4 Sheets—Sheet 1.

W. F. WIDMAYER.

Rotary Printing Machine.

No. 198,502. **Patented Dec. 25, 1877.**

Fig. 1.

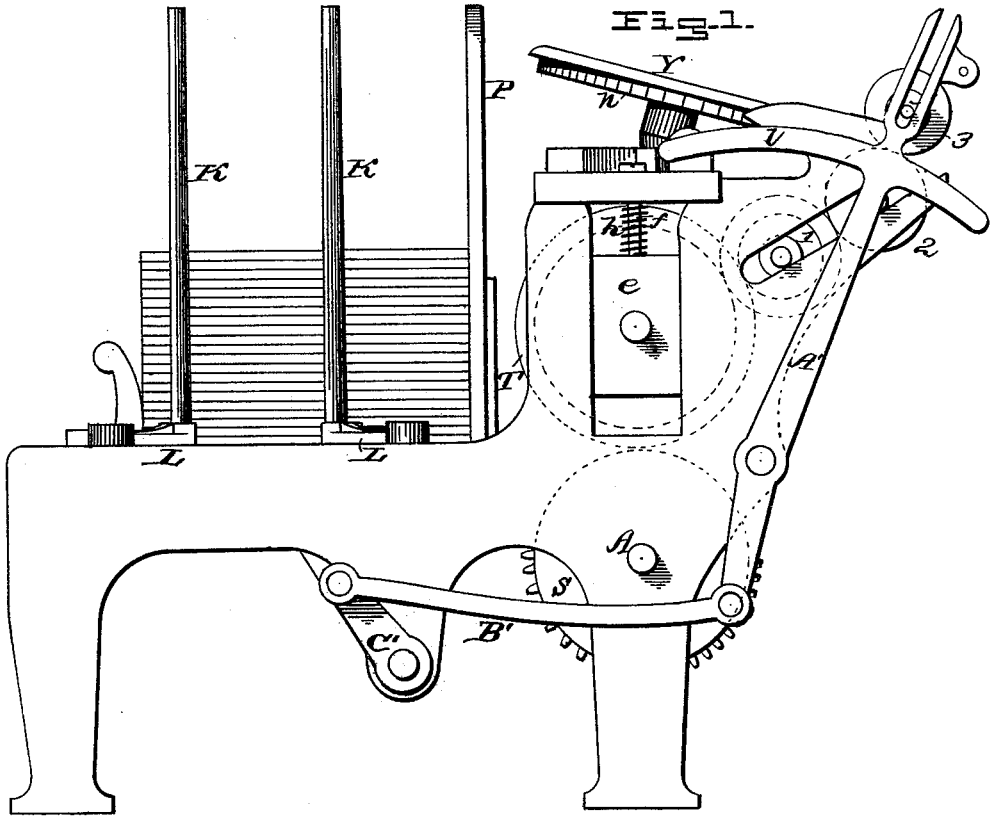


Fig. 2.

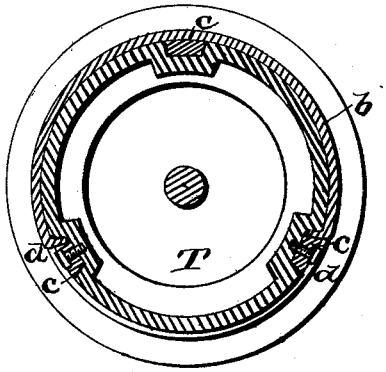
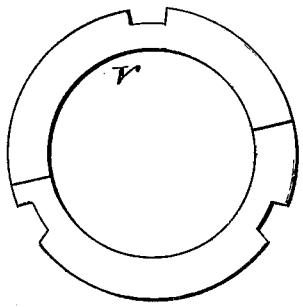


Fig. 3.



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Rotary Printing Machine.

