No. 636,524. Patented Nov. 7, 1899.

E. E. HAM.

PRINTING DEVICE.

(Application filed Apr. 16, 1898.)

(No Model.)

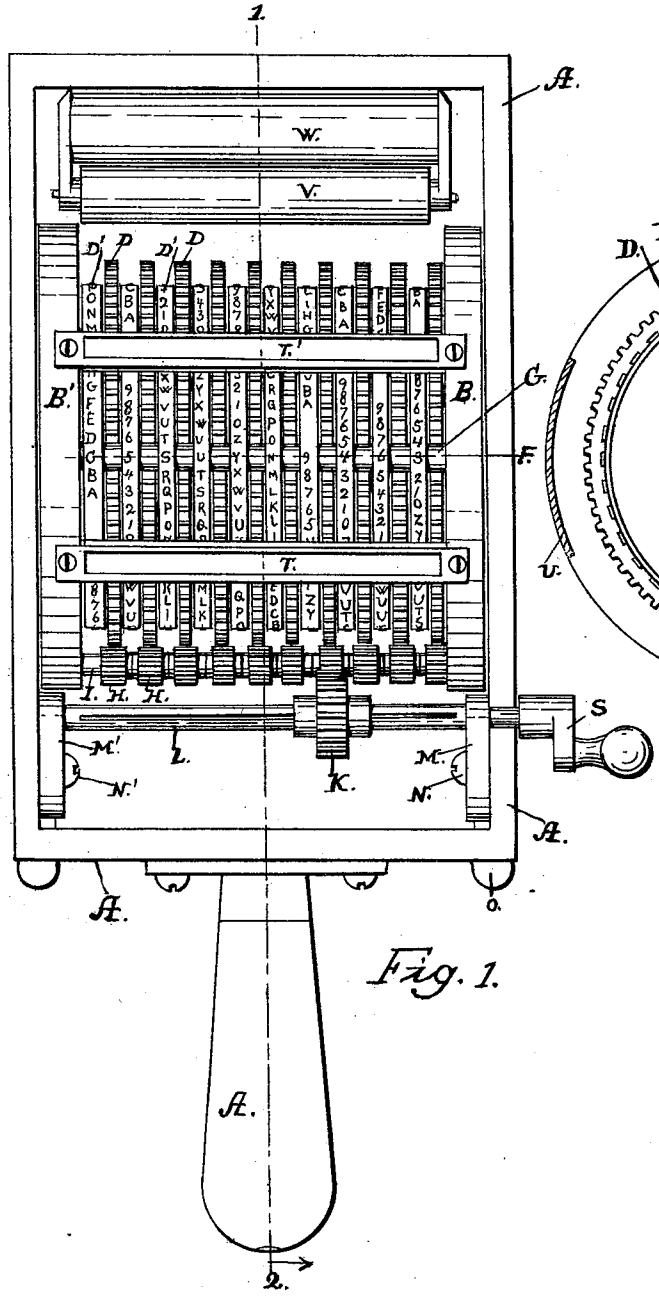


Fig. 1.

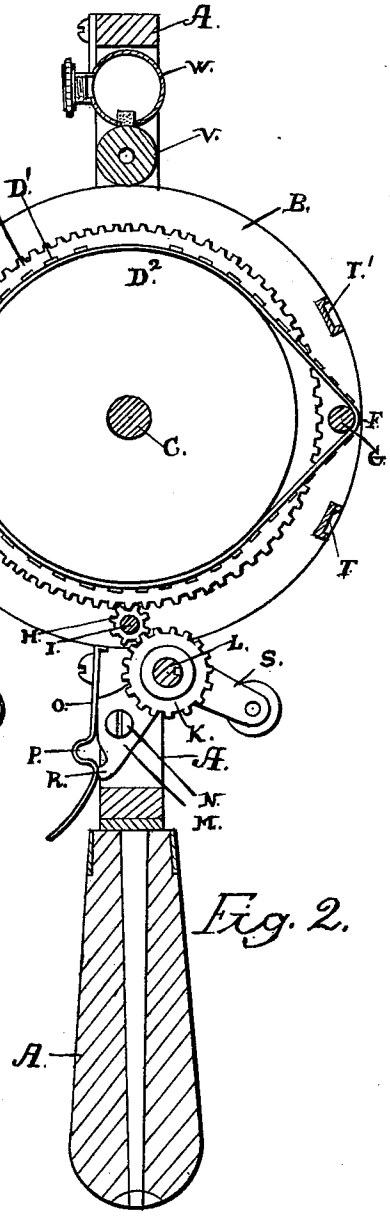


Fig. 2.

WITNESSES:

Wm. Wm. Dewroth

H. P. Hild

INVENTOR

Edward E. Ham.

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UNITED STATES PATENT OFFICE.

EDWARD E. HAM, OF NEW YORK, N. Y., ASSIGNOR OF ONE-FIFTH TO IDA FRANCES FARRINGTON, OF SAME PLACE.

PRINTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 636,524, dated November 7, 1899.

Application filed April 16, 1898. Serial No. 677,844. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. HAM, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a new and useful Improvement in Printing Devices, of which the following is a specification.

