Duckpower
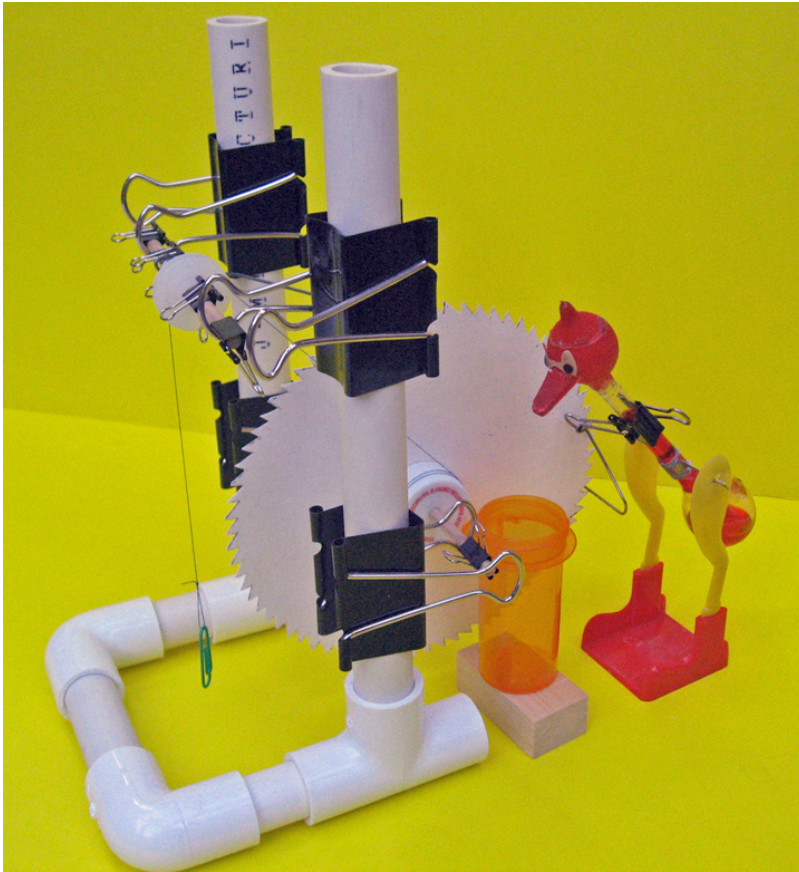### *How many ducks does it take to make a horse?*

With a few simple measurements you can determine the power of the "duckpower motor" shown here. Conventionally this would be expressed in watts, but with a simple conversion factor can be expressed in horsepower. The value in horsepower can then be arbitrarily called 1 duckpower. With this conversion factor established, you can now readily determine how many ducks it takes to make a horse!
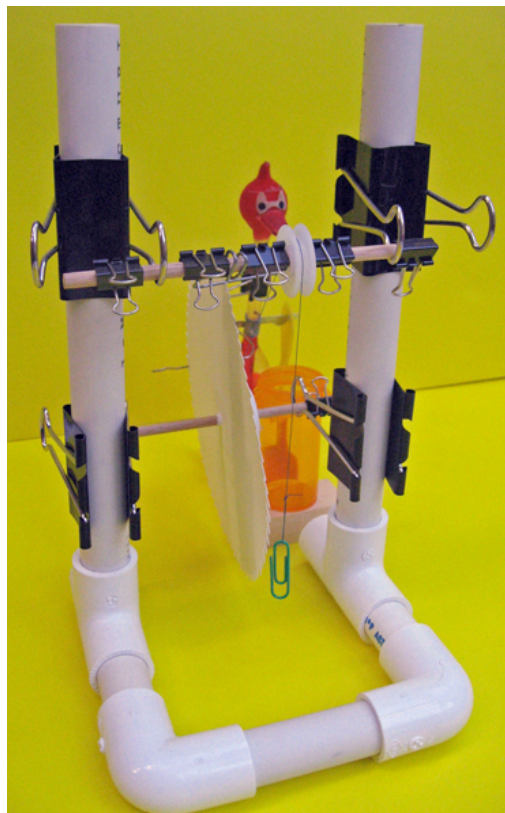
The process involves the duck lifting the mass of the paper clip (m) a known height (h) in a known time (t).

$$W = F \times d = PE = mgh \qquad\qquad P = W/t$$

1 horsepower = 746 watts

I first saw the idea for this motor long ago in an article in The Physics Teacher (Kemp Kolb, "Reciprocating" Engine, TPT, March 1966). Be advised that building the motor is really a tinkerer's delight -- try your hand at your own design! Construction details in the article were schematic and minimal, and the present version is the latest of a few over the years, all of which manifested the same principle of operation, but not the same physical construction. If you have questions, or want more detailed information than you can discern from the photos, or would like additional references, please feel free to contact me at the e-mail address shown in the footer.

The "duck" shown in this write-up is known by many names in the marketplace and the literature, among them:
Drinking Bird
Happy Bird
Dippy Bird
Diving Duck
etc.

The bird usually comes with a hat on. It was removed here to facilitate wetting the head and increase the evaporative surface, but working versions have been made with the hat in place.
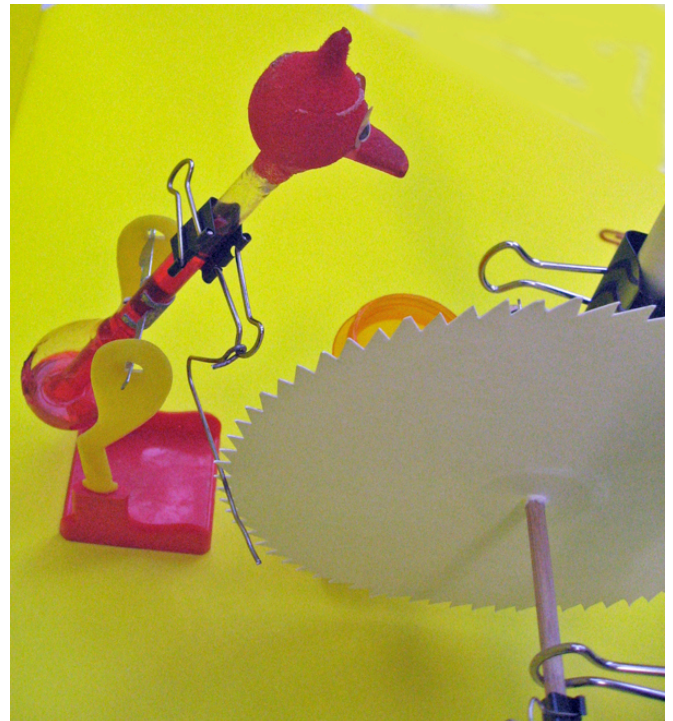
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