

No. 663,584.

Patented Dec. 11, 1900.

M. W. SCHLOSS.
BRAID MACHINE.

(Application filed Sept. 28, 1900.)

(No Model.)

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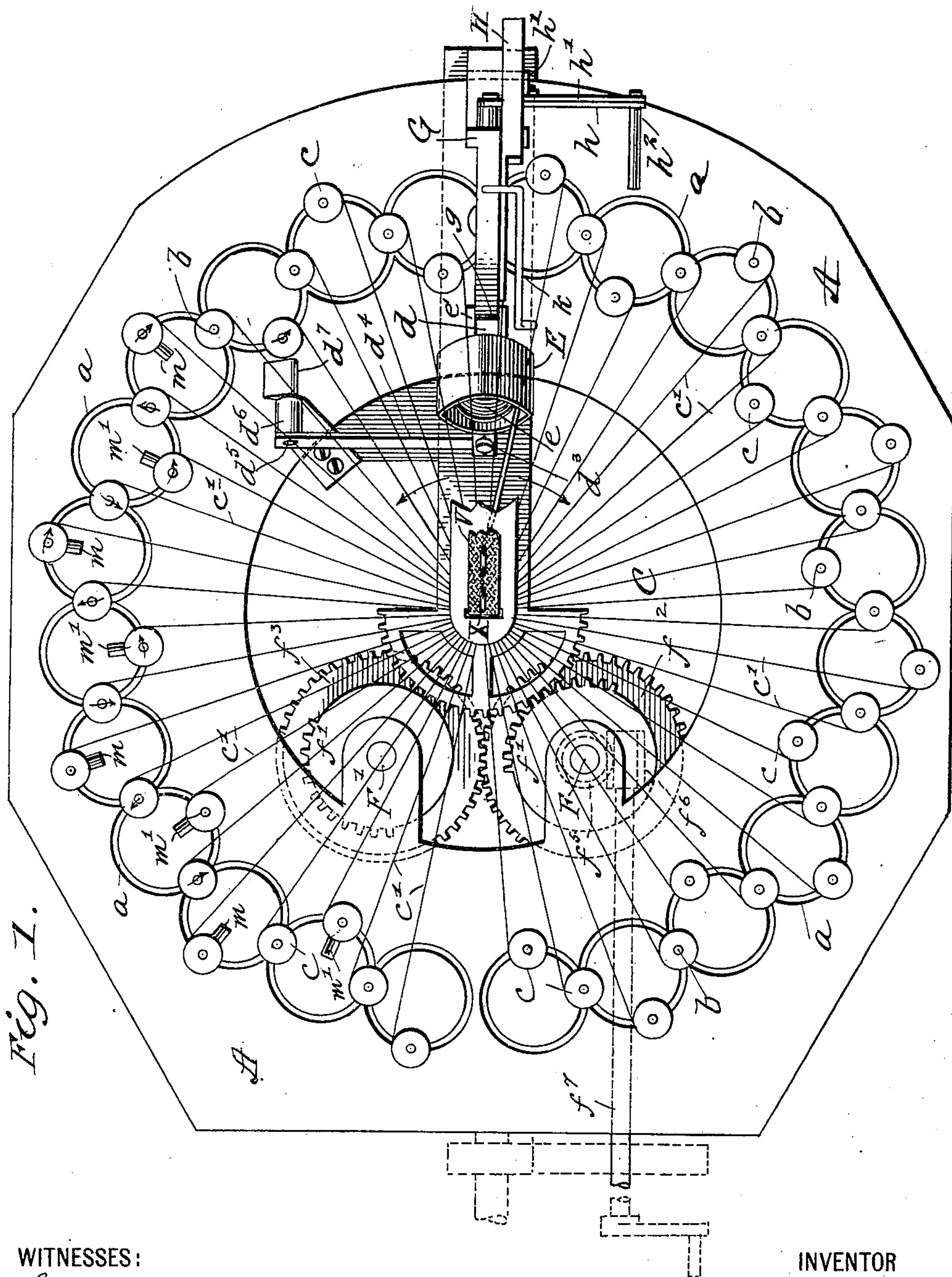


Fig. 1.

