

Jan. 27, 1925.

1,524,316

A. C. SCHOEPPER ET AL

PLAITING MACHINE

Filed Sept. 9, 1922

4 Sheets-Sheet 1

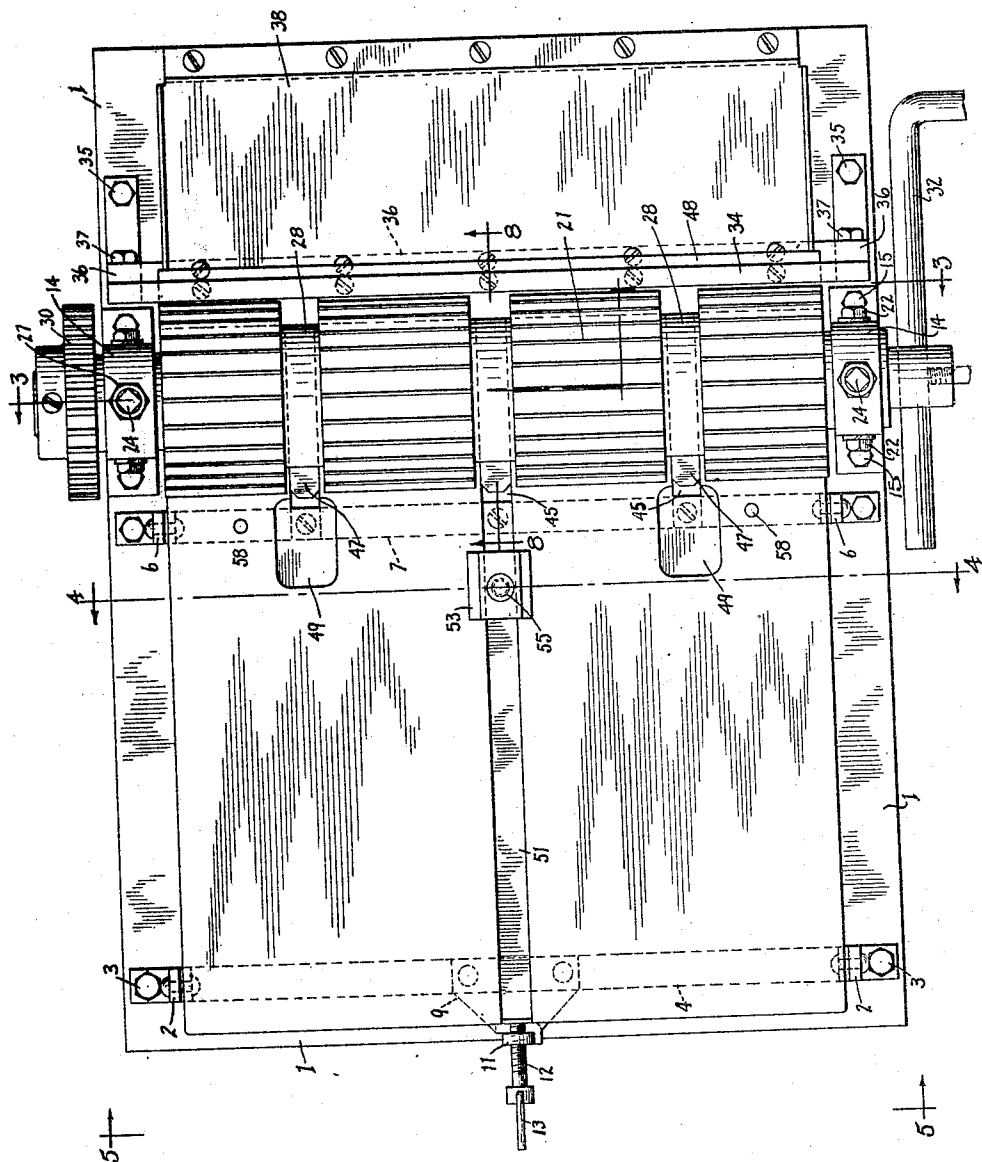


Fig. 1.

Inventor
Alfred C. Schoepfer.
Frank R. Schoepfer.

By

Charles E. Wisner
Attorney

Jan. 27, 1925.

