

A23N

MACHINES OR APPARATUS FOR TREATING HARVESTED FRUIT, VEGETABLES OR FLOWER BULBS IN BULK, NOT OTHERWISE PROVIDED FOR; PEELING VEGETABLES OR FRUIT IN BULK; APPARATUS FOR PREPARING ANIMAL FEEDING- STUFFS (machines for cutting straw or fodder A01F29/00; disintegrating, e.g. shredding, B02C; severing, e.g. cutting, splitting, slicing B26B, B26D)

Definition statement

This subclass/group covers:

Apparatus for post-harvest processing of fruit, vegetables or flower bulbs in bulk, or on an industrial scale ([A23N 1/00](#) - [A23N 15/00](#)); Apparatus for preparing fodder for feeding animals ([A23N 17/00](#))

References relevant to classification in this subclass

This subclass/group does not cover:

Household devices	A47J
Agricultural machinery, such as harvesters	A01D
Treatment of grain	B02B
Processing sugar containing produce	C13B

Informative references

Attention is drawn to the following places, which may be of interest for search:

Machines for cutting straw or fodder	A01F 29/00
Disintegrating, e.g. shredding in general	B02C
Severing, e.g. cutting, splitting, slicing	B26B , B26D
Extracting presses in general	B30B

A23N 1/00

Machines or apparatus for extracting juice (preparation of non-alcoholic beverages, e.g. by adding ingredients to fruit or vegetable juices, A23L2/00; apparatus for making beverages A47J31/00 [N: centrifuges B04B]; extracting presses B30B)

References relevant to classification in this group

This subclass/group does not cover:

Household devices for extracting juice	A47J 19/00
Extraction of juice (processes)	A23L 2/04
Production of sugar juices	C13B 10/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Preparation of non-alcoholic beverages, e.g. by adding ingredients to fruit or vegetable juices	A23L 2/00
Apparatus for making beverages	A47J 31/00
Centrifuges as such	B04B
Extracting presses in general	B30B

Special rules of classification within this group

Apparatus for post-harvest processing of fruit, vegetables or flower bulbs in bulk, or on an industrial scale ([A23N 1/00](#) - [A23N 15/00](#)); Apparatus for preparing fodder for feeding animals ([A23N 17/00](#))

A23N 1/003

[N: especially for citrus fruits]

Definition statement

This subclass/group covers:

Machines or apparatus for extracting juice in bulk, or on an industrial scale,

dedicated for citrus fruit

References relevant to classification in this group

This subclass/group does not cover:

Household devices	A47J 19/00
Extraction processes of juice from citrus fruit	A23L 2/06

A23N 3/00

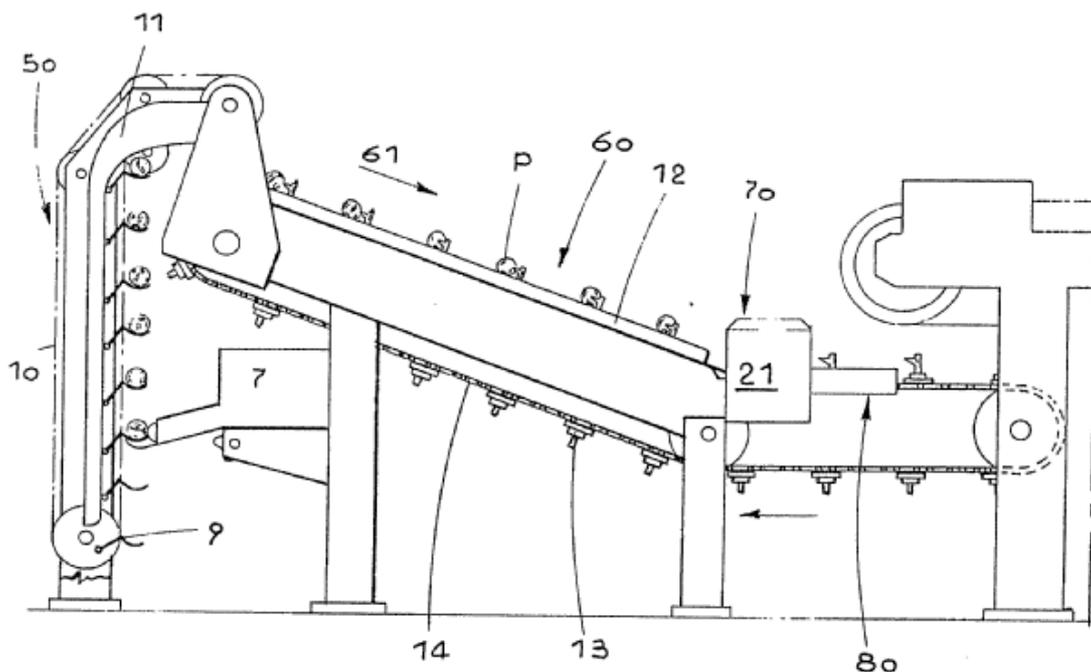
Machines for coring or stoning fruit, characterised by their feeding device (A23N4/00 takes precedence; [N: kitchen devices for stoning fruit A47J25/00])

