

No. 607,071.

Patented July 12, 1898.

G. A. OHL.

MACHINE FOR MAKING SHEET METAL LATHS.

(Application filed June 19, 1897.)

(No Model.)

2 Sheets—Sheet 1.

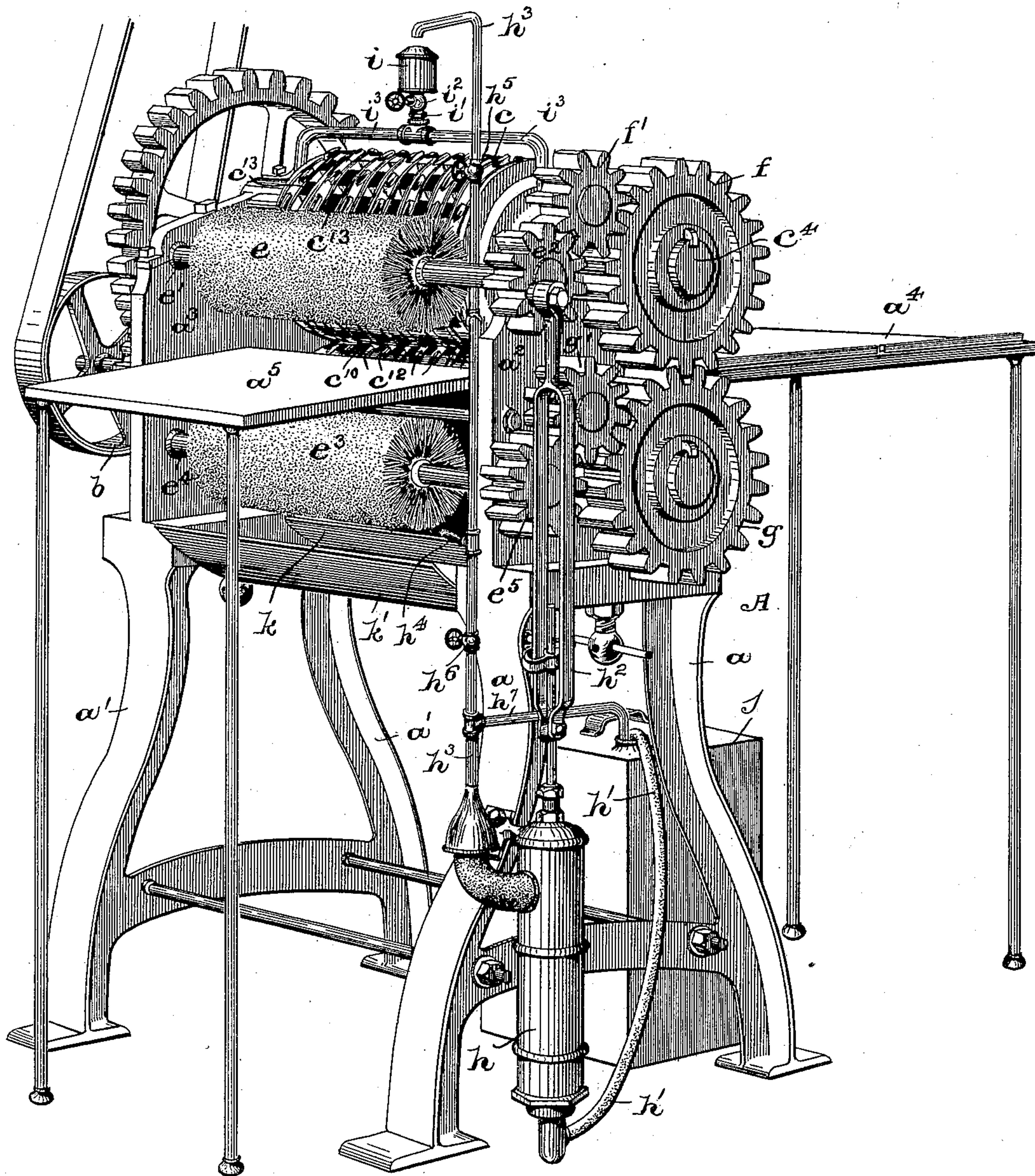


FIG. 1

WITNESSES:

Wm. H. Campfield, Jr.
Walter G. E. Ward

INVENTOR:

GEORGE A. OHL,

BY

Fred C. Fraentzel.
ATTORNEY

No. 607,071.

