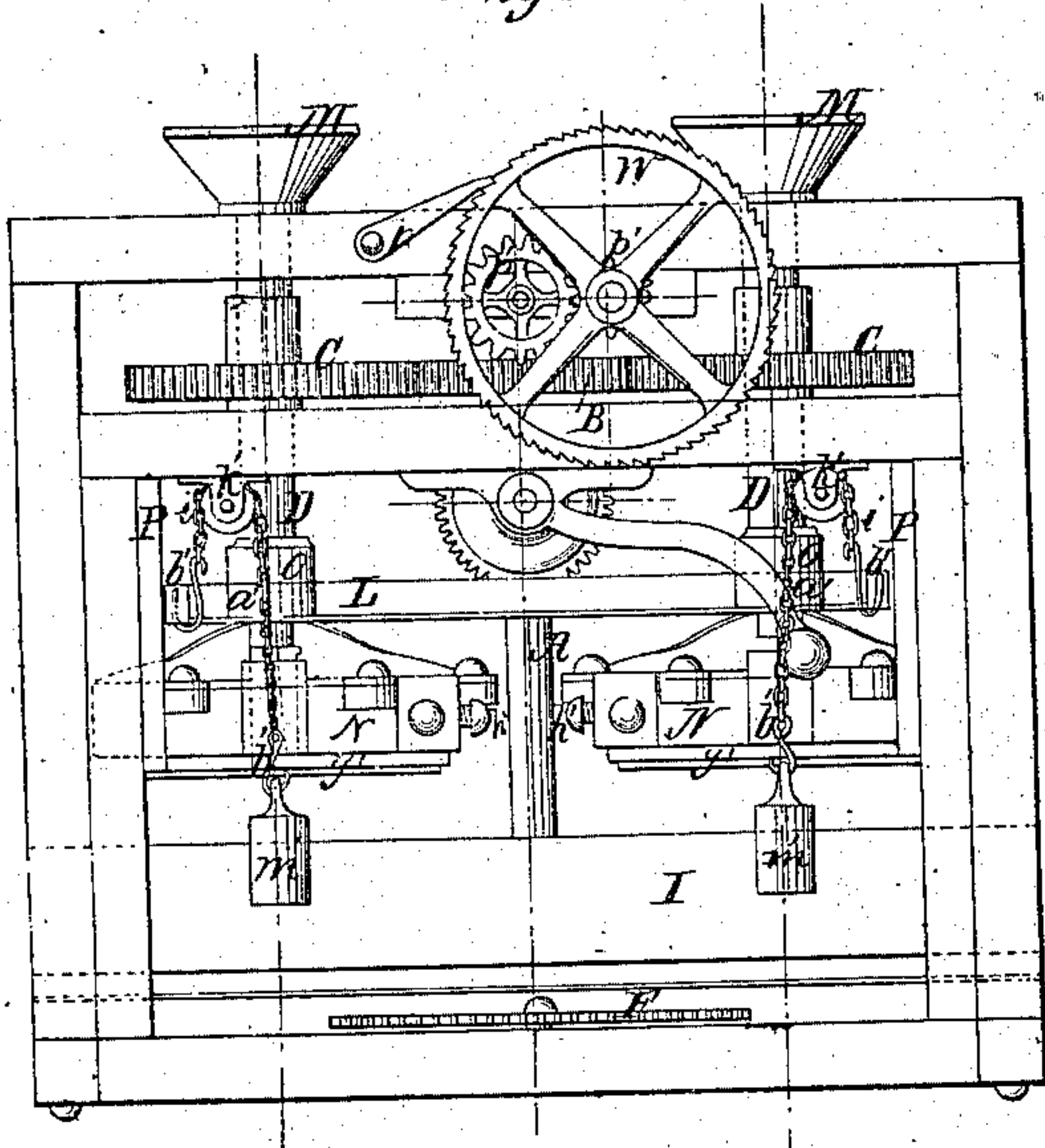


F. L. King,

2 Sheets, Sheet 1.

Dressing Stone.

N^o 79,838. Fig. 1.



Patented July 14, 1868.
Fig. 2.

