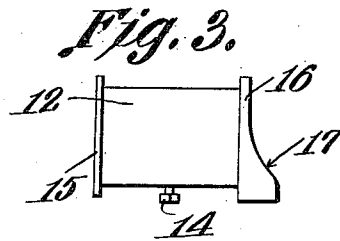
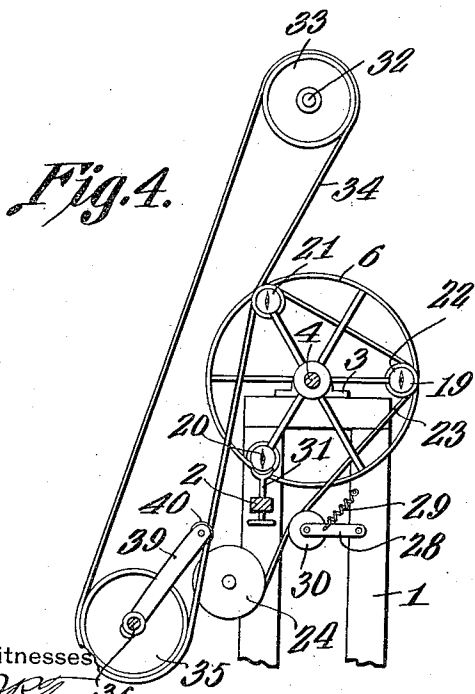
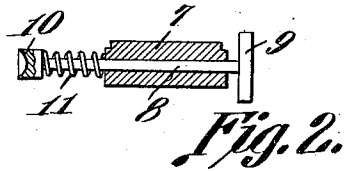
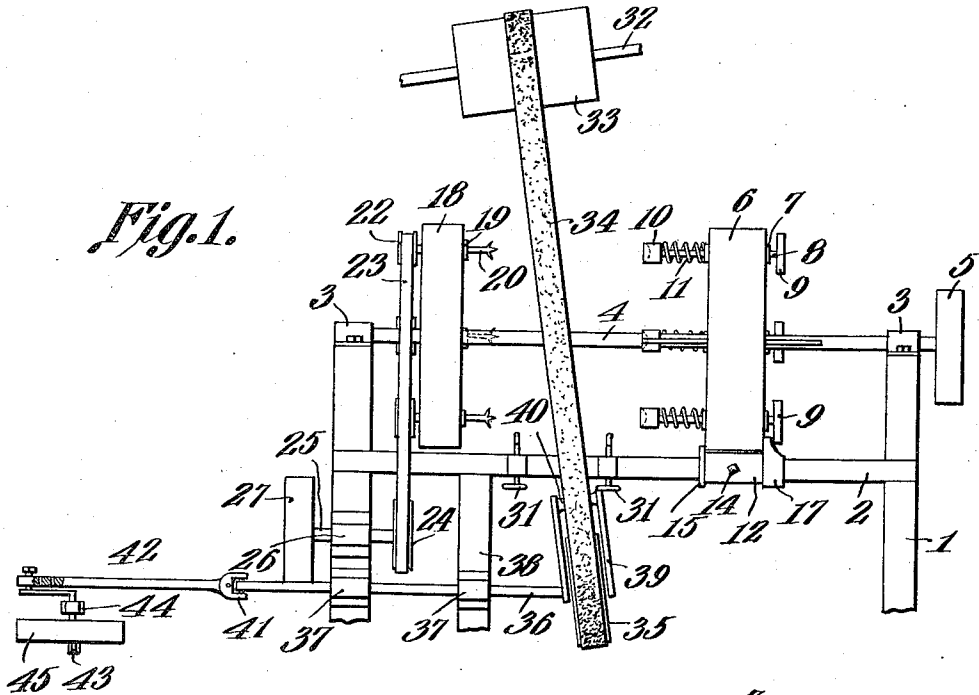


G. M. HALL.
SANDING MACHINE.
APPLICATION FILED DEC. 2, 1912.

1,060,565.

Patented Apr. 29, 1913.



