

A. HERMANN.
 DEVICE FOR MAKING PLATES OF ARTIFICIAL STONE.
 APPLICATION FILED FEB. 25, 1910.

1,014,221.

Patented Jan. 9, 1912.

3 SHEETS-SHEET 1.

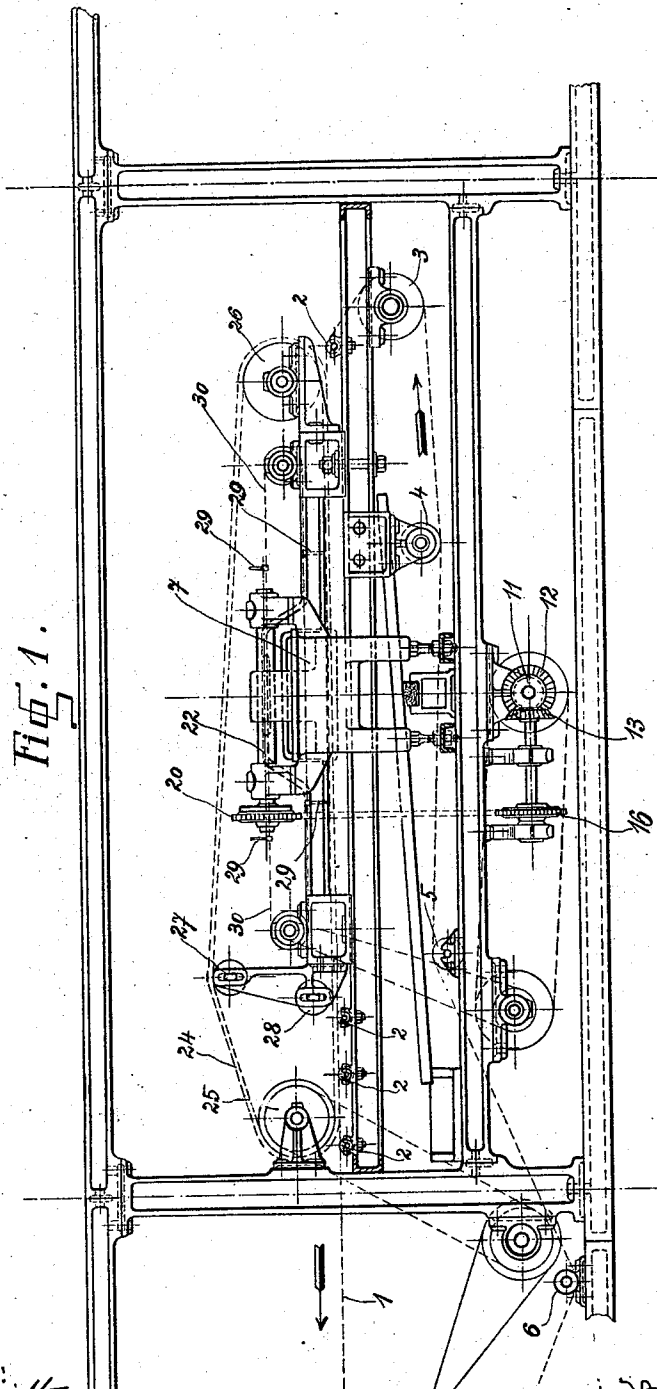


FIG. 1.

