

# Section I - Introduction

## Purpose of Tying Machine

The primary purpose of the tying machine is to automatically tie mail, packages, cartons, piece parts, printed matter, newspaper, laundry, produce, meats, corrugated cardboard and miscellaneous materials and products requiring a secure wrap (figure 1). The tying machine ties almost everything that was previously wired, banded, taped, strapped, tied by hand in offices, factories and commercial establishments. The tying machine reduces tying time, employee effort and fatigue, reduces twine lint and waste, enables trained operators to make secure ties quickly, ties larger bundles with greater ease and efficiency and discourages tampering because the knot cannot be duplicated by hand tying.

## General Description

The tying machine is made of steel, cast iron and high impact plastic construction. Heavy duty panels and guards completely enclose the moving parts of the tying machine to prevent accidental operator contact. However, the unique design of the tying machine still provides the operator with easy accessibility to maintenance points without the use of tools. For ease of mobility, caster wheels are used. A brake feature on each caster resists the movement of the tying machine when assigned a permanent position. The “ON-OFF” switch (used to supply electrical power) and a foot pedal (used to initiate the tying cycle) are within easy and comfortable reach of the operator. The material tying area consists of a front table, back table, and standard. A knotter head assembly, stringholder assembly, twine arm and drive assemblies comprise the tying cycle components.

## Principles of Operation

### Double Wrap One Way

With the tying machine power cord connected to an approved power source and the material to be tied properly positioned on the front table and the back table, the operator then places the “ON-OFF” switch in the “ON” position. Electrical ac power is then transferred by the switch to start the motor. The motor rotating at approximately 1725 rpm drives the pulley on the clutch via a V belt mechanically coupling the pulley assembly to the motor. At this time, the tying machine is considered to be in a locked condition until the operator applies toe pressure to the foot pedal to begin the wrapping and tying cycle. Depressing the foot pedal causes the trip cable to position the bell crank and kickout assembly so the kickout wedge slides free from the clutch fork assembly. Repositioning the kickout wedge permits the lever clutch of the kickout mechanism to first pull away from the clutch kickout block on the main cam assembly and then is engaged by the clutch fork. As soon as this occurs, the clutch shaft becomes unlocked and starts to rotate which in turn drives a series of gears; main shaft, main gear and chain gear. As a result, the twine arm begins to swing around the package being tied pulling the twine from the twine cone pilot assembly, through the properly adjusted tension device and each threading guide. After the second swing of the twine arm, the drawslide is positioned to allow the twine to fall directly behind the stringholder button. The drawslide then pushes the twine from the stringholder button to the left side of the forward moving knotter body as viewed from the right hand side of the tying machine.