

3 Sheets--Sheet 1.

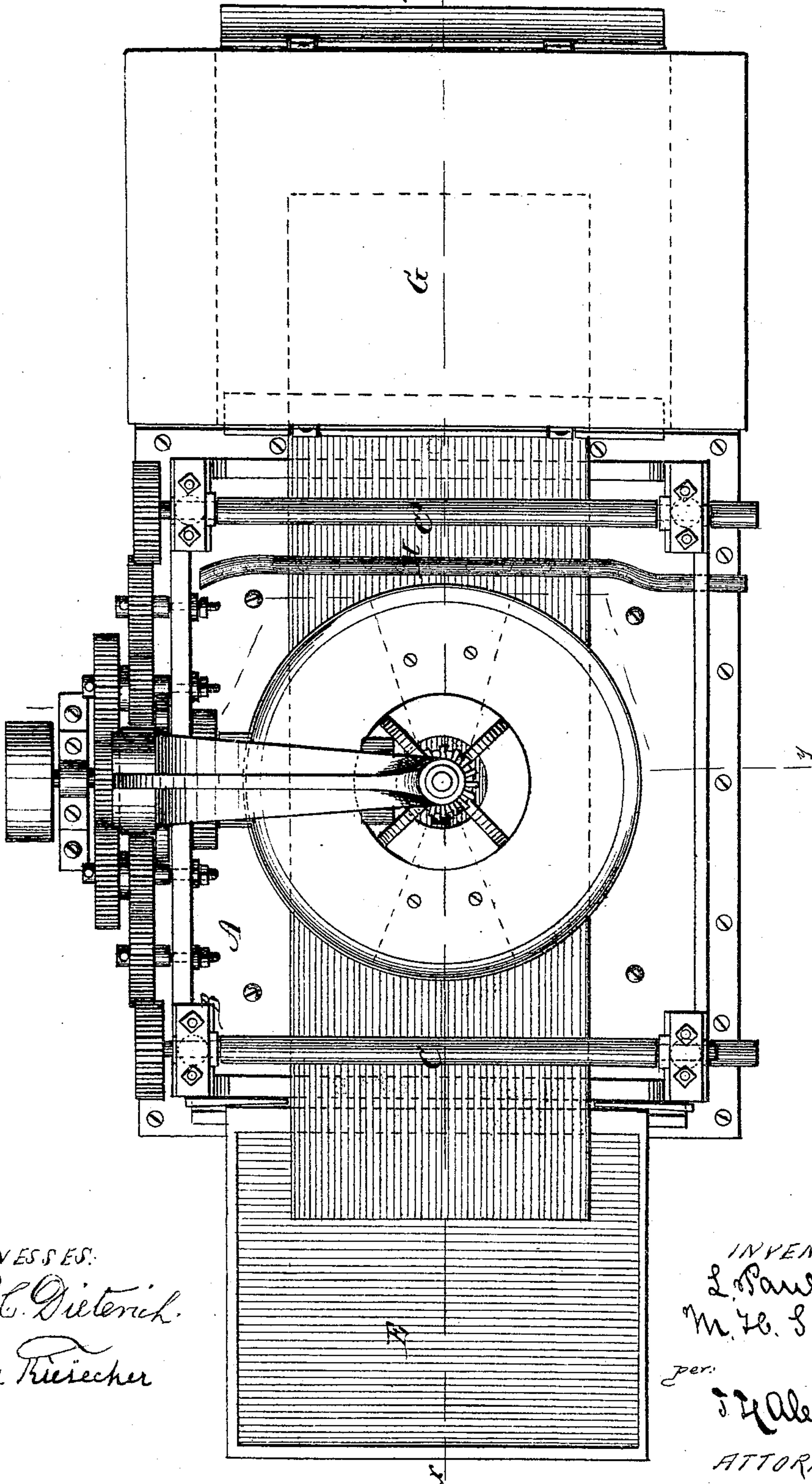
L. PAUL & M. H. SCHUG.

Machines for Cleaning Sheet-Metal.

No. 151,426.

Patented May 26, 1874.

Fig. 1.



