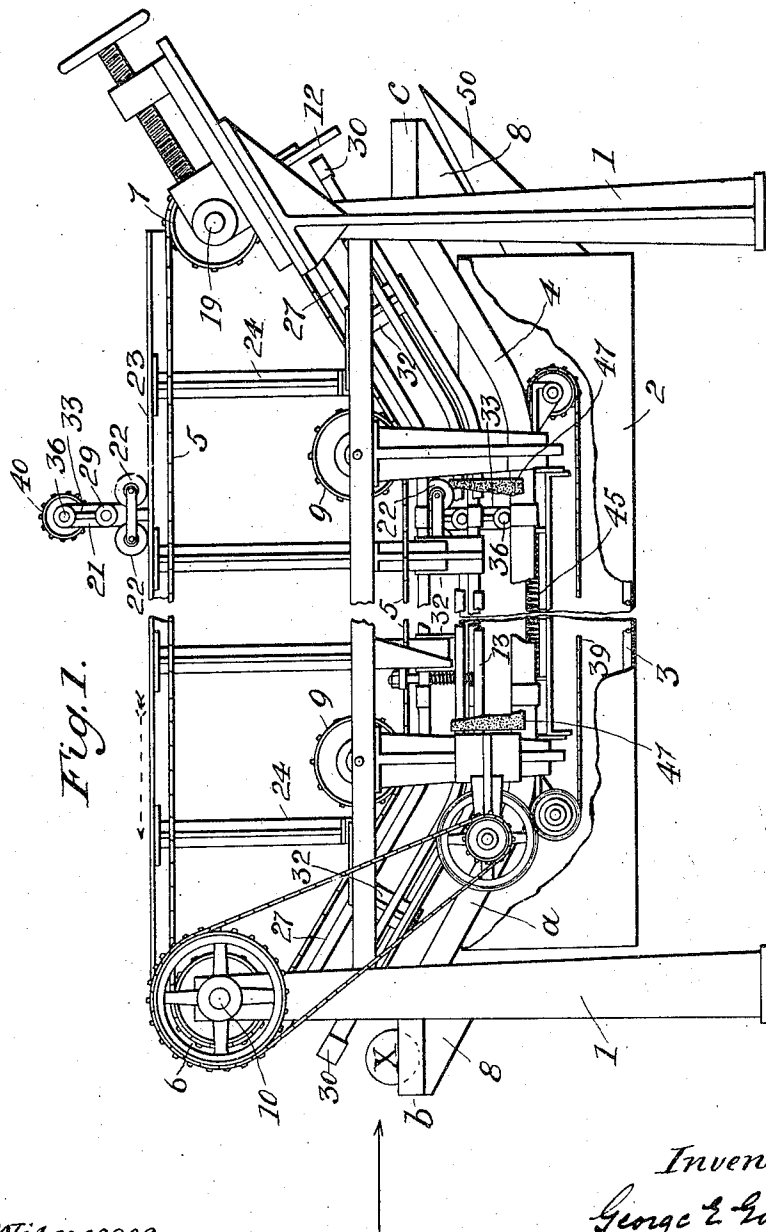


G. E. GORDON.
 APPARATUS FOR CLEANSING BOTTLES AND JARS.
 APPLICATION FILED FEB. 12, 1910.

979,842

Patented Dec. 27, 1910.

