

Jan. 2, 1923.

1,440,640

W. H. SMITH.
SHEET HEATING AND DRYING DEVICE.
FILED AUG. 4, 1921.

2 SHEETS-SHEET 1

Fig. 1.

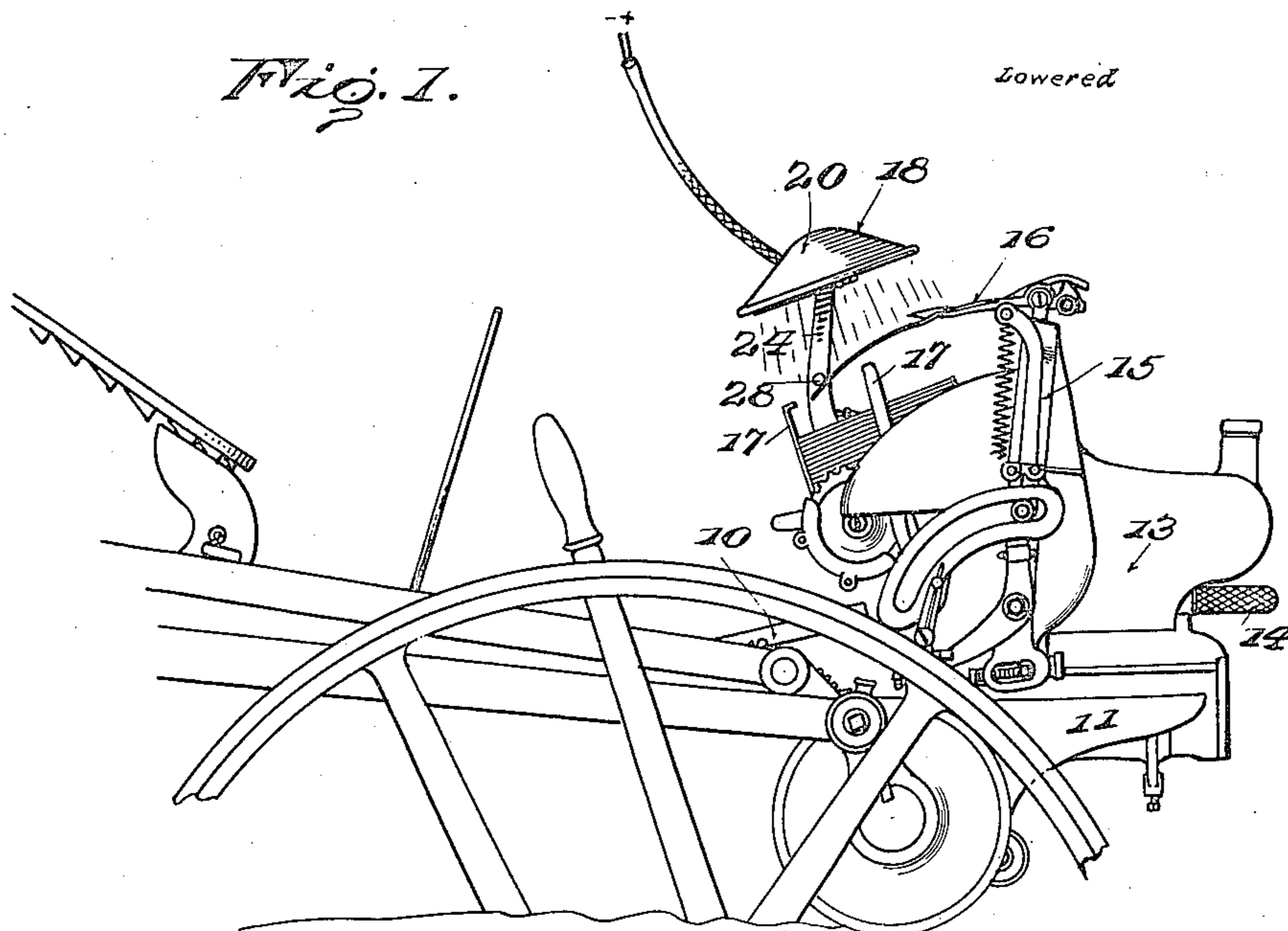
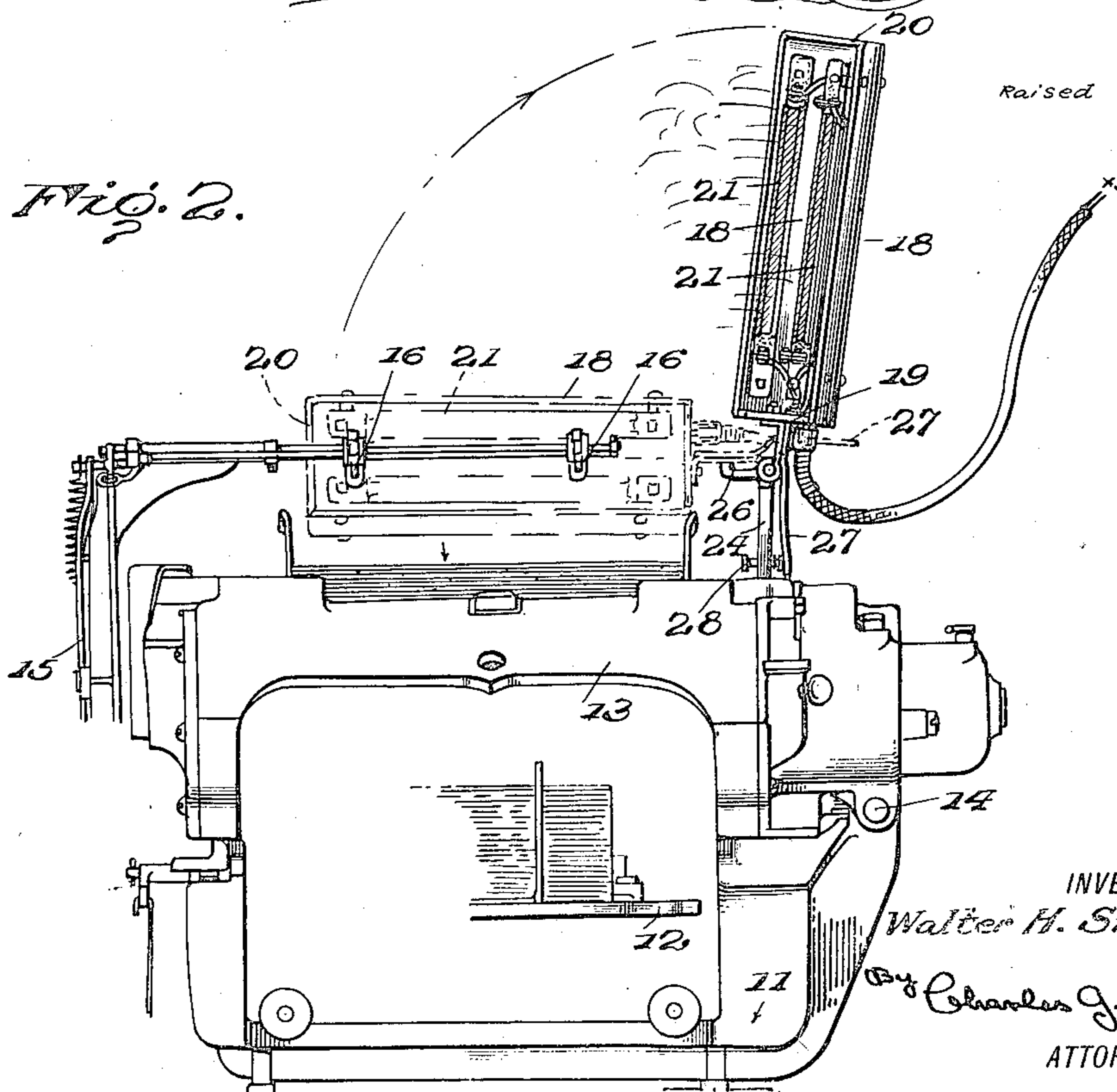


