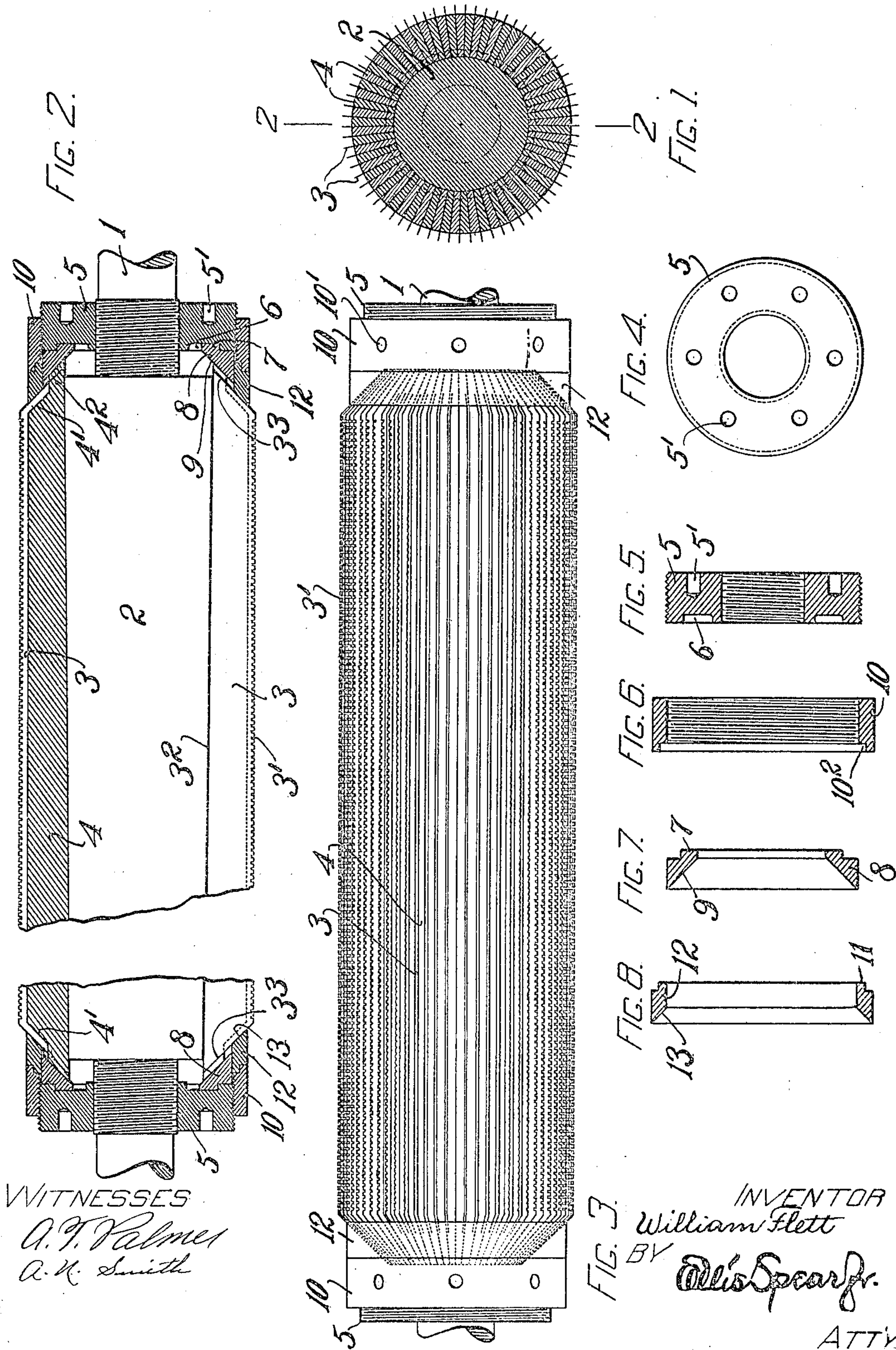


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PERFORATOR.

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927,846.

Patented July 13, 1909.



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PERFORATOR.

