STANDARDS ADOPTED BY THE SOCIETY OF MOTION PICTURE ENGINEERS*

DIMENSIONAL STANDARDS

1. Dimensions of Newly Cut and Perforated Film.

a. Standard 35 mm negative film

The dimensions for this material are shown in chart No. 1.

b. Standard 35 mm positive film

The dimensions for this material are shown in chart No. 2. It will be noted that two forms of perforation may be used with this material, both forms being recognized as standard by the Society.

c. Safety standard 28 mm positive and negative film

The dimensions for these materials are shown in chart No. 3.

d. Standard 16 mm positive and negative film

The dimensions for these materials are shown in chart No. 4.

2. Frame Line.

a. Standard 35 mm film

The frame line shall be half way between two successive perforations on each side of the film.

b. Safety standard 28 mm film

The center of the frame line shall pass through the center of a perforation on each side of the film.

3. Film Splicing Specifications.

Standard dimensional specifications for the making of film splices for laboratory and exchanges are given in chart No. 5.

4. Lantern Slide Mat Opening.

3.0 inches (76.20 mm) wide
by
2.25 inches (57.15 mm) high.

* Available in pamphlet form on application to the Secretary. These standards were approved by the American Engineering Standards Committee, April 9, 1928.

5. Motion Picture Projector Sprockets.

a. Take-up sprocket

The take-up sprocket which is a hold back sprocket on a motion picture projector, should be designed to have the same pitch as the perforations on film which has shrunk to the maximum amount occurring in films of commercially useful condition as supplied by exchanges. This value of shrinkage is taken as 1.5% and the dimensions of the standardized take-up sprocket are computed accordingly.

The essential dimensions are: Base diameter 0.9321 inches (23.67 mm). Tooth thickness (at base) 0.050 inches (1.26 mm).

Other dimensions of the standard take-up sprocket are given in chart No. 6.

b. Intermittent and feed sprockets

The intermittent and feed sprockets should be designed to have the same pitch as the perforations on newly processed film which is 0.13% less than the pitch of newly cut and perforated film, see charts 1 and 2.

The dimensions of the standard intermittent and feed sprockets are computed to conform to these requirements.

The essential dimensions are: Base diameter 0.9452 inches (24.01 mm). Tooth thickness (at base) 0.050 inches (1.26 mm).

Other dimensions of the standard intermittent and feed sprockets are given in chart No. 7.

6. Dimensions of Motion Picture Projection Aperture.

a. Standard 35 mm film

Width 0.9060 inches (23.01 mm).
Height 0.6795 inches (17.26 mm).

b. Safety standard 28 mm film

Width 0.748 inches (19.00 mm).
Height 0.551 inches (14.00 mm).

7. External Diameter of Projection Lenses.

a. No. 1 Projection Lens

External diameter of lens barrel $2\frac{1}{32}$ inches (51.59 mm).

b. No. 2 Projection Lens

External diameter of lens barrel $2\frac{25}{32}$ inches (70.65 mm).

RECOMMENDED PRACTICE

1. **Aperture Size.**

   The existing ratio of 3 to 4 between height and width of picture should be retained when introducing any new size of film.

2. **Leaders and Trailers.**

   These should be opaque with markings embossed on them. In a multiple reel story each trailer and the leader immediately following should be marked with the same title.

3. **Thumb Mark.**

   The thumb mark on a lantern slide should be located in the lower left hand corner next to the reader when the slide is held so that the slide can be read normally against the light.

4. **Take-Up Pull.**

   This should not exceed 15 ounces at the periphery of a 10-inch reel, or 16 ounces on an 11-inch reel.

5. **Projection Lens Height.**

   The standard height from the floor to the center of the projection lens of a motion picture projector should be 48 inches.

6. **Projection Angle.**

   This should not exceed 12 degrees.

