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(54) Universal flaking machine.

(57) Universal flaking machine comprising a multiple body cutter head, formed by a rotating cylinder having on the lateral surface a number of grooves which are connected to the exterior through an opening delimited by a knife and having a width only just sufficient for passage of the flakes and which is also connected to an aspirator.

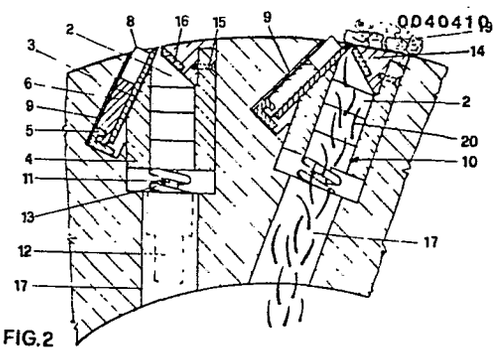

FIG.2

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UNIVERSAL FLAKING MACHINE

The present invention relates to a universal flaking machine.

Machines for reducing wooden material in flakes are well-known. Generally, they comprise a frame for feeding the material to be flaked, an apparatus for blocking the material on the frame and a multiple body cutter head which provides for reducing the wooden material in flakes. This body cutter head is preferably formed by a rotating cylinder having on the lateral surface a number of grooves which are slanted with regards to their generatrix and housing a number of continuous edge knives or comb knives.

Even though these known machines have solved the problem of reducing wooden material of large dimensions in flakes, they do not lend themselves to flaking wooden material of small dimensions, such as, branches, small branches and saw-mill trimmings. This depends both on the difficulty of holding the material by the blocking apparatus owing to the reduced size of such, and of the difficulty of keeping the material itself correctly placed and held by the body cutter head owing to the shape of the groove. Consequently, said material is not uniformly flaked and this gives rise to problems in the following phase of drying, as the larger pieces remain inside the drier for a longer time. Due to the high temperatures these pieces can burn causing fire and

therefore forcing the whole installation to a standstill.

Centrifugal flaking machines for branches and other pieces of wood of small dimensions are also well-known. They usually comprise a hollow cylindrical container provided with a series of knives placed on the internal lateral wall, against which the wooden pieces become thrown, by centrifugal effect, by means of a rotor.

However, such centrifugal flaking machines present considerable wear which requires, about every four months, substitution of the wear "shoes" placed between the knives. Moreover, the material introduced into these machines has to be previously reduced in chips, thus requiring therefore additional machines and a great waste of time and energy in order to carry out this production.

The aim of the invention is to eliminate said drawbacks and to realize a flaking machine that reduces pieces of wood, large and small, in flakes and that presents a limited grade of wear.

Such an aim is reached according to the invention with a universal flaking machine comprising a multiple body cutter head implement, formed by a cylinder having on the lateral surface a number of grooves provided with knives, characterized in that each groove is connected to the exterior through an opening delimited by the corresponding knife and having a width only just sufficient for passage of the

flakes and also connected to an aspirator for the flakes obtained.

Advantageously, the edge of the opening of each groove, opposed to the knife, can consist in an interchangeable wear element.

Advantageously, each groove can have a substantially rectangular transversal section and the relative interchangeable wear element can form partial closure of the groove itself.

According to the invention, each groove can be connected, through a longitudinal opening made on the bottom, to a central cavity in the cylinder at the same time connected to the aspirator.

The present invention is further clarified here below in a preferred embodiment, given for purely exemplificative and not limitative purpose with reference to the enclosed drawings in which:

figure 1 shows in longitudinal schematic sectional view the flaking machine according to the invention,

figure 2 partially shows the transversal sectional view II-II of fig. 1, and

figure 3 shows in perspective view the particular of the body cutter head partially sectioned.

As can be seen from the drawings, the flaking machine according to the invention, comprises a body cutter head formed by a hollow steel cylinder 1, on the lateral surface

of which are obtained, for example by means of milling, grooves 2 for housing blocking plugs 4 for knives 3. Each groove 2 has a substantially rectangular transversal section and is slanted with respect to the generatrix of the cylinder 1. Each of these grooves extend obliquely to form a rear portion 5, also of rectangular transversal section, in which is housed a continuous edge knive 3, a knife holder 6 provided with housing 7 for engravers 8, and a protection plate 9.

All this is well-known and described for example in the Italian patent application nr. 84156 A/75 filed on November 21, 1975.

