Aug. 27, 1929. G. ARNTZEN 1,725,744

BLUE PRINT MACHINE

Filed June 18, 1926 3 Sheets-Sheet 1

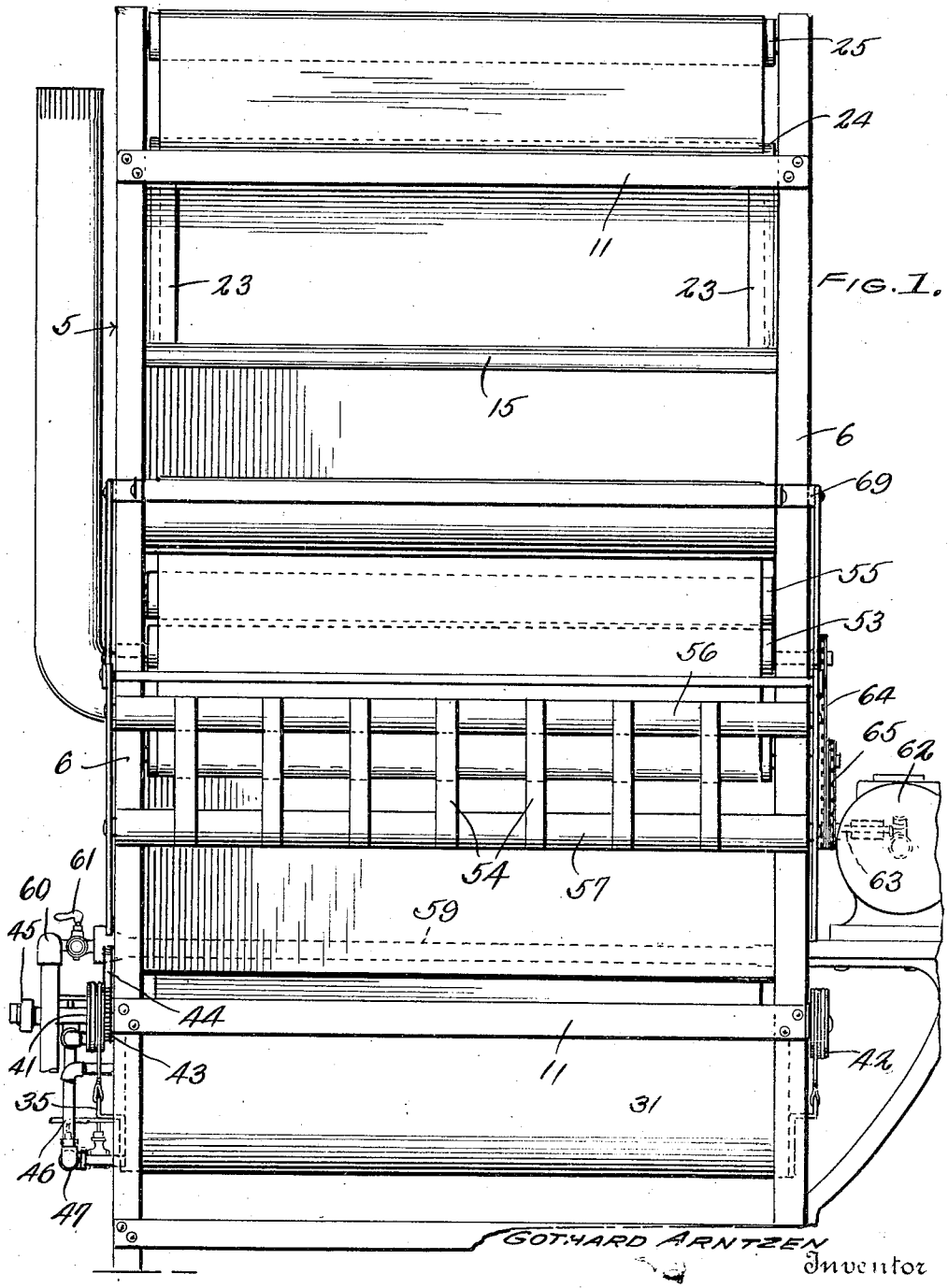


FIG. 1.