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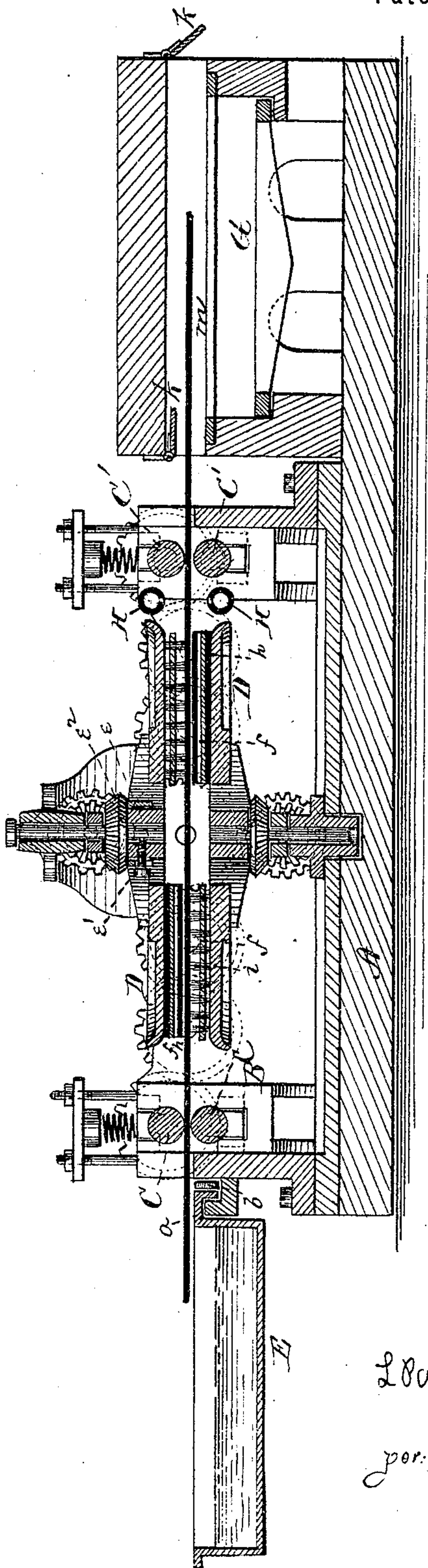
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Fig. 2.



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Fig. 3.