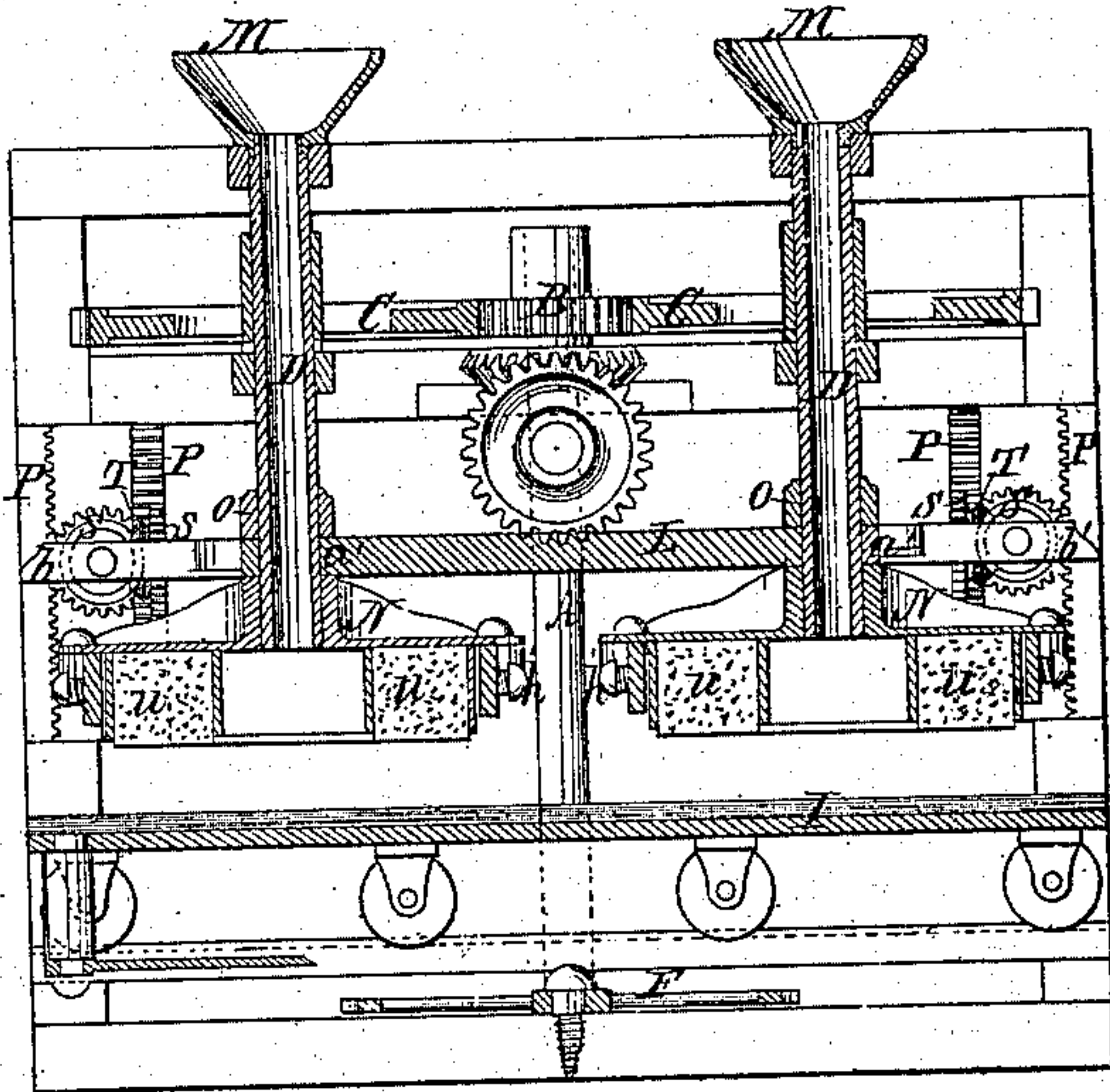


Fig. 3.

