Aug. 15, 1933. H. H. SULLIVAN 1,922,461

PRINTING MACHINE FOR SENSITIZED MATERIAL

Original Filed Oct. 24, 1930 3 Sheets-Sheet 1

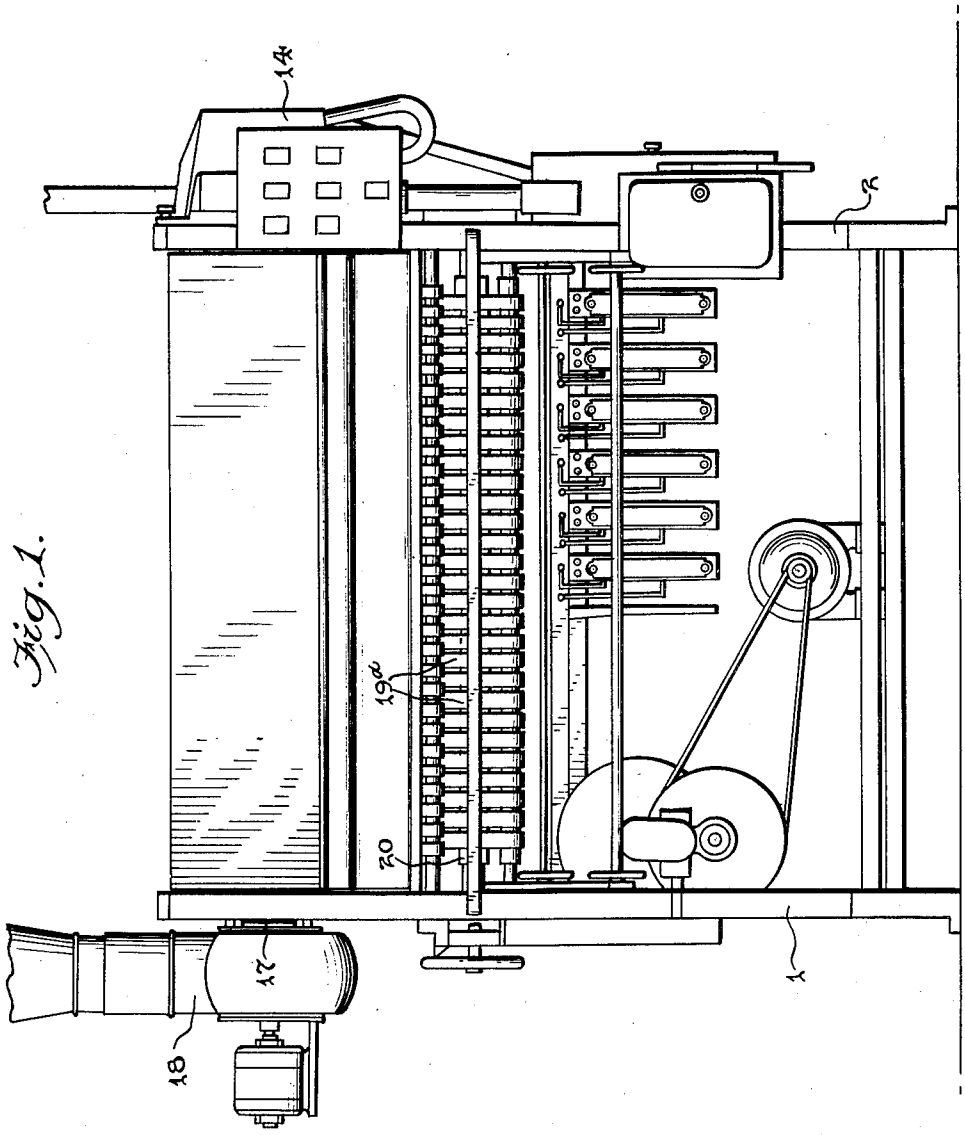


Fig. 1.

