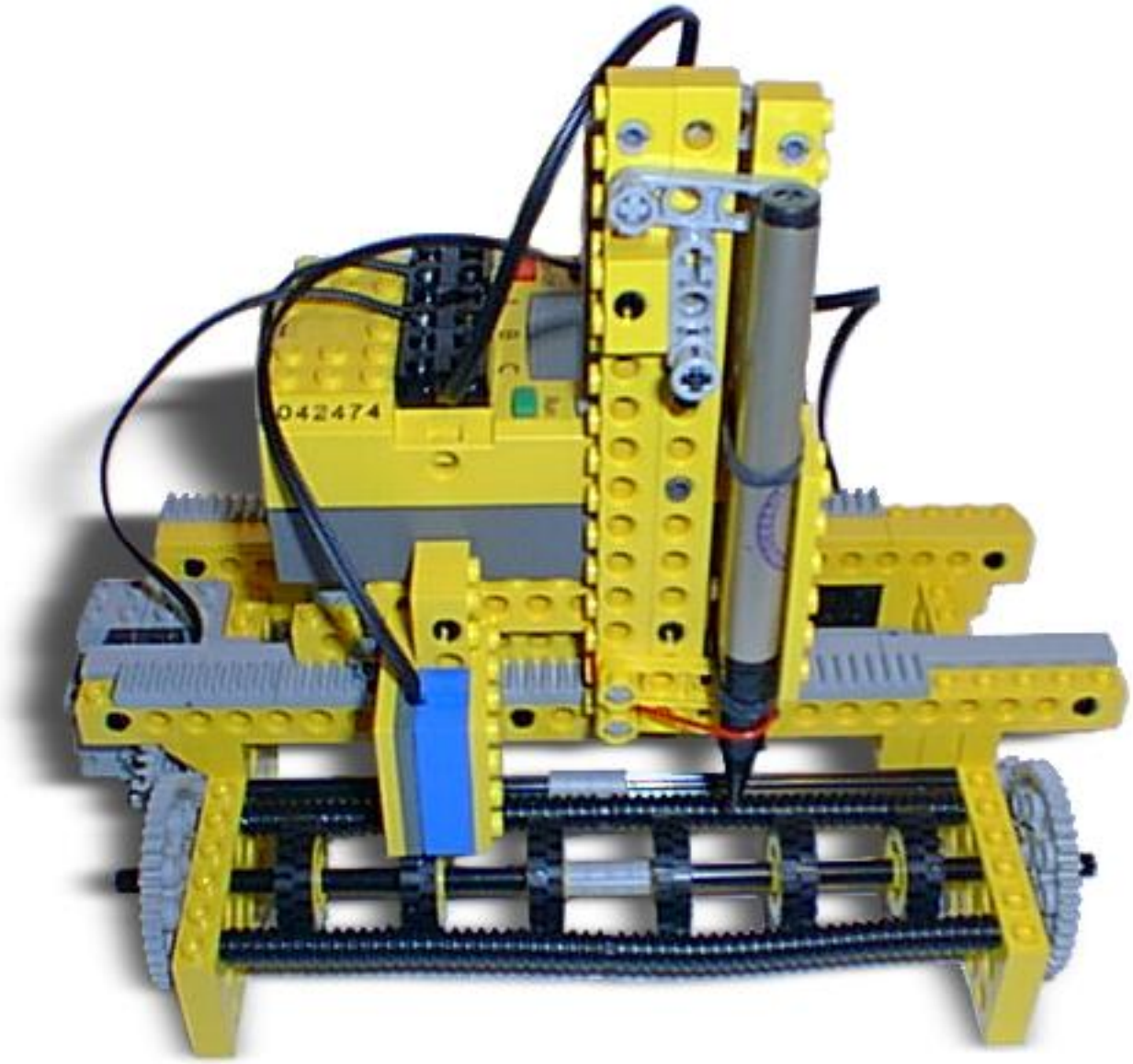
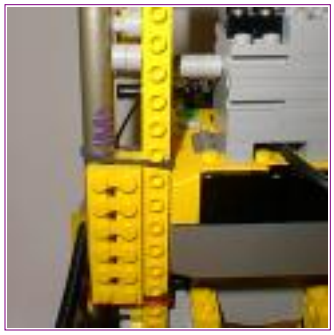
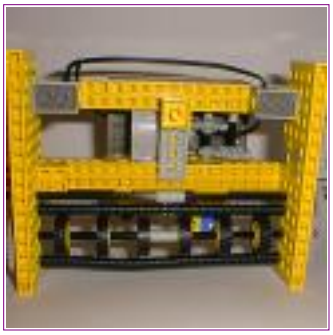
Plotter

The Plotter is a Lego MindStorms robot that draws on a sheet of paper. It also has a light sensor for scanning low resolution images.



