van de Werken

Plant 7,535 Patent Number: Date of Patent: May 28, 1991 [45]

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[54]	FORSYTHIA CV. 'LEMON-SCREEN'				
[75]	Inventor:	Hendrik van de Werken, Knoxville, Tenn.			
[73]	Assignee:	The University of Tennessee Research Corporation, Knoxville, Tenn.			
[21]	Appl. No.:	272,063			
[22]	Filed:	Nov. 16, 1988			
-	U.S. Cl	A01H 5/00 Plt./54 rch Plt./54			
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2 Drawing Sheets

[57]

Mar. 1971, pp. 41-63.

-continued Ser. No. Name Type 271,666 "Pygmy-Red" seedling

intermedia named "Lemon-Screen", which is characterized especially by its abundance of light yellow flowers, its sterility, yellow stems with chartreuse leaves in spring, and whitish blotches on otherwise normal green 5 leaves in summer.

The invention relates to a new cultivar of Forsythia

The new variety was derived from a periclinal chimera mutant, which itself was derived from a sectorial mutant, which was produced in turn by subjecting rooted cuttings of the parent Forsythia intermedia "Lyn-10 wood Gold" (a sport of F. intermedia "Spectabilis") to irradiation with 1,200 rad fast neutrons.

In 1968, three hundred cuttings of "Lynwood Gold" that had been potted and held in cold storage (38° F.) for six weeks and then returned to the greenhouse for 15 two days were irradiated with 1200 rad fast neutrons. One of the plants of this group that broke dormancy formed a shoot with variegated foliage. This plant was cut back repeatedly to induce branching and eventually 20 formed shoots that exhibited different characteristics. Each shoot was propagated by stem cuttings over 10 vegetative generations of selection and propagation. From this plant population two vegetatively selected types and three seedlings were selected. Further propagation and testing of these selections over several more years were shown to be the stable and new forsythia varieties that are the subject of this and four other copending plant patent applications; viz:

Ser. No. Type Name 272,063 "Lemon-Screen" vegetative selection 273.489 "Tinkle Bells" vegetative selection 271,919 "Minikin" seedling 271,665 "Fairy Land" seedling

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"Manual of Woody Landscape Plants—Their Identification, Ornamental Characteristics, Propagation and Uses", Dirr, Michael A., 1983, Stipes Publishing Co., Champaign, Ill., p. 826.

Primary Examiner—James R. Feyrer Attorney, Agent, or Firm—William H. Elliott, Jr.

A new cultivar of Forsythia intermedia named 'Lemon-Screen' characterized by its vigor, upright fan-shaped habit, lemon yellow flowers, high degree of sterility, its yellow shoots, and light green foliage.

ABSTRACT

Each differs greatly from the parent "Lynwood Gold" and also from one another.

"Lemon-Screen" was selected from a series of chimeral plants because of its distinct foliage, upright growth habit, and vigor. Cuttings from this plant have been rooted in soil and asexually propagated, and its progeny have displayed homogeneous and stable characteristics.

Throughout this specification, color names beginning with a small letter signify that the name of the color as used in common speech are aptly descriptive. Color names beginning with a capital letter designate values based on the R.H.S. Colour Chart, published by The Royal Horticultural Society of London, England.

The accompanying drawings illustrate the new variety in color as grown in Knox County within the State of Tennessee.

FIG. 1 illustrates 5½ year old "Lemon-Screen" in bloom in March-April.

FIG. 2 is a close-up view of the flowers.

FIG. 3 illustrates the "Lemon-Screen" plant in leaf.

FIG. 4 is a closer view of the foliage shown in FIG. 3.

The following characteristics distinguish "Lemon-30 Screen" from its parent and other Forsythia cultivars:

THE PLANT

The "Lemon-Screen" plant form is tall and vigorous, with an upright, fan-shaped habit. "Lemon-Screen" ultimately reaches up to 10 ft. in height. The "Lemon15

1

Screen" shrub is naturally open and graceful but is easily pruned as a tall, flowering screen in spring; it is hardy in Zone 6b or lower. Because of its vigor, "Lemon-Screen" is conveniently produced in the nursery field, but small plants can be grown in containers for a 5 year if cut back substantially. The cultivar is particularly suited for landscape purposes, especially as a tall barrier or visual screen. "Lemon-Screen" will branch out quickly when vegetative shoots are pruned back, making the plant suitable in traffic or crash barriers, 10 where dense plantings are used.

