

Electric Motorized Feeder Unit for the Severely Involved Patient

By MARJORIE KIRKPATRICK, M.D., R. N. WITT, C.O.,
ESTHER BELL, O.T.R., and CHRISTINE B. STEPHENS, O.T.R.

*Texas Rehabilitation Center of Gonzales Warm Springs Foundation
Gonzales, Texas*

Many sources of power have been tried for this type of apparatus; Artificial muscle, CO², springs, cable controls from some part of body. We have used electric motors which offer many advantages.

Paralysis that occurs as a result of fractures of the cervical region, with severe injury to the spinal cord always cause a greater or lesser degree of involvement of the upper extremities. Most of the quadriplegics who live have some musculature in their upper extremities, even the highest ones who live will at least have a deltoid and biceps. It is very seldom that a quadriplegic would be seen without these muscles and with nothing at all in the upper extremities, not even a trace. However, S.D., an 18-year-old girl did have involvement such as this, with no muscle power in the upper extremities. In attempting to give her some kind of function, we tried, first, with a feeder that she could control using only upper trapezius. This was extremely exhausting and completely impractical. In view of making activities easier, it was decided to use the opposite shoulder and a cable to give outward motion of the feeder, but again this proved too strenuous. The muscles of the neck were used in this girl, not only for activities in the arms and holding the head and neck up, but also were used as accessory respiratory muscles. Again, there was a problem of trying to give her some activity that would not be completely exhausting. With this idea in mind, we devised the electric motor and blow switch apparatus described below.

An off and on blow switch is operated by the patient so that the feeder can be stopped at any point. The motor we have used makes 7 R.P.M. We attach one end of the cable to the motor arm and the other end to the feeder.

A spring attached from the back feeder arm to the wheel chair offers the return from the cable pull of the motor. The motor is removable from the lapboard. The patient can be set up for eating in less than a minute.

Advantages in a set-up of this type is that the motor is readily available and the cost of the set-up is much less than any other set-up known to the authors. There are probably many other ways of adapting this economical power source to the patient's needs.

We anticipate the observation that the patient will be limited to electrical power source and would not be able to use this set-up universally. However, the function that can be expected of these people is very limited and we feel

this not a contra-indication, but a factor to be weighed against the disadvantages of more cumbersome and expensive mechanisms, and more extensive preparatory set-up by an assistant.

Basic functions expected are eating and other fixed range activities.