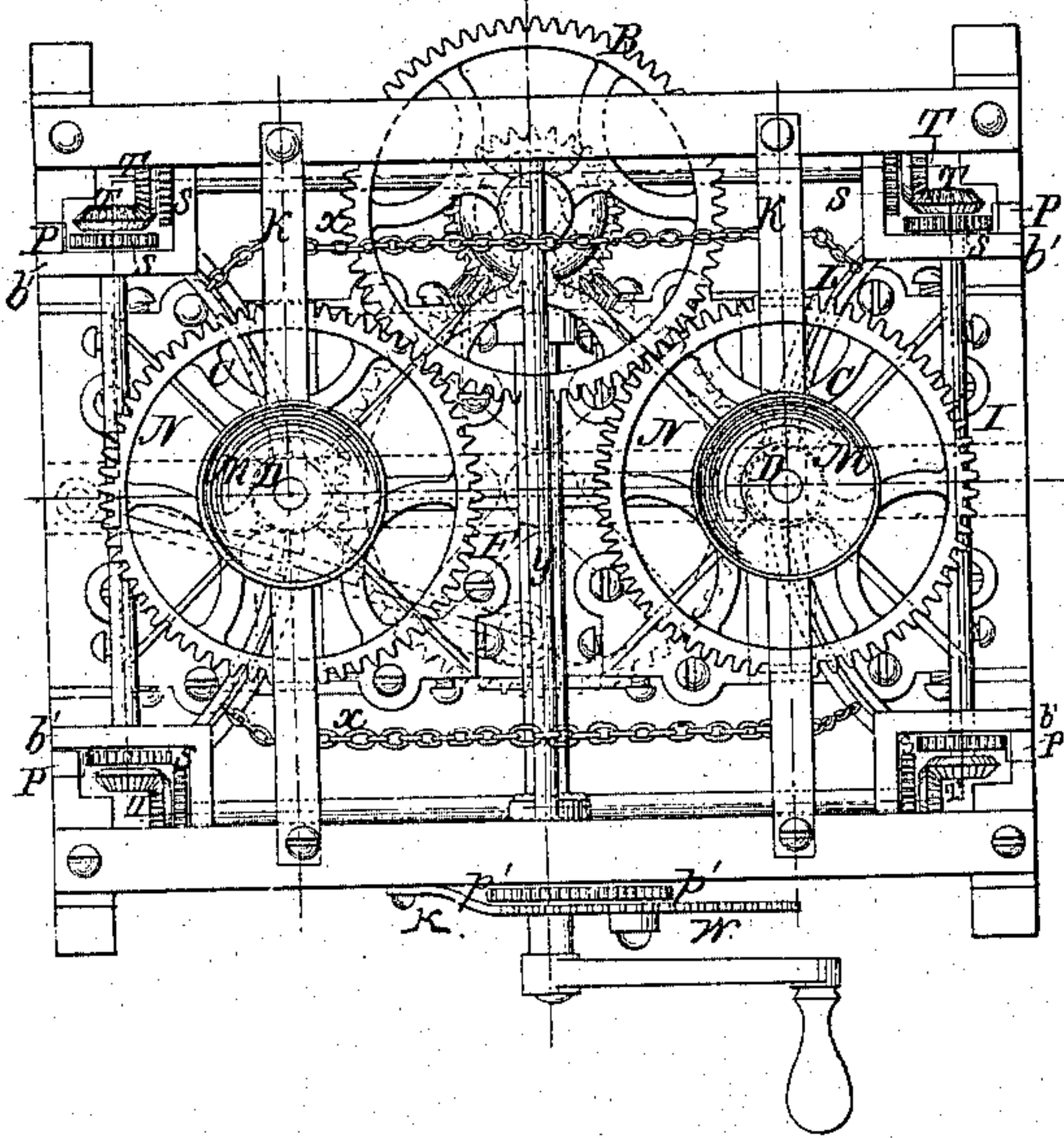
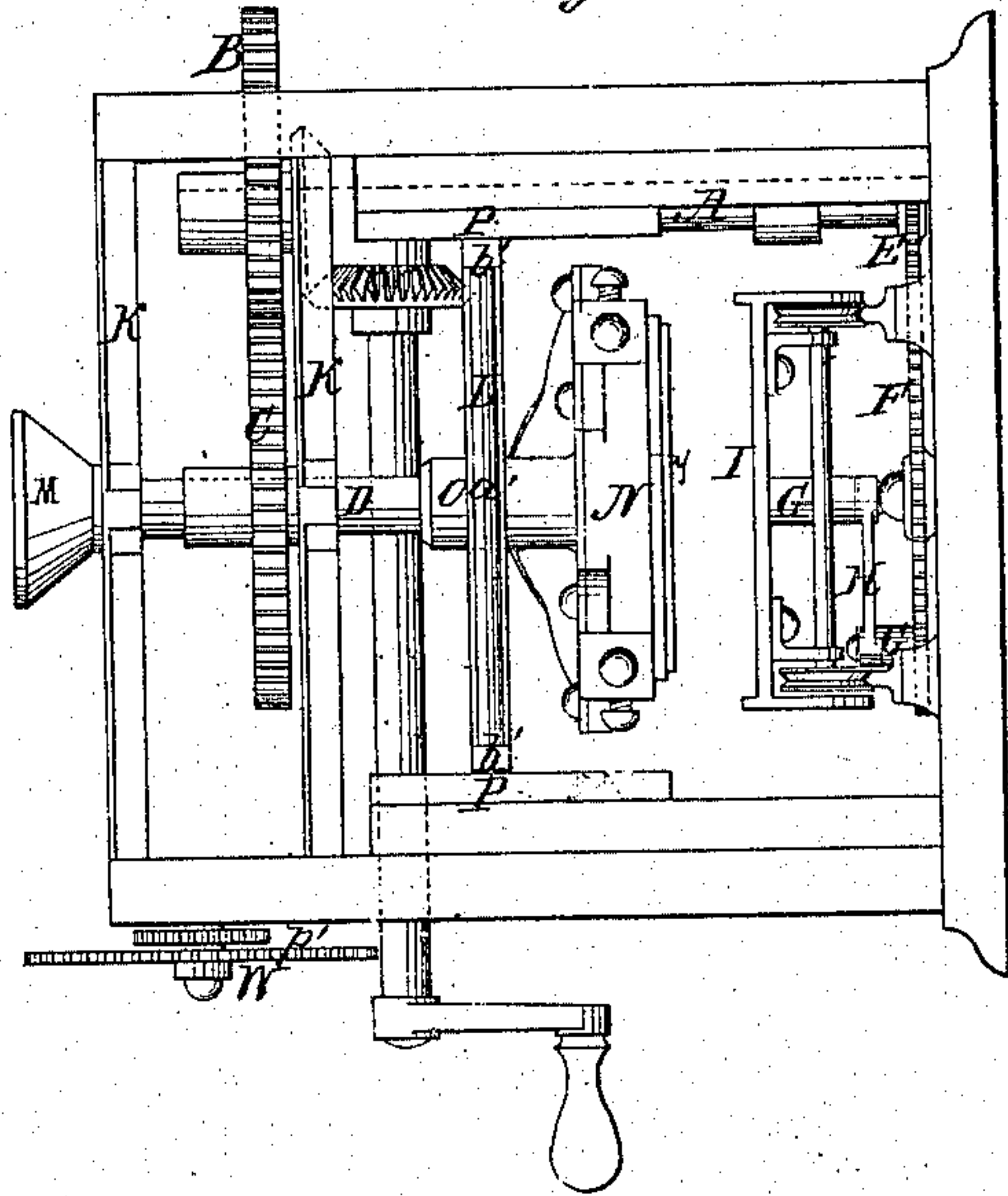