Its parent, "Lynwood Gold", by contrast is tall and slender—a straight upright variety with erect stems and which attains a height of 6 ft. to 7½ ft. at maturity.

FLOWER

"Lemon-Screen" has light lemon yellow flowers (Yellow 6C) that are 1½ in. to 1¾ in. in diameter. The internodes are 1" to 2" long on flowering wood. Flowering is early and profuse, with four and up to eight 20 flowers per node on some portions of some stems. The corolla lobes are somewhat reflexed. Flowers have four petals and are sometimes fasciated. The flowers have aborted stamens and/or pistils; consequently, "Lemon-Screen" possesses a high degree of sterility.

The "Lynwood Gold" parent is fertile and has pistils that extend well above its pollen sacs, is late flowering and its medium sized flowers (about 1" to 1½" in diameter) are almost evenly spaced on the stem. The flowers of "Lynwood Gold" are brilliant yellow (lighter than 30 its parent. F. Spectabilis). The corolla lobes of "Lynwood Gold" are reflexed and its petals are elliptic.

SHOOTS

The mature shoots of "Lemon-Screen" are yellow 35 and pith is slightly lamellate between nodes.

The stems of the "Lynwood Gold" parent are green when young and brown when mature; they are a bit stiff; the pith at the nodes is lamellate, and on one year shoots, the stems between nodes are hollow.

FOLIAGE

The "Lemon-Screen" leaves are simple, serrate, acuminate at the tip, and attenuate at the base. The size of the leaves is not a distinguishing characteristic. The 45 "Lemon-Screen" leaves which appear in the spring are chartreuse or of about a Yellow-Green 151 B color. In the summer the mature leaves are in the Yellow-Green 144 A/C range and have a Yellow-White 158 A, irregular blotch with no defined edge covering about 25-30% 50 of the leaf surface and that extends outward from the mid rib and veins and contrasts with the green colored portions of the leaf. Fall foliage is Greyed Purple 156B. The summer foliage is disease and insect resistant. The young chartreuse leaves which appear after flowering 55 are striking and suggest the plants are in bloom again. Summer pruning leads to the appearance of shoots with leaves that are chartreuse when young.

The leaves of the "Lynwood Gold" parent, on the other hand, are ovate lanceolate in shape and about 3" 60 to $4\frac{1}{2}$ " long and about 1" to $1\frac{1}{2}$ " wide. Both young and old leaves are deep green in color.

To facilitate the comparison of the characteristics and features of "Lemon-Screen", the subject of this application, and its parent, "Lynwood Gold" and also with the 65 four other new mutant offspring varieties of "Lynwood Gold" referred to above, there are attached hereto as Tables 1-5 comparative tabulations of the characteris-

tics and properties of parent and its five offspring mutants that were developed from a single irradiated plant of "Lynwood Gold." Table 1 compares "Lemon-Screen" and its parent "Lynwood Gold". Table 2 compares "Lemon-Screen" and "Pygmy-Red". Table 3 compares "Lemon-Screen" and "Tinkle Bells". Table 4 compares "Lemon-Screen" and "Minikin". Table 5 compares "Lemon-Screen" and "Fairy Land".