7. **Standard Observation Port.**

   This should be 16 inches (40.6 cm) square with its center 5 feet 3 inches (160 cm) above the floor when the projection angle is zero, the center of the aperture to be lowered 1 inch (25.45 mm) for each one degree drop in angle of projection.

8. **Projector Speed.**

   The standard practice should be the projection of 80 feet of standard film per minute with a maximum of 85 feet and a minimum of 75 feet.

9. **Camera Cranking Speed.**

   A camera taking speed of 60 feet of standard film per minute with a minimum of 55 feet and a maximum of 65

feet should be used when normal action is desired, in connection with the Society of Motion Picture Engineers' recommended practice of 80 feet per minute projection speed.

10. Projector Lens Mounting.

The projector lens should be mounted in such a manner that light from all parts of the aperture shall have an uninterrupted path to the entire surface of the lens.

11. Projection Lens Focal Length.

The focal length of motion picture projection lenses should increase in ¼ inch steps up to 8 inches and in ½ inch steps from 8 to 9 inches.

12. Projection Objectives, Focal Markings.

Projection objectives should have the equivalent focal length marked thereon in inches and quarter and halves of an inch, or in decimals, with a plus (+) or minus (−) tolerance not to exceed 1 per cent of the designated focal length also marked by proper sign following the figure.

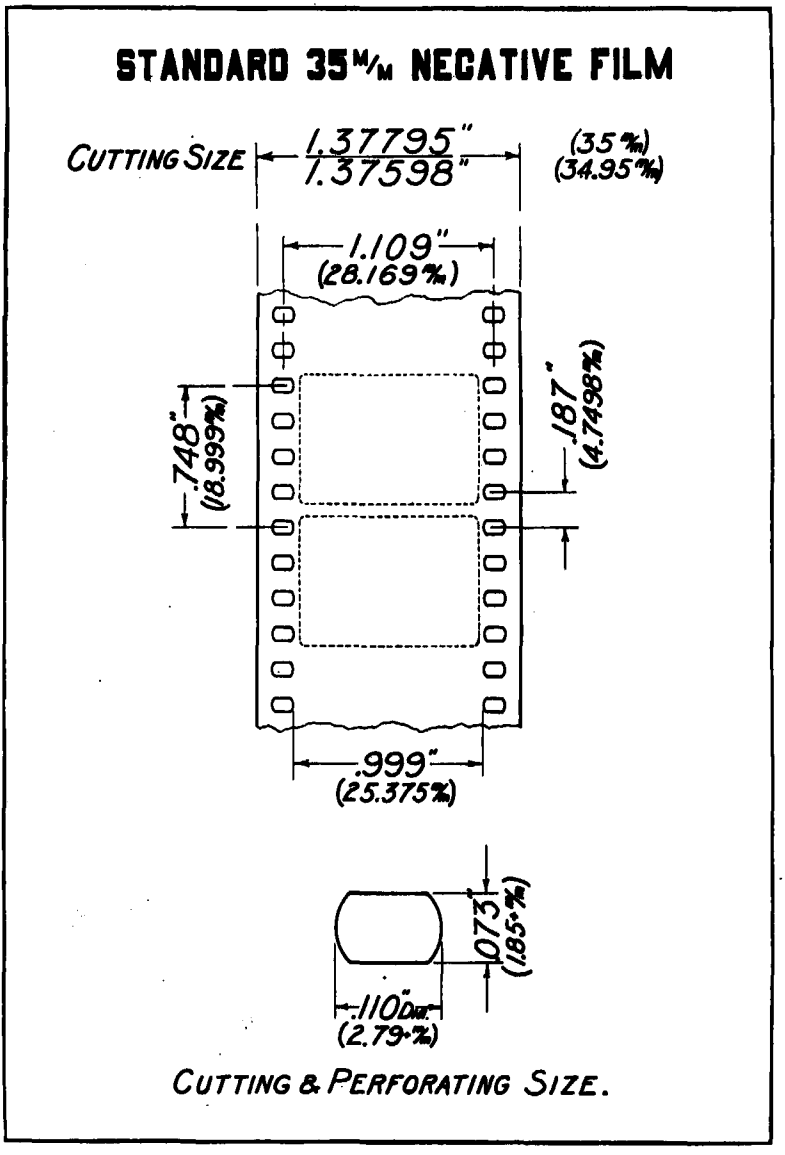
STANDARD 35M/M NEGATIVE FILM
CUTTING SIZE
1.37795"
1.37598"
(35 m/m)
(34.95 m/m)
1.109"
(28.169 m/m)
.748"
(18.999 m/m)
.187"
(4.7498 m/m)
.999"
(25.375 m/m)
.073"
(1.85 m/m)
.110" DIA.
(2.79 m/m)
CUTTING & PERFORATING SIZE.