No. 198,502. **Patented Dec. 25, 1877.**

Fig-4-

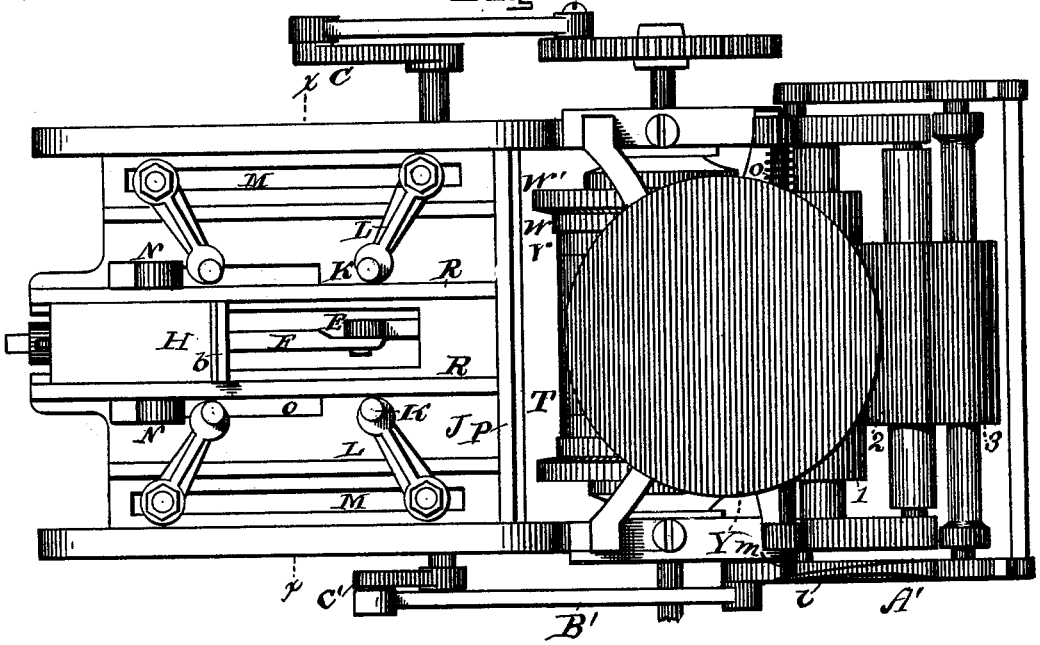
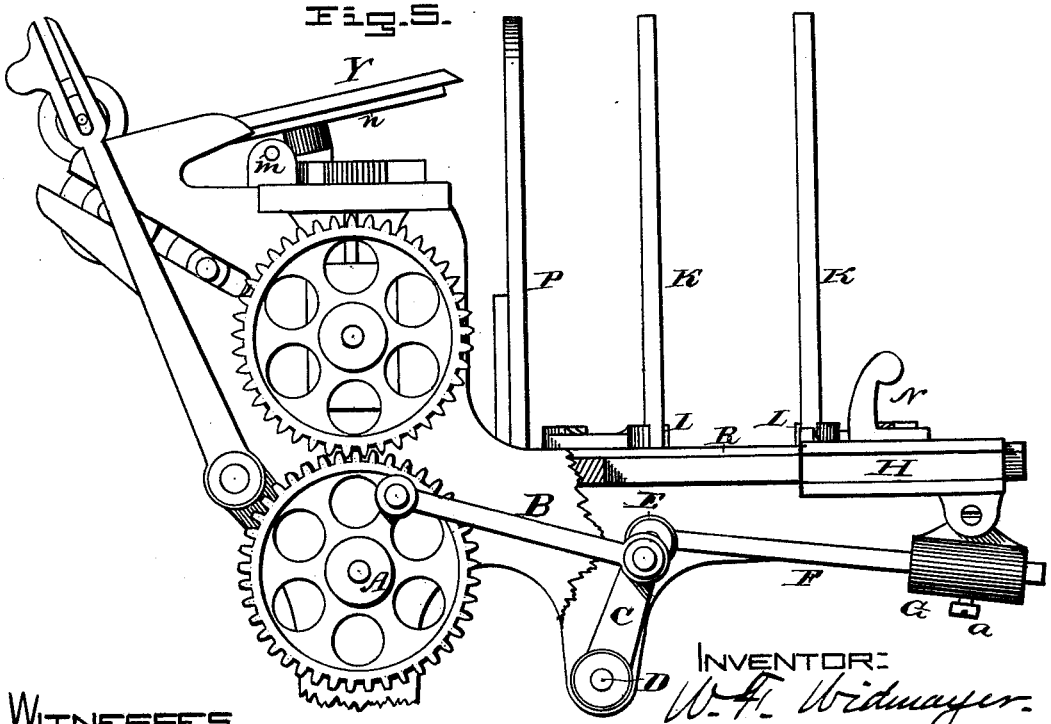


