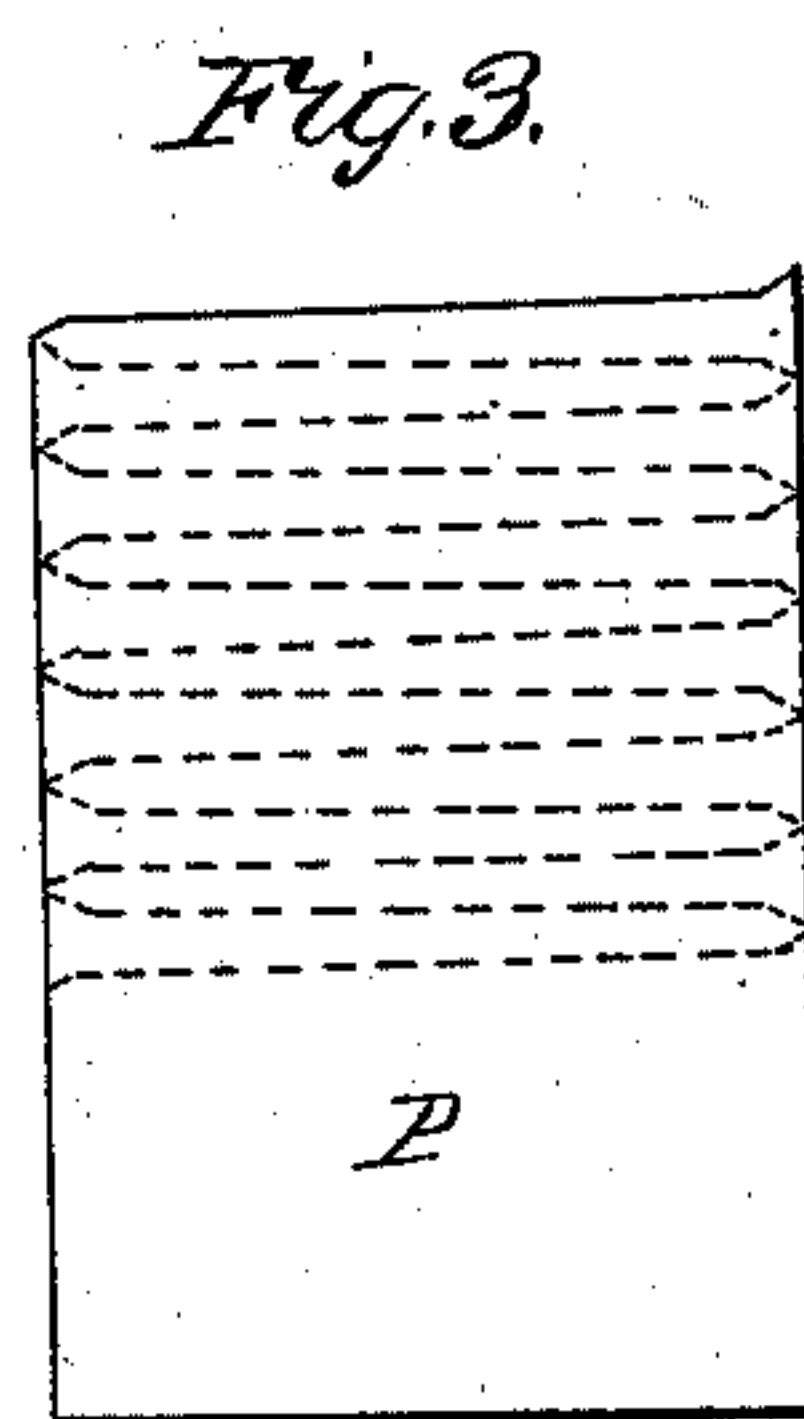
