Progressive Sluice Box

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Disclaimer:

We are not responsible for use or misuse of these plans or the object it creates. We have created a fun object which we wish to share via these plans.
MATERIALS LIST

Progressive Sluice Box

1) 1 piece lumber 2” x 12” x 48” long
2) 2 pieces 3/8” marine grade or exterior grade plywood 7” wide x 48” long*
3) 1 piece ¼” x 1/2” x 11 ¾” long strip of wood
4) 1 piece ¼” x 5/8” x 11 ¾” long strip of wood
5) 1 piece ¼” x 3/4” x 11 ¾” long strip of wood
6) 1 piece ¼” x 7/8” x 11 ¾” long strip of wood
7) 1 piece ¼” x 1” x 11 ¾” long strip of wood
8) 2 pieces ⅝” x 24” long metal banding
9) 2 pieces 27” long Schluter strip (angle tile edging aluminum)
10) 2 pieces 1” x 1/8” x 9 ½” metal strips
11) 2 pieces 1” x 4” x 10” lumber
12) 1 piece 11 1/4” x 20” hardware cloth 1/4” hole size
13) 2 pieces 3/4” x 4 1/2” long metal banding strips
14) 2 pieces 2” x 28” long pieces of wood
15) 1 Pair medium sized hinges
16) 1 1/2” deck screws
17) 3/4” wood screws
18) 5/8” wood screws
19) 2 each 3/16” x 1” bolts and self locking nuts
20) 4 each 3/16” x 1” bolts and regular nuts
21) 2” Deck screws
22) Galvanized fencing staples
23) 2 each plastic washers (can make from a milk jug)
24) 2 each 5/32” x 1” long bolt with self locking nuts
25) 1 1/4” wood screws
Instructions for the Progressive Sluice Box

Please read all instructions BEFORE starting. Here is the Big Picture.

The progressive sluice box is an all in one simple yet effective sluice box. We will begin with the main body of the sluice box. This sluice box is made of wood to make it a project most anyone can build. While aluminum is a better method not everyone has the ability to work with aluminum and the wooden construction will still last for a long while.

1) Start with the 2” x 12” x 48” piece of lumber.

2) Making sure the ends are flush with the 2” x 12” x 48” piece of lumber attach a 7” x 48” x 3/8” piece of exterior grade plywood on one side using 1 ½” long deck screws.
3) Repeat for the other edge using 4 or 5 screws per side placing the screws approximately ¾” up from the bottom.

4) We are now going to build the riffle section. Take the five pieces of ¾” x 11 ¾” strips of wood and the two pieces of ¾” x 24” long metal banding.

We will be using ¾” metal banding, the type that is used in shipping (around pallets). DO NOT use the connection pieces. Use whole pieces only.

5) Place the metal banding flush with the edge of the wood strips with the ½” strip at one end and the 1” strip at the other end. Mark the metal banding at the center point of each strip of the two strips.
6) Using a hole-punch or nail and hammer, punch a hole on your center mark at each end of both pieces of banding. Make sure the hole is centered on the banding at each mark. DO NOT use a drill due to the potential danger of the metal catching on the bit.

7) Place one end of the banding on the 1” strip of wood and pre drill a 1/8” pilot hole. Secure band in place with a ¾” wood screw. Repeat for the other end of the 1” strip of wood.

8) Do the same thing at the other end of the metal banding using the ½” strip of wood. Secure with ½” screws. Be sure to pre drill to lessen the chance of splitting the wood. You should now have the metal banding secured to wood strips at both ends.

9) Place the remaining wood strips evenly between the ½” and 1” strips. Be sure to work your way from smallest to largest. i.e. ½”, 5/8”, ¾” 7/8” & 1”. They do not have to be exactly even, close is good enough.
10) Mark the center point of the wood strips on the metal banding. Be sure to mark both ends of the wood strips. You might not want to use a black felt pen on black metal banding like we did! ☺

11) Using a hole-punch or nail and hammer, cut a hole at each of the 6 marks on the metal banding. Line the metal banding back onto the wood strips and pre drill each mark. Secure with screws. Use 5/8” screws for the 5/8” wood strip and ¾” for the ¾” and 7/8” pieces.

12) Make a mark at the 12” point from one end of the sluice box. This will be the starting point of our riffles.

13) Place the riffles in with the front of the first riffle aligned with our mark at the 12” point.
14) Cut two 27” long pieces of Schluter strip (angle tile edging aluminum). Be sure to have the end at one of the solid parts between the holes in the Schluter strip. (You can use ½” thick x 1 ¼” wide by 27” long wood instead of the Schluter strip if you wish.)

15) Using a hole-punch or drill, cut a centered 3/16” hole in the end on the solid portion. Repeat for the other 27” Schluter strip (or ½” thick x 1 ¼” wide by 27” long piece of wood (if that is what you are using)).

16) Place the Schluter strip along the edge as shown, ensuring that the hole you punched is clear of the last riffle, allowing it to pivot when needed. Mark the hole with a felt pen. Repeat for the other side.

17) Mark the sluice box where the last riffle is positioned.
18) Drill a 3/16” inch hole in both sides where you marked the hole from the Schluter strip.