4 SHEETS—SHEET 1.



Witnesses:
 Alberta Richards
 Alice G. Harris

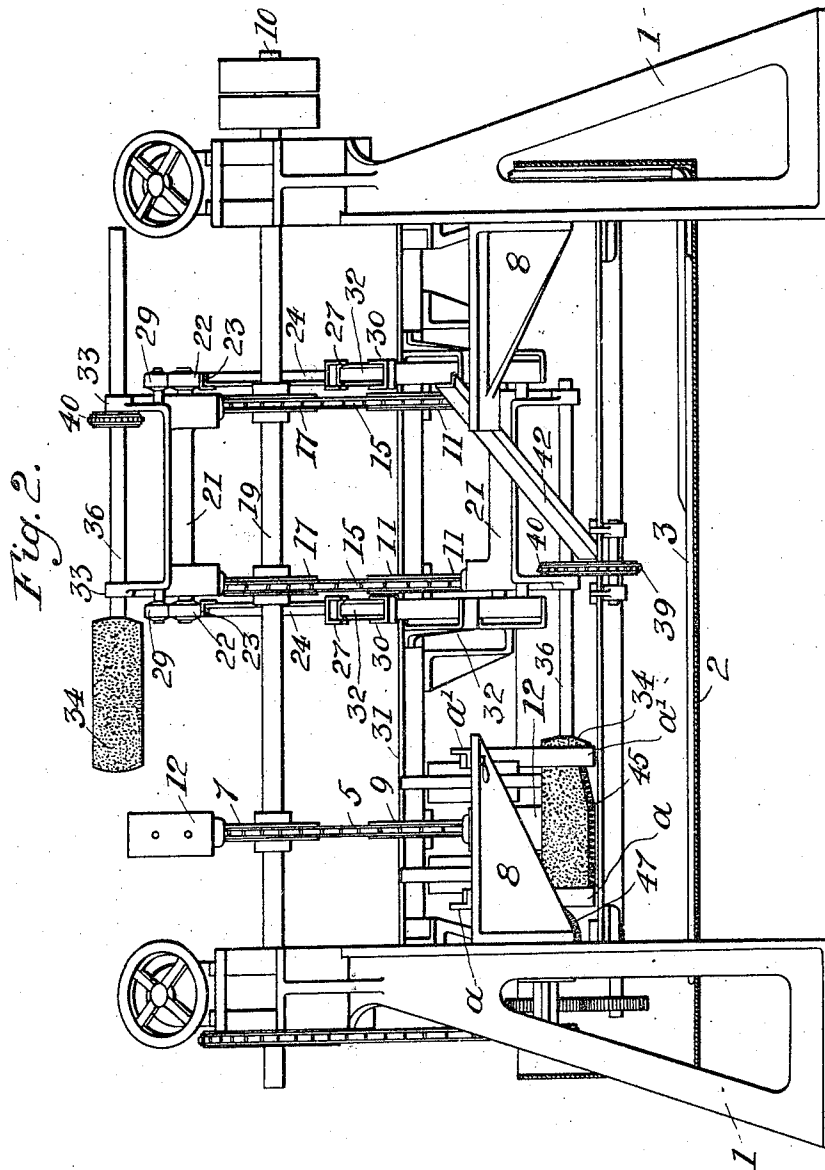
Inventor
 George E. Gordon,
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4 SHEETS-SHEET 2.



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4 SHEETS—SHEET 3.