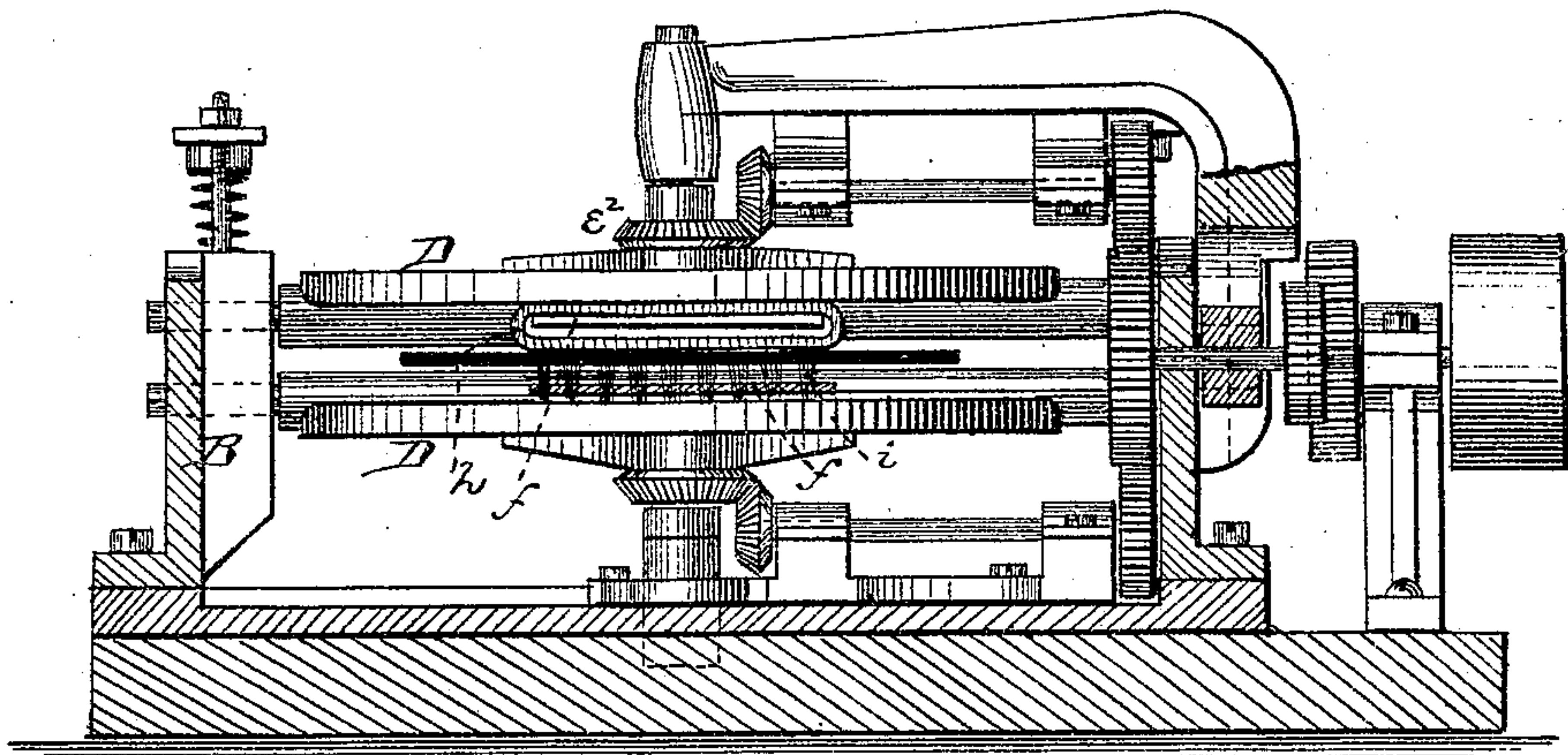


Fig. 4.