More photos of the Plotter:

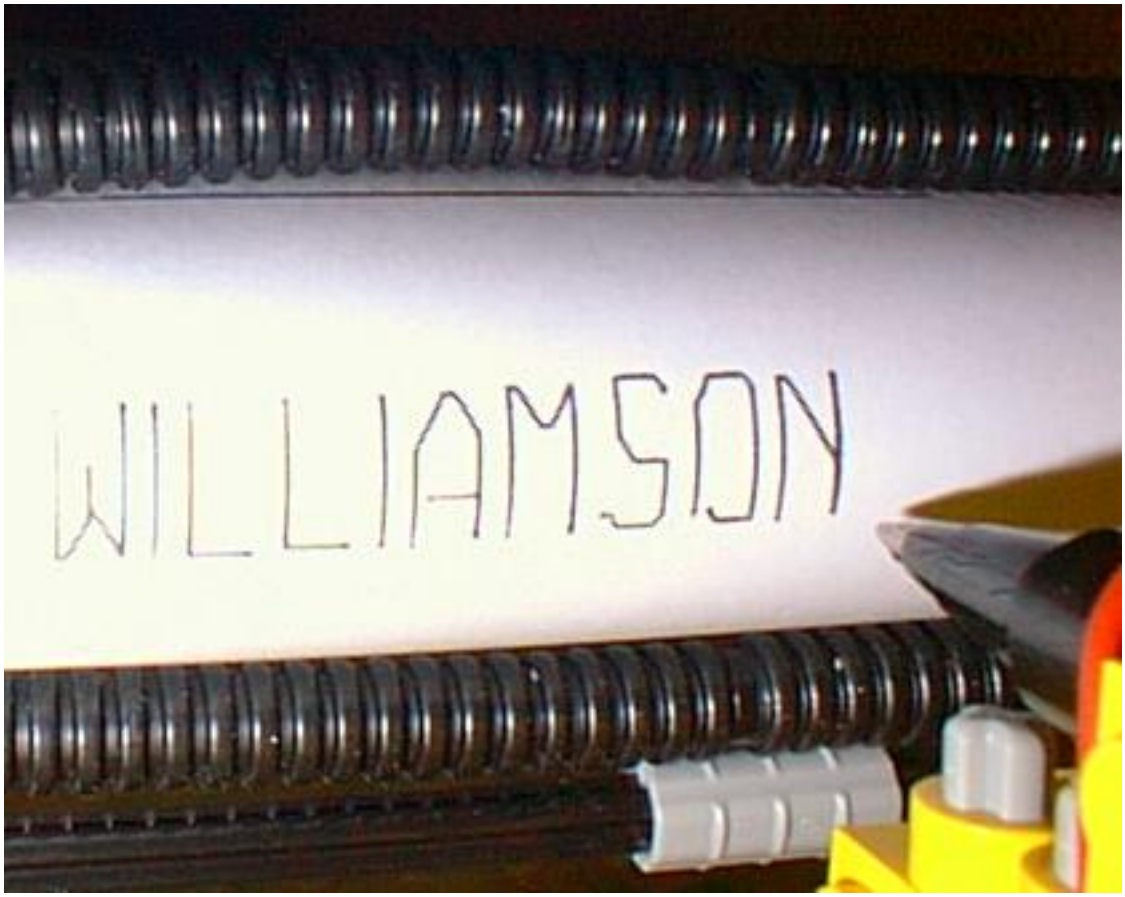


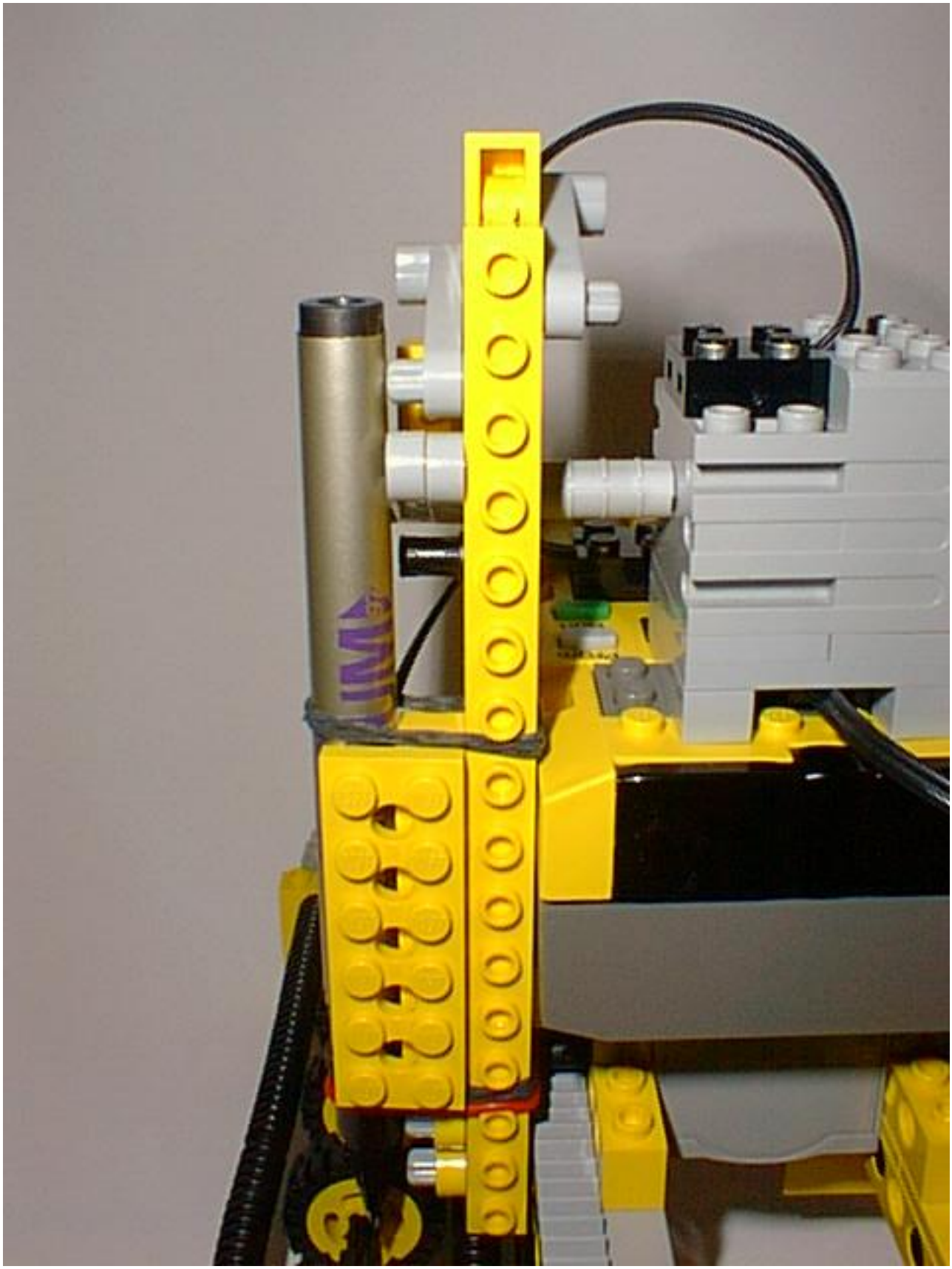


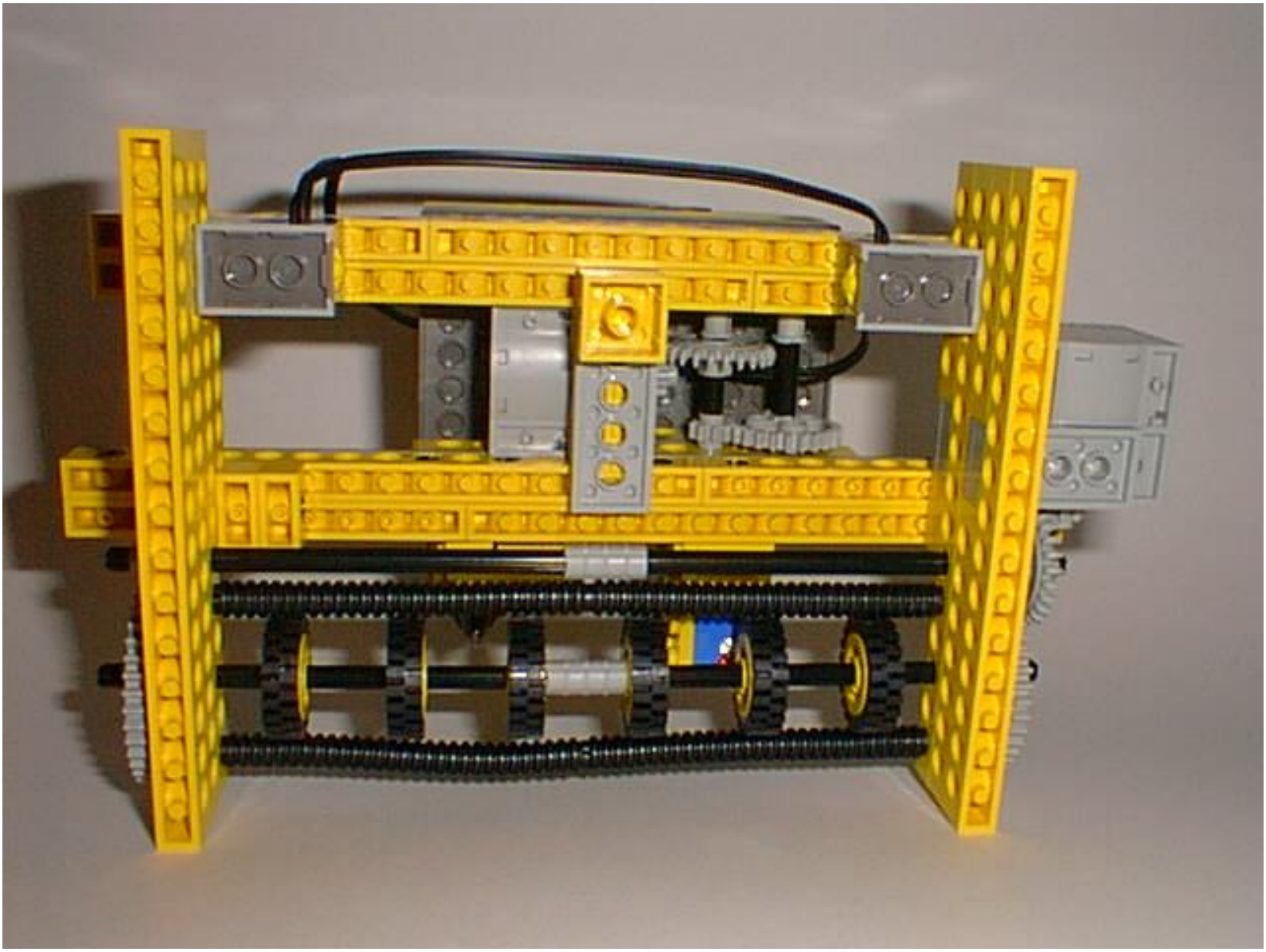
The Plotter files:

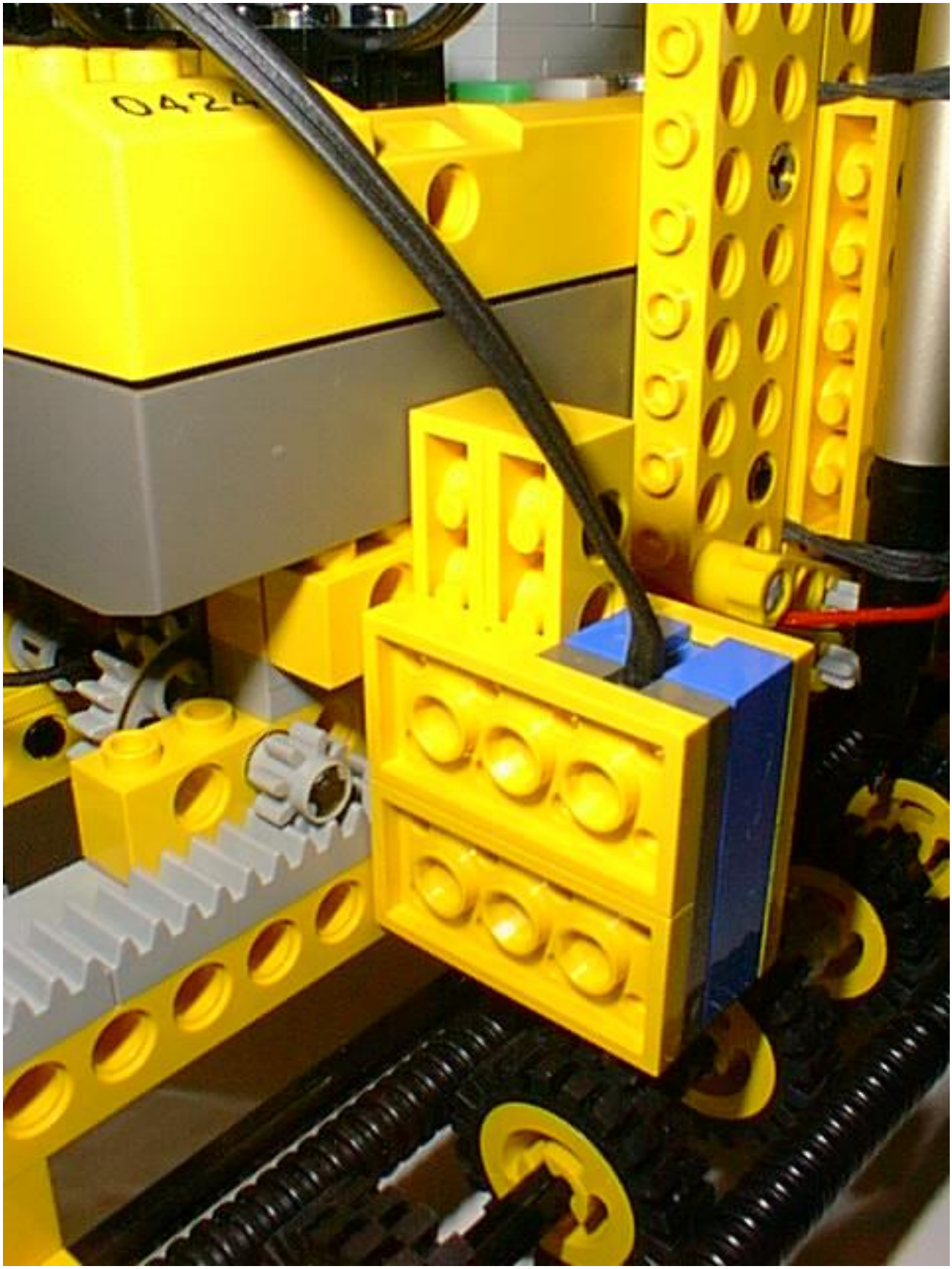
- plotter.nqc source, for use with NQC

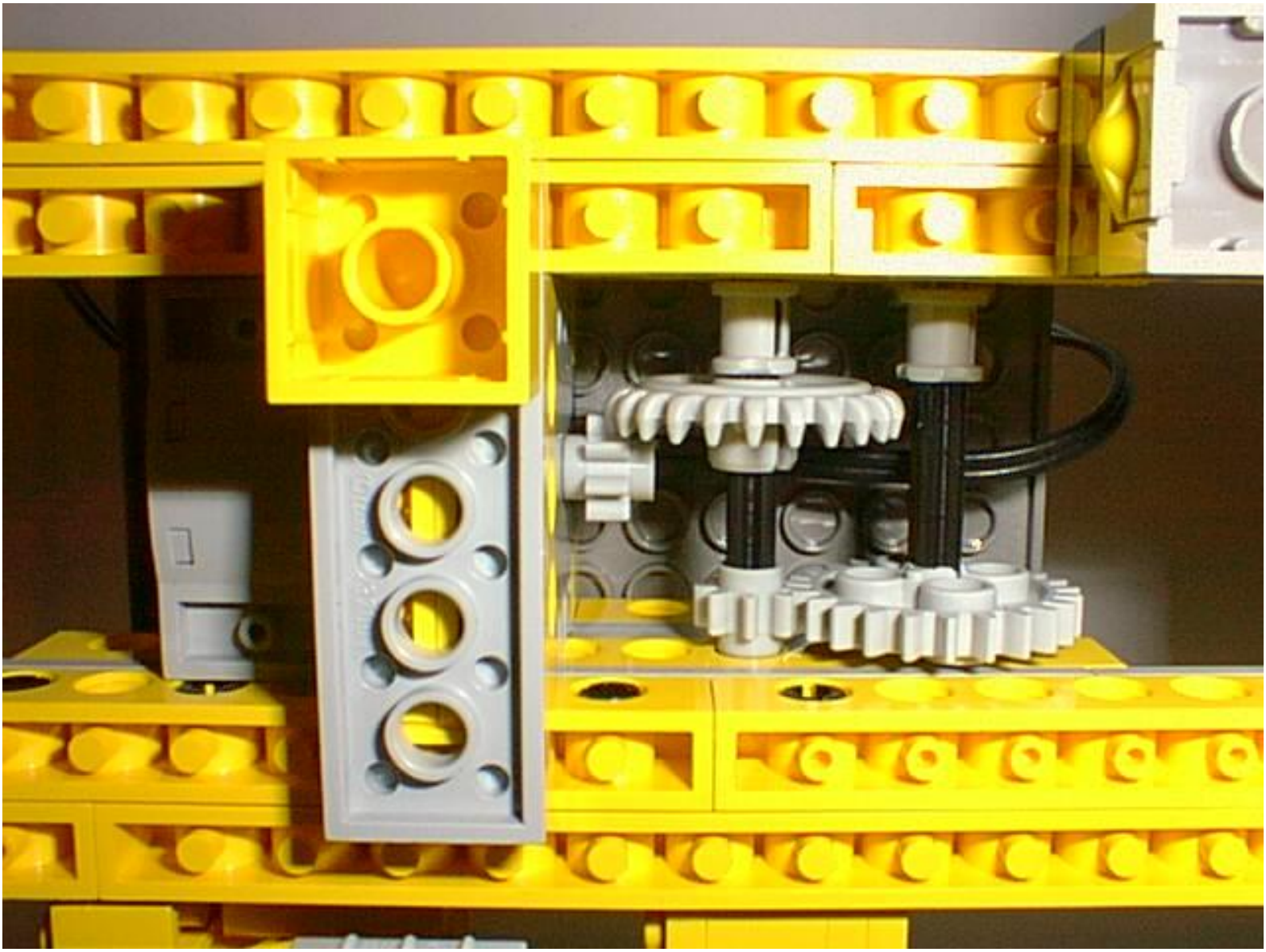
Up

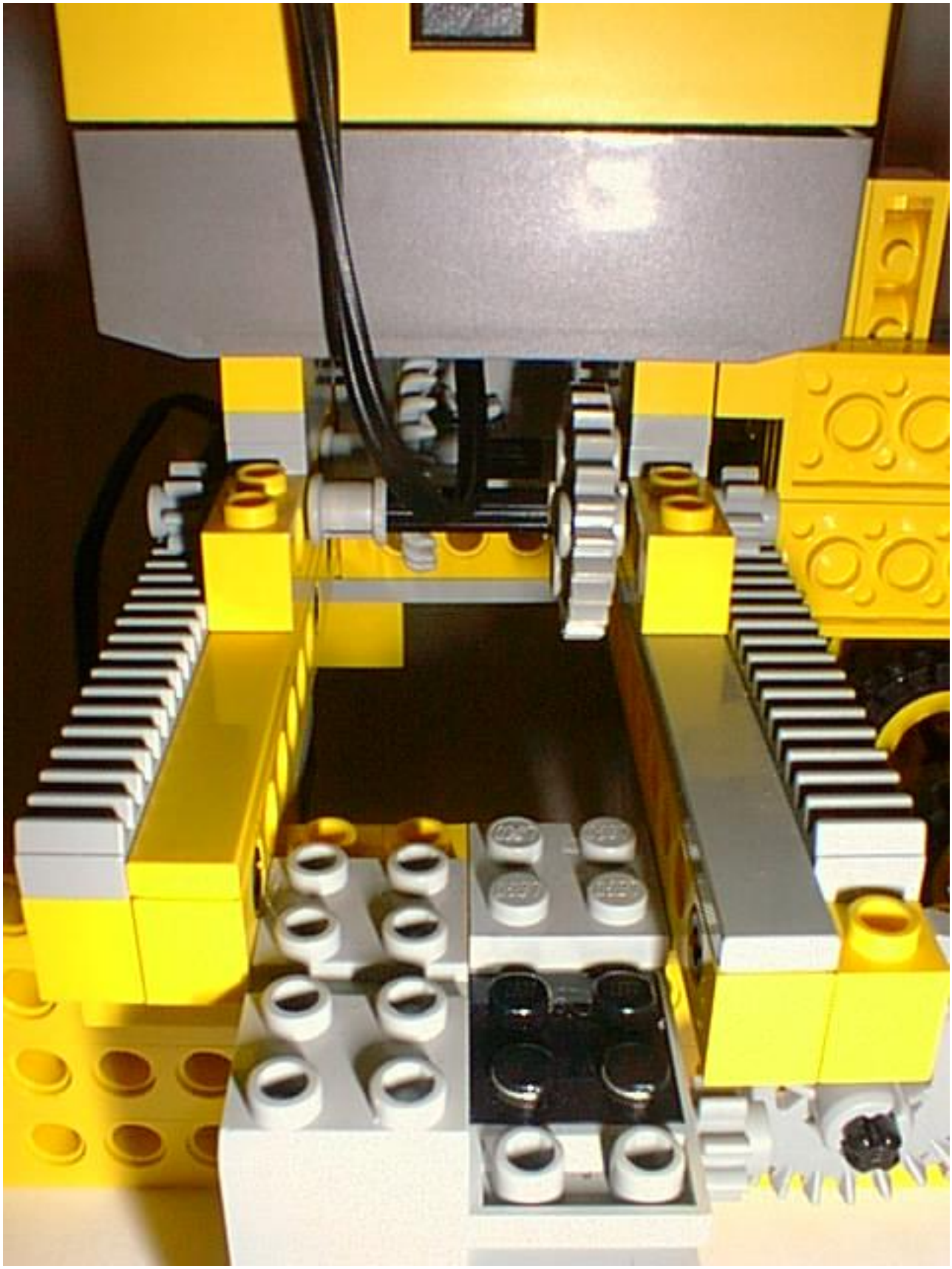

WILLIAMSON

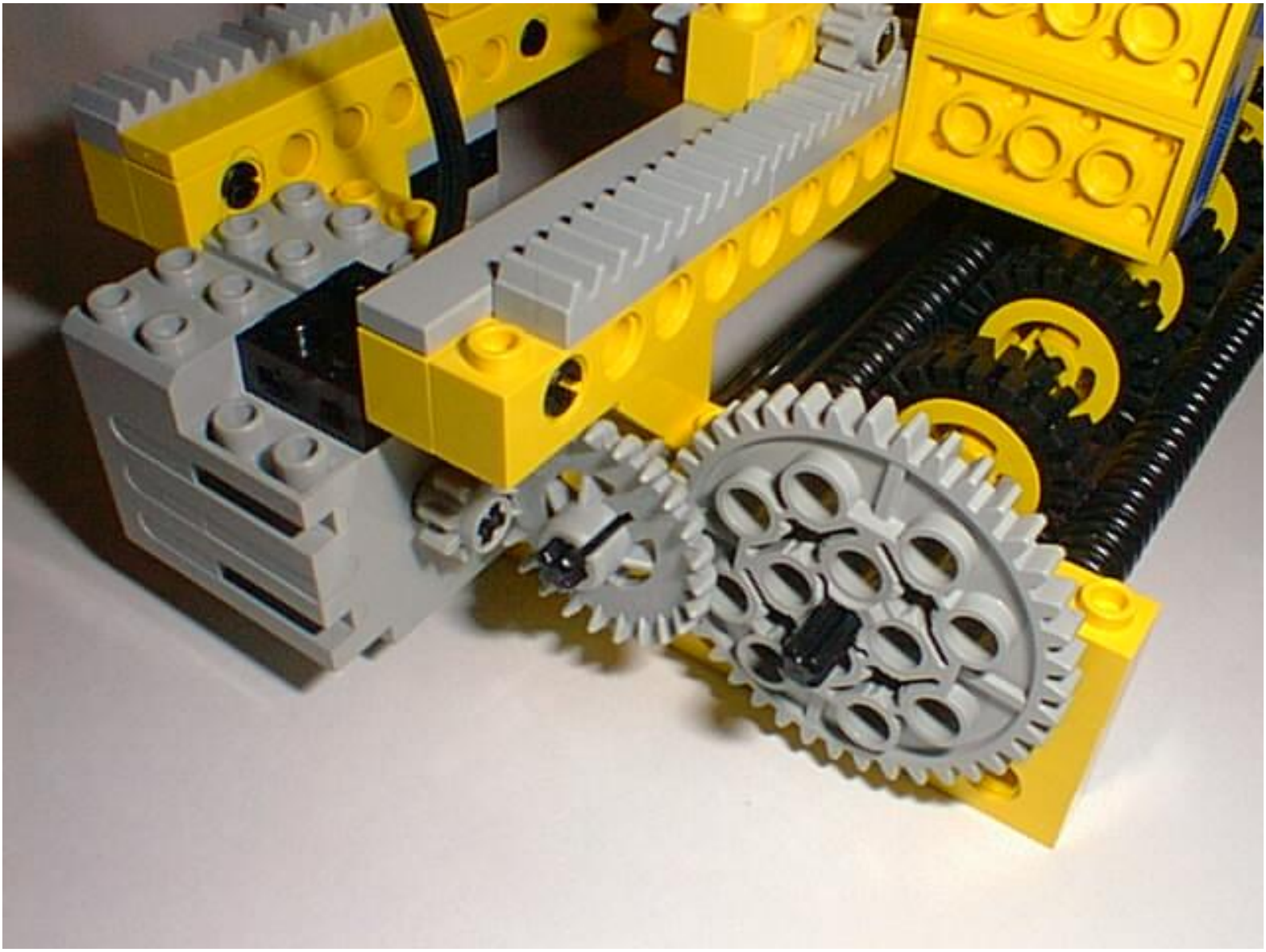













A
B
C
Prgm
Run
4

```
#define X       OUT_A
#define Y       OUT_B
#define Z       OUT_C

#define LIGHT   IN_1
#define LIMIT   IN_2

#define FX      Fwd(X, 7)
#define RX      Rev(X, 7)