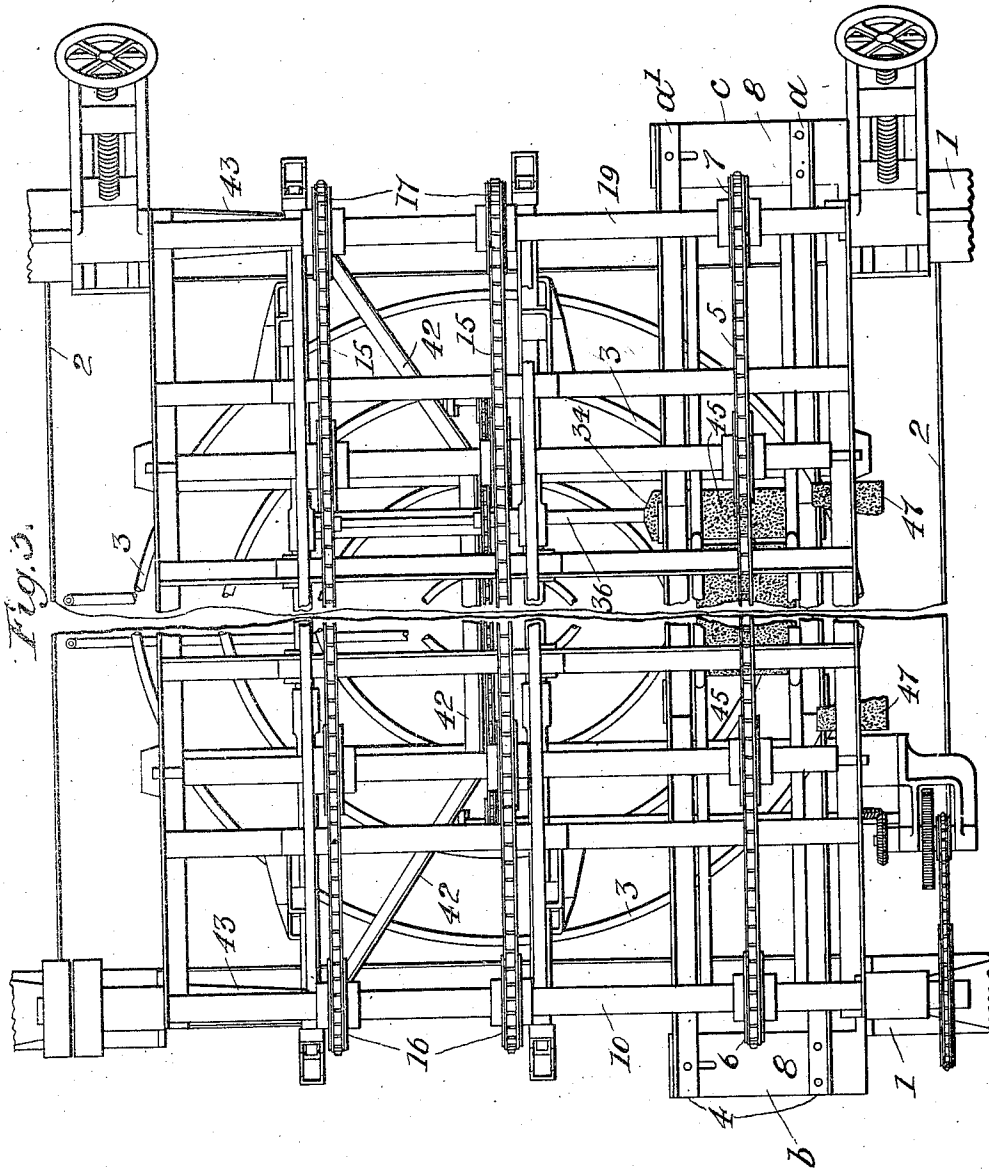


Fig. 3.

Witnesses:
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 Alice S. Harris

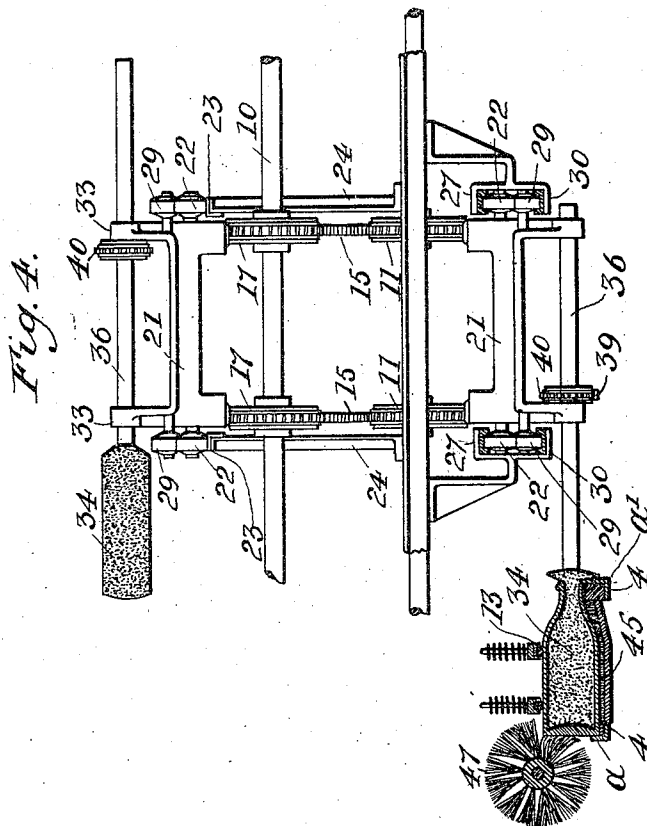
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4 SHEETS—SHEET 4.



Witnesses:
 Alberta Richards
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UNITED STATES PATENT OFFICE.