Grant M. Hall,

Witnesses

J. L. Willard.

Inventor

by

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

GRANT M. HALL, OF KEENE, NEW HAMPSHIRE.

SANDING-MACHINE.

1,060,565.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed December 2, 1912. Serial No. 734,639.

To all whom it may concern:

Be it known that I, GRANT M. HALL, a citizen of the United States, residing at Keene, in the county of Cheshire and State of New Hampshire, have invented a new and useful Sanding-Machine, of which the following is a specification.

The device forming the subject matter of this application is adapted to be employed for sanding articles having an irregular contour.

The invention aims to provide novel means for rotating the articles, and for causing them to travel in an orbit, during the sanding operation.

Another object of the invention is to provide novel means whereby the articles, prior to sanding, are picked up from a suitable support.

Another object of the invention is to provide novel means for actuating the sand belt both for longitudinal travel and for transverse swinging movement.

The invention, aims, further, to provide novel means for actuating the movable portions of the structure.

It is within the scope of the invention to improve generally, and to increase the utility of, devices of that type to which the present invention appertains.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:—Figure 1 shows the invention in end elevation. Fig. 2 is a longitudinal section showing one of the plungers which are carried by the primary rotatable element; Fig. 3 is a plan of the cam member whereby the plunger shown in Fig. 2 is retracted; and Fig. 4 is a longitudinal section of the structure in Fig. 1.

In carrying out the invention there is provided a supporting structure, taking the form of a frame 1, the frame 1 including a cross bar 2. Bearings 3 are secured to the top of the frame 1, and in the bearings 3 is

journaled for rotation a drive shaft 4, provided at one end with a pulley 5, whereby rotatory movement may be imparted to the drive shaft; although, obviously, any suitable means may be provided for rotating the drive shaft.

Fixed to the drive shaft 4 and located between the side portions of the frame 1 is a primary wheel 6. To the inner face of the rim of the primary wheel 6 are secured a plurality of transverse bearings 7. Rods 8 are mounted to slide longitudinally in the bearings 7, and to rotate therein, the rods 8 extending transversely of the primary wheel 6. At their outer ends, the rods 8 are equipped with circular heads 9. At the inner ends of the rods 8, the same are provided with article holding elements 10 which may be of any desired form, the elements 10 in the present instance being shown as of cup shape. The rods 8, the heads 9 and the holding elements 10 constitute plungers slidable transversely of the primary wheel 6. The rods 8 are moved longitudinally, toward the longitudinal center of the machine, by means of compression springs 11 which are interposed between the elements 10 and the ends of the bearings 7, as will be understood when Fig. 2 is examined.

Mounted upon the cross bar 2 and adjustably held thereon by means of a set screw 14 or the like, is a collar 12, provided at its inner end with a flange 15 and provided at its outer end with a flange 16, the outer face of the flange 16 being equipped with a cam 17.

Mounted upon and secured to the drive shaft 4, between the side portions of the frame 1, is a secondary wheel 18, to the inner face of the rim of which are secured bearings 19, in which rods 20 are mounted, as is shown in Fig. 1, to rotate, the inner ends of the rods 20 being provided with article holding elements 21 which may be of forked construction. The rods 20 and attached parts constitute plungers slidable transversely of the secondary wheel 18. To the outer ends of the rods 20 are secured pulleys 22.

A mechanism is provided for rotating the rods 20, this mechanism comprising a belt which is trained around the pulleys 22, the

belt 23 being passed about a pulley 24, carried by the inner end of a shaft 25, journaled for rotation in a bearing 26 which is secured to one side portion of the frame 1. The outer end of the shaft 25 is supplied with a pulley 27, adapted to be connected operatively with a prime mover of any sort, whereby rotatory movement may be imparted to the shaft 25.

A tightener is provided for taking the slack out of the belt 23, and this tightener may be of any desired form. In the present instance, the same comprises a lever 28 fulcrumed upon the frame 1, the lever 28 being elevated at its free end, through the medium of a retractile spring 29, one end of which is secured to the lever and the other end of which is secured to the frame 1. The lever 28 carries at its free end, an idle pulley 30 which is adapted to bear against the belt 23 for the purpose above mentioned.

