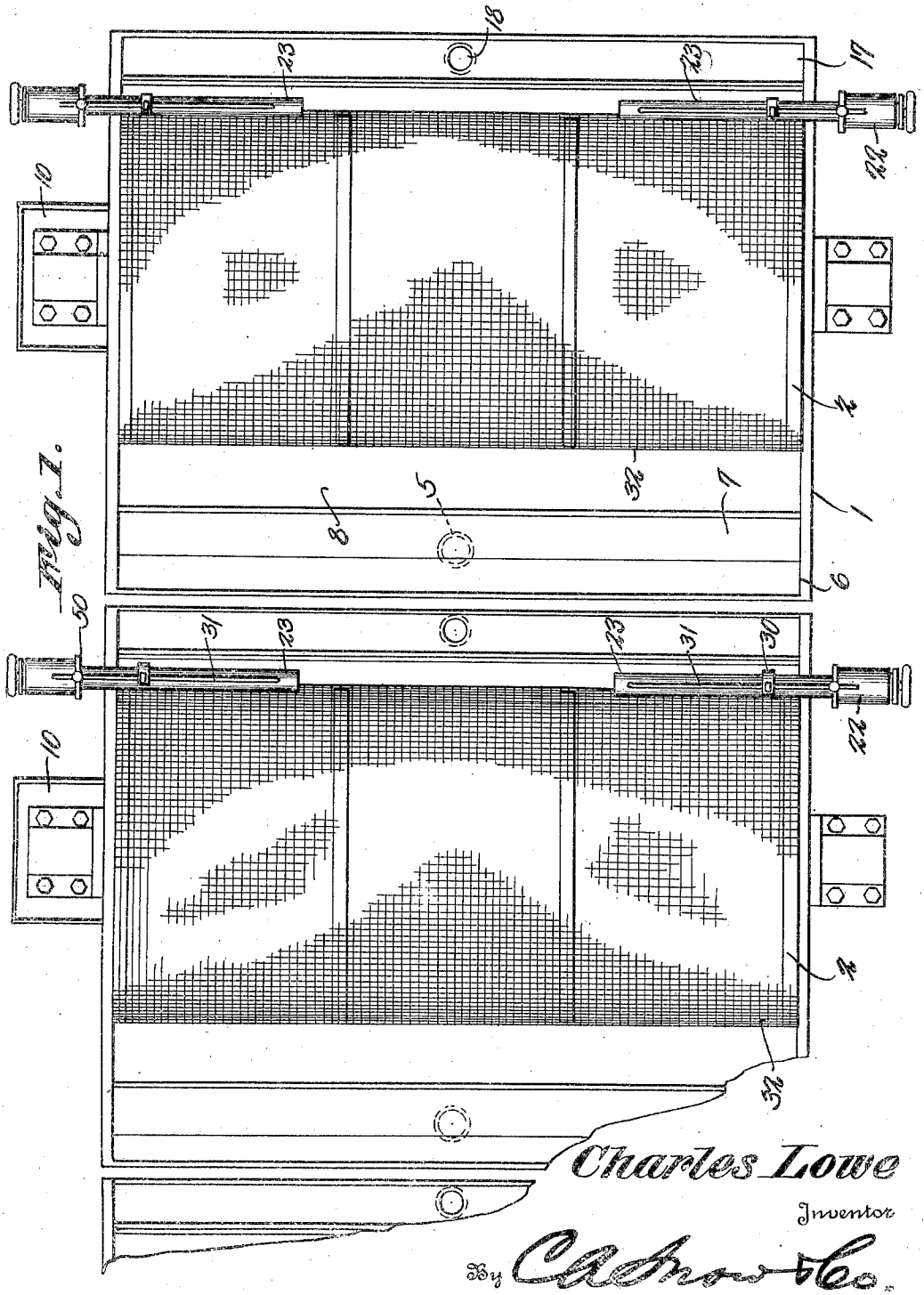
Feb. 11, 1930. C. LOWE 1,746,434

DECKLE

Original Filed March 28, 1928 4 Sheets-Sheet 1



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