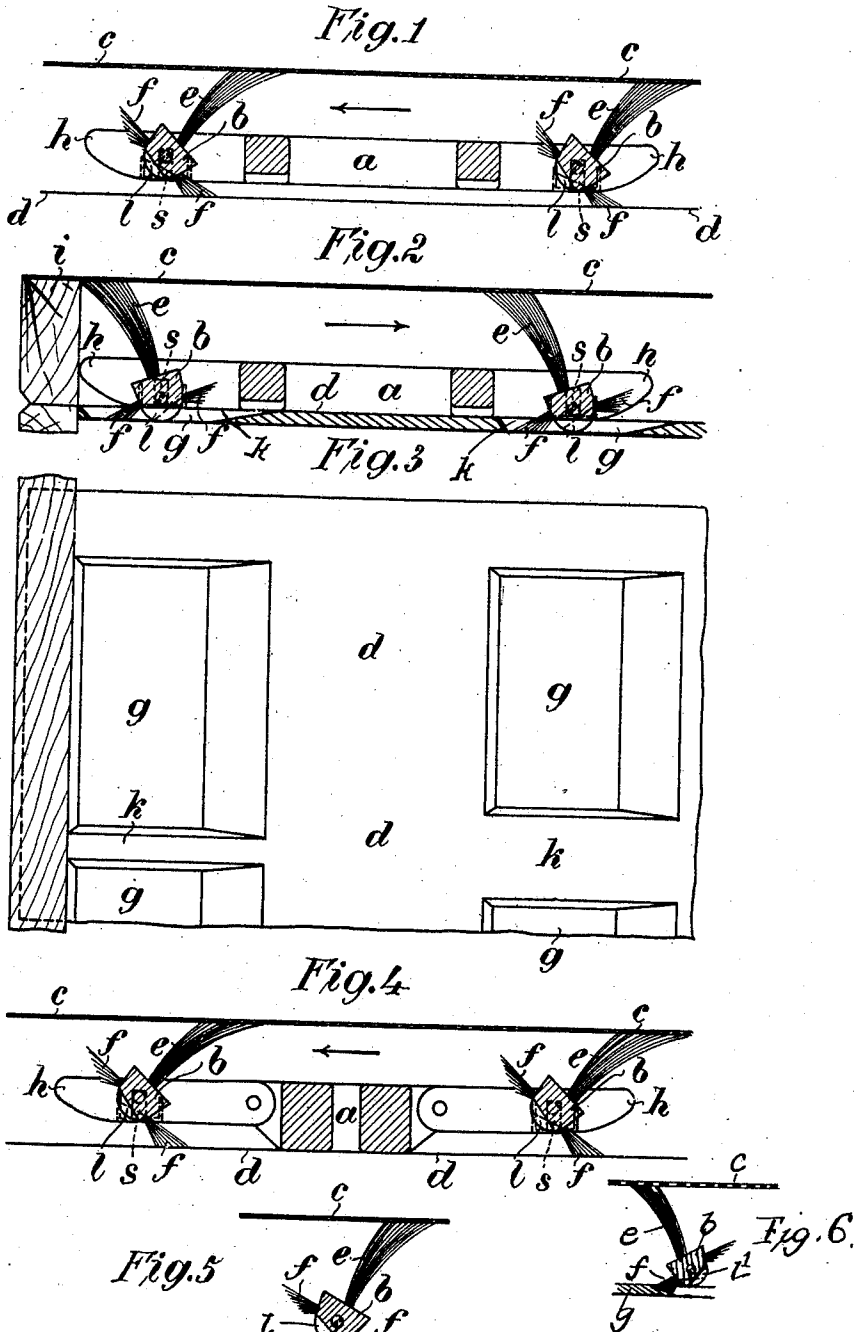


E. ROTH.
SLIDING BRUSH FOR PLAN SIFTERS.
APPLICATION FILED SEPT. 8, 1910.

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Patented Nov. 22, 1910.



WITNESSES

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To all whom it may concern:

Be it known that I, ERNST ROTH, a citizen of the Swiss Republic, and residing at Niederutzwil, Switzerland, have invented new and useful Improvements in Sliding Brushes for Plan Sifters, of which the following is a specification.