Definition statement

This subclass/group covers:

Machines for coring or stoning fruit in bulk, or on an industrial scale, characterised by their feeding device

Illustrative example of subject matter classified in this group:



(source: Fig. 4 of EP0056790 A1)

References relevant to classification in this group

This subclass/group does not cover:

Machines for coring or stoning characterised by their stoning or seed removing device	A23N 4/00
Kitchen devices for stoning fruit	A47J 25/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Conveyors	B65G
-----------	----------------------

A23N 3/02

with feeder-drums

Informative references

Attention is drawn to the following places, which may be of interest for search:

Screw or rotary spiral conveyers	B65G 33/00
----------------------------------	----------------------------

A23N 3/04

with endless feeder-belts

Informative references

Attention is drawn to the following places, which may be of interest for search:

Conveyers having endless load-conveying surfaces	B65G 15/00
--	----------------------------

A23N 3/06

with feeder-tables

Informative references

Attention is drawn to the following places, which may be of interest for search:

Conveyers comprising a cyclically-moving, e.g. reciprocating, carrier or impeller which is disengaged from the load during the return part of its movement	B65G 25/00
--	----------------------------

A23N 4/00

Machines for stoning fruit or removing seed-containing sections from fruit, characterised by their stoning or removing device (for peeling fruit and removing seed-containing sections A23N7/08; domestic devices for stoning fruit A47J23/00, for coring fruit A47J25/00)

Definition statement

This subclass/group covers:

Machines for stoning fruit or removing seed-containing sections from fruit in bulk, or on an industrial scale, characterised by their stoning or removing device

References relevant to classification in this group

This subclass/group does not cover:

Apparatus for peeling fruit and removing seed-containing sections for coring fruit	A23N 7/08
Domestic devices for stoning fruit	A47J 23/00
Domestic devices for coring fruit	A47J 25/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for peeling fruit and removing seed-containing sections	A23N 7/08
Details of apparatus for cutting, cutting-out, stamping-out, punching,	B26D 7/00

perforating, or severing by means other than cutting	
Cutters in general	B26D 1/00
Arrangements for guiding hand cutting tools in general	B26B 29/06
Punching tools or dies, cutting-out knives or dies in general	B26F

