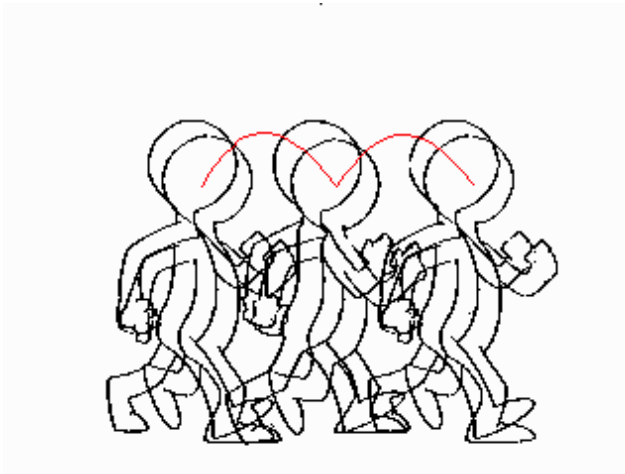


idleworm Lesson 2: The Walk Cycle part 2

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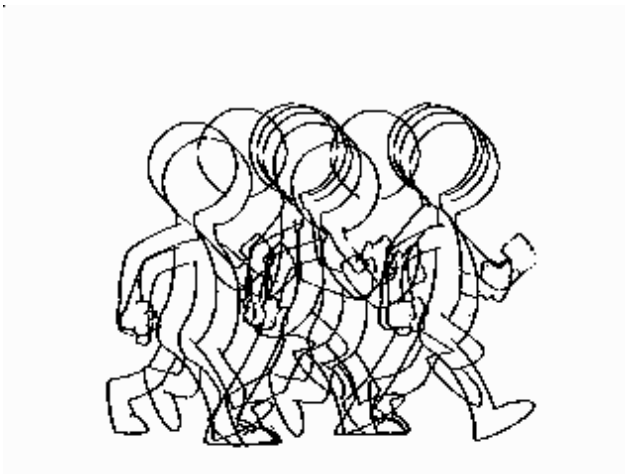
4. Draw the recoil pose

(Bear in mind my rant in the previous paragraph.) Put down a clean sheet, number it #2 in the top right of the page, write the letter "R" beside that, and draw the character as his foot hits the ground. The character will be at his lowest point in the cycle. Don't move the head and body too far forward or you can inadvertently cause any number of arcing problems later on.



I find as a general rule of thumb that the body should fall by half a head to one head in height to keep the walk "bouncy" enough. (It's a common beginner's mistake to keep the figure at the same height throughout the entire walk.)

Remember...the recoil position will be almost identical later in the walk, on the subsequent step:



This is what will determine the overall arc pattern, and the positions of all the poses inbetween the recoil and the following contact pose. On the recoil pose the character impacts the ground. The rear foot lifts off, and the arms are extended to their maximum from the body because of the force of hitting the ground.

Now a brief note on the overall timing of a walk. The most general type of walk cycle is completed over the course of one second. This means that the character makes a single step every half second. This is known as hitting beats, and luckily two beats a second is a typical musical pattern, or so I'm told. We're animating this scene on the typical 12 frames per second, therefore the overall sequence of drawings so far will look like this:

- [new stuff](#)
- 
- [worst wing](#)
- 
- [worst wing](#)
- 
- [worst wing](#)
- 
- [fallujah](#)
- 
- [shredder](#)
- 
- [anthrax](#)
- 
- [dune?](#)

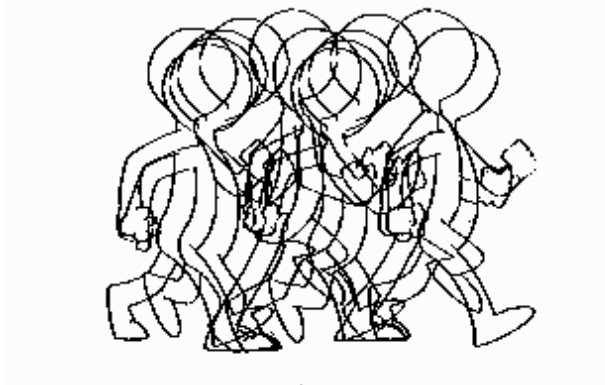
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#01:contact
#02:recoil
#03:
#04:
#05:
#06:
#07:contact (much like #1, but for the reversal of the legs and arms).
#08:recoil
#09:
#10:
#11:
#12:
#13:contact (a duplicate of #1, only further to the right).