GOTHARD ARNTZEN Inventor

By C. A. Snow & Co.

Attorneys.

Aug. 27, 1929. G. ARNTZEN 1,725,744

BLUE PRINT MACHINE

Filed June 18, 1926 3 Sheets-Sheet 2

FIG. 2.

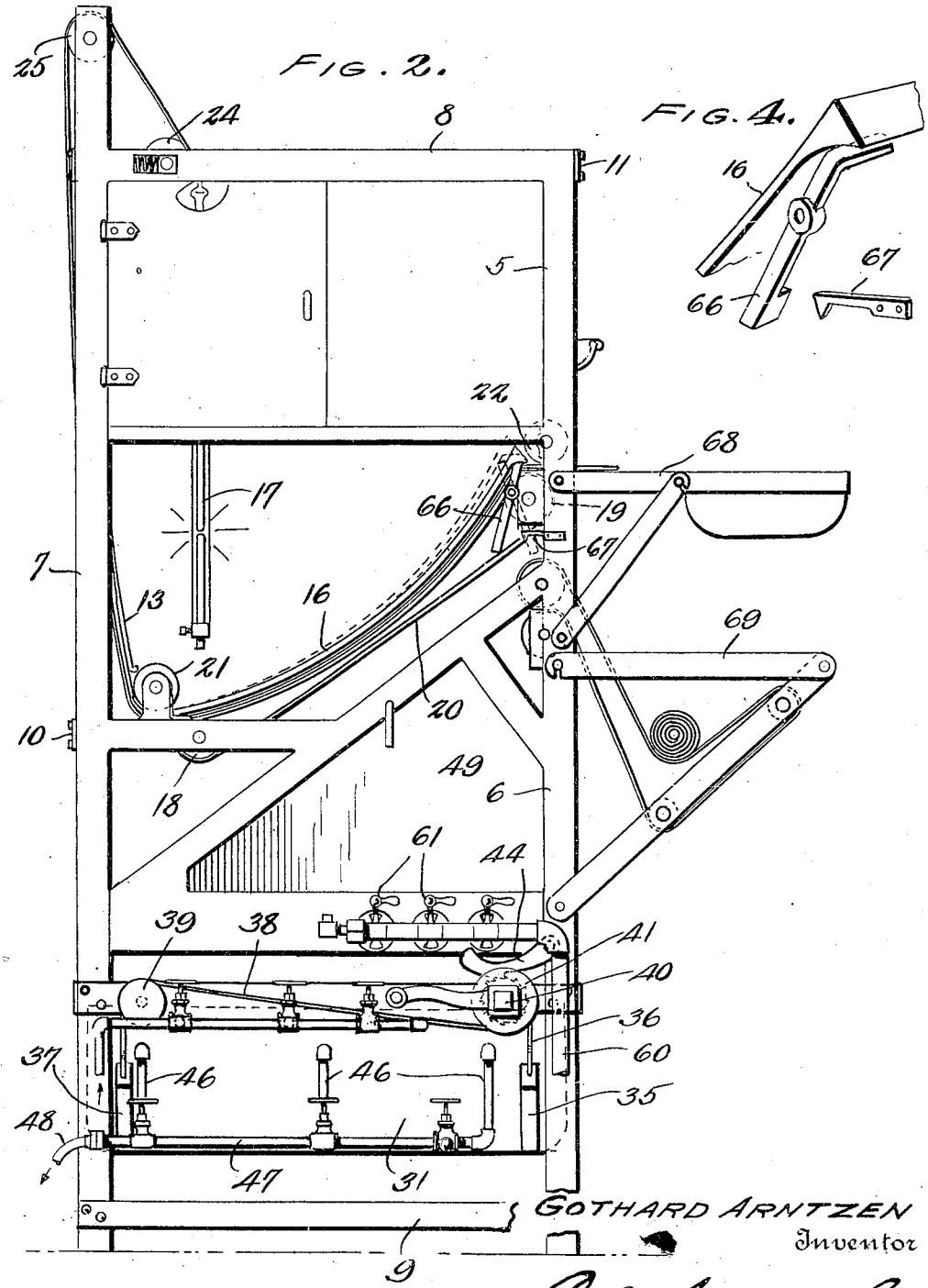


FIG. 4.

GOTHARD ARNTZEN
Inventor

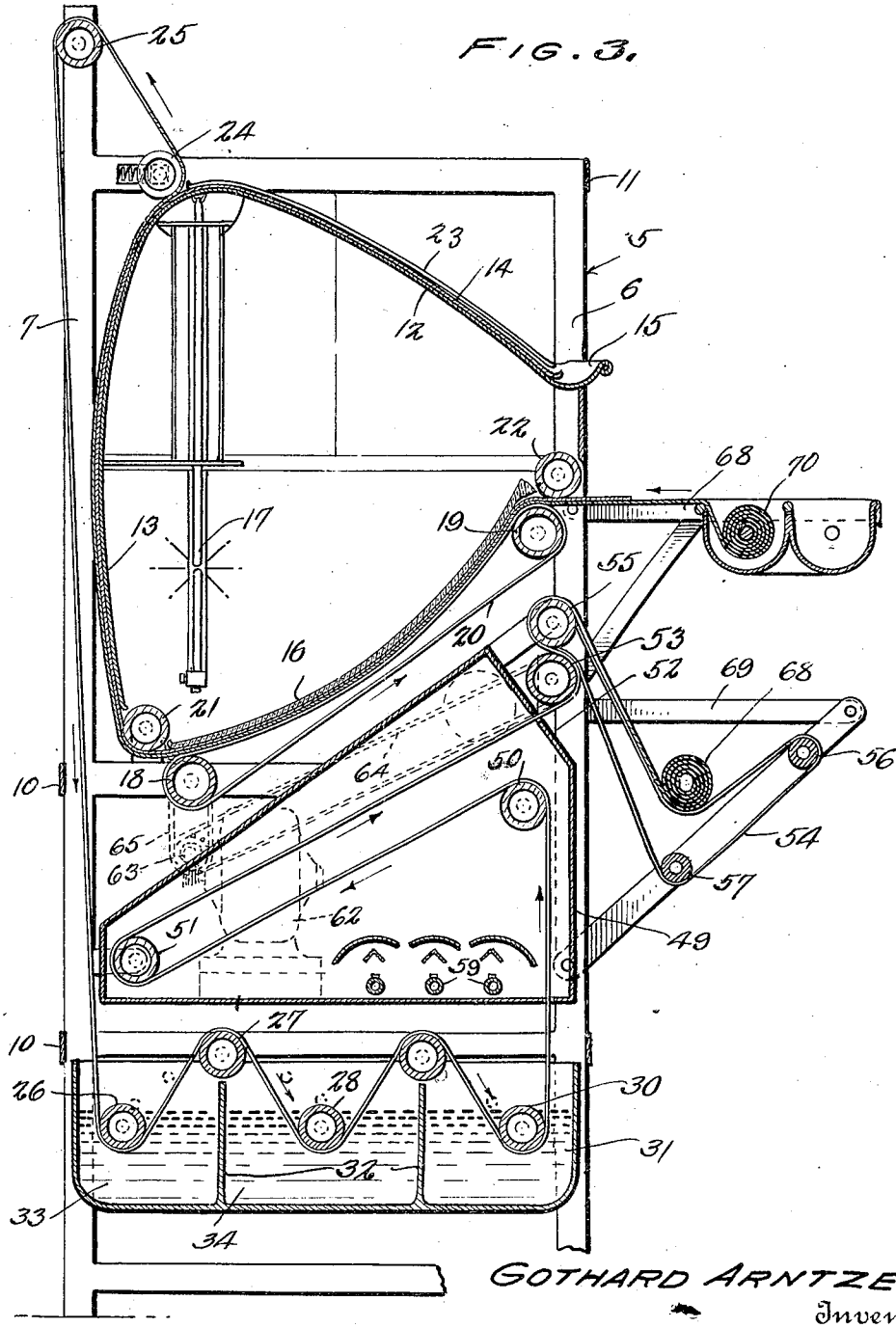
By CA Snow & Co.
Attorneys.