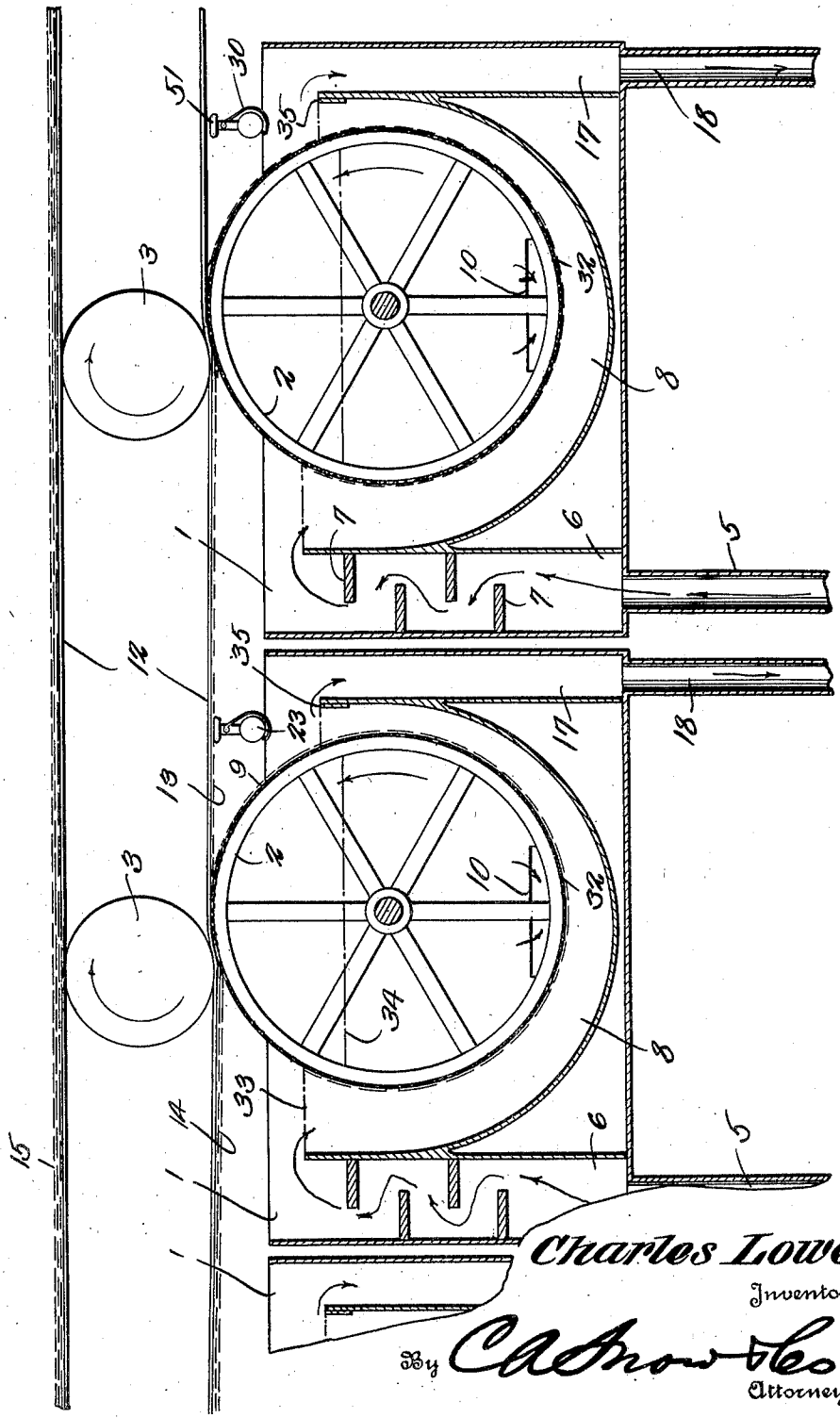


Fig. 2.

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Feb. 11, 1930. C. LOWE 1,746,434

