Introduction

The following document outlines the manufacturing and assembly procedures for the creation of a green pigeonpea thresher. Engineering drawings and detailed images are provided to aid in these processes.

Manufacturing

Note: All parts are made of 6061 aluminum, all drawings attached.

Bill of Materials

Rollers. Quantity: 2

Roller_Cap. Quantity: 4

Long_Roller_Handle. Quantity: 2

Short_Roller_Handle. Quantity: 2

Top_Bearing_Housing. Quantity: 2

Track. Quantity: 4

Bottom_Bearing_Housing. Quantity: 2

Top_Cover. Quantity: 2

2” OD x 1” ID x 9/16” deep grooved ball bearings. Quantity: 6

¼” long, 10-24 set screws. Quantity: 16

¼” long, 5/16-18 set screws. Quantity 16

1.5” long, ⅛-28 socket cap screws. Quantity: 8

Spur_Gear. Pitch: 6 Number of Teeth: 18 Pitch Diameter: 3’ OD: 3.33” Quantity: 2
Assembly

Roller Sub-Assembly

Parts Needed:

Rollers (1), Roller_Cap (2), Long_Roller_Handle (1), Short_Roller_Handle (2)

¼” long, 10-24 set screws (8), ¼” long, 5/16-18 set screws (8)

Directions:

1.) Insert Long_Roller_Handle into recess of one Roller_Cap, fasten with four of the ¼” long, 10-24 set screws.
2.) Insert Short_Roller_Handle into recess of second Roller_Cap, fasten with four
¼” long, 10-24 set screws.
3.) Insert Short_Roller_Handle_Assembly into one end of Roller. Fasten with four ¼” long, 5/16-18 set screws

4.) Insert Long_Roller_Handle_Assembly into other end of Roller. Fasten with four ¼” long, 5/16-18 set screws.

5.) Repeat for second Roller
**Side Sub-Assembly**

Parts needed:

Track (4), Bottom_Housing (2), Top_Bearing_Housing (2), 2” OD x 1” ID x 9/16”

deep grooved ball bearings (6), Top_Cover (2),

1.5” long ¼-28 socket cap screws (8), 1.5” long 5/16-18 socket head cap screws (4)

Assembly Instructions:

1.) Press fit one bearing into each Top_Bearing Housing.

2.) Press fit two bearings into each Bottom_Housing.

3.) Using four of the 1.5” long ¼-28 socket cap screws, attach two of the Tracks to

   the Bottom_Housing with the slots on the Tracks facing towards each other.

   Repeat process for other Tracks and Bottom_Housing.
4.) Slide one Bearing and Top_Bearing_Housing between the assembled Tracks.
5.) Using two of the 1.5” long 5/16-18 socket head cap screws on each Sub-Assembly, attach Top_Cover to the Tracks.
Final Assembly

1.) Insert Short_Roller_Handle end of one Roller_Assembly into Bottom_Bearing_Housing of Side_Sub-Assembly.

2.) Insert Long_Roller_Handle of same Roller Assembly into the other Bottom_Bearing_Housing of the second Side_Sub-Assembly.

3.) With the second Roller, insert the Short_Roller_Handle end of assembly into Top_Bearing_Housing of the first Side_Sub-Assembly.

4.) With the second Roller, insert the Long_Roller_Handle end of the assembly into the Top_Bearing_Housing of the second Side_Sub-Assembly.

5.) On both Long_Roller_Handles, press on Spur Gears.

An exploded view depicts the final assembly.
0.257 is an "F" drill bit
All holes drilled thru
5/16-18 tapped

ALL DIMENSIONS IN INCHES
Set screw holes occur every 90 degrees.

**Dimensions**

- **∅0.15 10-24 THRU**
- **∅2.497**
- **∅0.25 ̲.73**
- **∅1 ̲.5**

**Title:** Aluminum Roller Cap

**Drawn by:** R. Cenowa

**Checked by:** C. Bradford

**Approved by:** B. Thompson

**All dimensions in inches.**
Aluminum Bearing Tube

ALL DIMENSIONS IN INCHES

SIZE    DRG NO.    TITLE
A        A          Short_Roller_Handle

SCALE 1:1  Qty: 2  SHEET 1 OF 1
All thru holes .312 diameter

SIEMENS

Aluminum Top Cover

SIZE | DRG NO. | Top_Cover | SHEET REV
A | A | SHEET 1 OF 1

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DRAWN BY R.Cenowa
CHECKED BY S.Parsons
APPROVED BY B.Thompson

SCALE 1:1
Qty: 2