

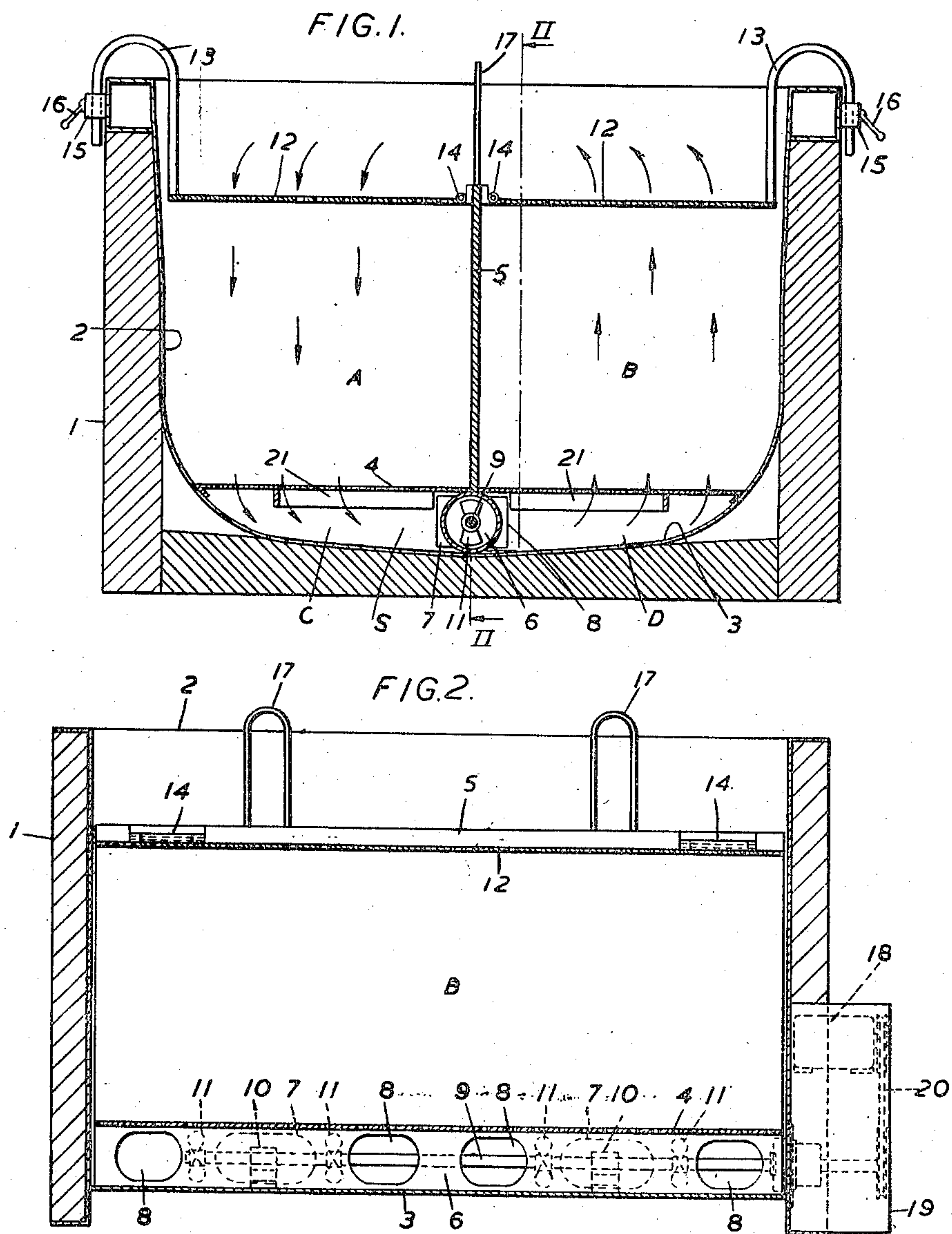
March 6, 1951

G. S. HELLIWELL ET AL
MACHINE FOR TREATING TEXTILE GOODS WITH
DYES AND OTHER LIQUIDS

2,544,424

Filed Dec. 26, 1947

2 Sheets-Sheet 1



Inventors
Guy S. Helliwell
By JOHN L. SWINDALL