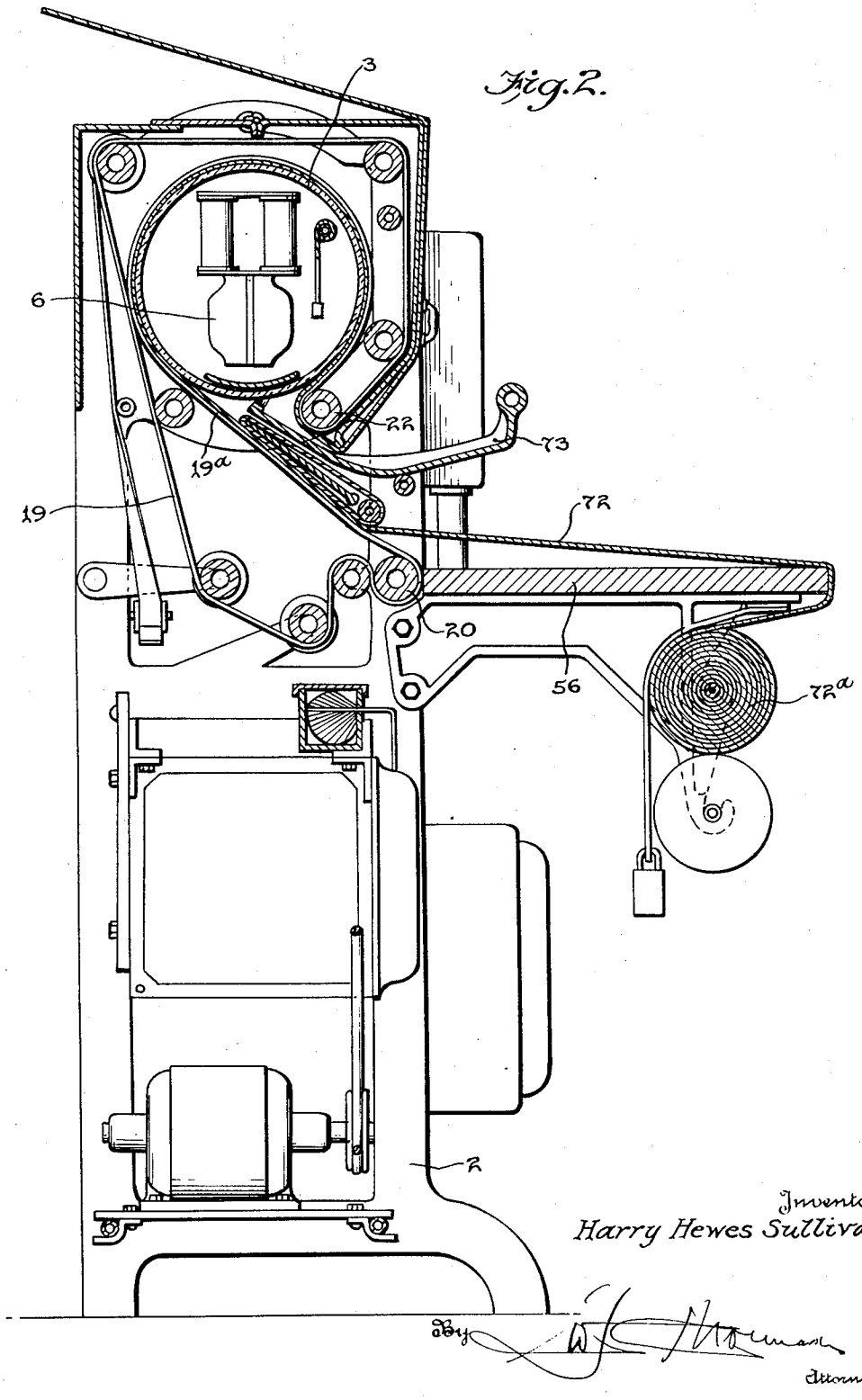
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Fig. 2.



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Fig. 3.

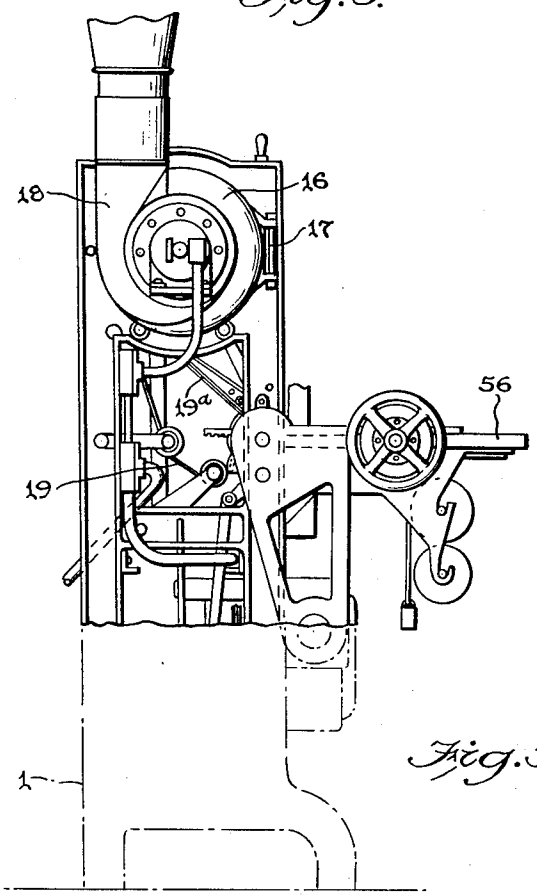


Fig. 4.