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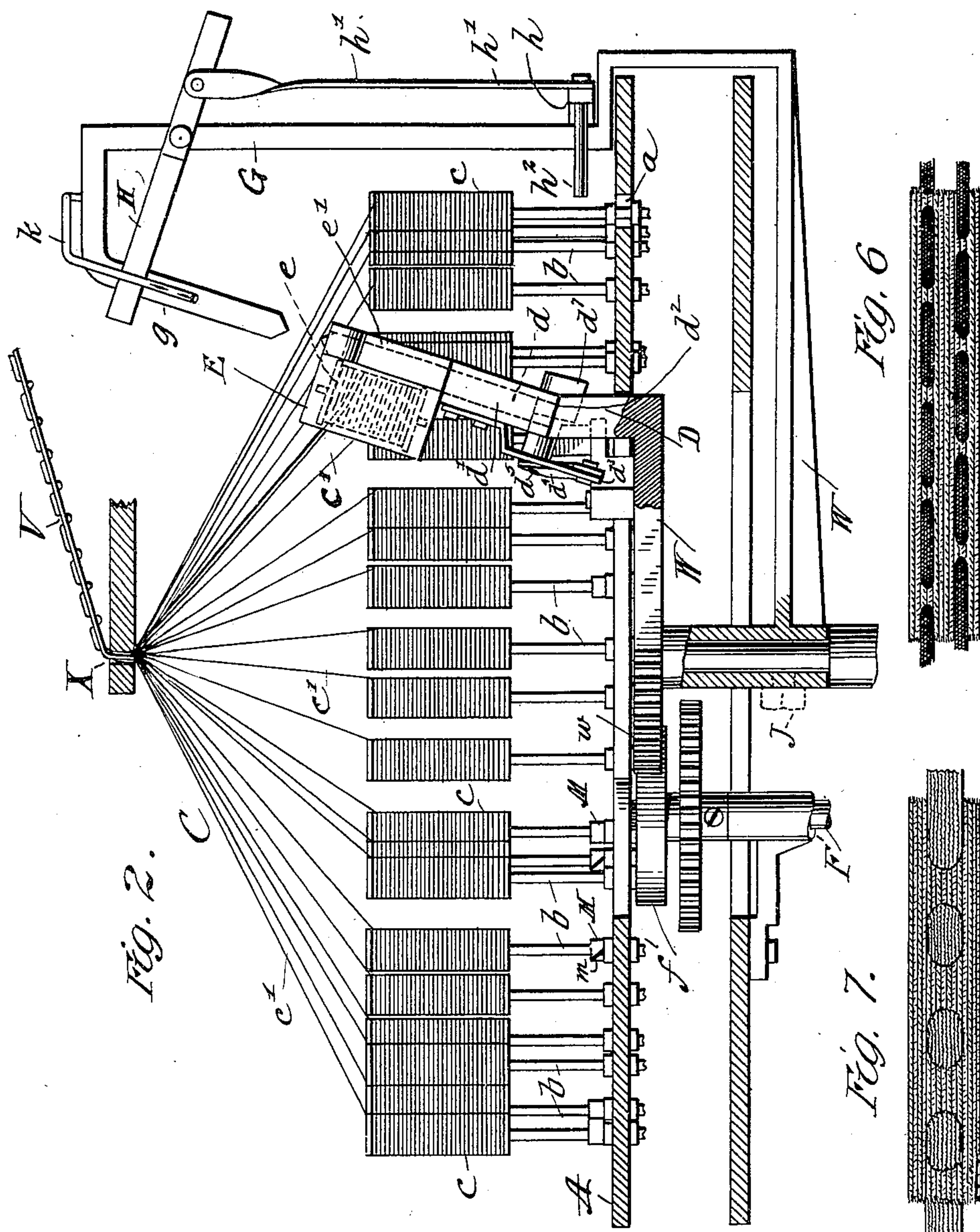
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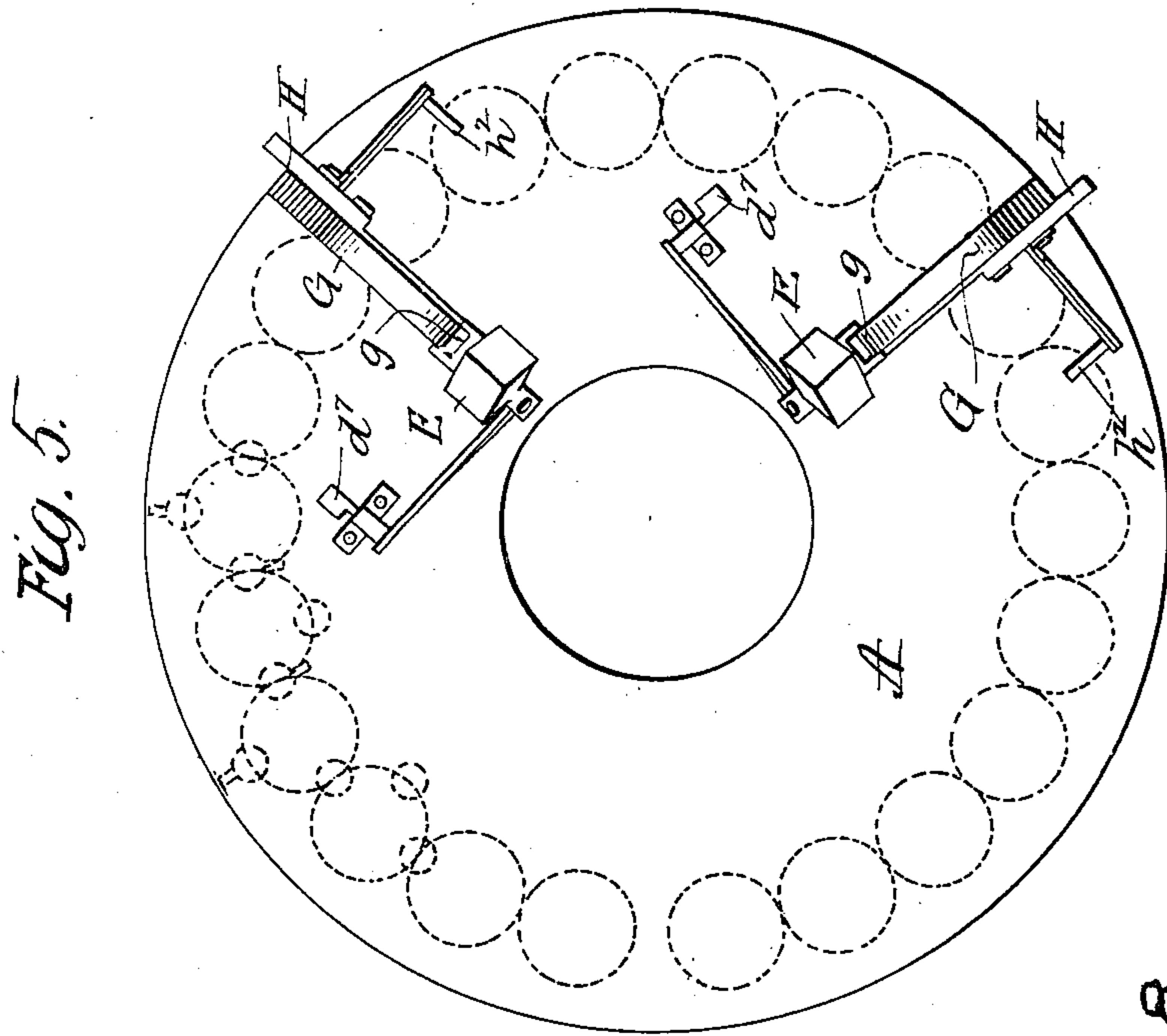


