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DANIEL HESS.

Improvement in Brick Machines.

No. 121,871.

Patented Dec. 12, 1871.

Fig. 1.

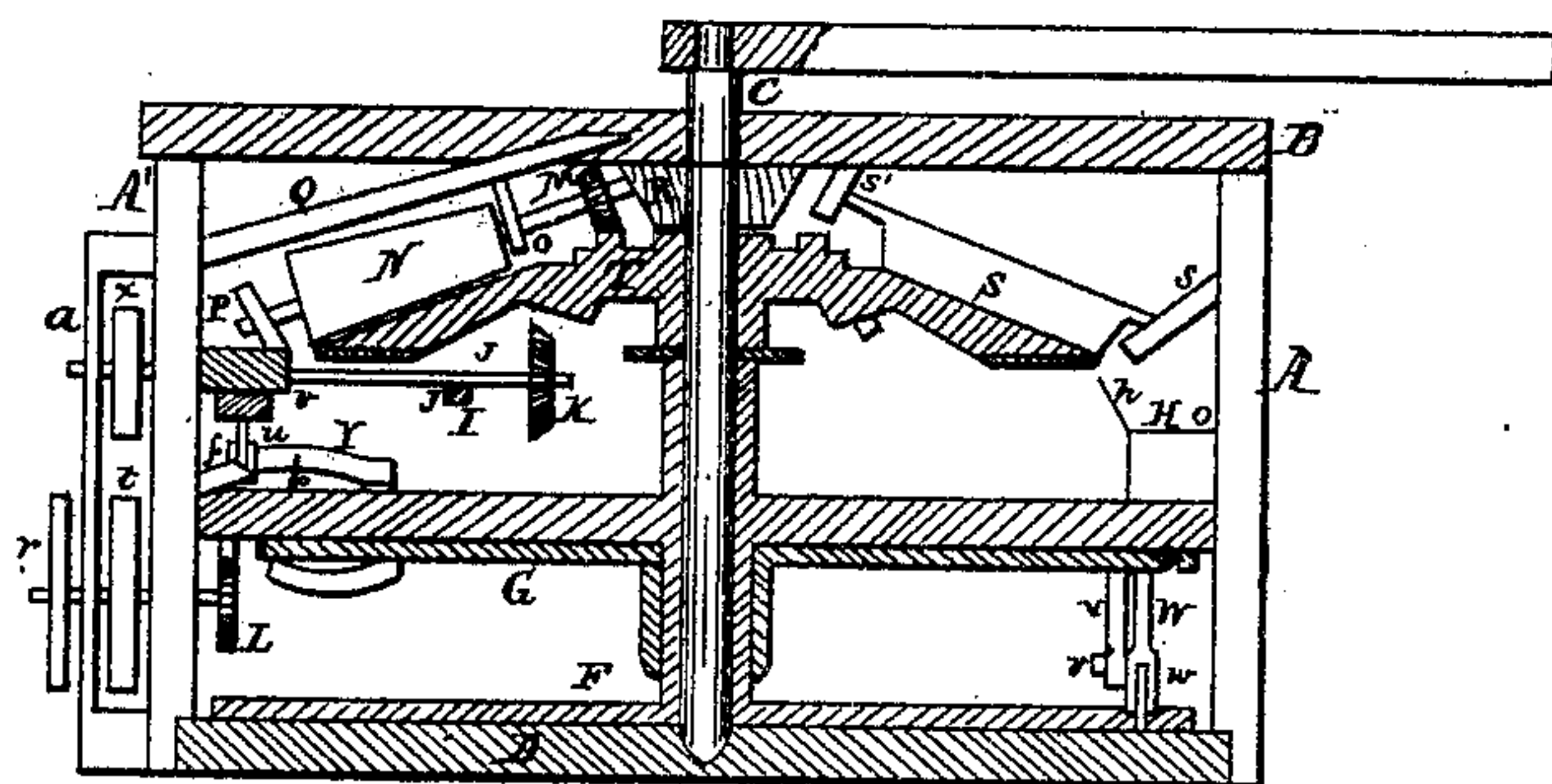


Fig. 2.