Patented July 12, 1898.

G. A. OHL.

MACHINE FOR MAKING SHEET METAL LATHS.

(Application filed June 19, 1897.)

(No Model.)

2 Sheets—Sheet 2.

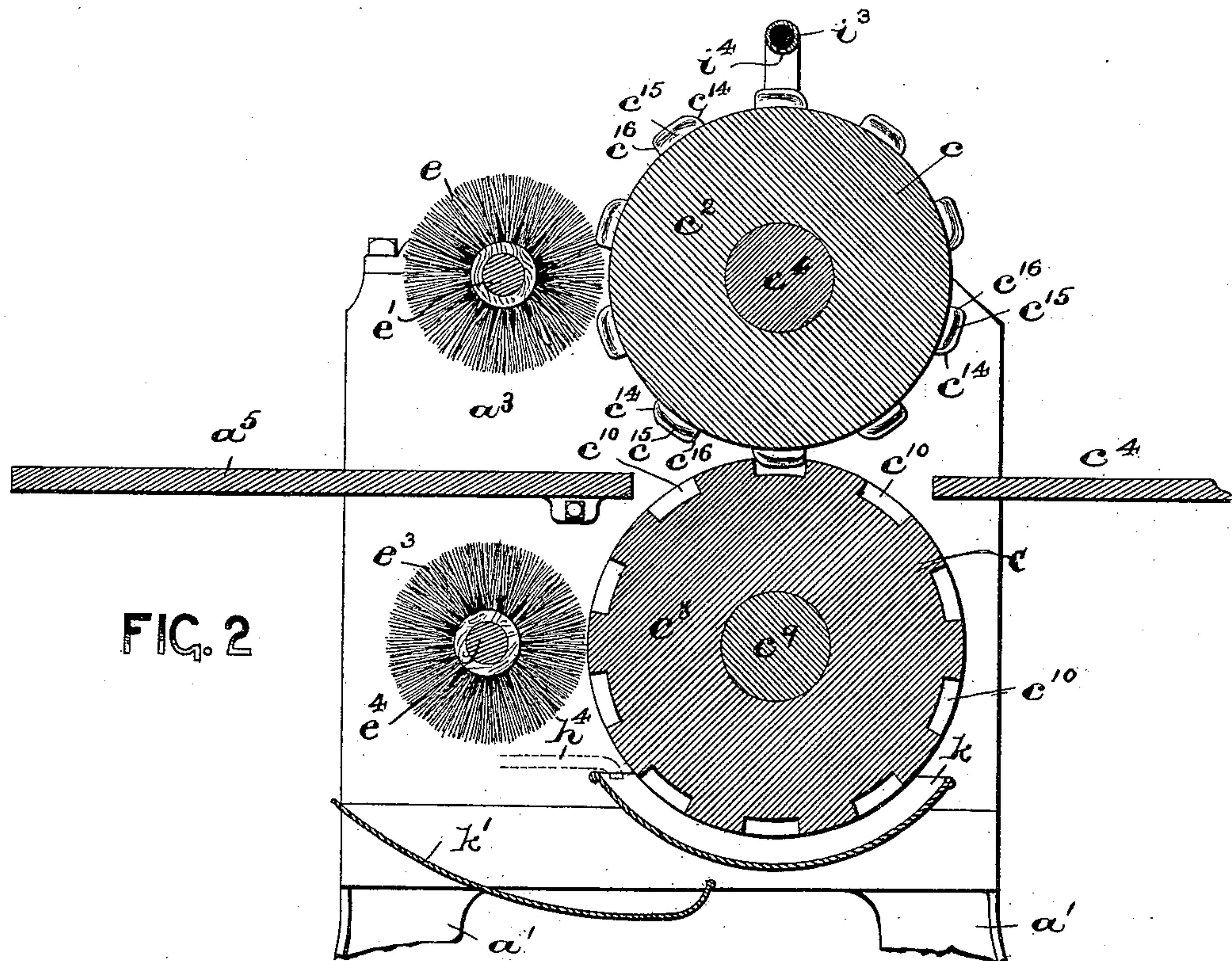


FIG. 2

