

Sixty fine linen towels or mats. Warp: 40/2 mercerized linen at 30 per inch; weft same. For towels use 449 ends or more. Narrow colored border stripes may be introduced just above the hem, or stripes of texture may alternate with stripes of plain tabby for a simple border. Finished towel should be 14x24. For mats, 393 ends should weave to a 12-inch width. Weave 2½" for hem; then ¼" plain, ½" texture, ¼" plain, ½" texture, ¼" plain. Body of mat in texture. Size, finished, 12x18. Try to keep texture stripes in complete patterns. Weave without tabby except as indicated. Many of these twills make lovely mats in 16/3 mercerized linen at 15.

Draft: 1 2 3 4 1 4 3 2. Numbers indicate harnesses down. Tabby: 13,24.

# 1	# 15	# 27	# 40	# 50
12-23-14-34	12-23-13	12-34-12-34	14-12-23-34	14-23-14-23
# 2	14-34-13	12-14-23-14	23-12-14-34	12-34-12-34
12-14-34-23	# 16	23-14	# 41	Try also 3 & 5 td.
12-23-24-14	12-23-13	# 28	14-34-14-34	units. This has 4
# 3	34-14-13	12-14-34-23	14-13-23-34	# 51
12-13-34-24	# 17	# 29	14-34-23-24	23-34-23-12-14
# 4	12-13-24-34	12-14-13	# 42	# 52
124-13-24	# 18	34-23-13	14-34-23-12	12-14-34-23-34
234-13-24	12-23-12	# 30	14-34-14-12	14-12-23-12-23
# 5	34-14-34	12-24-12	23-34-14-12	# 53
12-34-13-24	# 19	34-13-34	# 43	23-34-14-12-14
# 6	12-23-12-14	# 31	12-24-23-13	34-23-34-23-34
23-14-24-13	34-23-34-14	23-34-14-12	12-24-14-13	# 54
# 7	# 20	23-12-14-34	34-24-14-13	(23-12-14-34) 3x
34-24-13	23-34-23-12	# 32	# 44	14-12-23-12-14
# 8	14-34-14-12	34-23-12	1-14-34-14	(34-14-12-23) 3x
34-14-34	# 21	23-34-14	1-12-23-12	12-14-34-14-12
23-12-23	23-34-23-12	# 33	# 45	# 55-56
# 9	23-12-34-23	34-23-34	14-34-23-34	A. 23-12-14-13-24
12-14-34-23	14-12-34-14	12-14-12	23-(34-23)-34	23-34-14-13-24
# 10	# 22	# 34	14-12-23-34	B. 34-23-12-13-24
23-24-34	12-23-34-14	23-34-23-12	23-(34-23)-34	34-14-12-13-24
12-24-14	12-14-12-14	14-34-14-12	23-12 Omit	a. Omit 13 tabby
# 11	12-14-34-23	# 35	par. ad lib.	b. Omit 24 tabby
12-13-12-24	12-14-12-14	12-23-34	# 46	c. Omit tabby
23-13-23-24	# 23	23-12-13	14-34-23-12	# 57
34-13-34-24	14-23-12	# 36	14-34-23-34	(23-12-14-34) 4x
14-13-14-24	34-12-23	12-24-34-13	23-34-14-12	(23-12-23-12
Ea. line 6 or 8x	# 24	# 37	23-34-14-12	(14-34-14-34) 3x
# 12	12-14-34	12-14-34-13	23-34-23-34	# 58
12-124-23-123	23-34-14	34-14-12-24	23-12	(12-23-34-14) 2x
34-234-14-134	# 25	# 38	# 47	34-14-34-14
# 13	12-23-34-14	12-14-34-14	23-12-23	(34-23-12-14) 2x
12-134-23-124	23-14-23-14	13-24-12-23	34-14-34	# 59
34-123-14-234	23-14-34-23	34-23-13-24	# 48	12-23-34-23-12
# 14	12-34-1234	# 39	12-23-13-24	14-34-23-34-14
134-123-124	12-34	12-14*34-23	34-23-24-13	# 60
234-123-134	# 26	12-23-34-14	# 49	14-34-13-34-14
234-124	12-13-34-13	Start on 14*	34-23-14-23	12-23-24-23-12

More Twills - Construction of Treading Drafts

Every weaver may become her own designer. Literally thousands of figures are possible thru methods here outlined. This is a mere beginning.

