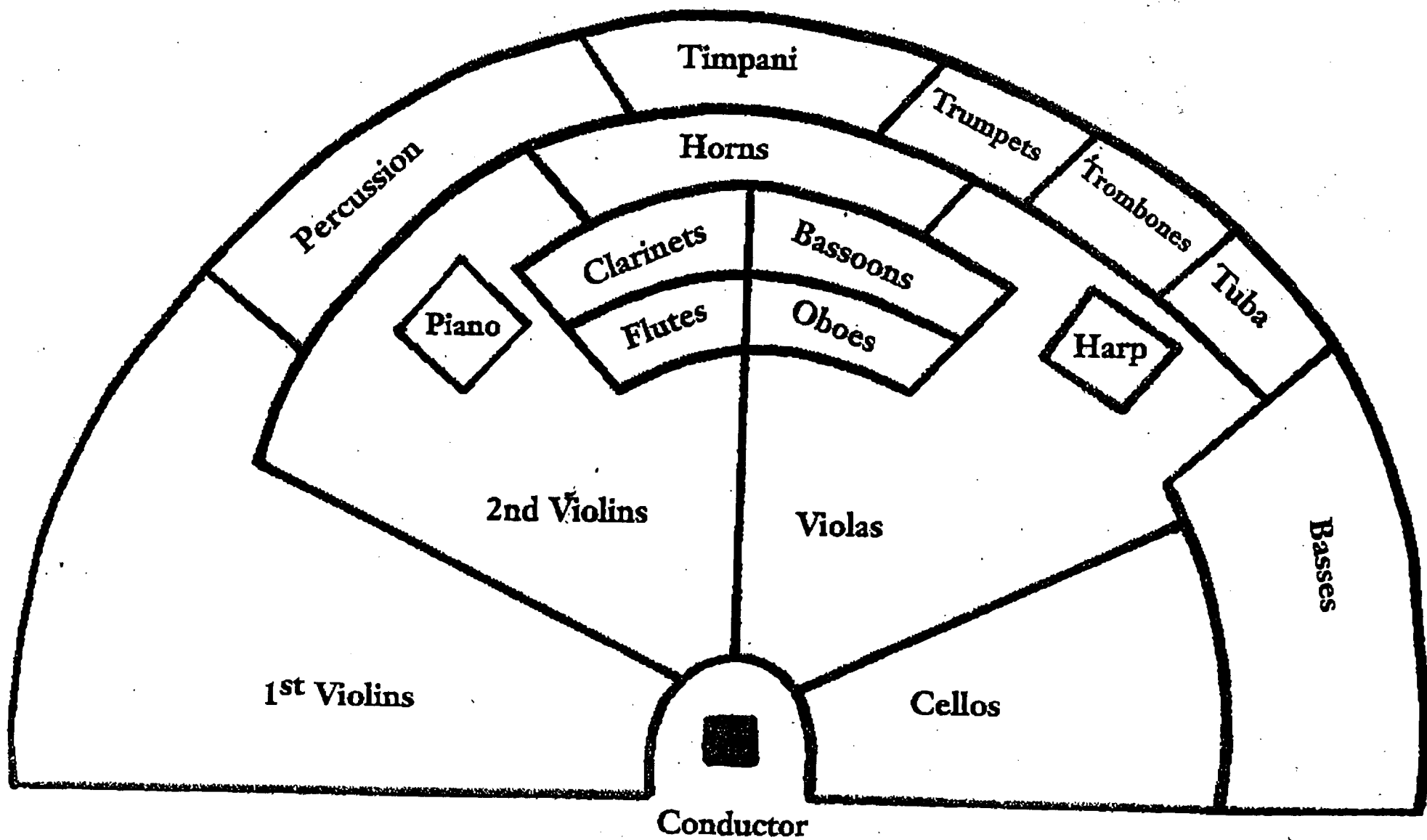
