

Omar Daniel

Regarding U.S. Patent
1,661,058

METHOD OF AND APPARATUS FOR THE GENERATION OF SOUNDS

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METHOD OF AND APPARATUS FOR THE GENERATION OF SOUNDS

Omar Daniel

for Theremin, String Quartet and Hammond Organ

I- Introduzione- Invenzione

II- Ricercare

III Fantasia

duration: 17 minutes

for Carolina Eyck, the Penderecki String Quartet and Gregory Oh

*commissioned by NUMUS
with the generous financial assistance of
The Canada Council Music Commissioning Program*

Regarding U.S. Patent 1,661,058

METHOD OF AND APPARATUS FOR THE GENERATION OF SOUNDS

I

Introduzione-- Invenzione

Omar Daniel

Allegro Barbaro ♩=104

Musical score for measures 1-6. The score includes parts for Theremin, Violin I, Violin II, Viola, Violoncello, Electric Organ, and Pedals. The tempo is **Allegro Barbaro** with a quarter note equal to 104 (♩=104). The Theremin part starts with a *ff* dynamic and a *p* dynamic later. The string parts (Violin I, Violin II, Viola, Violoncello) are marked *ff*. The Electric Organ part is also marked *ff*. The Pedals part is marked *ff*.

Musical score for measures 7-10. The score includes parts for Theremin (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), Electric Organ (E. Org.), and Pedals. The Theremin part starts with a *p* dynamic and a *ff* dynamic later. The Violin I and Violin II parts are marked *ff*. The Viola and Violoncello parts are marked *ff*. The Electric Organ part is marked *ff*. The Pedals part is marked *ff*. A double bar line is present at the beginning of measure 7.

13

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

p < *ff*



19

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

A

p

Andante Martellato ♩=84

28 **B** ♩=♩

Th.
Vln. I
Vln. II
Vla.
Vc.

Andante Martellato ♩=84

B ♩=♩

E. Org.
Ped.

30

Th.
Vln. I
Vln. II
Vla.
Vc.
E. Org.
Ped.

32 ^{8va} | ϕ IV | ϕ IV |

Th. f

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



34 b | ϕ IV | ϕ IV |

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

36 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



38 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

Più mosso, leggero ♩ = 104

40

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

pp

pp

pp

pp

Più mosso, leggero ♩ = 104

44

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

C Andante Maestoso ♩ = 84

f

C Andante Maestoso ♩ = 84

f

48

Th. *ff*

Vln. I *ffff*

Vln. II *ffff*

Vla. *ffff*

Vc. *ffff*

E. Org.

Ped.

53

Th. *f*

Vln. I *f* *ffff*

Vln. II *f* *ffff*

Vla. *f* *ffff*

Vc. *f* *ffff subito*

E. Org.

Ped.

D

59 **Lento** ♩=60

molto espressivo, lamentoso

Th. Musical notation for Trombone (Th.) in 4/4 time, starting at measure 59. The staff contains a melodic line with a dynamic marking of *pp* and a hairpin crescendo. The notes are: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter), B3 (quarter), A3 (quarter), G3 (quarter), F3 (quarter), E3 (quarter), D3 (quarter).

D

Lento ♩=60

E. Org. Musical notation for E. Org. in 4/4 time, measures 59-65. The upper staves (treble and alto) are empty. The lower staves (bass and tenor) contain a rhythmic accompaniment of eighth notes with a dynamic marking of *p*.

Ped. Musical notation for Pedal in 4/4 time, measures 59-65. The staff contains a rhythmic accompaniment of eighth notes with a dynamic marking of *p*.



66

Th. Musical notation for Trombone (Th.) in 4/4 time, starting at measure 66. The staff contains a melodic line with a dynamic marking of *pp* and a hairpin crescendo. The notes are: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter), B3 (quarter), A3 (quarter), G3 (quarter), F3 (quarter), E3 (quarter), D3 (quarter).

E. Org. Musical notation for E. Org. in 4/4 time, measures 66-72. The upper staves (treble and alto) are empty. The lower staves (bass and tenor) contain a rhythmic accompaniment of eighth notes with a dynamic marking of *p*.

Ped. Musical notation for Pedal in 4/4 time, measures 66-72. The staff contains a rhythmic accompaniment of eighth notes with a dynamic marking of *p*.



72

Th. Musical notation for Trombone (Th.) in 4/4 time, starting at measure 72. The staff contains a melodic line with a dynamic marking of *pp* and a hairpin crescendo. The notes are: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter), B3 (quarter), A3 (quarter), G3 (quarter), F3 (quarter), E3 (quarter), D3 (quarter).

