

(No Model.)

3 Sheets—Sheet 1.

G. A. OHL.

MACHINE FOR MAKING METAL LATHING.

No. 475,700.

Patented May 24, 1892.

Fig. 2.

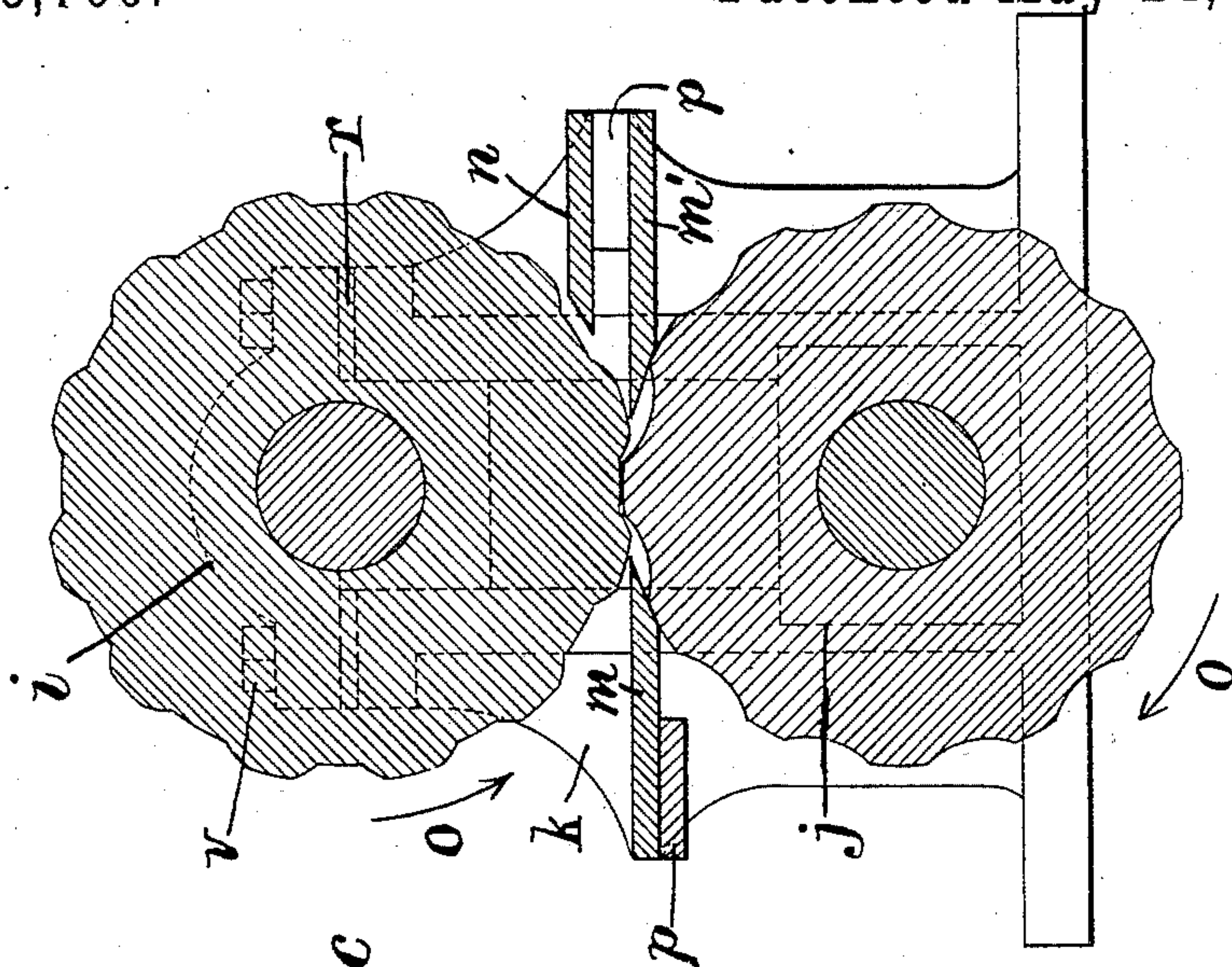
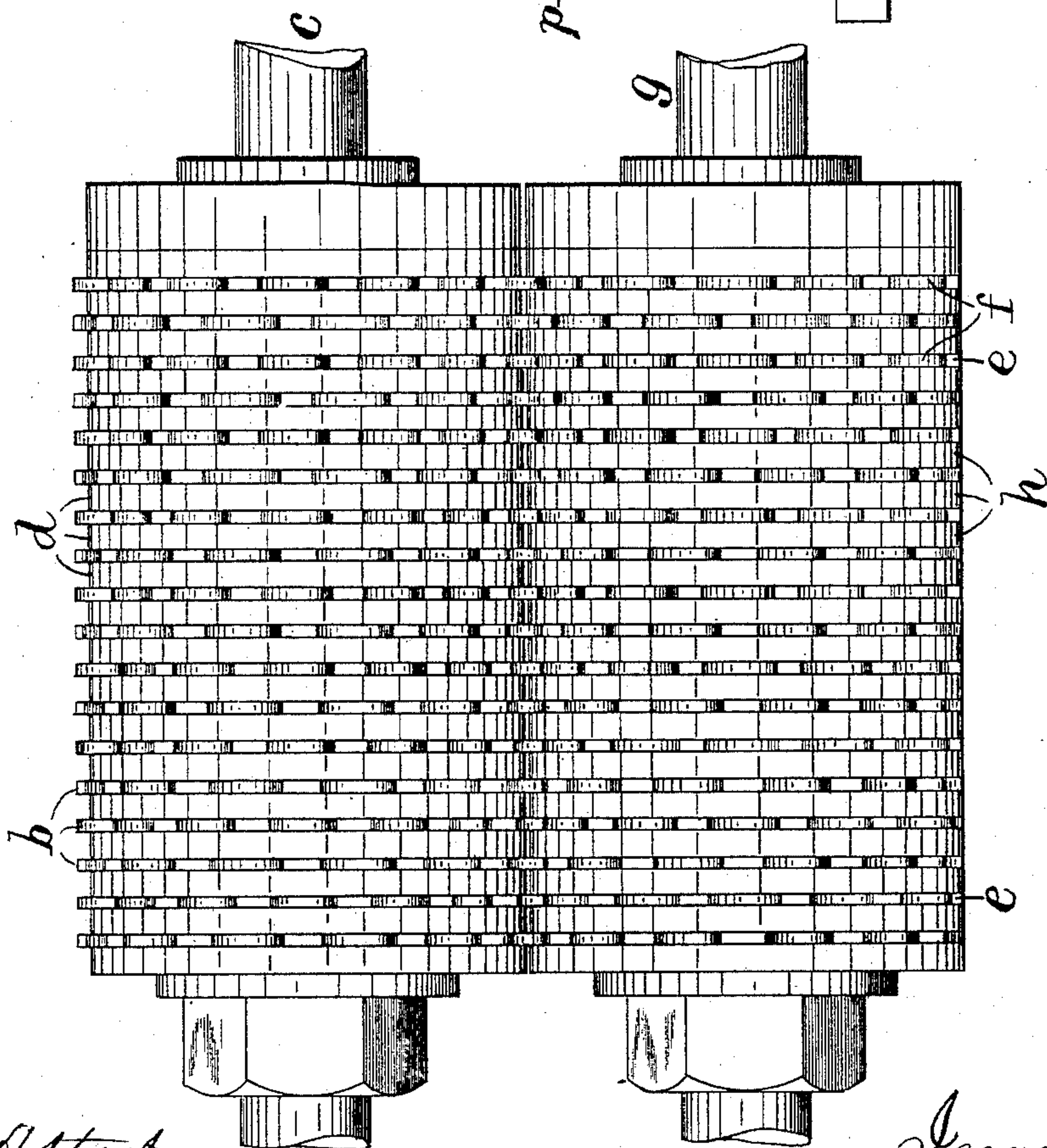


