

A. HARMS & A. WAGENFUEHR.

Wood Grinders for Paper Pulp.

Patented March 10, 1874.

No. 148,452.

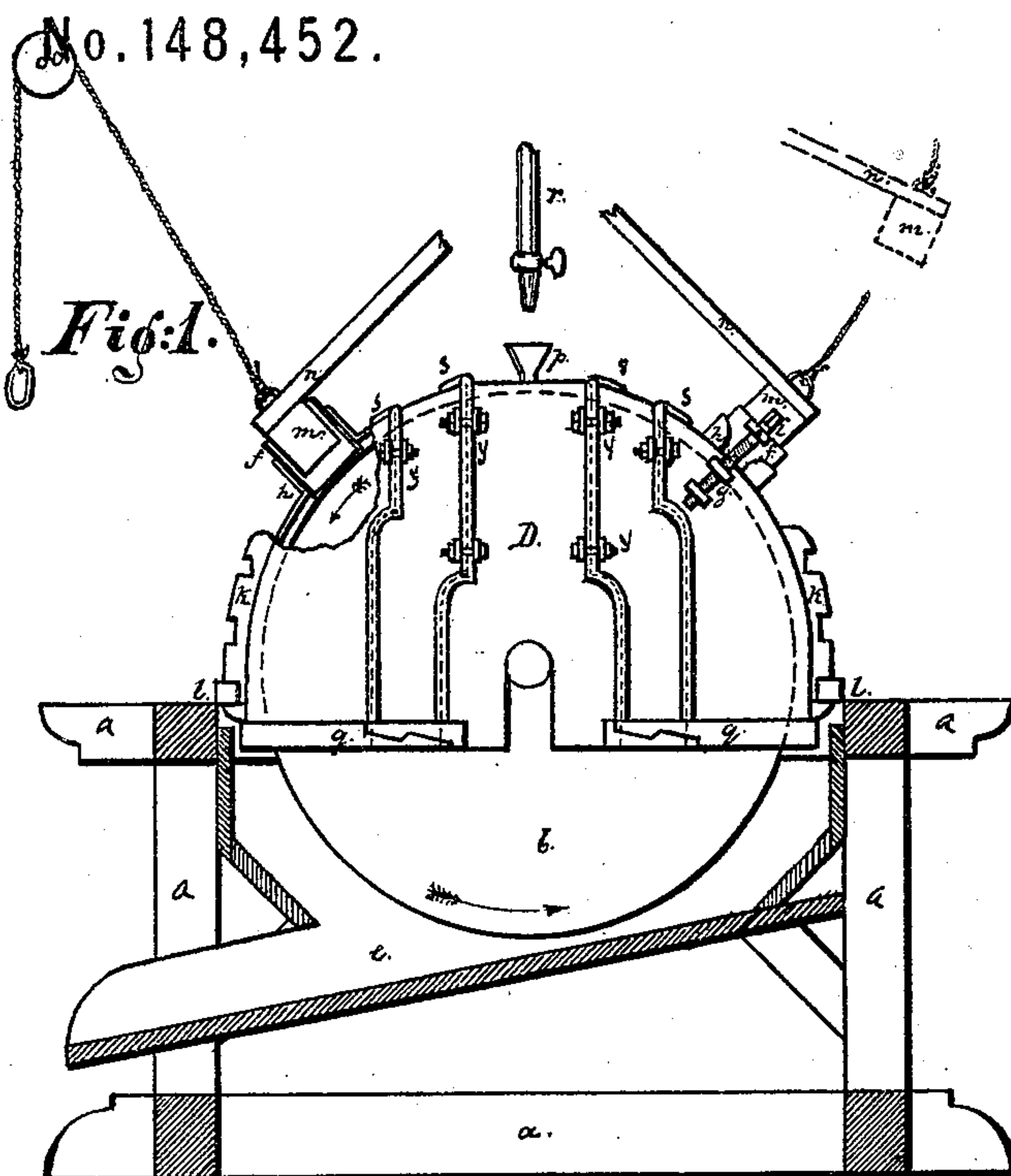


Fig:2.