The present invention relates to improvements in sliding brushes for plan sifters, in which the brush is adapted to travel over the surface of the sieve and to open the holes and meshes which may become stopped up during action, as the efficiency of the sifter is chiefly dependent on the holes and meshes being kept free and open. A large number of appliances have hitherto been constructed and used for this purpose. The most efficient brush however is one adapted to slide to and fro, as this motion brushes the gauze of the sieve in two opposite directions. The movement in question is effected by providing the bearings of the frame of the brush with special stop-catches and teeth, in which, on account of the rocking movement of the sieve, the advance of the brush takes place in a certain direction, until at the end of the movement the appliance is suitably reversed and the brush actuated in the opposite direction. Such known appliances have however proved unreliable in action. Attempts have been made to remove the disadvantages attending the use of these appliances by avoiding special reversing devices and substituting a double row of bristles on the brush in such a manner that the bristles of one row bear against the sieve while those of the other row bear against the bottom, the advance movement being effected by the bristles themselves in consequence of the manner in which they bear against sieve and bottom on one side, the movement in the other direction remaining free. These brushes have the disadvantage that the comparatively rapid wear of the ends of the bristles soon decreases their cleaning action on the sieve gauze and finally renders it altogether inoperative, so that the brushes must then of course be renewed. If on the other hand comparatively long bristles are used they are forced out too far laterally, the tension occasioned thereby giving rise to excessive friction on the friction surfaces, and furthermore the speed in the motion of the brushes is also decreased. This is a great disadvantage. These disadvantages

are obviated in the present invention by arranging the brushes in a frame in such a manner that they can perform a rotary motion on pivots, that is, they are pivotally mounted in the frame, three rows of bristles being provided, the longer bristles of one row brushing against the gauze of the sifter, thus serving to keep the sieve properly clean, whereas the shorter, stouter and stiffer bristles of the other two rows carry the weight of the brushes and also, wholly or in part that of the frame, as they bear alternately against the bottom of the machine, so that neither the frame itself nor yet the bristle-holders come into contact with the bottom but slide between it and the sieve, being carried, as already explained, by the stiffness of the bristles. For this reason two rows of stiff bristles are arranged laterally right and left of the third row of longer bristles of the sieve in two opposite directions. The combined use of short, stiff bristles with the longer and softer bristles which keep the sieve open, has the following advantages:—In the first place the advance movement of the brushes takes place with great reliability and in one and the same direction without bending the bristles too far outward and thus hindering the action of the brushes; for as soon as the brush tends to move backward, the bristles (which are located to one another at an angle of about ninety degrees) press together at once, leaving the brush however free to move lightly and easily in the forward direction and imparting to it a rapid motion. In the second place the weight of the frame of the brushes as well as the brushes themselves impart to the latter a tendency to revolve, so that the longer bristles which serve to keep the sieve clean exercise a constant pressure against the sieve, even though they should in time show signs of wear. The action of the bristles pressing against the sieve always remains constant as the brush moves first in one and then in the opposite direction. To effect the reverse at the end of each movement and the beginning of the return movement, any suitable means may be employed. Furthermore, instead of short, stiff bristles any other suitable material may be used, for instance leather, cloth, wood, celluloid, etc.

The accompanying drawings show the invention in two forms of construction.

Figure 1 is a section through the plan

sifting machine and sliding brush, the latter being shown in a central position, the direction of movement being indicated by the arrow. Fig. 2 is a section through the machine and brush at the moment when the latter has reached the end of one movement and is beginning the return movement in the opposite direction. Fig. 3 shows the bottom of the machine which appears in Fig. 2, in plan. Fig. 4 is a section through the machine and brushes, a different type of frame being here employed. Fig. 5 is a section through a sliding brush at the moment in which the lower edge of the bevel —*l*— comes into contact with the rib —*k*—. Fig. 6 is a view similar to Fig. 5 but showing the brush at the other end of the machine.