Aug. 27, 1929. G. ARNTZEN 1,725,744

BLUE PRINT MACHINE

Filed June 18, 1926 3 Sheets-Sheet 3

FIG. 3.



GOTHARD ARNTZEN
Inventor

By CA Snow & Co.
Attorneys

Patented Aug. 27, 1929. 1,725,744

UNITED STATES PATENT OFFICE.

GOTHARD ARNTZEN, OF ESCANABA, MICHIGAN.

BLUE-PRINT MACHINE.

Application filed June 18, 1926. Serial No. 116,906.

The present invention has reference to a machine for making blueprints, the primary object of the invention being to provide a machine which will make blueprints rapidly and efficiently, mechanical means being provided for moving the tracing paper and printing paper through the machine and delivering the same in a roll in a dried condition.

Another object of the invention is to provide a machine which will be continuous in its operation, the construction of the machine being such that the printing paper and tracing paper will be moved by a suitable light to cause a print to be made, from where the printed paper is carried through the various baths necessary to fix the print, from where the printed paper is carried through a drier and finally delivered at the front of the machine in a roll.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:

Figure 1 is a front elevational view of a machine constructed in accordance with the invention.

Figure 2 is a side elevational view thereof.

Figure 3 is a vertical sectional view through the machine.

Figure 4 is a perspective view illustrating the means for adjusting the glass under which the paper moves.

Referring to the drawings in detail, the frame which is indicated generally by the reference character 5 is vertical and provides front bars 6, rear bars 7 and upper and lower connecting bars 8 and 9 respectively.

The rear bars 7 are connected by means of the bars 10, while the front bars are connected by means of the horizontal bars 11 arranged adjacent to the upper and lower ends thereof.

Positioned within the upper portion of the frame is a curved metal plate 12 that has a downwardly extended rear portion 13 terminating at a point substantially intermediate the upper and lower ends of the frame.

This plate 12 acts as a support for the tracing paper which in the present showing is indicated at 14 and is designed to deliver the tracing paper in a flat unwrinkled condition to the tray 15 formed at the forward end of the plate 12 as clearly shown by Figure 3 of the drawings.

The reference character 16 indicates a sheet of curved glass that forms a lamp compartment with the curved plate 12, the lamp being indicated by the reference character 17.

Supported directly under the curved glass 16 is a roller 18 which is spaced from the glass to permit the printing paper and tracing paper to pass therebetween. Associated with the roller 18 is a roller 19 supported adjacent to the forward edge of the glass 16, which rollers provide a support for the belt 20 that operates under the glass 16 and provides a support for the paper passed through the machine.

Operating in conjunction with the rollers 18 and 19 are guide rollers 21 and 22 which guide rollers act to hold the paper in an extended position for passage through the machine.

Above the plate 12 is a guard plate 23 that has its rear end arranged adjacent to the guide roll 24 to the end that the printing paper which passes over the roll 24 may be separated from the tracing paper 14 to the end that the printing paper may be passed on through the several baths to fix the print.

A substantially long roll 25 is arranged above the roll 24, the roll 25 being provided for changing the direction of travel of the printing paper after it has left the roll 24.