E. Org. Musical notation for E. Org. in 4/4 time, measures 72-78. The upper staves (treble and alto) are empty. The lower staves (bass and tenor) contain a rhythmic accompaniment of eighth notes with a dynamic marking of *p*.

Ped. Musical notation for Pedal in 4/4 time, measures 72-78. The staff contains a rhythmic accompaniment of eighth notes with a dynamic marking of *p*.

II Riccercare

Allegro ♩=112

Theremin

Violin I

Violin II

Viola

Violoncello

Electric Organ

Pedals

f > *pp*

Allegro ♩=112

mp *f* *f*

mp *f* *f*

A

10

approximate pitch

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

f

non legato

f

f

f

f

f

A

16

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

21

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

27

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

B

31

molto vib. *ad.lib.*

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

f

ff

ff

ff

ff

ff

36 *8th note rhythm, pitches ad.lib.*

Th.
Vln. I
Vln. II
Vla.
Vc.
E. Org.
Ped.

42 *ad.lib.* *mid register*

Th.
Vln. I
Vln. II
Vla.
Vc.
E. Org.
Ped.

C

descend using pattern

Musical score for measures 47-52. The score includes parts for Trombone (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), Electric Organ (E. Org.), and Pedal (Ped.). Measure 47 is marked with a box containing the letter 'C' and the instruction 'descend using pattern'. The Trombone part features a descending melodic line starting at measure 47. The strings (Vln. I, Vln. II, Vla., Vc.) play a rhythmic accompaniment of eighth notes. The Electric Organ and Pedal provide harmonic support with chords and single notes. Dynamics include *f* (forte) in measures 48, 49, and 50.



Musical score for measures 53-58. The score includes parts for Trombone (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), Electric Organ (E. Org.), and Pedal (Ped.). Measure 53 is marked with a box containing the letter 'C'. The Trombone part continues with a descending melodic line. The Violin I part has a melodic line with a trill-like figure in measure 54. The Violin II part has a melodic line with a trill-like figure in measure 54. The Viola part has a melodic line with a trill-like figure in measure 54. The Violoncello part has a melodic line with a trill-like figure in measure 54. The Electric Organ and Pedal provide harmonic support with chords and single notes. Dynamics include *f* (forte) in measures 53, 54, and 55.

59

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



65

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

D

72

Th. *p* *dolce*

Vln. I *p*

Vln. II *p*

Vla. *p*

Vc. *p*

E. Org. *p*

Ped. *p*



79

Th.

Vln. I *mf*

Vln. II

Vla. *mf*

Vc.

E. Org.

Ped.

84

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

mf

pizz.

p

8va



88

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

pizz.

mf

p

8va

92

Th.

Vln. I

Vln. II

Vla.

Vc.

mf

E. Org.

Ped.

96

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

E

ad. lib.
keep similar range and pattern
keep quarter note rhythm

f

arco

f

arco

f

101

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

106

descending pattern

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

110

Th. *legatissimo*

Vln. I *p*

Vln. II *pp*

Vla. *pp*

Vc. *legatissimo* *p*

E. Org. *legatissimo*

Ped. *p*

F

117

Musical score for measures 117-125. The score includes parts for Trombone (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), E. Org., and Ped. The key signature is one sharp (F#) and the time signature is 3/4. The Trombone part features a long melodic line with a fermata. The string parts (Vln. I, Vln. II, Vla., Vc.) play a rhythmic accompaniment of eighth notes with various dynamics including *pp*. The E. Org. and Ped. parts provide harmonic support with sustained notes and a walking bass line.



126

Musical score for measures 126-134. The score includes parts for Trombone (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), E. Org., and Ped. The key signature is one sharp (F#) and the time signature is 3/4. The Trombone part has a melodic line with a fermata. The string parts (Vln. I, Vln. II, Vla., Vc.) play a melodic line with a fermata, marked with *ppp*. The E. Org. and Ped. parts provide harmonic support with sustained notes and a walking bass line.

G
134

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

f

ff

ff

pizz.

ff

pizz.

ff

G

138

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

ff

ff

arco

pizz.

arco

arco

pizz.

arco

G

142

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

p *ff* *p* *ff* *p* *ff*

5 5 5 5

146

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

p *ff* *p* *f* *p* *f*

H H

5 5 5 5

150

Th. *sfz*

Vln. I *sfz*

Vln. II *sfz*

Vla. *sfz*

Vc. *sfz*

E. Org.

Ped.