Start with any simple treading unit A(1), as shown below. Try to find all usable permutations of the harness combinations in the unit; 24 in this case. Any of these units may be used as a treading draft by repeating the four harness combinations indefinitely in the same order to produce a simple design.

Now try combining one of these units with one or more of the others that may fit into a pleasing design. Draw down the individual units on bits of graph paper (5sq. per cm) as shown (p.3). Maintain a uniform margin and write treading at bottom of slip. Use these as building blocks or jigsaw bits to build designs. Start by combining two only. As you work out permutations in other types, combine two or more types for more intricate and interesting designs. Eliminate some of the guesswork with these fragmentary draw-downs. Add an extra shot or two where you need it, or omit one.

Sometimes one or two tabbies (13,24) inserted at well chosen intervals improve the design. It is not easy to formulate rules for the insertion of tabby. It should not be too frequent in twills. One tabby is inconspicuous, and helps tie down warp floats. Often one tabby is much better than the other. Two (13,24) tie down completely, and mark a break in the design. Often tabby is used to separate the elements of design.

Don't be afraid to experiment; improvise; synthesize. Practically all of the lovely twills in standard four harness weaving manuals are built on forms here given. An occasional special design occurs by coincidence or inspiration, but most are planned methodically.

Many of the twills in this section are useful for towels and mats, but in others the texture is not sufficiently firm for such use. Many can be used with standard alternating tabby (13,24) for developing overshot designs with pattern in color. These are lovely for purses, bags, aprons, dirndls, children's clothing, household linens and other items.

The first group of permutations will be presented in some detail to illustrate the method. Other groups will be more sketchily outlined, but the weaver may realize from these the tremendous possibilities for designing. These designs are not new. They are as old as the weaver's craft, but can be discovered anew by any weaver who has the patience to search for them. Many combinations are worthless from the standpoint of design, and often it seems a fruitless search. But occasionally we are rewarded with a better-than-average design which we may call our own.

The first group begins with the simple twill sequence 12,23,34,14, and the 24 possible permutations or arrangements of these harness combinations. Following the permutations is a list of good drafts secured by combining units from that group or from that and preceding groups. Numbers indicate harnesses down.

Permutations I A	I C	1.	14-12-23-34	34-23-12-14
(1) 12-23-34-14 *	(1) 34-14-12-23	34-14-23-12	6.	12-23-12-14
(2) 12-23-14-34 *	(2) 34-14-23-12 *	14-34-12-23	34-14-23-12	11.
(3) 12-14-23-34 *	(3) 34-12-23-14	2.	12-14-23-34	23-12-34-14-24
(4) 12-14-34-23	(4) 34-12-14-23 *	34-14-23-12	7.	14-34-12-23-24
(5) 12-34-23-14	(5) 34-23-12-14 *	34-23-12-14	34-23-12-14	12.
(6) 12-34-14-23	(6) 34-23-14-12 *	3.	23-12-34-14	34-14-23-12-24-13
	I B	34-14-12-23	8.	12-23-14-34-24-13
(1) 23-34-14-12	(1) 14-12-23-34	34-23-12-14	34-23-12-14	13.
(2) 23-34-12-14 *	(2) 14-12-34-23	4.	12-34-23-14	34-23-12-14
(3) 23-14-34-12 *	(3) 14-23-34-12	23-12-34-14	9.	34-14-12-23
(4) 23-14-12-34	(4) 14-23-12-34	12-14-34-23	14-34-23-12	14.
(5) 23-12-14-34 *	(5) 14-34-23-12 *	5.	34-14-12-23	23-34-14-12
(6) 23-12-34-14	(6) 14-34-12-23 *	14-34-23-12	10.	23-24-14-13

Permutations Concluded Three Harness Combinations

Drafts containing three - harness combinations, because of the longer floats, are not usually satisfactory for towels, mats, and other items subjected to constant wear. There are, however, some interesting designs and combinations to repay a long and sometimes tedious search. The longer floats tend to pack down and to lose their identity in the softer weaves, and so we use tabby frequently to make the figures stand out. Tabby may be used after each pattern shot, or after each group. Each design presents an individual challenge. Structo treading is used here (rising shed) to save space. To change to falling shed, substitute 234 for 1, 134 for 2, 124 for 3, 123 for 4, 13 for 24, 24 for 13, 12 for 34, 23 for 14, 34 for 12, and 14 for 23. R-reverse; Rp.-repeat; A-alternate.