A. C. SCHOEPPER ET AL

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4 Sheets-Sheet 2

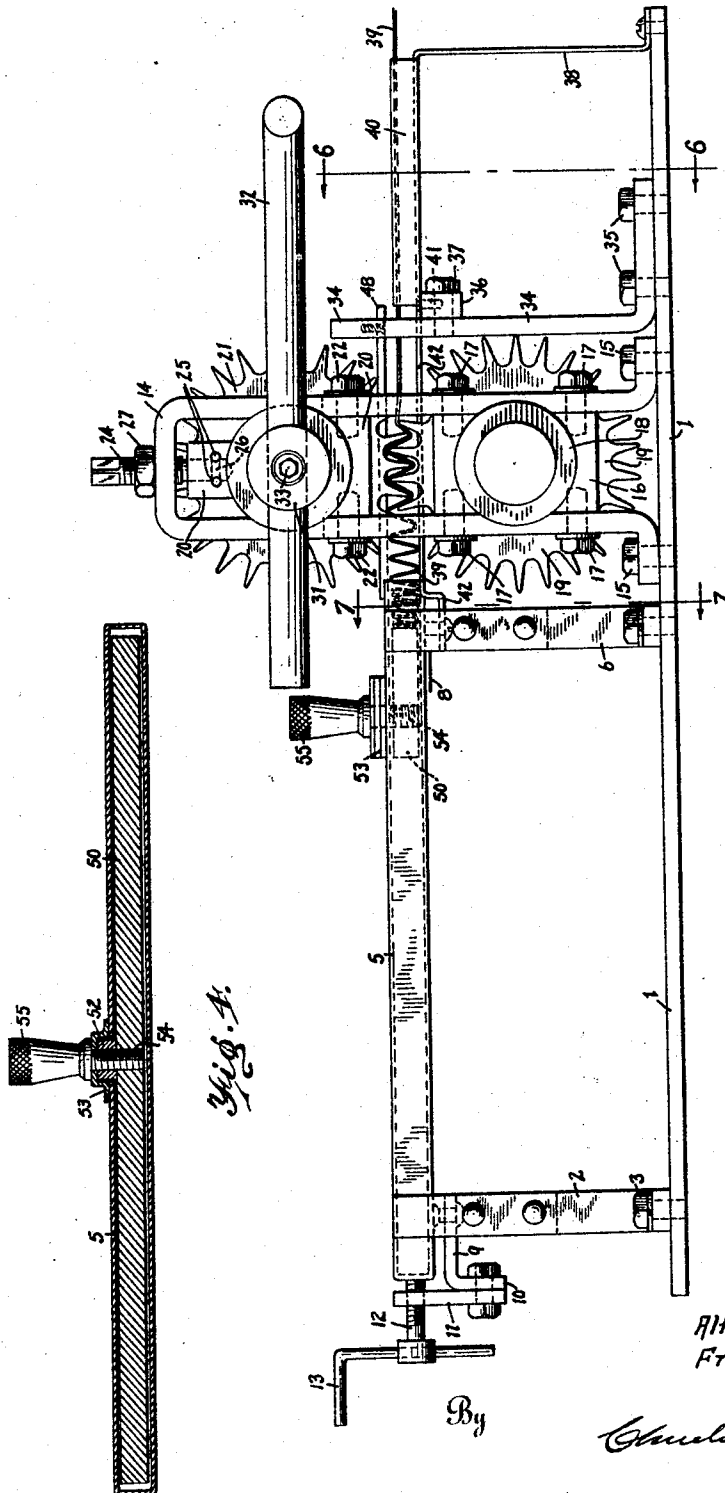


Fig. 1.

Fig. 2.

Inventor
Alfred C. Schoepfer.
Frank R. Schoepfer.

By
Charles E. Wiener
Attorney

Jan. 27, 1925.

A. C. SCHOEPFER ET AL

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Fig. 9.