DECKLE

Original Filed March 28, 1928 4 Sheets-Sheet 3

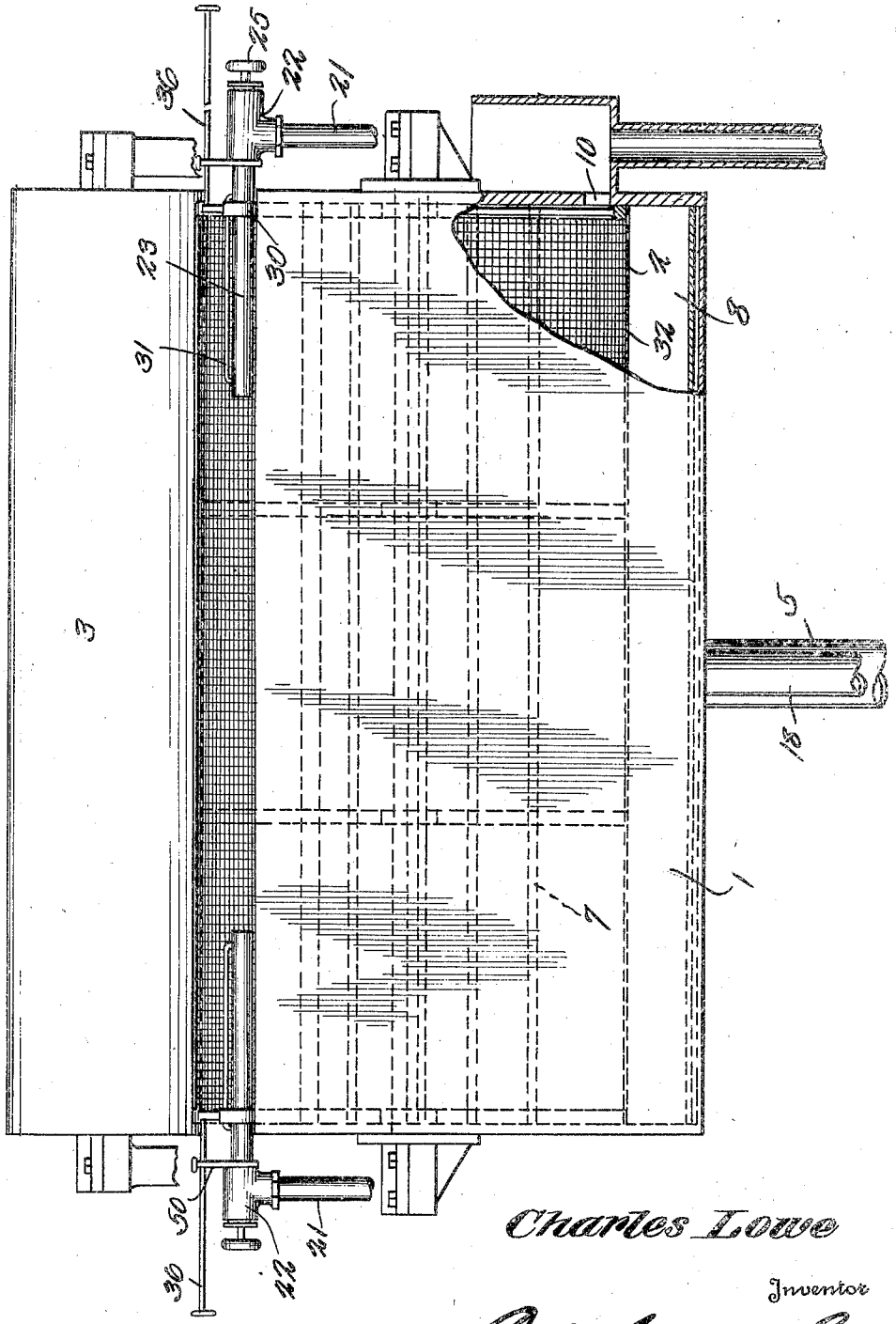


Fig. 3.

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Feb. 11, 1930. C. LOWE 1,746,434