Permutations V These units may be used singly or in combinations, with or without tabby. A few methods of treatment are suggested here. The reversals are particularly useful in groups or with the more familiar motifs set in this richer background.

V A(24 units)	4-3-2-1-2-3	10.1-2(13)4-3(24)	18.4-3(24,13)2-1(24,13)
1-2-3-4; 3-1-2-4	3-4-2-1-2-4	11.4-3-2-1 R;34	19.1(13)2(24)3(13)4(24)
1-4-3-2; 3-4-1-2	3-2-4-1-4-2 etc.	14-12-23-12 R	20.4-3-2-1-R
2-1-4-3; 4-3-2-1	1.1-2-3-4(13,24)	12.4-2-1-3 R	34-14-12-23-34 R
2-1-3-4; 4-2-3-1	2.1-2(24)3-4(24)	34-14-12 R	21.4-3-1-2 R (13,24)
2-3-4-1; 4-1-2-3	3.1-2(24)4-3(24)	13.1-2-3-4 R(13,24)	22.4-3-1-2 (13,24)
3-2-1-4; 4-1-3-2	4.1-3(24)4-2(24)	14.4-3-2-1 R(13,24)	23.3-2-4-1 R (13,24)
3-4-2-1; etc.	5.1-3(24)2-4(24)	15.A 13 and 14	24.1-4-2-3 R (13,24)
Reversals (24)	6.3-4(13)2-1(24)	16.3-2-1-4(13,24)	25.A 23 and 24
1-2-3-4-3-2	7.1-4-3-2(13,24)	17.2-1(24)3-4(13)	26.1-2-3-4 R 4-1-3-2 R 2

V B	8.1-12-2-23-3-34-4-14	1.1-2-3-4-123-124-134-234
1.1-12(13)2-14(24)	9.1-23-2-34-3-14-132	2.4-3-2-1-234-134-124-123
3-34(13)4-23(24)	10.1-34-2-14-3-12-4-23	3.2-4-1-3-124-234-123-134
2.1-23(13)2-12(24)	11.34-3-23-4-12-1-23-2(13,24)	4.4-1-3-2-134-124-234-123
3-14(13)4-34(24)	12.34-3-12-4-12-1-23-2	5.4-2-3-1-234-124-134-123
3.1-34(13)2-23(24)	Forward and reverse:	6.3-4-2-1-234-134-123-124
3-12(13)4-14(24)	13.1-12-2-23-3-34-4-14(13,24)	7.1-4-2-3-234-123-134-124
4.1-14(13)2-12(24)	14-4-34-3-23-2-12-1(24,13)	V D
3-23(13)4-34(24)	14. Also thus:12-1-23-2 etc.	1.1-234-2-134-3-124-4-123
5.1-14(13)2-34(24)	15.34-3-23-2-12-1-14-4(13,24)	2.234-1-134-2-124-3-123-4
3-23(13)4-12(24)	16.14-4-12-1-23-4-34-3	3.123-4-3-234-1-2(13,24)
6.1-14(13)3-34(24)	17.2-23-1-12-4-14(13,24)	4.124-3-234-1-2 5.123-4-234-1
3-23(13)4-12(24)	14-4-12-1-23-2-34-3(13,24)	6.1-234-123-4 7.124-234
7.1-14-2-12-3-23	3-34-2-23-1-12-4-14(13,24)	1-2-3-4-124-234-4-3-2-1
4-34 (13,24)	V C	8.234-4-3-123-2-1