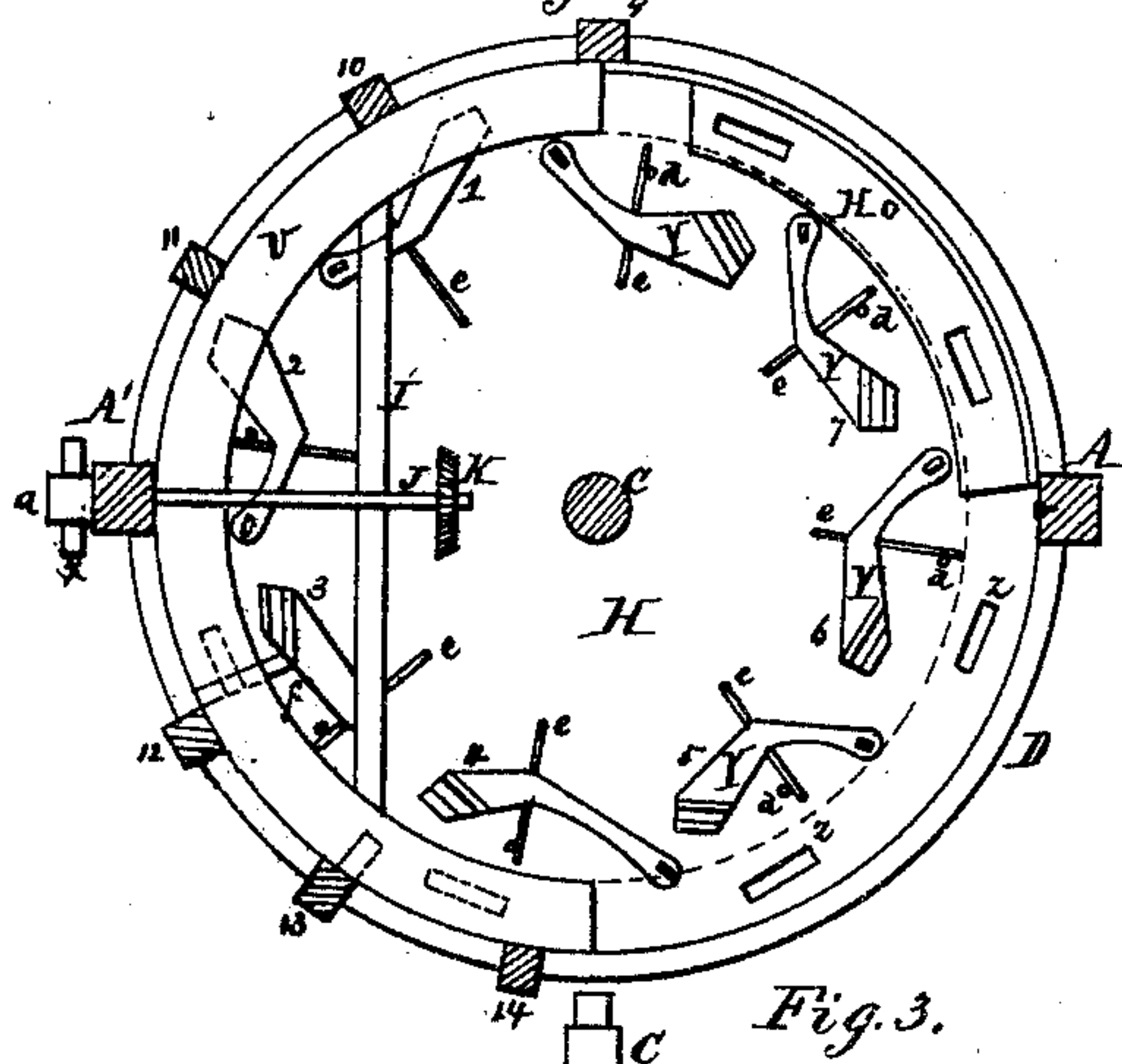


Fig. 3.