Fig-5-



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Rotary Printing Machine.

No. 198,502. Patented Dec. 25, 1877.

Fig. 6.

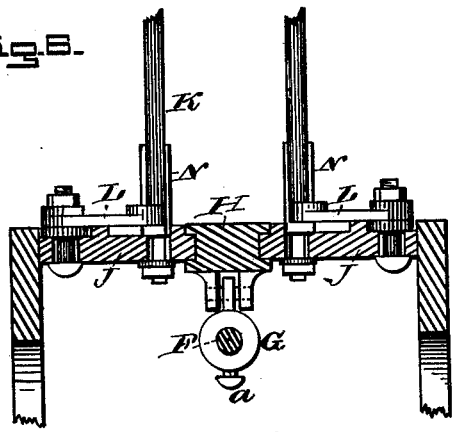
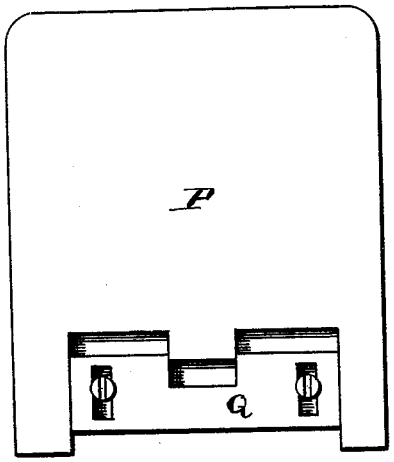


Fig. 7.



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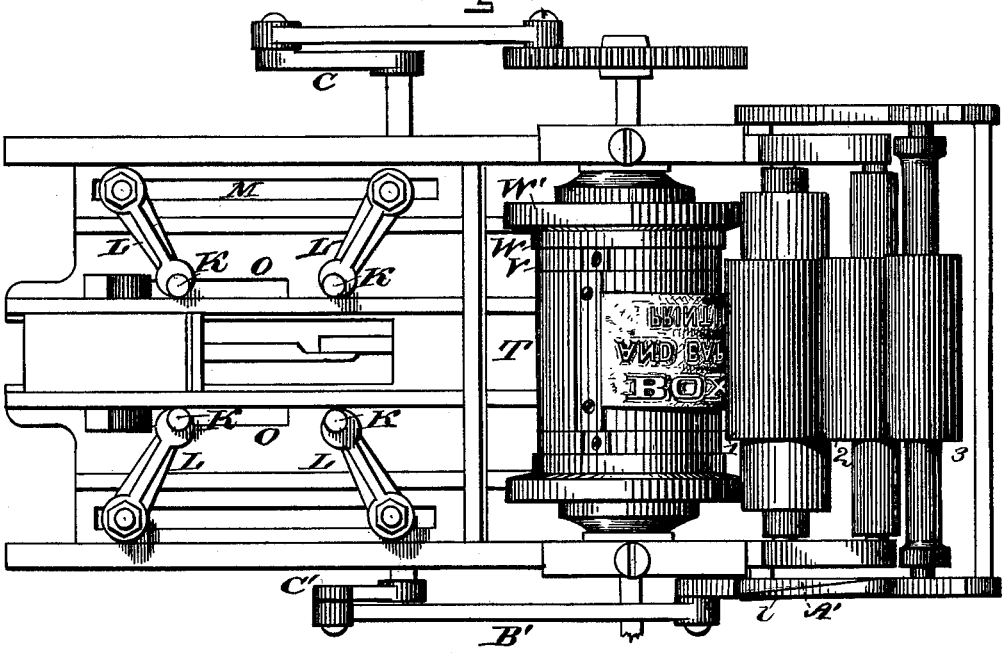
4 Sheets—Sheet 4.