A23N 4/02

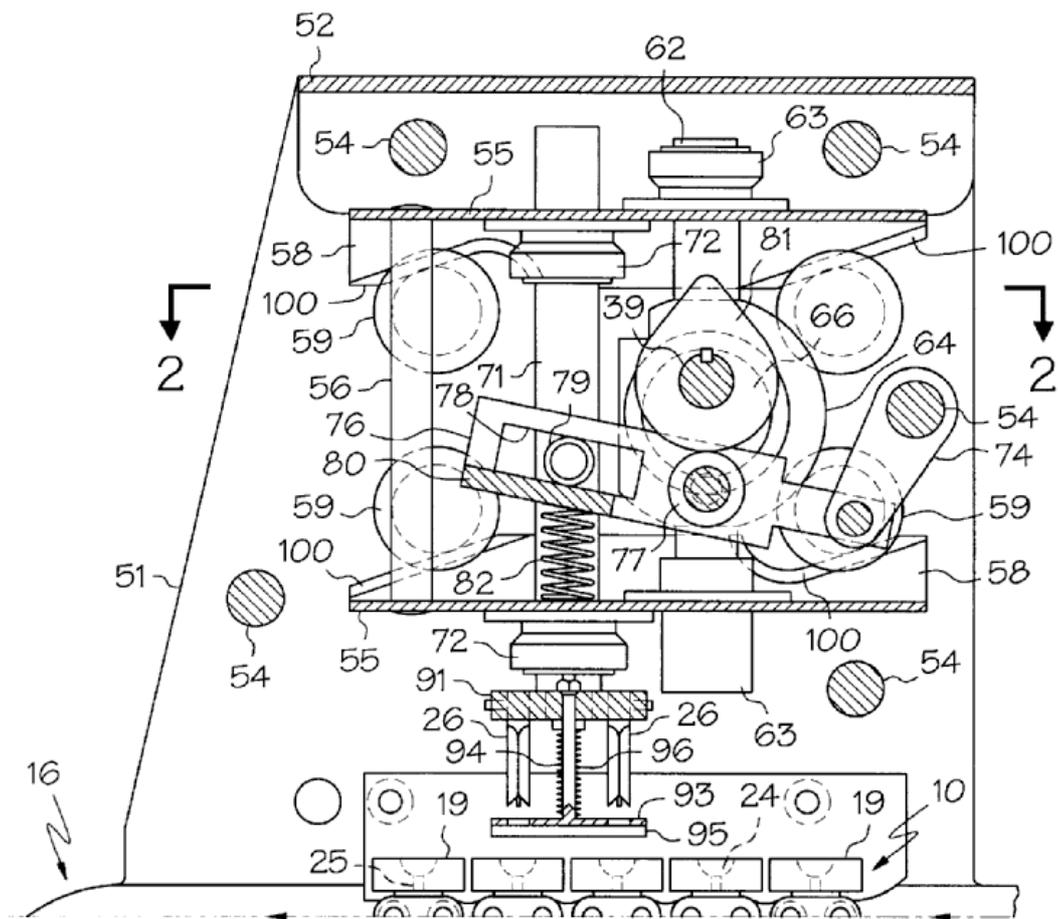
for stoning fruit

Definition statement

This subclass/group covers:

Machines for stoning fruit in bulk, or on an industrial scale, characterised by their stoning device

Illustrative example of subject matter classified in this group:



(source: Fig. 1 of US5992310 A)

References relevant to classification in this group

This subclass/group does not cover:

Peeling fruit and removing seed-containing sections for coring fruit	A23N 7/08
Domestic devices for stoning fruit	A47J 23/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Peeling fruit and removing seed-containing sections	A23N 7/08
Details of apparatus for cutting,	B26D 7/00

cutting-out, stamping-out, punching, perforating, or severing by means other than cutting	
---	--