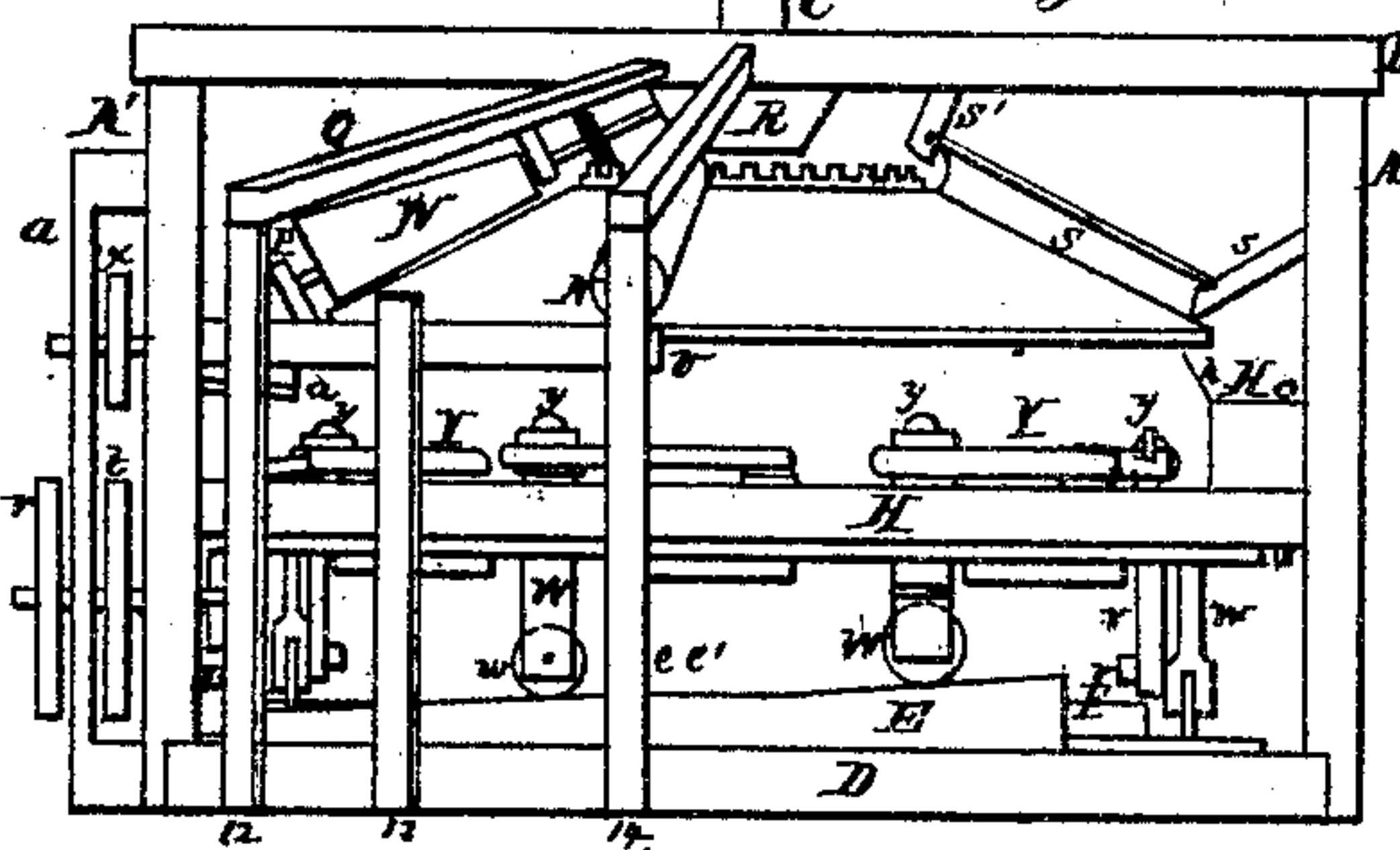


Fig. 7.

