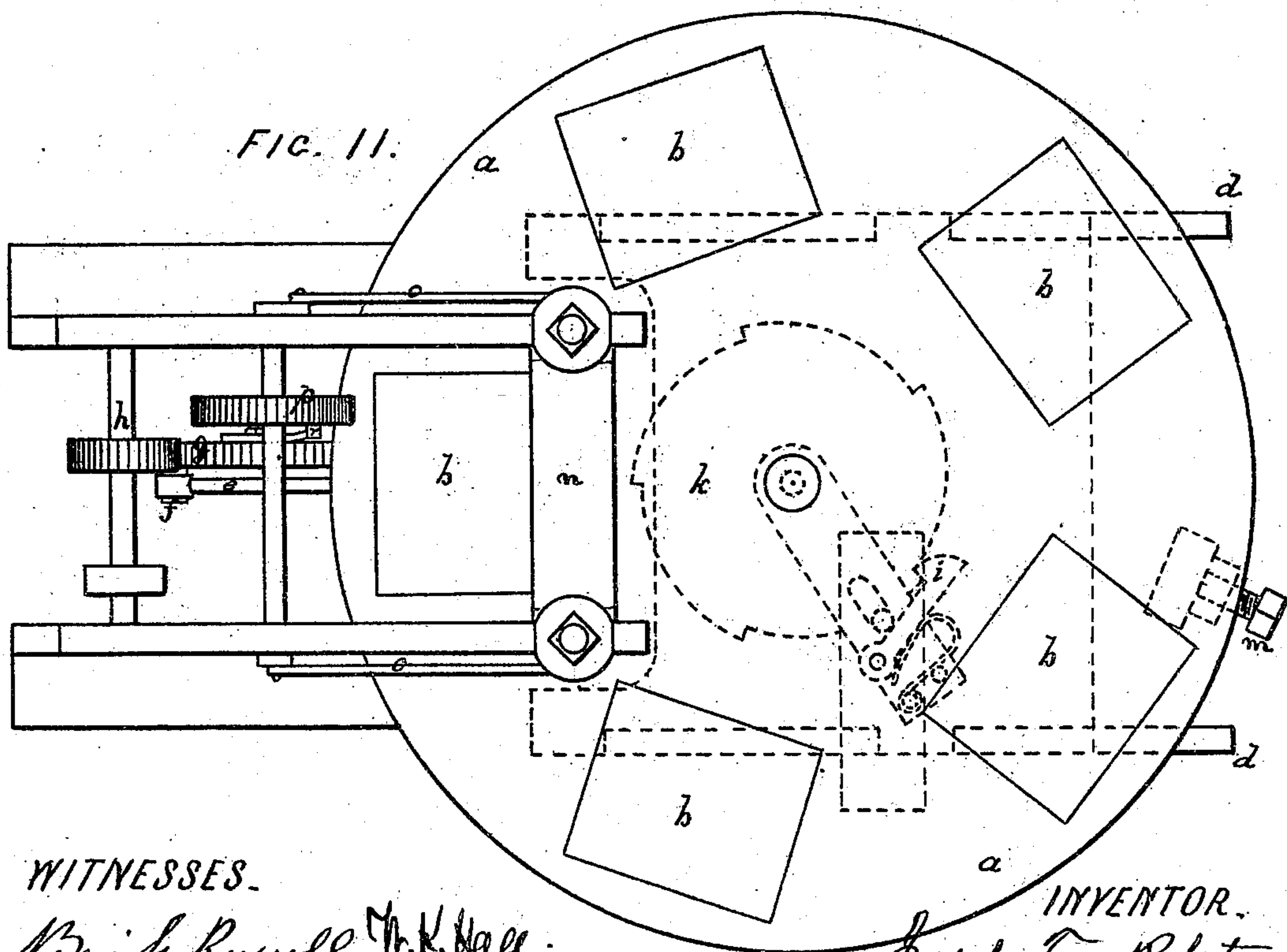