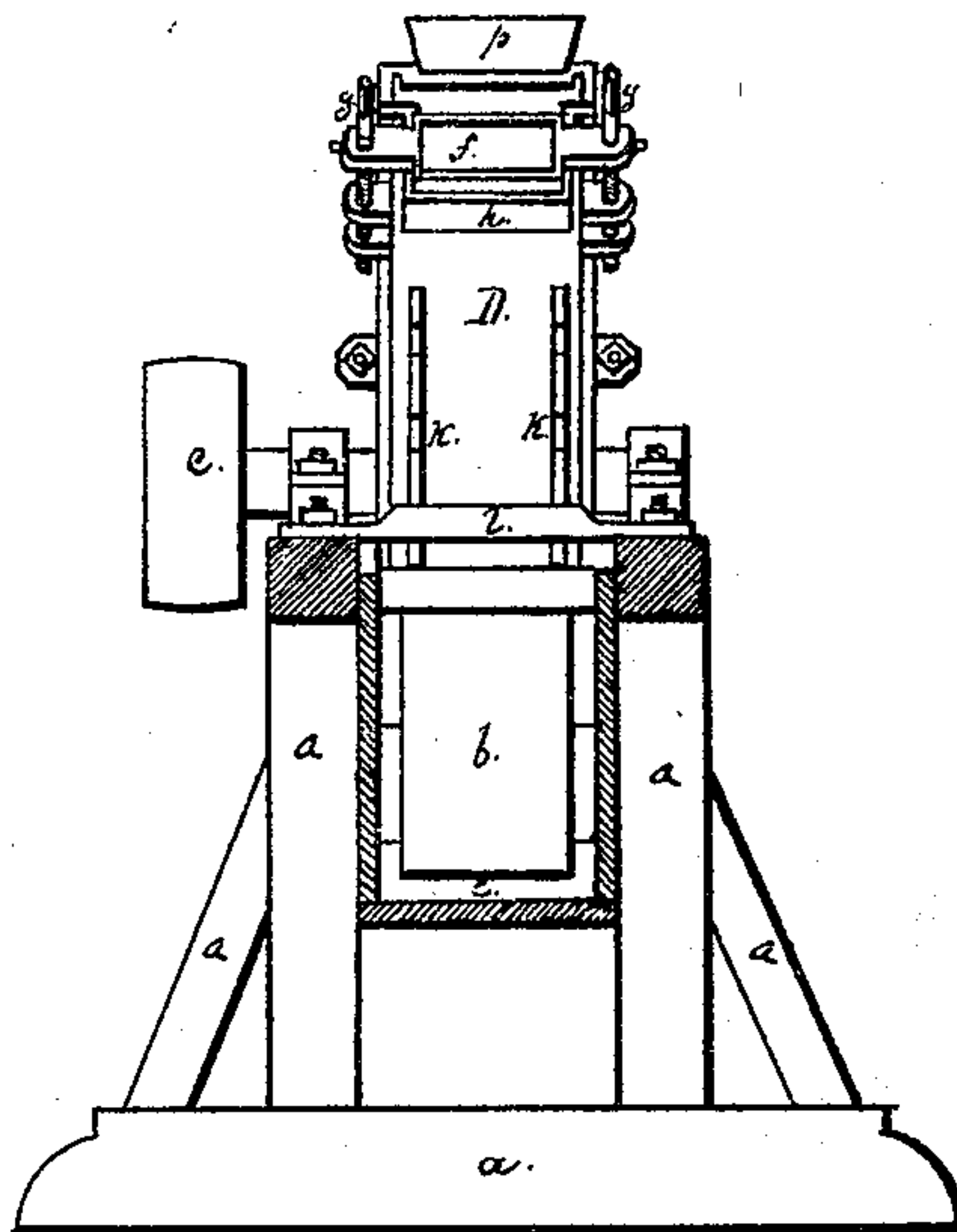


Fig:5.