Each plug 4 presents a passing opening 10, which extends almost the whole length of the plug itself, excluding the extremities, in correspondence of which the said plug is provided with cylindrical pins 11. These pins 11 may be housed in corresponding holes 12, formed on the bottom of the extreme portions of the groove 2.

For the partial closure of each groove 2 an interchangeable wear element is provided 14, which is applied to the plug 4 by screws 15. The internal surface of said element 14 is provided with an anti-wear plate 16 while the external lateral surface is shaped in such a way so as to continue the surface of the cylinder 1. Each groove 2 also is connected, through a longitudinal opening 17, to the

internal cavity of the cylinder 1, which at the same time is connected, through a casing 18, to an aspirator which is not shown in the drawings.

The flaking machine according to the invention operates as follows: as soon as the body cutter head 1 comes into contact with the material 19 to be flaked, the protruding points of the engravers 8 produce engravings substantially orthogonal to the rotation axis of the element 1 and ensure in such a way that the knives 3, although of continuous edge, cause detachment of the flakings that have substantially equal sizes from the material 19. Such flakings pass through the openings delimited by each knive 3 and the corresponding antiwear plate 16; they are then collected in the grooves 2 from where they are sucked by the aspirator through the longitudinal opening 17, the central hollow of the cylinder's body 1 and the casing 18.

It clearly appears from the above that the flaking machine, according to the present invention, offers a number of advantages, not only with respect to traditional flaking machines with multiple rotating elements, but also to traditional centrifugal flaking machines. In particular, with respect to the first type of machine, this one allows flaking of all types of wood (tree-trunks, saw-mill trimmings, chips) and can therefore be considered universal; with respect to the second type, it presents limited wear,

it does not require a previous transformation of wood into chips and, therefore, reduces the complexity of the installation, energy and work time and also allows production of evenly sized flakes.

The present invention has been illustrated and described in a preferred embodiment, but it's understood that it's possible to carry out variations, without however departing from the spirit of the present invention.

CLAIMS

1. Universal flaking machine comprising a multiple cutter body head, formed by a cylinder (1) having on the lateral surface a number of grooves provided with knives (3), characterized in that each groove (2) is connected to the exterior through an opening delimited by the correasponding knife and having a width only just sufficient for passage of the flakes (20) and also connected to an aspirator for the flakes obtained.

2. Shaving machine according to claim 1 characterized in that the edge of the opening of each groove (2) opposed to the knife (3) consists of an interchangeable wear element (14).

3. Shaving machine according to claims 1 and 2 characterized in that each groove (2) has a substantially rectangular transversal section and the relative interchangeable wear element (14) forms a partial closure of the groove itself.

4. Shaving machine according to claim 1 characterized in that each groove (2) is connected, through a longitudinal opening (10) made on the bottom, to a central cavity in the cylinder (1) at the same time connected to the aspirator.