Fig. 4.



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Dressing Stone.

N^o 79,838. Fig. 5.

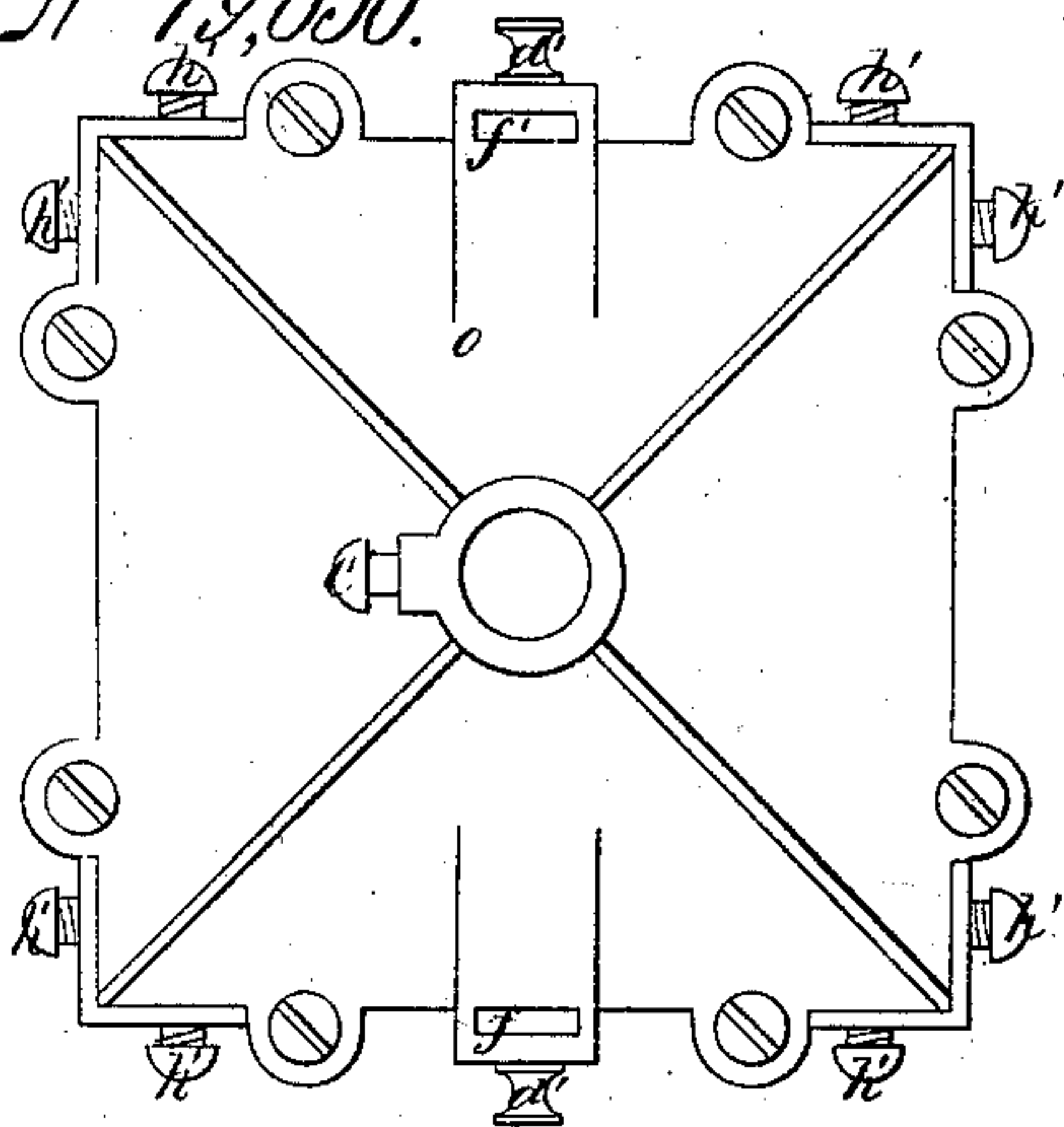


Fig. 6. Patented July 14, 1868.

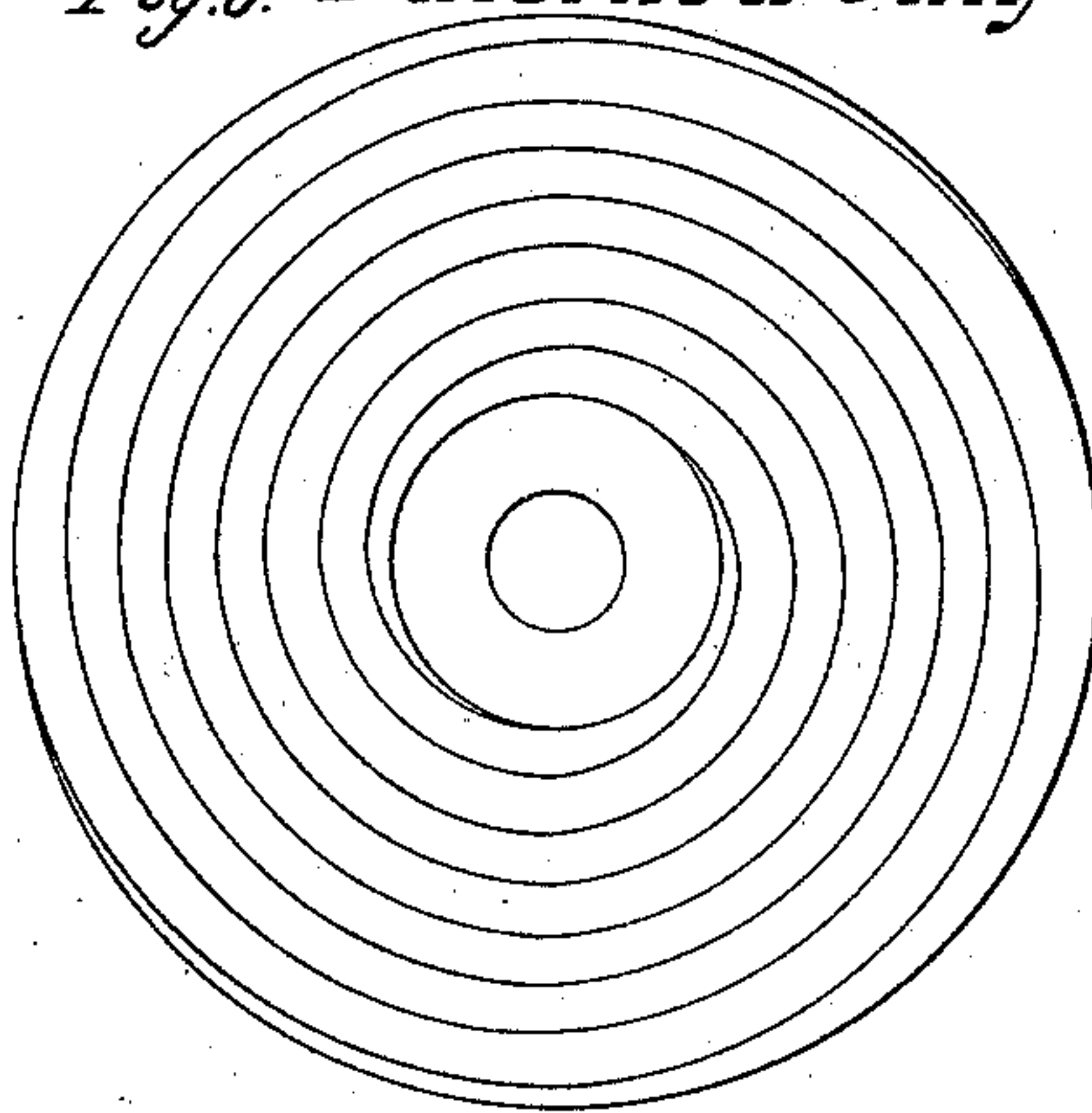


Fig. 7.