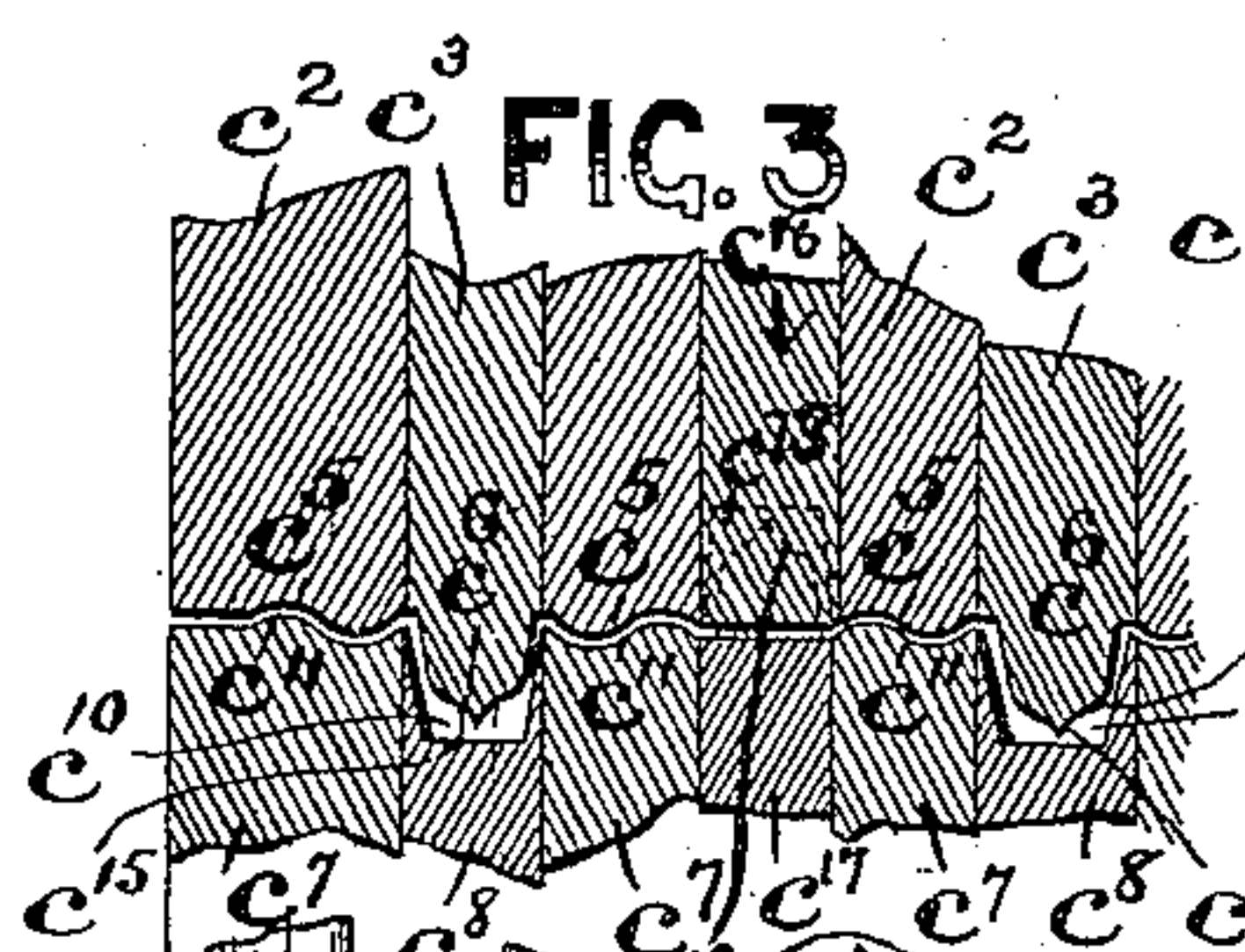


FIG. 3

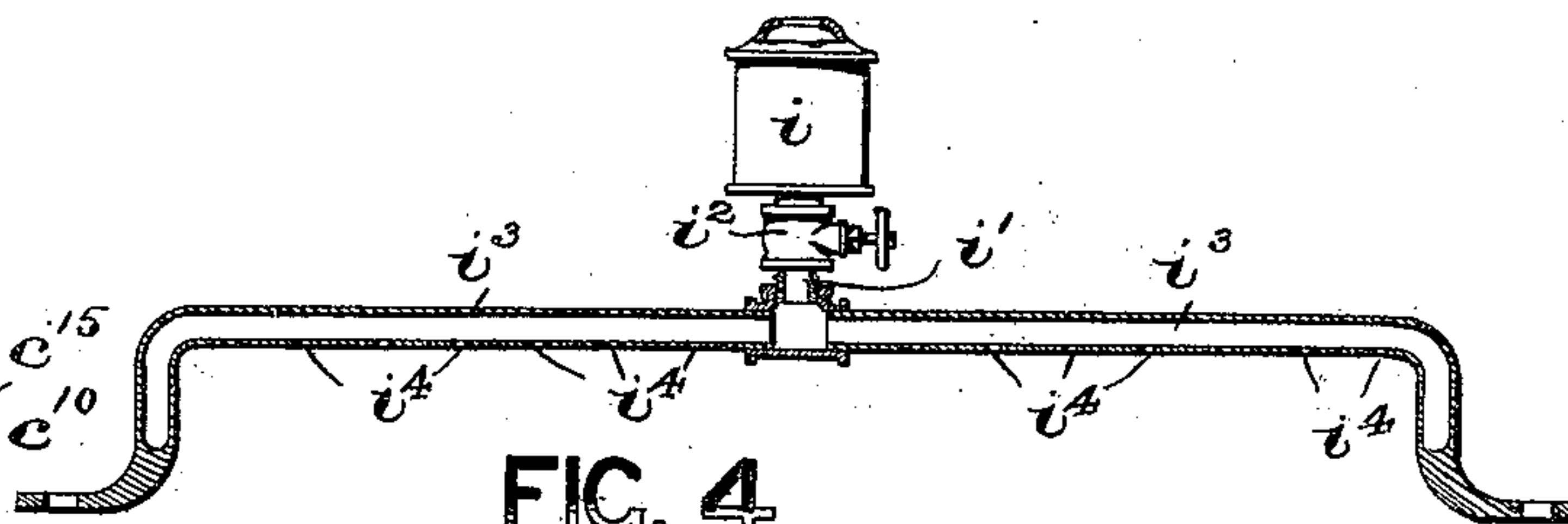


FIG. 4

WITNESSES:

Wm H. Campfield, Jr.
Walter G. E. Ward

FIG. 5

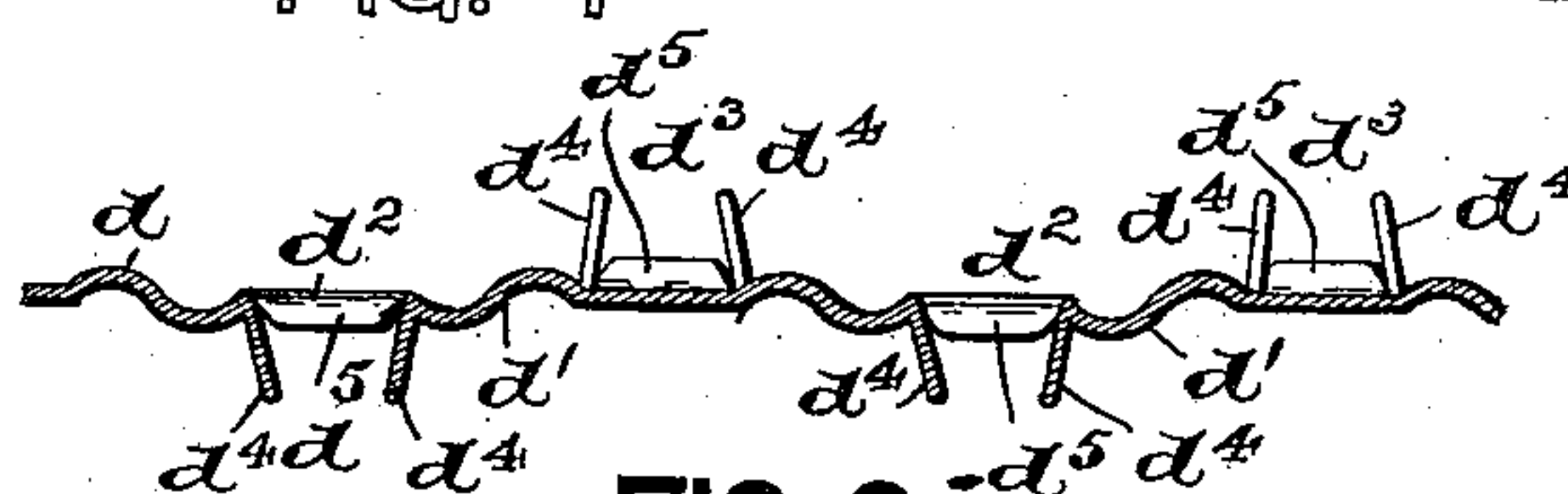


FIG. 6

INVENTOR:

GEORGE A. OHL,

BY

Fred C. Fraentzel,
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE A. OHL, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE GEORGE A. OHL & COMPANY, OF NEW JERSEY.

MACHINE FOR MAKING SHEET-METAL LATHS.

SPECIFICATION forming part of Letters Patent No. 607,071, dated July 12, 1898.

Application filed June 19, 1897. Serial No. 641,456. (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, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Making Sheet-Metal Lath; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in machines for making sheet-metal lath; and the invention has for one of its objects to provide a machine having a pair of rolls between which the metal sheets are fed, one or both of said rolls being provided with peculiarly-shaped cutters adapted to pierce the metal and form openings therein, each opening being surrounded by a strengthening wall or rib formed during the piercing operation, which gives strength to the entire sheet and helps to retain the plaster on the wall.

A further object of this invention is to provide, in connection with machines of this class, means for feeding a lubricating or other liquid in contact with the cutters or dies on the rolls and also a means for brushing or cleaning said rolls to remove the scaly particles from the cutters and thereby greatly increasing their life and usefulness.

To this end this invention consists in certain novel features of construction and peculiar combinations of parts, all of which will be hereinafter fully described, and finally embodied in the clauses of the claim.

In the accompanying sheets of drawings, Figure 1 is a perspective view of the machine embodying the features of my present invention. Fig. 2 is a longitudinal vertical section of the upper portion of the machine. Fig. 3 is a detail section of a portion of the two feeding-rolls and their cutters, and Fig. 4 is a sectional view of a portion of the feeding device for lubricating the upper roll. Fig. 5 is a plan view of a portion of the finished sheet-metal lath, and Fig. 6 is a cross-section of the same.

Similar letters of reference are employed in

all of the above-described views to indicate corresponding parts.

In said drawings, A indicates the complete machine, which comprises a pair of supports a and a' , having suitable frame portions a^2 and a^3 , respectively, which are provided with bearings for the respective shafts or journals for the main driving-pulley b , the cutting-rolls c and c' , and for the driving-gear for operating the several parts of the machine.

The gear mechanism operated from the driving-pulley shaft b is of the usual construction to operate the rolls c and c' in opposite directions when a piece of sheet metal is forced from the table a^4 between said rolls and to feed the sheet metal through said rolls upon the table a^5 , as will be clearly understood.

The upper cutting-roll c consists, essentially, of a number of disks c^2 , c^3 , and c^{18} , which are placed side by side on the shaft or journal c^4 and are secured thereon in any well-known manner. The peripheral surfaces of said disks c^2 are formed with the curved surfaces c^5 , while the disks c^3 are provided with suitably-placed cutters or knives c^6 , which fit into depressions c^{10} in some of the disks of the lower roll c' . Said lower roll consists of the disks c^7 , c^8 , and c^{17} , secured side by side on a shaft or journal c^9 , and while said disks c^7 are formed with curved surfaces c^{11} , which correspond to the curvatures of the surfaces c^5 in the disks c^2 of the upper roll, said disks c^{17} of the lower roll and said disk c^8 , with the depressions c^{10} above mentioned for the reception of the cutters c^6 of the upper roll, are provided with suitably-placed cutters or knives c^{12} , which fit into depressions c^{13} in the disks c^3 of the upper roll. Thus it will be evident that when a piece of sheet metal is fed through the rolls its surfaces will be suitably curved, as at d and d' , and provided with the punctures d^2 and d^3 , as clearly illustrated in Figs. 5 and 6.