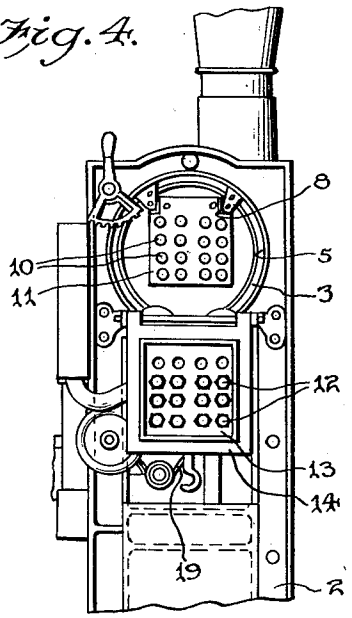


Fig. 5.

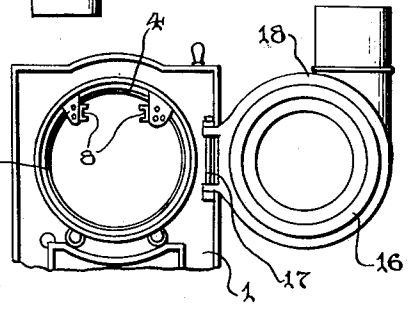
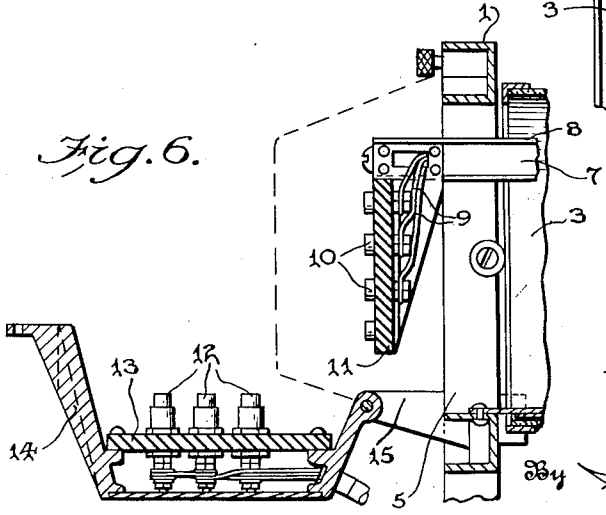


Fig. 6.



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UNITED STATES PATENT OFFICE

1,922,461

PRINTING MACHINE FOR SENSITIZED MATERIAL

Harry Hewes Sullivan, Rochester, N. Y.

Original application October 24, 1930, Serial No. 490,911. Divided and this application October 21, 1931. Serial No. 570,226

6 Claims. (Cl. 95—77.5)

The present invention relates to printing machines for sensitized material, and is a division of an application filed by me on or about October 24, 1930, Serial No. 490,911.

The object of the present invention is to improve that type of printing machines having an illuminated light transmitting bed against which the sensitized material is held and to equip such machines with a centrifugal exhaust fan located at one end of the light transmitting bed and adapted to remove the heated air from the bed and blow it from the room, thereby maintaining the machine at proper operating temperature and at the same time assisting in the ventilation of the room.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings:

Figure 1 is a front elevation of a printing machine for sensitized material forming the subject matter of the present invention.

Fig. 2 is a vertical transverse sectional view through the machine.

Fig. 3 is an end elevation of the upper portion of one end of the machine.

Fig. 4 is a similar view of the other end portion of the machine.

Fig. 5 is a fragmentary view of the end of the machine shown in Fig. 3, with the lamp chamber open.

Fig. 6 is a fragmentary section showing the lamp chamber closure which forms the air inlet passage.

In the illustrated embodiment of the invention, 1 and 2 indicate the end frames which support betwen them a rotary or revoluble light transmitting or transparent bed 3, in the present instance in the form of an open ended glass cylinder forming also the chamber for an illuminating means. The end frames 1 and 2 have respectively openings 4 and 5 opposite the open ends of the rotary transparent cylinder through which openings 4 and 5 access to the chamber for the illuminating means may be obtained.

Supported within this rotary transparent tubular bed 3 is an illuminating means comprising a plurality of arc lamps 6 arranged in a series extending axially of the bed. These lamps depend from a frame 7 which is slidably mounted on horizontal guides 8 extending through the bed so that the lamps and their frame may be withdrawn from the bed. The lamps connect by conductors 9 with contacts 10 arranged on an insulating slab 11 which is supported in an upright position on the frame 7 at one end thereof. These contacts are adapted to be engaged by yielding contacts 12 mounted in a slab 13 which is secured to the inner face of a hinged closure 14 for the opening in the adjacent side frame 1. The contacts 12 are individually yielding, so that proper engagement of any contact 12 with its contact 11 will not be interfered with by any other pair of contacts 11 and 12. The closure 14 is hingedly connected at the bottom with the side frame 1 in such manner that an air passage 15 is provided at the bottom of the closure, as clearly illustrated in Fig. 6 of the drawings. This formation of the air inlet opening or passage 15 is preferably effected by means of extending the lugs or fixed elements of the hinge connection as shown in Fig. 9, and centering the bottom portion of the closure 14, which is in the form of a cap. The opposite end of the chamber for the illuminating means may be closed by a closure 16 hinged at 17 and may carry a motor driven suction fan 18 by which the air is drawn over the surface of the transparent bed and over the illuminating means to cool the bed and maintain the machine at a proper operating temperature. At the same time, the removal of the heated air by the exhaust fan improves the quality of the work and adds to the comfort of the operators by removing the heated air.