Fig. 5.

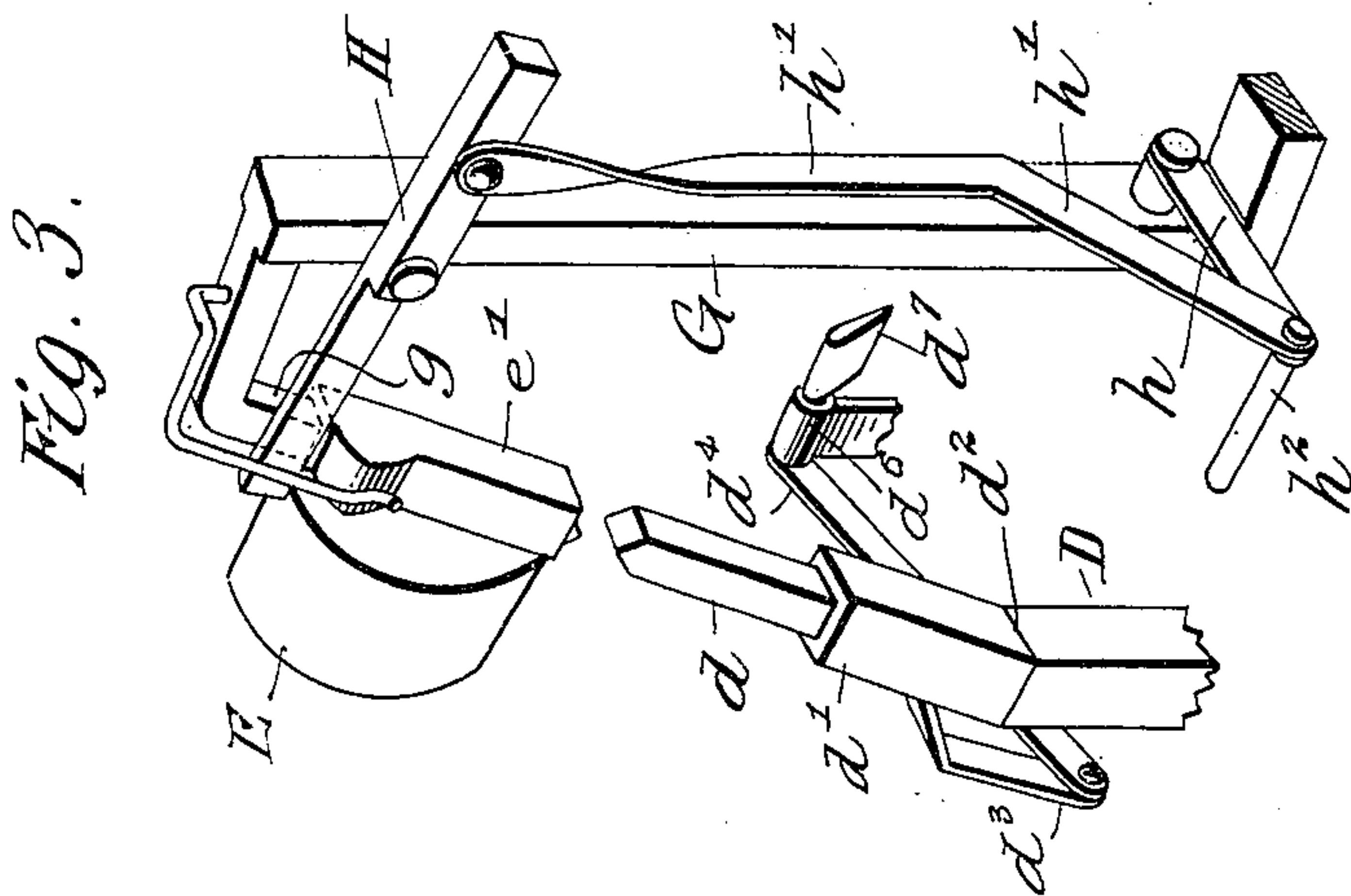