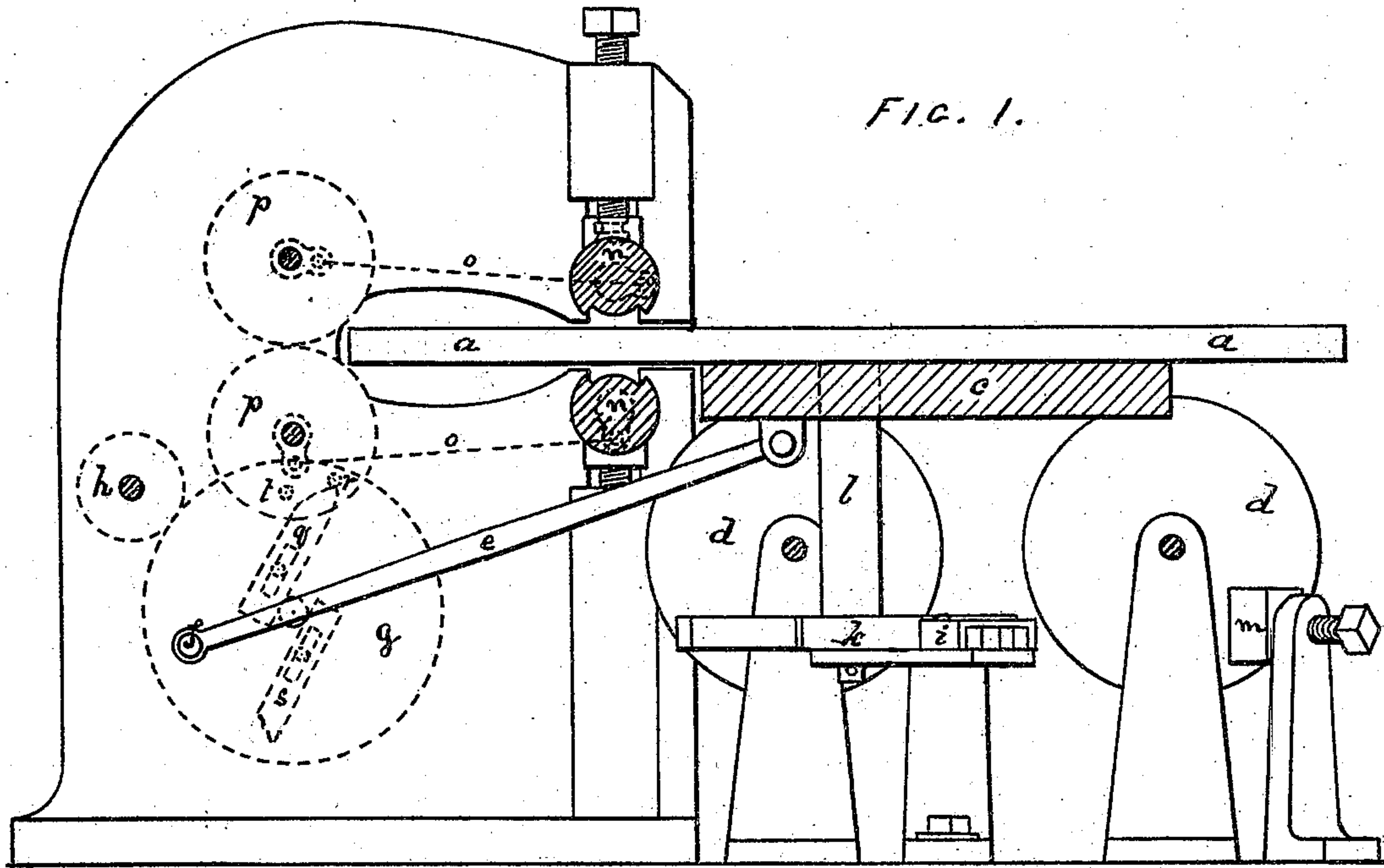