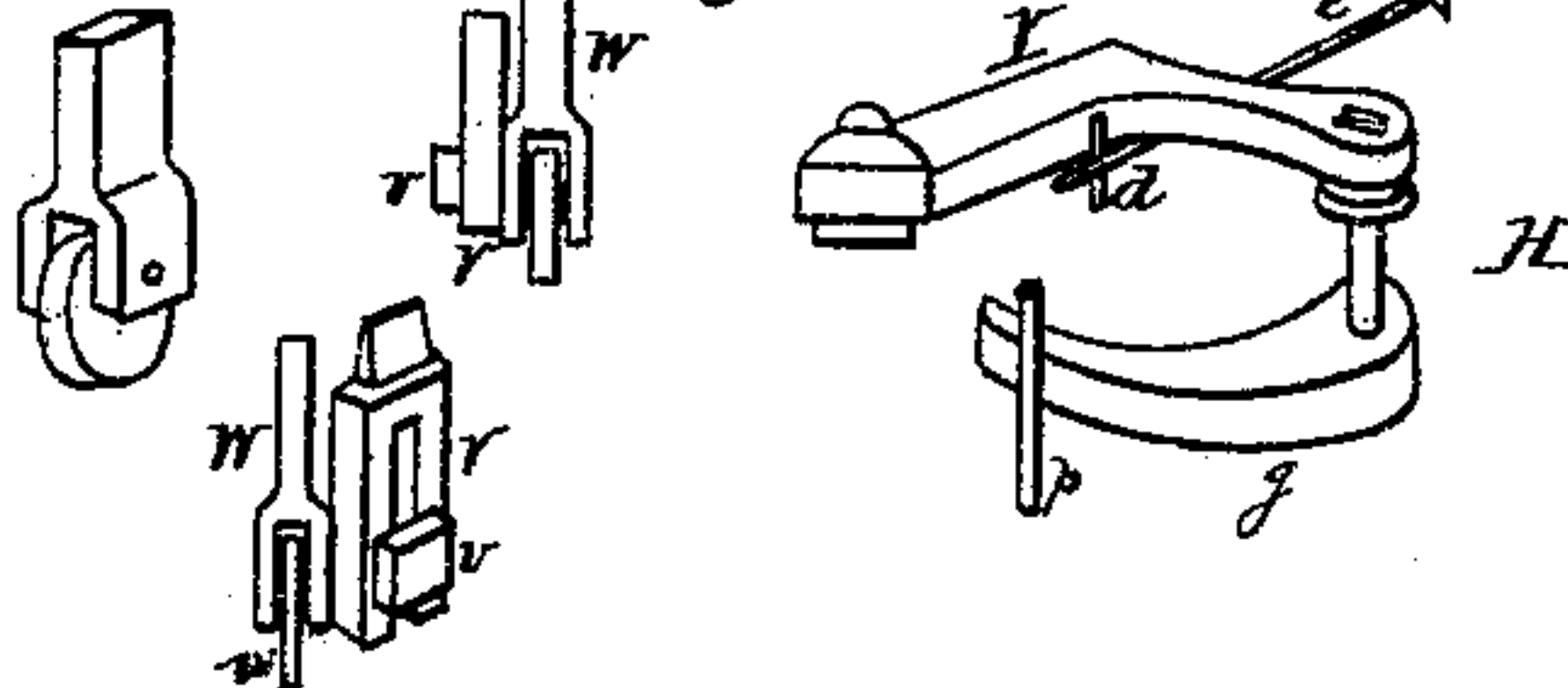


Fig. 4.

