

G. PONCELET.

APPARATUS FOR THE PREPARATION OF PANES OF OPAL GLASS.

APPLICATION FILED SEPT. 7, 1904.

3 SHEETS—SHEET 1.

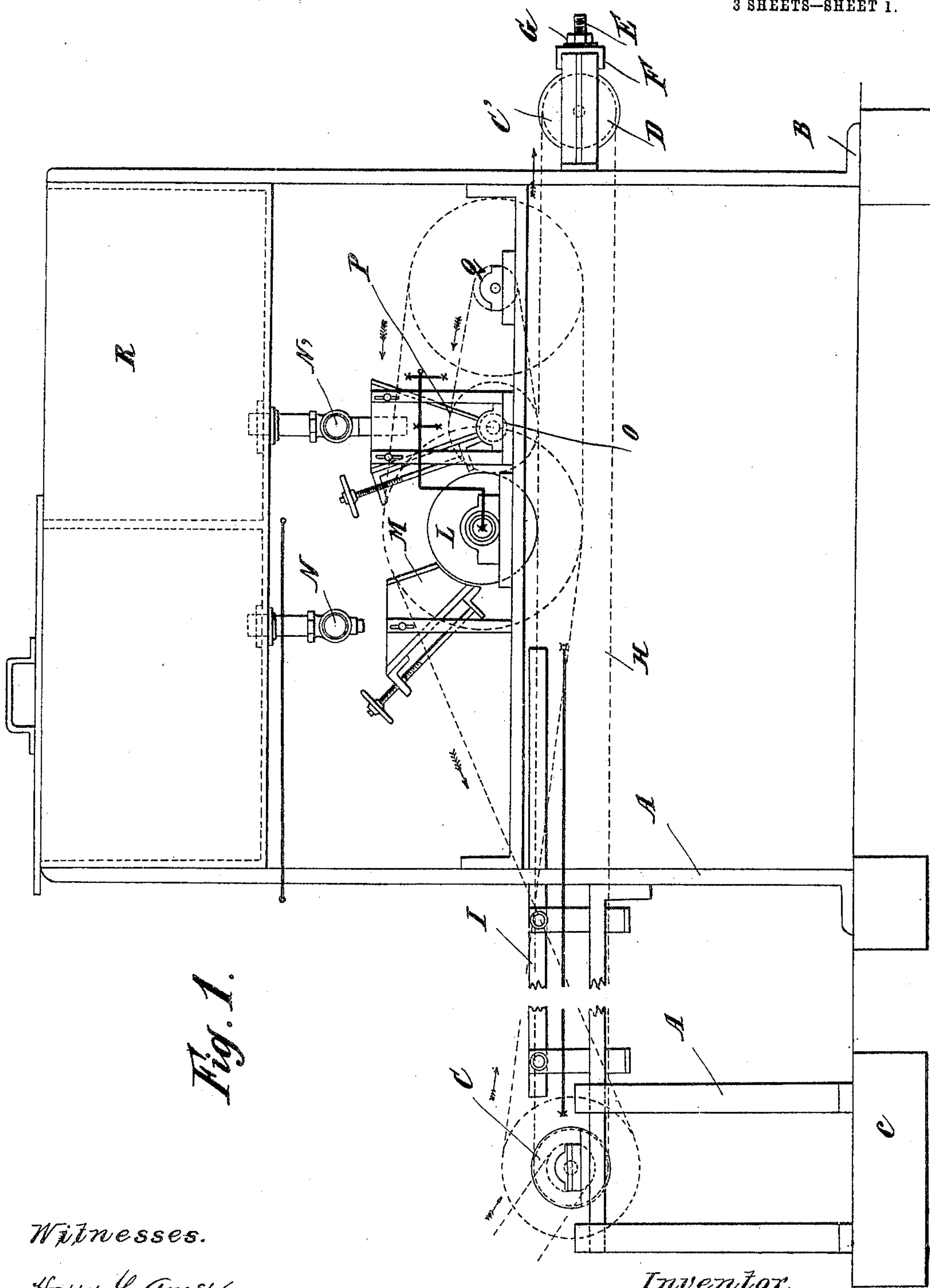


Fig. 1.