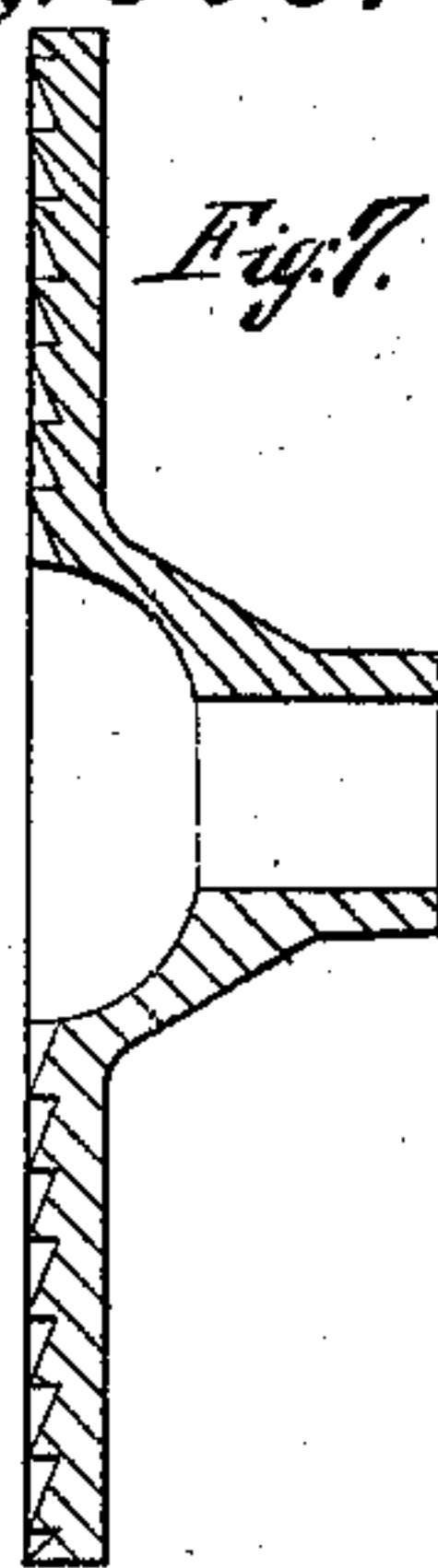


Fig. 8.

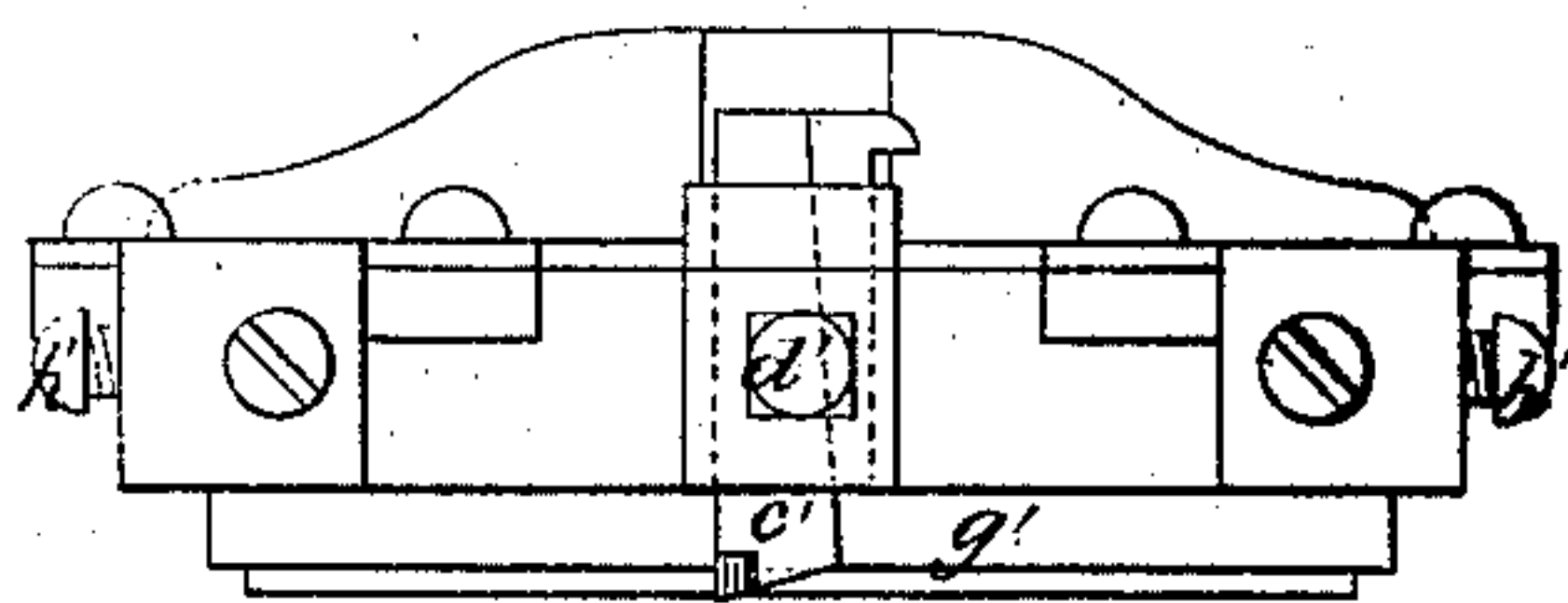


Fig. 9.