Detailed description: This system covers measures 150 to 153. The Trumpet (Th.) part begins with a rest in measure 150, followed by a melodic line in measures 151-153. The Violin I (Vln. I) and Violin II (Vln. II) parts play a rhythmic eighth-note pattern in measures 150-151, then have rests. The Viola (Vla.) part has a rest in measure 150, followed by a melodic line in measures 151-153. The Violoncello (Vc.) part has a rest in measure 150, followed by a melodic line in measures 151-153. The Euphonium/Organ (E. Org.) and Pedal (Ped.) parts play a complex rhythmic pattern with five-fingered chords in measures 150-153. Dynamics include *sfz* (sforzando) for the strings and woodwinds.

154

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

Detailed description: This system covers measures 154 to 156. The Trumpet (Th.) part has a rest in measure 154, followed by a melodic line in measures 155-156, ending with a triplet. The Violin I (Vln. I) and Violin II (Vln. II) parts play a melodic line in measure 154, then have rests. The Viola (Vla.) and Violoncello (Vc.) parts have rests throughout. The Euphonium/Organ (E. Org.) and Pedal (Ped.) parts play a complex rhythmic pattern with five-fingered chords in measures 154-156. Dynamics include *sfz* (sforzando) for the strings and woodwinds.

157

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



161

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

I
165

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



173

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

180

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

185

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

J

190

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

f

f

J

197

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

f

pp

f

pp

f

pp

f

pp

III Fantasia

Lento e da lontano ♩=52

Theremin

Violin I

Violin II

Viola

Violoncello

Theremin: *semplice* *pp* *pp*
Violin I: *p* *pp*
Violin II: *semplice* *pp* *p* *pp*
Viola: *semplice* *p* *p* *pp*
Violoncello: *p* *p* *pp*

Lento e da lontano ♩=52

Electric Organ

Pedals



8

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

Th.: *pp* *p*
Vln. I: *p* *p* *p*
Vln. II: *p* *p* *p*
Vla.: *p* *p* *p*
Vc.: *p* *p* *p*

Appassionato (l'istesso tempo)

A

Musical score for measures 16-19. The score includes parts for Trombone (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), E. Org., and Ped. The key signature has one flat (B-flat). Measure 16 starts with a dynamic of *f*. Measures 17 and 18 show sustained notes in the strings. Measure 19 features a dynamic of *f* and a 12-measure slur over the strings. A double bar line is present at the end of measure 19.

A Appassionato (l'istesso tempo)

Musical score for measures 20-23. The score includes parts for Trombone (Th.), Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), Violoncello (Vc.), E. Org., and Ped. Measure 20 starts with a dynamic of *f*. Measures 21 and 22 feature a 12-measure slur over the strings. Measure 23 features a 7-measure slur over the strings. A double bar line is present at the end of measure 23.

22 (8)

Th. Vln. I Vln. II Vla. Vc. E. Org. Ped.

This musical system covers measures 22 and 23. It features a woodwind section with a Trombone (Th.) and a string section with Violins I and II (Vln. I, Vln. II), Viola (Vla.), and Violoncello (Vc.). The keyboard section includes Electric Organ (E. Org.) and Pedal (Ped.). Measure 22 begins with a treble clef, a key signature of one flat (B-flat), and a common time signature. The Trombone part has a whole note G2. Violin I and II play a sixteenth-note figure with a slur and a fermata. The Viola and Violoncello parts also play sixteenth-note figures with slurs and fermatas. Measure 23 continues the string parts. The Electric Organ and Pedal parts are shown with a grand staff, with the Pedal part having a whole note G2. A double bar line with repeat dots is at the end of the system.

23 (8)

Th. Vln. I Vln. II Vla. Vc. E. Org. Ped.

This musical system covers measures 23 and 24. It features the same instrumentation as the previous system. Measure 23 begins with a treble clef, a key signature of one flat (B-flat), and a common time signature. The Trombone part has a whole note G2. Violin I and II play a sixteenth-note figure with a slur and a fermata. The Viola and Violoncello parts also play sixteenth-note figures with slurs and fermatas. Measure 24 continues the string parts. The Electric Organ and Pedal parts are shown with a grand staff, with the Pedal part having a whole note G2. A double bar line with repeat dots is at the end of the system.