1.1-4-3-2-3-4	4-34-234	14. Tab.or not; 1-	19.(24,13)134-23-
2.4-2-3-1-3-2(13,24)	9.a.123-234-34-	14-134-123-12-1	124-34-123-C
3.3-4-2-1-2-4(13,24)	14(13,24); b.14-34-	15.Tab.123-12-1-12-	20.123-34-124-23-
4.3-1-2-4-2-1(13,24)	234-123(24,13)	123-134-14-1-14-134	134-C
Harnesses down now	10.14-34-234-123-12-1	16.Tab.or not;1-14-	21.A19 & 20(13bet.)
5.12-123-234-34-	11.(134-234)2x-134	134-234-134-14-1(24,	22.(24,13)-124-123-
4(13,24) Repeat	(24,13)-(123-234)2x	13)-1-12-123-234-	234-123-234-123-124
6.12-123-234-34-	123(24,13)	123-12-1(24,13)	23.124-134-234-134-
4(13) Reverse	12.123-124-123-124	17.Tab.like#13:1-	234-134-124
Tabby between units	(13,24)-134-234-	14-134-234-134-14-1	24.Rp. or A 22 & 23
A or Rp. a and b	134-234-(13,24)	18.Rp.or A units:a. Use 13 tabby between	25.14-34-23-12
7.a.1-14-134-14-1	13.Full tabby;also	1-14-134-234-123-234-	14-12-23-12
b.234-23-2-23-234	none. Start after 24	134-14-1(13,24)b.1-	14-12-23-34
8.a.1-14-134-123-	1-14-134-14-1(13,24)	12-123-234-134-234-	
12-1;b.234-23-2-	1-12-123-12-1(13,24)	123-12-1(13,24)	26.34-124-134-12

Overshot Treadlings

The twills on pages 1-4 may be used for overshot designs with few exceptions by using standard alternating tabby, like warp, between pattern shots in color. The sett for aprons, skirts, and children's clothing may vary from 10/3 at 15 per inch to 24/2 at 30.

In the case of the twill motives, we disregard any tabby shots included in the original instructions. Overshot designs may be extended by the repetition of pattern shots as required to improve the figure and present a bolder design. Always use tabby between pattern shots. This is sometimes troublesome in the case of three-harness combinations which do not always accommodate themselves to standard tabby procedure. Two tabbies will tie down the refractory shots; opposites will serve, also.

Many motives centered on the 12 combination have their counterpart centered on the 14 combination, as found in a number of designs here. Either or both of the figures may be used. *C* indicates center; reverse. Double center shot.

1.	14-34-14	33.	49.	66.
12-23-34-14	14.	23-34-14-12	14-12-23-14 C	12-14-34-23
1-6x ea. comb.	34-14-34-23	23-34 C	50.	12-14-34 C
2.	15.	34.	12-14-34 C	67.
12-23-34-14	14(2x)-23(8x)C	34-23(4x)-34	51.	123-12-234-14 C
34-23-12(6x) C	16.	14-12(4x) C	12-23-34-12 C	68.
1-6x ea. comb.	14-12-23-34-12	35.	52.	234(4x)14-12
3.	C; 2x ea.	14-34-23(4x)-14	23-34-14-12-23C	23-12-14-34
(12-23-34-14)	17.	34(6x)-23(4x) C	53.	23-12-23 C
(14-34-23-12)	23(4x)-34(2x)C	36.	12-23-34-14-12	69.
1-6x ea. group	18.	34-23-12-14 C	(4x)-13-24 C	<u>234(2x)-12(2x)</u>
4.	34-23-12-14	37.	54.	Ea. comb. 3x
34-23-12-14-34	12-23-34(4x) C	34-23-12-14(6x)C	34-23-12	70.
C; 1-4x ea.	1-3x ea. comb.	38.	14(6-10x) C	12-23-34-12-23 C
5.	19.	12-23-34-14-34	55.	71.
12-23-34(6x)	23-34-14 C	23-12-14(4x) C	12-23-34(10x)C	12-23-12-23-34
23-12	<u>1-4x ea. comb.</u>	Ea. comb. 2-6x	56.	72.
6.	Ea. comb. 1-10x	39.	14-34-23(10x)C	Ea. comb. 2-4x
14-34-23(6x)	20.34-23 C	14-12-23(4x) C	57.	(12-23-34)3x C
34-14	21.34-12 C	40.	A # 55 and # 56	73.
7.	22.12-34 C	14(8x)34-23-12C	58.	12-23(2-6x)-12
12-23-34-14(6x)	23.23-14 C	41.	234-12-234-14C	14-34(2-6x)-14
34-23-12(5x)Rp.	24.12-23 C	34(6x)23-12-14C	59.	74.
8.	25.23-12 C	42.	134-14-134	(123-234-134-
12-23-12-14	26.34-14 C	14-34-23(10x) C	123-12 C	124)2x C
1-3 ea. comb.	27.14-34 C	43.	60.	75.
9.	28.12-14 C	23-34-23-12	14-23-124-134C	12-23-12-14
23-34-23-14	29.	14-12 C	61.	34-14-12-23
34-14; 2x ea.	12-23-34-14	44.	234-124-234-134C	34(2x)-23-12
10.	2x ea. comb.	23-34-23-14(4x)C	62.	14-34-23(2x) C
23-12(2x)-23	3x ea. comb.	45.	123-124-134-234	76.
34-14(2x)-34	4x Ea. comb.	34-23-34-23	123-124-134 C	(12-23)2x-34-
11.	30.	12-14-12 C	63.	23-(34-14)2x-
12-23-12-14	34(4x)23-12-14C	46.	123-124-134-	(12-14)2x-34
23-34-23-12	31.	23-34-23-12	234-123 C	14-(34-23)2x-
34-14-34-23	34(4x)-14(4x)C;	14(4x) C	64.	12-23-12-
12.	23(4x)-12(4x)C	47.	34-123-124-123	(14-34)2x-23-
12-23-34-23-12	32.	12-23-34-14(10x)	34	34-(23-12)2x-
14-34-23-34-14	14(4x)-34(4x)C;	34-23-12(9x) Rp.	65.	(14-12)2x-23-
1-3x ea. comb.	<u>12(4x)-23(4x)C</u>	48.	Rose and gold	12-(23-34)2x-
13.	Ea. comb. 2x for	12-23-34-12	12-14-34-23-12 R	14-34-14
12-23-12	bolder figure	23-34-14-12 C	14-34-23-12 C.C	S. & W. treadling