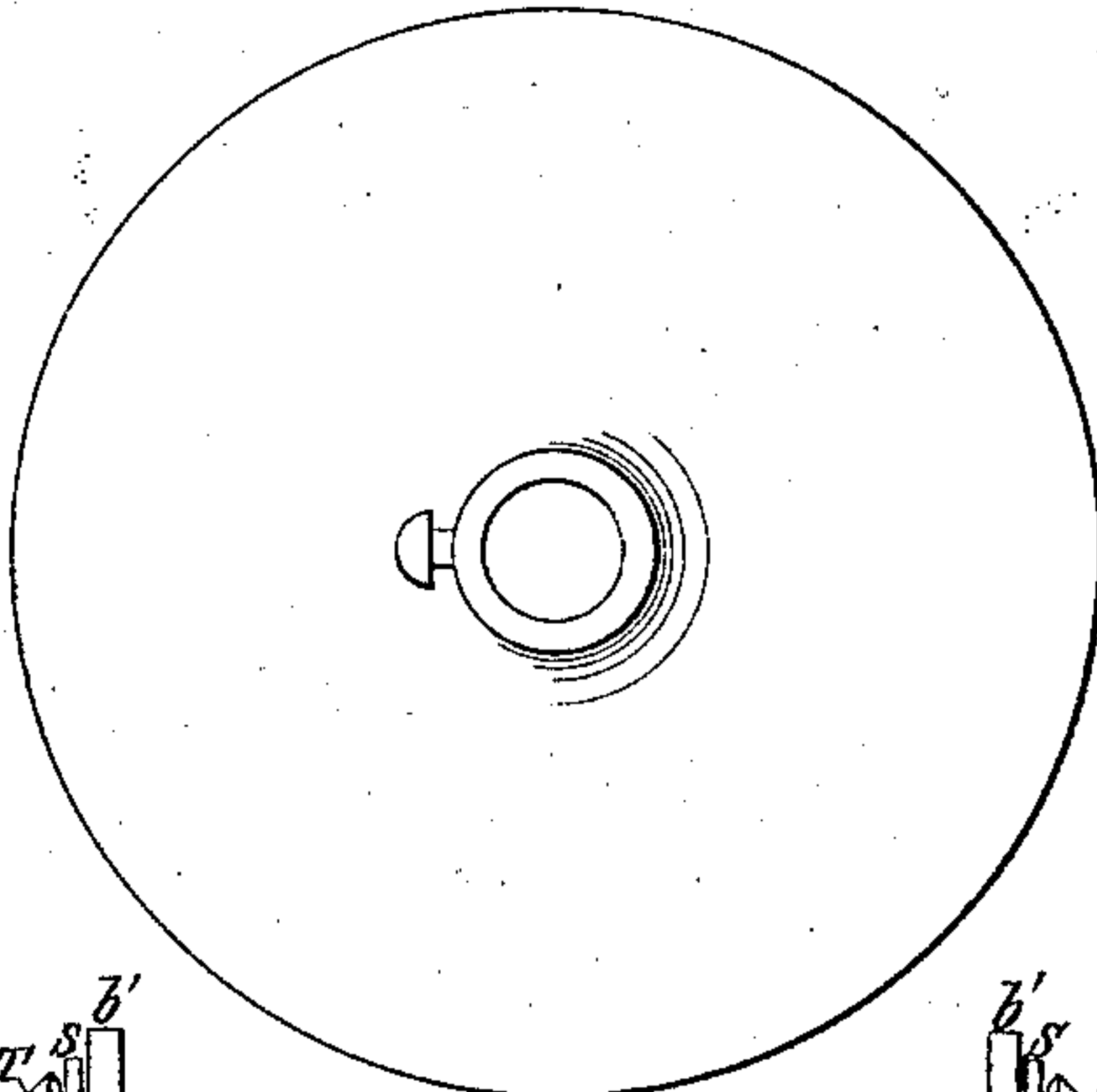


Fig. 10.