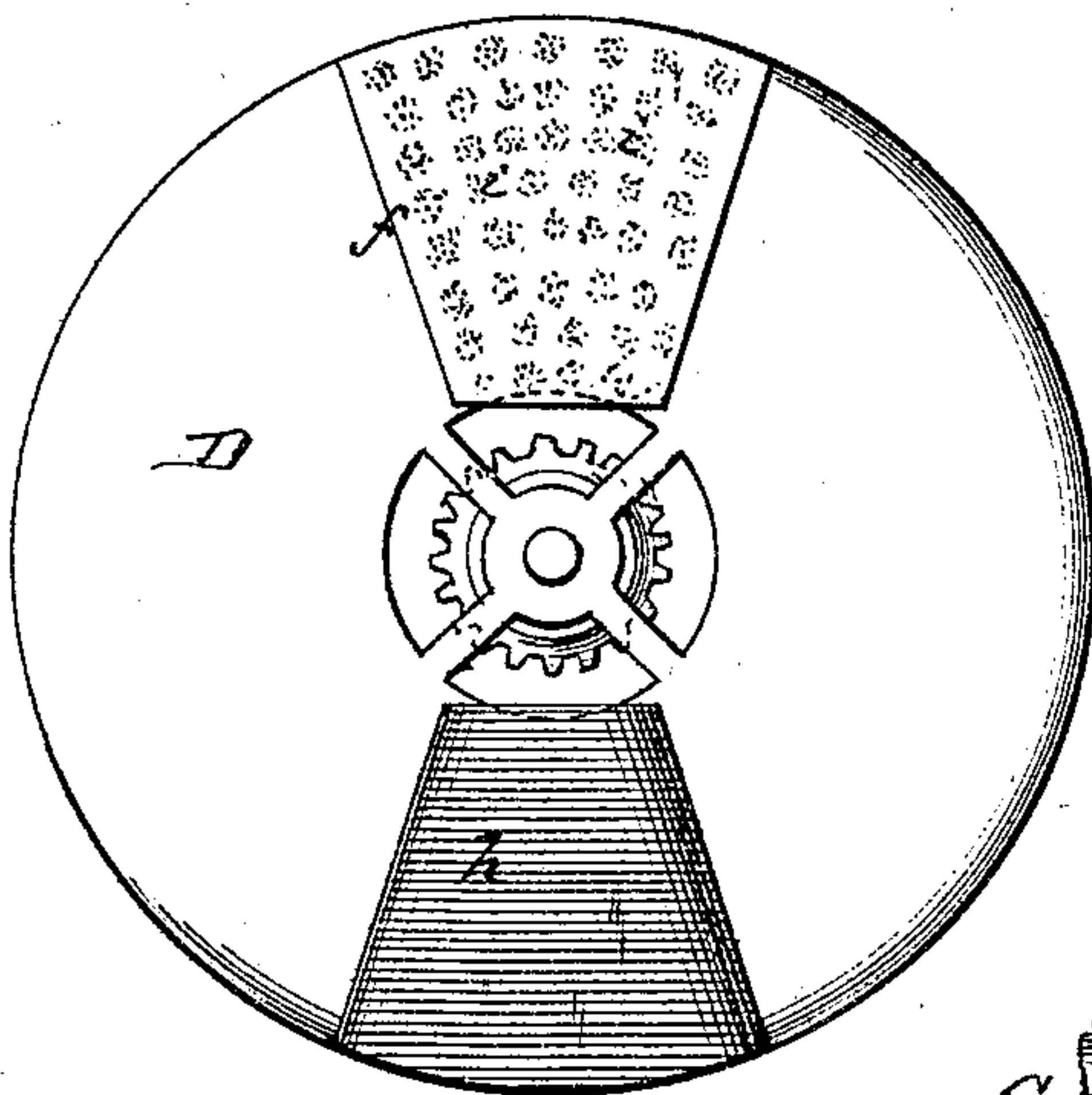