Overshot Designs

Borders for	12.	34(2x)-14(4-6x)-	23(2x)-14(2x) C	(3x)Bn; (234-1-
Aprons, Skirts	(234-13-24)2x	12(4-10x) C		13-2)3x-234-
1.	34(2x)-234-13-	23.	Rose Garden	1-(134-2)5x-12
12-23-34(4x)-	24-12(2x)-23	14-34-14-12-	Brown, Green, Red	(2x)B; 14(3x)
2 T-12-23-34-	(2x)-12(2x)-	23(2-4x)-34	39.	R; 134-2-14 Bk.
14-2 T-12-23	14(4x) C	(2-4x) C	134(2x)-14(6x)B;	
(3x)-34(4x)-14C	13.	24.	(134-2-234-1)	
2.	204-(123-13-24)	Ea. comb.2-4x	(4x)134(2x)-14	Aprons
12-23-34-14-	4x-14(4x)-34	12-23-34-23-12	(2x)-1(2x) G.	20/2 at 30; 5 $\frac{1}{4}$ " for
(12-23)2x-34-	(2x)-14(4x)-34	34-23-34 C	40.	2 $\frac{1}{2}$ " hem; ties and
23-(34-14)2x-	(2x)-23(2x)-	25.	12(3x)-23(3x)-	band 5"; total 40"
12-23-34-14-	12(2x) C	14(4x)-12(4-6x)-	34(2x)-12(3x)-	51.
(12-23)2x-34-	14.	23(2x)-34(2x)-	23(3x) Green	34(2x)- $\frac{1}{4}$ " plain
23(34-14)2x	(134-13-24)2x-	12(4-6x) C	34(3x)-23(2x)R.	34-14-12-23-34-
12-14 C	12(2x)-23(2x)-	26.	41.	$\frac{1}{4}$ " plain; 14-34-
3.	12(6-10x)-	1(2x)-12(2x)-	(12-23-34)2x	23-12(4x)-23-34
14(4x)-34-23-12	23(2x)-12(2x)-	23(2x)-34(2x)-	12(6x)-23(3x)G;	14 $\frac{1}{4}$ " plain; 34-23
(4x)-23-34-14	14(2x)-34(2x)-	14(2x)-1(2x)	12-23(2x)-34-	12-14-34- $\frac{1}{4}$ " plain;
(2x)-12(2x)-23-	14(6-10x) C	27.	23(2x) Red	34(2x)
34-14(4x) C	15.	14-34(2x)-14-	42.	52.
4.	Three shades	23(2x) C	134(3x)-14(6x)-	Wft 20/2 blue;
(12-23-34)3x-	12-23-34-14-D	28.	G; 134(2x)-23(2x)	white nubby &
12(4x)-14(4x)C	Rp. in M. & L.	12-23-34-14	-134(2x) Red	sil. & gold met.
5.	12(2x)-23(2x)-	12(2x)-14(2x) C	43.	1" nub T; *12(2x)
(12-23-14-34)	D. - C	29.	23(6x)-34(3x)G;	23(2x)-12(2x) S;
3x-23(2x)-34-	16.	34-14-12-23-	12(2x)-23(2x)	2 nub T; 12(2x)
14-34-23-	23(2-4x)-13-24-	34-23(2x) C	12(2x) Red	23(2x)-12(2x) G.
12(2x)-C	(12-23-34-14)	30.	44.	2 nub T; 12(2x)
6.	2x-13-24-	12-23-34-	12(3x)-23-34-	23(2x)-12(2x) S.
(12-23-34)2x-	12(2x)-23(2x) C	12(4x) C	G; 12(3x)-Red	2" nub T
12-23-34-23-	17.	31.	45.	Rp. 2x from *
12(4-8x) C	1(4x)-12(4x)-	14(3x)-23-	23-12-23-34-G;	53.
7.	23-34-23-34-	12-23 C	12-23(2x)-12-R.	Blk wp. & wft.
234(4x)-12(3x)-	23-34-14(4x)-	32.	46.	12-23-34-14 Red;