Fig. 1.



Attest:
Chas. Rhodes.
H. M. Latham.

Inventor
George A. Ohl per
Crane & Miller, Atty

(No Model.)

3 Sheets—Sheet 2.

G. A. OHL.

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Fig. 9.



Fig. 8.

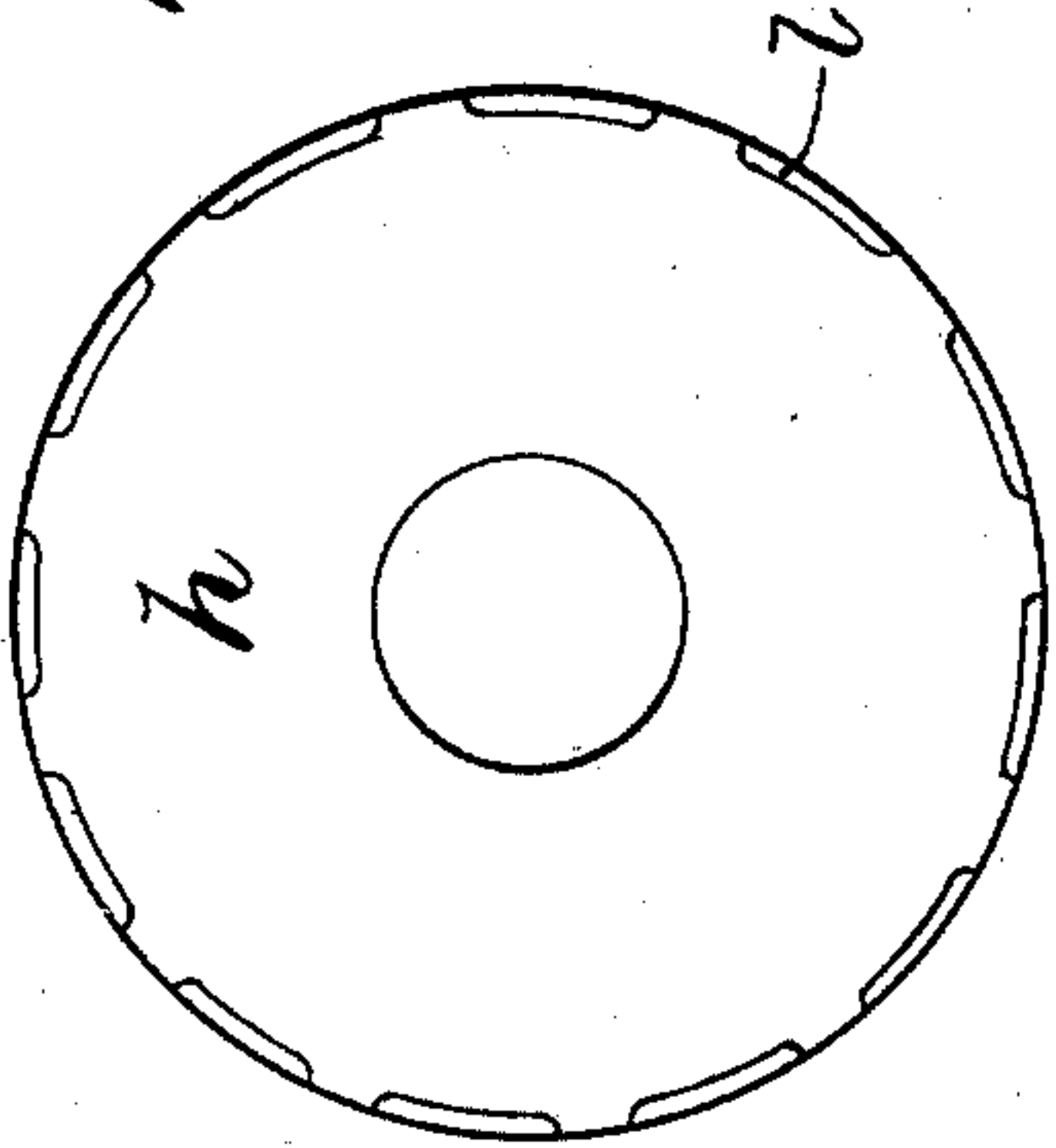


Fig. 7.

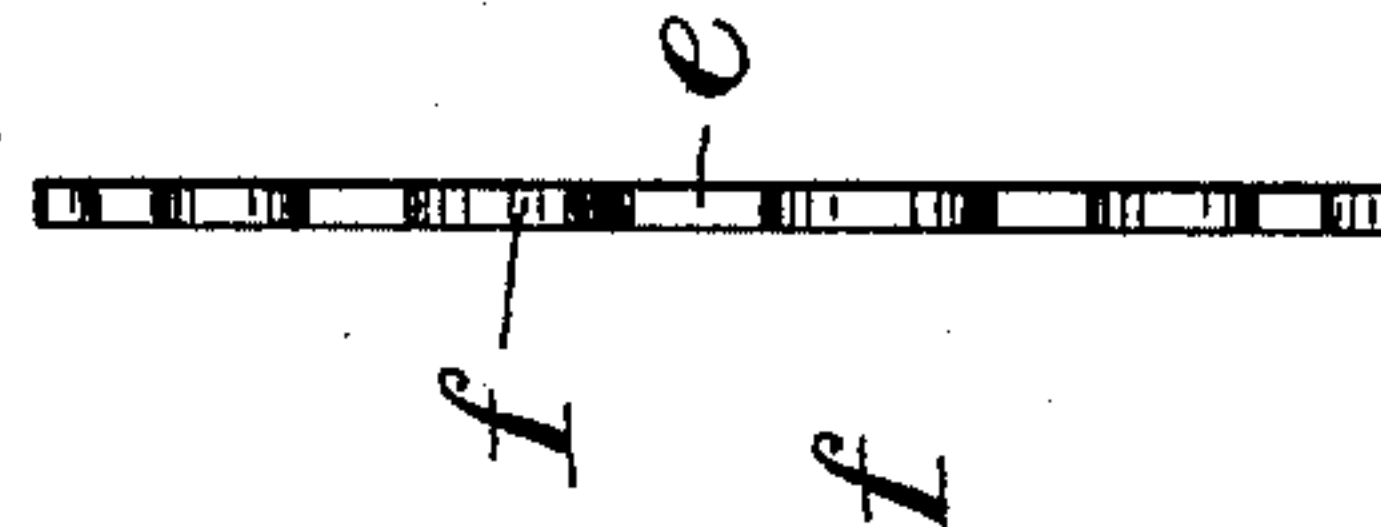


Fig. 6.