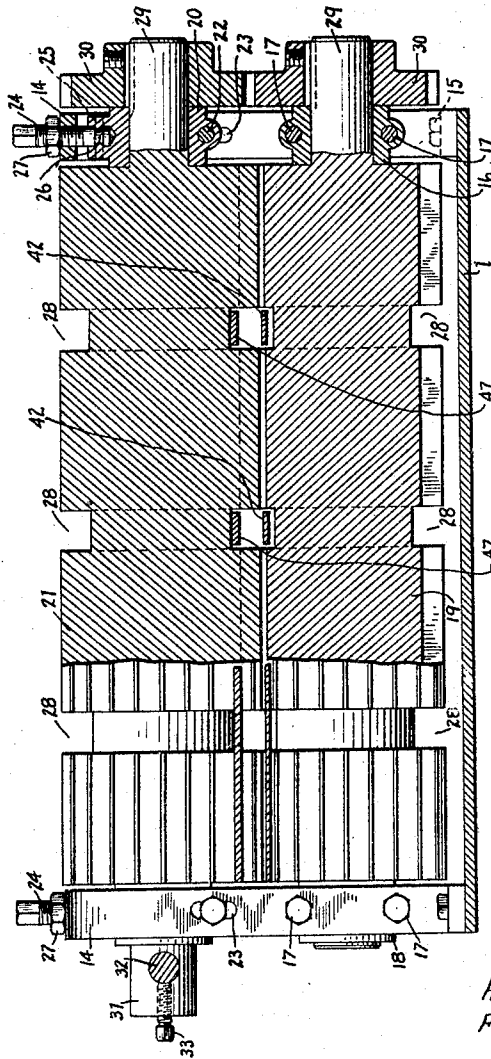
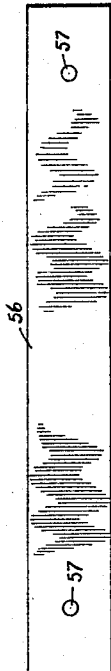


Fig. 3.

Inventor
Alfred C. Schoepfer.
Frank R. Schoepfer.

By

Charles E. Viener
Attorney

Jan. 27, 1925.

A. C. SCHOEPPER ET AL

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Fig. 5.

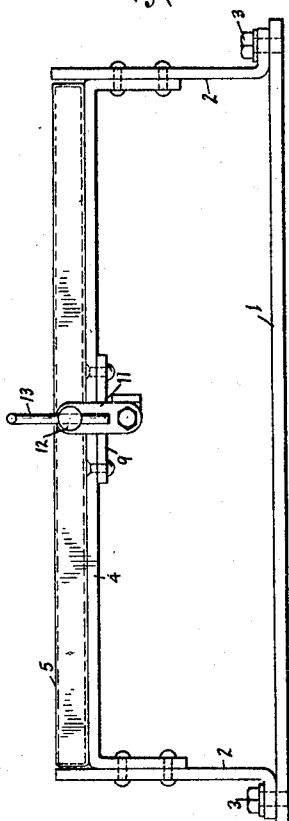


Fig. 6.

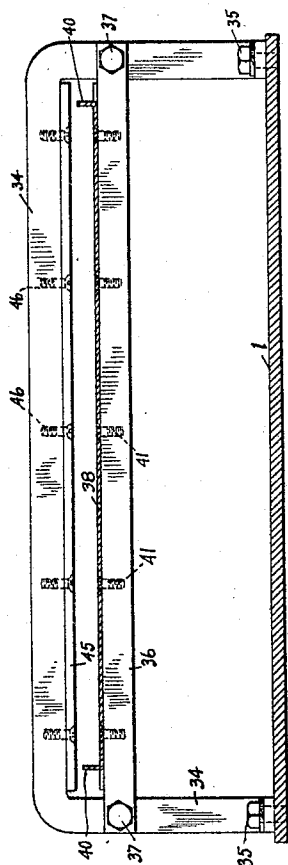


Fig. 7.

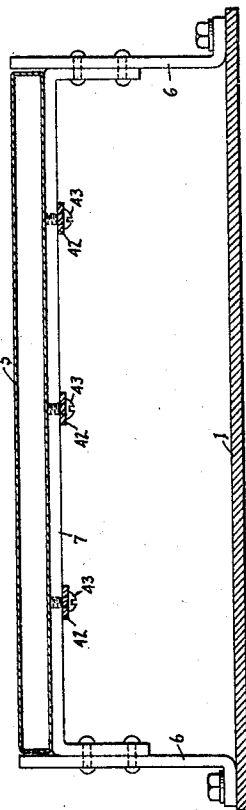
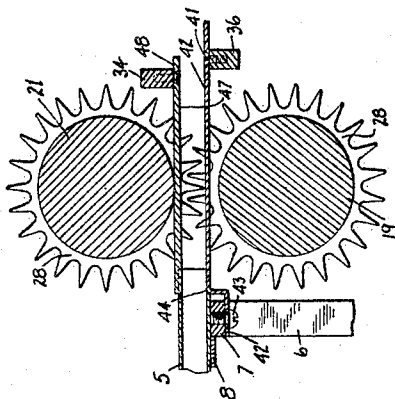


Fig. 8.



