"WE MUST ALL HANG TOGETHER ..."

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At the signing of the Declaration of Independence on July 4, 1776, Benjamin Franklin reportedly quipped "We must all hang together, or assuredly we shall all hang separately". In this bicentennial year, it seems appropriate to provide the following visual confirmation of Franklin's words:

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               W  Y                          N
               V           N  M  N  C  O      H
            W  A  L         S                 I
            I               C     A     F     L
            N               U  T              A
      M  O  K  Y            N  J              Z
   P  A  R                  M  E
      I           N  V      T
   G  A     M  I  D         X
      K  S  D     E
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This interlocking pattern employs the U.S. Post Office two-letter abbreviations for the 50 states (Nebraska, originally NB, was later changed to NE). Note that exactly 50 letters have been used, one for each state. Readers may enjoy experimenting to see whether other patterns can be constructed using fewer letters. For a given letter-count, what is the smallest rectangle into which the pattern can be compressed?

The May 1975 issue of the British magazine Games & Puzzles gives the results of a competition in which readers were asked to interlock the full names of all 50 states in a rectangle of minimum area. Unfortunately, the appearance of the winning rectangle (23 by 29 units in size) is marred by the fusion of two-word state names, such as Newjersey or Southdakota.

As another salute to the bicentennial, readers are challenged to fit the thirty-three different presidential surnames into a rectangle of minimum area (keeping Van Buren as two separate words).