#define OX      Off(X)

#define FY      Fwd(Y, 7)
#define RY      Rev(Y, 7)
#define OY      Off(Y)

#define S(t)    Sleep(t * 7); OX; OY; Sleep(3)


#define DOWN    do {                    \
                        Rev(Z, 4);      \
                        Sleep(5);       \
                        Off(Z);         \
                        Sleep(5);       \
                } while (false)

#define UP      do {                    \
                        Fwd(Z, 4);      \
                        Sleep(10);      \
                        Off(Z);         \
                } while (false)

task main
{
        Sensor(LIGHT, IN_LIGHT);
        Sensor(LIMIT, IN_SWITCH);
        Sensor(LIMIT, IN_SWITCH);

        UP;

        /* carriage return */
        while (LIMIT == 0) {
                RX;
        }
        while (LIMIT == 1) {
                FX;
        }
        Sleep(50);
        OX;

        /* B */
        DOWN;
        OX;     RY;     S(6);
        FX;     OY;     S(2);
        FX;     FY;     S(1);
        OX;     FY;     S(1);
        RX;     FY;     S(1);
        RX;     OY;     S(2);
        FX;     OY;     S(3);
        FX;     FY;     S(1);
        OX;     FY;     S(1);
```

```
RX;     FY;     S(1);
RX;     0Y;     S(3);
UP;
FX;     0Y;     S(6);

/* E */
DOWN;
FX;     0Y;     S(4);
RX;     0Y;     S(4);
0X;     RY;     S(3);
FX;     0Y;     S(3);
RX;     0Y;     S(3);
0X;     RY;     S(3);
FX;     0Y;     S(4);
RX;     0Y;     S(4);
UP;
FX;     FY;     S(6);

/* N */
DOWN;
0X;     RY;     S(6);
FX;     FY;     S(4);
0X;     FY;     S(2);
0X;     RY;     S(6);
UP;
0X;     FY;     S(6);
FX;     0Y;     S(2);

/* space */
FX;     0Y;     S(6);

/* W */
0X;     RY;     S(6);
DOWN;
0X;     FY;     S(6);
FX;     RY;     S(2);
