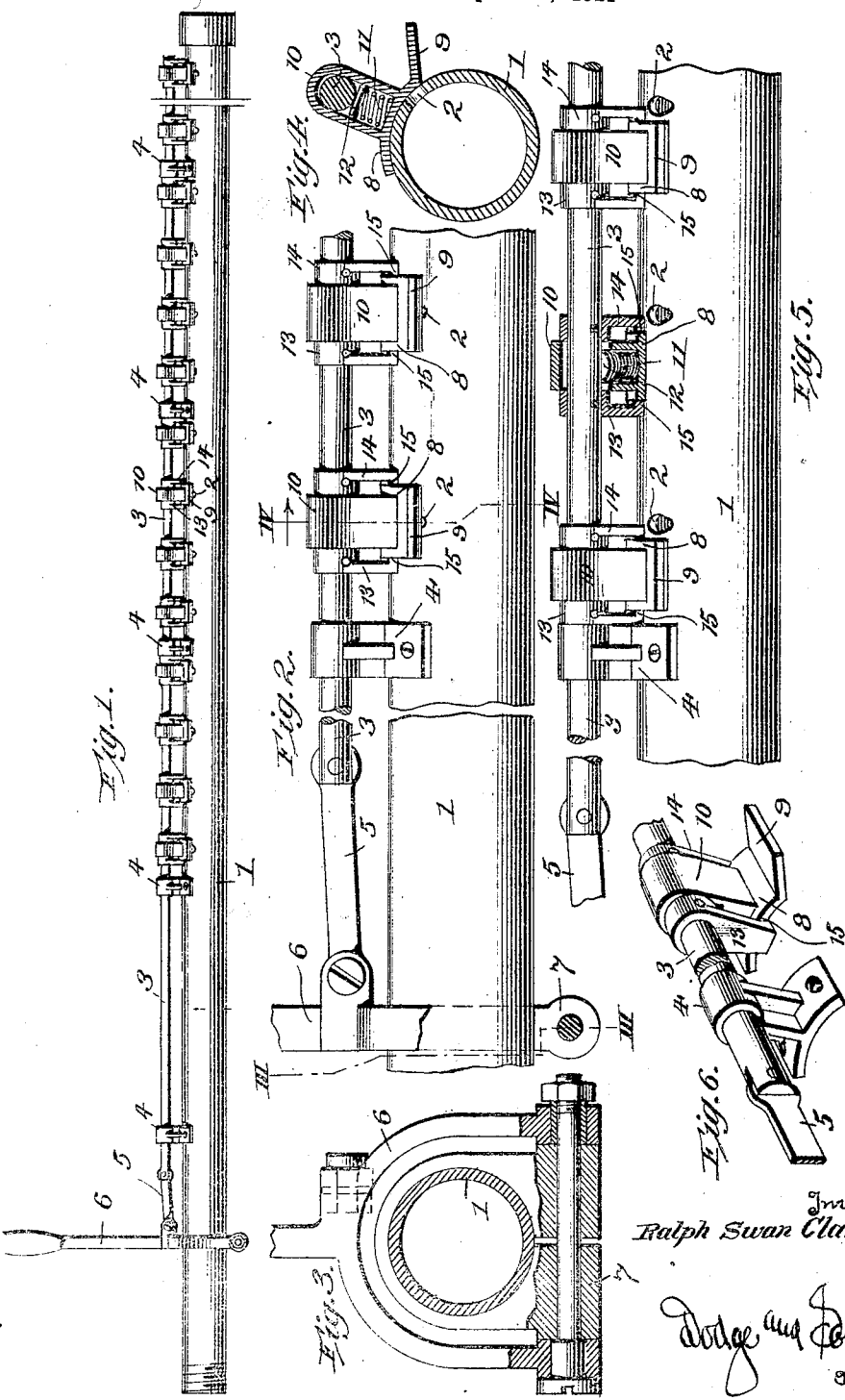


Sept. 8, 1925.

1,552,594

R. S. CLARKE
PAPER MAKING MACHINE
Filed Sept. 30, 1921



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UNITED STATES PATENT OFFICE.

RALPH SWAN CLARKE, OF WALPOLE, MASSACHUSETTS, ASSIGNOR TO BIRD MACHINE COMPANY, A CORPORATION OF MASSACHUSETTS.