No. 927,846.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM FLETT, a citizen of the United States, residing at Hyde Park, Massachusetts, have invented certain new and useful Improvements in Perforators, of which the following is a specification.

This invention relates to perforators and particularly to a rotary perforator for weakening the line of detachment in sheets or strips of coupons as in mileage, railroad tickets, and the like.

In devices of this sort in which a long strip of printed coupons is to be perforated at given intervals, it is necessary that the utmost nicety of regulation and adjustment be afforded, as the slightest error in the spacing of the perforating knives or in the peripheral measure will be multiplied and rendered cumulative until at the end of say a thousand coupons the perforation would be entirely misplaced and the ticket ruined.

To the end of making such perforating accurate and dependable, I have devised my present invention, in which I have devised certain adjustments by which the regulation of the perforator may be full and complete, and the adjustment and setting of the blades made positive, easy and accurate. This I accomplish by the arrangement and formation of the parts and by certain means for moving them as desired.

In the specification and drawings, which form a part thereof, I have set forth a rotary perforator adapted to be used with a rotary printing press in the production of tickets, mileage, and the like. This perforator is an embodiment of my invention and is set forth herein as illustrative of the principles thereof, and as showing a form which I esteem as admirably adapted for the purpose specified.

Throughout the specification and drawings like reference numerals indicate corresponding parts, and in the drawings, Figure 1 is a cross sectional view of my perforator. Fig. 2 is a longitudinal section on the line 2—2 Fig. 1. Fig. 3 is a view of the perforator in elevation. Fig. 4 is an end view of the spacer controlling collar. Fig. 5 a central section thereof. Fig. 6 a central section of the perforator blade controlling collar. Fig.

7 the controlling collar for the spacers, and Fig. 8 the controlling collar for the blades.

1 is a shaft to be intermittently operated in connection with a press. 2 is a tapered barrel on said shaft, the shaft being threaded for a short distance adjacent to each end of said barrel. 3 are perforator blades disposed radially about said barrel, said blades having a straight outer edge 3' serrated to make a perforated cut, and having its inner edge 3² inclined at an angle to the edge 3', said angle of inclination corresponding to the angle of inclination of said tapered barrel 2. The ends 3³ of the blades 3 are beveled down toward the shaft, and said blades are slightly longer than the barrel 2, so that the lower edge of said bevel is clear of the end of the barrel on which the blades 3 and spacers 4 are arranged.

The spacers 4 are slightly wedged shaped in cross section, so as to make a tight fit between the thin perforator blades, which will set radially on the barrel. The ends of the spacers are beveled down at 4' toward the barrel 2, but are slightly less in length at this point than the perforator blades, so that the outer portion of the end of the perforator blade is exposed beyond the ends of the spacers. The inner portion of the spacer end, however, is formed as an extended step 4², so that the inner portion of the end of the spacer projects beyond the inner end of the perforator blade. This extended end of the spacer is beveled similarly to the other parts.

On the threaded portion of the shaft 1 is a threaded collar 5 screwed on to said shaft, and moved thereon by a spanner which engages the sockets 5'. On its inner face, the spacer lock is channeled out at 6 to receive the extension 7 of a ring 8, which has a beveled face 9 adapted to bear against the beveled end of the extension 4² of the spacers 4. The outer surface of the collar 5 which forms the lock for the spacers is threaded, and on this is screwed a second collar 10 which acts as a lock for the blades. This collar has sockets 10', and is channeled on its inner end at 10² for the reception of an extension 11 of a ring 12, which has a beveled face adapted to co-act with the beveled ends of the perforator blades.