Inventor
Alfred C. Schoepfer.
Frank R. Schoepfer.

By

Charles E. Wiener
Attorney

UNITED STATES PATENT OFFICE.

ALFRED C. SCHOEPPER AND FRANK R. SCHOEPPER, OF DETROIT, MICHIGAN.

PLAITING MACHINE.

Application filed September 9, 1922. Serial No. 587,076.

To all whom it may concern:

Be it known that we, ALFRED C. SCHOEPPER and FRANK R. SCHOEPPER, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Plaiting Machines, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to plaiting machines, and the object of the invention is to provide a machine for plaiting cloth, leather, imitation leather and the like. This machine is adapted to plait fabric as it is fed therethrough from a roll, bolt or strip, and one of the objects of the invention is to provide a container into which the plaited fabric is fed, the fabric being secured in the container in the plaited form in which it may be removed from the machine and steamed so that it will retain the plaited shape. One of the principal difficulties experienced heretofore with plaiting machines has been that the plaited fabric travels around with the plaiting rolls and becomes caught in the machine and the main object of this invention is to strip the fabric from the rolls as it is plaited and pack it in a casing so that there is no possibility of it becoming caught in the machine or piling up in an ungainly shape. A further object of the invention is to provide a device for guiding the material into the plaiting rolls and also for guiding material from the plaiting rolls into the container. Another object of the invention is involved in the construction of the plaiting rolls through which the guide members extend and in the mechanism for securing the containers to the machine. These objects and the several novel features of the invention are hereinafter more fully described and claimed, and the preferred form of construction by which these objects are attained is shown in the accompanying drawings in which—

Fig. 1 is a plan view of a plaiting machine embodying our invention.

Fig. 2 is a side elevation thereof.

Fig. 3 is a section taken on line 3—3 of Fig. 1.

Fig. 4 is a section taken on line 4—4 of Fig. 1.

Fig. 5 is a view of one end of the machine taken from line 5—5 of Fig. 1.

Fig. 6 is a section taken on line 6—6 of Fig. 2 to show the frame construction.

Fig. 7 is a section taken on line 7—7 of Fig. 2 to show the frame construction.

Fig. 8 is a section taken on line 8—8 of Fig. 1.

Fig. 9 is a plan view of the retaining bar.

As shown in Figs. 1 and 2, a metal base 1 is provided for the device and a pair of uprights 2, shown more particularly in Fig. 5, are secured to the bed 1 by the bolts 3. An inverted U shaped cross member 4 is riveted to the uprights 2 below the ends thereof and provides a support for a casing or container 5. This casing 5, as shown in Fig. 1, is supported at the forward end on frame members 6 shown more particularly in Fig. 7 and having a cross member 7 riveted thereto similar to the cross member 4 shown in Fig. 5. The casing 5 is provided at the forward end with a strip 8 welded or otherwise secured to the bottom thereof which is adapted to engage the cross member 7 of the frame member 6. Secured to the cross member 4 of the frame members 2 is a bracket 9 as shown in Figs. 1, 2 and 5 which extends outwardly as shown in Fig. 2 and is provided with a depending end 10. A member 11 shown in Figs. 2 and 5 is bolted to the depending end 10 and a screw shaft 12 is threaded through the upper end thereof, the said screw shaft being provided with the crank 13 for rotating the same. With this construction, by rotating the crank 13, the screw shaft 12 moves the casing 5 forward so that the strip 8 tightly engages the frame member 7 thus holding the casing 5 in place. An inverted U shaped bracket 14 shown in Fig. 2, is secured to the bed 1 by the bolts 15 and a bearing block 16 is secured in the member 14 by the machine screws 17. This bearing block carries a bearing 18 for the lower plaiting roll 19 shown more particularly in Fig. 3. By this construction the bearing for the lower plaiting roll is rigidly held in position. A bearing block 20 is provided for the upper plaiting roll 21 having a machine screw 22 in each side thereof which is movable in a slot 23 shown more particularly in Fig. 3, and a screw 24 is threaded through

