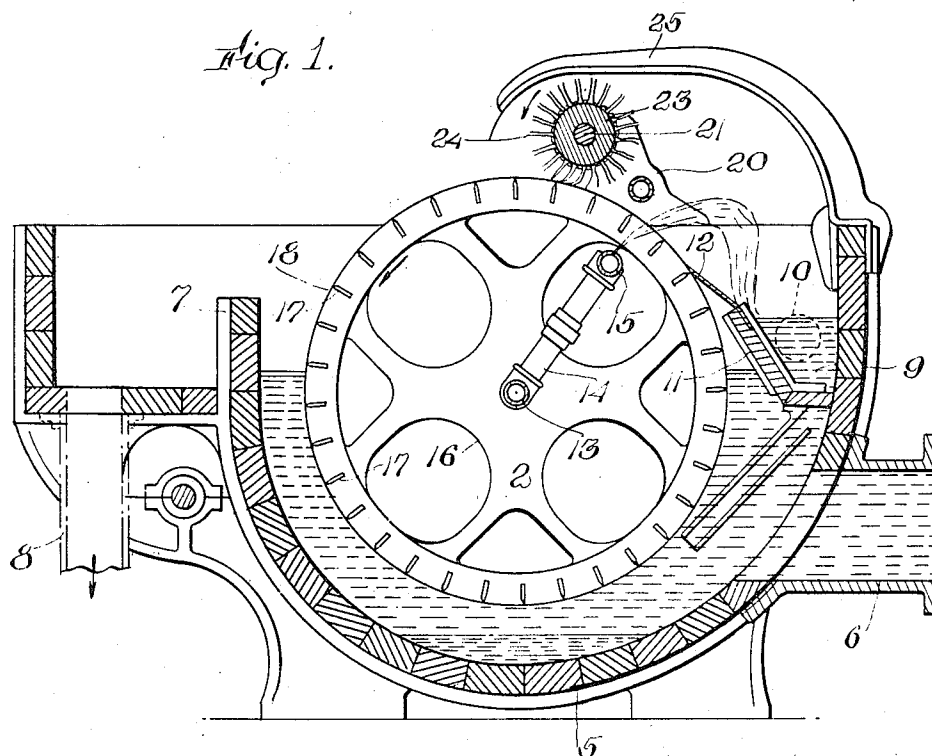
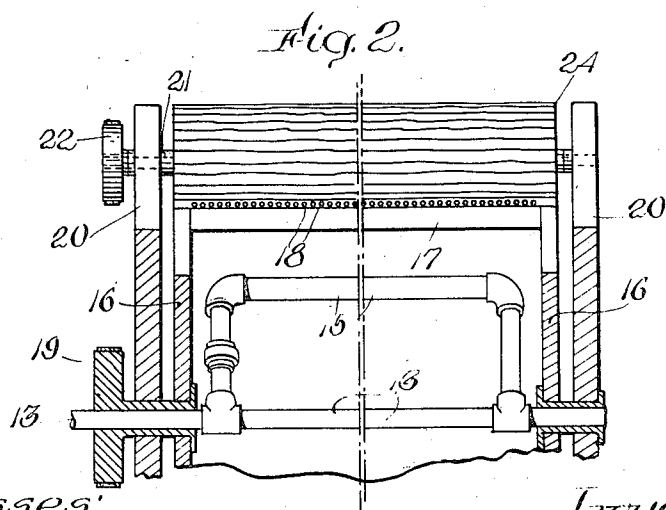


C. S. BIRD.
PULP RECLAIMER.
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UNITED STATES PATENT OFFICE.

CHARLES S. BIRD, OF EAST WALPOLE, MASSACHUSETTS.

PULP-RECLAIMER.

1,151,999.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES S. BIRD, a citizen of the United States, residing at East Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Pulp-Reclaimers, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in machines used to separate paper stock or pulp from water and particularly to that class of such machines known as rotary save alls from the fact that the stock is reclaimed from the water by means of a rotary screen or cylinder from which screen or cylinder the reclaimed pulp or stock is removed to a receptacle from whence it may be pumped back to a paper making machine or to a tank or chest for future use.

One object of this invention is to effect the removal of the pulp or stock from the reclaiming screen or member, whereby said screen or member is kept clean and in condition to accumulate stock, and waste of stock is avoided.

Other objects of the invention will appear from the following description.

The invention consists in subjecting the reclaimed stock on the screen or member to the action of a water spray and subjecting some of the stock thus loosened to mechanical action to forcibly remove the same.

The invention also consists in the combination with the stock reclaiming screen or member of the novel mechanical cleaner.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a vertical sectional view of the improved pulp reclaiming machine or save all. Fig. 2, represents a front elevation of portions of the same to show the relations of the wires of the reclaiming screen with the wiper or mechanical pulp remover.

Similar characters of reference designate corresponding parts throughout.

This invention refers to an improvement in machines of the class described in the U. S. Patent No. 1,012,974, dated December 26, 1911. In that machine the paper stock or pulp is gathered or reclaimed from the water by a rotary screen and such reclaimed stock or pulp is removed from said screen

by means of a water spray which carries the stock or pulp into a compartment of the machine. The machine referred to in said patent has been successful in reclaiming paper stock or pulp of various kinds. In operating to reclaim paper stock or pulp of some kinds however it is found that the screen will sometimes become clogged, to some extent, and that some kinds of stock will not be fully driven outward by the water spray but will be loosened from the screen thereby.

The present invention has for one of its objects the mechanical separation from the screen of the stock or pulp thus loosened.

