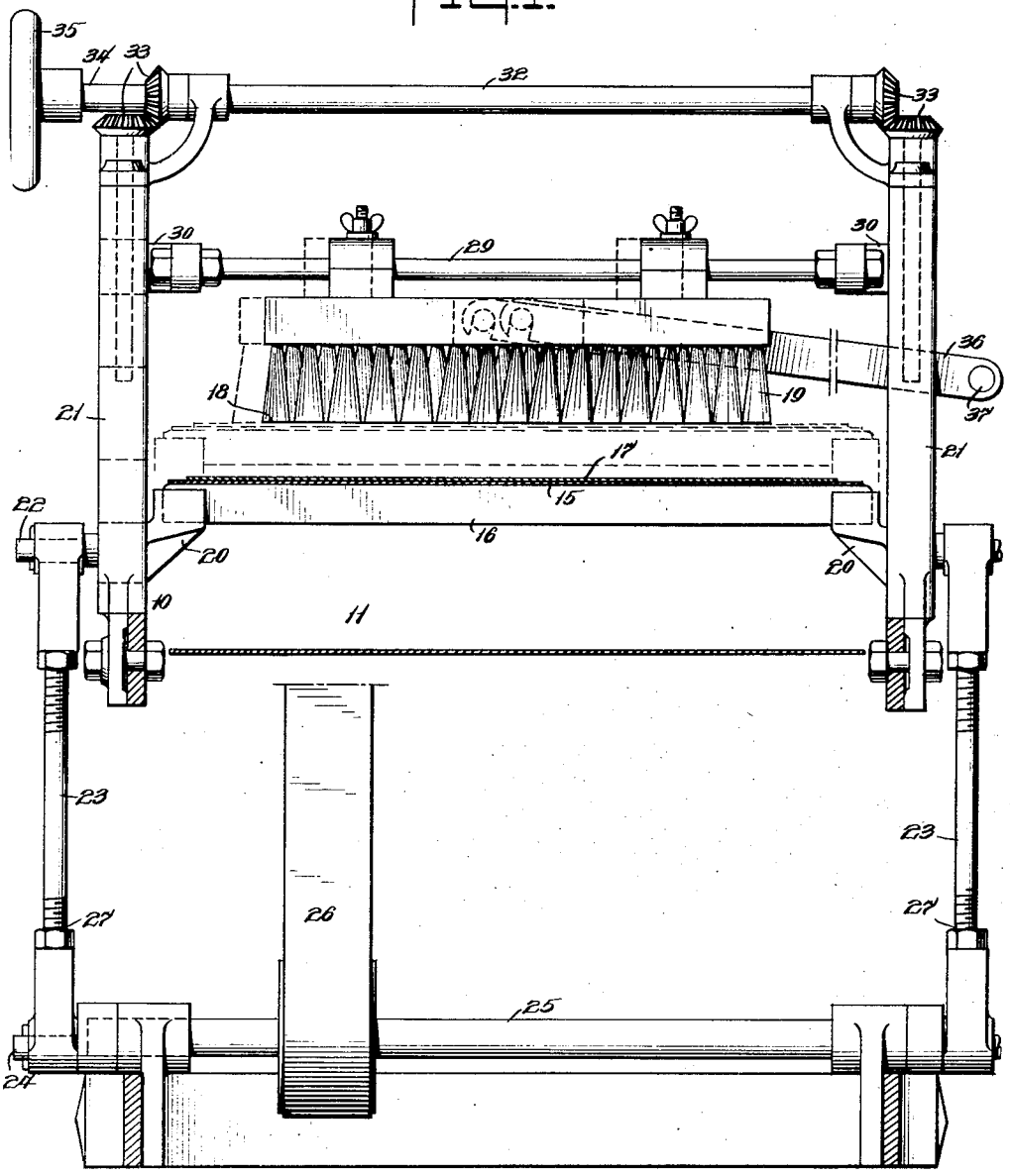
March 17, 1925. 1,529,753

J. F. STACHOWSKI

STIPPLING MACHINE

Original Filed Nov. 11, 1920 2 Sheets-Sheet 1

Fig. 1.



