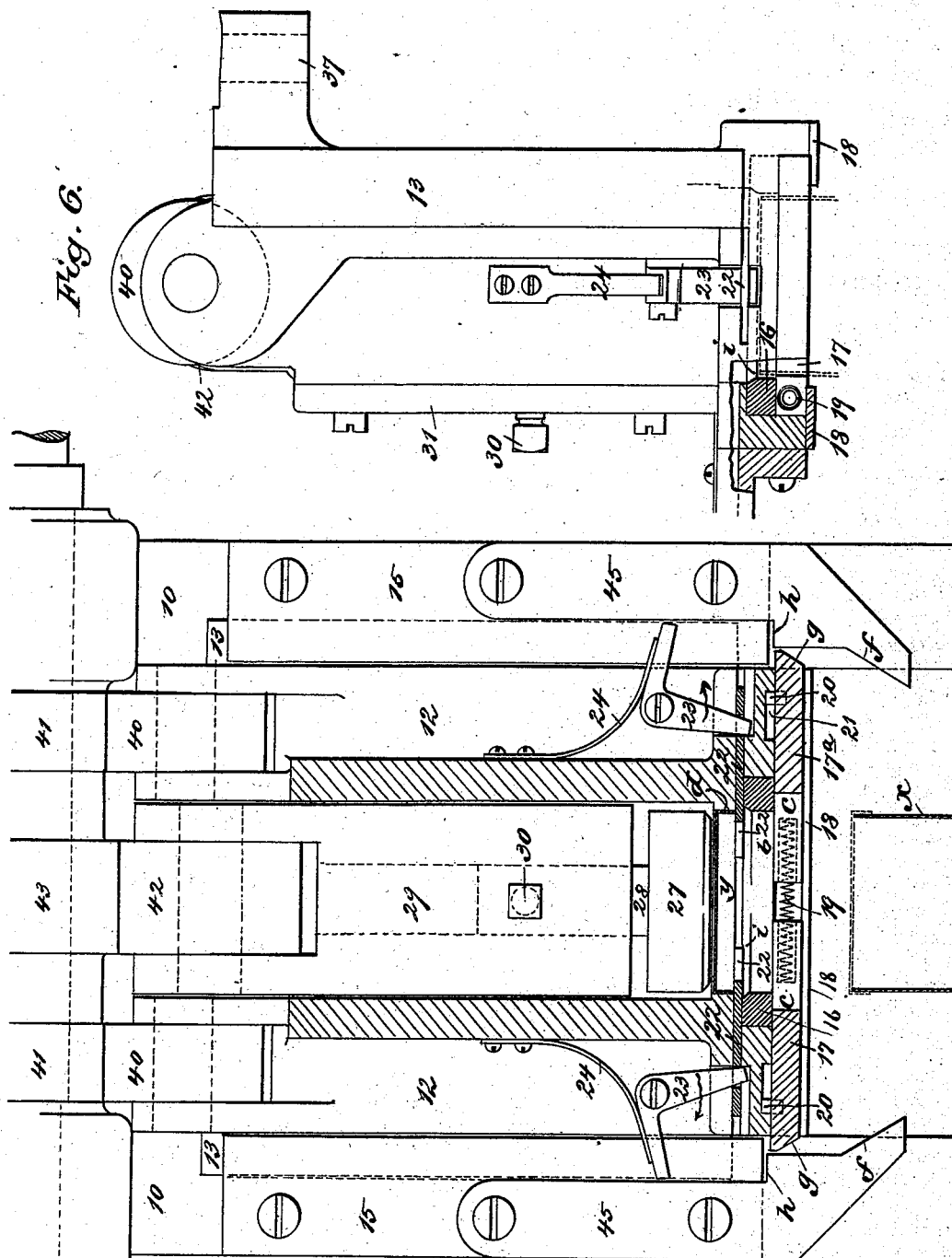
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F. M. LEAVITT.
CAN HEADING MACHINE.

No. 382,538.

Patented May 8, 1888.



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UNITED STATES PATENT OFFICE.

FRANK M. LEAVITT, OF BROOKLYN, NEW YORK, ASSIGNOR TO EDWIN NORTON AND OLIVER W. NORTON, OF CHICAGO, ILLINOIS.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,538, dated May 8, 1888.

Application filed August 25, 1887. Serial No. 247,873. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. LEAVITT, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Can-Heading Machine, of which the following is a full, clear, and exact description.

This invention relates to can-heading machines, the object of the invention being to provide a machine which shall be of simple construction, but one which shall be easily manipulated and reliable in the operation of centering the can-body to receive its head.

To these ends the invention consists in the construction, arrangement, and combination of parts, hereinafter described, and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central sectional elevation of my improved form of can-heading machine, the parts being represented as they appear just after the can-head has been forced upon the body. Fig. 2 is a view of the upper side of the machine, the view being taken from a point as indicated by the arrow *a* in Fig. 1. Fig. 3 is a cross-sectional view taken on the broken line I I of Fig. 2. Fig. 4 is a cross-sectional view taken on line II II of Fig. 2, the frame, however, not being shown. Fig. 5 is an enlarged view of a portion of the machine, the follower and its connections being shown in section; and Fig. 6 is a side view of the follower, a section of the lower portion thereof being broken away to disclose the construction and arrangement of the parts.