A pair of vertically adjustable article supports 31 is mounted in the cross bar 2, between the article holding elements 10 and 21. The numeral 32 indicates a hanger shaft, carrying a pulley 33, about which is trained a sand belt, the sand belt 34 being engaged about a pulley 35, mounted upon the inner end of a shaft 36, journaled for rotation and held for longitudinal sliding movement in bearings 37, one of which bearings is mounted upon one of the side portions of the frame 1, the other of which bearings is carried by a support 38 which may be a part of the frame 1. The support 38, however, may be a part of the foundation upon which the frame 1 is mounted.

Extended upwardly from the shaft 36 and mounted to swing thereon, is a relatively heavy frame 39, carrying a pulley 40, adapted to engage one run of the belt 23, the construction being such that the members 39 and 40 will act to take the slack out of the belt 34.

At the outer end of the shaft 36 is located a universal joint 41, constituting a connection between the shaft 36 and a pitman 42 which is connected with a crank shaft 43, journaled in a bearing 44, and provided with a pulley 45 or other suitable mechanism, whereby rotatory movement may be imparted to the shaft 43.

In practical operation, rotatory movement is imparted to the drive shaft 4 through the medium of the pulley 5. When the shaft 4 is rotated the wheels 6 and 18 will be rotated. When the wheel 6 is rotated, the heads 9 at the outer ends of the rods 8 will engage with the cam 17 of the member 12, the cam thus coöperating with the head 9 to cause a retraction of the rod 8. When the rod 8 is retracted in the manner hereinbefore described, the spring 11 will be put under

tension, and at the same time, the article holding element 10 will be retracted from the corresponding holding element 21, so that the material which has been engaged by the members 10 and 21 will be dropped automatically. So soon, however, as the head 9 rides off the end of the cam 17, the spring 11 will force the article holding element 10 toward the corresponding holding element 21, these elements coacting to engage an unsanded article which has been placed upon the supports 31.

When the shaft 4 and the wheels 6 and 18 are rotated, an article, engaged between the elements 10 and 21, will be compelled to travel in an orbit, and will be brought into engagement with the sand belt 34. At the same time, the article which is engaged by the elements 10 and 21 will be rotated upon an axis, through the medium of the pulley 27, the shaft 25, the pulley 24, the belt 23 and the pulley 22 which is located at the outer end of each rod or shaft 20. The sand belt 34 will travel longitudinally, due to the rotatory movement imparted to the pulley 33 from the shaft 32. At the same time, the sand belt 34 will be swung laterally, due to the fact that the shaft 36 is advanced longitudinally by the action of the pitman 42 and the crank shaft 43. Thus, a thorough sanding of all portions of the article will be effected.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, spaced members united for simultaneous rotation; article holding plungers journaled on the members and spaced from the centers of the members to move in orbits; means for rotating the plunger of one member; and an attrition element mounted to move in intersecting relation to the orbits in which the plungers move and to swing laterally at an angle to the orbits in which the plungers move.

2. In a device of the class described, spaced members united for simultaneous rotation; article holding plungers journaled on the members and spaced from the centers of the members to move in orbits, the plunger of one member being longitudinally slidable; a cam engaging said plunger to slide the same longitudinally; means for rotating the plunger of the other member; and an attrition element located in the path of the plungers.

3. In a device of the class described, spaced members united for simultaneous rotation; article holding plungers journaled on the members and spaced from the centers of the members to move in orbits, the plunger of one member being longitudinally slidable; a cam engaging said plunger to slide

the same longitudinally; means for rotating
the plunger of the other member; and an
attrition belt mounted to move in intersect-
ing relation to the orbits in which the plun-
gers move and to swing laterally at an angle
to the orbits in which the plungers move.
In testimony that I claim the foregoing

as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

GRANT M. HALL.

Witnesses:

FRANK W. CHAMBERLIN,
EMMAGENE CHAMBERLIN.

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