24 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

25 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

26 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

7

5

12

12

7

13

(b)

(b)

Detailed description: This system of musical notation covers measures 26 and 27. The instruments are Th. (Trombone), Vln. I (Violin I), Vln. II (Violin II), Vla. (Viola), Vc. (Violoncello), E. Org. (Electric Organ), and Ped. (Pedal). Measure 26 begins with a treble clef and a key signature of one flat. The Th. part has a whole rest. Vln. I has a quarter rest followed by a sixteenth-note triplet with a slur and a '5' above it. Vln. II has a sixteenth-note triplet with a slur and a '12' above it. Vla. has a sixteenth-note triplet with a slur and a '7' above it. Vc. has a sixteenth-note triplet with a slur and a '13' below it. The E. Org. and Ped. parts have whole rests. Measure 27 continues the patterns from measure 26. The Th. part has a whole rest. Vln. I has a quarter rest followed by a sixteenth-note triplet with a slur and a '5' above it. Vln. II has a sixteenth-note triplet with a slur and a '12' above it. Vla. has a sixteenth-note triplet with a slur and a '7' above it. Vc. has a sixteenth-note triplet with a slur and a '13' below it. The E. Org. and Ped. parts have whole rests. A double bar line is at the end of measure 27.

27 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

5

5

12

12

7

7

13

(b)

(b)

Detailed description: This system of musical notation covers measures 27 and 28. The instruments are Th. (Trombone), Vln. I (Violin I), Vln. II (Violin II), Vla. (Viola), Vc. (Violoncello), E. Org. (Electric Organ), and Ped. (Pedal). Measure 27 begins with a treble clef and a key signature of one flat. The Th. part has a whole rest. Vln. I has a quarter rest followed by a sixteenth-note triplet with a slur and a '5' above it. Vln. II has a sixteenth-note triplet with a slur and a '12' above it. Vla. has a sixteenth-note triplet with a slur and a '7' above it. Vc. has a sixteenth-note triplet with a slur and a '13' below it. The E. Org. and Ped. parts have whole rests. Measure 28 continues the patterns from measure 27. The Th. part has a whole rest. Vln. I has a quarter rest followed by a sixteenth-note triplet with a slur and a '5' above it. Vln. II has a sixteenth-note triplet with a slur and a '12' above it. Vla. has a sixteenth-note triplet with a slur and a '7' above it. Vc. has a sixteenth-note triplet with a slur and a '13' below it. The E. Org. and Ped. parts have whole rests. A double bar line is at the end of measure 28.

28 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

B Andante con moto ♩=104

31 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

non dim.

mf

f

f

36

Th. *f*

Vln. I *ff*

Vln. II *ff*

Vla. 4

Vc. 5

E. Org. *f*

Ped. *f*

38

Th. ⑧

Vln. I 3

Vln. II 3

Vla. 4

Vc. 5

E. Org.

Ped.

39

Th.
Vln. I
Vln. II
Vla.
Vc.
E. Org.
Ped.

41

C
8va

Th.
Vln. I
Vln. II
Vla.
Vc.
E. Org.
Ped.

42 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

43 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

44 (8)

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

46

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

D

48

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



50

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

52

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.



54

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

56

Musical score for measures 56-57. The score includes parts for Th. (Tuba), Vln. I (Violin I), Vln. II (Violin II), Vla. (Viola), Vc. (Violoncello), E. Org. (Electric Organ), and Ped. (Pedal). The key signature is one sharp (F#) and the time signature is 4/4. The Th., Vln. I, and Vla. parts play sustained notes. The Vln. II and Vc. parts play a rhythmic eighth-note pattern. The E. Org. and Ped. parts play sustained notes.

Musical score for measures 58-61. The score includes parts for Th., Vln. I, Vln. II, Vla., Vc., E. Org., and Ped. The key signature is one sharp (F#) and the time signature is 4/4. The tempo is Adagio, maestoso with a metronome marking of 60. The Th. part has a melodic line with the instruction *molto vibrato, espressivo*. The Vln. I and Vln. II parts play a rhythmic eighth-note pattern with *ff* dynamics. The Vla. part plays a melodic line with *ff* dynamics. The Vc. part plays a sustained note with *ff* dynamics. The E. Org. and Ped. parts play sustained notes with *ff* dynamics.