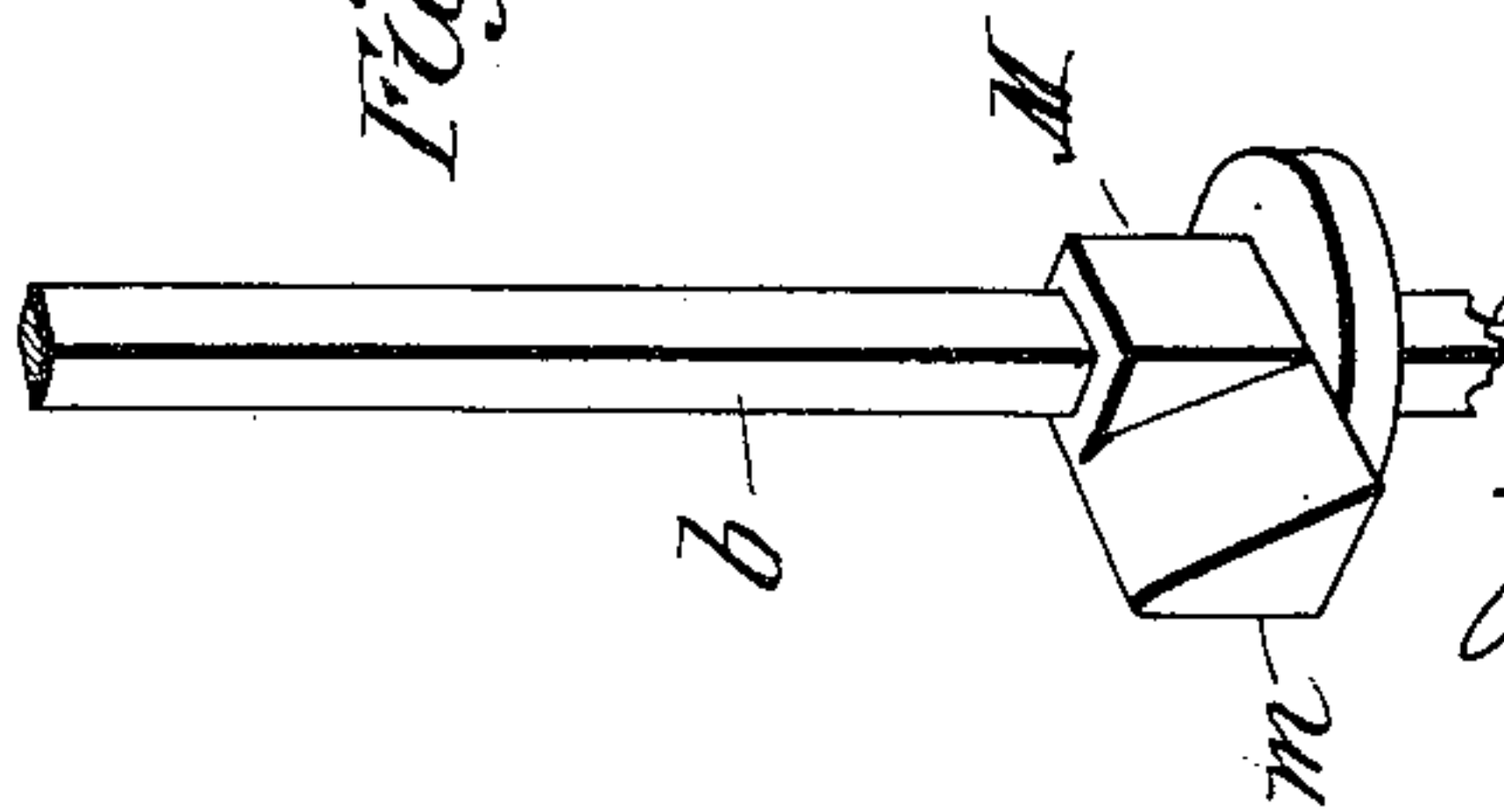