Synonyms and Keywords

Stone	core, kernel, nut, seed
-------	-------------------------

A23N 4/12

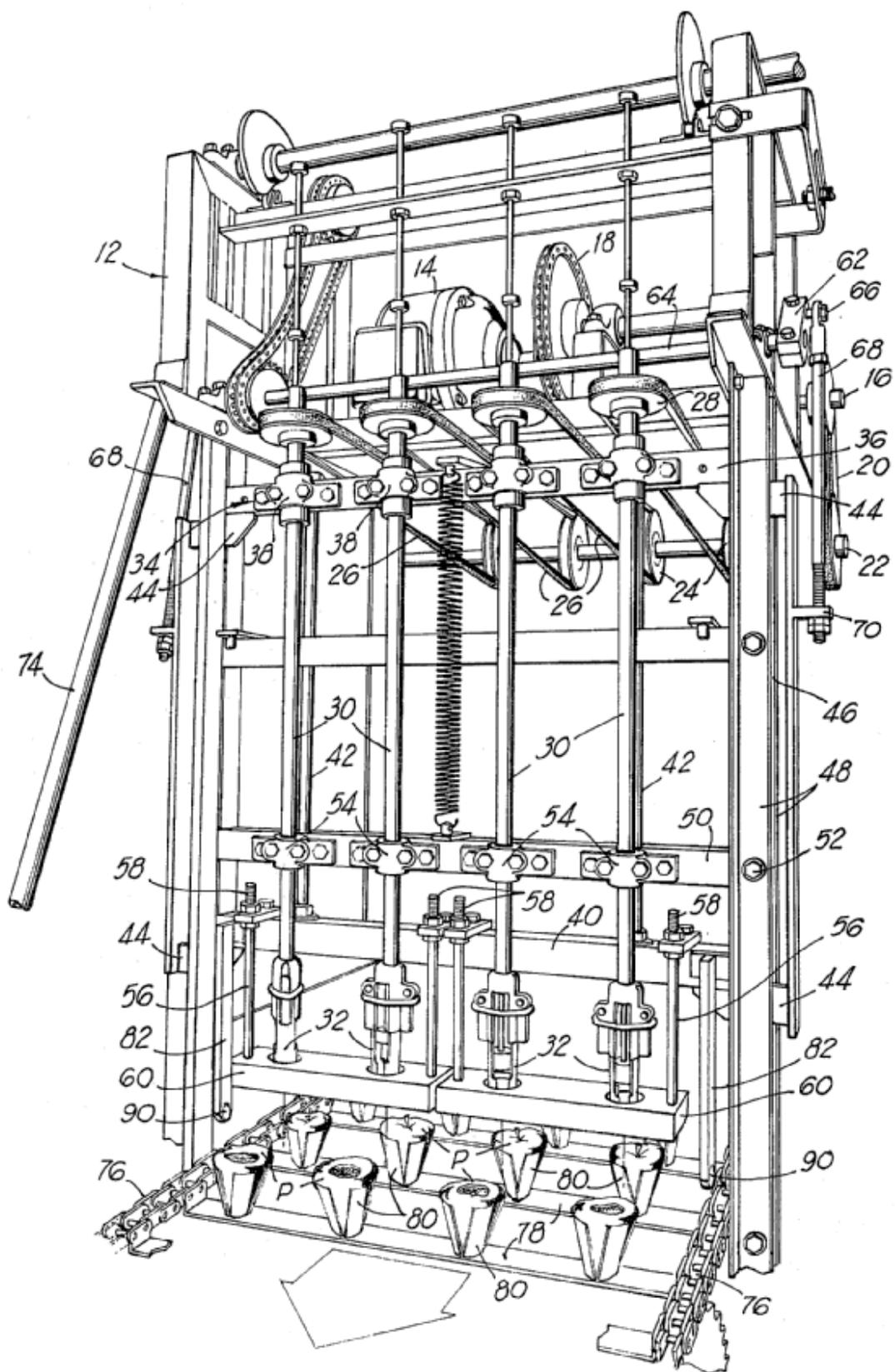
for coring fruit [N: (for household appliances B26B)]

Definition statement

This subclass/group covers:

Machines for removing seed-containing sections from fruit in bulk, or on an industrial scale, characterised by their removing device, and not suitable for stoning

Illustrative example of subject matter classified in this group:



(source: Fig. 1 of US4416195 A)

References relevant to classification in this group

This subclass/group does not cover:

Peeling fruit and removing seed-containing sections for coring fruit	A23N 7/08
Domestic devices for stoning fruit	A47J 23/00
Domestic devices for coring fruit	A47J 25/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Peeling fruit and removing seed-containing sections	A23N 7/08
Details of apparatus for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting	B26D 7/00
For household appliances	B26B

A23N 5/00

Machines for hulling, husking or cracking nuts [N: (household nutcrackers A47J43/26)]

Definition statement

This subclass/group covers:

Machines for hulling, husking or cracking nuts in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Household nutcrackers	A47J 43/26
-----------------------	----------------------------

A23N 5/004

[N: for palmnuts (A23N5/002 and A23N5/08 take precedence)]

Definition statement

This subclass/group covers:

Machines for hulling, husking or cracking of in particular palmnuts in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Machines for skinning nut kernels	A23N 5/002
Machines for removing fleshy or fibrous hulls of nuts	A23N 5/08
Household nutcrackers	A47J 43/26

A23N 5/006

[N: for chestnuts (A23N5/002 and A23N5/08 take precedence)]

Definition statement

This subclass/group covers:

Machines for hulling, husking or cracking chestnuts in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Machines for skinning nut kernels	A23N 5/002
Machines for removing fleshy or fibrous hulls of nuts	A23N 5/08
Household nutcrackers	A47J 43/26

A23N 5/008

[N: for almonds (A23N5/002 and A23N5/08 take precedence)]

Definition statement

This subclass/group covers:

Machines for hulling, husking for almonds etc. in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Machines for skinning nut kernels	A23N 5/002
Machines for removing fleshy or fibrous hulls of nuts	A23N 5/08
Household nutcrackers	A47J 43/26

Special rules of classification within this group

other nuts with like processes: cashew nuts

A23N 5/08

for removing fleshy or fibrous hulls of nuts (for peanuts A23N5/01)

Definition statement

This subclass/group covers:

Machines for removing fleshy or fibrous hulls of nuts in bulk or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Stoning of fruit in general	A23N 4/02
Machines for removing the hull from peanuts	A23N 5/01

A23N 7/00

Peeling vegetables or fruit (devices for skinning onions A23N15/08; [N: peeling by non-mechanical means A23P];

peeling machines of the household type A47J17/00)

Definition statement

This subclass/group covers:

Machines for peeling vegetables or fruit in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Devices for skinning onions	A23N 15/08
Peeling by non-mechanical means	A23P
Peeling machines of the household type	A47J 17/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Splitting layers from work by peeling off	B26D 3/28
---	---------------------------

Synonyms and Keywords

Peel	outer skin of fruit and vegetables
------	------------------------------------

A23N 7/002

[N: Peeling pineapples (A23N7/005 and A23N7/01 take precedence)]

Definition statement

This subclass/group covers:

Machines for peeling pineapples, in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Peeling machines of the household type	A47J 17/00
--	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Peeling with steam	A23N 7/005
Peeling using chemical substances, e.g.lye	A23N 7/01

A23N 7/02

Peeling potatoes, apples or similarly shaped vegetables or fruit ([N: A23N7/005 and] A23N7/01 take precedence)

Definition statement

This subclass/group covers:

Machines for peeling potatoes, apples or similarly shaped vegetables or fruit in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Peeling machines of the household type	A47J 17/00
--	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Peeling with steam	A23N 7/005
Peeling using chemical substances, e.g.lye	A23N 7/01
Cutting of fruit	B26D 3/26

A23N 7/04

Peeling asparagus ([N: A23N7/005 and] A23N7/01 take precedence)

Definition statement

This subclass/group covers:

Machines for peeling asparagus in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Peeling machines of the household type	A47J 17/00
Peeling with steam	A23N 7/005
Peeling using chemical substances, e.g.lye	A23N 7/01

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cutting of fruit	B26D 3/26
------------------	---------------------------

A23N 7/10

Driving mechanisms

Definition statement

This subclass/group covers:

Driving mechanisms used in machines for peeling vegetables or fruit in bulk, or on an industrial scale

Relationship between large subject matter areas

Cutting devices in general [B26D](#)

References relevant to classification in this group

This subclass/group does not cover:

Peeling machines of the household type	A47J 17/00
--	----------------------------

A23N 11/00

Removing pith from stems

Definition statement

This subclass/group covers:

Apparatus for removing pith from stems

References relevant to classification in this group

This subclass/group does not cover:

Coring of fruit or vegetables	A23N 4/12
-------------------------------	---------------------------

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Pith	The soft internal tissue of a plant part; esp. a central cylinder of parenchyma in a stem or root
------	---

A23N 12/00

Machines for cleaning, blanching, drying or roasting fruits or vegetables, e.g. coffee, cocoa, nuts (methods for treating, e.g. roasting, coffee or cocoa, A23F, A23G; cleaning, e.g. washing, or drying grain B02B1/00; separating solids from solids for cleaning B07B; cleaning in general B08B; heating devices per se, see the relevant classes, e.g. F24; drying machines in general F26B)

Definition statement

This subclass/group covers:

Machines for cleaning, blanching, drying or roasting fruits or vegetables, e.g.

coffee, cocoa, nuts in bulk, or on an industrial scale

Relationship between large subject matter areas

Devices and methods for treating, e.g. roasting, coffee or cocoa, [A23E](#), [A23G](#), as far as they also allow processing other matter of plant origin

Informative references

Attention is drawn to the following places, which may be of interest for search:

Roasting, coffee or cocoa	A23E , A23G
Cleaning, e.g. washing, or drying grain	B02B 1/00
Separating solids from solids for cleaning	B07B
Cleaning in general	B08B
Heating devices per se, see the relevant classes	F24
Drying machines in general	F26B

A23N 12/02

for washing or blanching (A23N12/06 takes precedence; blanching methods A23B7/06)

Definition statement

This subclass/group covers:

Machines for washing or blanching fruits or vegetables on an industrial scale; with or without washing aids, such as brushes etc.