In the drawings above referred to, 10 represents the main frame of the machine, and upon this frame the fixed and movable portions of the machine are mounted, preferably in the relative positions shown in the drawings, in which the main driving-shaft 11 is shown as being mounted at the upper end of the frame and above a follower, 12, that is provided with side ribs or flanges, 13, that rest in ways 14, formed in the frame 10, the ribs or flanges 13 being held in position by gibs 15, that are secured to the frame 10.

At the lower end of the follower 12, I mount

a ring, 16, that is formed with a central circular aperture, *b*, the diameter of said aperture being slightly greater than the exterior diameter of the flange of the head of the can that is to be operated upon; and below the ring 16, I mount two sliding jaws, 17 and 17^a, a portion of the approaching faces of said jaws being cut out to semicircular form, as shown at *c*, the radius of the curve of said faces being equal to that of the curve of the internal diameter of the flange of the can-head, so that when the jaws are forced together, as will be hereinafter explained, the can-body, which extends upward between said jaws, will be properly sized to receive the can head or cap. These jaws 17 and 17^a are held to the follower by gibs 18, that are secured to the under face of the follower, and the jaws are normally held apart by springs 19, that are housed in recesses formed in the approaching faces of the jaws at either side of the central semicircular recesses, the throw of the springs 19 being limited, however, by stops 20, which extend upward from the jaws 17 and 17^a and ride in slots 21, that are formed in the under face of the follower.

Above the ring 16, I mount two sliding plates, 22, that are engaged by the lower arms of bell-crank levers 23, said levers being studded to the follower 12 in position to be borne upon by springs 24, which normally act to throw the plates 22 to the position in which they are shown in Fig. 5—that is, to a position so that the approaching ends of the plates will pass beneath an opening, *d*, that is formed near the lower end of the follower, said opening being in communication with a chute, 26, which extends upward from the upper face of the follower.

Within the follower 12, I mount a plunger, 27, and a head-block, 29, the plunger being provided with a shank, 28, which enters a recess formed in the head-block 29, within which recess the plunger is held by a set-screw, 30, which is threaded to engage a threaded aperture formed in the head-block and bears against the plunger-shank, the plunger and its head-block being held within the follower by a plate, 31, which is bolted to the follower, and in order that a motion independent of that

of the follower may be imparted to the plunger I form said plate with a slot, 32, through which the set-screw 30 extends.

The head-block 29 is made integral with or rigidly connected to a rearwardly-extending arm, 33, which passes through an opening, *e*, formed in the follower 12, and through this arm 33 there is passed a bolt, 34, that bears against a cross-bar, 35, of the frame 10, and about this bolt I coil a spring, 36, which normally acts to raise the head-block. The follower in turn is formed with rearwardly-extending arms 37, through which there are passed bolts 34^a, springs 36^a being coiled about said bolts. The tension of the springs 36 and 36^a is regulated by nuts 39, that are arranged as best shown in Fig. 1.

The follower 12 is provided with anti-friction rollers 40, that are borne upon by cams 41, carried by the shaft 11, and the head-block 29 is provided with a single anti-friction roller, 42, that is borne upon by a cam, 43, that is also fixed to the shaft 11, this cam 43 being formed with a central recess, 44, the purpose of which will be presently explained.

In order that the jaws 17 and 17^a may be forced together to properly size and clamp the can-body, I secure plates 45 to the frame 10, said plates being formed with inclined faces *f*, against which the inversely-inclined faces *g* of the jaws 17 and 17^a bear when the follower approaches its downward throw, and in order that the plates 22 may be withdrawn from beneath the opening *d*, I form the plates 45 with shoulders *h*, against which the outwardly-extending arms of the levers 23 are brought to bear just before the follower reaches its downward throw.

At the lower end of the frame 10, I mount an adjustable table, 47, which, in the construction illustrated in the drawings, is represented as being provided with a threaded shank, 48, which engages a threaded aperture formed in the frame 10, the table being locked to place by a jam-nut, 49, that is arranged as shown; but any other proper adjusting mechanism could be employed in connection with this table. Just above the table I arrange a bridge, 50, that is formed with a central concave recess, 51, to which recess the can-body is fed when the machine is in operation, this feeding of the can-bodies being brought about by hand or by any proper automatic attachment.