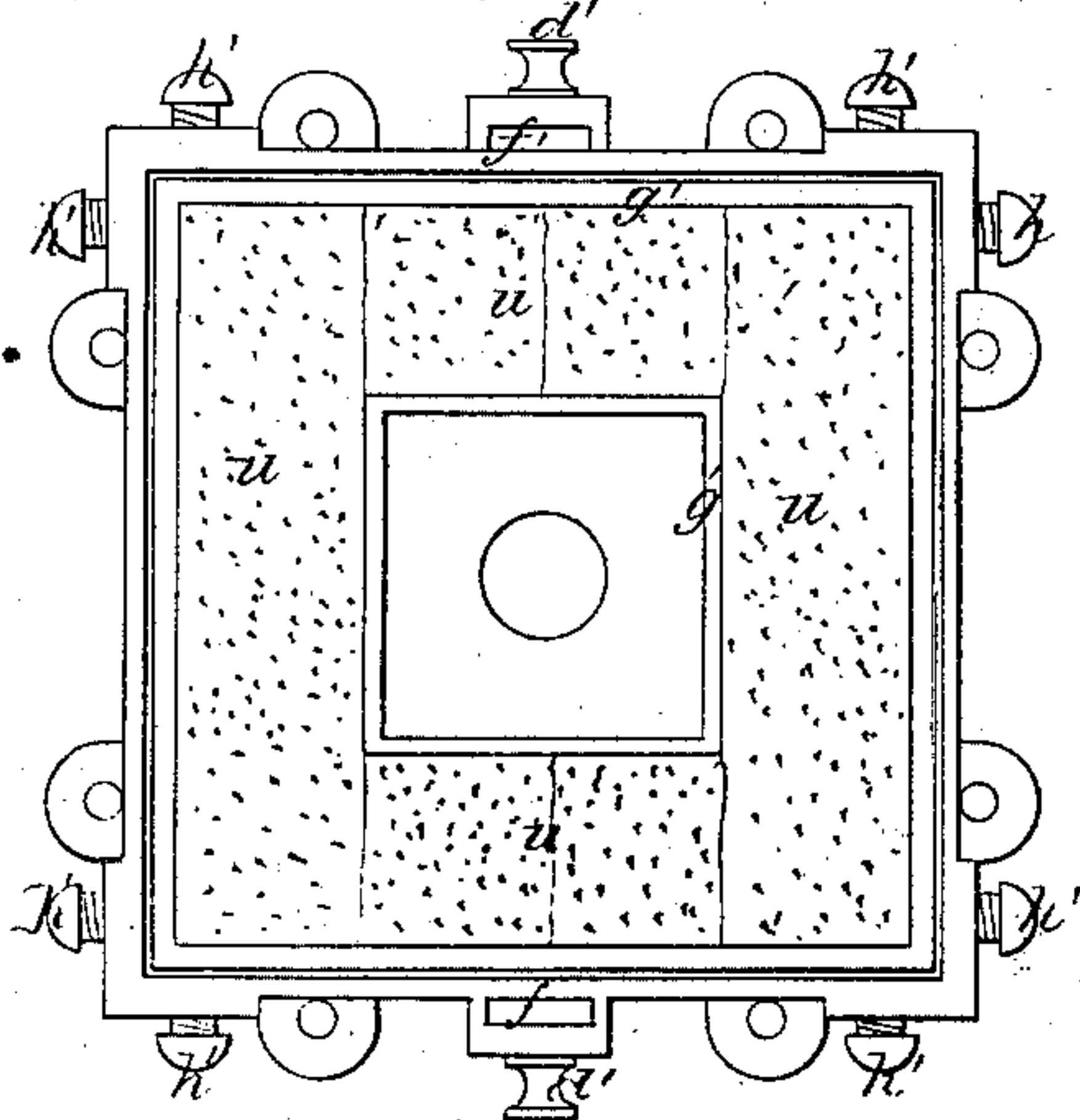
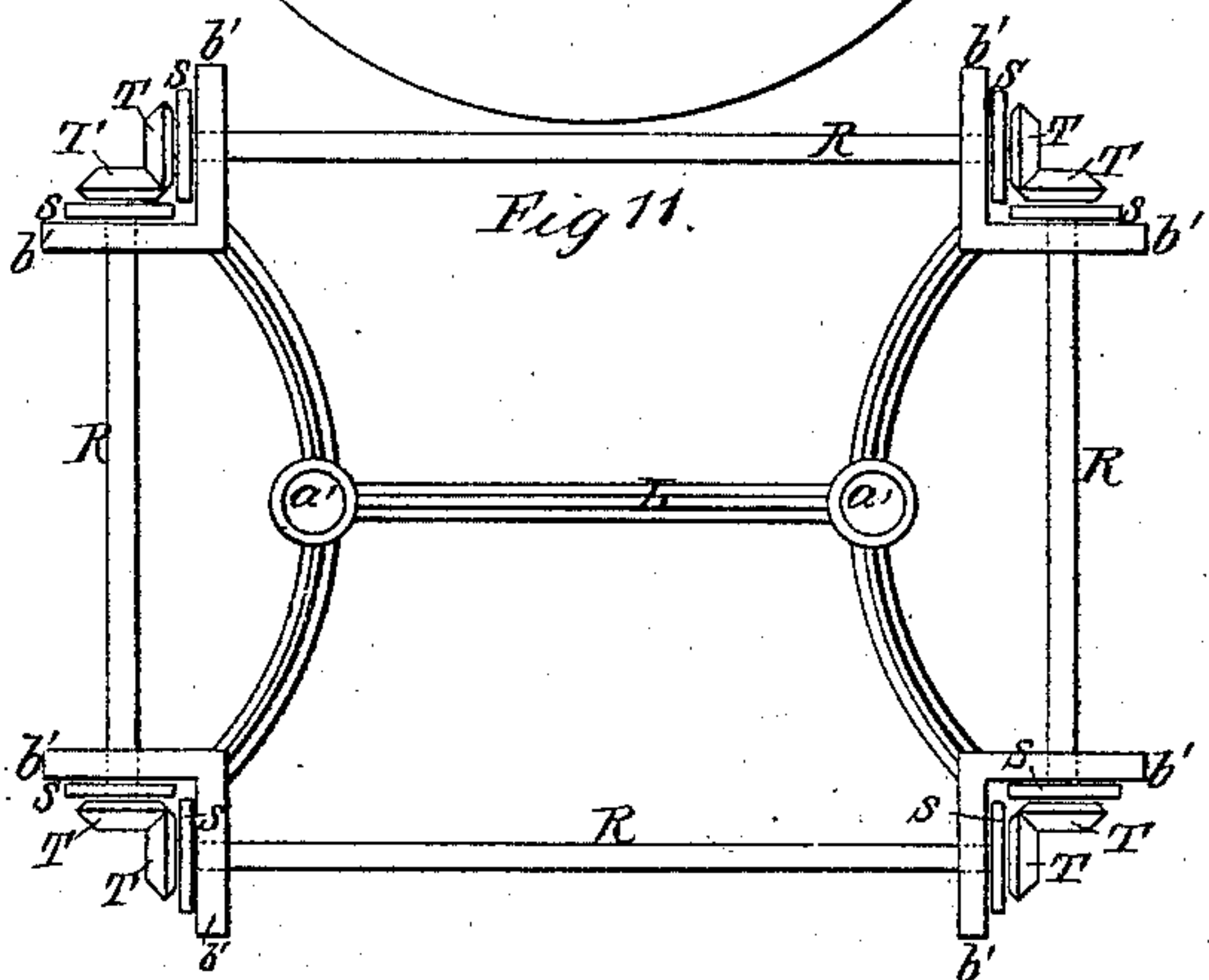


Fig. 11.



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UNITED STATES PATENT OFFICE

FRANCIS L. KING, OF WORCESTER, MASSACHUSETTS.

IMPROVED MACHINE FOR DRESSING STONE.

Specification forming part of Letters Patent No. 79,838, dated July 14, 1868.

To all whom it may concern:

Be it known that I, FRANCIS L. KING, of the city and county of Worcester, and State of Massachusetts, have invented new and useful Improvements in Machinery for Dressing Stone; and I do hereby that the following is a full 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.

Figure 1 is a front elevation. Fig. 2 is a sectional elevation. Fig. 3 is a plan of the entire machine. Fig. 4 is an end elevation. Fig. 5 is a top view of the grinder-box. Fig. 6 is a bottom view of the scroll-grinder. Fig. 7 is a sectional view of the same. Fig. 8 is a side elevation of the grinder-box. Fig. 9 is a top view of the scroll-grinder. Fig. 10 is a bottom view of the grinder-box, showing the manner of adjusting stone in the same. Fig. 11 is a plan of the self-adjusting frame.

My invention consists of an improved arrangement for adjusting the stone to be dressed, so as to hold them steadily and securely in the same relative position, thus insuring a perfectly plane surface; also, an improved method of supplying sand and water, a peculiar-shaped scroll-grinder, a peculiarly-arranged self-adjusting frame and manner of raising and lowering the same at will, and an arrangement for relieving the grinders of all surplus weight not necessary as a grinding-power.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation by referring to the drawings annexed.