GEORGE E. GORDON, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR CLEANSING BOTTLES AND JARS.

979,842.

Specification of Letters Patent. Patented Dec. 27, 1910.

Application filed February 12, 1910. Serial No. 543,585.

To all whom it may concern:

Be it known that I, GEORGE E. GORDON, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain Improvements in Apparatus for Cleansing Bottles and Jars, of which the following is a specification.

This invention relates to an apparatus whereby bottles and jars and particularly the latter, are carried through a bath containing a suitably heated cleansing solution, and while in the bath subjected interiorly and exteriorly to the action of brushes, as will hereinafter fully appear. In the further description of the said invention which follows, reference is made to the accompanying drawing forming a part hereof, and in which,—

Figure 1 is an exterior side elevation of the improved apparatus with the central portion of the same removed. Fig. 2 is a view of Fig. 1 looking in the direction indicated by the arrow in full lines in that figure. Fig. 3 is a plan of Fig. 1. Fig. 4 is an exterior end view of certain parts of the apparatus, together with a jar shown as in process of cleansing, and illustrating the operation of the cleansing brushes.

Referring now to the drawings, 1 is the frame of the apparatus, and 2 a tank supported by the frame, containing a suitably heated cleansing solution through which the bottles are mechanically carried, as hereinafter described. The solution is heated by means of steam which passes through coils of pipe 3 situated at the bottom of the tank 2.

4 is a runway for the jars formed of angle iron bars *a, a'* which begin and terminate on a plane above the tank and have their central part within the tank and below the surface of the cleansing solution therein. The runway is supported by brackets 8 which are best shown in Fig. 3. The entrance end of the runway is indicated in Figs. 1 and 3 by *b*, and the delivery end by *c*; and at the former end is shown a jar represented by X which is placed in position by hand, and from which position it is pushed to the inclined surfaces of the runway down which it rolls to the horizontal portion of the same within the cleansing solution in the tank where it is temporarily stopped by a spring-held brake hereinafter described. The bars *a'* are laterally adjustable in position as

shown in Fig. 3 to admit of the cleansing of jars differing in length.

The means whereby the jars are carried through the cleansing solution in the tank 2 consist primarily, of an endless conveyer chain 5 which passes around the sprocket wheels 6 and 7, the shaft 19 carrying the latter having ordinary chain-tightening appliances, and under the idle sprocket wheels 9. It will be seen that the sprocket wheel 6 is on the driving shaft 10 which is journaled in the frame 1, and that the wheel 7 is an idler. Secured to the sprocket chain 5 are a number of carriers 12 one of which is shown in Fig. 1, and two in Fig. 2, which carriers in the movement of the chain 5 in the direction indicated by the dotted arrow in Fig. 1 push the jars along the horizontal portion of the runway 4 during the cleansing operation hereinafter described. While the jars are on the horizontal portion of the runway, they pass under the spring held brake 13 which prevents the jars from moving through the tank at a speed which is greater than that of the conveyer chain and its carriers, or in other words rolling in advance of the carriers which push them.

Referring now particularly to Figs. 2 and 3, 15, 15 are sprocket chains which pass around the sprocket wheels 16 and 17 respectively fastened to the driving shaft 10, and the shaft 19 which carries the tightening sprocket wheel 7 before referred to, and under the idle sprocket wheels 11 shown only in Fig. 2 and which are on the shafts carrying the idle sprocket wheels 9. 21, 21 are brush carriers fastened to the chains 15 and provided with rollers 22 which run upon an overhead track 23 supported by the standards 24, and 27 is a second track for the rollers 22, which has a form corresponding to that of the runway 4. This second track is best shown in Figs. 1 and 4.

Referring to Figs. 1 and 2 it will be seen that the brush carriers 21 have in addition to the rollers 22, the smaller rollers 29 which when the rollers 22 are under the track 27, run on the track 30, (see Fig. 4.) The object of this construction is to steady the carriers during the operation of the brushes hereinafter described, which enter the jars and are rapidly rotated therein in the cleansing operation hereinafter described.

The tracks 27 and 30 are held at a proper distance apart, and are also secured to the

bars 31 forming parts of the frame 1, by means of the supports 32. The construction just described is best shown in Figs. 1 and 2.