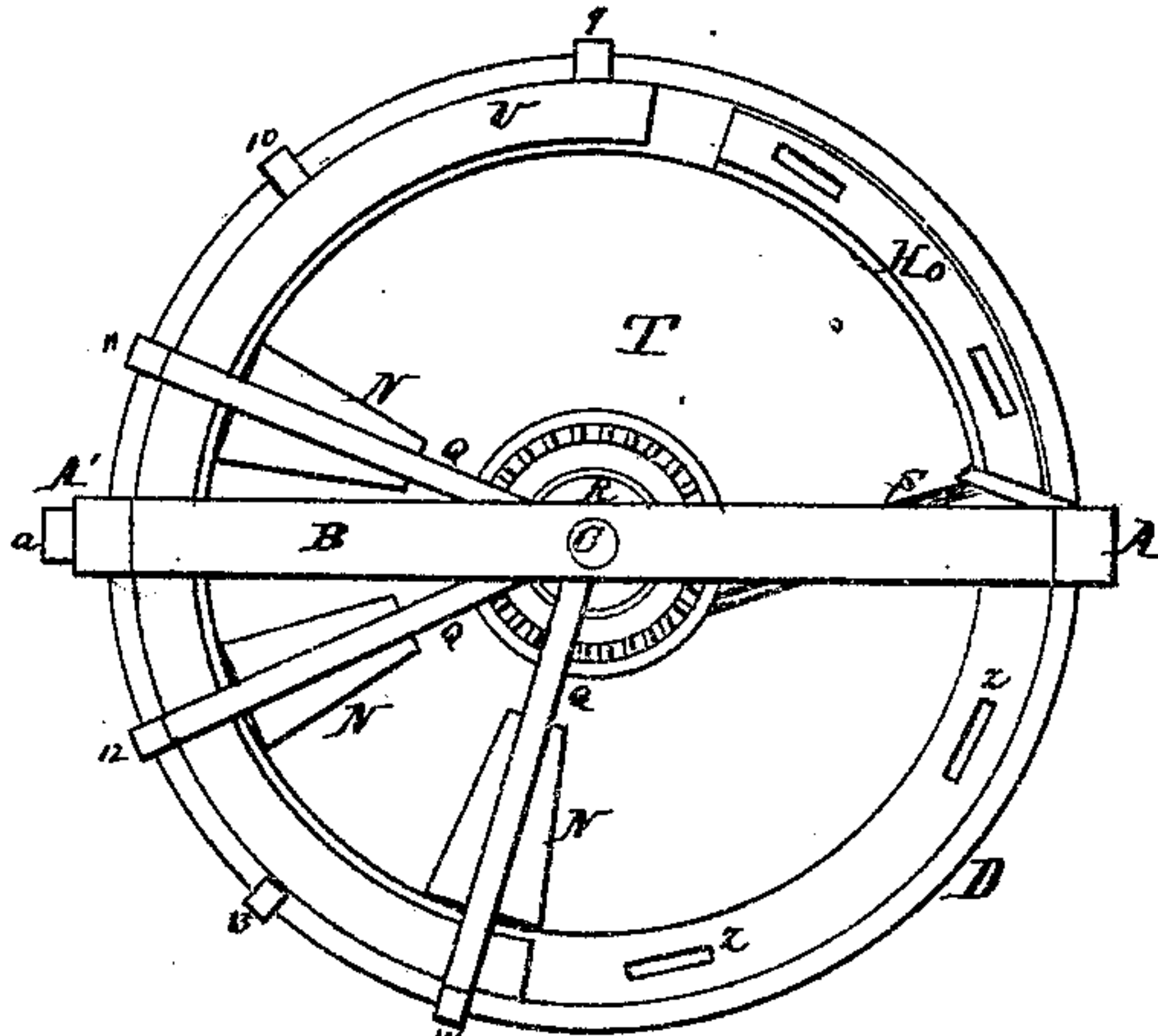


Fig. 6.