Witnesses.

Harry L. Amer.

M. Rommels

Inventor.

Georges Poncelet.

by Henry Orth & Son attys.

No. 804,500.

PATENTED NOV. 14, 1905.

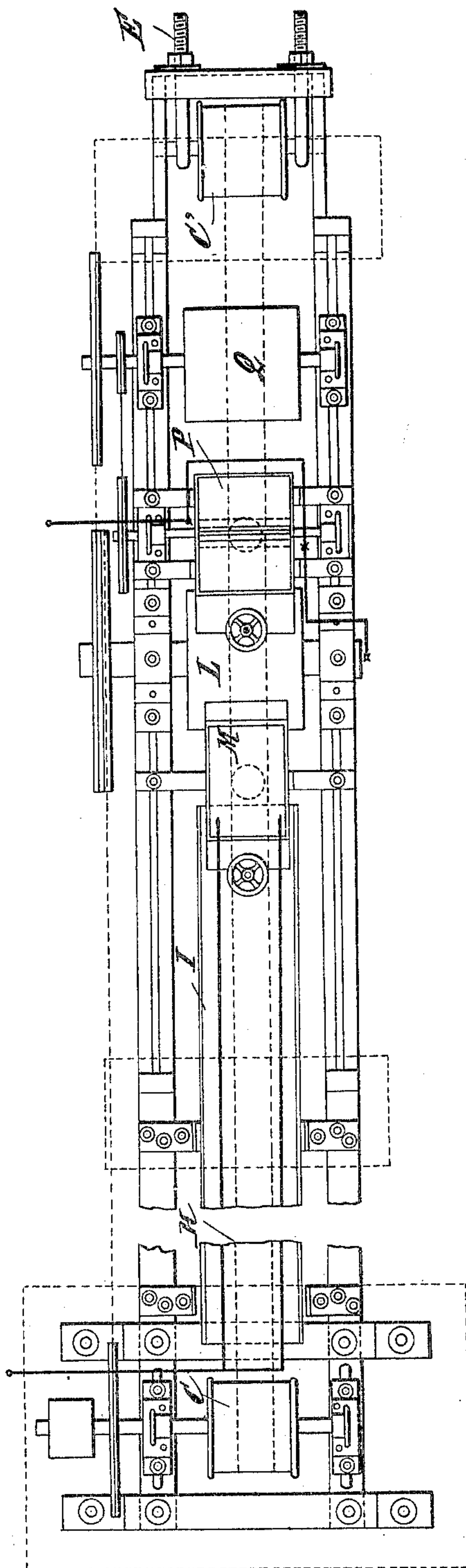
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3 SHEETS—SHEET 2.

Fig. 2.



Witnesses.

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3 SHEETS—SHEET 3.