DECKLE

Original Filed March 28, 1928 4 Sheets-Sheet 4

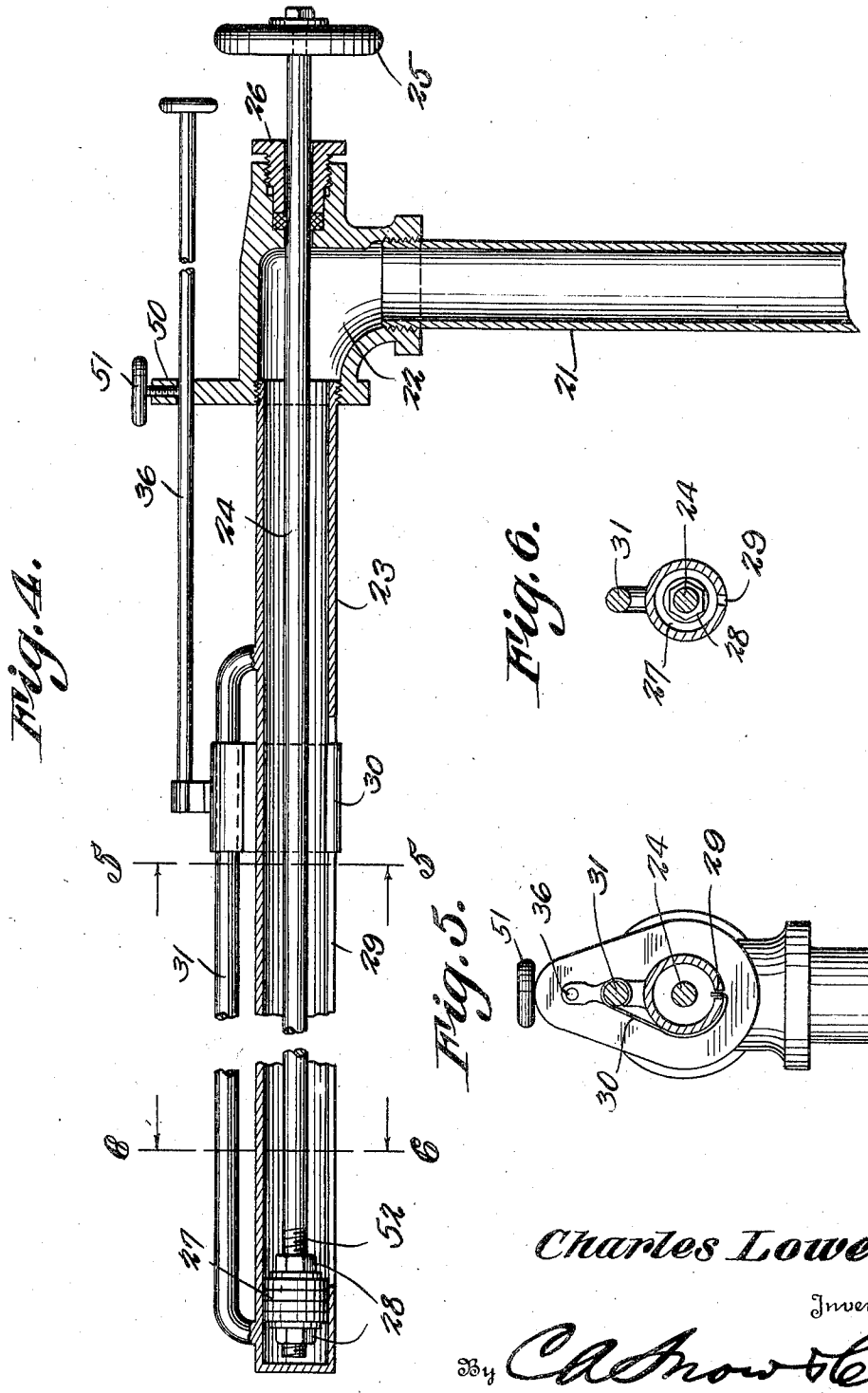


Fig. 4.

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE

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DECKLE

Application filed March 28, 1928, Serial No. 265,369. Renewed December 11, 1929.

This invention aims to provide useful and novel improvements in cylinder paper-making machines whereby a perfect couching of the paper-pulp will be brought about and whereby waste and loss of pulp are entirely prevented, it being possible to adjust the deckles readily for any desired width of paper, while the machine is in motion.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above 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.

In the accompanying drawings:—

Figure 1 is a plan of a vat and cylinder mold having the improvements applied;

Figure 2 is a longitudinal section of the structure shown in Figure 1;

Figure 3 is an end elevation of the vat and attendant parts;

Figure 4 is a longitudinal section of the deckling device;

Figure 5 is a transverse section on the line 5—5 of Figure 4;

Figure 6 is a transverse section on the line 6—6 of Figure 4.