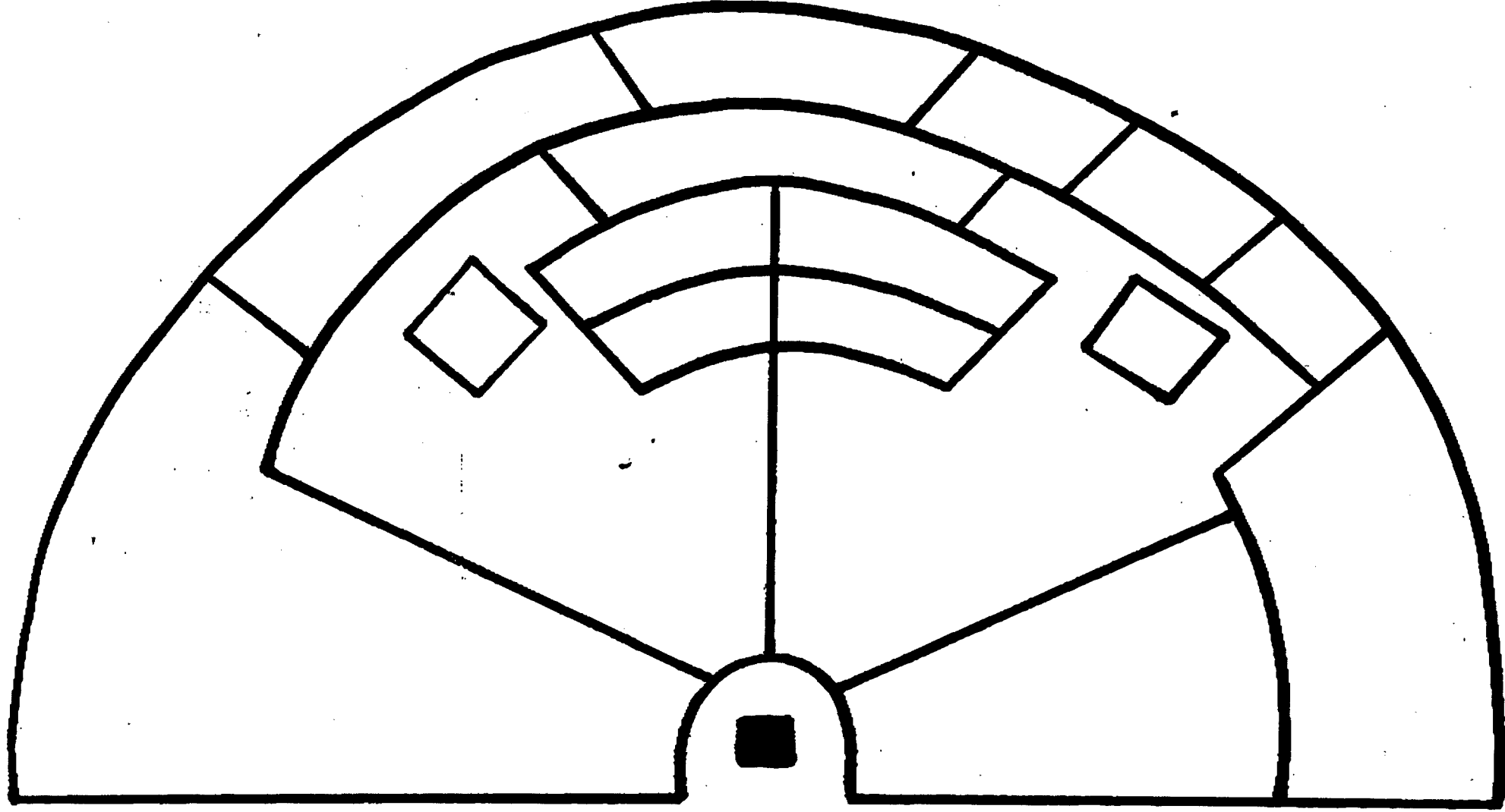