Witnesses:
Albert Hamilton
M. Hamilton

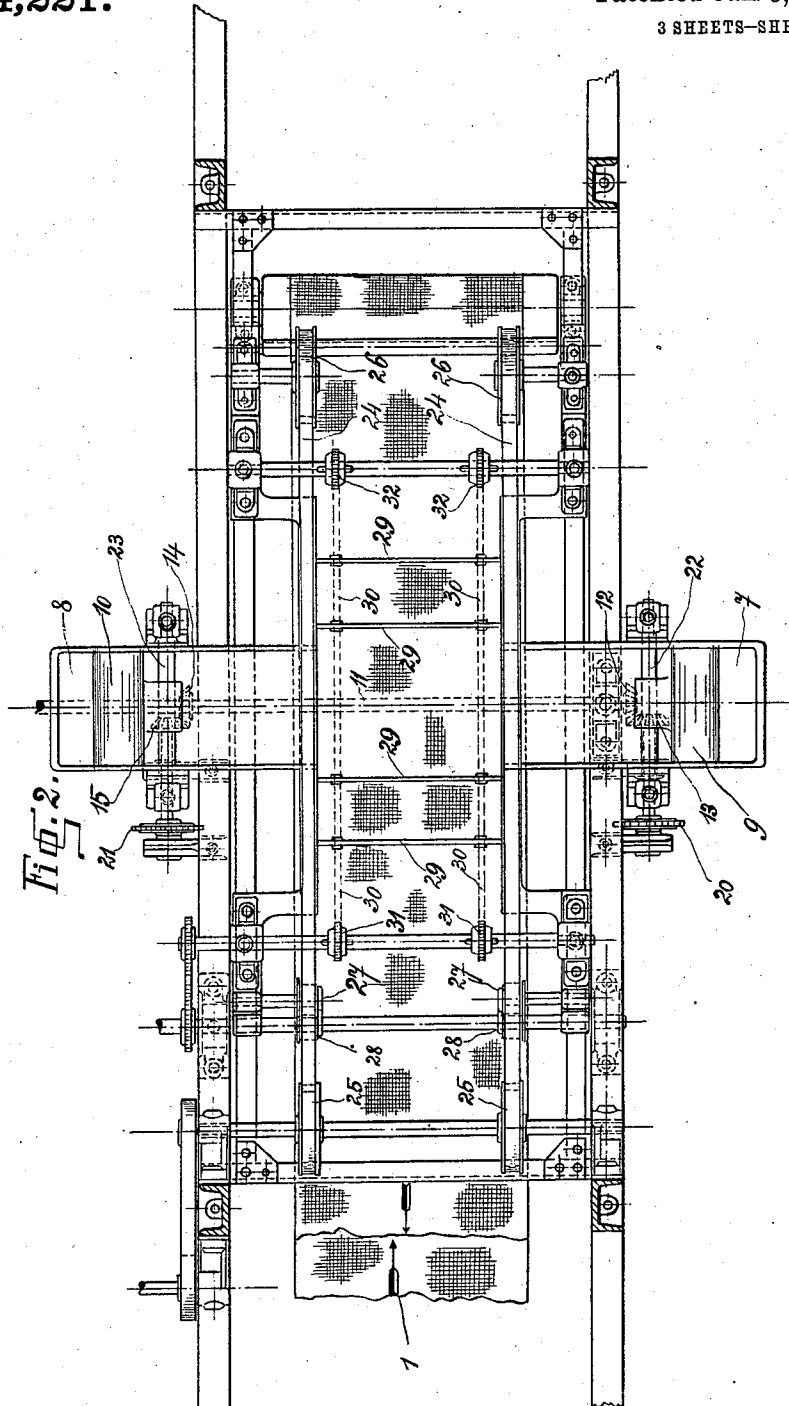
Adalbert Hermann
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3 SHEETS—SHEET 3.

Fig. 3.