In Figure 2, the numeral 1 designates the vats of a cylinder paper-making machine. The cylinder molds 2 rotate in the vats 1, in the direction indicated by the arrows. The vats are charged with a solution of paper stock embodying approximately 99½% water and ½% stock. This paper solutions enters through the feed pipe 5, under constant pressure, and flows continuously into the compartment 6 of each vat 1, thence upwardly about the baffles 7, and into the inner compartment 8, in which the cylinder mold 2 rotates. The cylinder mold 2 embodies a shell 32, made of wire screen. The wire screen 32 acts as a filter. Much of the water passes through the wire screen 32 into the inside of the cylinder mold 2, which has an outlet as shown at 10. This causes "suction"—the extent of which is represented by the difference in elevation of stock outside of the mold at 33, and inside of the mold at 34. The paper stock in the compartment 8, adheres to the screen 32 and forms a sheet of paper 9, which is "couched" or "picked off" the screen 32 by the cylinder web or felt 12. through the medium of couchers 3, and is one-ply paper at 13, two-ply at 14, and three-ply at 15, the paper then passing over the paper machine in the usual manner. The stock that is not held on the wire screen 32 by suction produced by the difference in elevation at 33 and 34, passes over at the point 35 into the compartment 17 and through the pipe 18, back to the original source of supply (not shown), whence it is re-circulated with fresh paper stock through inlet 5.

The plies of paper 13, 14 and 15 must be lined up in such a way as to produce a selvage edge, each ply after the ply 13 becoming progressively wider. This selvage edge is known, to those skilled in the art, as the "deckle edge." Heretofore it has been the practice of paper makers to wind deckle webbing around the molds 2 to produce this selvage edge and to produce paper of widths less than the full capacity of the cylinder mold 2. The aforesaid deckle webbing covers up the holes in the wire screen 32, thus shutting off "suction" caused by the difference in elevation of levels at 33 and 34. The deckle webbing takes considerable time to apply, and while application is being made, the paper produced by the cylinder machine is not of commercial value, because it varies in weight and thickness, due to the gradual change in the width of the paper 9, that is forming on the wire screen 32. Moreover, the "couching" of the paper 9 by the felt 12 and the coucher 3 is imperfect, because of the fact that the deckle webbing wound round the cylinder mold 2 prevents the felt 12 from making close contact with the paper 9, and very decidedly decreases the lifting effect of couchers 3.

To overcome these difficulties, there is pro-

vided the deckling device as shown in detail in Figures 4, 5 and 6. In these figures, a piece of brass pipe 23 overhangs each side of the vat and is fed with water through inlet 21 and elbow 22. The pipe or conduit 23 has a machined slot 29 of accurate dimensions throughout the major part of its length. In the slot 29 is located one end of an arcuate cleaning device 30 which slides back and forth on a guide rod 31 carried by the pipe 23. An operating rod 36 is connected to the cleaning device 30 and slides in a guide ear 50 on the elbow 22. A set screw 51 in the ear 50 holds the rod 36 in adjusted positions. The member 30 is used to keep the slot 29 clean, so that it will discharge a solid sheet of water against the screen 32. In the end of elbow 22 is a packing box 26 through which slides a piston rod 24. On the exposed end of the piston rod 24 is an operating handle 25. On the inner end of the rod 24 is a piston head 27 secured in place by threads 52 and locking nuts 28. The pipe 23 is kept full of water at high pressure. By changing the position of the piston 27, the sheet of water flowing through the slot 29 can be varied in width. This sheet of water washes off end portions of the wire screen 32, all paper stock that has formed in its path. The stock thus washed off, joins the stock which is not fastened to the wire screen 32 by the influence of suction produced by difference in elevation at 33 and 34, and passes over at 35 into compartment 17, whence it flows through the pipe 18 back to the original source of supply (not shown) and is re-circulated with fresh paper stock through inlet 5.

With the deckling device described above, it is possible to change the widths of the plies 13, 14 and 15, by simply changing position of the pistons 27 in the pipes 23, a very quick change of width thus being effected.

What is claimed is:

In a paper-making machine, a cylinder, and deckling mechanism including a liquid conduit having an outlet in the form of a continuous longitudinal slot discharging on the cylinder at a point adjacent to the end of the cylinder, a piston slidable in the conduit and constituting means for varying the effective discharge length of the outlet slot, a cleaner mounted to reciprocate in the slot from one end of the slot to the other, and means for operating the cleaner from a point external to the cylinder whereby the cleaner may be reciprocated in the slot, the piston corresponding in cross sectional area to the internal cross sectional area of the cylinder.

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

CHARLES LOWE.