3D PRINTED SKELETON CLOCK

Additional Information

Addendum to instructions for building a 3D printed skeleton clock with large exposed gears

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Description

Here is some additional information regarding the large 3D printed skeleton clock posted to MyMiniFactory at [3D Printable Large Pendulum Wall Clock by Steve Peterson (myminifactory.com)](#)

Some of the changes are minor additions to the documentation. Other changes include optional enhancements to the original design. Sometimes the stl files do not get added into the zip file. If this is the case, then scroll down below the item description and expand the section labeled "Object Parts". Individual files can be downloaded this way.

Longer Runtimes

The standard clock design was released with a 4.2 day runtime using an 8 pound of weight dropping 46" to the floor. The standard configuration is conservative to make the design as reliable as possible for the greatest number of builders. My personal version of the clock runs reliably with around 5 pounds of weight and might even work with less if I wanted to test the limits. The side effects of running with lower weight is a reduced pendulum amplitude. The clock could stop running if the amplitude becomes too small. A benefit is the clock gets slightly quieter.

Another option is to use the same drive weight but change the configuration for longer runtimes. The net effect is similar with less energy transferred to the pendulum with each tick. At least one builder (Ustapeter) has successfully doubled the runtime by adding additional pulleys. He posted pictures in the comment section.

The runtime can also be increased by changing one pair of gears in the drive train. The original design uses a 42:24 ratio on gear8_42_1p37 and gear7_24_upper_met (or _imp). Changing the gear ratio to 48:18 increases the runtime by 1.52X to 6.4 days. Another small ratio increase to 50:16 increases the runtime by 1.79X to 7.5 days. 7.5 days is long enough that the clock only needs winding once per week so it could be considered to be an 8 day clock.
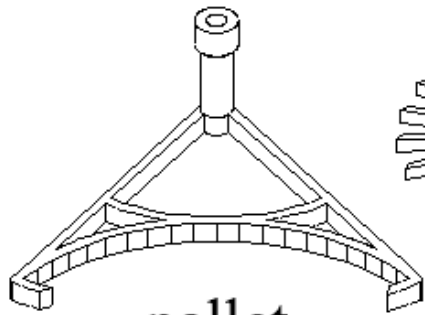
Here are the files for the 6.4 day runtime:

> gear8_48_1p37_6p4day.stl
> gear7_18_upper_imp_6p4day.stl
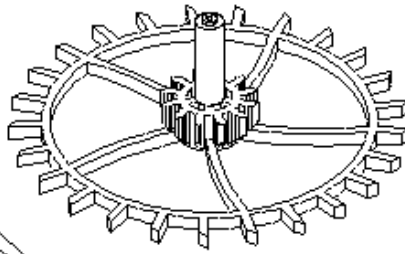> gear7_18_upper_met_6p4day.stl

And the files for the 7.5 day runtime:

> gear8_50_1p37_6p4day.stl
> gear7_16_upper_imp_6p4day.stl
> gear7_16_upper_met_6p4day.stl

Use them at your own risk. I recommend printing the original files first and only switching to one of the longer runtime versions after the clock is running great. The drive weight might need to be increased slightly using the 1/2 height or 1/4 height extensions. There is a limit to how much additional weight can be added before the frame starts sagging, but a few extra pounds should be OK.
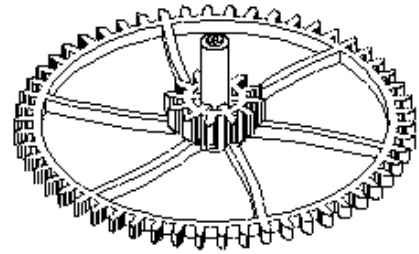
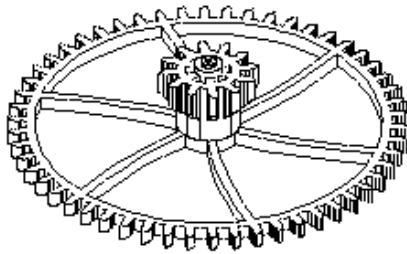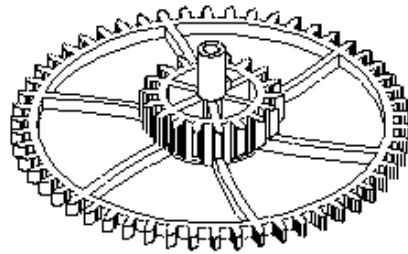Below are a few additional documents that can help identify the printed parts.
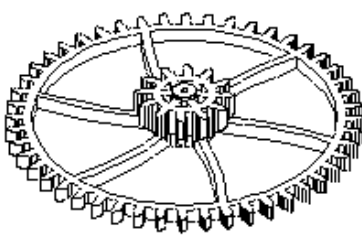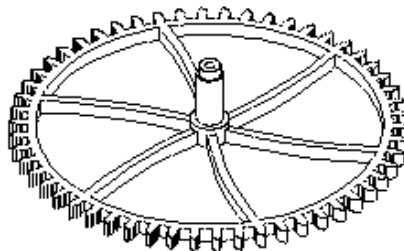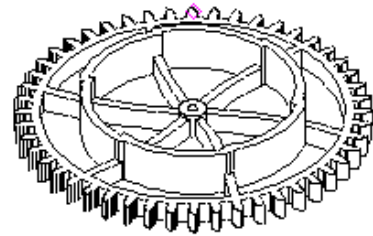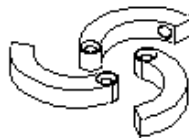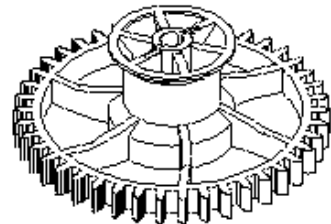
Figure 1 Gear reference chart