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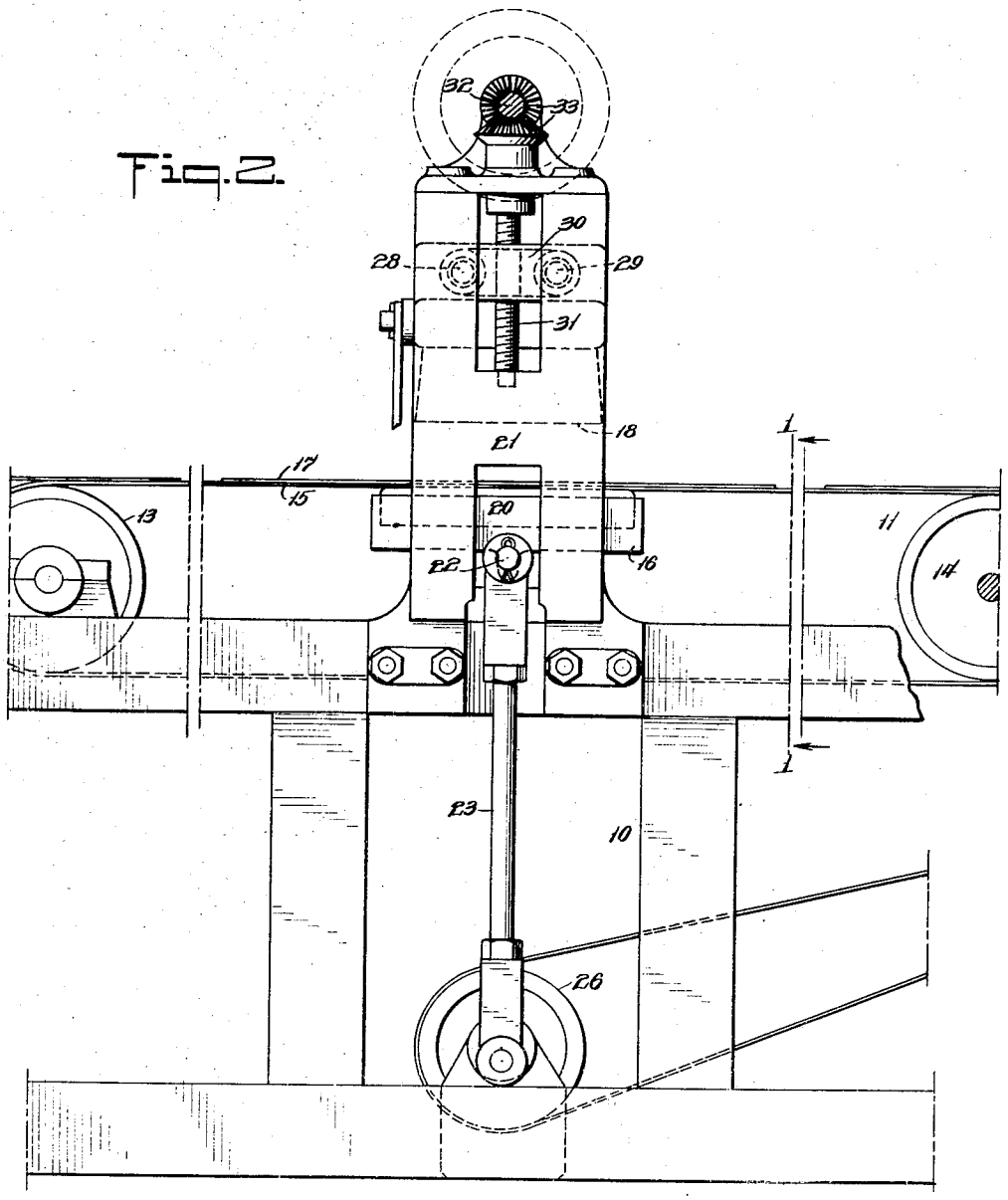
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Fig. 2.



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UNITED STATES PATENT OFFICE.

JOSEPH F. STACHOWSKI, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES G. HAMPSON, OF NEW YORK, N. Y.

STIPPLING MACHINE.

Application filed November 11, 1920, Serial No. 423,266. Renewed July 23, 1924.

To all whom it may concern:

Be it known that I, JOSEPH F. STACHOWSKI, a citizen of the Republic of Germany, and resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Stippling Machines, of which the following is a specification.

The invention relates to a paper stippling or similar treating machine of the type in which the paper is advanced either in sheets or continuous strips along a work path by an endless carrier and stippled or otherwise treated by means of a brush or other implement momentarily contacting with the treated side of the travelling paper.