Jerome W. Clayton
Agent

March 6, 1951

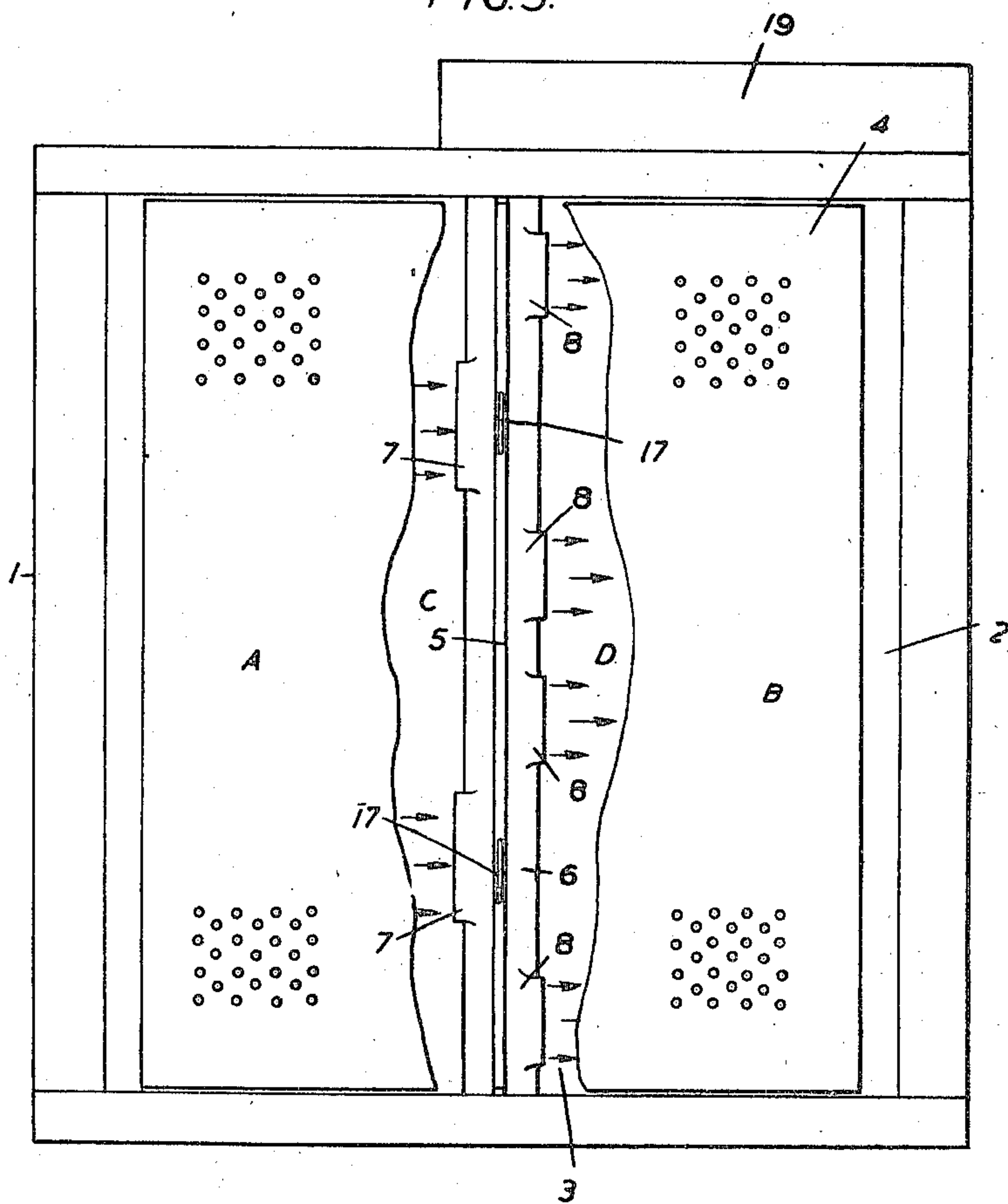
G. S. HELLIWELL ET AL
MACHINE FOR TREATING TEXTILE GOODS WITH
DYES AND OTHER LIQUIDS

2,544,424

Filed Dec. 26, 1947

2 Sheets-Sheet 2

FIG. 3.