23(3x)-34(3x)-	13-24-12(4x) C	23(3x)-14-34-	23-12-23(2x)-	(12-23-34-14)
12(3x)-23(3x) C	18.	14 C	34(2x)G; 12(2x)	ea. 2x- M. Blue;
8.	* 12(2x)-23(2x)-	33.	23(2x)-12(2x)R.	12-23-34-14-
Ea. comb.2-4x	12(2x)-23-34-	34-23-12(4x)-	47.	Gold col; 1" T;
12-23-12-23	14-Rp. from *	23-34-14(4x)C	12-23(2x)-34-	12-23-34-14 R.
34-14-34 C	12(2x)-23(2x) C	34.	1(2x) G; 12-	34-23-12 G. 12-
9.	Other Borders	12-23-34-14-	23(2x)-12 Red	23-34-14 R; 34-
(12-23)4x	19.	14-34-23-12(4x)C	48.	23-12 B; 1" T;
(34-14)4x-34-	13(col.)-(24-13-	35.	Boy - Black,	*(12-23-34-14)ea.
(23-12)4x C	24)nat.12-23-	(12-23-34-14)	Green, Red	2x G; (12-23-34-
10.	34-14-12(4x)	(2-4x)-12	234-34(5x) B;	14) B; (12-23-34-
(134-13-24)4x -	4 T (col) C	(4-8x) C	(134-2)6x-12	14) ea. 2x G; -14
12(2x)-14(6x)-	20.	(12-23-34-14)	(2x)G; 14(3x)R.	(2x)-12(2x)-14
34(2x)-23(6x)-	12-23-34-14-	(2-4x)-12-23C	49.	(2x)* R; 23(20x)
12(2x) C	34(2x) C	37.	34(2x)-23(2x)B;	G; Rv.* to *
11.	21.	123(2x)-12(2x)	12(6x)-14(2x)G;	1" T; 12-23-34
(12-14)4x-14-	12-23-34-14-	123(2x)-134	12(3x) Red	G; 14(2x)R; 34-
34(2x)-14(2x)-	34(2x)-14(2x)C	(2x)-14(2x) C	50.	23-12 B; (12-23-
34-23(2x)-34	22.	38.	Girl-Blue, Red,	34-14) ea. 2x R.
14(2x)-34-23-	12(2x)-23(2x)-	123(2x)-12(2x)-	Brown, Black	1" T; (12-23-34-
12(2x) C			(234-1)Bk-34	14) R.B.G; 12(2x)

Special Features

1. Lucy's Rosepath, an attractive little draft, borrowed from Mrs. Paul Birge of St. Petersburg. It is merely an extension of the standard draft to twelve threads, and is charming for aprons and skirts when used with many of the treadlings in this series. It is better for overshoot designs than for twills because of the longer floats. The figures are fifty per cent. larger than those of the standard drafts. Draft: 123234 143232.

2. Rosepath Lace on standard draft, also borrowed from Mrs. Birge. Bands of the lace one to two and one-half inches wide, bordered by several rows of 234-13-24 are lovely for aprons and skirts. Two plans; treadle as follows: (A) after 24 tabby, 123-24-123-24-13-24 and repeat as required; (B) after 13 tabby, 234-13-234-13-24-13 and repeat. Beat lightly.