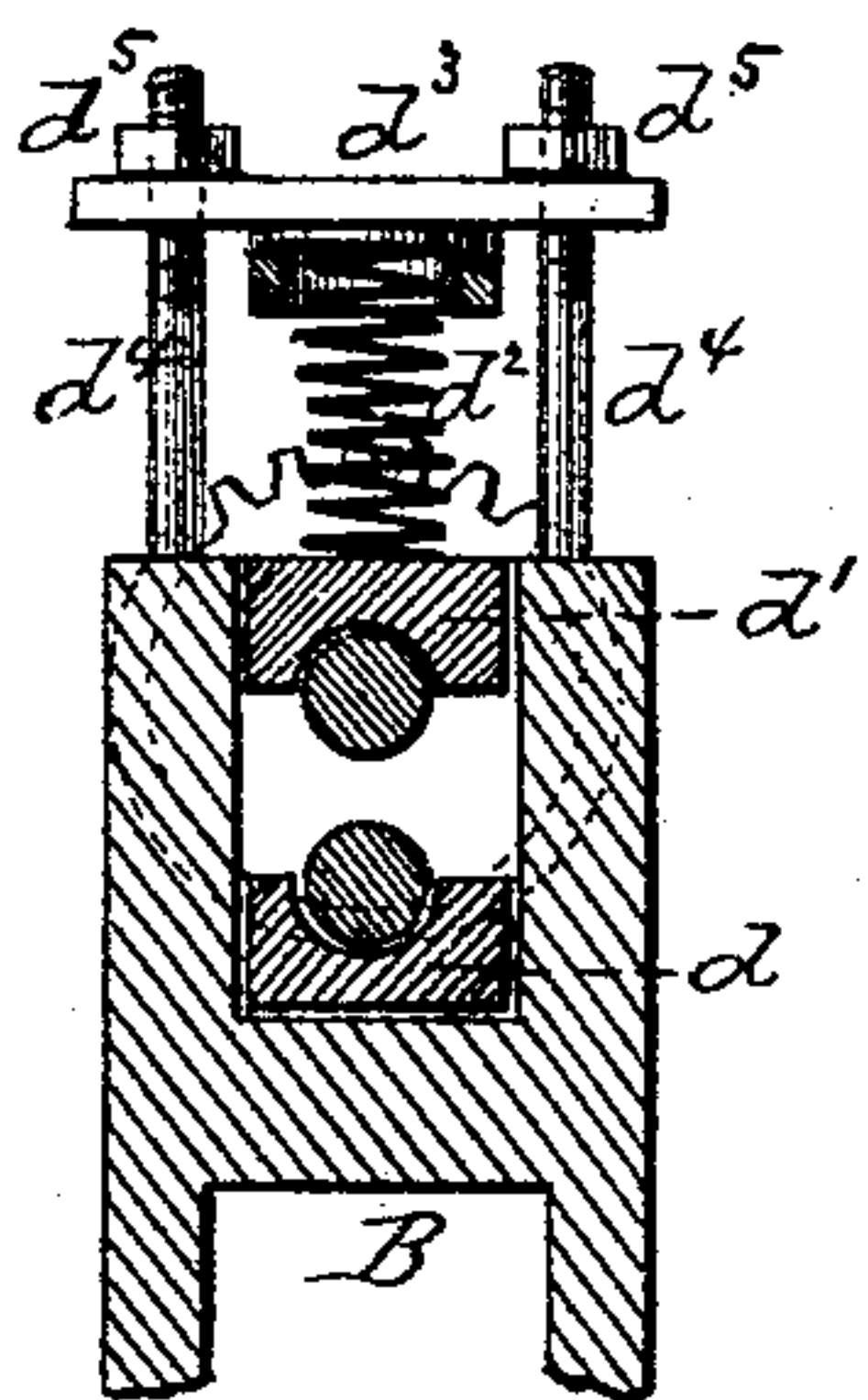