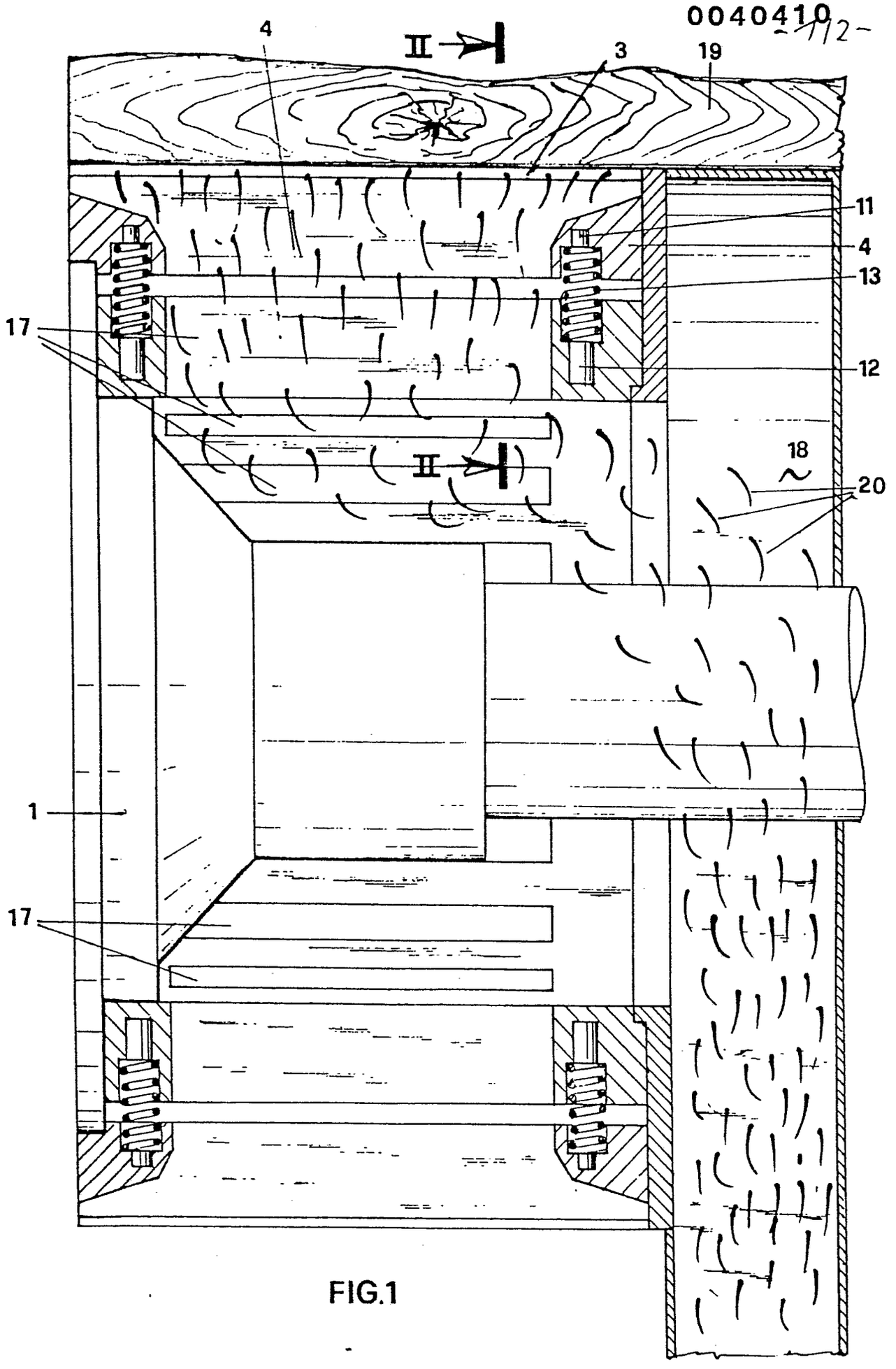

FIG.1

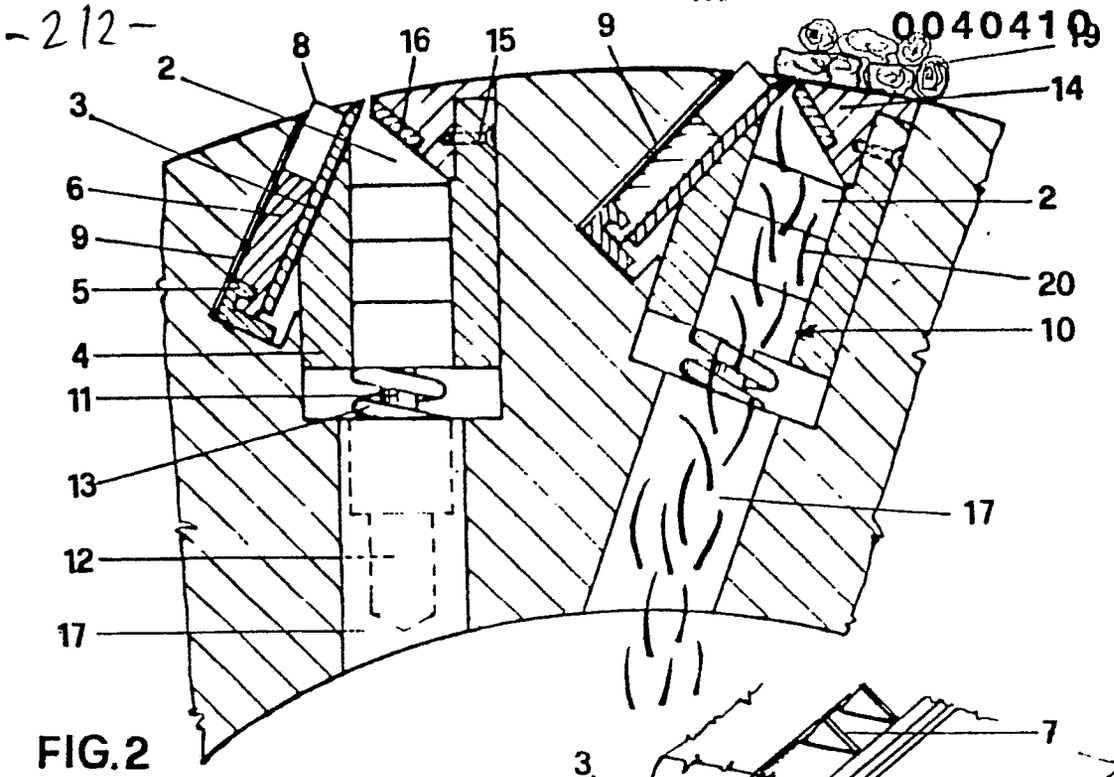