19) Starting from the outer edge using a 3/16” x 1” (cut down if desired) bolt with a self locking nut secure the Schluter strip in place. Tighten the nut (with pliers) until it is firmly tight but the Schluter strip is still able to move. Repeat for the other side.

20) Place a 1 ¼” screw at each end behind the last riffle (use the line you marked as a guide). Leave up to a ¼” sticking up from the sluice bottom. This will help hold the riffles in place so the current doesn’t wash them down the stream.

The Progressive Sluice Box is complete.

**Progressive Sluice Box Classifier**

21) Pre drill a centered 1/8” hole about 3/8” from the end at each end of both the 1” x 1/8” x 9 ½” metal strips. Counter sink the hole if desired.
22) Place the 1” x 1/8” x 9 ½” pieces of metal on the edge of the 1” x 4” x 10” lumber connecting them. I have notched the 1” x 4” but it is not necessary. You can notch it to fit your metal strips if desired.

23) Use 2” Deck screws to securely fasten all four corners of the wood pieces to the metal strips.

24) Start with one end of your soon to be classifier, (1” x 4” frame) and staple down the 11 1/4" wide x 20" long - 1/4" hardware cloth at one end. Due to slight differences in the construction of your classifier your screen size may vary. The hardware cloth is intentionally three rows of metal cloth too wide on both sides. (I used a power stapler, but I recommend using galvanized fencing staples for attaching the screen to the frame.

25) Staple the hardware cloth in at least four places on each (one at each corner) and it wouldn't hurt to put a staple in the middle on each side.
26) Using your hand, fold the screen (hardware cloth) over the 1" x 4" frame.

27) Pull the screen flat and staple both sides down using a minimum of six staples per side.

28) Bend the remaining end of the screen with your hand. (Note the screen is too long.)

29) Staple the screen down to the end again using a minimum of 4 staples (one per corner) but more is better.
30) Using tin snips, cut off the excess hardware cloth just slightly below the level of the top metal strip. You don't want the sharp screen sticking above the classifier.

31) Flip the classifier on its side and cut down the small amount of hardware cloth that sticks up at the corner. Do this at both corners.

32) Fold over the edges on both sides and staple down using at least a couple of staples per side.

33) Next fold over the bottom and staple using a minimum of 4 or 5 staples. We are using this overlap of hardware cloth on the sides to add strength when loading it with gold bearing materials.
34) Repeat steps 31 through 33 for the other side. Cutting the corners and folding over the hardware cloth. Staple the cloth to the sides first and then the bottom.

Our Classifier is now complete! Our next step is to attach the classifier to the sluice box.

35) At the entry end of the sluice box (the end where the riffles start smaller) place the sluice box making sure the classifier is in about 1/2" - 1" from the end of the sluice box and that the classifier is level with the top of sluice box. Mark the top edge of the sluice box where the wooden 1" x 4" of the classifier will sit. Be sure to mark at both ends of the classifier.

36) Any pair of medium sized hinges will work. I got these from a dollar store. Drill a 3/16" hole through the hinge hole when it is positioned on the top of the box. Make sure the hinges are to the inside of our marks. It is up to you which side you want your classifier hinged on.
37) Insert the 3/16" x 1" long bolt through the hinge and through the hole. Loosely secure it with the nut (hand tighten only). Drill the second hole through the hinge hole and insert the 3/16" bolt. Again, loosely secure it with a nut and hand tighten the nut.

38) Position the second hinge to the inside of our marks. Drill and secure the hinge with bolts and nuts. Hand tighten only.

39) Hold the classifier inside your sluice box, level with the top and under our mounted hinges. Pre-drill a 1/8" hole through the hinge holes on one of the hinges. Secure the classifier to the hinge with a couple 1 3/4" deck screws.

40) Repeat for the other hinge. Pre drill the hole and secure with 1 3/4" deck screws.
41) Our classifier is now complete and has been attached.

42) Extra clearance is needed on one side of our classifier in order to make sure that it clears the other side of the sluice box when we raise it.

43) Punch a hole in the end of each of the 3/4" x 4 1/2" long metal banding strips approximately 3/4" from the end. The hole size isn't critical, in fact you can use a large nail and hammer a hole through. I used a metal hole punch to punch 3/16" holes. **DO NOT** use a drill as the drill bit will catch on the metal and flip it around causing the metal to slice into your hand.

44) Hold the metal strip on the inside of the sluice box as shown. Drill a 5/32" hole through the hole in the metal banding and through the side of the sluice box.
45) Take a 5/32" x 1" long bolt and push it through the metal banding, then through a plastic washer (we just cut out a small disc from a thin piece of plastic) and finally through the sluice box to the outside. Secure it with a nut. Tighten it just until it is slightly firm. You want to be able to move the hold down up and down by hand. Repeat for the other side.

Have the bands in the down position to hold down the riffle section and in the up position when taking the riffles out.

46) Center and screw a 2" x 28" long pieces of wood to the bottom of the sluice box at the front and at the back. The position isn't critical. This just stops our sluice box from flowing down the stream.

47) When you place the sluice box into the stream, place a large rock on the board at each corner and they will weigh the sluice box down to the stream bottom.
Your Progressive Sluice Box is now complete.

Check out the following link to see it in action.

http://www.youtube.com/watch?v=yU3LbVB0ImI

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http://www.mygoldpanning.com/progressivesluicebox.html