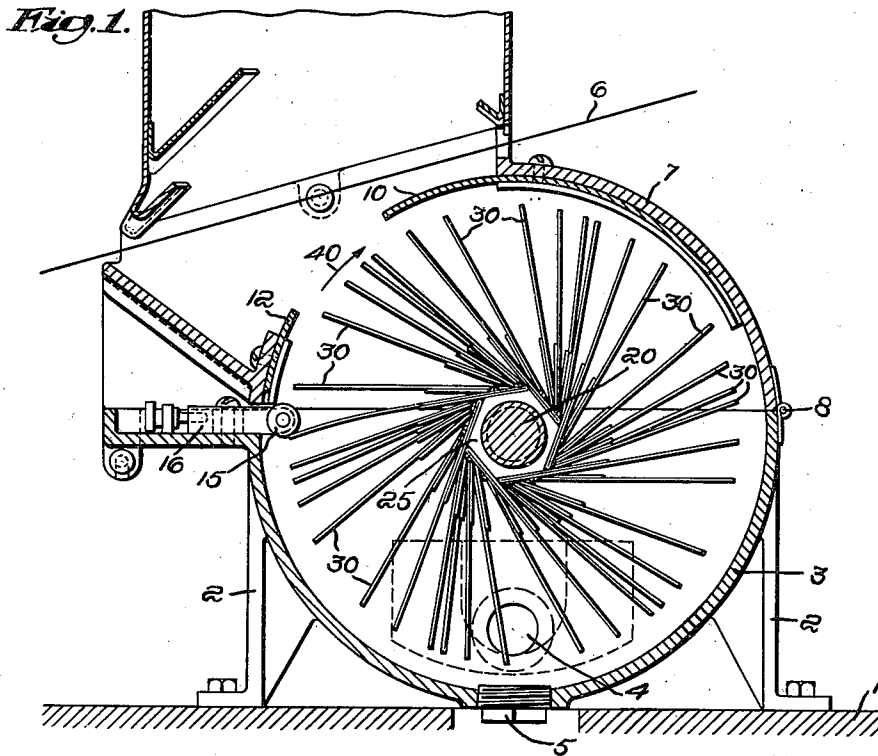
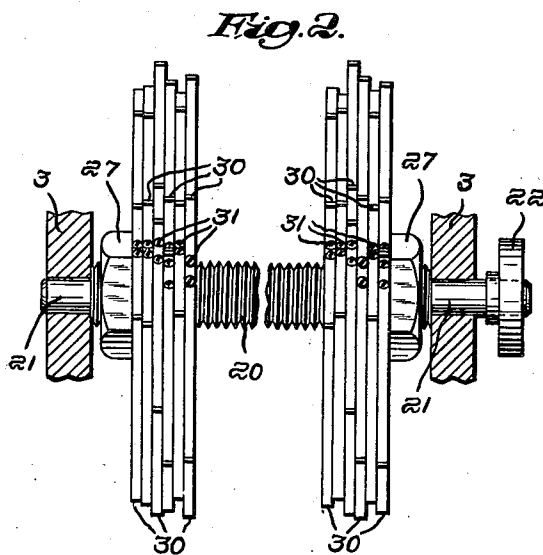
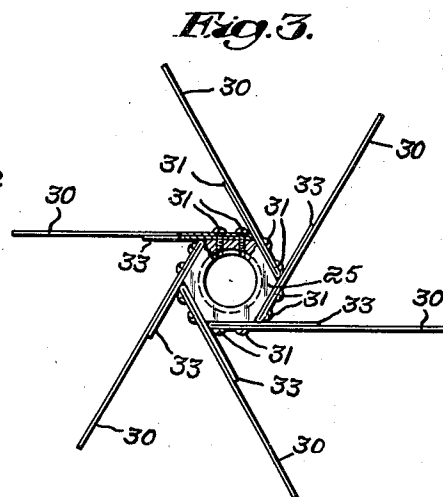


July 22, 1941.

H. C. WOLFENDEN
DYE-SPATTERING MACHINE

2,250,340

Filed Jan. 14, 1941



Inventor:
Harry C. Wolfenden
by James R. Hodder
Attorney

UNITED STATES PATENT OFFICE

2,250,340

DYE-SPATTERING MACHINE

Harry C. Wolfenden, Attleboro, Mass.

Application January 14, 1941, Serial No. 374,341

3 Claims. (Cl. 68—200)

My present invention relates to dye-spattering machines, as illustrated in my prior Patent No. 2,199,093, dated April 30, 1940; and the object of the present invention is to improve and perfect machines of this type.

As explained in my said prior patent, it is desirable to provide a machine which will apply dyeing material to yarn, cloth, fabric, or the like by means of a splashing action which will produce an irregular or mottled effect, and thus eliminate any regularity or uniformity in the pattern-like effect.

For this purpose, I provide the dye-spattering machine of my said prior patent, wherein a spattering action is produced by a rotating wheel carrying a plurality of metal teeth striking against a roll, said teeth snapping by the roll during the continuous rotation of the wheel, and thus throwing the dye carried by the teeth upon the yarn, cloth, or fabric as the latter is fed thru the machine.