In operation a can-body, *x*, is placed in the recess 51 of the bridge 50, the lower end of this can-body resting against the table 47, which is adjusted so as to properly support the can-body against the thrust of the plunger. The can-body having been so placed, a can-head, *y*, is fed to the chute 26, passing thence into the recess or opening *d* of the follower 12. Then if the shaft 11 be turned in the direction of the arrow shown in Fig. 1, the cams 41 will first act to force down the follower 12, and as the follower so moves downward the inclined faces *g* of its jaws 17 and 17^a will be brought

to bear against the inclined faces *f* of the plates 45, so that the jaws 17 and 17^a will be brought to bear against the can-body, acting to center said can-body within the ring 16, the upper end of the can-body entering said ring 16 and extending upward almost to the plates 22, as indicated by dotted lines in Fig. 6. Just after the jaws have been brought together and the can-body has been centered the arms of the levers 23 will strike against the shoulders *h* and the levers will be moved in the direction of the arrows shown in connection therewith, thereby carrying the plates 22 clear of the opening *d* and permitting the can head or cap to drop downward toward the upper end of the can-body which is within the recess *b* of the ring 16, and in order that the can head or cap may be guided to the main portion of this recess *b*, I chamfer off the upper defining-wall of the recess, as shown at *i*. Immediately after the plates 22 have been withdrawn and the can head or cap has been dropped to the position last described the cam 43 will act through the medium of the intermediate connections to force the plunger 27 downward through the opening *d* and onto the cap *y*, a continued downward throw of the plunger forcing the cap upon the can-body, the flange of the cap entering the space between the can-body and the defining-walls of the recess *b*. After the can head or cap has been forced upon the body, a continued rotation of the shaft 11 will carry the cams 41 free of their rollers 40, thus permitting the follower to rise, and just at this time the roller 42 of the cam 43 will enter the cam-recess 44, thus easing the action of the cam; but as the cam continues to revolve it will act to force the plunger forward suddenly and free the can and its cap from engagement with the ring 16, the jaws 17 and 17^a being forced apart by the springs 19 as the follower is moved upward by the action of its springs 36^a.

By centering the can-body within a fixed ring such as the one shown at 16 in the construction above described I insure an accurate register of the can-body and its head at the time when the plunger descends to force the head upon the body, and I thereby not only facilitate the operation of heading the cans, but I secure a material saving of stock, in that it is impossible for the plunger to descend before the body and cap are in proper register.

This specification describes the preferred construction and arrangement of elements constituting my improvement. It should be understood, however, that it is intended to embrace all modifications and changes within the scope of the claims hereto appended.

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

1. In a can-heading machine, the combination, with a reciprocating guiding-ring, of clamping and sizing jaws held to slide beneath the ring, a means for feeding the can-heads

within the ring, and a means for forcing the can-heads to place, substantially as described.

2. In a can-heading machine, the combination, with a follower and a means for reciprocating the same, of a guiding-ring carried by the follower, sizing and clamping jaws held below the guiding-ring, a means for advancing the jaws, a plunger, and a means for reciprocating the same, substantially as described.

3. In a can-heading machine, the combination, with a follower and a means for reciprocating the same, of a guiding-ring held by the follower, clamping and sizing jaws mounted beneath the guiding-ring, fixed inclined bearing-faces arranged in connection with the clamping-jaws, a plunger, and a plunger-operating mechanism, substantially as described.

4. In a can-heading machine, the combination, with a follower and a means for reciprocating the same, of a chamfered guiding-ring held by the follower, clamping and sizing jaws mounted beneath the guiding-ring, fixed inclined bearing-faces arranged in connection with the clamping-jaws, a plunger, and a plunger-operating mechanism, substantially as described.

5. In a can-heading machine, the combination, with a follower, of a plunger mounted therein, a means for imparting an independent reciprocating motion to the plunger and the follower, a guiding-ring carried by the follower, supporting-plates mounted above the guiding-ring, a means for withdrawing the plates, clamping and sizing jaws mounted beneath the guiding-ring, and a means, substantially as described, for advancing said clamping and sizing jaws, as and for the purpose stated.

6. In a can-heading machine, the combination, with a follower, of a plunger mounted therein, a means, substantially as described, for reciprocating the plunger and the follower, a chute connected to the follower, supporting-

plates arranged beneath the chute, a means for withdrawing the plates, a guiding-ring supported by the follower beneath the supporting-plates, clamping and sizing jaws mounted to slide beneath the guiding-ring, and a means, substantially as described, for advancing the clamping and sizing jaws, as and for the purpose stated.

7. In a can-heading machine, the combination, with a follower and a means for reciprocating the same, of a guiding-ring held by the follower, clamping and sizing jaws mounted beneath the guiding-ring, fixed inclined bearing-faces arranged in connection with the clamping-jaws, supporting-plates mounted above the guiding-ring, and means for retracting said supporting-plates, a plunger, and a plunger-operating cam, the bearing-face of which cam is recessed, as and for the purpose stated.

8. In a can-heading machine, the combination, with a driving-shaft provided with cams 41 and 43, of a follower provided with anti-friction rollers 40, which are borne upon by the cams 41, a plunger and head-block mounted within the follower, a roller, 42, carried by the head-block and arranged to be borne upon by the cam 43, a chute, 26, leading to a recess, *d*, plates 22, arranged beneath the recess *d*, levers 23, that are studded to the follower 12, springs arranged in connection with said levers, a chamfered guiding-ring, 16, mounted beneath the plates 22, clamping-jaws 17 and 17^a, mounted to slide beneath the ring 16, springs 19, arranged in connection with the clamping-jaws, and plates 45, having shoulders *h* and inclined bearing-faces *f*, substantially as described.

FRANK M. LEAVITT.

Witnesses:

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L. H. GOULD.