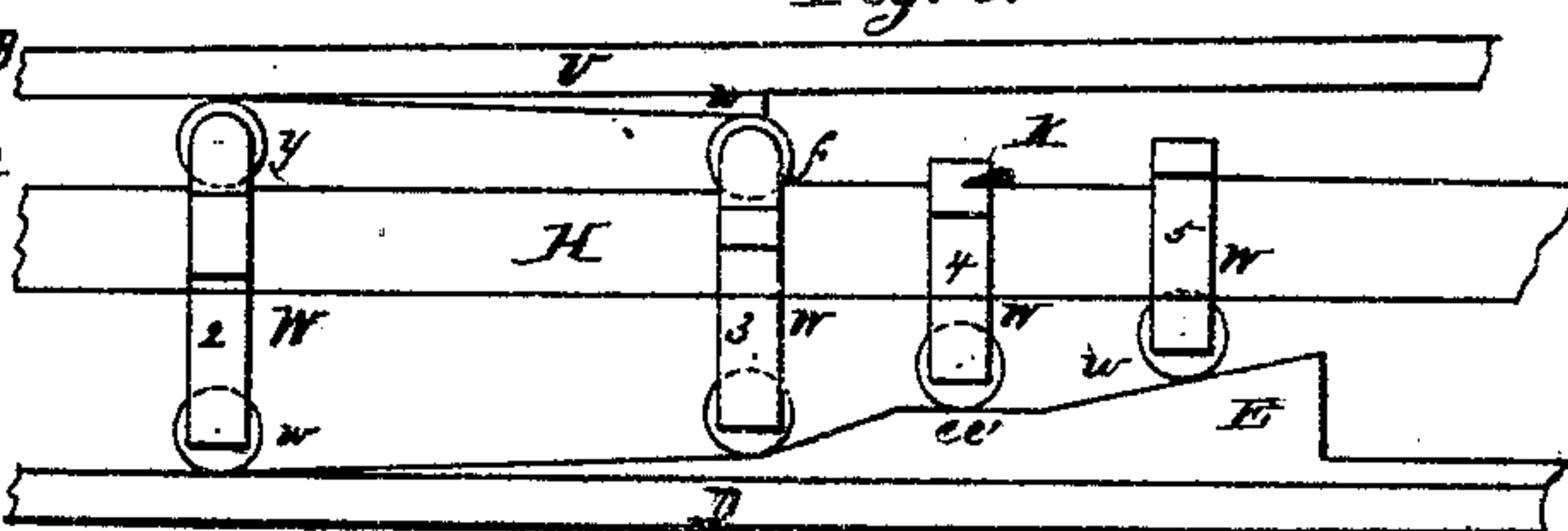
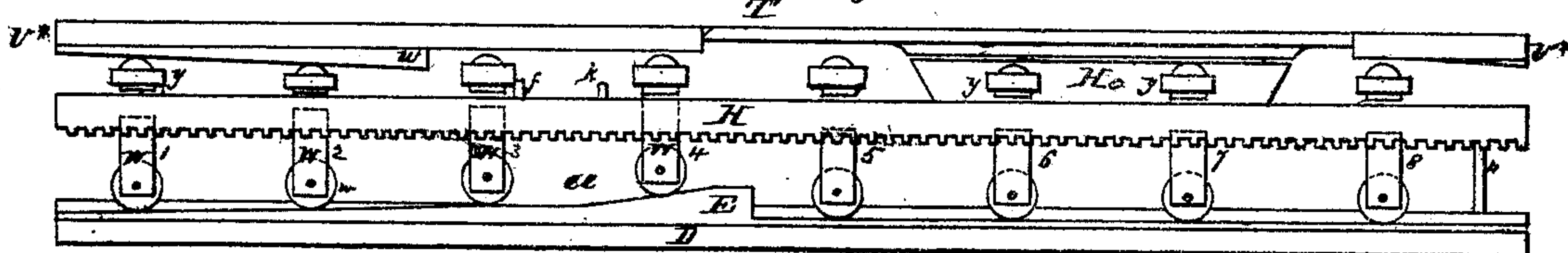


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

DANIEL HESS, OF DES MOINES, IOWA.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 121,871, dated December 12, 1871.