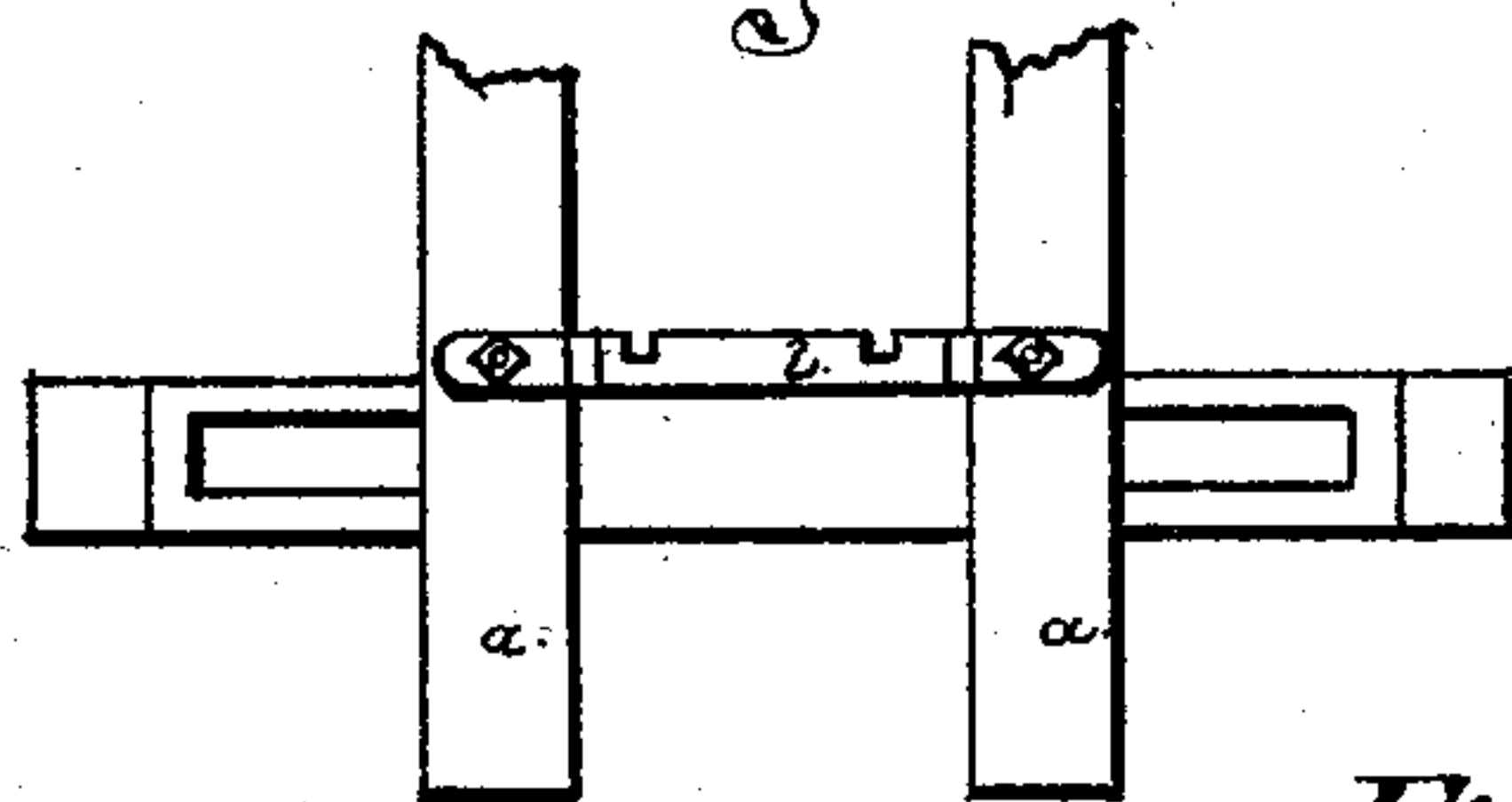


Fig:3.