FIG.2

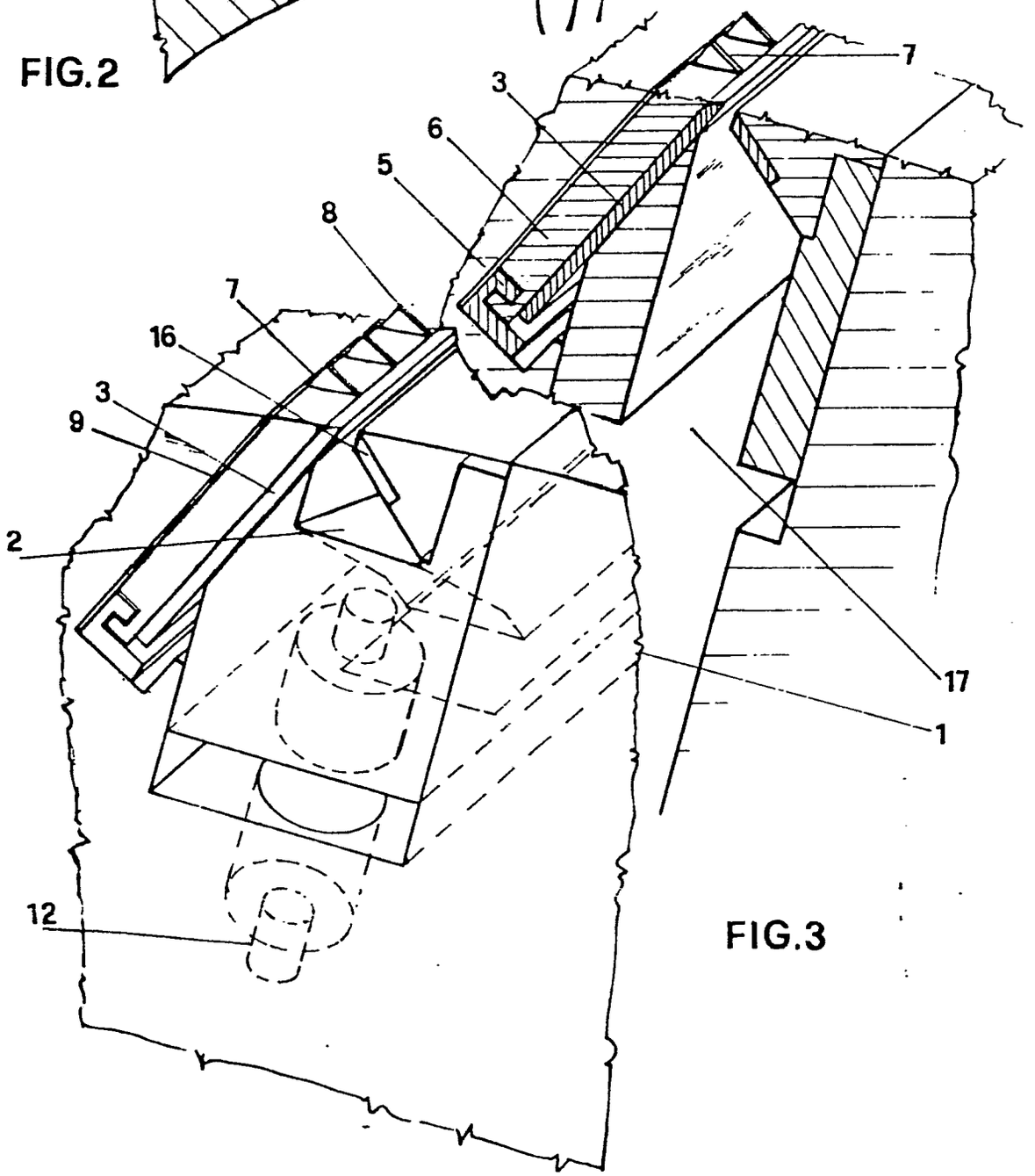

FIG.3