TABLE 1

	Ser. No. 272,063 LEMON SCREEN	
Plant:		
Habit	Tall, open and graceful; Upright,	
	fan shape; vigorous; open	
	foliage	
Size, height		
Size, width	Hardy Zone 6b (or lower)	
Vigor	Vigorous	
Hardiness		
Productivity	Abundant Flowers/highly sterile/	
	pruned wood branches quickly	
Stems or Shoots:		
Color (young)		
Color (mature)	Yellow	
Rigidity	Slightly lamellate between nodes	
Leaves:		
Туре	Simple	
Color:	-	
(young)	Yellow green 151 B or Chartreuse	
(,, 0 = 1.6)	(appear after flowering)	
(mature)	Normal green (Yellow-Green 144)	
,	whitish blotches	
(fail)	Greyed Purple 187 B	
Shape		
tip	Accuminate	
base	Attenuate	
margins	Serrate	
Size		
length	Not distinguishing	
width	Not distinguishing	
Venation	Pinnate	
Flower:		
Date of Flowering	Early	
Size: width	13"-13"	
Color:	Yellow (6 C)	
Corolla:		
length		
lobes	Somewhat reflexed	
Petals: number	4. sometimes fasciated	
Pistils:	aborted stamens &/or pistils	
Number per node:	4 to 8	
Insertion angle		
on upright stems:		
Internodes:	1" to 2" long on flowering wood	
Stress Resistance:	Summer foliage disease & insect	
	resistant	
Utility Aspects:	Summer pruning leads to shoot	
	with chartreuse leaves (young)	
	with charteuse leaves (young)	

	LYNWOOD GOLD [,]
Plant:	
Habit	Tall, slender-Upright
	straight & erect stems
Size, height	6'-71'
Size, width	
Vigor	•
Hardiness	
Productivity .	Fertile
Stems or Shoots:	
Color (young)	Green
Color (mature)	Brown
Rigidity	A bit stiff; pith nodes lamellate;
	hollow between nodes on one year shoots
Leaves:	•
Type	
Color:	

Deep Green

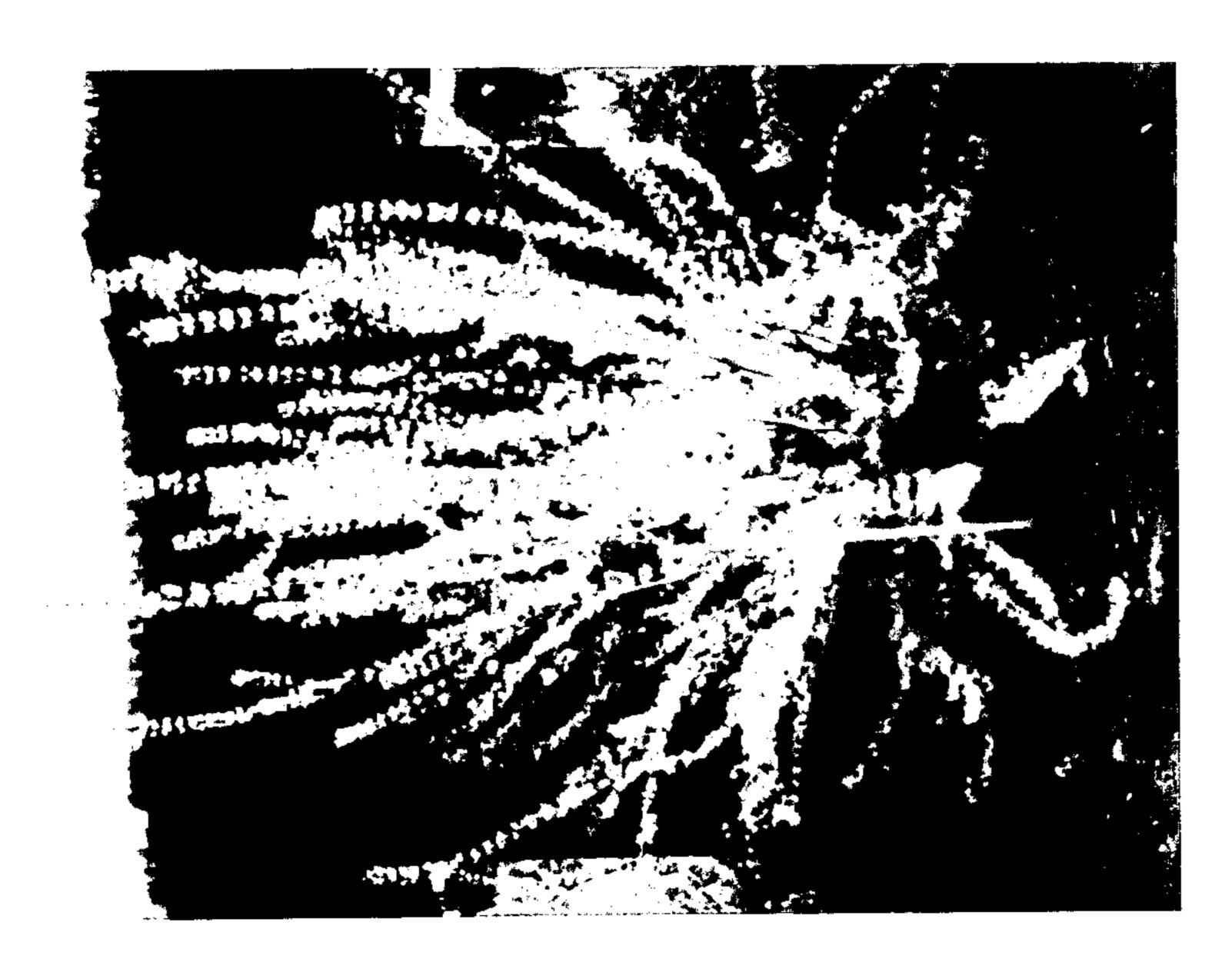
(young)