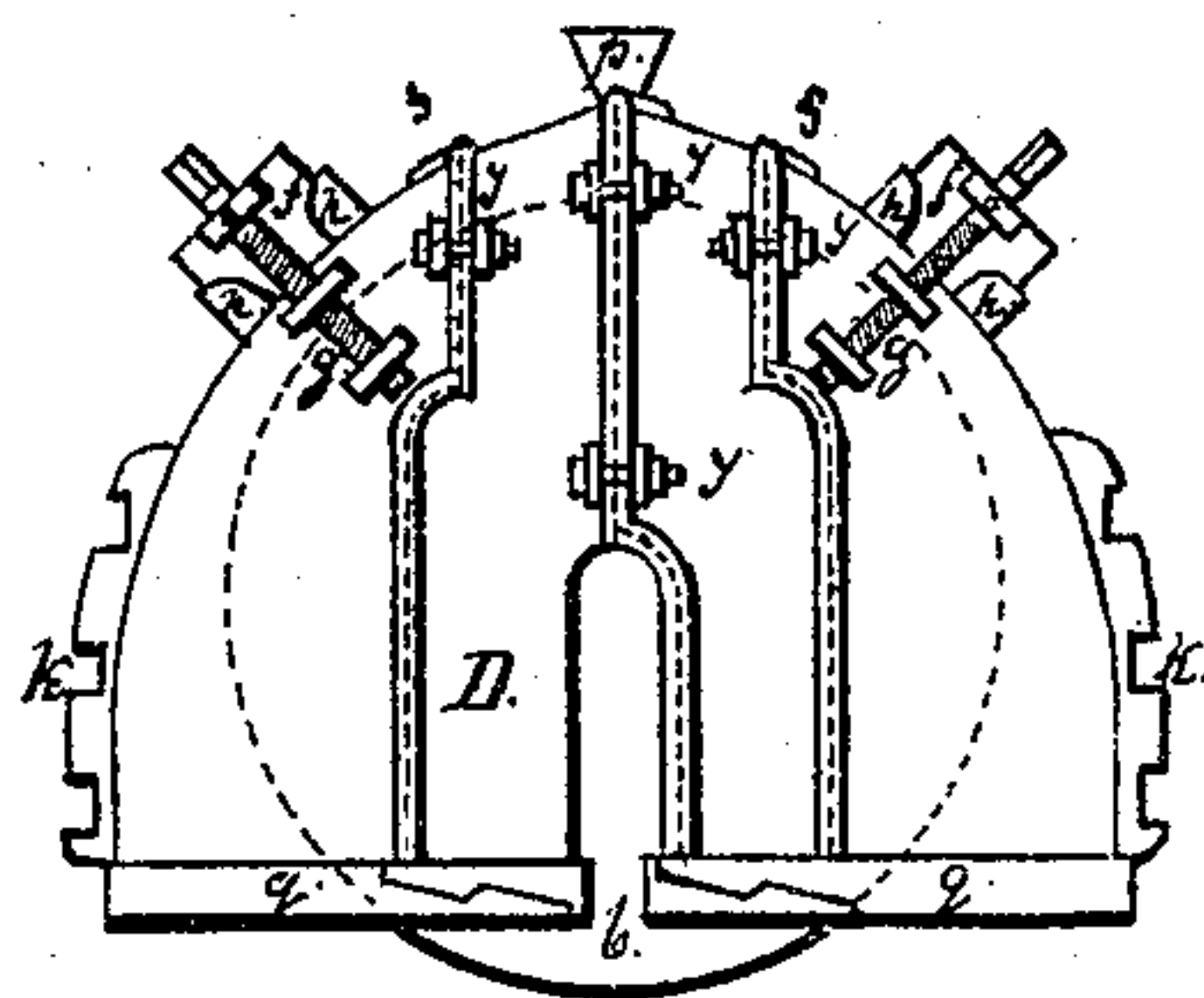