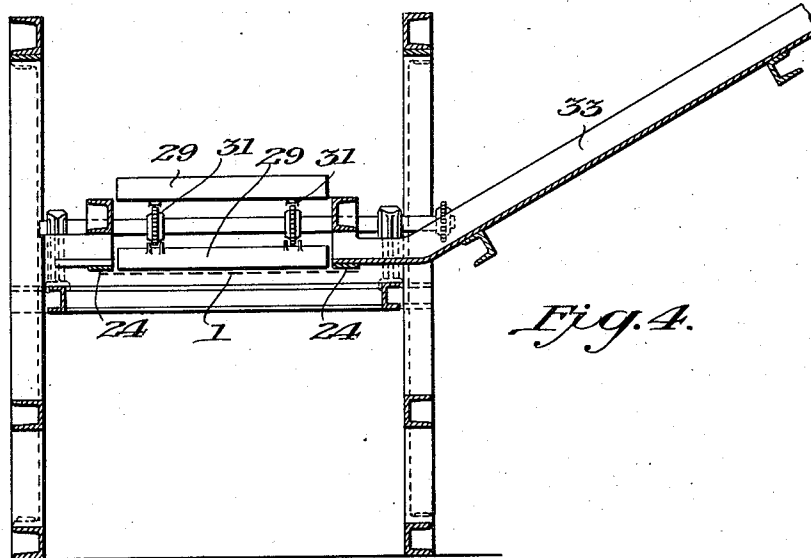
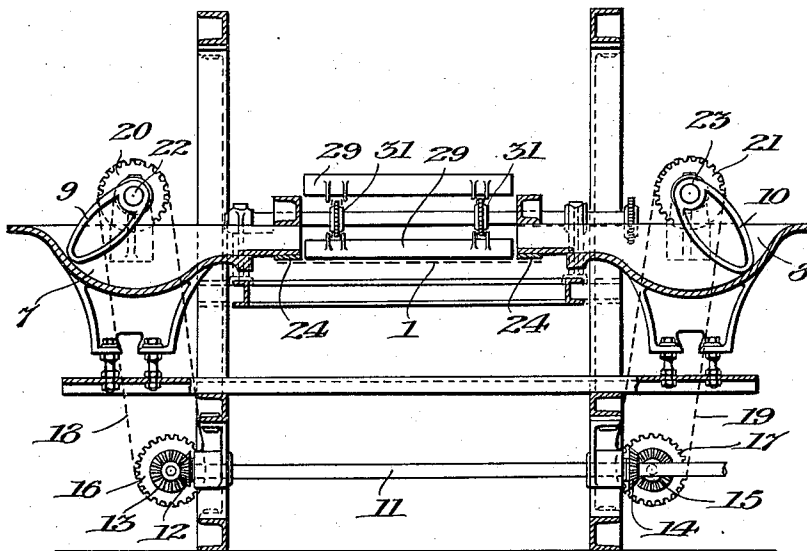


Fig. 4.

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UNITED STATES PATENT OFFICE.

ADALBERT HERMANN, OF VIENNA, AUSTRIA-HUNGARY.

DEVICE FOR MAKING PLATES OF ARTIFICIAL STONE.

1,014,221.

Specification of Letters Patent.

Patented Jan. 9, 1912.

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To all whom it may concern:

Be it known that I, ADALBERT HERMANN, subject of the Empire of Austria-Hungary, residing at IX Liechtensteinstrasse 107, Vienna, Austria-Hungary, have invented certain new and useful improvements in devices for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the sieve of a machine for making plates of artificial stone from this pulp, of which the following is a specification.

The invention relates to a device for feeding a pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively moved sieve of a machine for making plates of artificial-stone from this pulp.

The known methods of making plates from fibers and a hydraulic binding medium, by placing an aqueous mixture of these materials on a sieve, have the drawback that, when placed on the moving sieve, the fibers are displaced in the direction of movement, so that the resulting plates vary in strength in the different directions. In order to prevent this straightening of the fibers special measures are necessary, such for instance as placing the artificial-stone mass on the sieve while the latter is momentarily at rest.

The subject of the invention is a feeding device of a machine for making plates from a pulp prepared from fibers and hydraulic binding media or other filling materials, which feeding device prevents the straightening of the fibers in a simpler and more complete manner than hitherto possible, and without entailing the interruption of the progressive movement of the sieve. The pulp is introduced from the side in a direction transverse to that in which the sieve is moving and is spread over a more or less extensive surface on the sieve, the resultant of the transverse and longitudinal movements imparted to the pulp causing a stirring effect which precludes the straightening of the fibers. This effect may be still further increased by a special mode of execution of the feeding device, whereby two streams of pulp, from two opposite places are forced at the same time, over a more or less extensive surface of the progressively moving sieve, and in a direction trans-

verse to that of the movement of the latter, which streams impinge on one another in the center of the sieve, and whirl the fibers up together, the result being a complete felting of the fibers which lie in all directions.

