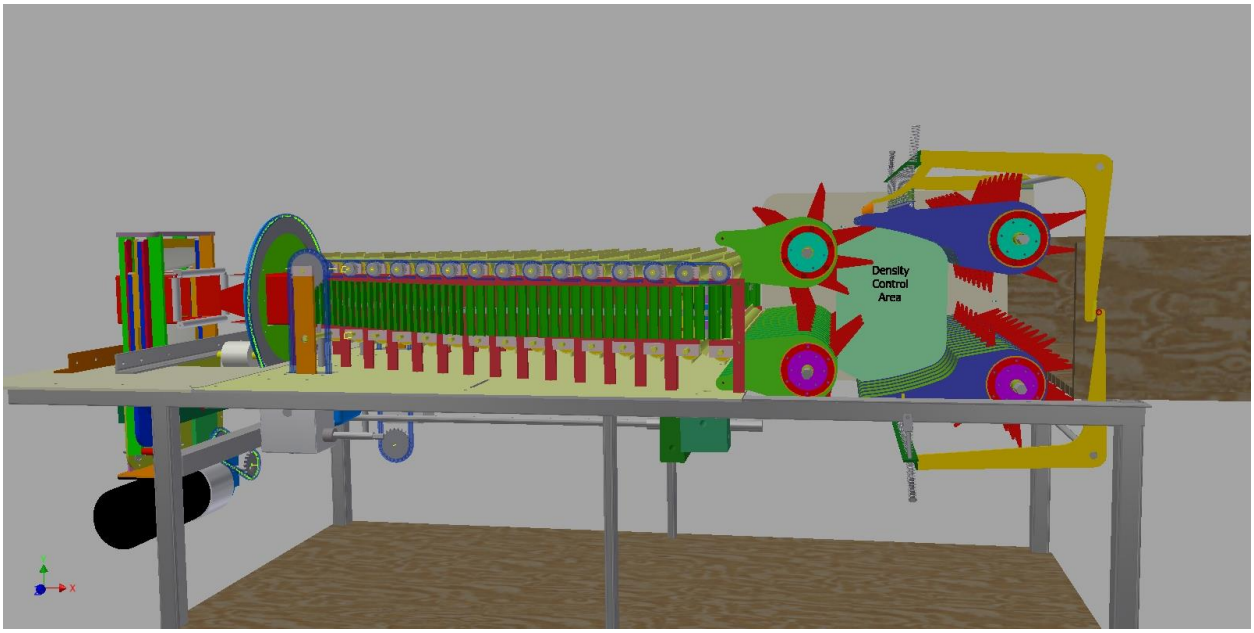
Description of Operation

It is envisioned that this hay baler would be utilized much the same as any existing hay baler in use currently, except that the hay to be baled should be in an even mat as wide as the pickup, rather than raked into a narrow windrow. The pickup could be of most any currently used design, provided that it will operate at fairly high ground speeds (5-10 MPH), and that it be at least as wide as the input end of the new baler.

As hay leaves the pickup and enters the baler (from the right in the picture) it is moved by the first of two counter-rotating, protruding-tine feeder assemblies into the area between the first and second pair of feeder assemblies, called the density control area. Initially the second set of feeder assemblies are not rotating, so that the hay accumulates in the density control area until it is of sufficient density to activate the rotating of the second set of counter-rotating feeder assemblies (as well as the rest of the baler) at a variable speed, calculated to maintain a known amount of hay in the density control area.

As the tines of the second pair of feeder assemblies force the hay between their upper and lower feeder assemblies , the density is increased by a known amount, and the hay enters the compression area, which is comprised of upper and lower pressure rollers and feeder/conveyor tracks on either side. The pressure rollers define the height of the bale being formed, and the tracks which are oriented in a “V” formation, further compress the hay a known amount as it moves through the baler, and establish the length of the bale. As the compressed stream of hay exits the compression area, it can be tied, strapped or wrapped, and then cut to the desired width by a travelling cutting mechanism, completing the bale. Continuously wrapping the compressed hay, with either stretch wrap or net wrap, and then cutting the bale to size eliminates the need for the troublesome knotter or strapping mechanisms, as well as optionally weatherproofing four of the six sides of the bale.

Because the height and the length are set by the design of the mechanisms, and because the width is programed to be repeatable by the cutting mechanism, each bale will be the same size as each other bale, allowing for the mechanical handling of the finished bales. Further, as each stage of compression is of a known amount, and because the initial density of the hay is governed by the variable speed of the second set of feeder assemblies (and the compression area), each bale should be the same density as each other bale, regardless of the variability of the incoming crop. Assuming some sort of continuous wrapping material to contain the bale, and with the exception of the cutting assembly, this baler has no reciprocating parts, allowing almost unlimited speed of operation. Further, I believe that the final density of the hay is limited only by the amount of steel used to build the baler, and the amount of power used to power it.


Density
Control
Area