J. HATCH.

PAPER TRIMMER.

No. 62,486. Patented Feb. 26, 1867.

Fig. 1.

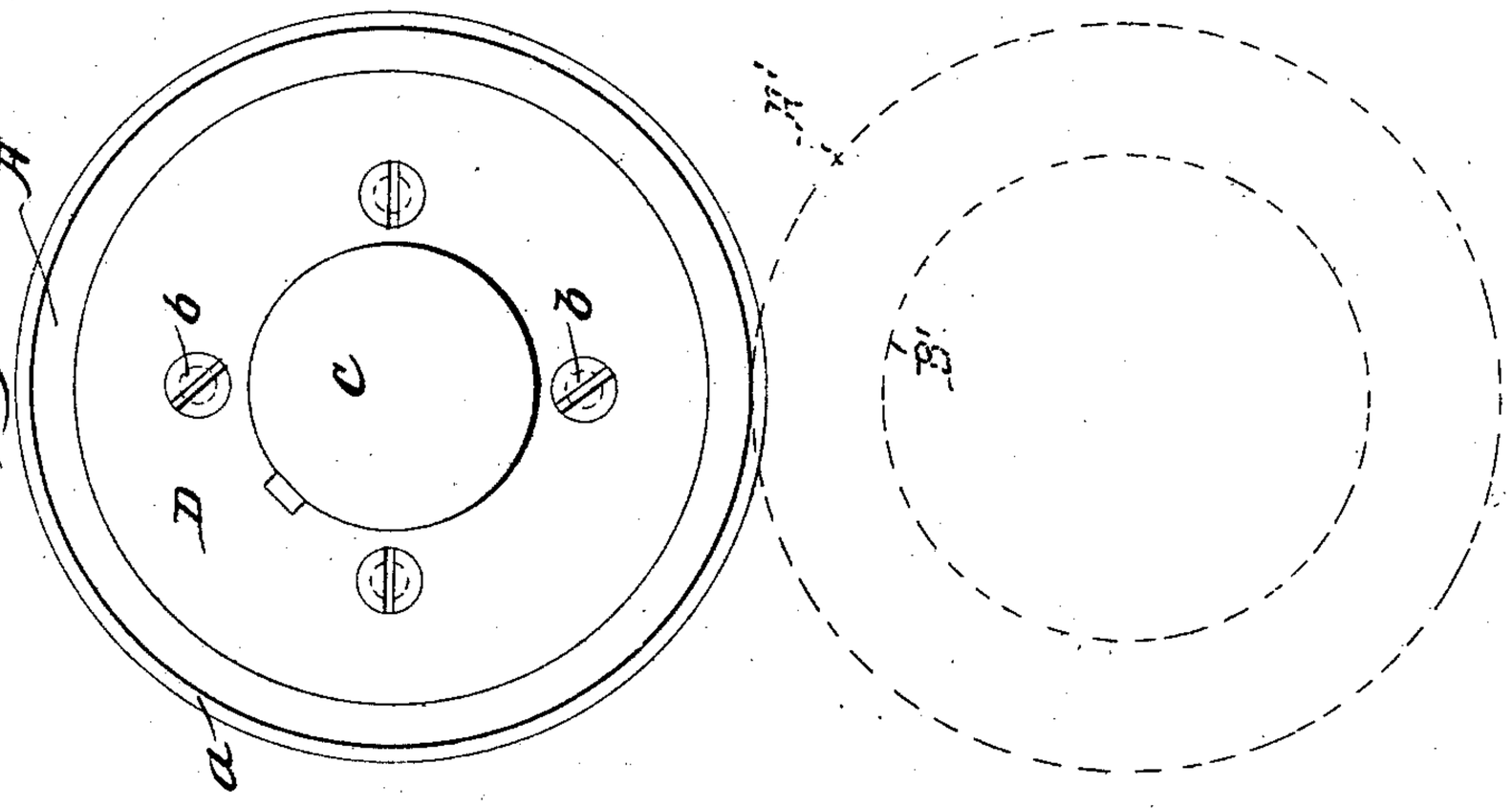
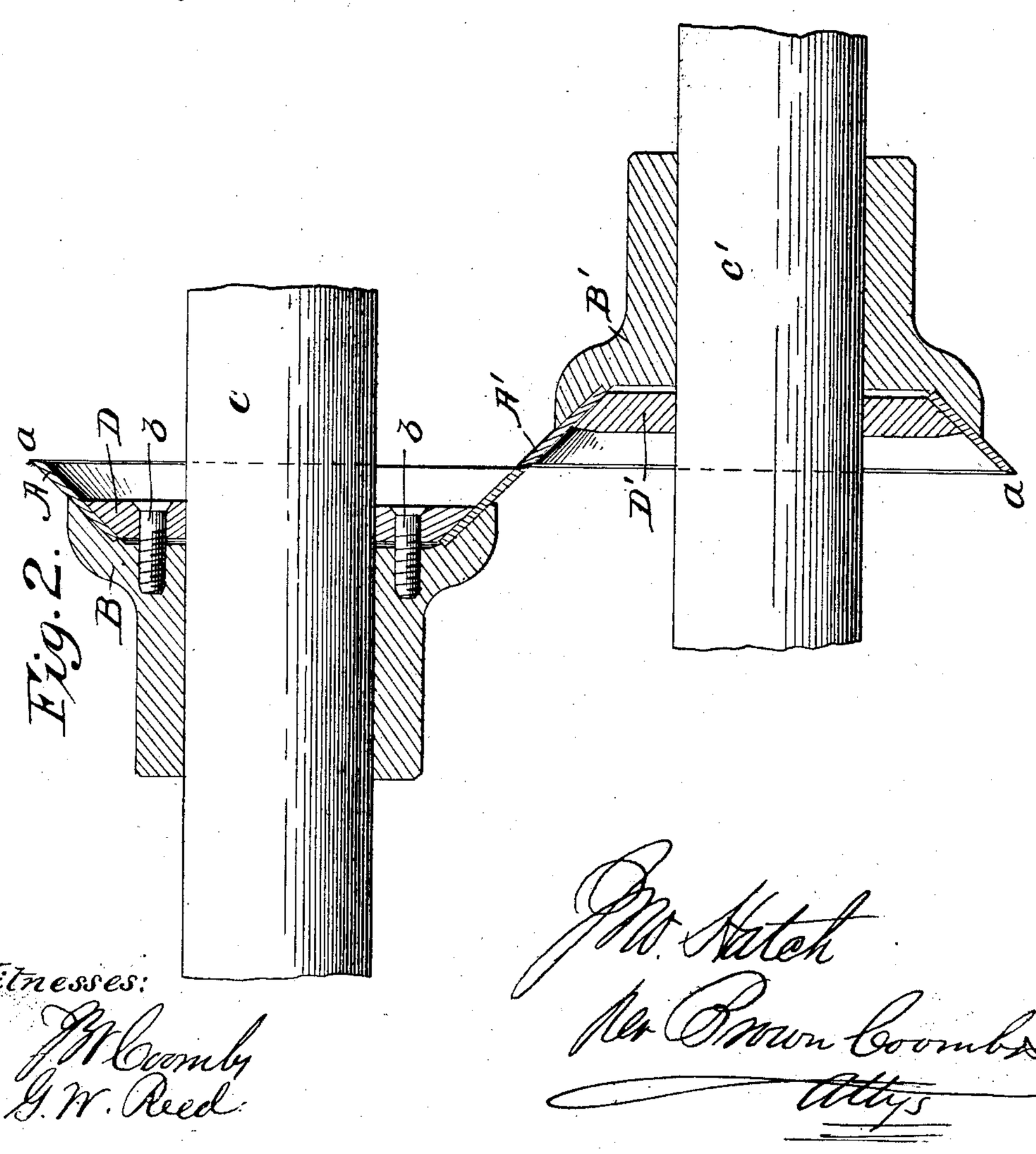