My invention relates to that class of printing devices by which impressions are made on paper or other surfaces at regular intervals; and the objects of my improvements are, first, to afford facilities for the proper adjustment of the different letters and numbers independently of each other in respect to the line to be printed; second, to provide means for the insertion of complete lines or plates having surfaces capable of printing letters or designs for the same purpose without interfering with the before-mentioned arrangement, and, third, to provide means for properly inking the printing-surfaces. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the apparatus, and Fig. 2 a longitudinal vertical section of the same on the line 1 2 of Fig. 1.

Similar letters refer to similar parts of the two views.

A designates a frame provided with a handle. In the middle of this frame are two rollers B B′, mounted loosely on a shaft C, which is stationary in the center of frame A. The space between the two rollers B B′ is occupied by flanged belt-wheels D D, which are of even dimensions and smaller in diameter than the rollers B B′. These belt-wheels D D have cogs formed upon their flanges and are also loosely fitted on shaft C to allow of their revolving independently of each other, while the rollers B B′ are connected to each other on and near their peripheries by the chases T T′ (so styled because each performs the function of a printer's chase) and plate U in such a way that their connection does not interfere with the flanged belt-wheels D D. This construction provides a rigid frame, styled hereinafter a "cylinder-frame," in which the flanged belt-wheels D D, the assembling-bar G, and the type-bands D′ can be properly mounted, the whole forming a rotary printing element which for convenience I shall allude to as a "rotatable printing-cylinder." Upon the belt-wheels D D are belted soft-rubber bands D′ D′, which I style "type-bands." These bands have on their outer surfaces projections capable of printing numbers and letters, and said bands are also stretched over an assembling-bar G, common to them all, which is so supported by the two rollers B B′ that the plane of the type-faces on type-bands D′ D′ when said type-faces are at F is tangent to the peripheries of the rollers B B′. A further function of said assembling-bar is to hold the adjusted band in the desired position through friction between itself and the band.

To adjust the desired types of the type-bands D′ D′ in a line parallel to the axes of the rollers B B′ at the point F, each of the flanged belt-wheels D D is provided with a pinion H. Said pinions H H are loosely mounted on stationary shaft I and are separated from each other by hubs or their equivalent, allowing independent revolution of each through the agency of a spur-wheel K, mounted on shaft L and actuated by crank S. Spur-wheel K has a key in its hub loosely engaging a longitudinal groove or keyway in shaft L, so that it can be freely shifted along said shaft to operate any of the pinions H H for the adjustment of the corresponding type-bands D′ D′ on their respective belt-wheels D D, and thus make any desired changes in the printing-line at F. After this adjustment is perfected spur-wheel K is swung out of engagement with the pinions H H on the fulcrums N N′ by the arms M and M′ of shaft L and held out of engagement by finger R of arm M matching notch P of spring O. This spring O, which is secured at one end to frame A, serves also to hold spur-wheel K in engagement with that one of the pinions H H it is desired to operate.

The chases T T′ may be provided with permanent lines of type, the plane of their faces of course being tangent to the peripheries of rollers B B′, as in the case of the bands D′. The same may be the case with the plate U, bearing types or designs to be printed at regular intervals on a surface, with which the

so-called "printing-cylinder" comes in contact when rotated by being pushed forward to roll on the same.

The type-faces and other printing-surfaces receive their ink through the motion of the printing-cylinder from ink-roller V in contact with a strip of felt or other fibrous material fastened in a slit of ink-reservoir W, which is fastened to the extending end of frame A and is provided with bearings for the shaft of ink-roller V.

I am aware that prior to my invention printing devices have been invented operating to print impressions at intervals by rolling across a surface; but I am not aware that any of these devices are capable of such adjustment as specified herein. Therefore, though I do not claim such a combination broadly,

I do claim as novel and desire to secure by Letters Patent—

1. In a printing device, the combination of a main frame; a shaft journaled in same and a rotatable printing-cylinder, mounted upon said shaft, comprising a rigid cylinder-frame; belt-wheels within said cylinder-frame, rotatable upon the said shaft; an assembling-bar and type-bands, belted around the bar, upon said wheels, substantially as shown and described.

2. In a printing device, the combination of a rotatable printing-cylinder, comprising a rigid cylinder-frame; belt-wheels within said frame, bearing cogged flanges; a shaft, common to said frame and belt-wheels; an assembling-bar and type-bands, belted around the bar upon the wheels and pinions adapted to engage the cogged flanges of the belt-wheels; a shaft, common to all the pinions and means for turning said pinions, substantially as shown and described.

3. In a printing device, substantially as specified, having flexible type-bands, adjustable by means of belt-wheels, bearing cogged flanges, operated by pinions; the combination with said belt-wheels, flanges and pinions, of a spur-wheel, K, keyed free to move longitudinally upon a shaft into engagement with any one of said pinions and means, operating to turn said shaft and adjust the said type-bands, substantially as shown and described.

4. In a printing device, the combination of a main frame, carrying a rotatable printing-cylinder, having adjustable type-bands, belted around an assembling-bar, upon wheels bearing cogged flanges and pinions in engagement with said flanges; an adjusting spur-gear adapted to coöperate with the pinions to adjust the bands and means, operating to hold said spur-gear into and out of engagement with said pinions, substantially as shown and described.

5. In a printing device, having a rotatable printing-cylinder, carrying adjustable type-bands; the combination of means for adjusting said bands; mechanism, actuating said means, movable into or out of its operative position and means for holding said mechanism in an operative, or inoperative position at will, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 25th day of March, 1898.

EDWARD E. HAM.

Witnesses:
WM. M. NEUROTH,
H. R. HELD.