DESCRIPTION OF “SAF-T-STOP” BRAKE OPERATION

The brake assembly consists of a brake clamp, No. 1, which is mounted on the brake plate, No. 17, so that it may rotate relative to the brake plate. Part No. 17 is keyed to the elevator head shaft so that it cannot rotate with respect thereto. The torque required to rotate part No. 1 on part No. 17 is determined by the amount of friction between the brake plate and the outer brake discs, parts 17 and 12 respectively, and the brake clamp and the inner brake discs, part 1 and 14 respectively. Notches in the outer edges of the outer brake discs engage the outer row of studs, part No. 16, which are firmly fixed in the brake plate No. 17 and are thus compelled to rotate with it. Notches in the inner edges of discs engage the inner row of studs, part No. 16, which are firmly fixed in the brake clamp, No. 1. The interleaved brake discs are interspersed with the friction discs, No. 13. The amount of friction between the brake plate and the brake clamp is adjustable by means of the cap screws, No. 10. The outer edge of the clamp ring, No. 9, bears against the extending edge of the brake clamp so that tightening the cap screws increases the pressure against the brake and friction discs and increases the torque needed to rotate the brake plate relative to the brake clamp.

Also mounted on the brake clamp by pawl pivots, No. 3, is two pair of pawls, No. 2. Each pawl pivot is held in place by a spring pin, No. 4. If the need arises to remove a pawl pivot, the spring pin can be driven in until it is entirely within the hole in the pawl pivot, then the pawl pivot may be pulled out by means of the groove around the extending end. The pawls are designed with one end much heavier than the other so that when the brake assembly rotates, centrifugal force tends to throw the heavy ends outward. A compression spring, No. 6, is under the lighter end of each of the pawls. The compression spring, No. 6, is under the lighter end of each of the pawls. The compression of each spring is adjustable by means of one of the set screws, No. 5. The set screws are so adjusted that when the brake assembly is rotating at or below the normal operating speed of the elevator, there is enough pressure exerted by the springs, No. 6 to prevent the heavy ends of the pawls being thrown outward. If the normal speed of the elevator is exceeded, the pawls will fly outward and engage one of the two stops, No. 11. From the time the pawls fly outward until one of them engages a stop will not exceed one half revolution of the head shaft. When the stop is engaged the brake clamp will be prevented for further rotation, but the brake discs will slip somewhat to cushion the shock of suddenly stopping the elevator. Also when the pawls fly out because of excessive speed, they trip an electric switch that stops the elevator drive motor and applies a brake that is incorporated in the motor. The ends of each pair of pawls are connected with the Links, No. 7, in such a manner that if one of the pawls flies out the other one of the same pair must fly out also. The brake assembly is so designed that one pair of pawls and one stop cooperate to prevent excessive speed in one direction, the other pair of pawls cooperate with the other stop to prevent excessive speed in the opposite direction.

DESCRIPTION OF “SAF-T-STOP” BRAKE OPERATION

The links, No. 7, are attached to the heavy ends of the pawls with stripper bolts, No. 20. In order to insure that the pawls do not fall back into the grooves in the brake clamp, No. 1, there is a cam assembly, No. 19, that is urged toward the bottom of the groove by a spring, No. 18. One end of this spring engages the outer edge of cam assembly, No. 19, and the inner edge of the link, No. 7. There is just one cam assembly, No. 19, for each direction of rotation. With this feature, when the pawls fly out, the cam assembly rotates into such a position that the pawls are held extended until they are reset manually.