While such prior device is efficient, the teeth are arranged in parallelism and in a line lengthwise of the wheel and, therefore, dependent entirely upon the variation in the snapping and throwing action to prevent any uniformity of reproduction on the material being treated.

In my present invention, I have developed a wheel and toothed construction which will positively insure a non-repeating and irregular pattern under all conditions. Thus, I provide a wheel made up of a plurality of individual hub or nut members, each carrying a plurality of dye-feeding teeth, and with adjacent hub and teeth members disaligned or staggered relatively with each other throughout the entire axial length of the wheel.

Thus the teeth members are striking and snapping by the roll individually and not in continuous rows as in my said prior patent. Even if some of the teeth are in alignment axially of the wheel, it would only be incidental; and with the intermediate hub members disaligned, my present improved dye-spattering wheel presents a continuous succession of dye-throwing actions individually and continuously against the yarn or cloth being fed thru the machine, thus insuring an irregular dye-spotting action.

Referring to the drawing illustrating a preferred embodiment of the present invention:

Fig. 1 is a fragmentary view partly in cross-section of a portion of the spattering machine construction of my said prior patent, together with my novel wheel and toothed arrangement;

Fig. 2 is a fragmentary end view illustrating

assembly of the individual tooth-carrying hubs or nuts on a shaft, and

Fig. 3 is a side view partly in cross-section illustrating the individual hub and attached teeth.

As shown in the drawing, a suitable support 1 has a trough or tank 3 supported by suitable braces 2—2, which tank is adapted to carry the liquid dye therein, with an inlet 4 and outlet 5, and in which tank the toothed wheel rotates to pick up the dye and throw or spatter it against the material 6 being treated and fed thru the upper part of the machine. A top or cover 7 is hinged at 8 to the tank 3, and adjustable guards 10 and 12 are fitted to regulate the opening thru which the spattered dye is thrown, all as shown and explained in more detail in my said prior patent. A roll 15 adjustably mounted on a slide 16 is fitted to be adjusted toward and from the teeth in the wheel so as to regulate the extent or throw of spattering as the teeth snap by, also as shown in further detail in my said prior patent.

My improved wheel structure comprises a threaded axle or shaft 20, having the opposite ends 21—21 formed on a reduced diameter and constituting bearings to fit within suitable openings in the end of the tank 3, one end being extended to receive a pulley 22, keyed or otherwise secured thereto to rotate the axle 20 by a belt sprocket or any other suitable source of power.

The threaded axle 20 is of suitable length to cooperate with the length of the tank 3 and is adapted to receive a plurality of correspondingly threaded hubs 25, which are individually threaded on to the shaft 20 and tightly held between clamping nuts 27—27, holding the series or plurality of individual hubs 25 with their attached set of teeth 30 in locked position on the shaft 20.

I find that by simply throwing up these hubs 25 against one of the clamping nuts 27 that the difference in variation in the threading action will result in disaligning or staggering the hubs 25 relatively with each other sufficiently to insure disalignment of the teeth 30. Thus, by the act of assembling the wheel structure, the disalignment is effected, as it is quite immaterial how the extent or degree of variation in the relative rotary positions of the teeth 30 is finally locked between the clamping nuts 27. The important feature is that the teeth 30 are disaligned and that they will, during the rotation of the wheel in the direction of the arrow 40, strike and snap by the roll 15 at varying times, thus throwing the dye carried thereby between

the guards 10 and 12 and against the material 6, insuring the disaligned spattering result desired.

I may attach the teeth 30 in any desired manner to the individual hubs 25, but preferably, and as herein shown, I form each hub 25 with a hexagonal outer surface to which each tooth may be secured by one or more threaded screws 31 tapped into corresponding recesses in the hub 25, as best shown in Fig. 3.

If desired, I may secure any suitable reinforcing element adjacent the base of the teeth 3 where they are attached to the hub 25 carrying them in order to effect the snapping and bending action of each tooth as it strikes the roll 15 and also to reinforce the teeth and prolong their life and usefulness.

For this purpose, I may form each of the teeth 30 with a double end portion 33, as clearly illustrated in Fig. 3, and the securing screws 31 will thus pass thru each layer and secure same to the hub, thus providing an inexpensive and strong structure.

I claim:

1. In a dye-spattering machine of the kind described, a rotatable wheel comprising a shaft, a

plurality of individual hub members adapted to fit on said shaft, each hub carrying a plurality of spring teeth, and means to clamp said plurality of hubs on said shaft with the spring teeth in relatively disaligned relationship.

2. In a dye-spattering machine of the kind described, a rotatable wheel comprising a shaft threaded intermediate its ends, a plurality of individual hub members internally threaded to fit on the threaded portion of said shaft, each hub carrying a plurality of spring teeth, and means to clamp said plurality of hubs on said shaft with the spring teeth in relatively disaligned relationship.

3. In a dye-spattering machine of the kind described, a rotatable wheel comprising a shaft threaded intermediate its ends, a plurality of individual hub members internally threaded to fit on the threaded portion of said shaft, each hub having a plurality of outer flat portions and a spring tooth secured to each of said flat portions and extending tangentially to the internally threaded part.

HARRY C. WOLFENDEN.