ORCHESTRA SEATING CHART



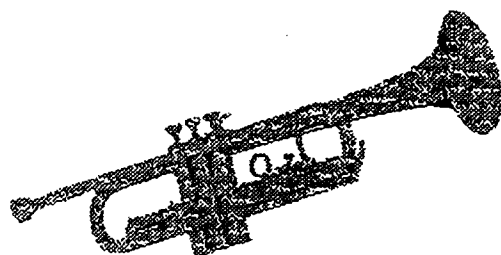


Grand Rapids Symphony
Artist-In-Residence Program

The Brass Family

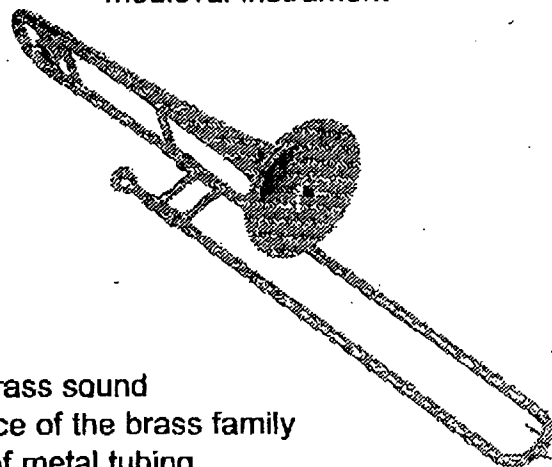
Trumpet

- The highest brass sound
- The soprano voice of the brass family
- Has six feet of metal tubing
- Trumpets date back to 1350 BC



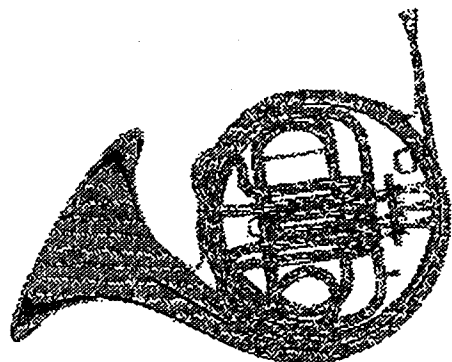
Trombone

- Medium low brass sound
- The tenor voice of the brass family
- Has nine feet of metal tubing
- Its ancestor is the "sackbut" which is a medieval instrument



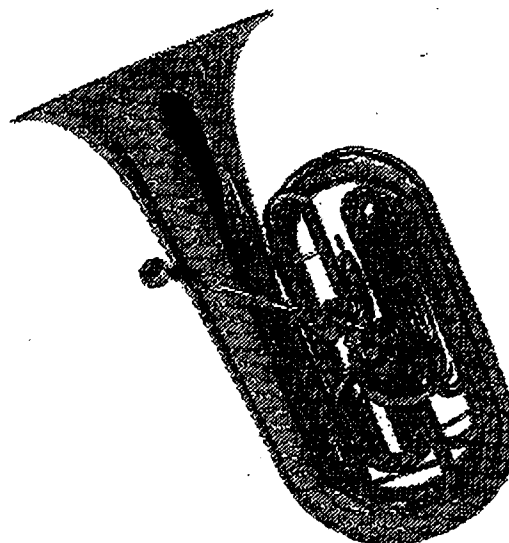
Tuba

- The lowest brass sound
- The bass voice of the brass family
- Has 35 feet of metal tubing.
- Tubas were developed in the 1800s



French Horn

- Medium low brass sound
- The alto voice of the brass family
- Has 17 feet of metal tubing.
- Originated from the 17th century hunting horn

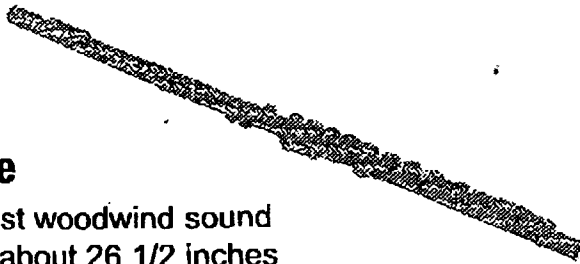


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The Woodwind Family

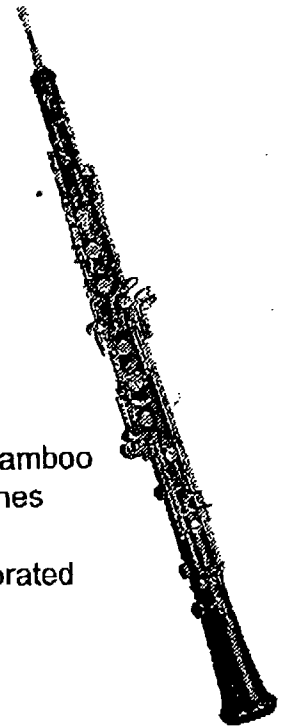
Flute

- The highest woodwind sound
- Length is about 26 1/2 inches
- The only woodwind that does not use a reed
- Originally made of wood, now is made of metal (silver, gold or platinum)