The employment of a single belt the width of the cylinder for feeding the sensitized material and the negatives of the material to be copied is not practicable, due to the fact that it tends to build up heat and also interferes with the cooling of the transparent cylinder. Furthermore, it is difficult to maintain an even pressure on the cylinder. The heating effect has been eliminated by feeding the material by means of a plurality of independent belts, but here difficulty has been experienced in maintaining an equal pressure on them on the bed. One of the features of the machine of the invention of the aforesaid application is the provision of a feeding means which will not cause the building up of heat in itself and will at the same time make it possible to produce a uniform pressure

on the material being fed. The feeding means cooperates with the rotary bed in such manner as to turn said bed in the frame during the operation of the feeding means, and embodies a single endless feeding member in the form of a belt or band 19 which is so guided as to provide a plurality of parallel laps traveling at right angles to the cylindrical bed. This band is guided about the cylinder, as explained in detail in the aforesaid application, so that the parallel laps 19^a pass rearwardly and upwardly from a common roller 20 situated below and in advance of the cylinder. The parallel laps now pass behind and engage the cylinder 3, following the curvature of the latter forwardly and downwardly to a common roller 22. The particular construction and arrangement of the endless belt 19 is explained in detail in the aforesaid application, and it is believed that further description thereof in the present divisional case is unnecessary.

The sensitized sheet 72 is fed from a roll 72^3 journaled beneath the table 56, the sheet leading over the forward edge of the table and thence over the table to the cylinder 3 in rear of and then over the cylinder and finally in front of the cylinder. After leaving the cylinder it passes out of the machine and upwardly in front of the same and over the top of the machine to a washing and developing apparatus (not shown).

The material to be copied is laid on the sheet while it is over the table, and is carried by the sheet around the cylinder and passes out of the machine into a receiving tray 73.

As the present application is a division of the aforesaid application, in which the machine is fully described and illustrated, it is thought that further description and illustration in the present application is unnecessary and that the illustrations and description of the present application are ample to enable the ventilation and cooling means of the present application to be readily understood.

What is claimed is:

1. In a printing machine for sensitized material, the combination with a light transmitting cylinder and illuminating means in said cylinder, of suction means for drawing cool air through the cylinder and around the illuminating means.

2. In a printing machine for sensitized material, the combination with a light transmitting cylinder having open ends and illuminating means in said cylinder, of suction means located at one end of the cylinder for drawing cool air through the cylinder and around the illuminating means.

3. In a printing machine for sensitized material, the combination with a light transmitting cylinder having open ends and illuminating means in said cylinder, of a movable closure hinged at one end of the cylinder, and a suction fan mounted on said closure to draw cool air through said cylinder and around the illuminating means, said suction fan being carried to and from the cylinder by the swinging movement of the closure.

4. In a printing machine for sensitized material, the combination with a light transmitting cylinder having open ends and illuminating means in said cylinder, of a movable closure hinged at one end of the cylinder, a suction fan mounted on said closure to draw cool air through said cylinder and around the illuminating means, said suction fan being carried to and from the cylinder by the swinging movement of the hinged closure and a movable closure hinged at the other end of the cylinder and providing an air inlet passage leading to the cylinder.

5. In a printing machine for sensitized material, the combination with a light transmitting cylinder having open ends and illuminating means in the cylinder, of a suction fan located at one end of the cylinder to draw cool air through said cylinder and around the illuminating means, a closure located at the other end of the cylinder and having a hinge connection provided with extended lugs spacing the adjacent portion of the closure from the cylinder to form an air inlet passage leading to the cylinder.

6. In a printing machine for sensitized material, the combination with a light transmitting cylinder having open ends and illuminating means in said cylinder, of a movable closure hinged at one end of the cylinder, a suction fan mounted on said closure to draw cool air through the cylinder and around the illuminating means, said suction fan being carried to and from the cylinder by the swinging movement of the closure, and a movable closure for the other end of the cylinder having a hinge connection provided with extended lugs spacing the adjacent portion of the last mentioned closure from the cylinder to form an air inlet passage leading to the cylinder.

HARRY HEWES SULLIVAN.