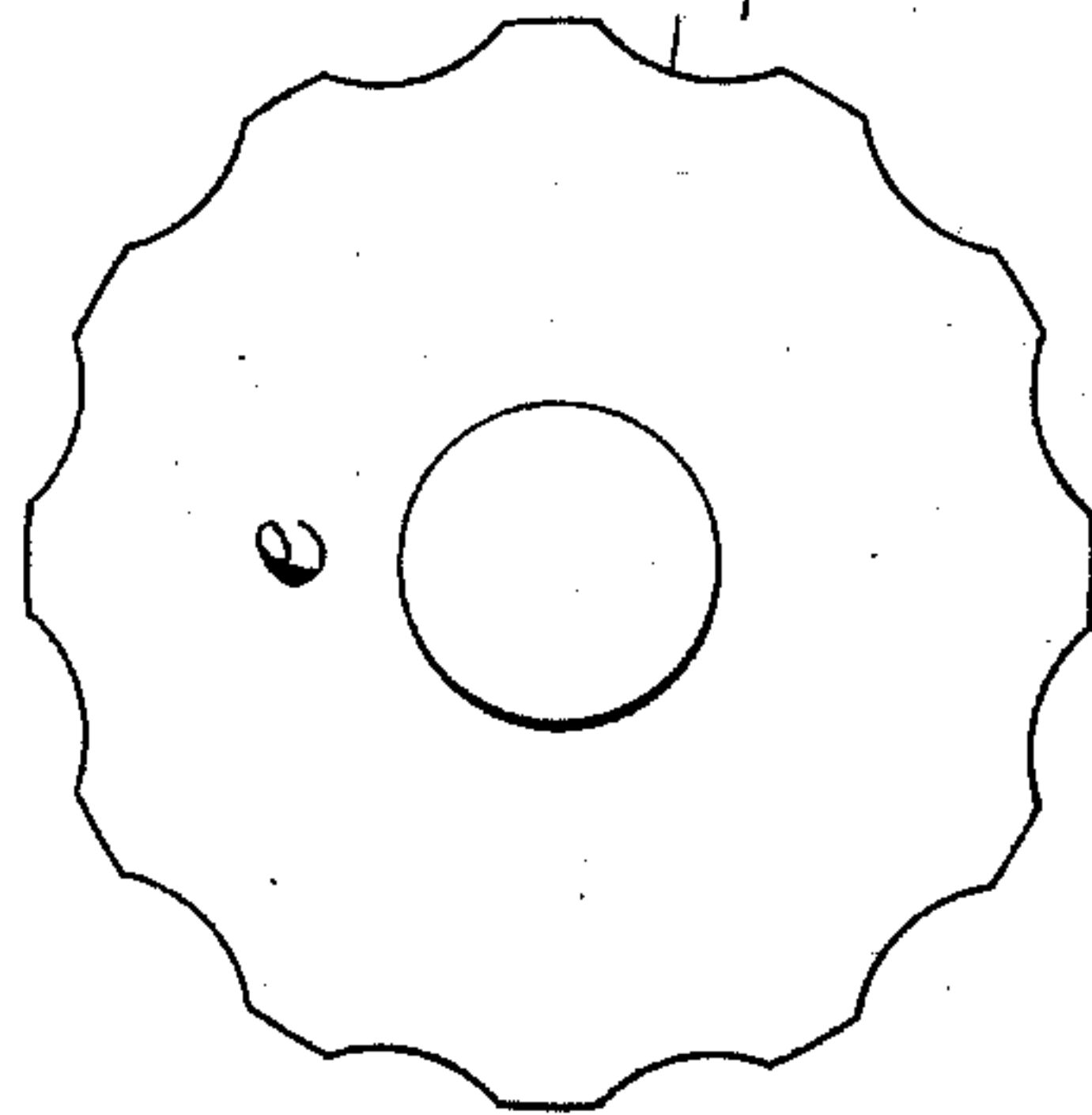


Fig. 5.



Fig. 4.