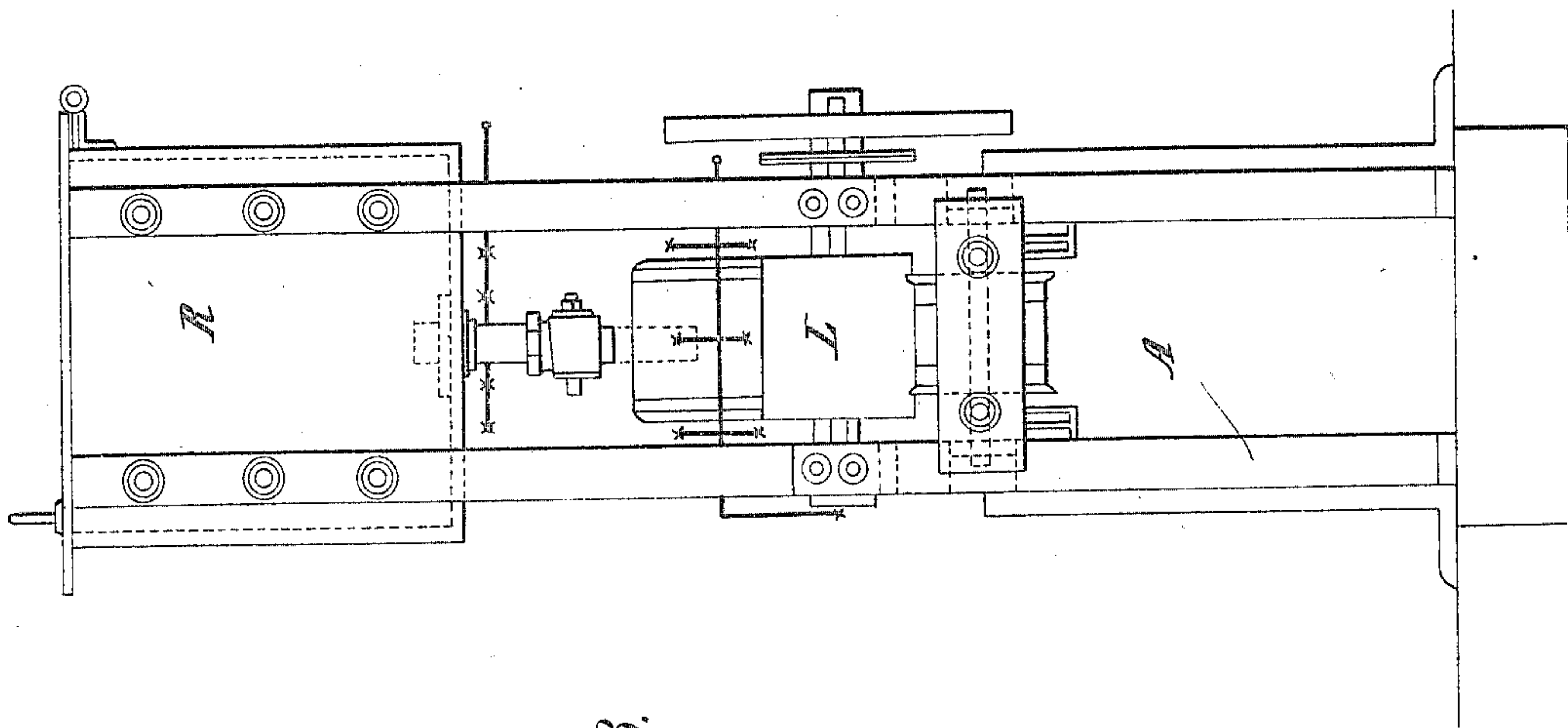


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGES PONCELET, OF BRUSSELS, BELGIUM.

APPARATUS FOR THE PREPARATION OF PANES OF OPAL GLASS.

No. 804,500.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed September 7, 1904. Serial No. 223,631.

To all whom it may concern:

Be it known that I, GEORGES PONCELET, architect, a subject of the King of Belgium, residing at 14 Rue de la Blanchisserie, Brussels, Belgium, have invented certain new and useful Improvements in Apparatus for the Preparation of Panes of Opal Glass; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for the preparation of panes of opal glass, and is illustrated, by way of example, in the annexed drawings, in which—

Figure 1 is a side elevation, Fig. 2 a plan, and Fig. 3 an end elevation, of the improved apparatus.