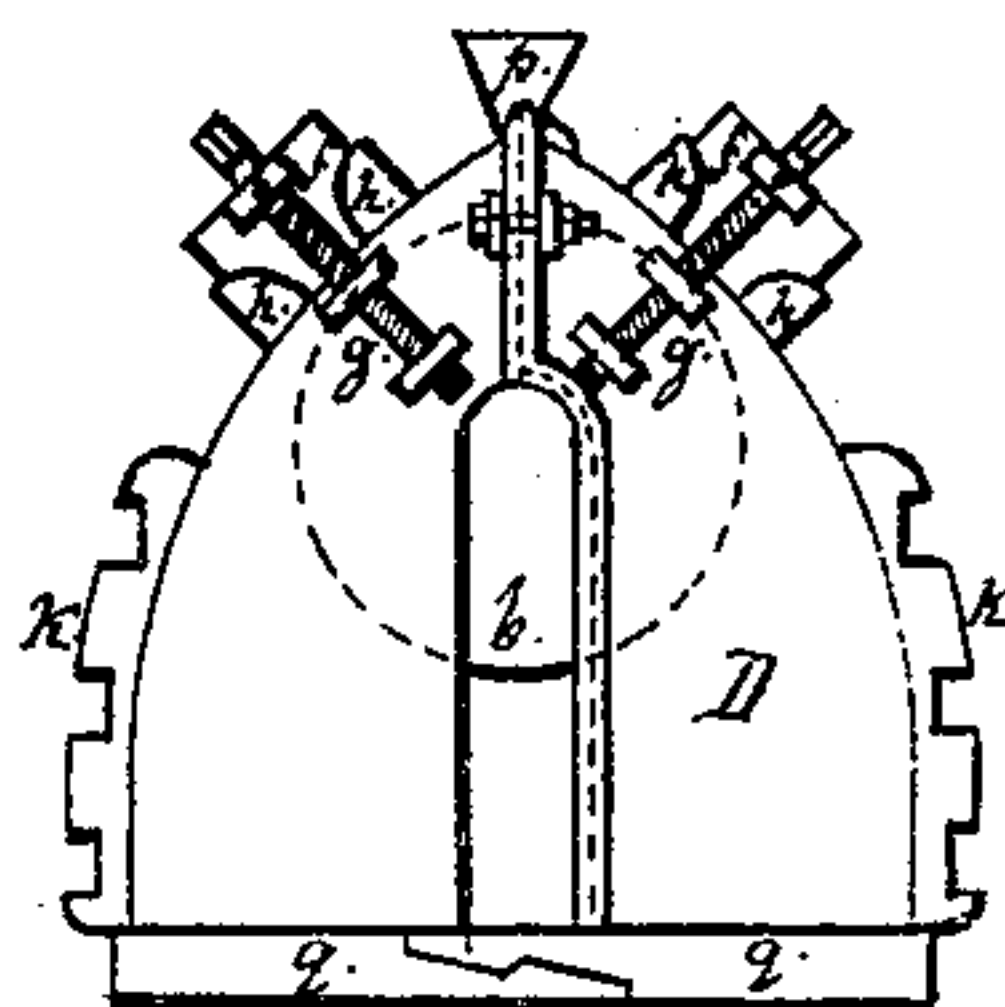