The operation of my device is as follows: The shaft 1 being held in a vertical position with the spacer lock 5, blade lock 10, and their respective rings in place, the blades and spacers are alternately laid in place against the barrel 2, being temporarily held by hand, or by a rubber band sprung over them. As soon as the blades and spacers are properly built up about the barrel 2, the rings 8 and 12 are dropped on over the end of the shaft 1, and the spacer lock 5, with the blade lock 10, screwed on its outer surface, are run down on the threaded portion of shaft 1, adjacent to the barrel 2 until they rest upon rings 8 and 12. The blades and spacers will now be held upon the barrel, and the shaft may be held in any position without danger of the parts becoming misplaced. In order to adjust the parts, I first position the blade and spacer locks at one end of my device, so that the inclined inner edges of the blades 3 being moved on the incline of the barrel 2 will be radially distended to the proper diameter, and so that the spacers will be properly positioned between the blades to give the proper amount of separation between the edges for the size of the coupon desired. The blade and spacer locks in the other end having been turned up, the perforator may now be tested by running through a strip of the desired length. If it be found that in the run the perforations have become misplaced, the perforator blades may be slightly withdrawn to reduce, or slightly expanded to increase the diameter of the perforator, by simply moving the blade locks 10 on the spacer locks 5, either in one direction or the other. The adjustment of the perforator blades may, therefore, be accomplished without disturbing the fitting of the spacers, and in this manner the perforator may be quickly adjusted with the utmost degree of nicety, so that at the end of even a thousand coupons, the line of the perforations will fall exactly on the proper line of division which is to separate the last coupon.

Various modifications may obviously be made in the details of my perforator, in the form of the blades and spacers, and in the means for securing their adjustment, all without departing from the spirit of my invention.

What I therefore claim and desire to secure by Letters Patent is,

1. A perforator comprising a rotatable barrel having a tapered portion and a threaded cylindrical portion at each end thereof, a plurality of radially disposed blades each having its outer edge formed to be parallel with the axis of the core, and its inner edge inclined thereto at an angle corresponding to the tapered portion of said barrel, wedge shaped spacer blocks having similarly inclined inner edges fitting between said blades, said blades and said spacers each having a portion of

their ends beveled and exposed, collars on each end of said core, and having beveled faces adapted to contact with the exposed ends, said collars being independently movable to adjust either said blades or said spacers.

2. A perforator comprising a rotatable barrel having a tapered portion and a threaded cylindrical portion at each end thereof, a plurality of radially disposed blades each having its outer edge formed straight and its inner edge inclined thereto at an angle corresponding to the tapered portion of said barrel, wedge shaped spacers having similarly inclined inner edges fitting between said blades, said blades and said spacers each having a portion of their ends beveled and exposed, a collar threaded on each end of said core, a loose ring carried by said collar and having a beveled face adapted to contact with the exposed ends of the spacers, and a collar threaded on each of said first named collars and provided with a loose ring having a bevel face adapted to contact with the end of said blades.

3. A perforator comprising a rotatable barrel having a tapered portion, a plurality of radially disposed blades each having its inner edge inclined at an angle corresponding to the tapered portion of said barrel, wedge shaped spacers having similarly inclined inner edges fitting between said blades, said blades and said spacers each having a portion of their ends exposed, and means for independently moving said blades and said spacers longitudinally on said core.

4. A perforator comprising a rotatable barrel having a tapered portion, a plurality of radially disposed blades each having its inner edge inclined at an angle corresponding to the tapered portion of said barrel, wedge shaped spacers fitting between said blades, and means for independently moving said blades and said spacers.

5. A perforator comprising a rotatable barrel having a tapered portion, a plurality of radially disposed blades each having its inner edge inclined at an angle corresponding to the tapered portion of said barrel, wedge shaped spacers having similarly inclined inner edges fitting between said blades, said blades and said spacers each having a portion of their ends exposed, and collars threaded on each end of said core, and having faces adapted to contact with the exposed ends, said collars being independently movable to adjust either said blades or said spacers.

6. A perforator comprising a rotatable barrel, having inclined bearings on its surface, a plurality of radially disposed blades, wedge shaped spacers between the blades having faces inclined to correspond with said bearings, and means to move said spacer locks longitudinally on their bearings to adjust the blades.

7. A perforator comprising a rotatable barrel, having inclined bearings on its surface, a plurality of radially disposed blades, wedge shaped spacers between the blades having faces inclined to correspond with said bearings, said blades and said spacer locks each having a portion of their ends exposed, and collars threaded on each end of said core, and having faces adapted to contact with the exposed ends, said collars being independently movable to adjust either said blades or said spacers. 10

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM FLETT.

Witnesses:

A. B. BALKAM,

A. G. FLETT.