the upper end of the bracket 14 and is held in place in the upper end of the bearing block 20 by a pair of pins 25 riding in an annular groove 26 provided in the lower end of the screw shaft 24. By threading the screw shaft through the bracket 14 the bearing block 20 may be raised or lowered in the bracket 14 and a lock nut 27 is provided for securing the screw shaft 24 at any adjustment. The plaiting rolls 19 and 21, as shown in Fig. 3, are provided with four toothed portions having annular grooves 28 therebetween extending slightly below the base of the teeth as shown in Fig. 8. Each roll 19 and 21 is provided with an extending shaft end 29 and a gear 30 is secured to each shaft end with the teeth thereof in mesh. The plaiting roll 21 is provided at the opposite end with an extending shaft end 31 rotatably mounted in the bearing block 20 and a crank 32 is inserted through an aperture provided therefor in the end 31 as shown in Figs. 1, 2 and 3 which is secured in place by a set screw 33. By turning the crank 32 the roll 21 is rotated and, due to the gears 30 meshing at the end of the roll, the roll 19 is rotated in a direction opposite to the rotation of the roll 21. While I have shown a crank for rotating the rolls it will be readily understood that the end 31 may be adapted to receive a pulley so that the device may be driven by power if desired.

As shown in Figs. 1, 2 and 6, an inverted U shaped frame member 34 is provided which is secured to the bed 1 by machine screws 35 shown more particularly in Fig. 2, and a cross member 36 is secured to the frame member 34 by machine screws 37. At the forward end of the bed 1 is a sheet metal guide member 38 which forms a guide for the strip of fabric or leather 39, the member 38 being provided with flanges 40 at the side as shown more particularly in Fig. 6 to feed the fabric straight into the roll. This sheet metal member 38 is secured to the cross member 36 by the screws 41 and, as shown in Fig. 8, three fingers or guide members 42 are formed integrally with the member 38 and extend through the openings provided by the annular grooves 28 of the plaiting rolls as shown in Fig. 3, the ends of the said members 42 being secured to the cross member 7 by the screws 43 as shown in Figs. 7 and 8, and the portions 44 of the members 42 extending into notches provided in the lower side of the casing 5. The member 38 and fingers 42 form a guide for the lower side of the fabric or leather when passing through the rolls and a sheet metal member 48 is secured to the under side of the U shaped member 34 by the screws 46. This member 48 is also provided with three fingers or guide members 47 as shown in Figs. 1, 2, 3 and 8 which extend through

the annular groove 28 of the plaiting roll 21 and form guides for the upper side of the fabric or leather, the ends of the fingers 47 terminating in notches provided therefor in the upper side of the casing 5. These fingers or guide members 42 and 47 strip the plaited material from the plaiting rolls and feed it into the casing 5, the fingers or guide members preventing the plaited material from passing around with the rolls and becoming caught and by feeding the plaited material into the casing 5 it is impossible for the material to become piled up and tangled or to come unfolded.

The casing 5 is provided with a pair of apertures 49 in the upper face thereof through which the plaited material can be seen as it passes into the casing and a strip of metal 50 shown in Figs. 2 and 4, is positioned in the casing 5, and the casing is provided as shown in Fig. 1, with a slot 51 through which a guide member 52 extends and a clamping member 53 is positioned over the guide member 52, as shown in Fig. 4, and a screw shaft 54 extends through apertures provided in the members 52 and 53 and is threaded into the member 50, the screw shaft 54 being provided with a knurled knob 55 which may be turned to clamp the casing 5 at the edges of the slot 51 between the member 50 and edges of the clamp member 53. By this arrangement the member 50 may be secured in position at any point in the casing and, if desired, may be moved backwardly by hand as the casing 5 is filled with the plaited material.