Fig. 3.



Fig. 8.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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BRAID-MACHINE.

SPECIFICATION forming part of Letters Patent No. 663,584, dated December 11, 1900.

Application filed September 28, 1900. Serial No. 31,373. (No model.)

To all whom it may concern:

Be it known that I, MEYER WILLIAM SCHLOSS, a citizen of the United States, residing at New York, borough of Manhattan, State of New York, have invented certain new and useful Improvements in Braid-Machines, of which the following is a full, clear, and exact description.

This invention relates to braid-machines, the object being to produce mechanism which may be readily applied to well-known types of braid-making machinery, whereby a strip or strips of suitable ornamental material may be applied to the braid while said braid is in process of manufacture, the ornamental strips appearing on both surfaces of the braid in sections of suitable length spaced apart.

The invention consists of the combination of any well-known or any desired form of braid-making machine and one or more flying shuttles carrying the strip or strips of ornamental material and adapted to move intermittently from one side to the other of the shed formed by the bobbin-threads, the shuttle being adapted to pass through the threads of said shed in order that the ornamental strip may be laid first against one surface of the finished braid and then against the other as the braid is laid up.

The invention also contemplates means whereby the ornamental strips may be so applied as to produce a variety of designs, figures, or effects.

In the accompanying drawings, Figure 1 is a plan view of a braid-machine having my invention applied thereto. Fig. 2 is a central section of the same. Fig. 3 is a perspective view of the mechanism for throwing the shuttle. Fig. 4 is a perspective view of a traveling spindle having a removable lug applied thereto. Fig. 5 is a plan view representing an alternative construction, and Figs. 6, 7, and 8 are views showing different ways in which the ornamental strips may be applied to the braid.