Inventors
GUY S. HELLIWELL
By JOHN L. SWINDALL
Jerome W. Paxton
Agent

UNITED STATES PATENT OFFICE

2,544,424

MACHINE FOR TREATING TEXTILE GOODS
WITH DYES AND OTHER LIQUIDS

Guy Storr Helliwell and John Leslie Swindall,
Leicester, England, assignors to Mellor Brom-
ley & Co. Limited, trading as Samuel Pegg &
Son, Leicester, England

Application December 26, 1947, Serial No. 793,802
In Great Britain May 11, 1946

Section 1, Public Law 690, August 8, 1946
Patent expires May 11, 1966

5 Claims. (Cl. 68—187)

1

This invention relates to machines for treating textile goods, such as yarns, hosiery and other articles or pieces, hereinafter for brevity termed "goods," in loose form, and comprises an improvement the object of which is to attain certain advantages as will be hereinafter set forth.

A specific example of the invention applied to a dyeing machine suitable for dyeing, say, loose wool will now be described with reference to the accompanying purely diagrammatic drawings, wherein,

Figure 1 is a transverse sectional view of the said machine,

Figure 2 is a longitudinal sectional view of the same taken on the line II—II of Figure 1, and

Figure 3 is a plan view of the casing of the machine, with the top perforated plates removed and portions of the false bottom broken away to expose the propeller tunnel.

Like parts are designated by similar reference characters throughout the drawings.

The machine illustrated includes a wooden casing 1 within which is fitted a tank or vat 2 of sheet metal having a rounded bottom 3. Fitted in this tank or vat is a removable perforated plate 4, constituting a false bottom, spaced from the rounded bottom 3. The tank or vat 2 is divided into two equal compartments A and B by a vertical partition 5, of sheet metal extending from one side or end of the tank or vat to the opposite side. The partition 5 is attached to the false bottom 4 and terminates below the rim of the tank or vat 2. Located in the space S (see Figure 1) between the false bottom 4 and the actual bottom 3 of the tank or vat, directly under the partition 5, is a propeller tunnel 6 of sheet metal with openings 7 in one side and somewhat shorter openings 8 in the opposite side. Thus, the lower part of the tank or vat 2 is divided into sections C and D corresponding with the superposed compartments A and B respectively, and the aforesaid openings in the respective sides of the tunnel 6 are disposed towards the co-adjacent sections. Conveniently, and as shown in Figures 2 and 3, there are four openings 8 in the one side and two longer openings 7, each intermediate of two of the said openings 8, in the opposite side of the tunnel 6. As shown in Figure 2, a propeller shaft 9 mounted in bearings 10 and fitted with four propellers 11, R. H., L. H., R. H. and L. H., is mounted in the tunnel 6 so that the arrangement, starting from the left hand of the tunnel is as follows: 1st opening; R. H. propeller; 2nd opening; L. H. propeller; 3rd and 4th openings; R. H. propeller; 5th opening; L. H. pro-

2

5 peller, and finally the 6th opening. This particular arrangement may, however, be varied by reversing the propellers. The openings 7 and 8 are preferably of elliptical or equivalent horizontally elongated form. Hingedly attached to the partition 5 on opposite sides thereof adjacent to the top edge, are perforated plates 12 serving as closures for the compartments A and B, and stirrups such as 13 (Figure 1) are remov- 10 ably mounted on appropriate parts of the machine so as to extend into the tank or vat 2 adjacent to the free ends of the hinged plates 12 to hold the latter down when in the horizontal position, the hinges 14 being of such a character as to hold the plates horizontally and permit of 15 them being lifted. The stirrups 13 are conveniently U-shaped and each is clamped in position by means of an eye 15 with which one leg of the stirrup is engaged, and a handle 16 or wing screw in the eye. Lifting hoops, hooks or eyes such as 17 are attached to the partition 5 at the upper edge thereof as seen in Figures 1 and 2.

25 The machine is preferably electrically motorized, and in such case the motor 18 is mounted at one side or end of the casing 1 within a cover 19, and drives the propeller shaft 9 by means of belt or other gear 20 (Figure 2).