To all whom it may concern:

Be it known that I, DANIEL HESS, of Des Moines, Iowa, have invented certain Improvements in Brick Molding-and-Pressing Machines, of which the following is a specification:

The nature of my invention consists in the arrangement for pressing the clay (in the molds made in a revolving wheel or table) simultaneously on the long edges vertically, from below upward and from above downward, by means of fixed inclined planes, diversified below by level portions to effect the planing off, filling the molds, and expelling the formed brick, when molded, mechanically by the revolution of the table and pressing devices.

The accompanying drawing illustrates the general construction of the machine and its operation.

Figure 1 is a vertical section to show its adaptation for the application of steam-power applied to a pulley, *r*, and strap-connection between pulleys *x* and *t* to drive the shafts and pinions *L K*, which revolve the table *H* and top *T* by the cogs shown under the same. If it is desirable to apply horse-power to a sweep or beam on the top of the center shaft *c* these cogs and gears can be dispensed with. Fig. 2 shows the circular form: *H*, the table and upper pressing devices; *Y y*, the upper face of segment or flange *U*, to the under side of which the upper inclined plane *u* is affixed. The side posts are shown by *A A'* and 9, 10, 11, 12, 13, and 14. Fig. 3 is a vertical view, to show the frame-work and top combined. 12 and 14 show two of the supports, to which the conic rollers *N* are connected in bearings with their shafts in the central hub *R*, the pinions *M* fitting into a circle of cogs on the crown of the cap or inclined top *T*. Fig. 4 shows the top and three rollers to radial pieces *Q* from side posts 11, 12, and 14; flange *U*, hopper *H_o*, and molds *Z* seen outside of top *T*, as also the still more enlarged base *D* of the machine. Figs. 5 and 6 illustrate the relative position of the pressing devices, molds, &c., caused by the inclined planes and level spaces, over which they are made to travel in each revolution of the wheel or table *H*. Fig. 7 shows the construction of the pressing devices, which may be somewhat modified in actual use; but these show the operation they are destined to perform.

It is not deemed necessary to enter upon a minute detailed description of the various parts, as

they are readily understood by any mechanic of ordinary capacity.

The machine may have a circular base, *D*, as shown, and connected by suitable frame-work with the upper segment *U* and top *T* and support for the hopper *H_o*, so that the wheel or table *H*, with a single or double set of molds, *Z*, near to and around the outer edge, will revolve under said hopper, from which the molds are filled by the prepared clay, scraped down from the top *T* by scraper *S*, after having been subjected to the rollers *N* on the inclined top of the machine. The upper series of pressing devices *Y*, Fig. 7, has a pressing-head, which fits into the top of the mold, with a pulley-wheel, *y*, over it. The stem is elbowed or elongated, and rests upon a spring-rod, *e*, or its equivalent, to raise it out of the molds when released from contact with the upper inclined plane *u*. The end of this stem is fixed to a vertical pivot passing through the table *H*, in which it turns, or is made to turn the head *y* forward into the mold by means of an arm, *g*, connected with the said pivot under the table or wheel *H*, which arm is brought in contact with an upright post, *p*, below the table, affixed to the base *D* of the machine. In order to turn the head *y* away or back after being raised by the spring *e*, an arm, *f*, projects from a post, 12, and causes the head and its connections to turn on the pivot out of the way of the molds, successively, as they are brought to the several points of action in each revolution of the wheel. On the base *D* there is a circular track or cam-way, *E*, over which the lower pressing devices *W* are made to travel, having pulley-wheels *w* in their slotted base or bearings. These pressing-pistons *W* fit the molds and are held in them, forming the bottom when resting on the lower level plane of the track, in which position the molds pass under the hopper for being filled with the prepared clay; and when filled and carried forward, by the motion of the wheel, from the hopper, the post *p* turns the head *y* of the upper pressing device over the mold; the upper pulley getting under the upper inclined plane *u* forces the head down in the mold from above. At the same time the lower pressing device *W* is caused to rise up in the mold by coming onto the lower inclined plane *F*, which thus gives a counter-pressure from beneath. The clay in the mold is thus pressed on the long and narrow edge of the molded brick, from above downward and from beneath upward, against the re-