3. Plans for aprons and skirts: Warp 20/2 or 24/2 white or natural cotton at 30 per inch, 900 to 1200 ends. Fabric can be woven with same or with light tint-pink, blue, yellow, green. Design weft may be No. 10 perle or six strand floss in one or more colors. After weaving 5 1/4 " plain for 2 1/2 " hem, begin design in color. This may consist of several borders graduated in width with plain weave between. The plain areas may be relieved by the introduction of occasional nubby or metallic shots on tabby or pattern sheds. Metallics are better on pattern sheds; unless they are well supported they weaken the fabric when used for tabby. Three bands are sufficient, the widest 2 1/2 ", just above the hem, and the narrowest 1 ", at the top of the decorative border. One effective plan is the use of a wide band with a narrow one above it and one below, with random tabby shots between. Bands selected from the treadlings given may be widened or narrowed by adding or omitting shots or elements of the design. Three tints or shades of the same color are always good. Lace bands, treadled as in # 2 above, are very effective on an all white apron. Overshot bands in color, with twill bands in natural or white to introduce them, are especially charming.

4. Opposites are woven without tabby. Two wefts of equal weight are used, one in a pattern color, the other in a background color. Good combinations are dark brown and tan, green and cream, dark red and light gray, dark blue and light gray. Follow any treading draft for pattern shots. After each pattern shot, throw a background shot on the opposite shed. (See p. 4 for opposites.) Example: 14 pat, 23 bg-----34 p. 12 b-----23 p, 14 b-----14 p, 23 b-----14 p, 23 b-----14 p, 23 b-----23 p. 14 b-----34 p, 12 b-----14 p, 23 b and repeat. Only the pattern shots are given in the treading draft. The background shots, or opposites, are supplied by the weaver. Interesting bands on opposites may be done in two colors, thus: Treadle 12 p, 34 b and repeat to desired width. Then treadle 34 p, 12 b to same width and repeat as required.

5. Swivel brings out the entire figure, together with its background, in tabby. Articles woven in this way should be lined, as the longer floats on the back may prove troublesome otherwise. Swivel is useful for purses, cushions, and upholstery. Two wefts of equal weight are used, one in color, the other like warp. Harnesses are operated singly. Each pattern shot, in color, is followed by its opposite, or background, like warp. Harness 1 down, throw color, beat; harness 3 down, throw background; beat. Likewise harness 2, color, 4 background; harness 3 color, 1 background; harness 4 color, 2 background. For design, follow any overshoot threading draft. For example, take Rosepath - 12341432. Treadle 1 color 3 bg - 2 col, 4 bg - 3 col, 1 bg - 4 col, 2 bg -, 1 col, 3 bg - 4 col, 2 bg - 3 col, 1 bg -, 2 col, 4 bg. Treading drafts, also, may be used for swivel designs, but they run into more difficulties. "Remembrance" produces a delicate, lace-like figure, for which we used three colors; brownish green for the central part, then reddish purple, and finally scarlet at the edges. Only the pattern shots occur on the threading draft. The weaver inserts the background shots. Spacing is for convenience. Draft: 1234-1412-1232-3434-3214-3214-1234-1234-3432-3212-1414-3214. Treadle 1(3)-2(4)-3(1)-4(2)-1(3)-2(4)-1(3)-2(4) etc.

Addenda

Twills here given may be woven with or without tabby, except as indicated. The weft may be in color, or like warp. A few treadlings are given on rising shed for convenience. The overshots require the standard alternating tabby.