PAPER-MAKING MACHINE.

Application filed September 30, 1921. Serial No. 504,415.

To all whom it may concern:

Be it known that I, RALPH S. CLARKE, a citizen of the United States, residing at Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification.

This invention pertains to shower pipes for paper making machines.

The main object of the present invention is to provide a structure wherein the openings through which the spray water passes, may be readily cleansed when for any reason they become clogged in whole or in part, the arrangement being such that a full normal spray may be had throughout the working length of the pipe.

A further object of the invention is to provide means whereby those portions of the openings which are normally closed and abnormally large may be exposed or opened so as to insure a flow of large volume through each and every opening whereby any material which tends to clog such openings is carried out and the opening or openings thus cleansed.

A further object of the invention is to provide means exterior of the pipe to close the abnormally large portion of the openings, such closure devices preferably being formed integral with the deflectors which cause the jets issuing from the restricted portions of the openings to take a fan-shape and thus produce a continuous spray from one end to the other of the pipe.

The invention is shown in the accompanying drawings, wherein,—

Fig. 1 is a side elevation of the spray pipe with movable deflectors mounted thereon;

Fig. 2 a similar view of a portion of the pipe upon an enlarged scale;

Fig. 3 a transverse vertical sectional view on the line III—III of Fig. 2;

Fig. 4 a like view on the line IV—IV of Fig. 2;

Fig. 5 a view similar to Fig. 2 showing the combined deflectors and closures shifted laterally to fully expose the openings, one of said deflectors being shown in section; and

Fig. 6 a detail perspective view of the actuating bar, one of the guides or supports

therefor, and one of the deflectors and its allied parts.

In the drawings, 1 denotes a pipe closed at one end and adapted to be connected at its opposite end to the source of supply of water to be employed in the shower. The pipe is provided with a series of openings 2 (Figs. 4 and 5) which, as will be seen, are oval in form, the smaller end of each opening being designed to be exposed at all times and through which smaller exposed portion the water passes while the machine is in operation to produce the spray. Extending lengthwise of the pipe is a rod 3, mounted for endwise reciprocation in suitable guides 4, the rod at one end having a link 5 secured thereto, the opposite end of the link being attached to an actuating lever 6 fulcrumed upon a bracket 7 secured to the pipe or to a fixed portion of the machine.

Mounted adjacent each of the openings and designed to be moved into operative relation therewith by the rod 3 is a combined closure and deflector. Inasmuch as they are each alike in form a description of one will suffice for all. As will be best seen upon reference to Figs. 4 and 6, the closure element takes the form of an arcuate plate 8 which conforms to the outer face of the pipe and is made sufficiently long to give a fair bearing upon the pipe. It extends forwardly to such an extent that it overlaps the rear larger portion of the opening 2 when it is moved to the position shown in Figs. 1 and 2, leaving the smaller end of the opening exposed, the rear or larger portion being closed off, as best indicated in Fig. 4. Extending outward from the forward portion of the closure element 8 is a deflector plate 9 set at an angle so that the water passing from the smaller end of the opening contacts the same and is spread out so that the conjoint spread jets form in effect a sheet spray from one end of the pipe to the other. It is not necessary, however, that the sprays formed by each opening absolutely merge or join if the pipe is provided with means for endwise reciprocation, as, for instance, as shown in the construction in Letters Patent to Charles S. Bird, No. 1,381,272, dated June 14, 1921. Extending upwardly from the closure element 8 is a yoke or bail shaped member 10 which passes about the rod 3. A spring 11 is seated with-

in the yoke, bearing at its lower end upon the face of the closure element and against a plate or washer 12 interposed between the upper end of the spring and the rod. From this construction it will be seen that the closure element is held in close contact with the surface of the pipe. Secured to the rod to each side of the yoke-shaped member 10 are arms 13 and 14, respectively. The lower ends of these arms, or more specifically the inwardly projecting fingers 15 formed thereon, bear against the sides of the closure elements 8 and consequently as the rod 3 is shifted the various combined closure and deflector plates are likewise moved therewith.