Fig. 5.



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Fig. 7.

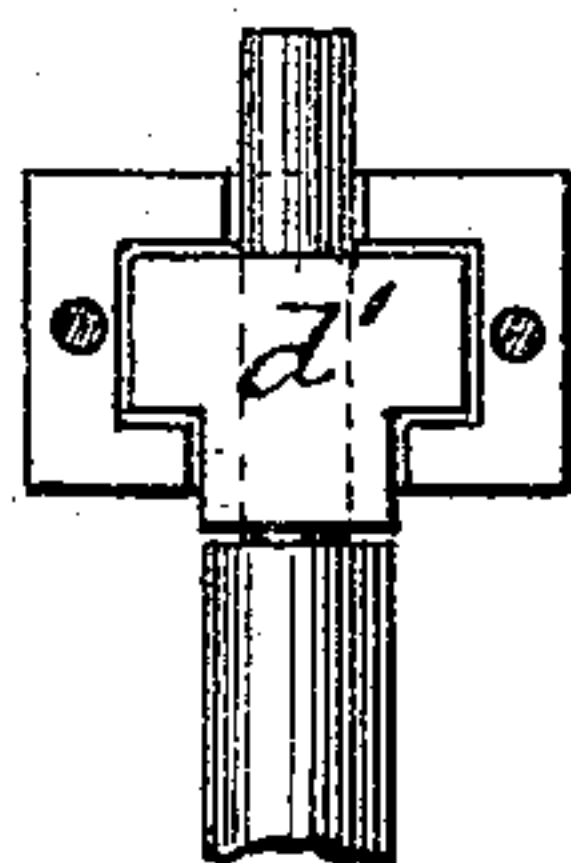
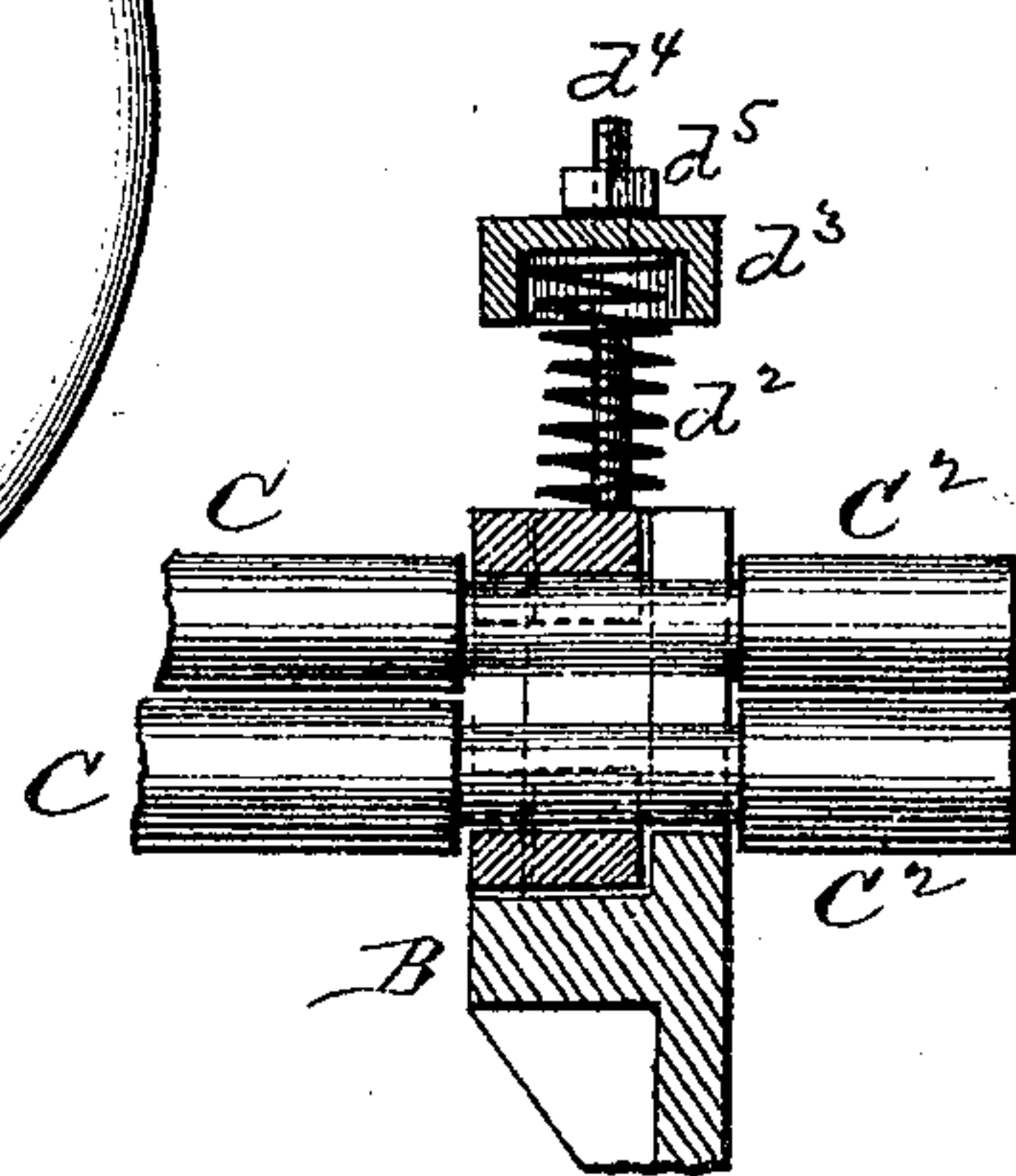


Fig. 6.



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# UNITED STATES PATENT OFFICE.

LODORUS PAUL AND MARTIN H. SCHUG, OF EASTON, PENNSYLVANIA.

## IMPROVEMENT IN MACHINES FOR CLEANING SHEET METAL.

Specification forming part of Letters Patent No. 151,426, dated May 26, 1874; application filed April 4, 1874.

*To all whom it may concern:*

Be it known that we, LODORUS PAUL and MARTIN H. SCHUG, of Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Cleaning Sheet-Iron; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form part of this specification.

The nature of our invention consists in the construction and arrangement of a machine for finishing and cleaning sheet-iron, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view of our machine. Fig. 2 is a longitudinal vertical section of the same through the line *x x*, Fig. 1. Fig. 3 is a transverse vertical section through the line *y y*, Fig. 1. Fig. 4 is a face view of one of the revolving disks. Figs. 5, 6, and 7 are detailed views of parts of the feed-rollers.