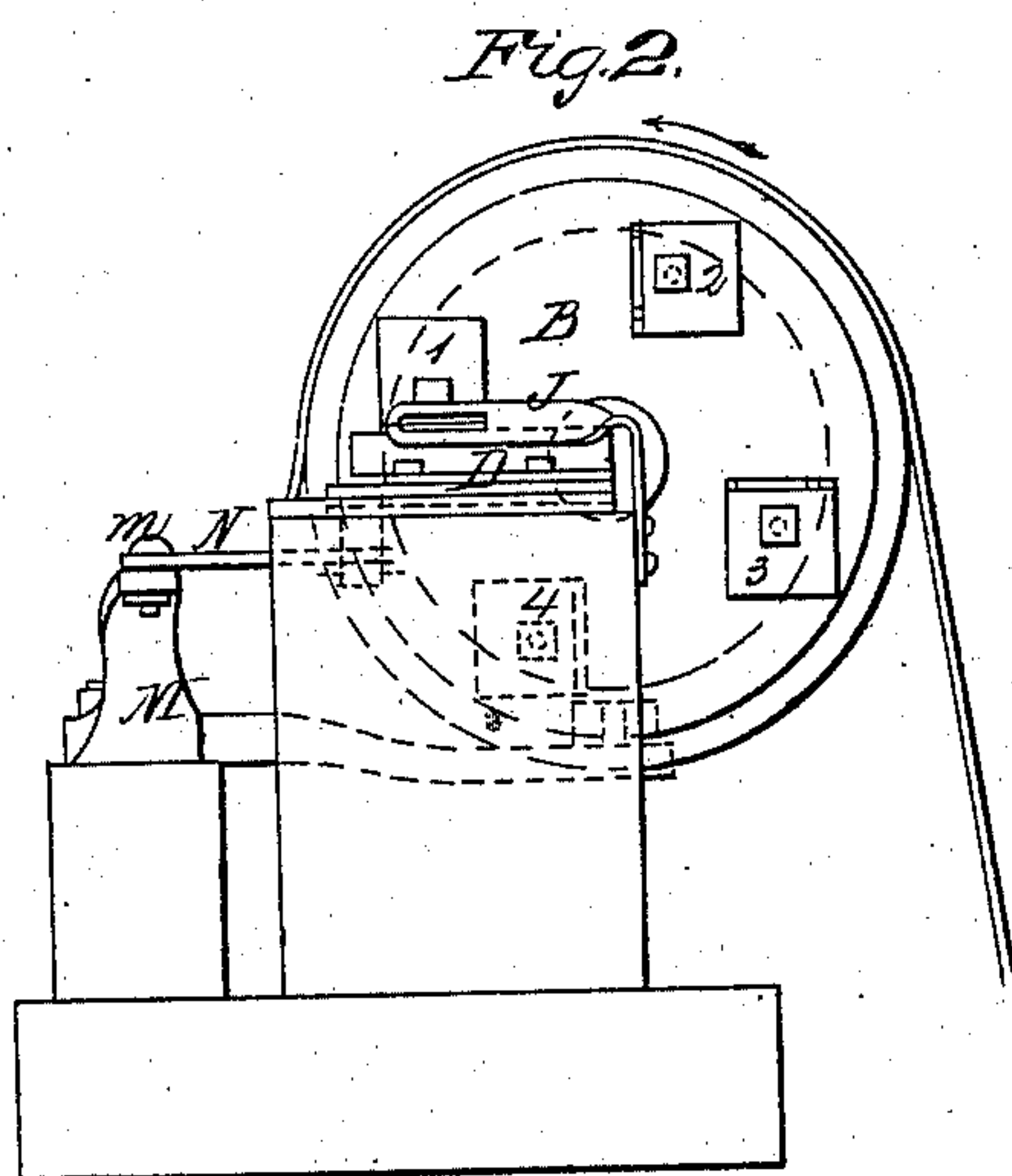