Fig:4.



Witnesses:

C. L. Ewert,
Henry N. Miller

Inventor:

Augustus Harms,
Augustus Wagenfuehr
per Alexander Mason
Attorneys

UNITED STATES PATENT OFFICE.

AUGUSTUS HARMS AND AUGUSTUS WAGENFUEHR, OF BLOOMINGTON, ILL.

IMPROVEMENT IN WOOD-GRINDERS FOR PAPER-PULP.

Specification forming part of Letters Patent No. **148,452**, dated March 10, 1874; application filed January 12, 1874.

To all whom it may concern:

Be it known that we, AUGUSTUS HARMS and AUGUSTUS WAGENFUEHR, of Bloomington, in the county of McLean and in the State of Illinois, have invented certain new and useful Improvements in Pulping-Machines; and 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, making a part of this specification.

The nature of our invention consists in the construction of a machine for grinding wood or other material to pulp, as will be hereinafter more fully set forth.

In the accompanying drawing, Figure 1 is a side elevation, and Fig. 2 an end view, of our entire machine. Figs. 3 and 4 show the machine contracted according to the size to which the grindstone has been reduced by wear. Fig. 5 is a plan view of one end of the frame.

a represents the frame-work of our machine, upon which is hung a large thick grindstone, *b*. Through the center of the grindstone passes a shaft, *b'*, upon which, at one end, is also secured a pulley, *c*. The grindstone is made to revolve by a belt passing around said pulley. The under part or half of the stone is sheathed or incased with wood or other suitable material, which forms or serves as a spout, *e*, for conveying the ground pulp from the stone. The upper half, or more, of the stone is sheathed with a strong cast-iron or other metal cap, *D*, which may be made in five or more sections, as shown. These sections are constructed with a rabbet, either by means of a strip of metal on the outside, or in the thickness of the plate, the outside of the rabbet being on all the plates or sections toward the line of the motion of the stone. The different sections of the cap *D* are bolted together through ears which are attached to each edge of the sections, as shown at *y*, Fig. 1. *ff* represent sliding boxes, into which the material is placed to be reduced to pulp. These sliding boxes are adjusted and held in place by screws *g g*, so as to allow the boxes to follow the stone closely as it is gradually reduced in circumference by its work. The boxes are placed between flanges *h h*, which rise from the cap and serve

as guides for said boxes. The set-screws *g g* have each a groove around it, near the upper end, into which, through the ears of the feed-boxes, pins or keys are fixed, so as to keep the boxes firmly in their places. *l l* represent strong notched metal bars secured on top of the frame *a*, and which fit into notches *k k* on the opposite sides of the periphery of the cap, and on a line with the axis of the stone, for supporting the cap in its place. As the stone diminishes in circumference, both bars *l* will be moved forward toward the axis of the stone. When this is done one or more sections of the cap must be removed, and the bars *l* will then rest in a higher notch, *k*, to correspond with the contracted size of the cap *D*. *m* represents a heavy block of wood fitted to each feed-box to hold the materials down onto the stone which are to be reduced to pulp. Attached to the block *m* is a timber, *n*, to aid in keeping it at the right angle, the other end of the timber being attached to a staple above. *O* is a pulley, over which a rope passes, attached to the timber *n*, to aid in supporting the block *m*, and by which the block is to be removed from the feed-boxes when more material is to be put into them. *r* represents a rubber tube provided with a stop-cock, through which water is supplied for the stone, which is received by a funnel, *p*, affixed to the central section of the cap. When that section is removed an extra funnel is to be used, which is fitted into a recess, *s*, in the respective sides of those sections of the cap which are perpendicularly over the axis of the stone when the central and other sections of the cap are removed. The feed-boxes *ff* are set at an angle of about forty-five degrees from the center of the stone. The wood to be ground is put into the feed-boxes *ff*, and the block *m* placed thereon to keep the wood down. The lower edge of the feed-boxes must be kept very near the stone, so as to prevent the passage of chips and splinters. This can be done to a considerable extent by the use of the set-screws *g g*. When, by reason of wearing away of the stone, the feed-boxes do not reach near enough to the stone, the middle section must be removed. The cross-bars *l*, supporting the cap, are then moved inward toward each other till the remaining portions of the cap meet. This

brings the edges of the cap nearer the stone. To bring the top of the cap nearer the stone, the whole remaining cap must be dropped, so that the cross-bar *l* enters one of the upper notches, *k*. This process of moving up the cross-bars *l* and dropping the cap so that the cross-bar enters a higher notch must be repeated every time one or more sections of the cap are removed.

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

1. The cap *D*, made in sections, fastened together as described, whereby one or more sections may be removed, substantially as and for the purposes herein set forth.

2. The combination of the cap *D*, composed of removable sections, and provided with the notched edges *k k* and the movable notched

cross-bars *l l*, all constructed substantially as and for the purposes herein set forth.

3. The feed-boxes *ff*, regulated and held in place by means of set-screws *gg*, substantially as and for the purposes herein set forth.

4. The combination of the sectional cap *D*, grindstone *b*, cross-bars *l*, notches *k*, feed-boxes *f*, blocks *m*, and trough *e*, all constructed substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 17th day of December, 1873.

AUGUSTUS HARMS.

AUGUSTUS WAGENFUEHR.

Witnesses:

W. M. HUTCH,

T. W. BELCHAM.