Oboe

- Uses two reeds made of bamboo
- Length is about 25 1/2 inches
- Has a conical tube
- Made of wood that is perforated with holes



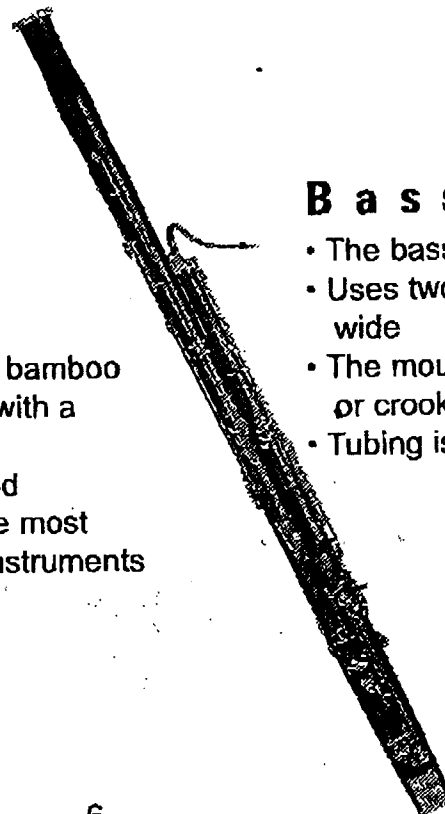
Clarinet

- Uses one reed made of bamboo
- Has a cylindrical tube with a bell-shaped end
- Made of Grenadilla wood
- Next to the flute, it is the most agile of the woodwind instruments (can play very fast)



Bassoon

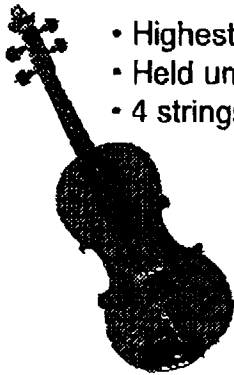
- The bass of the woodwind section
- Uses two reeds that are 1/2 an inch wide
- The mouthpiece is called the bokel or crook
- Tubing is about 9 feet, 2 inches long



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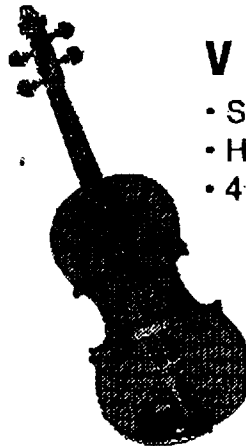
The String Family

Violin



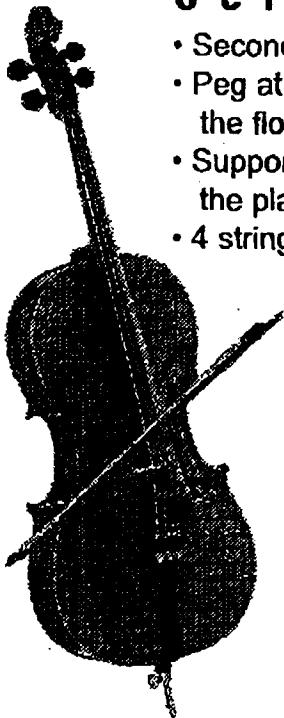
- Highest string sound (soprano)
- Held under the chin
- 4 strings (tuned G-D-A-E)

Viola



- Second highest string sound (alto)
- Held under the chin
- 4 strings (tuned C-G-D-A)

