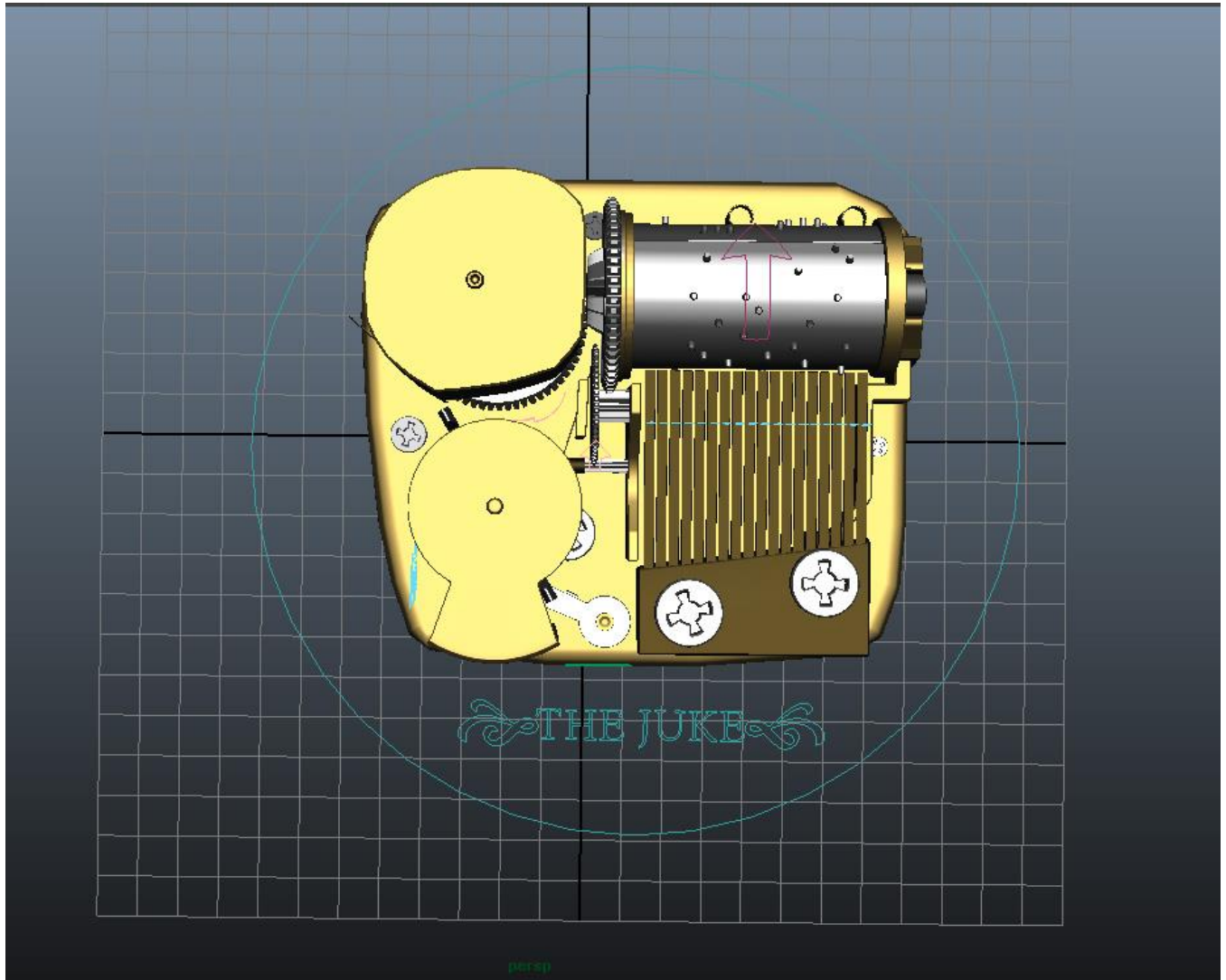


# The Juke

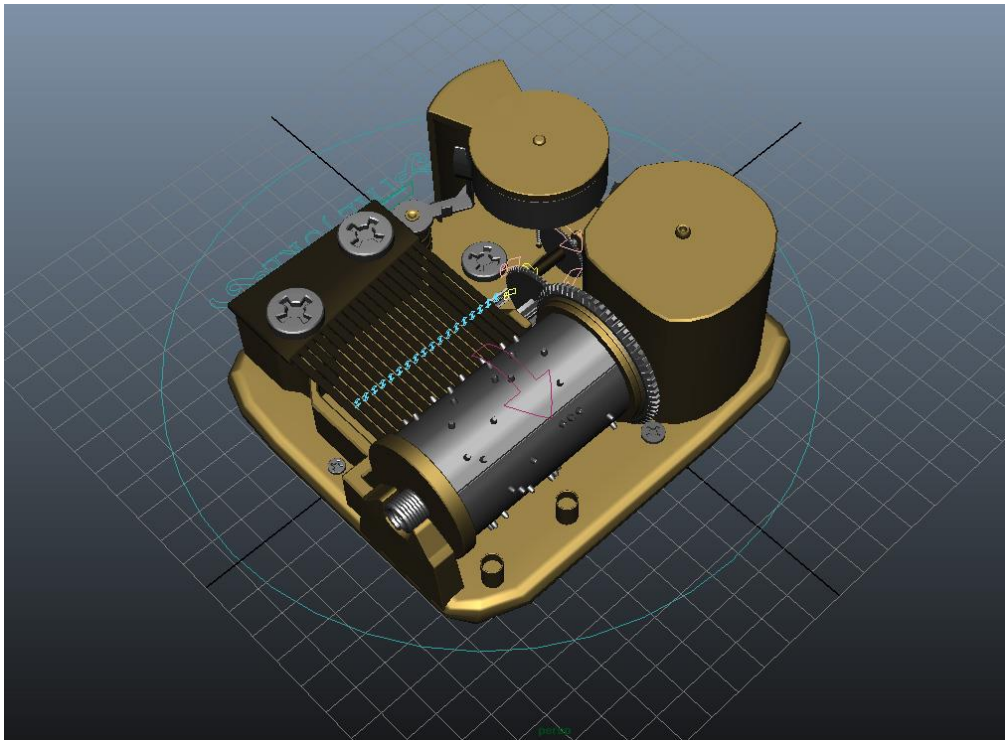