Fig. 2.



Witnesses:

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United States Patent Office.

JONATHAN HATCH, OF SOUTH WINDHAM, CONNECTICUT.

Letters Patent No. 62,486, *dated February* 26, 1867.

PAPER TRIMMER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JONATHAN HATCH, of South Windham, in the county of Windham, and State of Connecticut, have invented a certain new and useful improvement on Paper Trimmers or Slitters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents an end view of my improved trimmers or slitters as in operation, one of said trimmers, in outline only, being represented in red lines; and

Figure 2 a section of the same at right angles to fig. 1.

Like letters indicate corresponding parts in both figures.

In the manufacture of paper it is usual to cut, or, as it is termed, trim or slit the sheet as it issues from the machine or reels by means of rotary cutters, which usually consist of an almost flat steel plate or ring, bevelled outwardly on its edge, and screwed to a stock. These trimmers are arranged to run in pairs, and in reverse directions, one above the other, on parallel horizontal shafts suitably geared and driven, the faces of the trimmers being pressed one against the other by a spring, or otherwise, to effect the cut. Another form of slitter, similarly operating in pairs, has been that of a steel band or hoop circumferentially embracing a stock, and with its face or cutting edge slightly bevelled. The main objections to the first-mentioned description of slitters are their want of durability, and the difficulty there is in hardening them, in which process many of them crack; while the last-mentioned description are objectionable on account of their frequent dulling, and, having broad, flat surfaces that come in contact with a tight-drawn sheet of paper, the under slitter pressing upwards and the upper one bearing down, they are very liable to break or tear the sheet on its edge, thereby giving a rough finish to the edge of the ream or bundle.

My present improvement obviates these defects; and the nature of my invention consists in constructing the steel blade or rotary cutter of a deeply-sunken form or dish shape, with its outer edge slightly flattened, or of a slow inward bevel, the sloping sides of the cutter being straight and of an equal thickness, by which construction the cutters are made self-sharpening and more durable; and said invention further consists in securing the cutter so constructed to the stock which carries it by embedding it for a considerable portion of its depth in the rear in a dish-shaped recess, formed in the stock, and holding it therein internally by a bevel-edged ring or washer, secured to the stock by screws or their equivalents, whereby the stock need not protrude in front of the cutter, and whereby the latter is wedged to its seat in the stock, the cutter readily attached and detached, and the same stock answering, in case of wear, to accommodate new cutters.

Having thus specified the objects, advantages, and, more or less minutely, the construction of my invention, the following brief description of it with reference to the accompanying drawing will suffice, in connection with what has been said, to fully explain the same:

A A′ are the cutters; B B′ their stocks; and C C′ their shafts, on which the stocks are restrained from turning, in the usual manner. Said cutters are arranged and operated as other cutters for cutting, trimming, or slitting paper or other material. They importantly differ, however, in construction and mode of holding them to their stocks. Thus, each cutter is formed into a dish-shaped blade of circular form, and of an equal thickness throughout, by, say, pressing them out of a flat ring into a dish-shaped die, and may be afterwards ground or finished in the usual way, with their outer edges, *a a*, at right angles to their axial line or slightly bevelling inwards, and their sides, which gives them the dish shape, lying at an angle relatively to said axial line, approximating the same angle that they form relatively to a vertical line drawn at right angles to their axis. The cutters, thus constructed and made to bear by spring or other pressure with their mouths or fronts one against the other, become self-sharpening, and may be kept in use till worn so as to only slightly protrude from their stocks, in which they are held by being seated in dish-shaped recesses, and secured in front by internal bevel-edged rings, D D′, fastened to the stocks by screws *b b*. This mode of holding the cutters wedges them to their seats, and affords every convenience for replacing them by new cutters, while, as both the stocks and the holding rings D D′ may be considerably in rear of the front edges of the cutters, there is nothing to interfere with a free, open space between the shaft of the cutters and said edges, even when the latter are worn down low towards the stocks by the self-sharpening action of the cutters.

What I claim herein as new and useful, and desire to secure by Letters Patent, is—

1. The self-sharpening dish-shaped cutters A A′, with their sides and front edges *a a*, constructed as described, and arranged for operation relatively to each other substantially as and for the purpose or purposes herein set forth.

2. The combination with the dish-shaped cutters A A′, constructed as described, and their recessed stocks B B′, of the wedge-shaped or bevelled-edged rings D D′ for holding the cutters to their stocks, all arranged essentially as specified.

JONATHAN HATCH.

Witnesses.

C. YERGASON,

S. C. KINN.