Fig. 2.



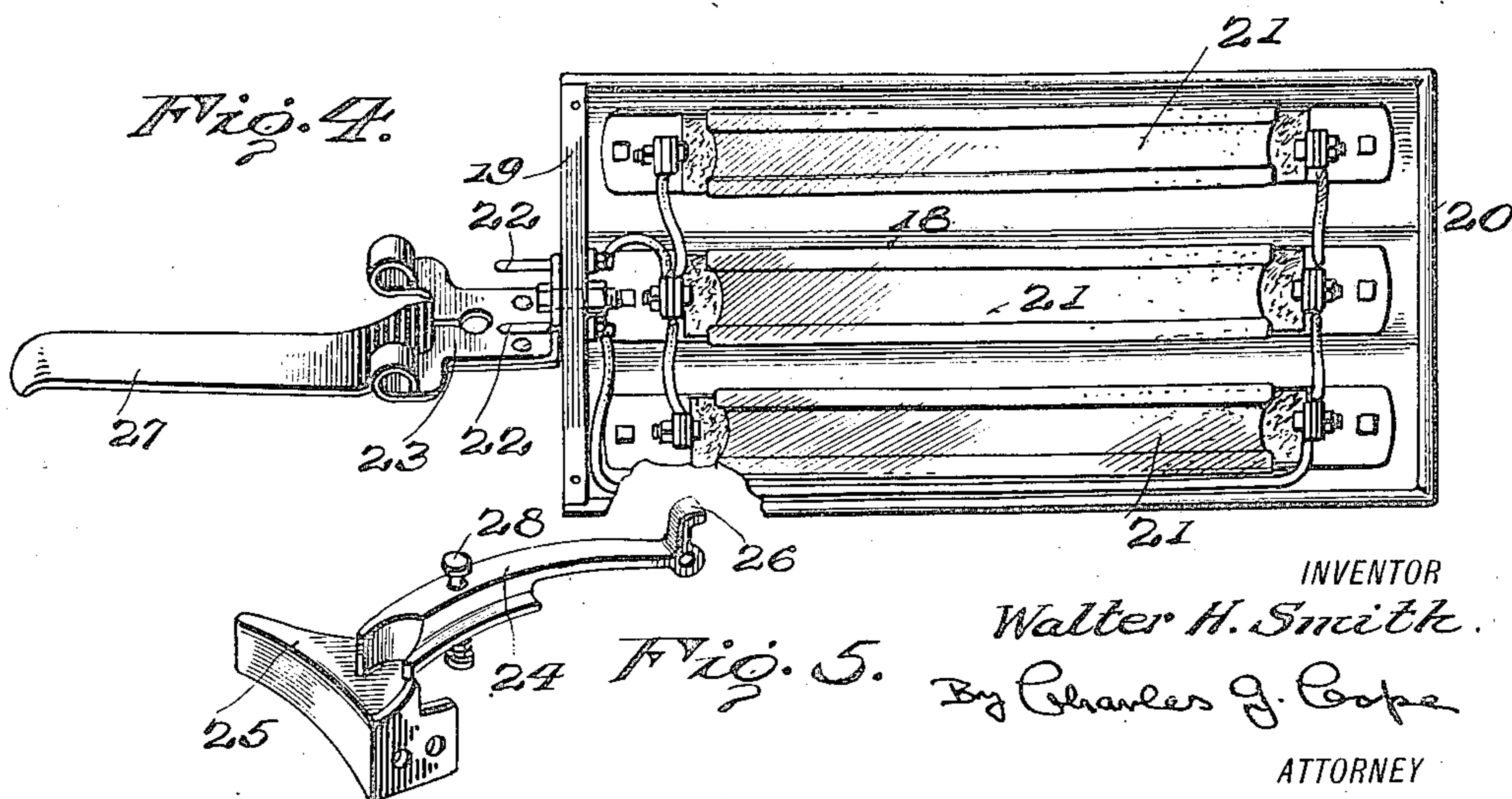
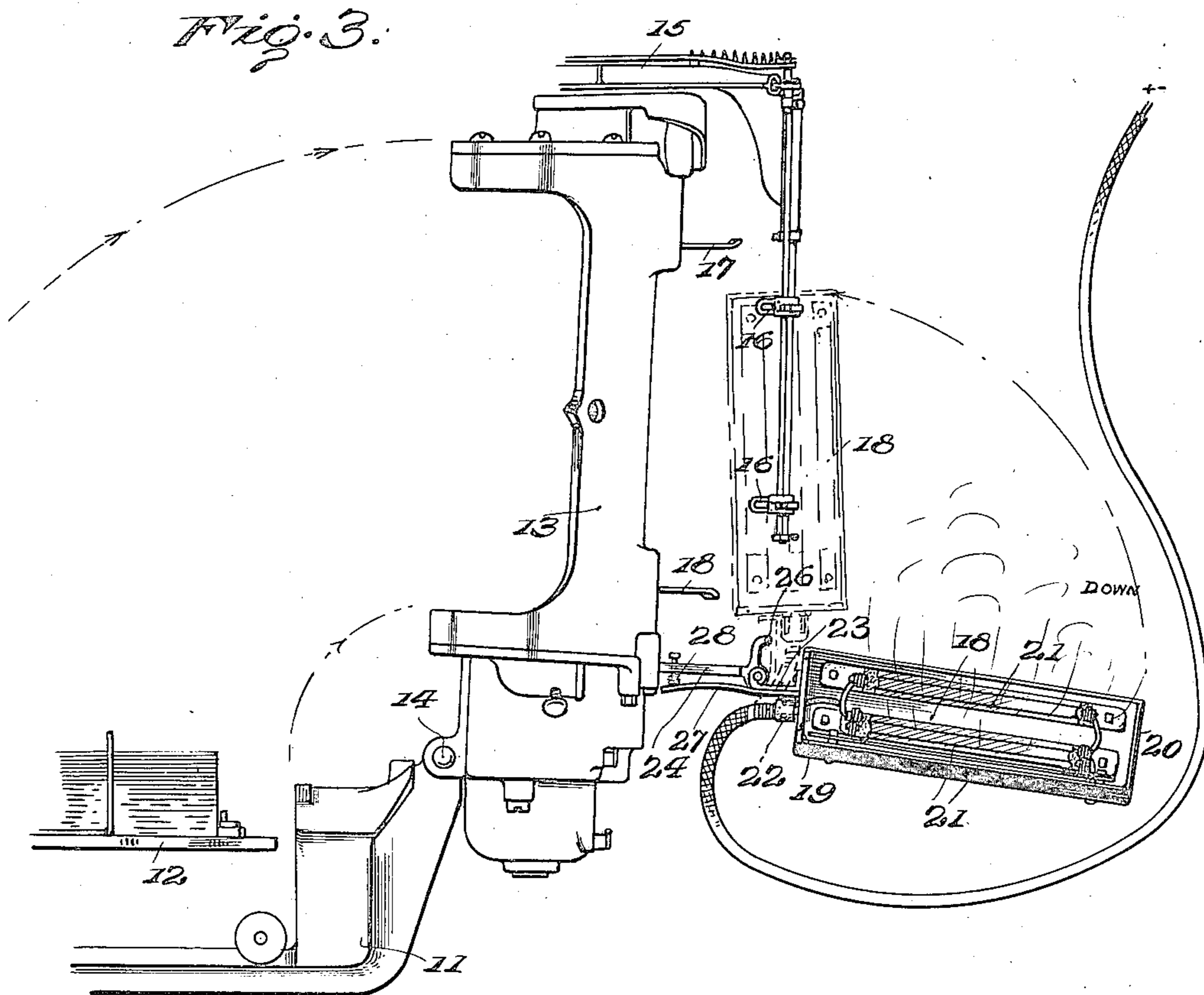
INVENTOR
Walter H. Smith.
By Charles J. Gope
ATTORNEY

