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METHOD OF SPLITTING OR SEVERING GLASS CYLINDERS.

APPLICATION FILED JUNE 5, 1916. RENEWED JAN. 28, 1918.

1,277,795. Patented Sept. 3, 1918.

Fig. 1

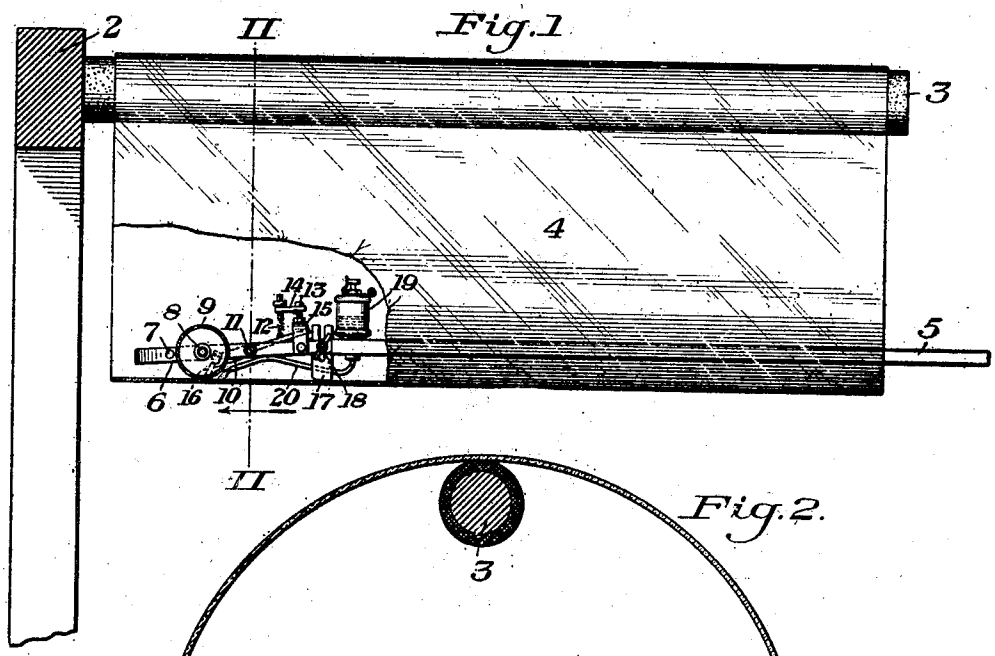


Fig. 2.

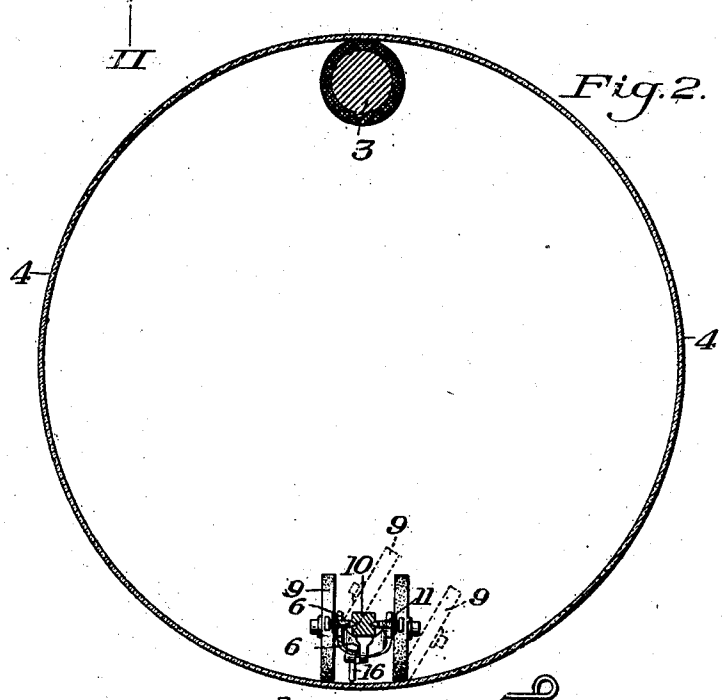
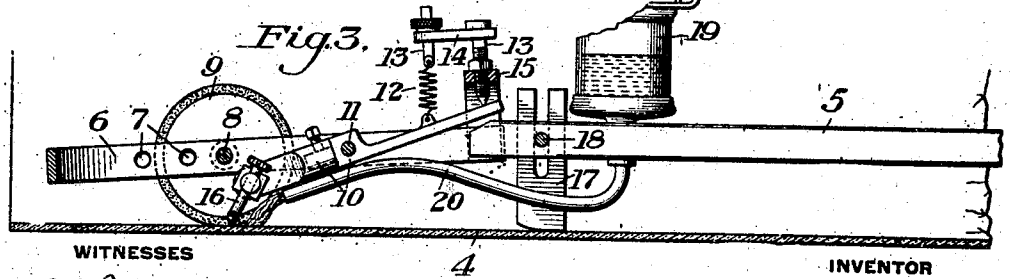