With the parts in the position shown in Fig. 1 the large rear portion of the openings are closed off and the deflectors 9 stand in alinement with the forward restricted portion of the openings 2, and the water passing from such restricted openings contacts the deflectors and is thrown outwardly against the screen or felt in the form of a spray. When it becomes necessary to clean the openings, as they sometimes become clogged with fibers and other foreign matter, it is only necessary that the operator actuate the handle 6 and thus shift the rod 3 longitudinally, whereby the combined cover and deflector elements are moved from the position shown in Figs. 1 and 2 to the position shown in Fig. 5, whereupon the full area of the opening is exposed, allowing the water to surge through the same and carry out any extraneous matter which is lodged in the openings.

The construction is advantageous over those which have heretofore been proposed wherein a cleaner was located within the pipe, such, for instance, as a piston ring carried by a piston and moved back and forth through the pipe with a view of disturbing any material lodged over or in the holes under the deflectors. Such arrangement is satisfactory up to a certain point, but where it is sought to employ white-water or water which has been used in the mill and which has the largest part of fibers removed but still contains a small amount of fiber, filler, etc., it is found that such internal arrangements are not wholly satisfactory. With the present construction, however, such white-water and the like may be readily employed. Furthermore, the present construction is advantageous over an interiorly located cleaner in that it is easier to produce and by reason of the fact that the combined closure and deflector elements are held to the pipe by spring action a practically watertight joint around the edges of the opening which are covered by the closure or heel element 8 is always maintained. As above noted the sudden exposure of the opening causes such a surging of the water through

the openings as will wash out any fiber that adheres to the walls of the smaller portion of the openings.

What is claimed is:—

1. The combination with a pipe having a series of oval-shaped openings therein, of means shiftable longitudinally of the pipe for covering the larger portion of each of said openings.

2. The combination with a pipe having a series of oval-shaped openings therein, of a combined closure and deflector for each opening; and means for positioning such element above each of said openings for closing off the rear larger portion of each opening and positioning the deflector in line with the restricted exposed portion of said opening.

3. In combination with a pipe having a series of openings therein so formed as to be narrower at one portion than at the other; a series of combined deflectors and closures one for each opening, said members being so formed that when positioned respectively with reference to the openings the larger portion of the opening will be closed and the deflector brought into position with reference to the smaller exposed portion; and means for moving said elements longitudinally of the pipe over and away from the larger portions of said openings.

4. In combination with a pipe having a series of substantially oval-shaped openings formed therein; a rod extending along the pipe in spaced relation thereto; means for moving the rod endwise; a combined closure and deflector for each opening, the closure being such as to blank off the larger area of the opening leaving the narrower portion thereof exposed and in line with the deflector; and means carried by the rod for engaging the closure elements to move the same as the rod is moved.

5. In combination with a pipe having a series of openings formed therein; a rod extending lengthwise of the pipe in spaced relation thereto; a combined closure and deflector for each opening; a spring interposed between the rod and the closure element to hold the same to its seat upon the pipe; and means cooperating with the rod to shift the combined closure and deflector as the rod is moved endwise.

6. In combination with a pipe having a plurality of openings formed therein; a rod located to one side of and shiftable longitudinally thereof; and a plurality of combined closure and deflector elements movable with the rod, said closure elements when brought into position with reference to the openings serving to restrict the same and to permit a relatively small jet only to be passed outwardly through the openings into impingement with the deflectors.

7. In combination with a pipe having a

plurality of openings formed therein; a rod
extending along the pipe adjacent said open-
ings in spaced relation to the pipe; means
for shifting the rod longitudinally; a plu-
5 rality of combined closures and deflectors,
one for each opening, said closures when
positioned over the openings closing off the
major portion of the openings and restrict-
ing the same so that a small jet only may
10 pass therefrom into contact with the de-
flectors; and means carried by the rod for
moving the deflectors.

extending lengthwise of the pipe in spaced 15
relation thereto; a series of combined closure
and deflector elements, one for each opening;
a spring for each of said members serving
to hold the closure element seated upon the
pipe; and a pair of arms secured to the rod 20
upon opposite sides of each of the combined
closure and deflector elements and serving,
as the rod is moved endwise to carry the
deflectors to and from position with respect
to the openings. 25

In testimony whereof I have signed my
name to this specification.

RALPH SWAN CLARKE.

8. In combination with a pipe having a
series of jet openings formed therein; a rod