·	ABLE 1-continued		TA	BLE 2-continued
mature)	Deep Green		Stress Resistance:	Summer foliage disease & insect
fall) hape	ovate lanceolate	5	Utility Aspects:	resistant Summer pruning leads to shoot with chartreuse leaves (young)
ip		–	<u> </u>	
ase nargins	•			Ser. No. 271,666 PYGMY RED
ize	2 4377		Plant:	
ength vidth	$3-4\frac{1}{2}''$ $1-1\frac{1}{2}''$		Habit	Low, loose graceful
enation	1-12	10		arching to ground
lower:			Size, height	31'-41'
Date of Flowering	Late		Size, width	5'-6'
lize: width	1"-11" (medium)	•	Vigor	Good vigor Hardy Zone 6b (or lower)
Color:	Brillant Yellow (lighter than its		Hardiness Productivity	Readily roots where branches
Compile.	paren Spectabilis)	15	11000011111	touch ground few seed pods
Corolla:			Stems or Shoots:	•
ength obes	Reflexed		Color (young)	High anthocyanin
etals: number	Large, broad, open		Color (mature)	Purple Red (59 A)
	Elliptic		Rigidity	Flexible lamellate between nodes
Pistils:	Extend well above pollen	20	Leaves:	C:1-
	sacs (anthers) of stamens		Type	Simple
Number per node:			Color:	D 1 2
nsertion angle on upright stems:			(young)	Dark Green
nternodes:	Flowers almost evenly spaced		(mature) (fall)	Dark Green Anthocyanin (maroon) expressed
	on stems	25	(1M1)	in full sun
tress Resistance:		4.)	Shape	Lanceolate (few lobed
Itility Aspects:				leaves on vegetative shoots)
			tip	Accuminate
	TADIES		base	Attenuate
	TABLE 2		margins	Serrate
	Ser. No. 272,063	30	Size	20 210 - Alexandra
	LEMON SCREEN		length	2"-2½" on flowering wood:
Plant:	-		width	to 2\frac{3}{2}" on vegatative wood 0.3"-0.4" on flowering wood:
Habit	Tall, open and graceful; Upright,		Width	to 1" on vegetative wood
	fan shape; vigorous; open		Venation.	Pinnate
	foliage	35	Flower:	
Size, height	up to 10'		Date of Flowering	Intermediate
Size, width	Hardy Zone 6b (or lower)		Size: width	$1\frac{1}{4}''-1\frac{1}{2}''$
Vigor	Vigorous		Color:	Yellow (7A)
Hardiness	Abundant Flowers/highly sterile/		Corolla:	
Productivity	Abundant Flowers/highly sterile/ pruned wood branches quickly	40	length lobes	Narrow
Stems or Shoots:	primed wood oranemes quiency	₩.	Petals number	4 - sometimes 5
Color (young)			Pistils:	Extend 2/25"-3/25" above
Color (mature)	Yellow			pollen sacs of stamens
Rigidity	Slightly lamellate between nodes		Number per node:	2
Leaves:			Insertion angle	
Type	Simple	45	on upright stems: Internodes:	$1''-1\frac{1}{2}''$ ($1\frac{1}{2}''$ even on
Color:			Titetiicaes.	fast growing shoots
(young)	Yellow green 151 B or Chartreuse		Stress Resistance:	disease and insect
	(appear after flowering)		Utility Aspects:	
(mature)	Normal green (Yellow-Green 144)		······································	
(fall)	whitish blotches Greyed Purple 187 B	50		
Shape	Cicycu i urpic 10/ D			TABLE 3
tip	Accuminate			Ser. No. 272,063
base	Attenuate			LEMON SCREEN
margins	Serrate		Plant:	
Size		55	Habit	Tall, open and graceful; Upright,
length	Not distinguishing			fan shape; vigorous; open
width Venation	Not distinguishing Pinnate			foliage
Flower:	I HIHAIC		Size, height	up to 10'
Date of Flowering	g Earl y		Size, width	Hardy Zone 6b (or lower)
Size: width	1½"-1¾"	60	Vigor Hardiness	Vigorous
Color:	Yellow (6 C)	•	Productivity	Abundant Flowers/highly sterile/
Corolla:	•		- -	pruned wood branches quickly
length			Stems or Shoots:	
lobes	Somewhat reflexed		Color (young)	
-	4, sometimes fasciated	, , , -	Color (mature)	Yellow
Petals number	<u> </u>	- 46	Rigidity	Slightly lamellate between nodes
Pistils:	aborted stamens &/or pistils	65	Rigidity	
Pistils: Number per node:		69	Leaves:	
Pistils:		63		Simple