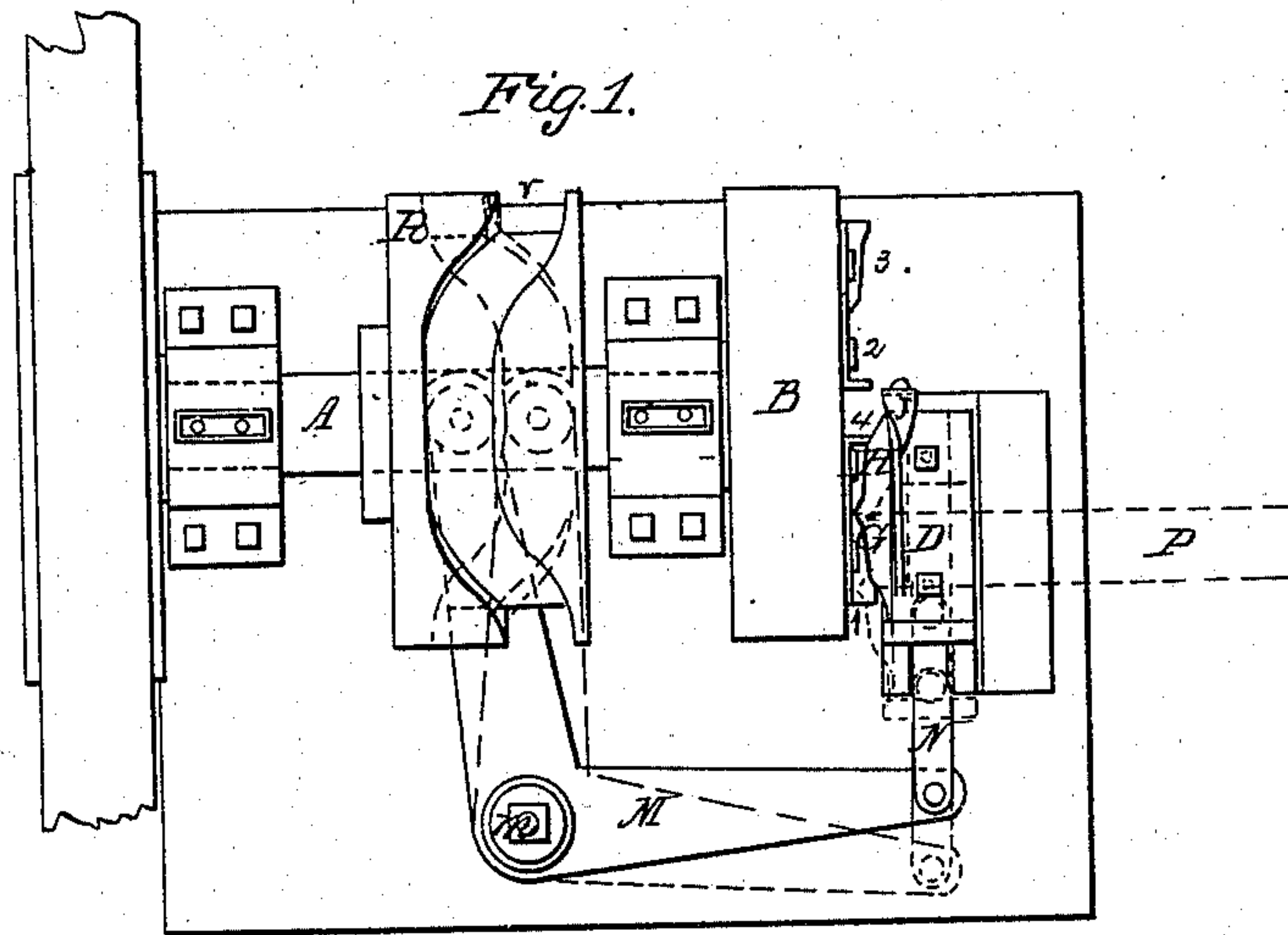