CHART 1

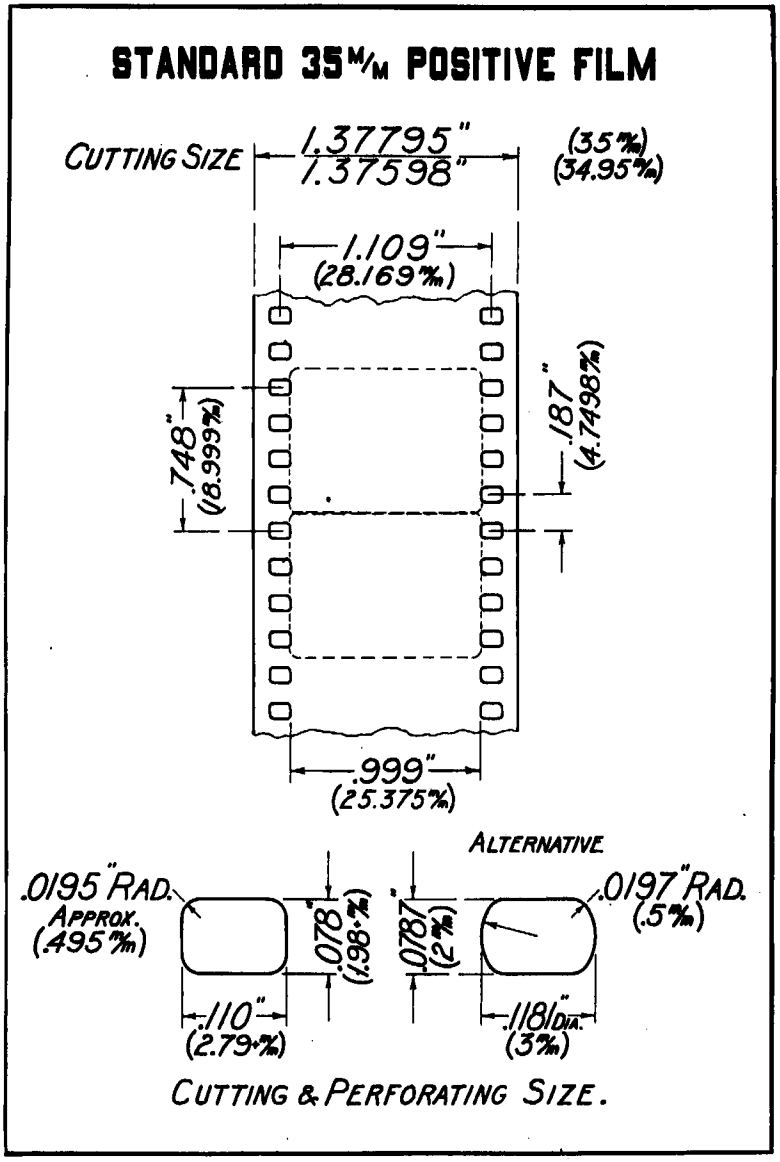
STANDARD 35 M/M POSITIVE FILM
CUTTING SIZE
1.37795"
1.37598"
(35 m/m)
(34.95 m/m)
1.109"
(28.169 m/m)
.748"
(18.999 m/m)
.187"
(4.7498 m/m)
.999"
(25.375 m/m)
ALTERNATIVE
.0195" RAD.
APPROX.
(.495 m/m)
.078"
(1.98+ m/m)
.0787"
(2 m/m)
.0197" RAD.
(.5 m/m)
.110"
(2.79+ m/m)
.1181" DIA.
(3 m/m)
CUTTING & PERFORATING SIZE.