In operation the casing 5, as shown in Figs. 1 and 2, is positioned on the cross members 4 and 7 with the open end toward the plaiting rolls. At this time the crank 13 is rotated to force the casing 5 forward so that the strip 8 on the lower side thereof engages the cross member 7 of the uprights 6 thus securing the casing 5 in position and, by means of the knurled knob 55, the strip 50 is secured in the desired position in the casing. At this time the strip 39 of fabric, imitation leather or the like is fed from a bolt or roll over the member 38 and through the plaiting rolls 19 and 21 as shown in Fig. 2. When this has been done the crank 32 is rotated by hand which plaits the material due to the peculiar shape of the teeth of the plaiting rolls and feeds the plaited material into the casing 5. When the casing 5 is filled with the plaited material a wooden strip 56, as shown in Fig. 9, is inserted in the end of the casing, the apertures 57 of the wooden strip registering with the apertures 58 of the casing 5 as shown in Fig. 1 and pins are inserted through the apertures 58 and 57 to secure the block in place, the said strip 56 forming a retaining block and holding the material

in the casing in the plaited form. By rotating the crank 13 to withdraw the screw shaft 12, the casing 5 with the plaited material therein may be removed from the machine 5 and may be steamed so that the plaited material will retain the folds. Several casings 5 are provided for each machine so that while one casing with the plaited material therein is being steamed another casing 10 5 may be secured in the machine and may be filled with plaited material.

From the foregoing description it becomes evident that the device is very simple and efficient in operation, will not easily 15 get out of order, is composed of comparatively few parts and is of consequent low manufacturing cost and provides a device which accomplishes the objects described.

Having thus fully described our invention, what we claim is—

1. In a plaiting machine, a framework, a pair of plaiting rolls rotatably mounted in the framework and provided with a series of longitudinal teeth adapted to intermesh, 25 the rolls being provided with a series of spaced annular grooves in registration providing a series of openings between the rolls, guide members extending through the openings between the rolls and between 30 which the material is fed to the rolls, spaced brackets mounted on the framework to the rear of the plaiting rolls, a casing rectangular in cross section supported in the said brackets having an open 35 forward end notched in the upper and lower sides to receive the guide members, releasable means for maintaining the casing in position and permitting removal of the casing, and a feed table for introducing the 40 material to the rolls having longitudinal side flanges providing guides for the material.

2. In a plaiting machine, a framework, a pair of plaiting rolls rotatably mounted 45 in the framework provided with a series of longitudinal teeth adapted to intermesh, means for rotating the rolls, the rolls being provided with a series of spaced annular grooves in registration providing a series of 50 openings between the rolls, a series of guide members extending through the openings between the rolls and between which the

material is fed to the rolls, a casing rectangular in cross section having an open forward end removably mounted in the machine 55 to receive the plaited material as it passes from the guide members, a screw engaging the rear end of the casing for holding the casing in position and permitting the casing to be removed from the 60 machine, a follower member in the casing against which the plaited material is pressed as it passes into the casing, the said casing having the upper side thereof provided with a slot, the screw device extending into 65 the slot for binding the follower in place, the slot permitting the follower to be moved by hand as the casing is filled.

3. In a plaiting machine, a framework, a pair of plaiting rolls rotatably mounted 70 therein having a series of longitudinal teeth adapted to intermesh, the rolls each having a series of circumferential grooves in registration providing openings between the rolls, upper and lower guide members positioned 75 between the rolls of a distance apart equal to the width of the plaits to be formed by the teeth, a feed table forward of the rolls having side flanges providing guides for maintaining the material in correct position 80 as it feeds to the rolls, a sheet metal casing of rectangular form in cross section mounted to the rear of the rolls and notched to receive the ends of the guide members, a screw device for maintaining the receiver 85 in position against the pressure applied thereto in the forcing of the plaited material into the casing, the upper side of the receiver casing having a longitudinal slot, a follower member in the casing, a 90 screw device in the follower extending through the slot and by means of which the follower may be bindingly secured in any desired position longitudinally of the casing, the forward edge of the casing having 95 apertures, and a retainer block adapted to be inserted in the end of the casing when filled, and pins extending through said apertures for securing the retainer block in the casing.

In testimony whereof, we sign this specification. 100

ALFRED C. SCHOEPPER.
FRANK R. SCHOEPPER.