W. F. WIDMAYER.

Rotary Printing Machine.

No. 198,502. Patented Dec. 25, 1877.

Fig. 9.



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UNITED STATES PATENT OFFICE.

WILLIAM F. WIDMAYER, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY PRINTING-MACHINES.

Specification forming part of Letters Patent No. **198,502**, dated December 25, 1877; application filed March 22, 1877.

To all whom it may concern:

Be it known that I, WM. F. WIDMAYER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Rotary Printing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a machine for printing labels directly upon the material from which cigar, soap, and other packing-boxes, and also barrels, are manufactured.

The invention consists in a device or apparatus constructed with mechanism for automatically feeding a blank—say of wood—to a printing-press, preferably forming part of such device or apparatus, which press, by its peculiarities of structure, is adapted to print any desired label or matter upon said blank, the said blank to be subsequently used in the manufacture of boxes, barrels, and the like.

The invention also consists in so constructing such a machine that its several parts may be readily adjusted to adapt it for use with blanks of various lengths, widths, and thicknesses.

In the drawing illustrating my invention, Figure 1 is a side elevation of an apparatus embodying the same; Fig. 2, a central cross-section of the type-cylinder. Fig. 3 is a side view of one of the type-cylinder-increasing rings. Fig. 4 is a top view of my apparatus. Fig. 5 is a side elevation of the same, looking at the side opposite to that shown in Fig. 1, and having a portion of the frame broken away to expose the feeding mechanism. Fig. 6 is a cross-section taken on the line *x x*, Fig. 4, showing the feed mechanism; Fig. 7, a front elevation of the hopper end-board, having the adjustable feed-gate; and Fig. 8, a top view with the ink-table and feed removed.

A represents the main shaft of the apparatus, to which power is suitably applied. Connected with this shaft is a pitman, B, that extends and is jointed to a crank-arm, C, on the outer end of a shaft, D, so as to communicate motion to said shaft D from the main shaft. This shaft D has bearings in hangers depending from or forming part of the frame of the apparatus, and about centrally of its length it is provided with a second crank-arm, E, arranged in the same plane with arm C. Jointed to this arm E is a pitman or rod, F, the outer end of which is adjustably retained in a sleeve, G, by a set-screw, *a*, or other means. This sleeve G is swiveled or hinged to a pusher or carrier, H, sliding in ways in a table, J, and having a lip or head block, *b*, a horizontally-reciprocating motion being imparted to this carrier H by the rod F and its connections with the main shaft just described.

K K are vertical rods, secured to horizontal arms L, which arms are pivotally and adjustably retained in slots M, in the table J. N are back-stops, adjustably retained in slots O in the table J, adjoining the rear end of the carrier or pusher. P is a shield or board, forming, with the rods K, table J, and stops N, the hopper for containing the blanks to be printed upon. This board is provided with an adjustable gate, Q, at its lower end. Rails R are placed longitudinally upon the bed.

The mechanism so far described constitutes the feed whereby blanks—as, for instance, the tops or ends or sides of boxes, the heads of barrels, &c.—are supplied to a printing-press, and its operation is as follows: Blanks, in length, width, and thickness as nearly uniform as may be, are piled upon the rails R of the table J, between the sticks, and these sticks are then so adjusted in the slots relatively to the length of the blanks, and also so adjusted by means of their pivotal arms L relatively to the width of such blanks, and the stops N adjusted to the length of the blanks, as to hold them in an even upright pile, and thereby insure correct feeding of them.

The rod F is adjusted in the sleeve G, so as to limit the throw or travel of the carrier H correspondingly with respect of the length of the blanks.