Each knife or cutter is provided with a rounded and sharp cutting edge c^{14} and has the oppositely sloping or rounded surfaces c^{15} as well as the straight edge c^{16} at the back, whereby the sheet metal is first cut by the cutting edges c^{14} , and the metal on either side of the cut is then forced out at right angles

or approximately so to the surfaces of the metal sheet, thereby surrounding the said punctures d^2 and d^3 with the strengthening walls or ribs d^4 and d^5 on opposite sides of the metal sheet, as clearly illustrated in Fig. 6. In this manner the sheet-metal lath is greatly strengthened, and a much thinner and lighter quality of sheet metal can be used with the same advantages as the heavier metallic laths now employed.

In order that the cutting edges of the knives on the rolls c and c' may be perfectly oiled and kept clear of the scale usually found on sheet metal, the means illustrated more particularly in Fig. 1 is employed. As will be seen from said Fig. 1, I have arranged on a shaft e' , rotating in bearings in the frame portions a^2 and a^3 of the machine, a brush e , the bristles of which are in operative cleaning contact with the cutters on the upper roll c . The revolutions of said brush e are caused by the gears f and f' , actuated from the shaft c^4 of the roll c , said gear f' meshing with a pinion e^2 on said shaft e' . In like manner I have arranged on a second shaft e^4 , rotating in bearings in the frame portions a^2 and a^3 of the machine, a brush e^3 , the bristles of which are in operative engagement with the cutters on the lower roll c' . The revolution of this brush e^3 is caused by the gears g and g' , actuated from the shaft c^5 of the lower roll c' , said gear g' meshing with a pinion e^5 on the said shaft e^4 .

To lubricate the cutters of the two rolls c and c' or to force any liquid, as an oily coating substance, in contact with said cutters, whereby the sheet metal which is passed between the rolls becomes coated and is prevented from corroding, a pump h is secured to the machine in any suitable position, having a suction-pipe h' connected with a suitable oil reservoir or can, as j . The piston of said pump is caused to reciprocate by the action of a crank-rod h^2 , operatively connected with the side of the pinion e^2 . Thus it will be seen that when the machine is operated to punch the metal sheet the pump h is also worked, and the oil or other liquid will be forced through a pipe h^3 into a receiver i above the roll c and through a pipe h^4 into a trough k beneath the roll c' , which holds a sufficient quantity of oil or other liquid to lubricate the cutters or knives on said roll c' .

The receiver i is connected by means of a pipe i' , in which there may be a valve i^2 , with a horizontal pipe i^3 . Said pipe is closed at its ends and is suitably secured to the frame portions a^2 and a^3 of the machine, and has a number of holes or perforations i^4 to permit the liquid to slowly drop upon the cutting edges of the knives or cutters on the roll c and in this manner thoroughly lubricate the same.

The flow of oil or other liquid through the pipe h^3 into the receiver i and the trough k is regulated by the valves h^5 and h^6 , whereby but a limited supply of the liquid can be

forced upon the cutters, a pipe h^7 being employed for conducting the oversupply of liquid directly back into the reservoir j , or the supply of oil or other liquid can be entirely shut off from either said receiver i or said trough k , or from both at the same time, and the oil or other liquid which is pumped from the reservoir j is forced through said pipe h^7 , connected with the pipe h^3 , back into said reservoir j , as will be clearly evident from an inspection of Fig. 1. A second trough k' may be secured between the standards a and a' of the machine, if desired, to catch any drippings or pieces of scale that drop from the brushes.

The hereinabove-described machine has this advantage that the liquid-feeding device used in connection with the rolls c and c' can be used to feed any suitable surface-coating substance—such as oil, varnish, paint, or the like—in contact with the cutters on said rolls, whereby the metal sheet as it passes between the rolls is sufficiently coated on both sides to prevent corrosion.