It has been known in the art to cause a stippling brush to move bodily into contact with the paper and then to move in some direction in the plane of the paper so as to form the desired stippled effect. This known manner of treating the paper was not entirely satisfactory, among other reasons, due to the fact that the vertical movement of the rather heavy brush used set up a vibration of the machine as a whole which seriously detracted from the design which was desired to be impressed on the paper. Aside from this the machine was noisy and unless extreme care was taken in setting the relative movement of the several parts the paper was apt to tear. When this defect was attempted to be corrected by using heavier machinery the cost became prohibitive. Among numerous other objections to the known form of machine it may be mentioned that the stippled lines formed on the paper were necessarily of some material length and the construction did not admit of the ready formation of the desired short stippled line.

Accordingly, the primary object of the present improvement in such machines is to provide a simple form of paper stippling or machine in which the objections to the former forms of such machines are avoided, and by means of which a quick short stroke is made on the paper without setting up vibratory or other foreign actions in the machine.

Still another object of the invention is to provide a simplified form of device of the class outlined which will feature economy in operating power and in which the massiveness and weight of parts to be moved have been reduced as far as possible and in which the distances traversed by the moving parts have been minimized, and in general, mechanical parts are to be simplified to permit ready removal for substitution or repair.

Still another object of the invention is to provide a simplified form of adjusting means for compensating for the wearing away of the stippling brush or other tool used and otherwise to provide simplified means for adjusting the intensity of contact between the stippling tool and the paper or other fabric to be treated.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawings and in part will be more fully set forth in the following particular description of one form of mechanism embodying my invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

Referring to the accompanying drawings:—

Figure 1 is a transverse sectional view through a conventional form of paper stippling machine modified to accommodate a preferred embodiment of my invention and taken on the line 1—1 of Figure 2 looking in the direction indicated by the arrow; and

Figure 2 is a side view of the part of the machine shown in Figure 1 and with portions broken away to save space.

In the following description it will be understood that the device disclosed resembles in general construction a conventional form of machine and that all parts of the machine not necessary to illustrate the present invention have been omitted.

In the drawings there is shown in general a relatively long supporting frame 10 provided with an endless carrier 11 trained about end drums 13 and 14 and preferably in the form of a rubber or other pliable and flexible material belt. The upper run 15 of the belt is caused to pass over a vertically movable table 16 disposed at the approximate center of the machine. The table is designed to be reciprocated vertically for a relatively small distance so as to move the coated paper 17 disposed on the belt into engagement with the underside or working

face 18 of a stippling brush 19 hereinafter more fully described.

For the purpose of reciprocating this table in its vertical movements it is shown mounted at opposite ends in brackets 20 slidably mounted in upstanding guiding frames 21 positioned at opposite sides of the belt. Each of the brackets is provided with an outwardly extending pin 22 connected by means of a crank rod 23 with a crank 24 disposed below and to the outside of the table. The cranks 24 are positioned on the ends of a transversely disposed power shaft 25 mounted in the frame of the machine directly below the table. The power shaft 25 is driven from some suitable source of power by means of a pulley and belt connection 26. Each of the crank rods are adjustable in length so as to regulate the travel at opposite ends of the table and for this purpose each of the rods includes a turn-buckle 27

The brush 19 is carried on a pair of transversely disposed guide rods 28 and 29 mounted at opposite ends in brackets 30 which are designed to be movable vertically on the supports 21 so as to advance the working surface 18 of the brush to and from the normal plane of travel of the upper run 15 of the belt and in this way compensate for the wearing away of the bristles and to vary the intensity of engagement between the elevated paper and the brush. The brackets 30 are moved simultaneously so as to raise or lower both ends of the guiding rods simultaneously and for this purpose the brackets are held by the supports 21 against rotation and are fed along screws 31 rotatably mounted in the uprights 21 and operatively connected to work in unison by means of a control shaft 32 coupled by miter-geared connections 33 with the screws 31 at opposite ends thereof. The shaft 32 is provided with an extension 34 which extension is equipped with a hand wheel 35 disposed conveniently to the operator so that he may easily rotate the same and thus vary the position of the brush.

The brush is moved longitudinally along the guide rods and therefore in a direction at right angles to the direction of travel of the paper on the belt by means of a shift rod 36 actuated by any convenient mechanism such as a crank shaft indicated diagrammatically by the crank pin 37.

In operation it will be understood that the paper with its coated side to be stippled, stenciled or otherwise treated is faced upward on the upper run of the belt and is fed over the table and beneath the brush with the table in or moving to or from its depressed position shown in full lines in Figures 1 and 2. As the paper is advanced in its straight line of travel beneath the brush the periodic elevation of the table will lift the same from the full line into the ghost line position shown in Figure 1 and in this way will bring the paper momentarily into pressing engagement with the underside of the brush and with an intensity of impression depending upon the slight movement of the table following the contacting of the paper with the brush. At the moment of contact the brush is caused to move in a straight line transversely of the general direction of movement of the paper on the belt and there is thus imposed upon the paper a series of short stippled lines to give the well-known stippled effect.