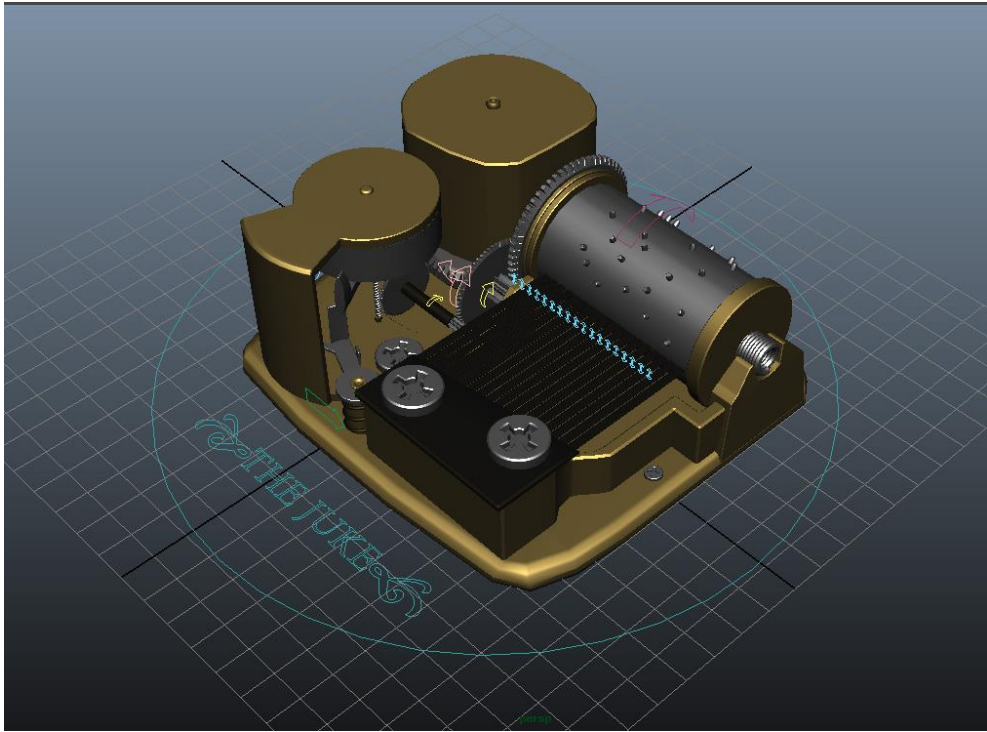
## Music Box Rig