The gate Q is to be set at such height as to permit of the passing under it of the blanks as they are fed forward. Motion being given, the carrier head-block comes in contact with the lowermost blank of the pile, and pushes it forward under the gate Q sufficiently far for it to be caught between the type and impres-

sion cylinders of the printing-press. One blank only at a time is thus fed.

The stops N prevent the carrier from pulling away a blank backward on the return of the carrier, thus serving as back stops. As soon as the carrier emerges from under the pile it is ready for the next blank.

On the main shaft A is secured the impression-cylinder S, Fig. 1, and above it is arranged the type-cylinder T. These two cylinders are connected by gearing, so as to revolve in unison with each other and with the feed mechanism, all receiving motion from the same source.

Rubber type, if that be used, is secured to the cylinder T (see Fig. 2) by means of battens *d*, screwed down upon the type-strip *b* into grooves *c* in the periphery of the cylinder. If metal type be used, it may be secured upon the cylinder in any approved manner. In order to adapt the cylinder to receive rubber or other type of great width, I provide said cylinder with half-rings V, Fig. 3, having grooves therein corresponding with the grooves in the cylinder.

This type-roller is hung in automatically-adjusting housings, consisting of bearing-blocks *e*, in which the gudgeons of the cylinder turn, which blocks are set at given heights by set-screws *f*. *h* are springs interposed between these blocks and the top bars of the housing-frame, the force of the elasticity of which springs is regulated by the set of the screws, for the purpose of insuring a proper resistance for the type-cylinder in printing upon the blanks, and to give range to its automatic adjustability.

The object of the provision of automatic adjustability in the type-cylinder is to permit the cylinder to accommodate itself to blanks of differing thicknesses, whether this difference be small or great.

In order to insure the proper feeding of the blanks between the cylinders, to guide them in a straight course, and to prevent the rubber type, if such be used, from making a blurred impression by reason of undue pressure upon the blank, the outer rings W of the type-cylinder are of increased diameter, and rest upon the blank, and have flanges W′, which overlap the edges of the blank—that is to say, the blank is confined between said flanges W′. The diameter of the feeding portion of the rings W is such as to bring the surface thereof slightly below the face of the type, for obvious reasons.

Y is the ink-table, supported above the type-cylinder upon a suitable spider, and having a rotary motion imparted to it by a pawl-and-ratchet or other mechanism.

The ink is supplied to the type by inking-rolls 1, 2, and 3. The roll 1 is kept from daubing the type-cylinder by extensions which are non-inking surfaces, and which rest against the flanges W′ of said cylinder.

The roll 3, which carries the ink from the table to rolls 2 and 1, is supported in a vibrating frame, A′, that is connected, by a pitman, B′, and a crank-arm, C′, with the shaft D, and receives its motion therefrom.

The frame A′ may be so constructed as to serve as means for intermittingly rotating the ink-table.

It will be understood from the foregoing that the blanks, as they are fed under the gate Q, are caught between the cylinders, and the desired impression made.

It requires only ordinary skill to adapt this printing mechanism for printing in various colors.

What I claim is—

1. In an apparatus for printing labels upon blanks from which boxes, &c., are to be constructed, the rods K and horizontal arms L, the latter pivotally and adjustably retained in slots M of the table J, substantially in the manner and for the purpose set forth.

2. The type-cylinder of a label-printing press, combined with increasing-rings, adapted to aid in holding the type, substantially as described.

3. The type-cylinder provided with longitudinal grooves and battens and increasing-rings, substantially as described.

4. A type-cylinder provided with outer rings W, constructed with flanges W′, substantially as described.

5. In an apparatus for printing labels upon box, barrel, or other packing-case material, the combination of the rods K and arms L, adjustably arranged on the table J, adjustable feeding mechanism, stops N, and an adjustable type-cylinder, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WM. F. WIDMAYER.

Witnesses:
JAMES S. CASE,
CHAS. A. ADAMS.