Referring to the drawings by letter, A represents the table of a braid-machine of a well-known type, having on the upper surface thereof a race *a* for the spindles *b b*, each spindle carrying a thread-bobbin *c* at the upper end thereof. The bobbin-threads are represented at *c' c'*, each thread being led from

its respective bobbin to a central point *X*, where the braid *V* is laid up. The bobbin-threads collectively form a shed *C*, the individual threads of which travel around the table *A* like the spokes of a wheel, the bobbins themselves traveling continuously from end to end and back again of the double serpentine race *a*, plaiting and interlacing the threads in a manner well known and understood and common to machines of this character; but the mechanisms for operating these spindles and bobbins, as well as certain other parts of the machine, are omitted from the drawings, since they form no part of the present invention.

D represents a post or standard located beneath the shed *C* and inside the circle of bobbins, and *d* an upwardly-extending guiding-shank forming a part of said post and terminating just below the shed *C*. The sleeve *d'* surrounds the lower part of shank *d* and normally rests upon the shoulder *d²*, said sleeve being connected, as indicated at *d³*, with a rocking arm or lever *d⁴*. The arm or lever *d⁴* is connected to one end of a short shaft *d⁵*, which is mounted in the bearing *d⁶*, the other end of the shaft being provided with a wing *d⁷*. (Best shown in Fig. 1.)

E represents the shuttle, which may be of any desired construction and any convenient shape and is adapted to carry a spool or reel *e*. Shuttle *E* is also provided with a sleeve *e'*, which is adapted to surround the upper part of shank *d* and to support the shuttle in a position just beneath the shed *C*, the sleeve *e'* resting upon sleeve *d'*, but having no positive connection therewith.

G is a vertical standard preferably located outside of the circle of bobbins and having its upper portion extending over and above the shed *C*, the extreme end supporting or having formed therewith a downwardly-projecting guiding-shank *g*, which, as shown, terminates just above the shed *C*. The shank *g*, it will be observed, is located directly in line with and shaped similarly to shank *d*, which, as before stated, terminates just below the shed *C*. A clear space, therefore, is left between the adjacent ends of the two shanks *d* and *g*, through which the threads *c'* are free to move laterally.

H is a lever pivoted to the standard *G*, near

the upper part thereof, and extending to the guiding-shank g , and h an arm pivoted to the lower part of said standard and connected by link h' to the lever H. A pin h^2 , also connect-

ed with the arm h , extends horizontally toward the center of the machine and adjacent to the path of movement of the spindles $b b$. The spindles $b b$, or rather as many of them as may be required or selected to produce a given design, are each provided with a laterally-projecting lug. There are two series of such lugs—a series m , which point in one direction, and a series m' , which point in the opposite direction—and in order that they may be readily attached to and detached from the spindles and their order or arrangement relative to each other changed at will, they are preferably formed integrally with rings or bands M, which, as shown, are adapted to fit over squared portions of the spindles $b b$.

The function of the series of lugs m is to trip or raise the arm d^4 as they travel around the table A in the direction of arrow Z by engaging with the wing d^7 . As the spindles travel rather rapidly, the result of this will be a sudden upward movement of the sleeve d' , which will cause the shuttle E to be projected bodily through the shed G, the shuttle passing entirely off the shank d and onto the shank g , where it will be retained for a suitable period of time by the spring-detent k . The release of the shuttle and its return to its former position below the shed C will be effected by the lever H, it being the function of the lugs m' to trip the latter by raising pin h^2 and causing the inner end of the lever to exert a sudden downward pressure upon the top of the shuttle. The movement of the shuttle through the shed, it should be noted, will be too rapid to interfere with the threads $c' c'$. Obviously, therefore, a strip of material attached to the braid V and carried by a shuttle operated in the manner described will be caused to appear on both sides of the finished braid in short lengths or sections spaced apart, a section on one side of the braid being opposite the space on the other side. Obviously, also, the length of the sections may be varied and the design of the finished product controlled to a certain extent simply by arranging the relative positions of the lugs m and m' . For instance, a group of long sections might be made to follow a group of short sections, and so on, or there might be alternate long and short individual sections.