A represents the frame of our machine, upon which are suitable frames B for containing two sets of feed-rollers, C C and C<sup>1</sup> C<sup>1</sup>. Between the two sets of feed-rollers are two horizontally-revolving disks, D D, one above the other. At one end of the machine is a large water-tank, E, and at the other end a furnace, G. The different stages or processes the sheet-iron has to undergo are, first, removing the fin or wire edge; second, scouring and cleaning; and, third, drying. The fin or wire edge on the sheet metal is caused by trimming the edges of the sheet metal after it is rolled, and this is removed by the following means: One set of the feed-rollers are extended beyond the frame, as shown in Fig. 6, forming two short rolls, C<sup>2</sup> C<sup>2</sup>, through and between which the edges of the sheet metal are passed, thereby accomplishing the result of removing the fin or wire edge. The cleaning is done by the sheet-iron being placed in the tank E, which is filled with water, and from thence it is fed, by means of the feed-rollers C, directly be-

tween the disks D D, which are provided, on the surfaces that come in contact with the plate, with brushes for the purpose. The tank E is attached to the frame of the machine by having its inner flange *a* turned down and fastened in a groove on the frame by wedges *b*. The lower one of each pair of feed-rollers has its bearings in stationary boxes *d*, while the upper one has a box, *d*<sup>1</sup>, on top of its journal, which is held down by a spring, *d*<sup>2</sup>, and the upper end of this spring fits within a cap, *d*<sup>3</sup>, placed upon vertical screw-rods *d*<sup>4</sup>, rising from the frame, and held down by means of nuts *d*<sup>5</sup>. By these means, the proper tension of the feed-rollers is easily obtained. The upper disk D is fastened to its shaft *e* by means of a set-screw, *e*<sup>1</sup>. The bevel-wheel *e*<sup>2</sup> on this shaft has drivers that communicate the rotary motion to the disk, and at the same time allow said wheel to have a vertical movement on the shaft. As the brushes or other devices used on this disk are worn by use, the set-screw *e*<sup>1</sup> is loosened, which allows the disk to fall down to make up for said wear. Then a washer or collar of corresponding thickness is placed between the bevel-wheel *e*<sup>2</sup> and the hub of the disk, after which the set-screw is refastened, and the wear is made up for. The bottom disk can be raised to line on its shaft when worn by raising and placing a collar under it, so as to line. Each disk D is provided with a suitable number of plates, *f*, made of metal or other suitable material, and fastened by screws or other means to the disk. These plates are perforated, so that bristles may be used, or leather, rubber, or other suitable material may be wrapped around them, as shown in Figs. 2 and 4, in which figures *i* denotes the brushes and *h* the other scouring material. The plates *f* can be easily removed for renewing the scouring material when worn out. The disks are curved, as shown at their outer edges, and the plates *f* should be curved to correspond, so as to form a guide for the sheets to enter between the disks. The sheets continually passing from the tank E, through between the feed-rollers C C, are rubbed and cleaned by the rotary motion of the brushes *i* or material *h* as it passes between the disks; and from there passing onto the feed-rollers C<sup>1</sup> C<sup>1</sup>, and between perforated pipes H H, through which



jets of water, under pressure, are forced upon both the upper and under sides, thus washing and drenching them, the main frame being also full of water. The feed-rollers  $C^1$ , containing the motion, carry the sheets into the furnace  $G$  for the purpose of being dried in passing through. The entrance and exit doors  $k k$  of this furnace are swung on hinges, as shown in Fig. 2, so that they will always be tight. The furnace is provided with rods or bars  $m$ , on a line with the rollers, and above the fire in the furnace, for the purpose of supporting the sheets in their passage through the furnace and over the fire to the front door, which, swinging as described, is opened by the advancing sheets. The bars  $m$  in the furnace are movable, so that new ones can be put in as the old ones wear out. The disks, as well as the feed-rollers, are revolved by gearing, arranged substantially as shown, or

in any other suitable manner that will answer the same purpose.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a machine for cleaning and finishing sheet metal, the combination of a device for removing the fin or wire edge, a water-tank for soaking it, revolving disks for scouring, perforated water-pipes for cleaning, and a furnace for drying, substantially as herein set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

L. PAUL.  
M. H. SCHUG.

Witnesses:

JOHN J. WOODRING,  
P. A. SHIMER.