```
procedure createSem(initial value, int *name) {
  get an empty semaphore descriptor;
  initialize the descriptor;
  set name to the name (index) of the descriptor;
  dispatcher();
}
procedure Psem(name) {
  find semaphore descriptor of name;
  if (value > 0)
    value = value - 1;
  else {
    insert descriptor of executing at end of blocked list;
    executing = 0;    # indicate executing is blocked
  }
  dispatcher();
}
procedure Vsem(name) {
  find semaphore descriptor of name;
  if (blocked list empty)
    value = value + 1;
  else {
    remove process descriptor from front of blocked list;
    insert the descriptor at end of ready list;
  }
  dispatcher();
}
```

Figure 6.5 Semaphore primitives for a single-processor kernel.