The brushes before referred to as being on the carriers 21 are denoted by 34 (see particularly Fig. 4) and it will be seen that they are fastened to spindles 36 adapted to slide endwise in brackets 33 extending from the said carriages.

In the movement of the carriages effected by the sprocket chains 15 to which they are secured, no rotation of the brushes 34 takes place until the brushes reach the tank 2 when they are put into rotation by means of the continuously moving endless sprocket chain 39 which is immersed in the solution in the tank. This rotation of the brushes is directly effected by providing the spindles 36 with the tight sprocket wheels 40 which upon reaching the said continuously moving sprocket chain engage therewith, in a manner hereinafter set forth.

By reference particularly to Fig. 4 it will be seen that the upper sprocket wheel 40 is not directly over the continuously moving sprocket chain 39, while the lower and similar wheel is in engagement with that device, it follows therefore, that some means must be provided during the motion of the carriages, to cause each of the said sprocket wheels in succession to pass from the backward to the forward position, and thereby effect the entrance of each brush into a jar while the same is in the cleansing solution in the tank 2 and while in rapid rotation be withdrawn and eventually brought to its original elevated position above the track 23. Various appliances can be used for the purpose of producing an endwise movement of the spindles 36 with the brushes 34, but those which I prefer, consist as follows: Within the tank is secured the angle iron bar 42 the central portion of which is straight and horizontal, and its ends inclined upward and extend above the tank where they are supported by the brackets 43. As an upper carriage moves forward or in the direction indicated by the dotted arrow in Fig. 1, and passes around the sprocket wheels 16 and descends into the tank, one face of the sprocket wheel 40 comes in contact with the inclined portion of the angle iron rail 42 to the left of Fig. 3 and is deflected carrying the spindle and brush with it, and the brush which at that time is opposite to or in axial alinement with a jar enters the mouth of the same. As soon as the said sprocket wheel reaches its lowest position and engages the endless continuously-moving sprocket chain 39 the brush which is then fully within the jar as shown in Fig. 4, is rapidly rotated and this rotation continues until the said sprocket wheel leaves the said chain and ascends the

inclined portion of the angle iron bar to the right of Fig. 3. It will be understood that as the carriage 21 with its brush 34 ascends, and the sprocket wheel 40 follows the inclined portion of the angle iron bar 42 to the right of Fig. 3, the brush is not only withdrawn from the jar but its rotation is suspended until in the next complete movement it comes again to the other inclined end of the said angle iron bar and again performs the operation described.

The movement of the sprocket chain 39 is derived from the driving shaft 10 by means of any suitable combination of gearing and sprocket wheels and chains, and a description of the actual devices used for the purpose is therefore unnecessary as such elements and their various combinations are well known.

So far I have described only the devices whereby the inner surface of the jar is cleansed, but it is necessary that the exterior of the jar which includes the body and the bottom, shall also be cleansed. This is effected as far as the body is concerned, by the rolling of the jar over a stationary brush 45 which is shaped to conform with the contour of the jars, as shown in Figs. 2 and 4. The bottoms of the jars are cleansed by their contact with the rotating brush 47 a part only of which is shown in Figs. 1 and 3 and a full end view of the same shown in Fig. 4. The rotation of the brush 47 is derived primarily from the driving shaft 19 by means of any appropriate system of gearing, and I shall therefore omit specifying the exact devices used.

50 is an extension of the tank 2 to catch and return to the tank the cleansing solution discharged from the bottles as they are lifted out of the solution.

From the foregoing it will be understood that the jars are carried through a heated cleansing solution in a tank, and for a period rolled over a stationary brush; that while submerged in the solution and passing through the same, brushes in rapid rotation are introduced into the jars and then withdrawn; and that at one part of the operation the bottoms of the jars are subjected to the action of a rotary brush. By this means, in one complete operation of the apparatus the entire inner and outer surfaces of the jars are cleansed and the empty jars discharged, after which they can be rinsed by hand, or by means of any simple mechanical appliances which however if illustrated and described would form no part of the present invention.