J. T. ROBERTSON.  
PRINTING PRESS.

No. 113,346.

Patented Apr. 4, 1871.



WITNESSES.

Benj. L. Russell. M. K. Hall:

INVENTOR.

Judah Touro Robertson

# UNITED STATES PATENT OFFICE.

JUDAH TOURO ROBERTSON, OF NEW YORK, N. Y.

## IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **113,346**, dated April 4, 1871.

I, JUDAH TOURO ROBERTSON, of New York, in the county and State of New York, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification:

### *Nature and Objects of the Invention.*

In the ordinary process of printing from steel or copper plates, to which the invention chiefly relates, the plate has to be inked and wiped or cleaned and polished previous to the reception of the paper on which the impression is to be made. In addition, the press has to wait while the paper is being placed on the plate, and also while it is being removed. The operation of printing, therefore, occupies but a small portion of the whole time, and during the remainder the press, with its accessories of blankets and inking apparatus and part of the attendants, are lying idle.

The object of my invention is to keep the printing apparatus continually employed; and to accomplish this object it consists in employing a series of plates in connection with the printing-rollers in such a manner that they may be successively and continuously printed from, and each impression removed, and the plate inked and cleaned, and again supplied with paper before it is in turn again presented to the printing-rollers.

In carrying the invention into effect the plates are disposed radially on the surface of a circular table, which is sufficiently solid to form the bed for their reception.

The printing-rollers are of the form known as "D-rollers," and they may be arranged either radially or tangentially with reference to the table.

The motion of the table and plate, when grasped by the rollers for the purpose of taking the impression, must be a rectilinear one, to avoid distortion of the paper and to preserve the uniformity of the pressure and action.

When the plate and table have been released by the rotation of the rollers reaching the requisite position the table returns from between the rollers, and at the same time makes a portion of a revolution on its axis, so that when it again moves forward between

the rollers the adjacent segment and plate are subjected to the pressure for printing.

### *Description of the Drawing.*

To enable others skilled in the art to which it appertains to make and use my invention, I will proceed to describe its construction and operation with reference to the drawing.

Figure 1 represents a side elevation of the machine with one of the frames removed and partially in section, and Fig. 2 is a plan of the same.

The circular table *a* has the plates *b* arranged radially on its upper surface. It may be supplied with steam-pipes or furnished with lamps or other means for heating the plates, if required.

The carriage *c* supports and carries the table, and is caused to traverse to and fro on the wheels *d* by means of the connecting-rod *e* and the crank-pin *f* on the wheel *g*, driven by the pinion on the power-shaft *h*, which may be operated by a belt or clutch, or in any other convenient manner.

The crank motion from the power-shaft carries the table backward and forward, and the partial rotatory motion of the table, when it is being moved back with the carriage, is obtained by the pawl *i* catching the ratchets of the wheel *k* on the shaft *l* of the table.

The pawl *i* is mounted on an arm centered to the shaft of the table, and sliding on a stationary pin in the manner shown, so that its motion and position may be readily adjusted to give the required angular motion of the table as the latter is being backed out from between the rollers.

The elastic friction bumper or pad *m* is adjusted to receive the wheel *k* just before it reaches the limit of its backward motion, to prevent any excess of the circular motion in consequence of the speed and weight of the table.

The same end might be attained by means of an additional pawl and ratchet, arranged in such a manner that they would not interfere with the turning of the table when required.

The printing-rollers *n* are mounted in the usual way, with the exception that the upper



roller is suspended to the screws by a key or pin passing through the brass and into a groove in the screws, so that the brasses and the roller are hung upon the screws and follow them up as well as down.

When it is desired to interpose a thickness of packing between the screw and the brass, the latter may be suspended from a cross-head supported and adjusted by a nut on the screw.

The lower roller, as well as the upper one, is of the form known as a "D-roller," and their parallelism, or the proper presentation of their cut surfaces to the upper and lower surfaces of the table, is insured by their connection by means of cranks and the rods *o* on each side to the pair of geared wheels *p*.

The cranks at the opposite ends may be set at right angles to avoid dead-centers, and the motion of one roller in connection with the gearing must also be accompanied by a similar motion of the other.

It will be observed that the only motion of the rollers, so far as has been described, is derived from the motion of the table between them. There are two other slight motions given them, however, by the motion of the machine—one when the printing has been completed by the adjustable catch *q* on the wheel *g* striking the pin *r* on the wheel *p*, for the purpose of moving the rollers into the position shown in the drawing, so that they may be entirely clear of the table and plate, and the other when the table is about to again enter between the rollers, when the adjustable catch *s* strikes the pin *t*, to get the rollers into motion and in readiness to bind upon the table and plate when presented.

As the machine moves from the position shown in the drawing, the revolution of the wheel *g* carries the table from between the rollers, and the pawl causes it to turn one-fifth of a revolution before it gets to the end of its motion, and to compress the elastic bumper on the completion of one-half a revolution of the wheel *g*. The continued rotation of the wheel *g* causes the catch *s* to strike the pin *t* to start and adjust the rollers, draws the table forward between the rollers to take the impression, and at the end of the printing the catch *q* strikes the pin *r* and adjusts the rollers for the release of the table when it has reached its most forward position, as shown.

The motion of the machine would be similar, and the principles of its operation the same, if the printing-rollers were set in a line with the radius of the table instead of at right angles, as herein described.

#### *Claims.*

I claim as my invention—

1. A table carrying a series of plates and traversing between the rollers with an alternate rectilinear motion and a compound motion, for the purpose of presenting the plates in succession to the rollers, substantially as described.

2. The pawl *i*, mounted on a vibrating lever, sliding over an adjustable stationary point, substantially as described.

JUDAH TOURO ROBERTSON.

Witnesses:

BENJ. G. RUSSELL,  
WM. KEMBLE HALL.