30 Considering the machine as built with a minimum of two compartments since what applies to one pair also applies to more than one pair, e. g. two pairs if there are four compartments, the modus operandi is as follows:

35 With the top perforated plates 12 lifted, the loose wool or other goods to be treated are deposited—in equal amounts—in each of the compartments A and B. The compartments are then covered by lowering the perforated plates 12, and the tank or vat 2 is supplied with the necessary 40 liquid. The motor 18 is then started to circulate the liquid, the direction of circulation being upwards through the compartment B over the perforated top plates 12, downwards through the other compartment A, and through the corre- 45 sponding part of the false bottom 4, through the opposing openings 7 in the tunnel 6, out through the opposite openings 8, up through the other part of the false bottom 4 and so on as long as the propeller shaft 9 is driven in one direction. 50 The direction of circulation may, however, be opposite to that just described as hereinbefore alluded to. In either event it is preferred periodically to reverse the direction of rotation of the propeller shaft 9 after every five minutes or other 55 predetermined period of time so that the direction

of circulation is correspondingly changed. For this purpose, in a motorized machine, automatic reversing gear is fitted. It is considered that with the improved machine the goods will be subjected to uniform conditions during the operation.

It will be appreciated that during the whole of the process there will always be suction in either one compartment or the other. In consequence, very little effort is required to hold the false bottom 4 and its load in the machine. In this connection the said bottom may, as shown in Figure 1, rest upon supports 21 fixed in the tank or vat 2.

When the treatment is complete the partition 5 and false bottom 4, which in effect are in one piece, are lifted bodily out of the tank or vat 2, bringing the treated goods with them. The goods and in particular dyed loose wool forms compact cakes the size of the compartment, and can be easily pushed off the false bottom into a truck or other convenient container for removal.

An important feature of the improved machine is that the liquid when running in either direction must go through the goods to be treated thereby reducing to a minimum any turbulence of the liquid. It is considered therefore, that this machine will be ideal for vat colours and all colours where the elimination of air is an important factor.

The whole of the tank or vat above the false bottom provides available space for the goods to be treated, thus reducing floor space to the minimum.

What we claim then is:

1. A machine for treating textile goods with liquid comprising a tank adapted to receive the goods to be treated, a perforated plate disposed within and spaced from the bottom of the tank to provide a false bottom therefor, at least one partition extending upwardly from the said perforated plate to divide the interior of the tank into separate compartments, additional perforated plates on opposite sides of the said partition at a point above the first mentioned perforated plate for providing lids for the compartments, means adjustably mounted on the tank and adapted to cooperate with said second mentioned perforated plates to maintain said plates in a substantially horizontal position, a tunnel under said first mentioned perforated plate directly below the said

partition and being provided with lateral openings in opposite sides thereof, said tunnel dividing the space between the first mentioned perforated plate and the bottom of the tank into sections corresponding with the said compartments, and the sections being in communication with the compartments through said lateral openings, a rotary shaft located within the tunnel, propellers on said shaft and disposed adjacent the said lateral openings, and means for imparting movement to said rotary shaft.

2. A machine as claimed in claim 1 wherein the said additional perforated plates are hingedly connected to the partition.

3. A machine as claimed in claim 1 wherein the said partition is removably mounted within the tank.

4. A machine as claimed in claim 1 wherein one of the sides of the said tunnel is provided with a greater number of lateral openings than the opposite side.

5. A machine as claimed in claim 1 wherein the adjustably mounted means on the tank comprises a substantially U-shaped bracket, one leg of which is anchored to the tank while the other leg bears against the second named perforated plates.

GUY STORR HELLIWELL.
JOHN LESLIE SWINDALL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
780,402	Willard	Jan. 17, 1905
940,868	Geissler	Nov. 23, 1909
1,131,084	Rau	Mar. 9, 1915
1,344,122	Dudley	June 22, 1920
1,813,784	Traver	July 7, 1931
2,228,328	Stienen	Jan. 14, 1941
2,275,818	Higginson	Mar. 10, 1942
2,434,719	Robertson	Jan. 20, 1948

FOREIGN PATENTS

Number	Country	Date
114,668	Germany	Nov. 1, 1900
119,332	Germany	Apr. 26, 1901