E. G. Hall,
Making Cut Nails,
Nº 32,263. *Patented May 7, 1861.*



Witnesses:
A. A. Drake
E. F. Bruce

Inventor:
E. G. Hall

UNITED STATES PATENT OFFICE.

EZRA G. HALL, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND WM. F. DRAKE, OF
SAME PLACE.

NAIL-MACHINE.

Specification of Letters Patent No. 32,263, dated May 7, 1861.

To all whom it may concern:

Be it known that I, EZRA G. HALL, of the city, county, and State of New York, have invented a certain new and useful Improvement in Machines for Making Nails; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan, Fig. 2 is a front elevation, and Fig. 3 is a view of the plate on a larger scale, showing the lines of cut.

Similar characters refer to like parts in all the drawings.

My machine is adapted to produce any practicable form of that class of nails which do not require to be compressed in dies, but are produced complete by cutting off the plate along a line which is straight or otherwise, according to the form of the nail desired.

The nature of my invention consists in the employment of a laterally moving bed-knife, or knives, in combination with a series of two or more revolving knives, so that each revolving knife cuts against a different surface from the last, and avoids any necessity for either turning the plates or vibrating any heavy portion of the machine.

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

A is a shaft adapted to turn in bearings in a suitable frame, and carefully guarded against end play.

B is a stout disk cast on the front end of A.

1, 2, 3, 4 are knives fixed in the face of B in an adjustable manner by screws not represented. The knives 1 and 3 are alike. The knives 2 and 4 are like each to the other, but unlike to 1 and 3.

D is a stout block of cast iron. It is mounted on ways, or in a suitable channel so that it is free to slide in a plane parallel to the face B, as represented by the dotted lines. It is mounted near the path of the knives 1, 2, 3, 4, so that as they revolve they very nearly touch it.

M is a bell crank lever mounted on the frame at the point *m*.

N is a rod connecting one end of M to the under side of the sliding block D. A roller

is mounted in the opposite end of M adapted to receive motion from a cam, to impart it to M, and thus through N to move D.

R is a stout cam fixed on A and grooved as denoted by *r*, to receive and act upon P. The groove is of such form as to cause D to reciprocate twice during each revolution of A.

G and H are two stout knives or two separate cutting portions of the same knife, fixed in an adjustable manner upon D. The edge G is adapted to match to 1 and 3, and the edge H is adapted to 2 and 4.

J is a suitable guide to receive the plate to be cut. It is fixed to the frame of the machine and is consequently without motion.

In operating my machine the shaft A is turned by a pulley and belt or otherwise and a plate of metal P is thrust in through the slot in J and pressed gently inward by a weight and cord not represented or by any other convenient means. While the knife G is in contact with the under face of the plate, the knife 1 comes down upon its upper face and cuts off the metal. The bed D then moves into the position shown by the dotted lines and presents the knife H under the plate, at which instant the disk, B, has revolved so far as to bring the knife 2 upon the upper face of the plate, and thus, by continuing its motion, cuts off the metal. The bed D now moves again to its first position and the knife 3 cuts off the metal against the knife G and then by the movement of D as before described, H is again presented under the plate and the knife 4 now operates to cut against the knife H. The cutting edges of 1 and 3 and the corresponding or matching edge of G, are so shaped and so adjusted, as to form one side of the nail. 2, 4, and H, are knives adapted to cut the other side of such nail, and thus by means familiar to all who are skilled in the art of making brads and slive nails, (the one side being inclined or bent in one direction, and the other side being inclined, bent, or correspondingly located in the other direction) the nails or brads are produced with the proper form and taper with great rapidity.

Any kind of brad or nail known, which does not require gripping in dies may be produced by this machine.

The chief advantages possessed by my

machine over others are, first, that the plate does not require to be turned nor the machine to be vibrated or oscillated, and consequently that the machine can be run at great
5 speed; and, second, that the cutting action, instead of being all performed by one pair of knives, is distributed equally upon two bed-knives, G, and H, and the corresponding action of the upper knives, which is usu-
10 ally more severe, is distributed among four—1, 2, 3, and, 4. In consequence of this the machine will run longer than others, before requiring grinding.

Having now fully described my invention

what I claim as new therein and desire to 15 secure by Letters Patent is.

The employment of the transversely sliding bed-knife or knives, G, H, in combination with the revolving cutters, 1, 2, or 1, 2, 3, 4, substantially as and for the purpose 20 herein set forth.

In testimony whereof I have hereunto set my name in the presence of two subscribing witnesses.

EZRA G. HALL.

Witnesses:

A. A. DRAKE

E. F. BRUCE.