Rachael Jaye Schulz

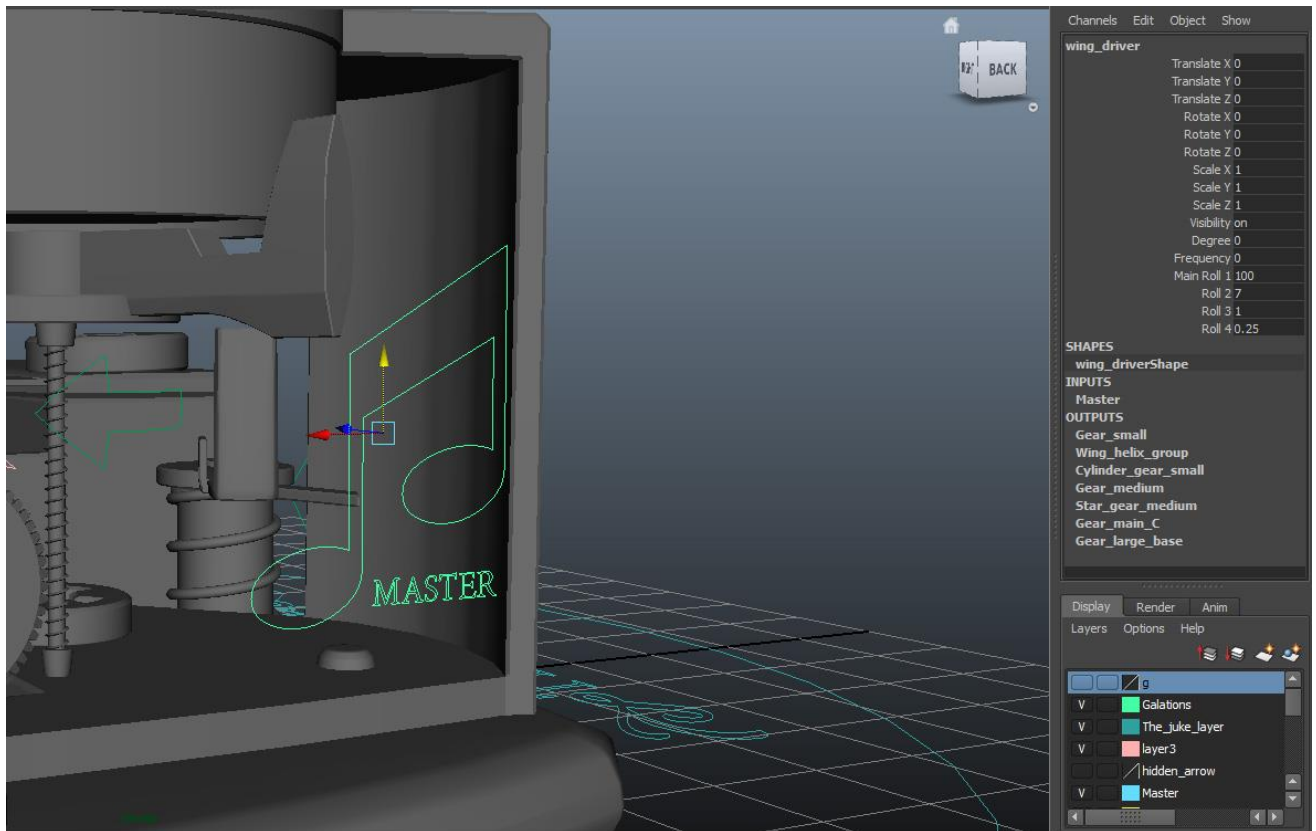
Savannah College of Art and Design



The Juke music box rig contains several controls that allow its use in animating in various situations.