The frame of my machine may be constructed of any suitable material, the form being so arranged as to furnish the necessary strength and bearings of the different parts. In a vertical position, extending from the upper to the lower portion of the frame, is the main driving-shaft A, carrying at the upper end the master-wheel B, which gears into gears C C. On the vertical grinder-shafts D D, hereinafter more fully explained, the shaft A, at the lower end, carries the small gear E, (shown on Fig. 4,) which meshes into the gear F, which, by means of the standards G G and arm H, (shown on Fig. 4,) give the reciprocating motion to the carriage I. The same motion may be imparted by suitably-

arranged gears and a shipper, or by suitably-arranged friction-pulleys, according to convenience or size of machine. The grinder-shafts D D are supported in a vertical position in the stationary bars K K (best shown in Fig. 4) by suitable bearings in the self-adjusting frame L. (Best shown in Fig. 11.) The gears C C are furnished with a set-screw or feather, which slides in a slot cut lengthwise in the grinder-shafts D D, thus allowing the grinder-shafts freely to slide up or down, while the gears C C, by means of the set-screw or feather, imparts a rotary motion. The grinder-shafts D D are made hollow. At the upper end are attached the hoppers M M, through which sand and water are conveyed to the grinding-surfaces. At the lower end of the grinder-shafts D D are attached, in suitable manner, the grinder-boxes N N, which are fully shown in Figs. 5, 8, 10. On the grinder-shafts, just above the self-adjusting frame, the collars O O are secured in a suitable manner for the purpose of raising said shafts, and the aforesaid grinders, as the self-adjusting frame raises or lowers, also for the purpose of holding both grinders directly in line, preventing either one of the grinders from dropping down faster than the other, thus securing perfect work, even when the stone at one end of the machine is much softer than at the other. The self-adjusting frame L is made of any suitable material, and furnishes bearings for the grinder-shafts at the point *a a'*, which, in connection with the sliding bearings *b b'*, which slide against the rack P P, prevent any vibration of the grinder-shafts. At each end of the shafts R R, which pass through the arms of the self-adjusting frame L, are firmly attached the spur-gears S S and bevel-gears T T, the bevel-gears in each corner gearing into each other, and the spur-gears mesh into the racks P P, which are firmly attached to the corner-posts of the machine. By this arrangement the self-adjusting frame retains its perfect level, and runs freely up or down, even when the weight to be sustained is much greater at one end than at the other, and thereby securing perfect work by holding both grinders perfectly level. The grinding-boxes N N are for the purpose of holding the upper stones, and should be made of iron to give strength, and are adjustable, by means of set-screw *c'*, or its equiv.

alent, to the lower end of the grinder-shafts D D, by which a rotary motion is imparted.

For convenience in handling and adjusting the stone, the same is made in sections, the sides being attached to the top by bolts. On the side the strong knobs *d d'* are for the purpose of handling and turning with a derrick. The slots *f f'* are for the purpose of adjusting steel cutters *e'*, to be used in roughing off any stone where they may be used to advantage. The inner frames, *g g'*, are also for the more convenient adjustment of the stone, into which the stone U are fixed, as shown by Fig. 10, the whole then being fixed in the grinder-box by set-screws *h h'*. This admits of the raising or lowering of the frames *g g'* in the grinder-boxes, so the face of the stone can be brought on a level with the stone in the other grinder when one is much thicker than the other.

Figs. 6, 7, and 9 represent a top, bottom, and sectional view of a scroll-grinder made of iron, the scroll being chilled for durability. This grinder may be adjusted to the bottom of the grinder-shaft D, the same as the grinder-boxes are. The sand, being fed through the shaft, falls upon the stone in the carriage beneath. The hollow cone in the center prevents clogging. As the grinder rotates, both the sand and the scroll scour and grind off the surface of the stone beneath.

The carriage I is filled with stone, which are secured by suitable clamps, and is driven back and forth by machinery, hereinbefore described, the rotating grinders grinding the upper surface of the stone to a perfect level. The sides of the carriage are extended down, so as to protect the wheels and the machinery beneath. The track is made V shape, to prevent the lodgment of matter falling from above. The wheels are grooved to correspond to the track. The chains X X, attached to the self-adjusting frame, are for the purpose of raising said frame with the grinders. They pass up over the pulleys, under the bars K K, through the shaft Y. (Shown in Fig. 3.) At one end of said shaft suitable gears are arranged in connection with the shaft and ratchet-wheel W, so that a single person can raise the entire weight at will. The chains *i i'*, passing through the pulleys *k k'*, with their weights *m m'* attached, are for the purpose of relieving the

grinders of any superfluous weight not necessary for economical grinding. The crank-shaft is not a necessary adjunct for a working machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangements of the grinder-blocks U U so as to leave a hollow space in the center, and the conveyance of sand and water to the hollow space left by this arrangement of the stone in the grinder-boxes by means of the upright hollow shafts D D and their hoppers M M, or their equivalent.

2. The collars O O or their equivalent.

3. The slots in the shafts D D, with the set-screws in the gears C C, or their equivalent, when combined with the shafts D D, gears C C, self-adjusting frame L, rotary grinder-boxes N N, and reciprocating carriage I.

4. The sectional grinder-boxes N N, the inner frames, *g g'*, the knobs *d d'*, and the set-screw *e'*, or its equivalent, arranged and operating substantially as and for the purpose described.

5. The cutters *e e'*, combined with the rotary grinder-boxes N N and the carriage I, arranged and operating substantially as and for the purpose specified.

6. The self-adjusting frame L, the shafting R R, the gears S S and T T, racks P P, and the slide-bearings *b b'*, arranged and operating substantially as and for the purpose described.

7. The hoisting-chains X X, pulleys, shaft Y, ratchet-wheel W, intermediate gears, *p p'*, and pawl *r'*, arranged and operating substantially as described, when combined with the grinder-boxes N N, self-adjusting frame L, collars O O, and shafts D D.

8. The chains *i i'*, pulleys *k k'*, and weights *m m'*, used for the purposes described, when combined with the self-adjusting frame L, grinder-boxes N N, collars O O, and shafts D D.

9. The scroll-grinder, with its hollow cone in the center, as represented in Figs. 6, 7, and 9, made and operating substantially as described.

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RUSSEL R. MCINTYRE.