In the drawings the two brushes —*b*— are pivotally arranged in slots in the frame or brush-holder —*a*—. Each of these brushes is fitted with two lateral rows of bristles —*f*— which bear against the bottom —*d*— of the machine, and a third row of longer bristles —*e*— which bear against the gauze —*c*— of the sifter. Two sides of the frame which carries the bristles are provided with bumpers —*h*— which strike against the sides —*i*— of the apparatus at the end of the movement.

In the bottom of the sifter are recesses —*g*— into which the brushes —*f*— slide at the end of the movement. These recesses are interrupted in the center by a rib —*k*— which is of the same height as the bottom of the sieve frame. An oblique groove —*l*— in the brushes —*b*— corresponds to and is arranged to engage with this rib, thus serving to turn the brushes and start them on their return movement.

Fig. 5 shows how the lower edge of the oblique surface comes into contact with the rib —*k*— and imparts a tendency to revolve to the brush by the weight resting on the edge which turns the brushes at the end of their movement. The inclination of this oblique groove is so proportioned that the row of bristles —*f*—, which, till the reversal of the direction of motion of the frame of the brush, did not come into contact with the bottom of the sifter, cannot now fail to be pressed against the bottom.

The action of the brush-device is as follows:—The long bristles —*e*— bear obliquely against the gauze of the sifter, and the bristles of the row —*f*— obliquely against the bottom of the sieve. The rocking motion of the machine causes the frame and brushes to slide in the direction opposite to the inclination of the bristles. The possibility of the contrary movement is excluded in consequence of the points of the bristles pressing against the sifter and the bottom. On reaching the end of the frame the bristles —*f*— enter the recess —*g*—. The

oblique groove —*l*— of the brush falls upon the rib —*k*—, this action serving to turn or reverse the brush on the pivots. Furthermore the pivots of the brushes are arranged in slots —*s*— which permit an automatic adjustment of the height of the brushes in their end position. The long bristles pass from the first oblique position into the second, and are then inclined in the opposite direction. Those of the shorter bristles which were idle in the former movement now come into contact with the sifting bottom of the machine and in its new position the brush bears against the gauze and bottom in the opposite direction. The rocking movement now causes the bumpers —*h*— of the frame to strike against the side of the sifter —*i*— whereupon the return movement begins in the opposite direction. At the end of this return movement the former action recommences. As will be understood the other end of the machine is provided with slots —*g*— and ribs —*k*— and the brushes have other slots —*l'*— inclined in an opposite direction to the slots —*l*—, as shown in Fig. 6, so that the brushes are reversed at the opposite end of the machine. The reversal of the brushes may be effected by means of any other suitable arrangement, such for instance as stops or the like.

Fig. 4 is a form of construction of the frame of the sliding brush designed to throw only the weight of the brushes and a part of the frame on to the bristles —*f*— by connecting the brushes and the lateral parts of the frame loosely to the middle part of the frame.

What I claim is:—

1. Sliding brushes for plan sifting machines comprising a movable frame, rocking brushes pivoted in said frame, said brushes having two lateral rows of bristles for bearing against the bottom of the sifter and a top row of longer bristles bearing against the top of the sifter, means for automatically rocking the brushes at the ends of the movement of the frame to bring one or the other of the lateral rows of bristles into contact with the bottom.

2. Sliding brushes for plan sifting machines comprising a movable frame, rocking brushes mounted in said frame and having two lateral rows of bristles and a top row, one or the other of the lateral rows and the top row being in contact with the sifter, said sifter having openings in its bottom near each end and a rib between the openings, and each of said bristles having an oblique groove therein adapted to engage with the rib to rock the brush to throw the other lateral rows of bristles against the bottom.

3. Sliding brushes for plan sifting machines comprising a movable frame having slots in its sides, rocking brushes having

their ends journaled in said slots so as to permit vertical movement of the brushes and means for rocking the brushes at the ends of the movement of the frame.

- 5 4. Sliding brushes for plan sifting machines comprising a movable frame having lateral extensions pivoted thereto, rocking brushes in said extensions, the bristles of the brushes extending to the top and bot-

tom of the sifter and supporting the brushes 10 and extensions.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ERNST ROTH.

Witnesses:

CARL SUBLER,
AUGUST RUEGG.