Jan. 2, 1923.

1,440,640

W. H. SMITH.
SHEET HEATING AND DRYING DEVICE.
FILED AUG. 4, 1921.

2 SHEETS-SHEET 2



UNITED STATES PATENT OFFICE.

WALTER H. SMITH, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO MILLER SAW-TRIMMER COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SHEET HEATING AND DRYING DEVICE.

Application filed August 4, 1921. Serial No. 489,821.

To all whom it may concern:

Be it known that I, WALTER H. SMITH, a subject of the King of Great Britain, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Sheet Heating and Drying Devices, of which the following is a specification.

My invention pertains to sheet heating and drying devices for use in connection with sheet delivering mechanisms for printing presses and the like.

In delivering sheets from a printing press, especially where the sheets are deposited one on the other in a pile, trouble is often experienced due to the ink on one sheet not being sufficiently dried before the next sheet is deposited on top of it. Off-setting from one sheet upon the back of the following sheet, and a poor appearance of the printed sheet, are among the objectionable results of this. To minimize this trouble, slip-sheeting is often resorted to, but this is time-wasting and expensive in material. It is an object of my invention to obviate the difficulty by providing a simple and effective heating device which will operate upon the sheets at delivery, and thus dry each sheet before another is deposited thereon. It is a further object of my invention to provide a sheet heating and drying device in which provision is made for preventing undue heating of the machine or of the sheets in case of stoppage of the delivery mechanism. And other and further objects of my invention will appear from the following specification taken in connection with the claims forming part thereof.

By way of example, I have described in the following specification, and shown in the accompanying drawings, one form of heating and drying device in which my invention may be embodied. It will be understood, however, that changes may be made in the form of device described and shown, and that the same may be applied in other ways, without exceeding the scope of my said invention as defined in the appended claims.

In the drawings:

Fig. 1 is a side elevation showing a portion of a platen printing press equipped with an automatic feeding and delivering mechanism of well known construction hav-

ing a heating and drying device constructed in accordance with my invention applied thereto;

Fig. 2 is a rear view of the same, showing the heating and drying device, in full lines, in the position it assumes when swung upward, and, in dotted lines, in its normal operative position;

Fig. 3 is a partial rear view showing one portion of the press feeding device swung upward with respect to another portion, and showing the position which the heating and drying device assumes under such conditions;

Fig. 4 is an inverted plan of the heating and drying element and,

Fig. 5 is a perspective view of the standard upon which the heating and drying element is mounted.