In carrying this invention into practice in its preferred form, as applied to a rotary screen, I construct the tank 5 of suitable size and shape and having the inlet 6 and the overflow compartment 7 furnished with the outlet 8. In said tank 5 above the inlet 6 is the receptacle 9 having the outlet 10 through which the reclaimed stock, with some water may pass to a pump or to a paper machine. The wall 11 of this receptacle 9 has the inclined blade 12 the purpose of which is to receive the reclaimed stock or pulp and some water and to guide the same into said receptacle 9, that is, in effect, the blade or plate 12 constitutes an extension of wall 11.

Mounted in the walls of the tank 5 is the water supply pipe 13 having the radial pipes 14, 14 carrying the spray pipe or device of any suitable kind. Rotatably mounted relative to said pipe 13 is the screen which, in its preferred form, has the end frames 16, 16 connected at their peripheries by the member 17, 17 which carry the annular wires 18, 18 placed close together to constitute a screen which embraces the water spray apparatus. One of said end frames 16 has the pulley 19 or other means to which power may be supplied to effect the rotation of the screen. Such rotation is in the direction indicated by the arrow of said screen in Fig. 1 of the drawing and the speed of such screen is about eight rotations per minute, more or less.

On the walls of the tank 5 are mounted the brackets 20, 20 in bearings of which is journaled the shaft 21 having the pulley 22, adapted to be driven, and the roll 23 which is preferably of wood and has the series of flexible wiper members 24, 24 extending longitudinally of said shaft 21 and, hence, transversely of the wires 18, 18 of the ro-

tary screen and of a dimension to wipe against said wires. These wipers are preferably made of strips of felt folded along their median lines and nailed to the periphery of the roll 23. I am however aware that such wipers may be mounted in other suitable ways than that herein shown to effect their wiping action against the screen. The wiper roll thus particularly described is driven in the direction indicated by its arrow at the rate of about four hundred rotations per minute, that is to say that this wiper roll is driven at a higher speed than the screen.

Usually it is preferred to provide this machine with the hood 25 to prevent the flying outward from the machine of any water and pulp driven centrifugally by the wiper roll. Said hood is mounted at one end of the tank 5 and its inner surface is curved to drain into the receptacle 9.

In the operation of the machine water carrying the paper stock or pulp to be reclaimed is supplied to the tank 5 through the inlet 6 and fills said tank to about the level indicated in Fig. 1 above which level water may pass into the overflow compartment 7 through an opening 7' in the wall of tank 5 as is usual in machines of this class. During the inflow of said water and stock to tank 5 water under pressure is supplied through pipe 13, and its connections, to the spray pipe 15 and this water is delivered as jets or spray through the spaces between the wires 18, 18 of the rotary screen as is shown in Fig. 1.

The rotary screen and the wiper roll or device are also operated with the result that a large proportion of the paper stock or pulp in the water of tank 5 is accumulated on the periphery of the screen and is carried thereby through the jets of water from the spray pipe 15 which jets drive outward from the screen a large portion of said accumulated or reclaimed stock or pulp to a point at which the water and the stock or pulp may be received in the receptacle 9 or by the inclined blade 12 and drain into said receptacle 9. Such portion of the pulp or stock, carried forward by the rotary screen, as is not thus driven outward by the jets from the spray pipe 15 are loosened by the action of such jets and are mechanically wiped from the screen by the edge portions of the wiper members 24, 24, the action of which wipers is preferably to drive or impel such portions of stock or pulp to points from which they may fall into or be received ultimately by the receptacle 9.

The flexible wipers 24, 24 of the preferred form described, accomplish more than the mere wiping of the stock or pulp from the screen. From the flexibility of their con-

struction or material they will, during the greater part of the rotation of roll 23 assume approximately radial extensions from said roll so that when they are brought into contact with the screen such contact of the several wipers will be in the nature of a series of impacts or blows on the wires 18, 18 whereby said wires are caused to vibrate to further assist the loosening of the stock or pulp therefrom.

In actual practice I find that the wiper elements 24, 24 when made of flexible fabric and preferably of felt do not quickly wear out and do not wear the wires 18, 18 or tend to loosen said wires from their supports. While I have also made use of rotary wipers having bristles or wires I find that the wipers 24, 24 are to be preferred for several reasons and notably because the wipers cannot enter between the wires 18, 18, because the edges of the wipers 24, 24 may drag over the surface of the screen and gather stock therefrom and because of the vibration of said wires under the impact of said wipers. It is however to be understood that in some machines of this general nature or for operation on some kinds of material wipers or cleaners of other kinds than that herein referred to may be used without necessarily departing from the spirit of my present invention.

Having thus described my invention I claim as new and desire to secure by Letters Patent.

1. A pulp reclaimer comprising a rotary screen, a rotary wiper device having a wiper element constituted by a strip of felt having a free edge adapted to act against said screen, and means located within said screen to direct water outward.

2. A pulp reclaimer comprising a tank having an inlet and a receptacle for reclaimed pulp, a screen mounted to rotate within said tank, means to direct water from within said screen radially through said screen, and a rotary wiper device mounted adjacent said screen and having a series of flexible elements adapted in the rotation of said device to strike in succession against said screen.

3. A pulp reclaimer comprising a tank having an inlet and a receptacle for reclaimed pulp, a cylindrical screen mounted to rotate in said tank, means to direct water through said screen toward said receptacle, a roll rotatably mounted adjacent said screen and having a series of strips of felt extending lengthwise of said screen and of a width to strike against said screen.

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