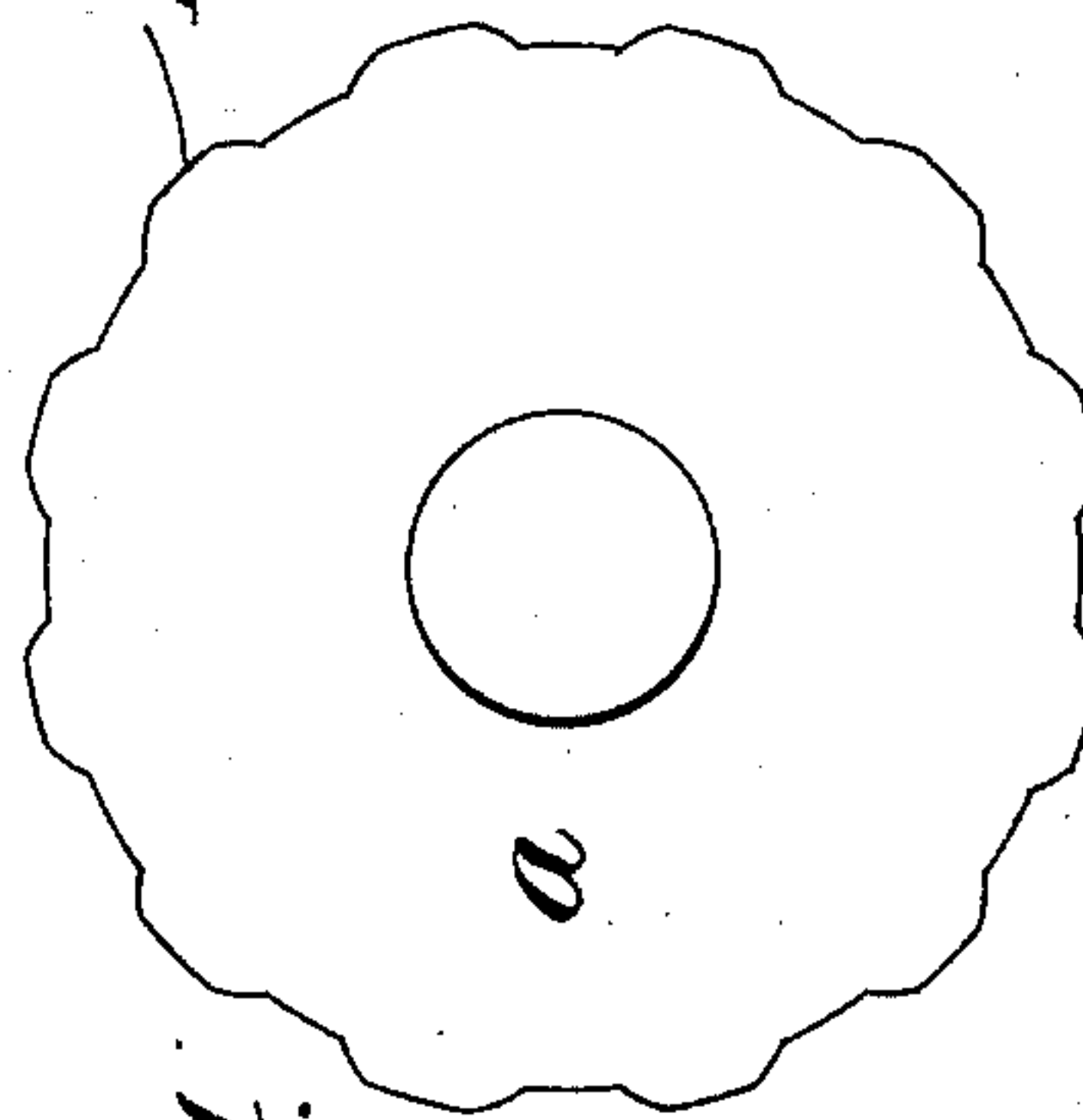
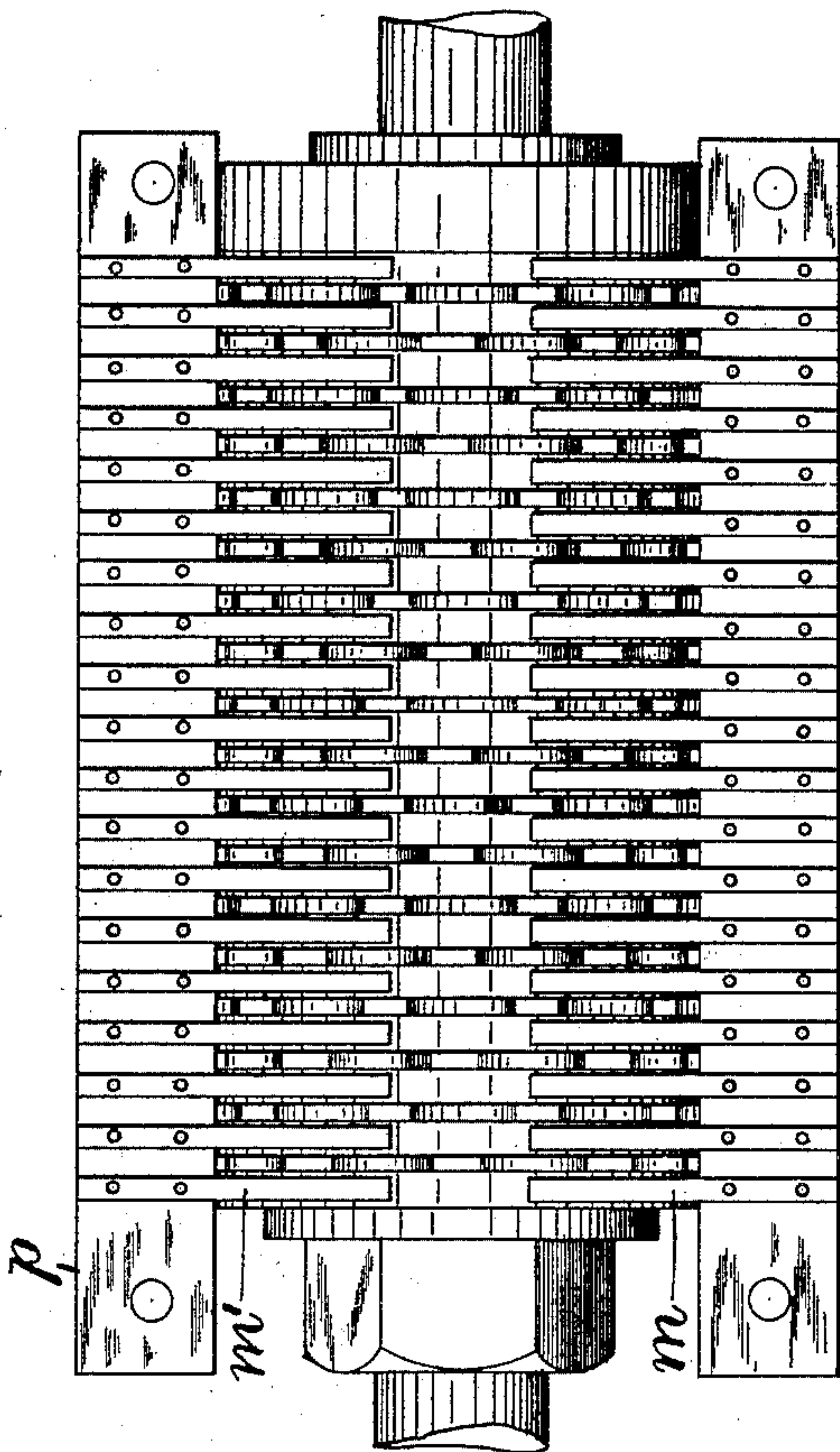


Fig. 3.



Attest:
F. C. Fischer.
J. Van der Jr.

Inventor
George A. Ohl, per
Charles Miller, atty.

(No Model.)