Referring now to the drawings, 10 indicates the platen of a Gordon press which has applied thereto a feeding device of well known construction. Such feeding device includes a base 11 in which is supported an automatically elevated table 12, and a hood 13 which is hinged to the base 11 by means of a pivot pin 14, whereby the hood, with the parts which it carries, can be swung from the position shown in Fig. 2 to that shown in Fig. 3. Such swinging of the hood 13 is desirable when making-ready and feeding the press, as well as when it is desired to inspect the parts of the feed mechanism. The hood 13 carries mechanism for feeding sheets to the platen, and also a rocking arm 15 carrying delivery grippers 16 which seize the sheets on the platen, immediately after printing, and then swing up into the position shown in Fig. 1, where they release the sheet and allow the latter to drop onto a delivery table formed by the inclined top surface of the hood 13. The sheets are retained on this delivery table, in stacked form, by guides 17. The construction of the machine described above is well known in the art.

The heating and drying device of my invention comprises a trough shaped member 18, formed of copper or the like, having end plates 19 and 20. Within the member 18 are mounted a plurality of electrical heating units 21, connected in parallel, current being supplied to these units by means of attachment plug connections 22 carried

by the end plate 19. Secured to the end plate 19 is a bracket 23 which is adapted to make hinged connection with a standard 24 extending upward from a gear guard 25 which is attached to the feeder so as to cover a part of one of the gears thereof. The standard 24 is formed with a lug 26, upon which the edge of the end plate 19 is adapted to rest when the heating element is in the operative position shown in Fig. 1 and in dotted lines in Fig. 2. From this position the heating element may be swung upward, about its hinge, to the position shown in full lines in Fig. 2. To facilitate this swinging of the heating element, the bracket 23 is provided with a handle extension 27, which may be provided, if desired, with a heat-insulating covering. By pushing down upon the handle 27, the heating element may readily be raised from its normal position to the position shown in Fig. 2. To prevent undue shock when the heating element is swung forcibly about its pivot, a spring plunger 28 is provided upon the standard 24.

In operation, with current supplied to the heating units 21, the latter, backed by the metallic member 18, will cause heat of considerable intensity to be directed downward from the element. The sheets, in being delivered by the grippers 16 swinging with the arm 15, pass directly beneath the heating elements, and before being dropped on the delivery table are subjected to an intense heat at relatively close quarters. Upon each sheet being dropped on the delivery table, it is subjected to a continued application of heat up until the time when the following sheet is brought into position between it and the heating element. In this way the ink on each sheet is dried before the next succeeding sheet is dropped upon it.

The heat directed downward by the device is intense and might cause harmful results if allowed to be effective for too long upon any single sheet, as would be the case, for instance, if the machine were stopped with the heater remaining in operation. To switch off current from the heater would result in a loss of time owing to the amount of time necessary for the elements to re-heat again upon current being reapplied. When, therefore, the machine is stopped, the operator swings the heater from its operative position, shown in dotted lines in Fig. 2, to its inoperative position shown in full lines in

the same figure. With the heater thus raised, the heat is not directed onto the pile of sheets, and harmful results, therefore, cannot occur. The heater is ready for operation again immediately upon it being swung back to its original position. If the feeder hood is swung up for any reason, as for inspection of the parts, the heating device automatically falls into the position shown in Fig. 3, where its heat is not directed against the bare top of the hood. Any harmful shock which might otherwise result from the heater falling into this position is obviated by the spring plunger 28 engaging the handle 27 and acting as a shock absorber.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. A heating device for use in connection with sheet delivery apparatus, comprising a heating element, means for supporting said element above the delivery apparatus so as to throw heat downwardly thereon, and connection means between said element and said supporting means permitting said element to be swung from an operative to an inoperative position.

2. The combination with a sheet delivery device of a heating element, a support member for attachment to said delivery device, and a hinged connection between said support member and one end of said element, whereby said element can be swung from an operative position to an inoperative position in which the heat is not effective on the sheets.

3. A heating device for use in connection with sheet delivery apparatus, comprising a heating element, and a support, for attachment to the delivery apparatus, having a hinged connection with said heating element, and said support having an abutment upon which said heating element rests when in operative position.

4. The combination with a swingable sheet delivery device of a support member carried by said device, and a heating element hingedly connected with said support member so as to rock about its hinge when said delivery device is swung.

WALTER H. SMITH.

Witnesses:

CHARLES G. COPE,
THEO. R. FOSTER.