Of course it will be evident that changes may be made in the various arrangements and combination of the several devices and parts herein set forth without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations and the constructions of the devices and parts as herein shown and described.

Having thus described my invention, what I claim is—

1. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls; and means for cleaning said surfaces of the rolls, when in operation, substantially as and for the purposes set forth.

2. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls, and a pair of revolving brushes in operative brushing contact with said cutting-surfaces of the rolls, substantially as and for the purposes set forth.

3. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by the roll-operating mechanism, substantially as and for the purposes set forth.

4. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same,

and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by the roll-operating mechanism, consisting, essentially, of a pump connected with a reservoir, a pipe h^3 , a receiver i , and a perforated pipe i^3 , substantially as and for the purposes set forth.

5. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, and mechanism for feeding a lubricant or other liquid in contact with said rolls and operated by the roll-operating mechanism, consisting, essentially, of a pump connected with a reservoir, a pipe h^3 , a receiver i , and a perforated pipe i^3 , a trough k , and a pipe h^4 connected with said pipe h^3 and the trough k , substantially as and for the purposes set forth.

6. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by a roll-operating mechanism, consisting, essentially, of a pump connected with a reservoir, a pipe h^3 , a receiver i , and a perforated pipe i^3 , a trough k , and a pipe h^4 connected with said pipe h^3 and the trough k , and regulating-valves h^5 and h^6 in said pipe h^3 , substantially as and for the purposes set forth.

7. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, a pair of revolving brushes in operative brushing contact with said cutting-surfaces of the rolls, and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by the roll-operating mechanism, consisting essentially, of a pump connected with a reservoir, a pipe h^3 , a receiver i , and a perforated pipe i^3 , substantially as and for the purposes set forth.

8. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, a pair of revolving brushes in operative brushing contact with said cutting-surfaces of the rolls, and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by the roll-operating mechanism, consisting, essentially, of a pump connected with a reservoir, a pipe h^3 , a receiver i , and a perforated pipe i^3 , a trough k , and a pipe h^4 connected with said pipe h^3 and the trough k , substantially as and for the purposes set forth.

9. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, a pair of revolving brushes in operative brushing contact with said cutting-surfaces of the rolls, and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by the roll-operating mechanism, consisting, essentially, of a pump connected with a receiver, a pipe h^3 , a receiver i , and a perforated pipe i^3 , a trough k , and a pipe h^4 connected with said pipe h^3 and the trough k , and regulating-valves h^5 and h^6 in said pipe h^3 , substantially as and for the purposes set forth.

10. In a machine for making sheet-metal lath, or the like, the combination, with the frame of the machine, of a pair of cutting-rolls and mechanism for operating the same, a pair of revolving brushes in operative brushing contact with said cutting-surfaces of the rolls, and mechanism for feeding a lubricant or other liquid in contact with the cutting-surfaces of said rolls and operated by the roll-operating mechanism, consisting, essentially, of a pump connected with a reservoir, a pipe h^3 , a receiver i , and a perforated pipe i^3 , a trough k , and a pipe h^4 connected with said pipe h^3 and the trough k , and a trough k' in the machine-frame, and beneath said rolls, substantially as and for the purposes set forth.

11. In a machine for making sheet-metal lath, a cutting-roll, comprising a series of disks, arranged and secured side by side on a shaft, a series of cutters on some of said disks, each cutter having a round cutting edge c^{14} for piercing the metal, and provided with oppositely-arranged sloping metal-bending surfaces c^{15} , and a straight edge c^{16} at the back of each cutter, all arranged to make longitudinal cuts surrounded by ribs, substantially as and for the purposes set forth.

12. In a machine for making sheet-metal lath, a cutting-roll, comprising a series of disks, c^2 and c^3 , arranged and secured side by side on a shaft, said disks c^2 having curved surfaces c^5 , and a series of cutters c^6 on said disks c^3 , each cutter having a round cutting edge c^{14} for piercing the metal, and provided with oppositely-arranged sloping metal-bending surfaces c^{15} , and a straight edge c^{16} at the back of each cutter, all arranged to make longitudinal cuts surrounded by ribs, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 12th day of June, 1897.

GEORGE A. OHL.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.