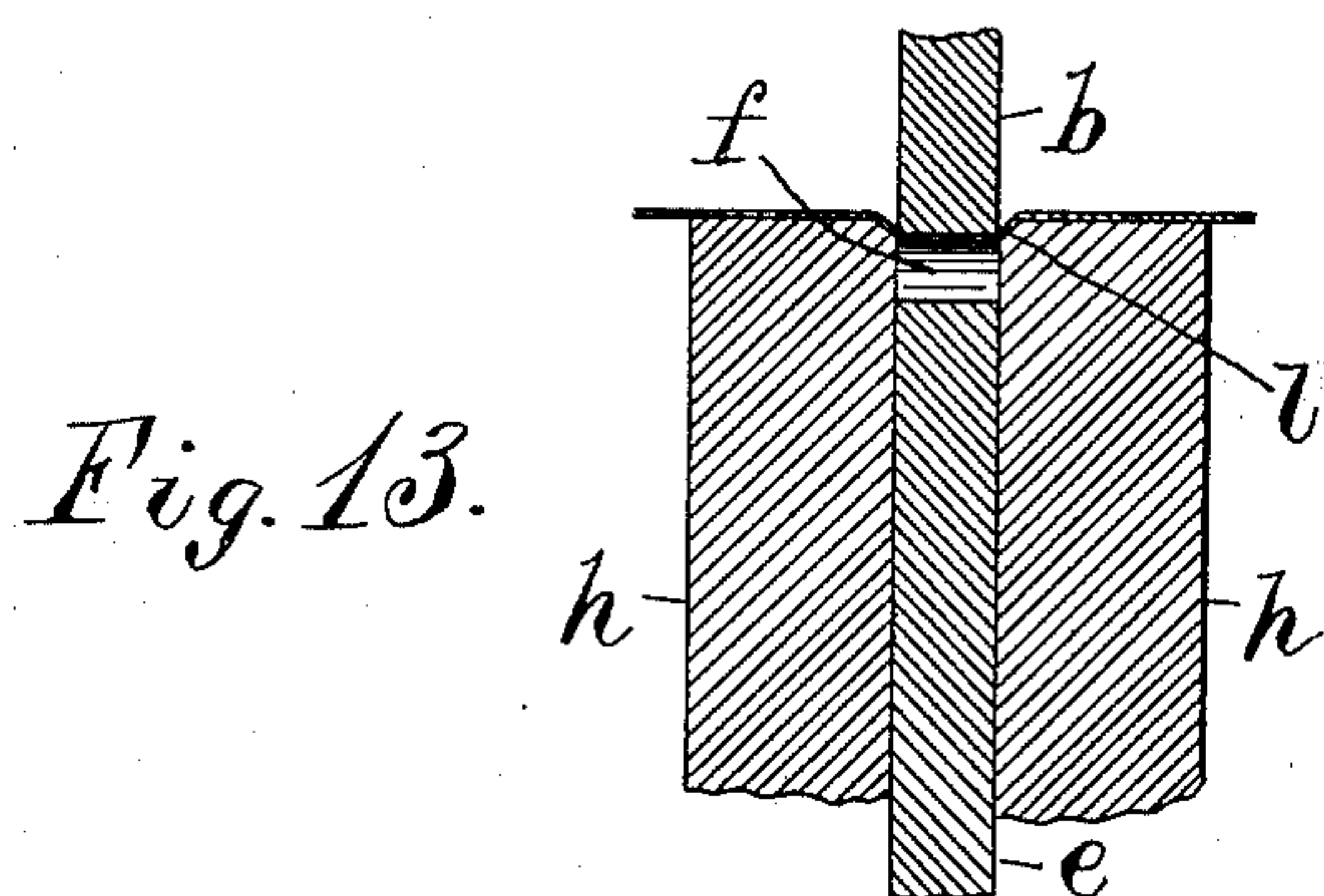
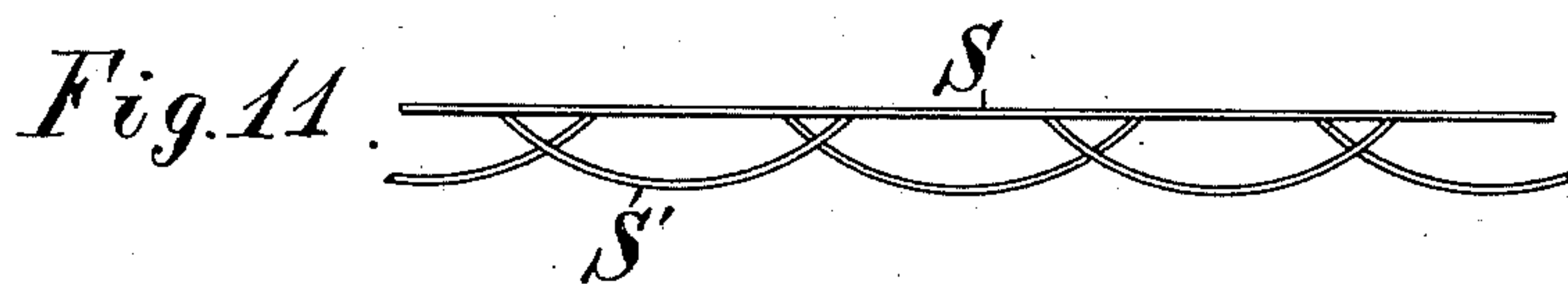
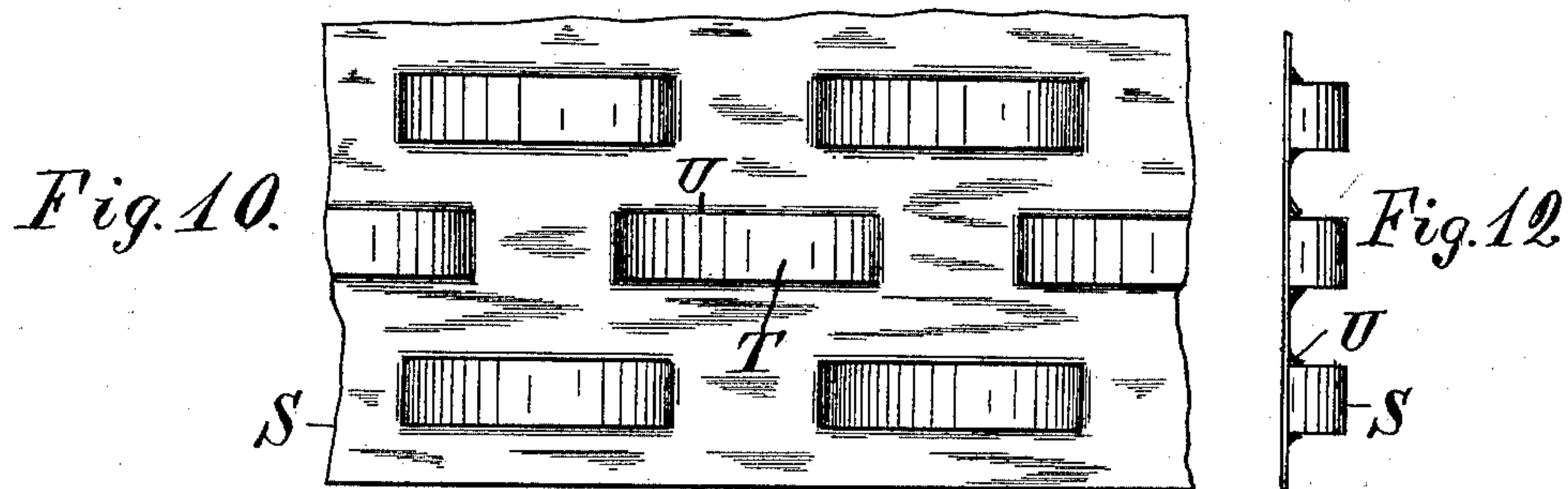
3 Sheets—Sheet 3.