The various devices constituting the improved apparatus are mounted on an iron frame A, the feet B of which are secured in blocks c, bedded in masonry at the level of the ground, so as to insure absolute stability of the apparatus. At the ends of this frame A are two pulleys C and C'. The shaft of said pulley C is carried in two bushes, and the shaft of said pulley C' is able to slide in a long fork or slot between two iron bars, attached by bolts in two slots made in the two right feet of the large tank, hereinafter referred to, in such wise that they may be moved in the direction of their height, so that the axis of the pulley C' can be adjusted exactly to the same level as that of the pulley C. At each side of the pulley C' are two large hooks engaging the shaft of said pulley and terminating in long screw-threaded extremities E, which engage the plate F, of channel-iron, applied to the ends of the two feet D, and nuts G permit these hooks to be moved one way or another, so that the shafts of the pulleys C and C' can be brought farther apart or caused to approach as well as be placed in parallel. The two pulleys are united by an endless band H, of tempered steel, of suitable breadth and thickness, the said band circulating around the two pulleys and transmitting motion from the pulley C to C' and the said two pulleys being of the same diameter.

Motion is imparted to the apparatus by means of a pulley affixed to the pulley-shaft C, connected to a motor of any kind, (steam,

gas, electric, or the like.) The motive force may be one-fourth horse-power and the band may travel at a speed of one hundred and ninety-six meters per hour. On this band is placed the pane of glass, preferably cut to the dimensions required in commerce, being disposed on the same side as the pulley C. As the band advances successive panes are placed on the band until finally the entire length of the band is covered with panes of glass. The pane disposed in this way passes over a table I placed beneath the band, the said table being supported on the frame by means of four supporting-feet capable of being adjusted in a vertical direction by means of bolts that adjustably connect the legs of the table to the frame A, so that the degree of inclination of the table can be regulated. This table is strongly heated by means of a double gas-burner fixed beneath it in such wise that the band is almost instantaneously warmed and at the end of its course is by contact heated to a high temperature, so as to be ready for the treatment it receives. The pane continuing its course on the band passes beneath a hollow roller L. In a line above this roller is an iron hopper M, the lower side of which is movable—that is to say, can be brought toward or farther from the periphery of the roller. Above this hopper is a cock N, which leads in the material intended for coating one of the faces of the pane. This material pours into the hopper, covering the roller L, which rotates with a speed equal to that of the forward movement of the band and spreads the material uniformly on the pane. The roller is strongly heated by means of a Bunsen jet burning within its interior, so that the material cannot adhere to its periphery. The surplus of material, if there be any, overflowing the edges of the pane can be recovered in any suitable receiver placed beneath. The pane then passes beneath a striated roller O, of cast iron, above which is a second hopper P, one of whose sides can be regulated at will in the same manner as the hopper M. This hopper P is filled with coarse sand, the sand being strongly heated by means of four Bunsen jets playing against the walls of said hopper, and the sand is distributed uniformly on the panes already coated. The sand is led into the hopper as fast as it is emptied by means of a cock N'. The pane continuing its travel passes then under a roller Q, which exercises a crushing action upon it in order that the

sand may be embodied in the coating material. After having passed this roller Q it is taken from the band by a workman, who scrapes off the burs on the edges and places the panes in a row. Two workmen suffice, therefore, for the manipulation of the apparatus—one for placing down the panes on introducing them and the other for removing the latter.

10 The tank R, mounted on four feet, forming part of the framework, is of iron plates of any suitable thickness, with interior and exterior angle-bars. Beneath the base of the tank are ten gas-burners, the length of each of which is one-half that of the tank. The tank is divided into two parts by a transverse partition, the first part containing the coating material and being provided with a cover and the second part containing sand. The 20 five burners placed beneath the part containing the dressing serve to melt the latter. The other five serve to warm the sand before it falls into the hopper. Each burner is provided with a separate tap.

25 The rollers L, O, and Q are set in motion by belts connecting the three rollers by means of pulleys fixed to their shafts. The diameter of each pulley is determined by the diameter of the rollers, so that the rollers L and Q develop in the same time a peripheral speed equal to that traveled by the band and the roller O half that speed.

The steel band may be stretched at will by means of the arrangement above described, 35 which surrounds the shaft of the pulley C'. After the operation it may be disengaged completely, so as not to destroy its elasticity. The band thus stretched forms a spring under the rollers L and Q, and when the pane passes 40 beneath the said rollers the band descends in consequence of the thickness of these panes, and it is for this reason that the beam I is mounted movably, as above described, so that at this end between the band and the 45 said beam there is sufficient play to permit the band to act as a spring, and so avoid breaking of the pane.