maining four sides of the mold, thereby giving a strong pressure in every direction to insure a solid and compact mass. When the pressure is at the highest point the upper device escapes from under the upper inclined plane *u*, the head is raised out of the mold by the spring, and, coming in contact with the arm *f*, is pushed out of the way. In the mean time the lower pressing piston has raised the molded brick to the gauge-level *ee* of the track *E* and moves now on a level plane, *ee*, so as to bring or carry the brick under a planer or device, *K*, for shaving off any clay that may be in excess in the molded mass, giving each its proper width, the thickness and length being fashioned by the mold. This is to guard against any inequality of clay within the mold, so as to secure a uniform size of the desired dimensions. When thus passed under the planer and trimmed the stem *W* again rises, by coming on an inclined plane again, until it pushes the brick out clear from the mold, to be removed by hand or otherwise. (An endless apron may be so formed, and a device to turn the brick onto it—which is not shown—as to carry them to any desired point.) After the molded brick is expelled from the mold the lower device or pulley *w* comes to the terminus of the lower inclined plane *E* and drops down to the level, opening the mold to its utmost capacity, for being refilled. To repeat the operation in the continuous revolution of the wheel or table *H*, each mold and duplicate pressing device is brought into the same action at the same points in like manner, delivering eight (or, when duplicated, sixteen) molded bricks to each revolution in the plan shown. Figs. 5 and 6 are designed to show the relative position of the parts brought into action in each revolution as they are being carried forward from point to point, in connection with the several inclined planes *u* and *E ee*.

The lower pressing devices *W* are, of course, so connected with the under side of the wheel or table *H* as to allow them to rise and fall within the mold, and yet be held in a slotted side post, *V*, connected to the under side of the wheel, so as to carry them with the table or wheel. In place of the post *V* shown, any hanger or equivalent device may be employed for that purpose.

The general construction and operation of my machine is thus shown and described. On a large working machine I may have cause to make a few slight alterations in the rise of the inclined planes and positions of the planer, hopper, and relative parts to secure perfect size and uniformity, but substantially on the same plan of arrangement in the upper and lower pressing devices.

I am aware that revolving molds are not new in themselves; but I am not aware of any machine so constructed as to give a vertical pressure on the two long edges of the clay within the mold at the same time, and to trim the same and expel it from the mold, for being refilled, operated substantially in the manner herein specified. Therefore,

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

1. In combination with the posts *A* and *9* of the machine, the hopper *H*, with its flange *h*, when placed under the conic or inclined top *T* and over the revolving table *H*, in the manner shown, and for the purpose described.

2. The revolving top *T*, constructed as described, in combination with the cogged gear on the same, the pinions *M* and conic rollers *N* with their bearings in the hub *R*, on cross-piece *B*, and bearings *O P S* with the scraper *S*, all arranged to operate substantially as described.

3. The elbowed pressing-lever *Y*, with its shouldered pressing-block and pulley-head *y*, connected by a pivot-post with a curved arm, *g*, under the table *H*, in combination with the spring-rod *e*, post *p*, and arm *f*, to operate the same in their revolution, in the manner and for the purpose set forth.

4. The pressing device *W*, with its slotted base and pulley *w*, in combination with the fixed slotted guide-post *V* and headed bolt *r*, all arranged and operated in the manner and for the purpose specified.

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Witnesses.

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