G. A. OHL.

MACHINE FOR MAKING METAL LATHING.

No. 475,700.

Patented May 24, 1892.



Attest:
F. C. Fischer.
J. W. New Jr.

Inventor
George A. Ohl, per
Cramer Miller, atty

UNITED STATES PATENT OFFICE.

GEORGE A. OHL, OF NEWARK, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BOSTWICK METAL LATH COMPANY, OF NEW YORK.

MACHINE FOR MAKING METAL LATHING.

SPECIFICATION forming part of Letters Patent No. 475,700, dated May 24, 1892.

Application filed April 9, 1890. Serial No. 347,281. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. OHL, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Lath-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The apparatus herein described is adapted to form slots in a sheet of thin metal, with strips attached at both ends to the sheet behind the slot to form a metallic lath to retain plaster upon walls; and the improvement consists in the particular construction of the rolls and strippers hereinafter described.

In the annexed drawings, Figure 1 is a diagram representing the two rolls with portions of their journals. Fig. 2 is a transverse section of such rolls and their strippers, with an elevation of the journal-bearings. Fig. 3 is a plan of the bottom roll with the strippers and stripper-plates. Fig. 4 is a side view, and Fig. 5 an edge view, of one of the punching-disks. Fig. 6 is a side view, and Fig. 7 an edge view, of one of the recessed disks; and Fig. 8 is a side view, and Fig. 9 an edge view, of one of the shearing-disks. Fig. 10 is a plan, and Fig. 11 an edge view of a portion of the sheet-metal lath perforated at two points; and Fig. 12 is an end view of the piece shown in Fig. 10. Fig. 13 is a section of a portion of the disks shown in Figs. 5, 7, and 9, with the piece of sheet metal bent prior to the shearing operation of the punching-disk.

In Fig. 10, S is a portion of the metallic lath, and S' the strips attached to the sheet at the opposite ends of the apertures T. These strips are formed by sustaining the sheet over suitable recesses and shearing the edges of the strip from the sheet, at the same time stretching the strip longitudinally and bending it into a curve below the aperture, as shown in Fig. 11. The plaster when applied to the flat side of the metallic lath is thus enabled to penetrate through the apertures T and to exude laterally between the strip and the metallic sheet to lock upon the rear side thereof. To hold the plaster more securely in the apertures T, the longitudinal edges U of the aperture through which the strip is sheared

require to be bent inward, as shown in Figs. 10 and 12.

My apparatus consists in a series of punching-disks secured together with intermediate collars to form a punching-roll and recessed disks secured together with intermediate shearing-disks to form a die-roll. The punching-disks *a*, as shown in Figs. 4 and 5, each consist of a plate of steel having the same thickness as the width of the apertures T and provided upon its periphery with a series of teeth *b*, adapted each to form one of the apertures. These disks are secured together upon a spindle *c*, Fig. 1, to form a punching-roll, with a series of intermediate collars *d*, above which the teeth *b* project.