The feeding of the pulp in the transverse direction on to the progressively moving sieve may be effected continuously, or periodically or intermittently on succeeding portions of the sieve surface. It is here advisable to select for feeding to a given surface of the sieve a larger quantity of pulp than is needed for producing a stratum of the desired thickness. For, as soon as the pulp is brought on to the sieve, the comparatively large content of specifically heavy dry substances at once causes deposition of the latter, so that the water contained in the pulp rises and is carried off by the surplus draining from the sieve, thus producing a very considerable dehydration of the plates formed at that place. In this way the larger portion of the waste water is returned to the tank from which the apparatus is supplied, whereas in the known process in the paper machine, 20-30% of the raw material is known to be lost in the waste water draining away through the meshes of the sieve.

A mode of execution of the feeding device is shown in the accompanying drawings, in which—

Figure 1 is an elevation, Fig. 2 a plan, and Fig. 3 a cross section. Fig. 4 shows another mode of execution in a cross section.

1 indicates the endless sieve, guided over cylinders 2, 3, 4, 5, 6 (Fig. 1) and moved in the direction shown by the arrows. On one side of the sieve is arranged a pulp receptacle or trough 7 and directly opposite the latter on the other side of the sieve is provided a similar trough 8. The troughs 7, 8 are provided with vanes 9, 10, respectively, which turn in the direction of the arrows shown in Fig. 3. These vanes 9, 10 are driven from a shaft 11, the vane 9 being driven through the medium of a train of gearing comprising the toothed wheels 12, 13, the chain wheel 16, the chain 18 and the chain wheel 20, the latter being mounted fast upon the shaft 22 of the vane 9; while the vane 10 is driven through the medium of a train of gearing comprising the toothed

wheels 14, 15, the chain wheel 17, the chain 19 and the chain wheel 21, the latter being mounted fast upon the shaft 23 of the vane 10. The pulp troughs are filled with the pulp and the vanes 9 and 10 moving symmetrically with regard to each other act as propelling members for feeding the pulp on the progressively moved sieve 1.

In order to retain a layer of certain thickness upon the sieve there is arranged on each longitudinal edge of the sieve a belt 24 of corresponding thickness. These belts 24 are endless ones, run over rollers 25 and 26 and are kept stretched by rollers 27 and 28.

In order to facilitate the uniform distribution of the pulp on the sieve and increase the vertical movement, the sieve is divided into fields by cross strips 29. These strips 29 are preferably carried by endless belts or chains 30, which run over the disks 31, 32. Both the belts 24 and the cross strips 29 are moved at the same velocity and in the same direction as the sieve.

In consequence of the intermittent propulsion of the pulp out of the troughs 7 and 8 by means of the vanes 9 and 10, an excess of pulp is fed to the moving sieve and is distributed over the field that is momentarily between the two troughs. The mutual impact of the two streams of pulp in the center of the sieve, and their impact against the strips bounding the field, produce, the intermingling of the pulp that constitutes the chief advantage of the feeding device described. The pulp settles down quickly and the surplus overflowing the longitudinal belts 24 back into the troughs 7 and 8 carries off the water ascending from the plate remaining on the sieve. Of course there only remains on the sieve a plate which at most is of the same height as the longitudinal belt 24.

It is evident that the ratio between the velocity of the sieve and the peripheral velocity of the propelling devices 9 and 10 must be arranged so that in the time during which two successive cross strips 29 pass in front of the troughs 7 and 8, the pulp can be fed on to the sieve and the surplus can overflow back into the troughs. To assist in the uniform distribution of the pulp on the sieve, a shaking motion may be imparted to the latter.

Since the cross strips 29 leave the sieve at the rear of the troughs 7 and 8, the edges of the successive plates come into contact, and during the further stages of the process these plates will unite to a single long strip which can be treated further in the usual manner.

Of course the constructional arrangement of the device may be modified in many ways within the scope of the principle disclosed, and in particular the propelling members

for conveying the pulp transversely on to the sieve, may be shaped differently, such as paddle wheels, non-circular disks, etc. The feeding of the pulp might also be effected under pressure. It is obvious that the feeding may also be effected continuously in transverse direction on to the sieve for instance by means of inclined channels as it is shown in Fig. 4 in cross section. In this construction there is arranged only one channel 33, whereby it should be illustrated that in some cases the crosswise feeding only from one side may be sufficient. Of course the same holds good with regard to the other feeding constructions as for instance in the device shown in Figs. 1, 2 and 3. Also either of the troughs 7 or 8 with its vane 9 or 10 might be left out.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for making plates from this pulp the combination of the sieve with means for feeding the pulp over the top surface of the sieve transversely to the direction of movement thereof for the purpose described.

2. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for making plates from this pulp the combination of the sieve with means for feeding the pulp simultaneously from opposite sides over the top surface of the sieve transversely to the direction of movement thereof for the purpose described.

3. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for making plates from this pulp the combination of the sieve with means for periodically feeding the pulp over the top surface of the sieve transversely to the direction of movement thereof for the purpose described.

4. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for making plates from this pulp the combination of the sieve with means for periodically feeding the pulp simultaneously from opposite sides over the top surface of the sieve transversely to the direction of movement thereof for the purpose described.

5. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for

making plates from this pulp the combination of the sieve with a pulp receptacle laterally disposed with respect to the sieve and displacing or propelling members acting within the said pulp receptacle for feeding the pulp on to the top of the sieve transversely to the direction of movement of the sieve, substantially as and for the purpose described.

6. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pulp receptacle laterally disposed with respect to the sieve and displacing or propelling members acting within the said pulp receptacle for feeding the pulp on to the top of the sieve transversely to the direction of movement of the sieve, this latter being divided into fields by strips arranged along the edges of and transversely to the sieve substantially as and for the purpose described.

7. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pulp receptacle laterally disposed with respect to the sieve and displacing or propelling members acting within the said pulp receptacle for feeding an excess of the pulp on to the sieve transversely to the direction of movement of the sieve, this latter being divided into fields by strips arranged along the edges of and transversely to the sieve, substantially as and for the purpose described.

8. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pulp receptacle laterally disposed with respect to the sieve and displacing or propelling members acting within the said pulp receptacle for feeding the pulp on to the sieve transversely to the direction of movement of the sieve, and endless belts, arranged close to the longitudinal edges of the sieve and driven at the same velocity as the sieve, and cross strips carried in suitable intervals by endless belts or chains and moved at the same velocity as the sieve, this latter being divided by the first named belts and by the said cross strips into fields which are successively fed with the pulp, substantially as and for the purpose described.

9. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for

making plates from this pulp, the combination of the sieve with a pulp channel laterally disposed with respect to the sieve for feeding the pulp on to the top of the sieve transversely to the direction of movement of the sieve, substantially as and for the purpose described.

10. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively moved sieve of a machine for making plates from this pulp the combination of the sieve with a pulp channel laterally disposed with respect to the sieve this latter being divided into fields by strips arranged along the edges of and transversely to the sieve, substantially as and for the purpose described.

11. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling materials over the progressively lengthwise moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pair of pulp receptacles disposed on opposite sides thereof; and displacing or propelling members acting within said receptacles for feeding the pulp onto the top of the sieve transversely to the direction of movement of the same.

12. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling material over the progressively moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pair of pulp receptacles disposed on opposite sides thereof; and displacing or propelling members acting within said receptacles for feeding the pulp onto the sieve transversely to the direction of movement of the latter, which is divided into fields by strips arranged along the edges thereof and transversely thereto.

13. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling material over the progressively moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pair of pulp receptacles disposed on opposite sides thereof; and displacing or propelling members acting within said receptacles for feeding an excess of the pulp onto the sieve transversely of the direction of movement of the same, which is divided into fields by strips arranged along the edges of and transversely to the sieve.

14. In a device for feeding pulp prepared from fibers and hydraulic binding media or other filling material over the progressively moved sieve of a machine for making plates from this pulp, the combination of the sieve with a pair of pulp receptacles disposed on opposite sides thereof; displacing or propelling members acting within said receptacles for feeding the pulp onto the sieve

transversely to the direction of movement
thereof; endless belts arranged along the
longitudinal edges of, and driven at the
same velocity as, the sieve; and cross-strips
5 carried by endless belts and moved at the
same velocity as the sieve, said strips being
separated by suitable intervals and the sieve

being divided by belts and cross-strips into
fields to which the pulp is fed in succession.

ADALBERT HERMANN.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