As you can see, a complete cycle works from #01 to #12, beginning its repeat on #13. I put the recoil immediately following the contact without an inbetween them because an inbetween frame would make it look "mushy". The contact should usually snap into the recoil immediately, without an intervening drawing.

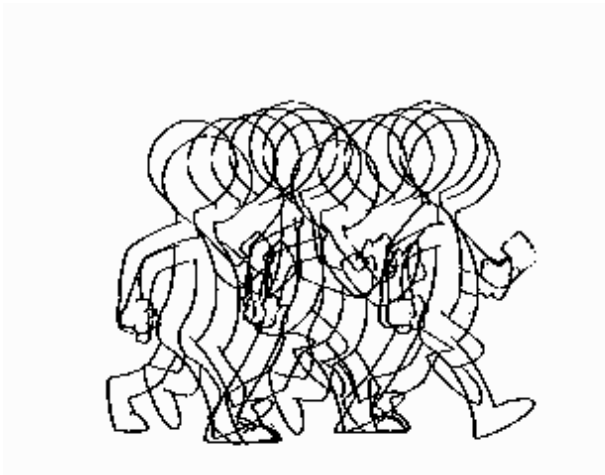
As you can see, I have not named the frame that the high point will go on. I could assign it as #4 #05 or #06. A different frame number will make quite a difference to the properties of the character. Here is why:

If #04 is the high point the walk will look like this:



As you can see above, this makes the character "bounce off the ground very quickly, making him light footed.

If #06 is the high point the walk will look like this:



This timing above slows down the character as he rises from the recoil pose, making

him seem a lot heavier.

I will take the middle path and name the high point #05, resulting in this:

5^H



This is a more even timing: it should make the character seem like an average weight, without any extreme attributes. These are the kinds of decisions that you should make before you begin animating. Now we can look at our overall exposure sequence again:

#01:contact
 #02:recoil
 #03:
 #04:
 #05:high point.
 #06:
 #07:contact (much like #1, but for the reversal of the legs and arms).
 #08:recoil (like #02, arms and legs reversed).
 #09:
 #10:
 #11:high point. (like #05, arms and legs reversed).
 #12:
 #13:contact (a duplicate of #1, only further to the right).

Now we have our 3 main key frames, #1 #2 and #5, and their near twins #7 #8 and #11. The empty spaces in the sequence above will all be inbetweens. Don't worry about them yet.

For now we will focus on #1 thru # 07, finishing a single step.

5. Draw the high point.

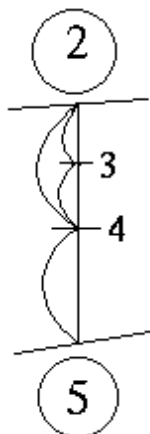
Put down a clean sheet. As explained above, this will be drawing number #5. Write the number in the top right of the page. Circle it. Write a small letter "H" above the number. Now begin the drawing:

5^H



You have a little more freedom when drawing the limbs on the high point than on the recoil, as the leading foot is up in the air, and the arms are swinging over a pretty wide space. That gives you a number of different possibilities. The example frame that I have included is fairly typical.

The most important thing to get right with this drawing is the arc path of the head and body. A mistake on this one frame will effect all the inbetween frames around it.



Once that is finished, you are ready to move on.

6.Add the timing charts.

Before you do anything else, you should add the timing charts to describe the correct positions of the inbetweens. Here are the drawings we have finished so far:

#01:contact

#02:recoil

#03:

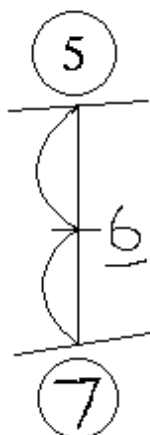
#04:

#05:high point.

#07:contact (much like #1, but for the reversal of the legs and arms).

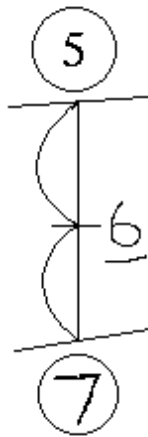
Timing charts need to be added to #2 and #5. The timing chart on #2 will describe the positions of #3 and #4 as they work into #5. The chart on #5 will describe the position of #6.