The die-roll consists of a series of disks *e* of the same thickness as the disks *a* and notched each upon its periphery with a series of recesses *f*, corresponding with the teeth *b*. These disks are secured together to form a die-roll upon a spindle *g*, with a series of intermediate collars *h* of the same diameter as the recessed disks.

The rolls thus composed are mounted in bearings *i* and *j* in a suitable frame *k* and rotated to force the teeth *b* into the recesses *f*, as shown in Figs. 1 and 2. The teeth *b* operate against the collars *h* to shear the edges of the strips S' from the sheet and to force the strip downward into the recess, stretching it longitudinally and shaping it, as desired.

The collars *h* are shown formed with a bevel *l* upon their edges adjacent to the disks *e* to bend the edges U at the sides of the apertures T inward toward the strip. Such bevel is preferably formed at intervals corresponding with the recesses *f*, but may be extended all the way around the collars; but it would then have no effect, except where the teeth *b* press the sheet metal into contact therewith. Such bending is effected by the pressure of the teeth *b* before the latter come into shearing contact with the collars *h*, as is clearly shown in Fig. 13, where the tooth *b* is shown pressed upon the sheet metal sufficiently to bend it inward against the bevel *l*. The continued movement of the punch into the recess *f* would obviously shear the lateral edges of the strip and force it into the recess, as desired.

As shown in Figs. 1 and 3, the disks *a* and *e* are arranged with the teeth and recesses alternated, so as to form the apertures *T* in the sheet *S* in diagonal lines; but the section in Fig. 2 shows only one pair of the opposed disks, with the sections *h* in the lower roll, and does not show the alternate arrangement of the teeth and recesses, as it would greatly confuse the drawing.

To prevent the sheet from clinging to the teeth *b* or to the recesses in the die-roll, a series of narrow strippers are fitted to the collars between the disks *a* or *e*. Two series of strippers *m m'* are provided upon the lower side of the sheet at both sides of the die-roll, and strippers *n* are provided upon the clearance side of the punching-roll, the rolls rotating in the direction indicated by the arrows *o* in Fig. 2. The sheet, which clings strongly to the recesses or to the teeth *b*, is thus prevented from wrapping around either of the rolls.

To facilitate the removal of either series of the strippers, each series is secured upon a bar *p*, which is attached to a lug *q* upon the frame *k*.

I have found that a slight variation in the thickness of the sheet metal required a separate and rigid adjustment of the punching-roll toward the die-roll, and I therefore sustain the bearings *i* of the spindle *c* upon the frame *k* with intermediate packing-plates *r*. The bearing *i* is attached to the frame by bolts *v*, which clamp the same firmly to the frame upon the packing-plates, and thus hold the punching-roll very rigidly when in operation.

It is obvious that the punching-disks *a* are of uniform character and may therefore be made all at once by suitable milling or cutting tools, as well as the recessed disks *e*.

The punching-disks and the collars *h*, against the edges of which the teeth *b* operate to shear the sheet metal, may be separately hardened, and when clamped upon their respective spindles form a roll adapted to rotate truly, which would not be the case if the roll were made of a solid cylinder of steel.

By forming rolls in disk-like sections any of the parts which may be injured can be readily renewed with trifling expense.

The collars *d* intermediate to the toothed disks *a* are used, chiefly, to hold the punching-disks at a suitable distance apart; but they are preferably made of suitable diameter to

press the sheet metal between the apertures *T* against the collars *h*, so as to flatten and smooth the same during the cutting operation.

Having thus set forth the nature of my invention, what I claim herein is—

1. In a lath-machine for punching sheet metal, the combination, with a punching-roll having a series of toothed disks, of a die-roll comprising a series of recessed disks and intermediate shearing-collars, substantially as herein set forth.

2. In a lath-machine for punching sheet metal, the combination, with a punching-roll having a series of toothed disks, of a die-roll comprising a series of recessed disks and intermediate shearing-collars beveled at their edges adjacent to the recesses; as and for the purpose set forth.

3. In a lath-machine for punching sheet metal, the combination, with a die-roll consisting in a series of beveled collars *h* and an intermediate series of recessed sections *e* of the same diameter, of a punching-roll consisting in a series of toothed disks *a*, with intermediate collars *d*, adapted to press the sheet metal upon the collars *h*, as and for the purpose set forth.

4. In a lath-machine for punching sheet metal, the combination, with a punching-roll having a series of toothed disks with intermediate collars and a die-roll having a series of recessed disks with intermediate collars, of a series of strippers applied to the die-roll and a series of strippers applied to the punching-roll, the whole arranged and operated substantially as herein set forth.

5. A lath-machine for punching sheet metal, comprising a punching-roll having a series of toothed disks with intermediate collars, a die-roll having a series of recessed disks with intermediate collars, strippers applied to the die-roll and punching-roll, a suitable frame with bearings for one of the rolls, and bearings for the other roll attached to the frame by bolts, with intermediate packing-plates *r*, the whole arranged and operated substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE A. OHL.

Witnesses:

CHARLES W. TEN EYCK,
HENRY J. MILLER.