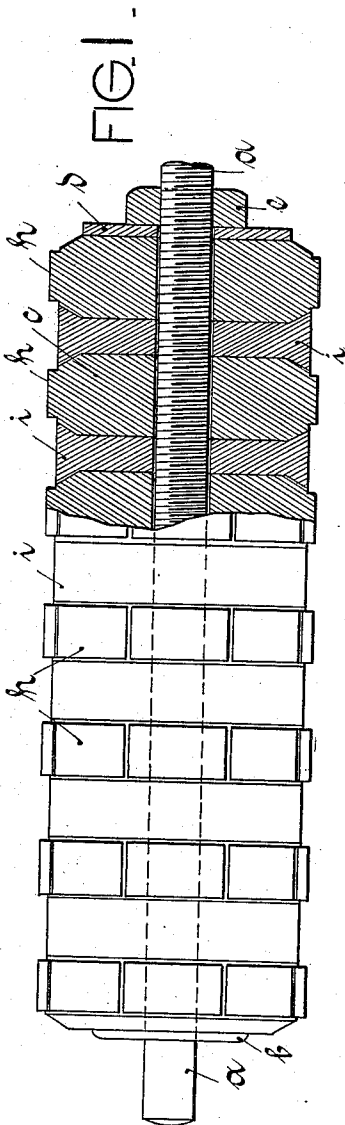


H. WOLLHEIM.
PRINTING ROLL.

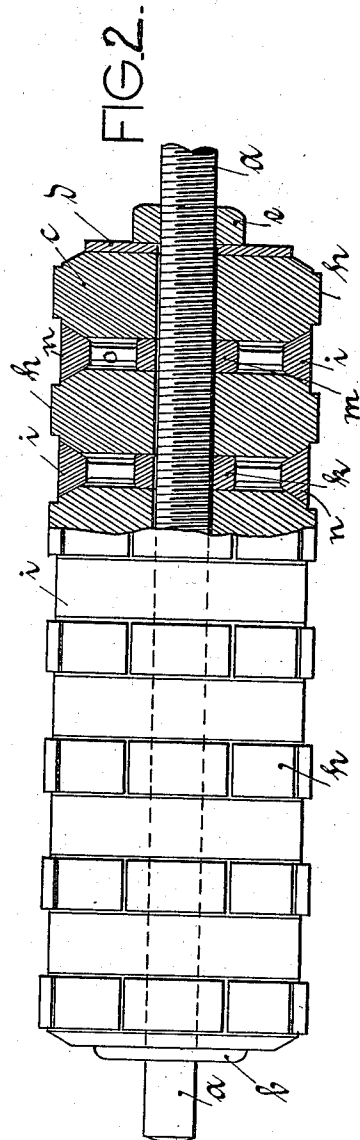
APPLICATION FILED NOV. 22, 1909.

1,014,110.

Patented Jan. 9, 1912.



Witnesses:
G. M. Stokes.
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UNITED STATES PATENT OFFICE.

HEINRICH WOLLHEIM, OF BERLIN, GERMANY, ASSIGNOR TO AMERICAN STAMP AND
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PRINTING-ROLL.

1,014,110.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed November 22, 1909. Serial No. 529,341.

To all whom it may concern:

Be it known that I, HEINRICH WOLLHEIM, subject of the Emperor of Germany, residing at Berlin, Germany, have invented new and useful Improvements in Printing-Rolls, of which the following is a specification.

This invention relates to printing machines; and has for its object to provide a printing roll for such machines of novel design and simple construction, and capable of producing an indefinite number of impressions in continuous rows on a strip of paper. Every impression in a row is preferably the same, but each row of impressions may differ from every other row, or two or more rows may be alike, all depending upon the manner of assembling the parts of the printing roll. The spacing between the printing surfaces may vary as desired, may be narrow or wide as circumstances demand.

The principal object for which this invention is designed is to print railway and other tickets, such as are produced in strips and subsequently put up in rolls to be sold from the roll by tearing from the depending strip the tickets required.

With this and other objects in view, the invention consists in the construction, combination and arrangements of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which,

Figure 1 is an elevation partly in section showing the embodiment of my invention. Fig. 2 is a view similar to Fig. 1 but embracing a modification of a certain feature of my invention.

Similar reference characters are used for the same parts for all the figures.