1.	14-12-34-23	34-23-34-14	43.	34-23-12-14
34(24)-12(13)	16.	23-12-23-14(13)	(23-34-14-12)2x	55.
23(24)-14(13)	12-34-14-23-13-	14-34-14-23	34-14-12-23-12	1-14-34-14
2.	(23-34-14-12)2x-	31.	44.	1-(13)-1-12-
12-34-12(13)	(13)	23-14-23-34	(14-34-23-12)3x	23-12-1-(13)
14-23-14(13)	17.	23-14-23-12	23-(12-23-34-	Rising shed
3.	12-34-23-14	23-34-23-12	14)3x-34	Levers down
12-23-34-14	34-14-12-23	32.	45.	56.
23-14-12-23	18.	12-23-12-14	23-34-14-12	4-2-1-3-1-2-4
4.	23-34-14-12	23-12-23-14	14-23-34-12	34-14-12-C
14-34-23-34	14-34-12-23	34-23-34-14	46.	57.
14(13)-12-23	19.	33.	23-34-14-12	4-3-2-1-2-3-4
24-23-12(13)	(34-23-14)3x-34-	12-23-12-14	14-12-34-23	34-14-12-23-12 C
5.	23-12-23-34-	23-12-23-34	14-34-23-12	58.
34-23-34-14(13)	14-12-23-C	14-34-14-23	47.	4-3-2-1-2-3-4
12-23-(24)23	20.	34i	134-14-234-34	34-14-12-23
12(13)	34-12-23-14(13)	a. 23-34-23-12	123-23-(13,24)	34-14-34-C
6.	14-34-12-23	b. 14-34-14-12	23-123-34-234	Overshot; tabby
(12-23-34-14)2x	21.	Try a(2x), b(2x)	14-134-12-124	59.
(12-23-14-34)2x	34-14-23-12	Try a once, b(2x)	(13,24)-124-12	(123-234-134
7.	14-23-34-12	35.	134-14-234-34	124)2x-C
(12-23-34-14)2x	22.	(12-14-34-23)2x	123-23 *(13,24)	60.
(12-34-14-23)2x	23-34-12-14(13)	12-14-23-14	Rev. from *	(24)-234-123-124
8.	14-12-34-23(24)	36.	48.	134-234-123 0
(12-23)2x-(34-	23.	12-23-14-12	23-123-34-234	61.
23)4x-(34-14)	23-34-14-12	23-34-14-34	14-123-12-124	(24)-123-234-134
4x-(34-23)4x-	23-34-12-14	12-34-12-14(13)	(13,24)	124-123-234 C
(12-23)2x-12	34-23-12-14	14-23-12(24)	49.	62.
9.	24.	37.	(12-23-34-14)2x	23-124-134 C
(12-23)2x-(34-	23-12-14-34	14-12-23-12-34	12-23-34-23-12	63.
23)2x-(34-14)2x	23-12-34-14	14(13)-14-34	14-34-23-34-14	34-134-123 C
10.	34-14-23-12	23-14-23-12	12-23-34-23-12	64.
34-23-12-14	25.	38.	(14-34-23-12)2x	Es. comb. 2x
34-23-34-14	(23-34-14-12)2x	12-34-14-23	50.	23-12-14-34-14
34-23-12-14-34C	(23-14-34-12)2x	14-34-12-23	14-34-23-12	12-23-34-(4x) C
11.	26.	12-14-34-(13)	14-23-34-23	65.
34-23-34-14	23-34-14-12-23	34-12-23-14	14-12-23-34	Es. comb. 2x
23-34-23-12	12-14-34-23-12	39.	51.	12-23-34-14
12.	27.	23-12-14-34(13)	12-23-34-12	34-23-12-14
(34-23)2x-(34-	23-34-14-12	34-12-23-14-34	34-12-14-23	23-14-C
14)2x-(13)-(23-	23-12-34-14-12	14-23-14-34-23	12-23-34-14	66.
34)2x-(23-12)	14-34-12-23-(12)	40.	34-12-14-23	34-14-12-23
2x-(24)	Try 14 for (12)	34-14-23-12	52.	34-14(3x)-
13.	28.	34-14-(24)-14	12-23-34-14-34-	12(4x)-23(2x) C
23-34-23-12-	23-12-34-14	34-23-14-23-12	23-12-14-23-	67.
(23-12)-14-34	23-14-12-34	41.	34-23-14	(14-12)2x-23-12
23-34(23-34)14	23-12-14-34	34-23-12-14(13)	53.	23-(34-14)2x-12
14.	29.	14-12-23-34(24)	(23-12)2x-(23-	14-(12-23)2x C
Omit par. in #133	(23-34-14-12)2x	42.	34)2x-14-12	68.
15.	23-12-34-14(24)	Use tabby	54.	(12-23)2x-34-14
12-14-34-23(24)	14-34-23-12	(24)-12-34-12	12-23-34-14	12-23-(34-14)2x
23-34-12-14(24)	30.	14-34-14	34-23-12-(13,24)	12-14-12-23-12 C