back_frame_bracket1

back_frame_bracket2

front_frame_bracket

hanging_hook

standoff_upper

standoff_lower

keyhole_bracket

bearing_holder

pendulum_support

pendulum_hook
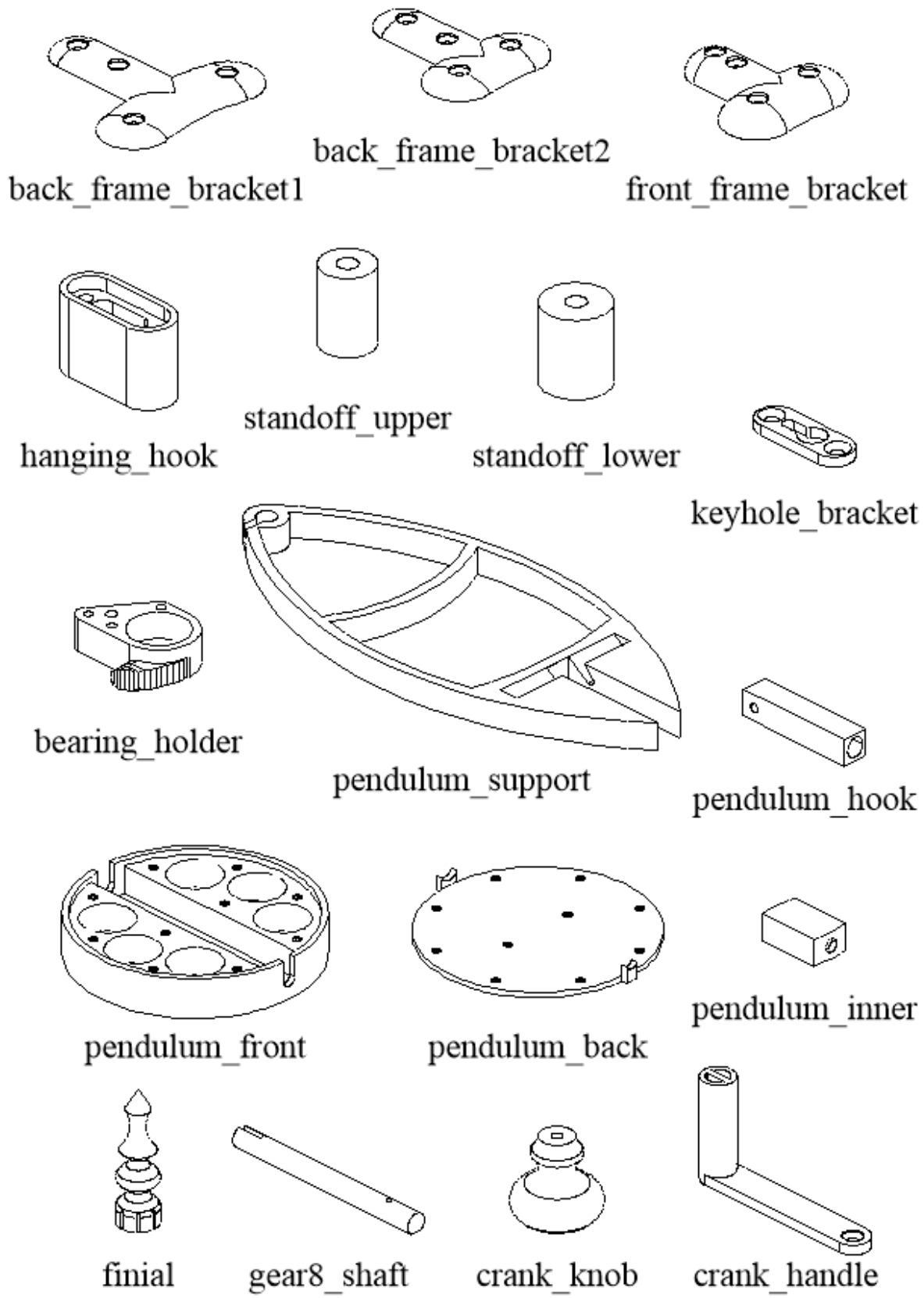
pendulum_front

pendulum_back

pendulum_inner

finial

gear8_shaft

crank_knob

crank_handle

Figure 2 Additional parts reference