Put #2 on the drawing board. Underneath the frame number in the top right corner of the page, you will add the chart. Here's what it should look like:



As you can see, #4 is the main inbetween halfway between the two keyframes. #3 is a smaller inbetween which will completely smooth out the motion.

The next timing chart to be added is on #5. Put #5 on the drawing board and write a timing chart beneath the drawing number in the top right corner of the page. It should look like this:

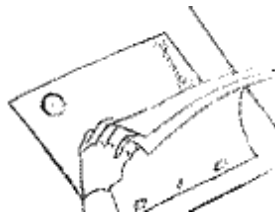


This shows that #6 will be a single inbetween halfway between #5 and #7. Now it's time to draw the inbetweens.

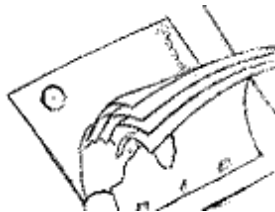
7. Draw #4: the main inbetween.

Be sure that you have the guideline drawing on the drawing board. Put #2 on the pegs. Now put #5 above that. Put a clean sheet on top of all three. Switch on the backlight. Now you must draw #4, also known as the "passing position". Some treat it as a key also, but to simplify things, I'm treating it as an inbetween. I've never really found it to be as critical as contact, recoil or high point poses.

You have to flip between #4 and the two key frames beneath it. You should remember that from the bouncing ball tutorial:



Again, be sure that your character follows the arc path as he walks. When you're finished the drawing, remove the drawings from the pegs and place #2, #4 and #5 back on the pegs in that sequence. Now you can roll them to see if they move properly. You'll also remember that from the bouncing ball tutorial.



If you see any errors in your inbetween, then you must lift the drawings off the pegs again, then place #2 on the bottom, #5 above it, and #4 on the top. Then you can flip again, correcting any errors that may have crept in. It's tedious, but it's the only way to do it.

8. Draw the remaining inbetweens.

Repeat step 7 with #3 and #6. If you do them right then you should be finished with the first half of the walk cycle. I hope you had fun, but I doubt it.

You should be looking at a stack of paper, numbered #1 through #7. If you put all those

drawings on the pegs, you should be able to roll them and have a rough idea of what your scene will look like when it's shot. If anything catches your eye, chances are it's wrong. Go back in, repeating the process described in step 7, until you're happy with it.

9. Finish the rest of the cycle (or else).

Repeat the steps above to complete the rest of the walk cycle. You'll have to draw #13 (the third contact pose) to work into. Simply trace off the pose on #1 onto #13 in its new position, further to the right. If it took 2 inches to make a single step from #1 to #7, then slide #13 over 4 inches to the left and start tracing...

I hope that makes sense.

The second half of the walk is identical to the first, except that the arms and legs will be on the opposite sides of the body.

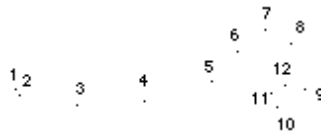
Indeed, you can refer to the first half of your scene to help you with the second. The recoil pose on #8 should be as similar to the recoil pose on #2 as possible, otherwise the walk may seem uneven, or even more like a limp.

10. A general note about arcs.

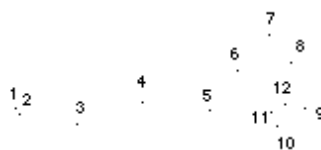
Every joint of the body has its own arc path. It's a good idea to check them all. Here's how.

Place all your drawings on the board. If you have a backlight switch it on. Pick a body part, e.g. the right wrist. Place a clean sheet over the drawings and draw a small dot on it at the position of the right wrist on frame 1. On the same sheet draw a dot for the position of the wrist for #2...and so on.

By the time you're finished you'll have a sheet of paper that looks like this:



That's what it looks like if it's done properly. If you've made an arc mistake, it'll look like this:



If your walk is to look smooth and natural, your arc paths must also be smooth, curved, natural shapes. You should repeat this process for every part of the body to make sure they all move properly.

If you're new to this: draw simple cartoony characters at first. Don't even think of attempting anatomical designs until you've gotten comfortable with the simple ones first. That's all for now!

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