	BLE 3-continued	-		TABLE 3-continued	•
(young)	Yellow green 151 B or Chartreuse (appear after flowering)			for container culture	-
(mature)	Normal green (Yellow-Green 144) whitish blotches	5		TABLE 4	
(fall)	Greyed Purple 187 B			<u> </u>	-
<u>Shape</u>	•			Ser. No. 272,063 LEMON SCREEN	
tip	Accuminate			LEMON SCREEN	
base	Attenuate		Plant:		
margins	Serrate	10	Habit	Tall, open and graceful; Upright,	
<u>Size</u>	•			fan shape; vigorous; open	
length	Not distinguishing			foliage	
width	Not distinguishing		Size, height	Up.to 10'	
Venation	Pinnate		Size, width	Hardy Zone 6b (or lower)	•
Flower:			Vigor Hardiness	Vigorous	
Date of Flowering Size: width	Early 13"-13"	15	Productivity	Abundant Flowers/highly sterile/	
Color:	Yellow (6 C)			pruned wood branches quickly	
Corolla:			Stems of Shoots:		
length			Color (young)		
lobes ·	Somewhat reflexed		Color (mature)	Yellow	
Petals number	4, sometimes fasciated	20	Rigidity	Slightly lamellate between nodes	
Pistils:	aborted stamens &/or pistils		Leaves:		
Number per node:	4 to 8 ·		Type	Simple	
Insertion angle			Color:		
on upright stems:	gur a marri de la companione de la compa		(young)	Yellow green 151 B or Chartreuse	
Internodes:	I" to 2" long on flowering wood Summer foliage disease & insect	25	(matura)	(appear after flowering) Normal green (Velloy: Green 144)	
Stress Resistance:	Summer foliage disease & insect resistant	43	(mature)	Normal green (Yellow-Green 144) whitish blotches	
Utility Aspects:	Summer pruning leads to shoot		(fall)	Greyed Purple 187 B	•
,p	with chartreuse leaves (young)		Shape	- · · · · · · · · · · · · · · · · · · ·	
		_	tip	Accuminate	
	Ser. No. 273,489 TINKLE BELLS		base	Attenuate	
		 30	margins	Serrate	
Plant:			<u>Size</u>		
Habit	Semi-dwarf; Upright		length	Not distinguishing	
Size, height	4'-41'		width	Not distinguishing	
Size, width			Venation	Pinnate	
Vigor Magdinasa	Medium vigor	35	Flower:		
Hardiness Productivity	Hardy Zone 6b (or lower)		Date of Flowering	Early	
Productivity	Does not layer naturally (replicates from stools (no seed pods observed)		Size: width Color:	1½"-1¾" Yellow (6 C)	
Stems or Shoots:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Corolla:	renow (o C)	
Color (young)	Yellow Green		length		
Color (mature)	Light brown	40	lobes	Somewhat reflexed	
Rigidity	Sparsely lamellate between	40	Petals: number	4. sometimes fasciated	
_	nodes - Rigid		Pistils:	aborted stamens &/or pistils	
Leaves:			Number per node:	4 to 8	
Type	Simple		Insertion angle		
Color:			on upright stems: Internodes:	I" to 2" long on flowering wood	
(young)	Medium Green	45	Stress Resistance:	Summer foliage disease & insect	
(mature)	Medium Green			resistant	
(fall)	Faded green to yellow		Utility Aspects:	Summer pruning leads to shoot	
<u>Shape</u>	Elliptical			with chartreuse leaves (young)	
tip	Acute on flower shoots			Ser. No. 271,919	
hace	accuminate on vegetative shoots	5 0		MINIKIN	
base margins	serrate on upper } near tip	J0	Plant:		_
Size Size	on abbet 2 mear mb		Habit	Small stature, fine textured; small	
length	2"-3" (with petiole)		ALAUIL		
width	½" -5 (with periole)			leaves and small stems; densely foliated	
Venation	Pinnate		Size, height	2'-2½'	
Flower:		55	Size, width	3'-4'	
Date of Flowering	Early		Vigor	Good vigor but slow growth	
Size: width	½"-¾" at 45° angle		Hardiness	Zone 6b (or lower)	
Color:	Bright Yellow (7 B)		Danders' 's	Layers naturally	
Corolla:			Productivity Stems or Shoots:	Abundant seed pods	
length	2" open to 45" angle	60		Tight green	
lobes	not reflexed during prime		Color (young) Color (mature)	Light green Brownish green	
Petals number	4; occasionally 5 or 6		COIDI (IIIAIUIE)	Ascending strongly	
Pistils:	short: anthers slightly below stigms portion of pistil		Rigidity	lamellate between nodes	
Number per node:	below stigma portion of pistil 2; often 4 per node		Leaves:		
Insertion angle	buds & flowers pendulous	C.F	Type	Simple	
on upright stems:	penanous	65	Color:	•	
Internodes:	$\frac{1}{2}$ $1\frac{1}{2}$ "		(young)	Bright green to dark green	
Stress Resistance:	Disease and insect		(mature)	Bright green to dark green	
Utility Aspects:	Can force flowering suitable		(fall)	Fading green until leaf drop	