The movement of the table and brush controlling crank may be so timed, per unit of travel of the belt, that any desired combination of movements may be attained, for instance, the brush may complete an entire cycle of vibratory movement to each elevation of the table, or the table may be elevated rapidly several times to each period or fraction of period of transverse movement of the brush.

By means of a device of the character outlined it is possible to raise the paper into engagement with the brush with an extremely light delicate touch and which may be simply a momentary contact of extremely brief time duration after which the paper drops away from the brush by its own weight, or rather by the suction effect of the falling belt on the underside of the paper.

As there is nothing more present than a vertically swaying the belt pounding and vibratory action incidental to the known form of such machines having vertically removable brushes has been eliminated with consequent reduction in the amount of material necessary in the frame to withstand this pounding and vibration.

As the device disclosed provides a refined control for both the paper travel and for the unilinear directional brush travel, variations can be made in the appearance of the resulting stipple and the brush can be accurately adjusted to the normal high position of the elevated paper conveniently and without any necessity of demounting any parts of the machine.

While I have shown and described and have pointed out in the annexed claims, certain novel features of my invention, it will be understood that various omissions, substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described my invention, I claim:

1. In a device of the class described, the combination with a travelling belt for carrying the paper to be treated in a longitudinal direction, a stippling brush facing the

portion of the belt carrying the paper, means engaging the brush for moving the same transversely of the line of travel of the belt and for securing the brush from movement in all other directions whereby the paper engaging face of the brush is confined to a plane parallel to the main plane of travel of the belt and means operatively connected to the belt to raise the same periodically towards the plane of reciprocation of the paper engaging face of the brush thereby to bring the paper momentarily into engagement with the brush as the same is moving transversely to the line of movement of the paper.

2. In a device of the class described, the combination with a travelling flexible belt having a horizontally disposed run adapted to carry a strip of material to be treated, a vertically movable table disposed beneath said belt run, means for reciprocating the table vertically thereby periodically to raise the belt with the material thereon, a stippling tool disposed over the belt and above the table and means for reciprocating the tool in a unilinear direction across the elevated material.

3. In a device of the class described, the combination with a travelling flexible belt having a horizontally disposed run adapted to carry a strip of material to be treated, a vertically movable table disposed beneath said belt run, means for reciprocating the table vertically thereby periodically to raise the belt with the material thereon, a stippling tool disposed over the belt and above the table, means for reciprocating the tool in a unilinear direction across the elevated material and manually actuated means for adjusting the range of relative movement between the table and tool.

4. In a device of the class described, the combination with a frame including a pair of uprights, vertically movable means in said uprights, a brush supporting rod having opposite ends carried by said means, a brush slidably mounted on said rod, means engaging the brush for reciprocating the same on said rod, means for moving material to be treated towards and into bearing engagement with said reciprocating brush and a single manually actuated control operatively connected to both movable means in the uprights for simultaneously adjusting opposite ends of the brush supporting rod thereby to compensate for wear on the brush.

5. In a device of the class described, the combination with a frame including a pair of uprights, vertically movable means in said uprights, a brush supporting rod having opposite ends carried by said means, a brush slidably mounted on said rod, means engaging the brush for reciprocating the same on said rod, means for moving material to be treated towards and into bearing engagement with said reciprocating brush, a single manually actuated control operatively connected to both movable means in the uprights for simultaneously adjusting opposite ends of the brush supporting rod thereby to compensate for wear on the brush and adjustable means constituting a part of said material moving means for varying the loci of movement of the material relative to the brush.

6. In a device of the class described, the combination of a vertically movable table, means operatively connected to opposite ends thereof for reciprocating the same, means for feeding material to be treated across the top of said table, a brush positioned above the table and disposed to be engaged by the material moved thereto by the table and means for reciprocating the brush in a direction forming an angle with the direction of feed of the material across the table.

7. In a device of the class described, the combination of a vertically movable table, means operatively connected to opposite ends thereof for reciprocating the same, means for feeding material to be treated across the top of said table, a brush positioned above the table and disposed to be engaged by the material moved thereto by the table, means for reciprocating the brush in a direction forming an angle with the direction of feed of the material across the table and means engaging the brush for adjusting the same in the direction of movement of the table.

Signed at New York city, in the county of New York and State of New York, this 3rd day of November A. D. 1920.

JOSEPH F. STACHOWSKI.