Referring to the drawings, *a* indicates a shaft of any desired length, near one end of which is fastened a disk or collar *b* perpendicular to the axis of the shaft, while on the opposite end is a screw-thread as shown.

Mounted to slide freely on the shaft *a* are a plurality of rings, disks or rolls *c*, which for convenience will be designated disks, of like diameter, each disk bearing upon its periphery circumferential series of printing surfaces *h*, suitably spaced from each other and from those on adjacent disks. The printing surfaces on each disk are by preference alike, and contain all the matter desired to be placed on a ticket, but if desired the matter on these surfaces may be so ar-

ranged that two or more may be necessary to print a double ticket, as for instance in the case of return tickets such as used on railways, tickets with a seat coupon attached, and the like. All the disks comprising a roll may have the same matter on their printing surfaces, two or more such disks may be alike, or all may be different, the arrangement and number of like disks depending upon the number of tickets and the kind to be printed. After the disks *c* have been placed on the shaft *a*, a washer or plate *d* is placed against the outermost disk and the whole fastened securely in place by a nut *e* screwed on the shaft *a* tightly against said plate *d*, thus clamping the disks *c* between the plate *d* and collar *b* on the opposite end of the shaft. In order to prevent any disk or the roll of disks from rotating on the shaft any of the expedients known to the art and too obvious for illustration may be employed, which embrace any of the variety of clutch or interlocking devices commonly in use for securing a collar, sleeve and the like in rigid connection to a shaft so as to revolve therewith but not independently thereof.

Should greater space be desired between the rows of tickets than that between the printing surfaces of the disks *c*, spacing disks or rings *i* may be introduced between each printing disk, as represented in Figs. 1 and 2. The spacing disks may be solid as in Fig. 1 or each may be formed with a hub *m*, a rim *n* and connecting spokes *o*, as in Fig. 2.

If deemed advisable, the printing disks may be hollow, or formed with a hub and rim in a manner similar to the spacing disks.

For the purpose of securely locking the printing disks and spacing disks together, the side faces of said disks are beveled at their peripheries to form interlocking cone-shaped connections, which when forced into close contact by the nut *e* prevent any individual rotation of the printing disks.

In using a roll of this type for printing tickets it may be mounted in a suitable printing press having a perforating or cutting attachment, and when the paper is fed to the printing roll the latter not only impresses the designs on the paper, but may also feed the paper to the machine and to the perforator or cutter which divides the printed sheet of paper into a series of strips,

each strip comprising a row of tickets, which are afterward wound into rolls ready for use. If desired, perforators may be used between the individual tickets on each strip to facilitate the separation of the tickets.

What I claim is:

1. In a device of the kind described, having a shaft, a plurality of removable printing disks longitudinally and independently slidable on and rotatably carried by said shaft, said printing disks having terminally inclined faces, the combination of a plurality of spacing members mounted on said shaft, interposed between adjacent disks and having flared terminal edges adapted to engage the opposite inclined faces of adjacent disks, said spacing members forming with said disks, a rigid roll terminating short of one end of said shaft, a fixed collar at the other end of said shaft against which said roll normally abuts, and means removably carried at the first-mentioned end of said shaft and adapted to hold said disks and spacing members in frictional engagement whereby said roll will be held against lateral displacement on said shaft.

2. A printing roll comprising a shaft a fixed collar near one end, a plurality of removable disks of equal diameters mounted on said shaft and slidable longitudinally thereof, each of said disks having a circumferential series of printing surfaces nar-

rower than the width of said disks and formed with beveled peripheries extending outwardly from said printing surfaces, and spacing disks adapted to be placed between said printing disks having beveled surfaces of like angles on their sides to engage with the beveled surfaces of the printing disks, means between the shaft and the printing disks to prevent rotation, and means for clamping said printing disks and spacing disks firmly against each other and against the fixed collar on the shaft.

3. A printing roll comprising a shaft having a fixed collar near its end, a plurality of printing disks of equal diameter mounted on said shaft and slidable longitudinally thereof, spacing rings having beveled surfaces on each side adapted to engage co-operating beveled surfaces on said printing disks, each of said spacing rings being formed with a hub and spokes and slidably mounted on said shaft, and means for clamping said disks and spacing rings firmly on the shaft.

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

HEINRICH WOLLHEIM.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."