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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METHOD OF SPLITTING OR SEVERING GLASS CYLINDERS.

1,277,795. Specification of Letters Patent. Patented Sept. 3, 1918.

Application filed June 5, 1916, Serial No. 101,655. Renewed January 28, 1918. Serial No. 214,249.

To all whom it may concern:

Be it known that we, JOHN WATERLOO and OCTAVE JACQMAIN, both citizens of the United States, residing at New Eagle, Washington county, Pennsylvania, have invented a new and useful Improvement in Methods of Splitting or Severing Glass Cylinders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly in section of the cylinder and support, and showing the cutting apparatus.

Fig. 2 is a cross section on the line II—II of Fig. 1, and

Fig. 3 is a sectional detail view of one form of cutting apparatus which may be employed.

Our invention relates to the splitting or severing of glass cylinders in the manufacture of window glass. The cap end of these cylinders, whether blown by hand or drawn by machines, is capped off and the roller is then split lengthwise. Long machine drawn cylinders must also be severed into lengths and these lengths split longitudinally before taking to the flattening oven.

Heretofore the capping off has been carried out usually by electrical crack-off tools having a wire wrapped around the cylinder at the desired point for severing, and then heated by the electric current to sever the cylinder at this point. These severed lengths are then laid on suitable horses which support them around the bottom portion of the horizontal cylinder, and a hot iron is then drawn by the operator along the central part of the lower portion of the cylinder until it cracks from one end to the other, this being known as "splitting".

Many attempts have been made to use a diamond or other cutting tool in splitting, but this has not been practicable except with highly skilled operators, because many of the cylinders will burst or fly in pieces, or the crack will run irregularly and ruin the cylinder.

Our invention is designed to overcome this difficulty of flying to pieces or irregular cracking of the rollers during the longitudinal splitting operation, but it may also be used for capping off the cylinders.

The invention consists generally in suspending the cylinder or roller by its upper portion, the lower portion hanging down free from the support or supports. When the cylinder is split along its lower portion by running the diamond along its interior, the overhead suspension practically prevents bursting or irregular cracking ahead of the diamond or splitting tool. The strains present in the interior portion of these cylinders appear to have been the cause for the difficulty heretofore experienced in splitting them when bottom-supported, and the overhead supporting seems to destroy the deleterious effect of these strains during the operation.

In the drawings, 2 represents a stationary side support, and 3 an overhanging rod or bar, which may be either of iron, wood, or other desirable material, and over which the roller 4 is slid.

With the roller thus hanging on this interior overhead support, the diamond or other cutting tool is drawn along the bottom portion from one end to the other, thus splitting the cylinder.

In practice, we prefer to use the tool shown in the figures, wherein 5 represents a long handle, to the end of which is secured a carriage 6 shown as consisting of an iron or steel loop. This carriage has a series of registering holes 7 acting as bearings for a shaft 8 having wheels 9 which are preferably rubber covered. The wheels and axle may be changed to any of the holes, as may be most desirable. Also mounted between the legs of the strap is a diamond carrying lever 10 swinging on suitable trunnions 11, shown as formed of set screws extending through the sides of the strap, and the forward end of this lever is preferably spring pressed downwardly by a spring 12 connected to its rear portion and having an adjustable connection 13 with a support 14 mounted on a yoke 15. The diamond holder 16 is secured to the front end of the lever and may be of any desirable type.