References relevant to classification in this group

This subclass/group does not cover:

Domestic devices for washing vegetables or the like	A47J 43/24
Washing grain	B02B 1/04

Combined with subsequent drying	A23N 12/06
---------------------------------	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Blanching methods	A23B 7/06
Washing granular, powdered or lumpy materials or wet separating in general	B03B 5/00

A23N 12/04

for blanching

Definition statement

This subclass/group covers:

Machines for blanching (exclusively)

Relationship between large subject matter areas

Documents relating to blanching methods in [A23B 7/06](#) may also comprise claims to blanching machines

References relevant to classification in this group

This subclass/group does not cover:

Blanching methods as such	A23B 7/06
---------------------------	---------------------------

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Blanching	short term heating for inactivating enzymes, removing gas inclusions, etc.
-----------	--

Synonyms and Keywords

Inactivating	de-activating, de-naturing
--------------	----------------------------

A23N 12/08

for drying or roasting (A23N12/06 takes precedence)

Definition statement

This subclass/group covers:

Machines for drying or roasting of fruit and vegetables in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Machines for washing or blanching, combined with subsequent drying	A23N 12/06
Beverage-making apparatus with incorporated grinding or roasting means for coffee	A47J 31/42
Coffee mills combined with roasting devices	A47J 42/52

Informative references

Attention is drawn to the following places, which may be of interest for search:

Domestic devices for roasting	A47J 37/00
-------------------------------	----------------------------

A23N 15/00

Machines or apparatus for other treatment of fruits or vegetables for human purposes; Machines or apparatus for topping or skinning flower bulbs [N: (treatment of coffee, other than drying or roasting A23F; treatment of cocoa A23G1/02)]

References relevant to classification in this group

This subclass/group does not cover:

Machines for treatment of cocoa	A23G 1/02
Machines for processing fruit or vegetables, as defined therein	A23N 12/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Treatment of tea or coffee, other than drying or roasting	A23F
---	----------------------

Special rules of classification within this group

Machines or apparatus for other treatment of fruits or vegetables for human purposes in bulk, or on an industrial scale, not provided for in other subclasses ([A23N 15/02](#) - [A23N 15/06](#));

Machines or apparatus for topping or skinning flower bulbs in bulk, or on an industrial scale ([A23N 15/08](#))

A23N 15/02

for stemming, piercing, or stripping fruit [N: (for household appliances A47J21/00)]; Removing sprouts of potatoes

Definition statement

This subclass/group covers:

Machines for stemming, piercing, or stripping fruit in bulk, or on an industrial scale; Removing sprouts of potatoes

References relevant to classification in this group

This subclass/group does not cover:

Vintaging machines	A01D 46/28
Household appliances for removing stalks	A47J 21/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Separating solids in general	B07B
------------------------------	----------------------

A23N 15/04

Devices for topping fruit or vegetables (topping onions A23N15/08)

Definition statement

This subclass/group covers:

Devices for topping fruit or vegetables in bulk, or on an industrial scale

Relationship between large subject matter areas

Cutting in general [B26D](#)

References relevant to classification in this group

This subclass/group does not cover:

Machines for topping onions	A23N 15/08
-----------------------------	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cutting fruit or vegetables in general	B26D 3/26
--	---------------------------

A23N 15/06

Devices for other treatment of fruit e.g. marking, maturing, polishing

Definition statement

This subclass/group covers:

Devices for other post-harvest treatment of fruit e.g. marking, maturing, polishing in bulk, or on an industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Machines for other processing fruit or vegetables, as defined therein	A23N 15/00 - A23N 15/04 ; A23N 15/08 - A23N 15/10
---	---

Special rules of classification within this group

Only to be used when none of the other classes in [A23N](#), [A01D](#) applies, and the document is directed to processing fruit or vegetables only

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

polishing	providing the surface with a smoother and, if possible, shiny appearance, in particular by polishing aids such as cloths etc.
-----------	---

A23N 15/08

Devices for topping or skinning onions or flower bulbs

Definition statement

This subclass/group covers:

Devices for topping or skinning onions or flower bulbs in bulk, or on an industrial scale