TABLE 4-continued			TABLE 5-continued		
·	Linear	-	Color:	Yellow (6 C)	
hape			Corolla:		
i p	Accuminate				
ase	Attenuate	5	length	Samerahar mellared	
nargins	Lightly serrate	,	lobes	Somewhat reflexed	
ize:			Petals: number	4, sometimes fasciated	
	On wegetative chapte - 11" attached to 1"		Pistils:	aborted stamens &/or pistils	
ngth	On vegetative shoots - 1½" attached to ½"		Number per node:	4 to 8	
	long siender petiole; smaller on flowering		Insertion angle		
	shoots		on upright stems:		
vidth	On vegetative shoots - \frac{1}{4}'';	10	Internodes:	1" to 2" long on flowering wood	
enation	Pinnate		Stress Resistance:	Summer foliage disease & insect	
lower:			Stress Resistance.	resistant	
			Tieilies Annance		
Date of Flowering	Intermediate		Utility Aspects:	Summer pruning leads to shoot	
Size: width	i"-i" (cup shaped) fully reflexed			with chartreuse leaves (young)	
Color:	Yellow (9 A)			Ser. No. 271,665	
Corolla:		15		FAIRY LAND	
	-			IAIRI LAND	
ength			Plant:		
obes	strongly reflexed, very small			Small overal & fine textured:	
etals: number	4:- short and recurved		Habit		
istils:	Short; 1/25" below pollen			Closely spaced flowers & leaves	
	sacs of stamens			Dense (young) foliage	
Jumher ner nodo:	2-4	20	Size, height	3'-4'	
lumber per node:	4		Size, width	5'-6'	
nsertion angle				Good vigor for size	
n upright stems:			Vigor Handings	_	
nternodes:	Short (Flowering shoots 1"-1"		Hardiness	Zone 6b (or lower)	
	Vegetative shoots up to 2")		Productivity	Few seed pods	
tress Resistance:	Doesn't require same degree of winter prot-		Stems or Shoots:		
	tection as most container grown plants of	25	Color (young)	Light green	
-			Color (mature)	Brownish green	
	genre		·		
Itility Aspects:	Blooming can be forced. Especially		Rigidity	Very flexible lamellate between	
	suited for container culture.			nodes	
		_	Leaves:		
			Type	Simple	
		30	Color:	p	
	TABLE 5	50			
		-	(young)	Medium green (fairly light)	
	Ser. No. 272,063		(mature)	Medium green (fairly light)	
	LEMON SCREEN		(fall)	Mostly faded yellow	
			Shape	Lanceolate	
Plant:	;		<u> </u>		
Habit	Tall, open and graceful; Upright.	35	tip	Accuminate	
		55	base	Attenuate	
	fan shape; vigorous; open			On flowering wood; entire	
	foliage		margins	On vegetative wood: serrate top 3	
Size, height	Up to 10'		Size:		
Size, width	Hardy Zone 6b (or lower)			O. d	
Vigor	Vigorous		length .	On flowering wood: - 1½"-2½"	
-	* .B 0.003	40		On vegetative shoots: about 3"	
Hardiness	Atumates Clauses (highly seed) o /	40	width	On flowering wood: 0.2"-0.4"	
Productivity	Abundant Flowers/highly sterile/			On vegetative shoots 0.5-0.6"	
	pruned wood branches quickly		-Venation	Pinnate	
Stems of Shoots:			Flower:		
Color (young)				, T-+	
	Wallan.		Date of Flowering	Intermediate	
Color (mature)	Yellow Skinkelin lamallata hassinaan aadaa	4.5	Size: width	3"-14"	
Rigidity	Slightly lamellate between nodes	45	Color:	Yellow (6 A)	
Leaves:			Corolla:		
Type	Simple			•	
			length	Daffarad cmcH	
Color:			lobes	Reflexed, small	
(young)	Yellow green 151 B or Chartreuse		Petals: number	Generally 4-many have 5, 6, 7 and	
	(appear after flowering)			8 on single corolla	
(mature)	Normal green (Yellow-Green 144)	50	Pistils:	Extend 3/25" to 4/25" above pollen	
····	whitish blotches			sacs (anthers) of the stamen	
(Co.11)	Greyed Purple 187 B		Number per node:	2-4	
(fail)	Oresea rarbie 101 D		Insertion angle		
Shape			_		
tip	Accuminate		on upright stems:	1" to show 1"	
base	Attenuate		Internodes:	¼" to about 1"	
	Serrate	55	Stress Resistance:		
margins	SCITALE		Utility Aspects:	Very well suited for	
<u>Size</u>			- •	container culture.	
length	Not distinguishing				
width	Not distinguishing				
			What is claimed is	·	
Venation	Pinnate				
Flower:		60	1. A new and disti	nct cultivar of Forsythia interme	
Date of Floweri	ng Early	-		en' substantially as shown and	
Size: width	13"-13"			The second and site and	
TT W 11	- <u>2</u> - 4		scribed herein.		





F [G. 1



Sheet 2 of 2

FIG 3



FIG. 4