F
65 **Andante, con forza, strepitoso** ♩=104

Th. *8^{va} fff*

Vln. I *fff* 5

Vln. II *fff* 5

Vla. *fff* 5

Vc. *fff* 5

F **Andante, con forza, strepitoso** ♩=104

E. Org. *fff* 5

Ped. *fff* 5

67

Th. *(8)*

Vln. I 5

Vln. II 5

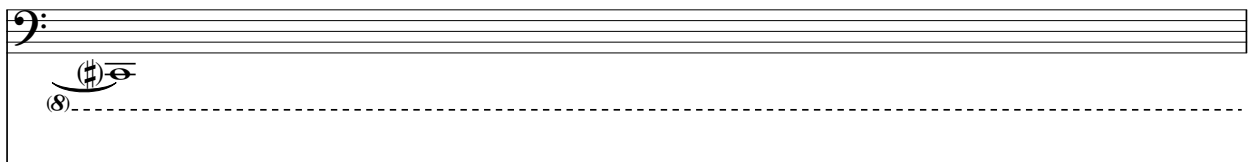

Vla. 5



Vc. 5


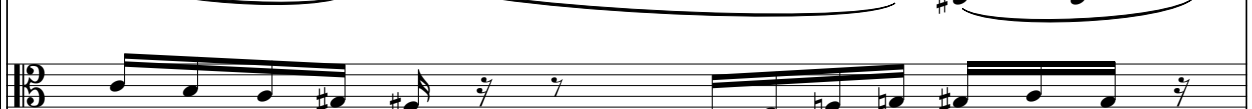
E. Org. 5

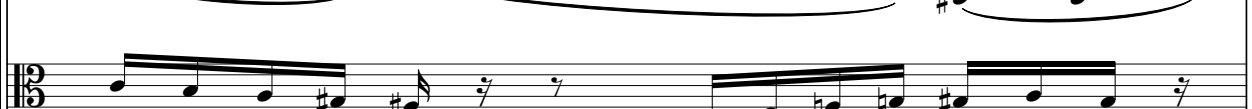
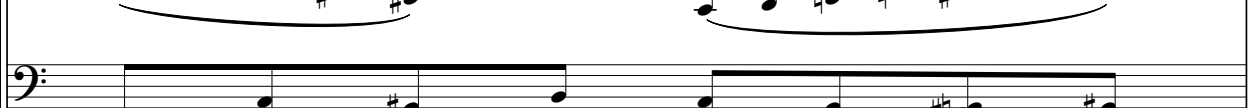
Ped. 5

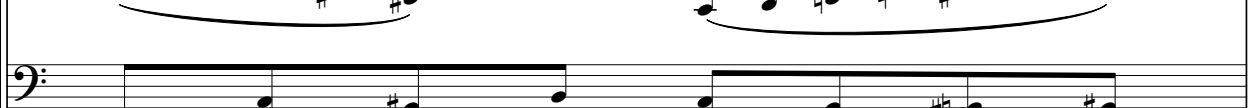

69

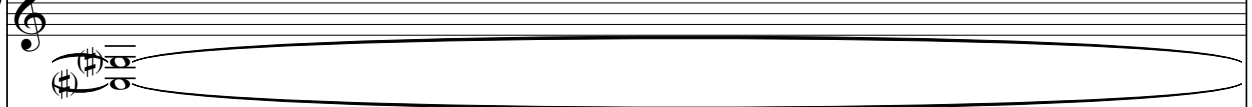

Th.  (8) 



Vln. I  5 


Vln. II  5 

Vla.  