As shown by Figure 3, the tracing paper passes downwardly over the rolls 26, 27, 28, 29 and 30, which latter rolls guide the printing paper through the various baths. The reference character 31 indicates a tank which is provided with spaced partitions 32 which partitions define water compartments 33 at the ends of the tanks, and a central compartment 34 for containing the developing solution. This tank is provided with brackets 35 at its ends, which brackets receive one end of the cables 36, there being provided brackets 37 at the rear end of the tank for receiving the free ends of the cables 38 that pass over pulleys 39 supported directly above the tank.

A shaft 40 extends transversely of the machine adjacent to the forward portion thereof and has a pulley 41 mounted adjacent to one end, and a pulley 42 adjacent to the opposite end, which pulleys accommodate the cables 36 which are wound thereon for raising and lowering the tank at the will of the operator.

A ratchet wheel 43 is mounted on the shaft 40 and is engaged by the pawl 44 so that the tank may be held in various positions of adjustment. A crank handle 45 is removably secured at one end of the shaft 40 and may be rotated for rotating the shaft 40 to raise and lower the tank as described.

In order to facilitate the positioning of water in the various compartments of the tank, pipes 46 are used, and as shown, extend through one of the side walls of the tank, the pipes 46 being in communication with a supply pipe 47 that has a connection with a suitable source of water supply through the flexible pipe 48.

The drying chamber indicated at 49 is arranged directly above the tank, the bottom wall of the drying chamber being provided with an opening through which the printing paper passes after it has left the tank. Within the drying chamber is a horizontal roll 50 arranged adjacent to the forward portion thereof, and over which the paper passes. The roll 51 is supported adjacent to the rear end of the drying chamber and provides a guide for the paper in guiding the paper throughout the length of the drying chamber, from where is passes through an opening formed in the front wall 52 of the drying chamber.

The reference character 53 indicates a guide roll over which the paper passes on passing from the machine. This guide roll also provides a support for the endless belts 54 that operate over the rolls 55, 56 and 57, the belts 54 operating as a support for the printed paper 58, and owing to the fact that the endless belts 54 are continuously operating, it will be seen that the paper will be rolled by its contact with the belt.

Burners indicated at 59 are arranged within the heating chamber and supply the necessary heat to accomplish the drying of the paper after it has passed through the baths. These burners are of the liquid and gaseous fuel type, and receive fuel through the pipe 60, the passage of the fuel being controlled by means of the valves 61.

The machine is operated by means of the electric motor 62 which in turn operates the shaft 63 over which the belts 64 and 65 operate, the belt 64 passing over one end of the roll 53 to rotate the same, while the belt 65 operates over one end of the roll 18 to operate the same.

In order that the paper may be readily removed or inserted in the machine, the glass 16 is movable, there being provided a swinging arm 66 mounted directly under the forward edge of the glass 16 which arm when moved to its active position, will act to raise the forward edge of the glass elevating the same from its position on the paper. A keeper 67 supported on the frame is designed to engage the arm 66 and hold the same in its operative position until released by the operator.

Mounted on the forward portion of the frame of the machine are the pivoted supports 68 and 69, the support 68 being divided and provided with shafts 70 to receive the rolls of printing paper that is to be fed through the machine, while the support 69 is designed to receive the paper after it has been printed.

These supports are adapted to be swung from their active positions as shown by Figure 2 of the drawing to a position adjacent to the front of the machine where they will be out of the way of persons passing the machine when the machine is not in use.

I claim:

A blueprint machine including a frame, a heating chamber mounted in the frame, said heating chamber being box-like in formation and including an inclined upper wall defining a wide end and a contracted end, said box like heating chamber having a film opening in the top and a film opening in the bottom thereof, a roller positioned in the side end of the heating chamber near the top thereof, a roller in the narrow portion adjacent to the bottom thereof and over which the film strip passes, and a heating means within the side end of the heating chamber, under the first mentioned roller for heating and drying the film strip.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

GOTHARD ARNTZEN.