The controls on the music box are executed through expressions, set driven keys, and manual controls.



The *Master wing driver* contains a degree, frequency, main roll 1, roll 2, roll 3, and roll 4 which drive the wings and gears. The degree and the frequency are attributes created by a sine expression which contain a minimum range from -10 to a maximum range to 10. The main roll 1, roll 2, roll 3, and roll 4 comprise of a minimum range of -100 to a maximum range of 100. When using the different rolls, the user has a wide range of choices for the speed of the gears. Even so, if the accurate speed is wanted for animation, the user can place these numbers in the roll attributes:

**Main Roll 1: 100**

**Roll 2: 7**

**Roll 3: 1**

**Roll 4: .25.**

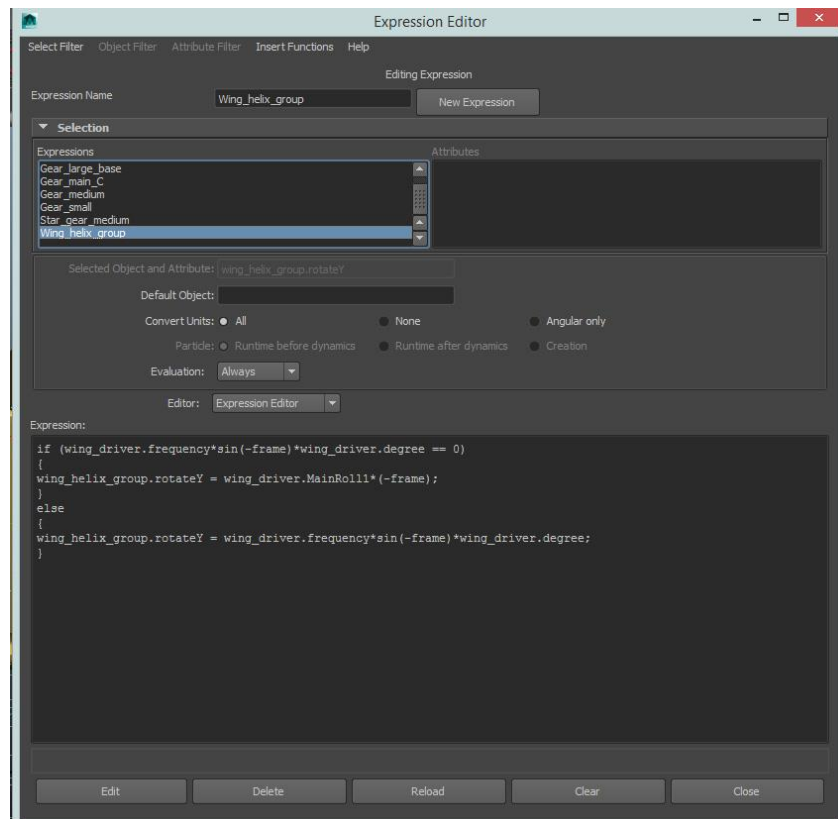
When using the sine attributes, the speed of the gears are accurate as well.

The seven expressions used for controlling the gears and wings are as follows:

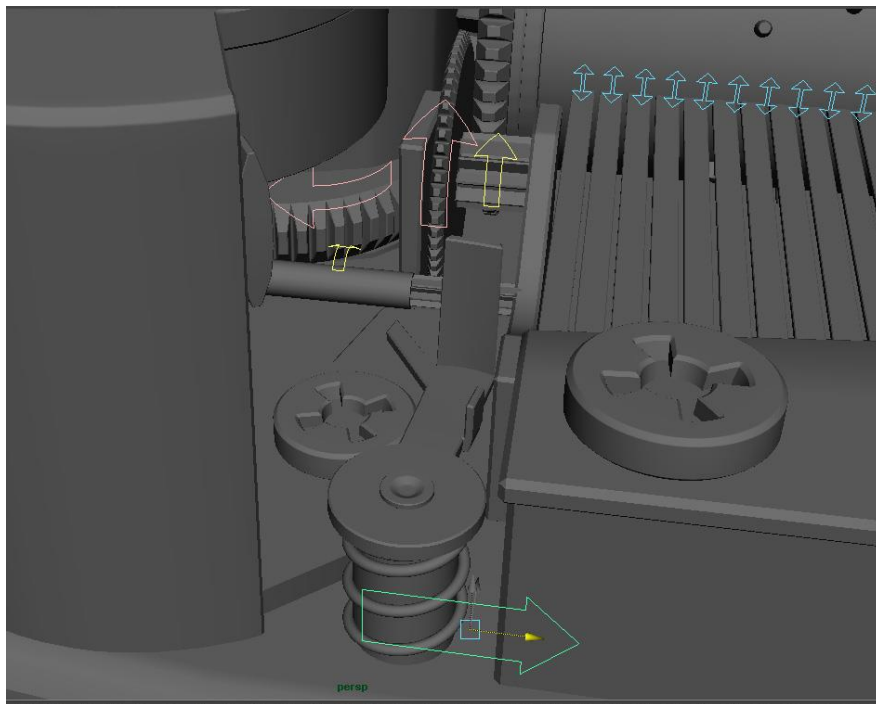
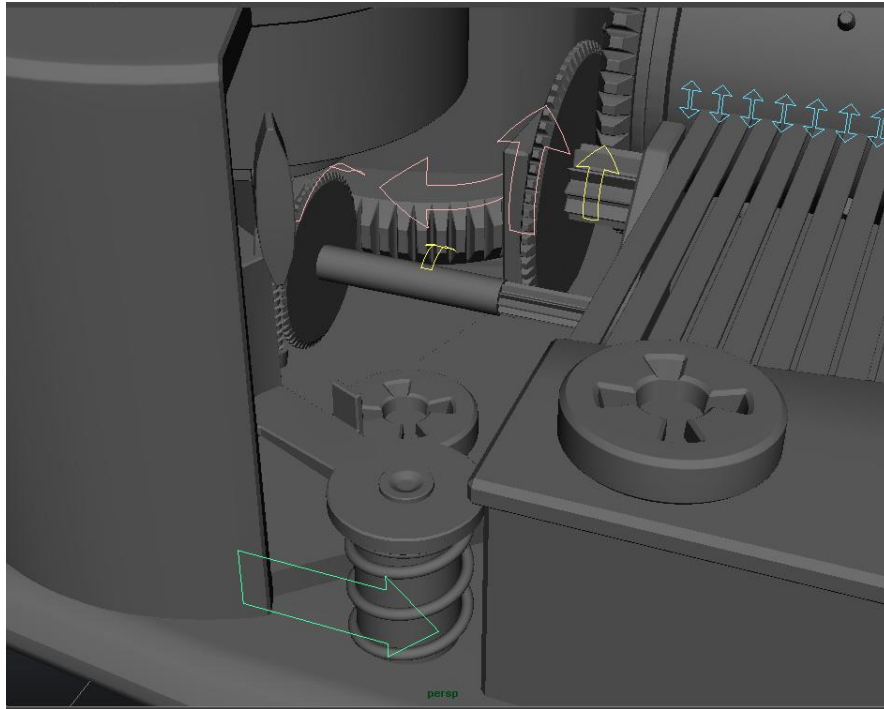
Wing\_helix\_group; Star\_gear\_medum; Gear\_small; Gear\_medium; Gear\_main\_C;  
Gear\_large\_base; Cylinder\_gear\_small

An example of the expressions listed above can be demonstrated with the  
Wing\_helix\_group:

```
if (wing_driver.frequency*sin(frame/3)*wing_driver.degree ==0)
{
cylinder_gear_small.rotateZ = wing_driver.Roll2*(-frame);
}
else
{
cylinder_gear_small.rotateZ = wing_driver.frequency*sin(frame/3)*wing_driver.degree;
}
```