To effect the various steps included in the operation of the apparatus, I have described devices which to me appear best fitted for the purpose, but it is evident that the ultimate result produced can be accomplished by various analogous contrivances, I there-

fore do not limit myself to the employment of the mechanical appliances set forth, but claim as my invention:—

1. In an apparatus for cleansing jars, a
5 runway and devices to roll jars along the
runway, combined with rotary brushes,
means to force the rotary brushes when in
rotation into the jars and then withdraw
10 them while the jars are subjected to a rolling
motion, a brush over which the jars are
rolled to cleanse their bodies, a brush situ-
ated in the path of the jars against which
their bottoms are rolled, and means to sup-
15 ply a cleansing solution to the jars and the
various brushes described, substantially as
specified.

2. In an apparatus for cleansing jars, a
tank adapted to contain a cleansing solution,
a runway extending longitudinally of and
20 situated in the tank, and devices to roll the
jars along the runway from the entrance to
the delivery end of the same, combined with
rotary brushes and means to force the said
brushes while in rotation into the submerged
25 and rolling jars, and withdraw them before
the jars reach the delivery end of the run-
way, substantially as specified.

3. In an apparatus for cleansing jars, a
30 tank adapted to contain a cleansing solu-
tion, a runway extending longitudinally of
the tank, having its entrance and delivery
ends above the tank, and its intermediate
portion within the tank, devices to roll the
35 jars along the runway from the entrance to
the delivery end of the same, and a brake
to retain the jars in contact with the rolling
devices, combined with rotary brushes and
means to force the said brushes while in ro-
40 tation into the submerged and rolling jars
and withdraw them before the jars reach the
delivery end of the runway, substantially as
specified.

4. In an apparatus for cleansing jars, a
45 tank adapted to contain a cleansing solution,
a runway extending longitudinally of the
tank, having its entrance and delivery ends
above the tank, and its intermediate portion
within the tank, devices to roll the jars along
the runway from the entrance to the delivery
50 end of the same, combined with rotary
brushes and means to force the said brushes
while in rotation into the submerged and
rolling jars and withdraw them before the
jars reach the delivery end of the runway,
55 and a brush within the tank over which the
jars are rolled to clean their bodies, substan-
tially as specified.

5. In an apparatus for cleansing jars, a

tank adapted to contain a cleansing solution,
a runway extending longitudinally of the 60
tank, having its entrance and delivery ends
above the same, and its intermediate portion
within the tank, devices to roll the jars along
the runway from the entrance to the delivery
end of the same, and a brake to retain the 65
jars in contact with the rolling devices, com-
bined with rotary brushes and means to force
the said brushes while in rotation into the
submerged and rolling jars and withdraw
them before the jars reach the delivery end 70
of the runway, and a fixed brush within the
tank over which the jars are rolled to clean
their bodies, substantially as specified.

6. In an apparatus for cleansing jars, a
75 tank adapted to contain a cleansing solution,
a runway extending longitudinally of the
tank, having its entrance and delivery ends
above the same, and its intermediate portion
within the tank, means to roll the jars along
the runway from the entrance to the delivery 80
end of the same and a brake to retain the
jars in contact with the rolling devices, com-
bined with rotary brushes, means to force the
said brushes while in rotation into the sub-
merged and rolling jars and withdraw them 85
before the jars reach the delivery end of the
runway, a brush within the tank over which
the jars are rolled to clean their bodies, and
a brush situated within the tank along the
surface of which the bottoms of the cans are 90
rolled, substantially as specified.

7. In an apparatus for cleansing jars, a
tank adapted to contain a cleansing solution,
a runway extending longitudinally of the
tank, having its entrance and delivery ends 95
above the same, and its intermediate portion
within the tank, devices to roll the jars along
the runway from the entrance to the delivery
end of the same, and a brake to retain the
jars in contact with the rolling devices, com- 100
bined with rotary brushes, means to force
the said brushes while in rotation into the
submerged jars and withdraw them before
the jars reach the delivery end of the run-
way, a brush within the tank over which the 105
jars are rolled to cleanse their bodies, and a
rotary brush situated within the tank hav-
ing a fixed position and with its axis parallel
with the path taken by the jars, against
which rotating brush the bottoms of the 110
cans are rolled to cleanse them, substantially
as specified.

GEORGE E. GORDON.

Witnesses:

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D. FRANK BLACK.