Relationship between large subject matter areas

Cutting in general [B26D](#)

Informative references

Attention is drawn to the following places, which may be of interest for search:

Topping fruit or vegetables in general	A23N 15/04
Cutting fruit or vegetables in general	B26D 3/26

A23N 15/10

for shelling peas or beans

Definition statement

This subclass/group covers:

Devices for shelling peas or beans

Relationship between large subject matter areas

Combine harvesters: [A01D 41/00](#), may comprise shelling devices

References relevant to classification in this group

This subclass/group does not cover:

Apparatus for shelling peanuts	A23N 5/01
--------------------------------	---------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for shelling of nuts	A23N 5/00
--------------------------------	---------------------------

A23N 17/00

Apparatus specially adapted for preparing animal feeding-stuffs [N: (automatic devices for the distribution of liquid fodder for stock or game A01K5/0216; sucking apparatus for young stock A01K9/00)]

Definition statement

This subclass/group covers:

Apparatus specially adapted for preparing animal feeding-stuffs in bulk, or on industrial scale

Relationship between large subject matter areas

apparatus for working or shaping of foodstuff in general: [A23P](#)

References relevant to classification in this group

This subclass/group does not cover:

Preparation methods for animal feeding-stuffs, and their products:	A23K
--	----------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sucking apparatus for young stock	A01K 9/00
Automatic devices for the distribution of liquid fodder for stock or game	A01K 5/0216
Sucking apparatus for young stock	A01K 9/00

A23N 17/001

[N: by treating with chemicals, e.g. ammoniac, sodium hydroxide (processes A23K1/12)]

Definition statement

This subclass/group covers:

Apparatus specially adapted for preparing animal feeding-stuffs in bulk, by treating with chemicals, e.g. ammoniac, sodium hydroxide

Informative references

Attention is drawn to the following places, which may be of interest for search:

Related processes	A23K 1/12-A23K 1/22
-------------------	-------------------------------------

A23N 17/002

[N: for treating of meat, fish waste or the like]

Definition statement

This subclass/group covers:

Apparatus specially adapted for treating of meat, fish waste or the like for preparing animal feeding-stuffs in bulk

Relationship between large subject matter areas

Apparatus for processing meat, fish etc. for human consumption: [A22C](#)

References relevant to classification in this group

This subclass/group does not cover:

Animal feeding stuffs from meat, fish or bones	A23K 1/10
--	---------------------------

A23N 17/004

[N: for treating by application of heat, e.g. by means of potato cookers (drying F26B)]

Definition statement

This subclass/group covers:

Apparatus specially adapted for preparing animal feeding-stuffs with treating by application of heat, e.g. by means of potato cookers

References relevant to classification in this group

This subclass/group does not cover:

Preservation of materials to produce animal feeding-stuffs	A23K 3/00
--	---------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Drying and roasting of fruit or vegetables	A23N 12/08
Drying apparatus in general	F26B

A23N 17/005

[N: for shaping by moulding, extrusion, pressing, e.g. pellet-mills (processes A23K1/001; presses in general B30B)]

Definition statement

This subclass/group covers:

Apparatus specially adapted for preparing animal feeding-stuffs with shaping by moulding, extrusion, pressing, e.g. pellet-mills

References relevant to classification in this group

This subclass/group does not cover:

Processes for shaping animal foods and their products	A23K 1/001
---	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for shaping or moulding of foodstuff in general	A23P 1/10
Shaping of materials in general:	B29C
Presses in general	B30B

A23N 17/007

[N: for mixing feeding-stuff components]

Definition statement

This subclass/group covers:

Apparatus specially adapted for mixing feeding-stuff components in bulk

References relevant to classification in this group

This subclass/group does not cover:

Fodder distributors with mixers or shredders	A01K 5/001
--	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Mixing in general	B01F
-------------------	----------------------

A23N 17/02

Fodder mashers (household implements for mashing potatoes or other foodstuffs A47J19/04)

Definition statement

This subclass/group covers:

Fodder mashers for producing animal foodstuffs in bulk, e.g. in industrial scale

References relevant to classification in this group

This subclass/group does not cover:

Household implements for mashing potatoes or other foodstuffs	A47J 19/04
---	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Crushing or disintegrating in general	B02C
---------------------------------------	----------------------