In describing my invention so far I have assumed for the sake of clearness that the operative position of the shuttle remains always the same relative to the other parts of the machine. In some instances this will be the case; but it is desirable in order that many varieties of designs may be obtained by the same mechanism that the shuttle be adapted to be thrown between the bobbin-threads from a number of different points. Accordingly I have mounted the shuttle and all shuttle actuating and supporting devices upon a com-

mon carriage W, which preferably is pivoted at the center of the machine and is capable of movement in the arc of a circle. In order to move the carriage, I provide the same with a curved rack w , with which the toothed wheels f and f' on the vertical shafts F and F' engage. Shafts F and F' also carry spur-wheels f^2 and f^3 , respectively, which engage one another, and shaft F is further provided with a skew-gear f^5 . A corresponding skew-gear f^6 on shaft f^7 meshes with gear f^5 . By turning shaft f^7 the carriage may be shifted to any operating position desired. Ordinarily this may be done by hand and the carriage then fixed in such position, if desired, by a set-screw J or equivalent device. The particular form of gearing shown, however, admits of automatic action—that is to say, the shaft f^7 may be connected with the power-shaft of the machine in order that the carriage may be in constant motion during the regular operation of the machine. Continuous rotation of shaft f^7 in one direction will cause the carriage to move laterally to and fro, since the wheels f and f' are toothed for only portions of their circumferences and are arranged so that one will come into engagement with the curved rack w only after the other shall have passed out.

Fig. 5 shows a double arrangement of shuttles and actuating devices fixedly connected to the race-plate, and Fig. 6 one of the designs that may be produced thereby.

Fig. 7 illustrates a design which may be produced by the form of my invention shown in Fig. 2 when the carriage is stationary, and Fig. 8 represents one of the designs which may be produced when the carriage is permitted to move.

Having described my invention, I claim—

1. In a braid-making machine the combination of a series of traveling spindles supporting thread-carrying bobbins, of one or more shuttles adapted to carry a strip of material to be applied to the braid, and means controlled by the traveling spindles whereby said shuttle or shuttles may be caused to pass alternately from one side to the other of the shed formed by said bobbin-threads.

2. In a braid-making machine the combination of a series of traveling spindles supporting thread-carrying bobbins, a shuttle adapted to carry a strip of material to be applied to the braid, means controlled by the traveling spindles whereby said shuttle may be caused to pass alternately from one side to the other of the shed formed by the bobbin-threads and means whereby the operating position of said shuttle may be shifted.

3. In a braid-making machine the combination of a series of traveling spindles carrying bobbins whose threads lead to a common point, one or more flying shuttles adapted to carry material to be applied to the braid, shuttle-supporting devices located on one side of the shed formed by the bobbin-threads, separate shuttle-supporting devices located

on the other side of said shed, and means controlled by the traveling spindles whereby the shuttle or shuttles may be thrown from one support to another.

5 4. In a braid-making machine the combination of a series of traveling spindles, carrying bobbins whose threads lead to a common point, one or more flying shuttles adapted to carry material to be applied to the braid, 10 suitable mechanisms whereby the shuttle or shuttles may be thrown or projected from one side to the other of the shed formed by the bobbin-threads, and suitable removable and interchangeable actuating devices carried by 15 the traveling spindles and adapted to actuate the shuttle throwing or projecting mechanisms substantially as described.

5 5. In a braid-making machine the combination of a series of traveling bobbins whose threads lead to a common point, a movable carriage, a flying shuttle, and means mounted upon said carriage whereby said shuttle 20 may be caused to pass alternately from one side of the shed formed by the bobbin-threads, 25 to the other.

6. In a braid-making machine the combina-

tion of a series of traveling bobbins whose threads lead to a common point, a movable carriage, a flying shuttle, means mounted upon said carriage whereby said shuttle may 30 be caused to pass alternately from one side to the other of the shed formed by the bobbin-threads, and means whereby said carriage may be moved continuously during the regular operation of the machine. 35

7. In a braid-making machine the combination of a series of traveling bobbins whose threads lead to a common point, a movable carriage, shuttle supporting and actuating devices mounted upon said carriage and located on one side of the shed formed by the 40 bobbin-threads, other shuttle supporting and actuating devices also mounted on said carriage and located on the other side of said shed, and a flying shuttle. 45

In witness whereof I subscribe my signature in presence of two witnesses.

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