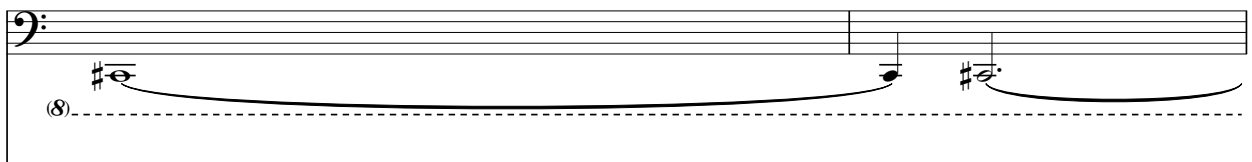

Vc.  VI VI VI VI VI VI VI VI 



E. Org.  



Ped.  5 


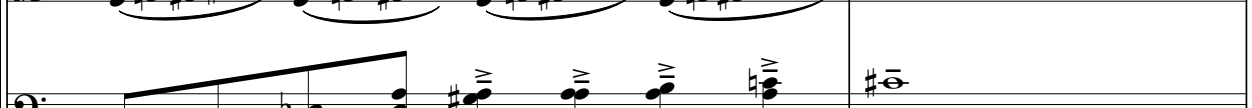


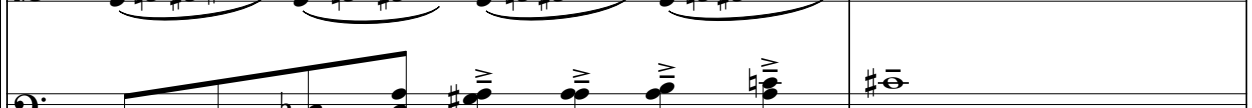
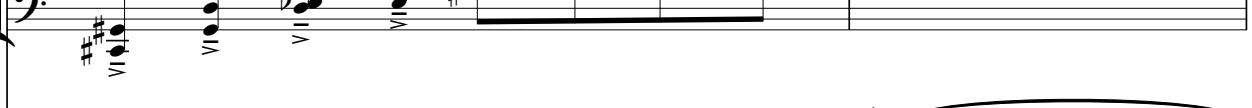
70

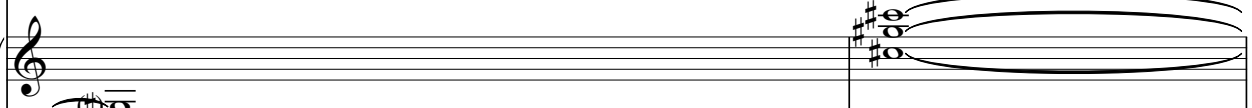

Th.  (8) 



Vln. I  6 

Vln. II  5 

Vla.  5 

Vc.  VI VI VI VI VI VI VI VI 

E. Org.  5 

Ped.  5 

72

Th.  *(8)*

Vln. I *non dim.* 

Vln. II *non dim.* 

Vla. *non dim.* 


Vc. *non dim.* 

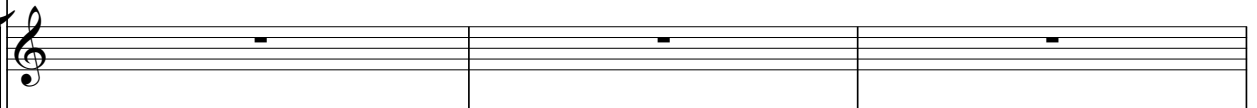
E. Org. 

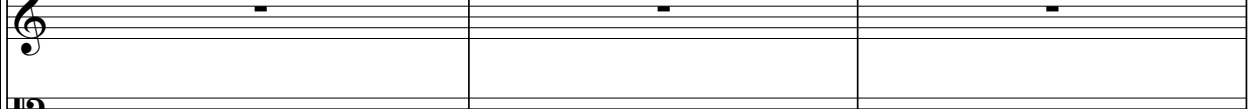
Ped. 

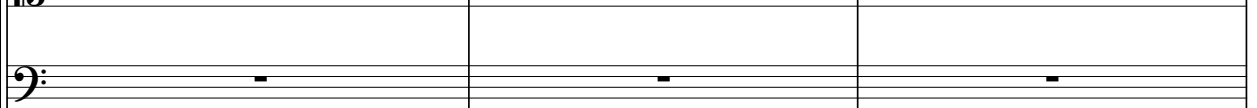



75

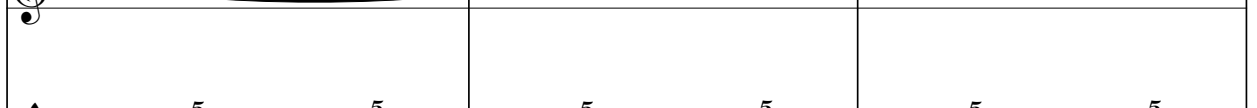
Th.  *(8)*


Vln. I 

Vln. II 

Vla. 

Vc. 

E. Org. 

Ped. 

78

Th. 

Vln. I 

Vln. II 

Vla. 

Vc. 

E. Org. 

Ped. 

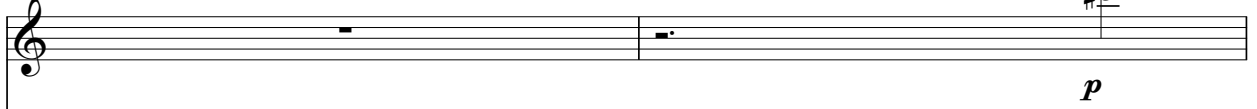



G


Meno mosso ♩=84

molto espressivo, lamentoso

84


Th. 


Vln. I 

Vln. II 

Vla. 

Vc. 

E. Org. 

Ped. 

G Meno mosso ♩=84

86

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

88

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.

90

Th.

Vln. I

Vln. II

Vla.

Vc.

E. Org.

Ped.