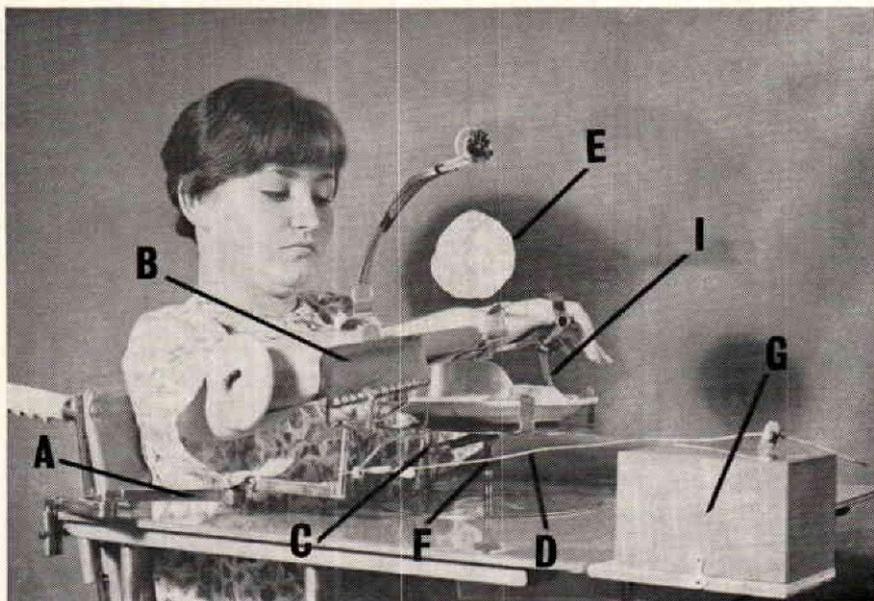


FIG. 1

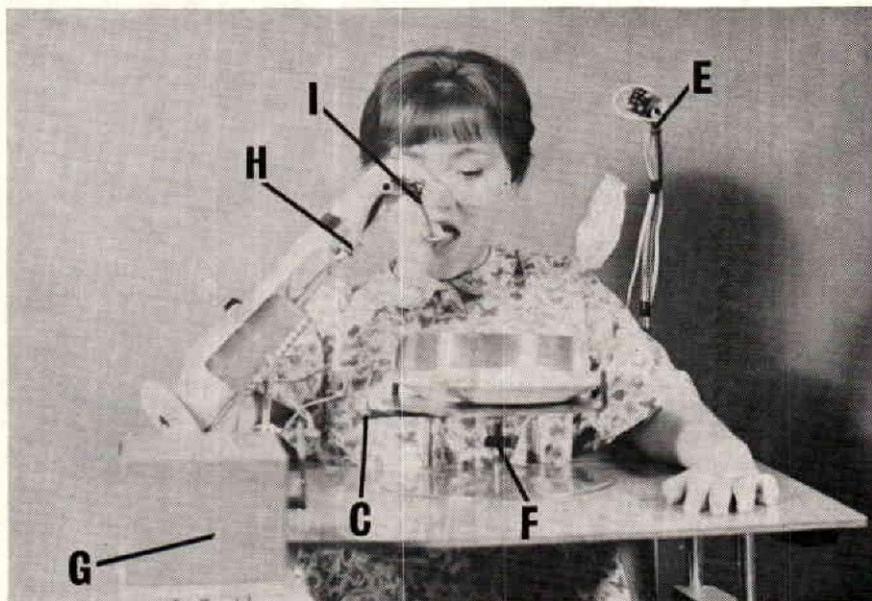


FIG. 2

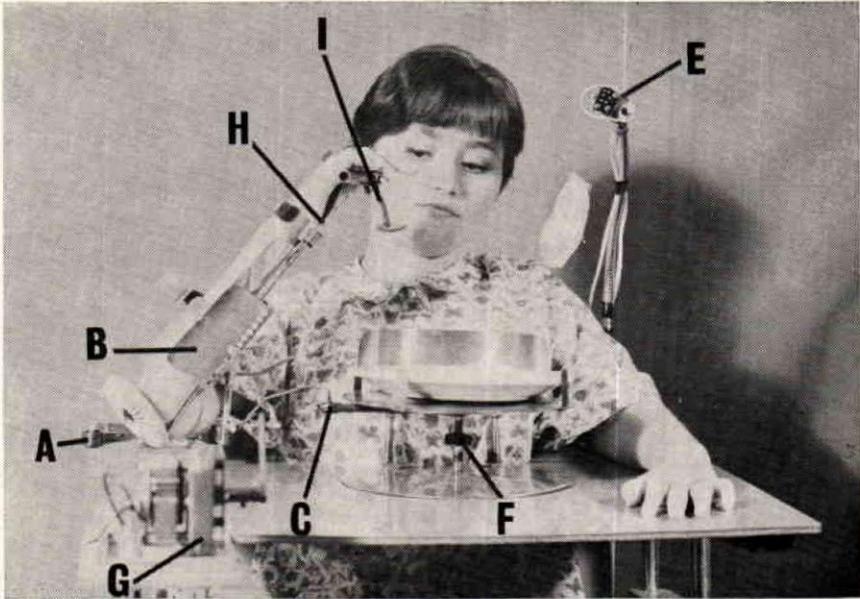


FIG. 3

Feeder Components: (See Figures 1-3)

- A. Swivel Bars and return spring and stud.
- B. Swivel Feeder and Gravity Bar.
- C. Hook from swivel bar to ratchet on rotary plate stand.
- D. Cable to motor.
- E. Blow switch and connecting linkage.
- F. Friction disk on rotary plate stand.
- G. Motor.
- H. Tubular splint with swivel spork.
- I. Swivel spork picking up food and going to mouth.



**CERTIFICATION EXAMINATION DATE
ANNOUNCED**

The 1965 Board Examinations will be conducted by the American Board for Certification October 12 through 14, 1965, in Cleveland, Ohio. The deadline for submission of Application is July 1, 1965.