0X;     RY;     S(2);
0X;     FY;     S(2);
FX;     FY;     S(2);
0X;     RY;     S(6);
UP;
0X;     FY;     S(6);
FX;     0Y;     S(2);

/* I */
DOWN;
0X;     RY;     S(6);
UP;
0X;     FY;     S(6);
FX;     0Y;     S(2);

/* L */
0X;     RY;     S(6);
DOWN;
0X;     FY;     S(6);
FX;     0Y;     S(4);
UP;
FX;     0Y;     S(2);

/* L */
0X;     RY;     S(6);
```

```
DOWN;
OX;     FY;     S(6);
FX;     OY;     S(4);
UP;
FX;     OY;     S(2);

/* I */
DOWN;
OX;     RY;     S(6);
UP;
OX;     FY;     S(6);
FX;     OY;     S(2);

/* A */
DOWN;
OX;     RY;     S(4);
FX;     RY;     S(2);
FX;     FY;     S(2);
OX;     FY;     S(4);
UP;
RX;     OY;     S(4);
OX;     RY;     S(2);
DOWN;
FX;     OY;     S(4);
UP;
OX;     FY;     S(2);
FX;     OY;     S(2);

/* M */
DOWN;
OX;     RY;     S(6);
FX;     FY;     S(2);
FX;     RY;     S(2);
OX;     FY;     S(6);
UP;
FX;     OY;     S(2);

/* S */
OX;     RY;     S(1);
DOWN;
FX;     FY;     S(1);
FX;     OY;     S(2);
FX;     RY;     S(1);
OX;     RY;     S(1);
RX;     RY;     S(1);
RX;     OY;     S(2);
RX;     RY;     S(1);
OX;     RY;     S(1);
FX;     RY;     S(1);
FX;     OY;     S(2);
FX;     FY;     S(1);
UP;
OX;     FY;     S(5);
FX;     OY;     S(2);

/* O */
OX;     RY;     S(1);
DOWN;
OX;     RY;     S(4);
FX;     RY;     S(1);
FX;     OY;     S(2);
```

```
        FX;     FY;     S(1);
        OX;     FY;     S(4);
        RX;     FY;     S(1);
        RX;     OY;     S(2);
        RX;     RY;     S(1);
        UP;
        OX;     FY;     S(1);
        FX;     OY;     S(6);

        /* N */
        DOWN;
        OX;     RY;     S(6);
        FX;     FY;     S(4);
        OX;     FY;     S(2);
        OX;     RY;     S(6);
        UP;
        OX;     FY;     S(6);
        FX;     OY;     S(2);
}
```