The apparatus being submitted to a high temperature during the operation, it is for 50 this reason that all the elements are made of iron, as wood could not resist this temperature. Into the process of manufacture of this article there enter two factors of the most delicate manipulation: First, the glass 55 is very brittle, in thin sheets, and submitted to a high temperature; second, the asphaltic product intended to coat the pane, which has caoutchouc and resinous material as its basis, is fixed instantaneously in contact with 60 the air.

All the accessories of the elements of the apparatus (iron feet, brackets, and the like) are mounted in slots and bolted in such wise as to enable perfect regulation.

65 The particular advantages of the appara-

tus are to be observed in comparing the method of manufacture with that previously carried on by hand. In the older method tables were covered with about two square meters of panes. The production was very irregular in quantity and quality, some faces 70 being coated with too much material, others insufficiently, and after having coated the panes by means of a brush the workman had not always sufficient time to apply the warm sand, which constituted a very serious defect 75 in the manufacture.

In the mechanical manufacture apart from the equality of quality and production thus insured the new apparatus has an additional 80 advantage, that it can manufacture thirty square meters per hour and more, if desired, if the diameter of the driving-pulley be increased. With two workmen manufacturing by hand there was only offered a produc- 85 tion of fifteen square meters in twelve hours, and this with the waste of much more dressing and with more expense for heating and loss by defective manufacture. The panes manufactured by hand cost about five shil- 90 lings per square meter and those manufactured by my apparatus three shillings.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be per- 95 formed, I declare that what I claim is—

1. Apparatus for the preparation of panes of opal glass comprising in combination with a frame, two pulleys, one of which is adjustable, an endless metallic band passing around 100 the said pulleys and carrying the panes, a table above which the band passes during the first part of its course, means for heating said table, a hollow roller, means within said roller for heating the same means for rotating the 105 said roller at the same speed as the traveling band progresses, a tank, a cock for said tank, a hopper beneath said cock for delivering dressing to the surface of said roller to be applied to said pane, a second roller, a second 110 101 delivering warm sand to said roller, the sand being contained in a second part of said tank likewise provided with a cock, a third roller for pressing the sand into the coating, and means for warming the contents of 115 said tank all substantially as and for the purpose set forth.

2. In apparatus for treating glass, the combination with a hopper, means to feed a heated coating compound thereto, a revoluble distributing-roll cooperating with said hopper, means to heat said roll, said hopper adjustable relatively to the periphery of the roll, a sand-hopper, means for heating the sand and a revoluble distributing-roll cooperating with 125 the sand-hopper, the latter also adjustable relatively to the periphery of its cooperating roll; of an elastic carrier for the glass to be treated traveling below the aforesaid distributing-rolls from the composition roll to 130

the sand-distributing-roll, means for heating the carrier and means for forcing the sand into the coating.

3. In apparatus for treating glass, the combination with a carrier and means to heat the same, of means to automatically distribute the coating onto the glass, means to automatically sand the coated surface and means to roll the sand into the surface, substantially as described.

4. In apparatus for treating glass, the combination with an endless metallic carrier and means to heat it, of a distributing-roll and an adjustable means cooperating therewith to distribute the coating onto the glass, a second roll and adjustable means cooperating therewith to distribute sand onto the coating, and a third roll to roll the sand into the coating, substantially as described.

5. In apparatus for treating glass, the combination with an endless metallic belt, a table to support the forward end of the belt, and means to heat the table and belt, of a hopper and a coating-roll cooperating therewith, means to heat the coating-roll, a second hopper and a striated roll cooperating therewith to distribute sand onto the coating, means to heat said hopper, a pressure-roll acting on the sanded surface and a suitable drive for the belt and rolls, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GEORGES PONCELET.

Witnesses:

GREGORY PHELAN,
MAURICE GERBEAULT.