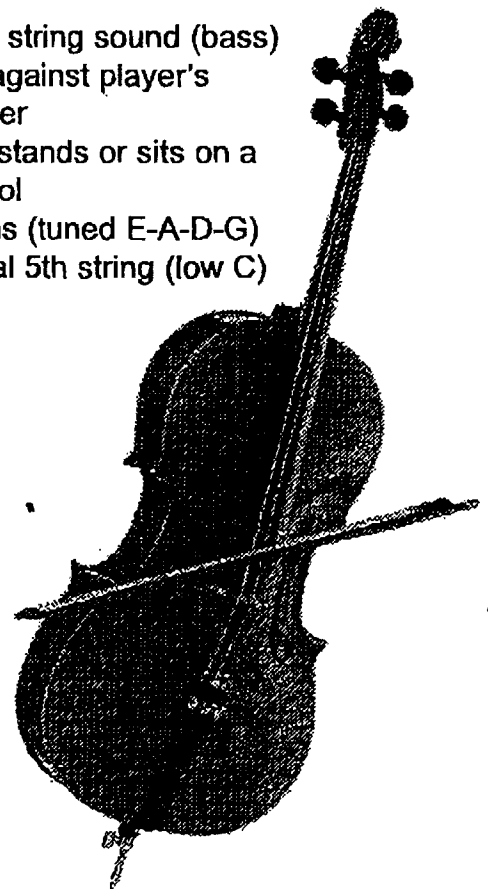
Cello



- Second lowest string sound (tenor)
- Peg at the base of cello rests on the floor
- Supported between the knees of the player
- 4 strings (tuned C-G-D-A)

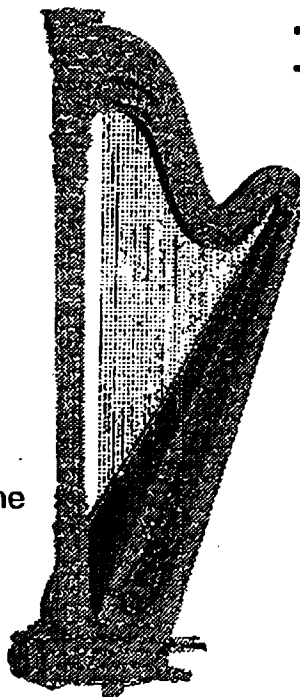
Bass

- Lowest string sound (bass)
- Rests against player's shoulder
- Player stands or sits on a tall stool
- 4 strings (tuned E-A-D-G)
- Optional 5th string (low C)



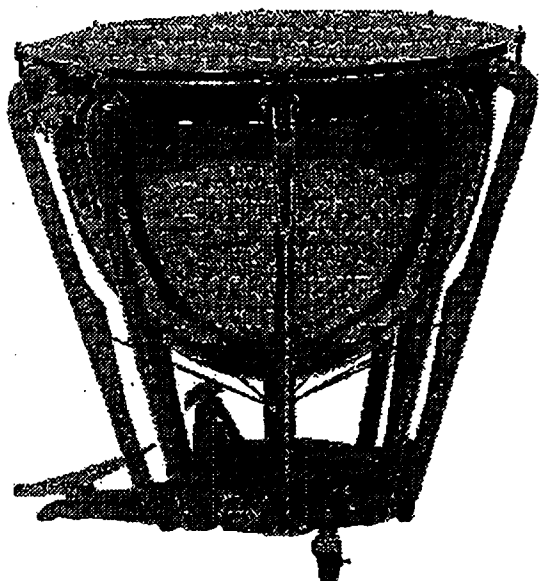
Harp

- Has 47 Strings
- It has seven pedals that change the length of the strings
- 183 cm tall and weighs 35 kg
- harpists only use four fingers on each hand to play



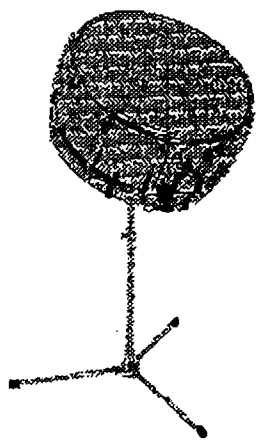
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The Percussion Family



Timpani Drum
(also called
Kettle drum)

Xylophone



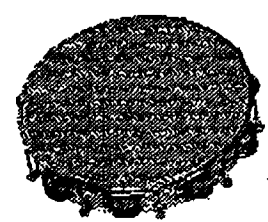
Snare Drum



Triangle



Piano



Tambourine