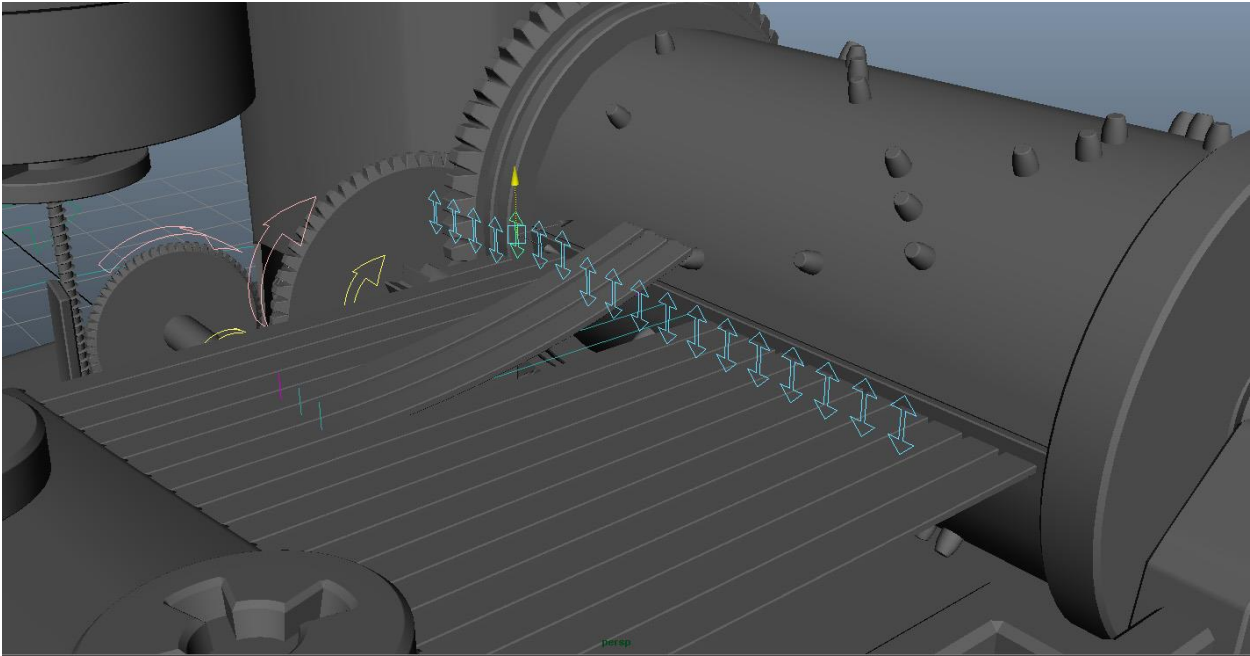


The controls that consist of set driven keys are the stopper and the comb of the music box. Examples below follow:

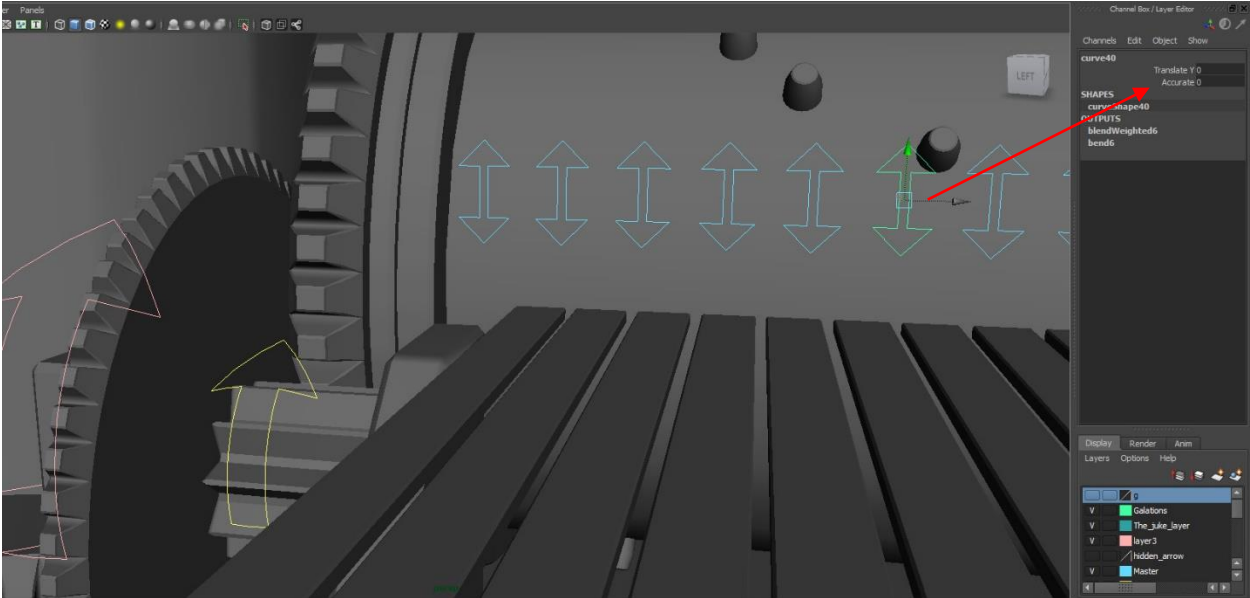


One can slide the arrow on the translate Z in order to move the stopper back and forth.

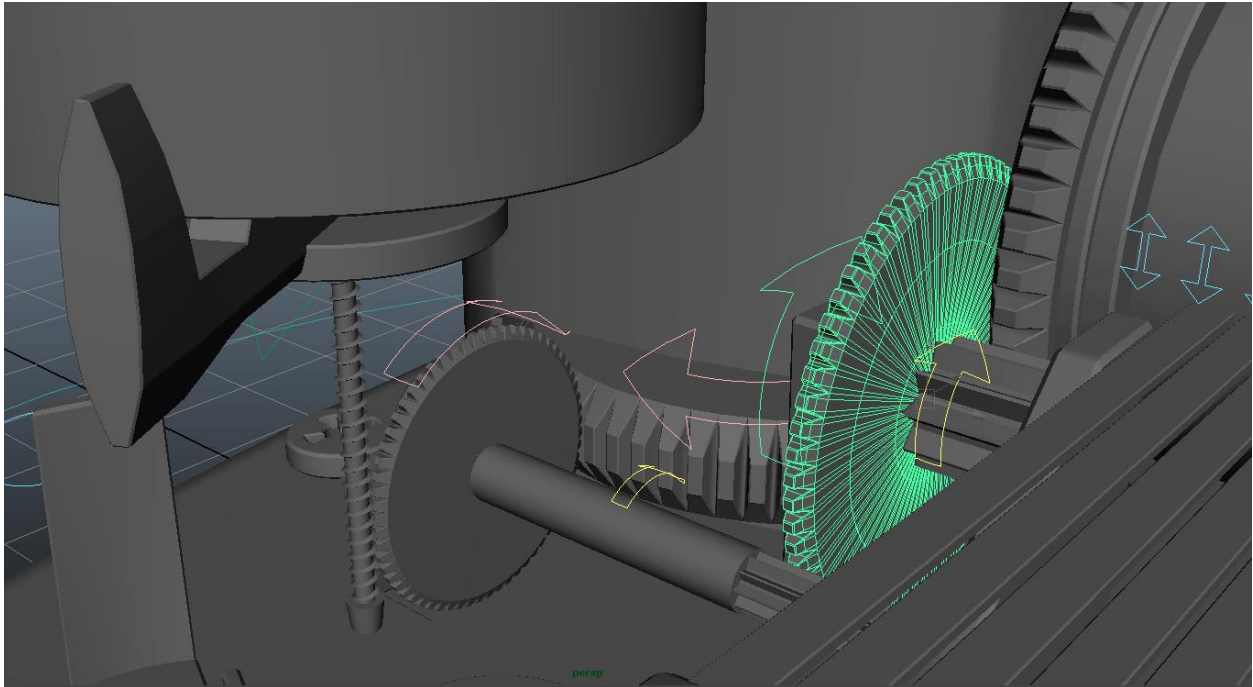
The animator has full control over the keys of the comb as demonstrated below. The arrows move along the y translate, giving flexibility to bend the keys.



As shown below, the drivers for the keys also contain an attribute that positions the keys in the exact place of where the pins will brush back from the main cylinder roll. The animator only need to type in the numerical value of “1” to execute the attribute.



The user is also given the choice to manually drive the gears with the control arrows.



Below are the controls used in the music box rig:



- Used for the Y translation of the keys on the music box comb.



-Used on the various gears , cylinder and wings in order to rotate on the Y and Z axis.



- Used for the master wing\_driver.