17 is an adjustable guide, shown as formed of vertically adjustabe wooden strips which may be clamped by screws 18 and which rest on the bottom of the cylinder as the tool is drawn out during the cutting. 19 is a lubricating reservoir from which lubri-

cant feeds through a tube 20 preferably having a wick at the end to supply lubricant to the diamond or other cutting device.

In the use of this tool, the operator preferably pushes the tool into the cylinder to its inner end with the wheels tipped into an angular position, as shown in dotted lines in Fig. 2. The carriage is then tipped into its normal position, shown in full lines, with the diamond resting on the bottom of the cylinder, and the tool is then drawn outwardly to crack the glass along the bottom.

After the glass has thus been cut, it may be tapped on the under side and one edge will usually spring over the other. The roller is then taken off of the support and is ready for flattening. It may also be split along another portion thereof to divide it into sections.

When it is desired to split the cylinder into two or three segments, this has heretofore been done by a heated iron drawn along the bottom. We have discovered that after the cylinder or roller has once been split longitudinally the tension on the interior thereof appears to be removed so that the cylinder may be turned to bring another unsplit portion at the bottom, and this bottom may then be supported and split longitudinally by the diamond or other cutting tool while thus bottom-supported. This cannot be done, however, until after the cylinder has once been split.

In case the cylinder is to thus be re-cut a second or third time into "shawls," the cylinder or roller may be taken off from the overhead support and laid on a suitable horse to bottom-support it along an uncut portion of the cylinder, and the diamond tool may then be used in the same manner as before along this bottom portion.

Instead of removing the cylinder, a bottom-support may be lifted up against it and the cylinder turned to bring a fresh uncut portion at the bottom. In the case of a second or third cut the weight must be taken off the upper portions and supported on the lower uncut portions of the cylinder, just the opposite of the first cut with a diamond or similar cutting tool.

The invention may also be applied to the cracking off of cylinders into roller lengths by using longer internal supports and running the diamond cutting tool around the inside circumference of the cylinder at the desired point; and by the term "splitting" in our claims, we intend to cover either cutting longitudinally or circumferentially.

Many variations may be made in the cutting tool used, the method of supporting the roller or cylinder, etc., without departing from our invention.

We claim:

1. The method of splitting a glass cylinder or roller, which consists in supporting it by its upper side portion at an angle to the vertical, and splitting it.

2. The method of splitting glass cylinders or rollers, which consists in supporting them by their upper side portions, and splitting them along their lower portions.

3. The method of splitting a glass cylinder or roller, consisting in sliding the cylinder over the projecting end of a horizontally extending support and then splitting it.

4. The method of splitting a glass cylinder consisting in sliding the cylinder over the projecting end of a horizontally extending support and then splitting it longitudinally along its lower portion.

5. The method of re-splitting a glass cylinder or roller, consisting in supporting its lower portion and running a cutting tool along said portion.

6. The method of re-splitting a glass cylinder or roller, consisting in supporting the split cylinder or roller with its split portion above and its unsplit portion underneath and bottom-supported, and running a cutting tool along the interior of said bottom supported portion.

7. The method of splitting a glass cylinder or roller, which consists in hanging the roller on a longitudinally extending overhead support, and then splitting it along a line which is approximately opposite the line of support.

8. The method of splitting a glass cylinder or roller, which consists in hanging the roller on a longitudinally extending overhead support, then splitting it along a line which is approximately opposite the line of support, then turning the cylinder to bring an unsplit portion to said splitting position, and again splitting.

9. The method of splitting a glass cylinder or roller, which consists in hanging the roller on a longitudinally extending overhead support, then splitting it along a line which is approximately opposite the line of support, then turning the cylinder to bring an unsplit portion to said splitting position, again splitting, then shifting the point of support to the bottom of the cylinder, again turning it and making another split along the bottom portion of the cylinder.

In testimony whereof, we have hereunto set our hands.

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