CHART 2

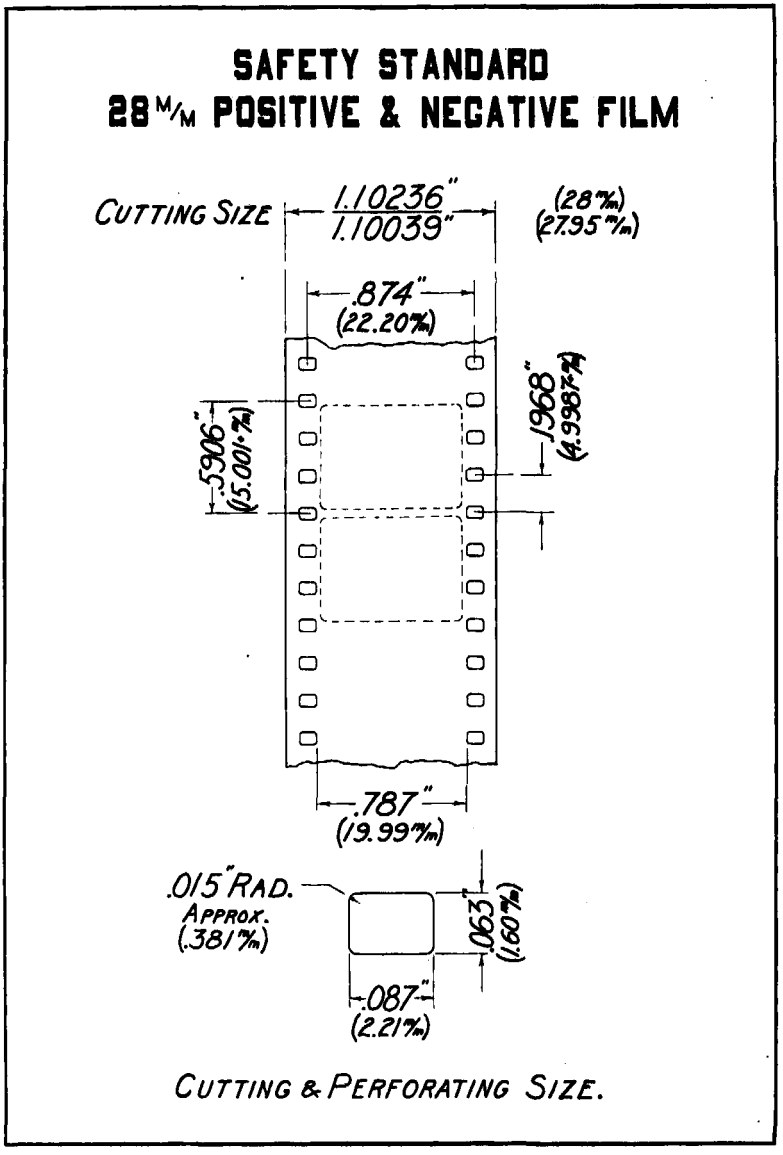
SAFETY STANDARD
28 M/M POSITIVE & NEGATIVE FILM
CUTTING SIZE
1.10236"
1.10039"
(28 m/m)
(27.95 m/m)
.874"
(22.20 m/m)
.1968"
(4.998 m/m)
.5906"
(15.001 m/m)
.787"
(19.99 m/m)
.015" RAD.
APPROX.
(.381 m/m)
.063"
(1.60 m/m)
.087"
(2.21 m/m)
CUTTING & PERFORATING SIZE.

CHART 3

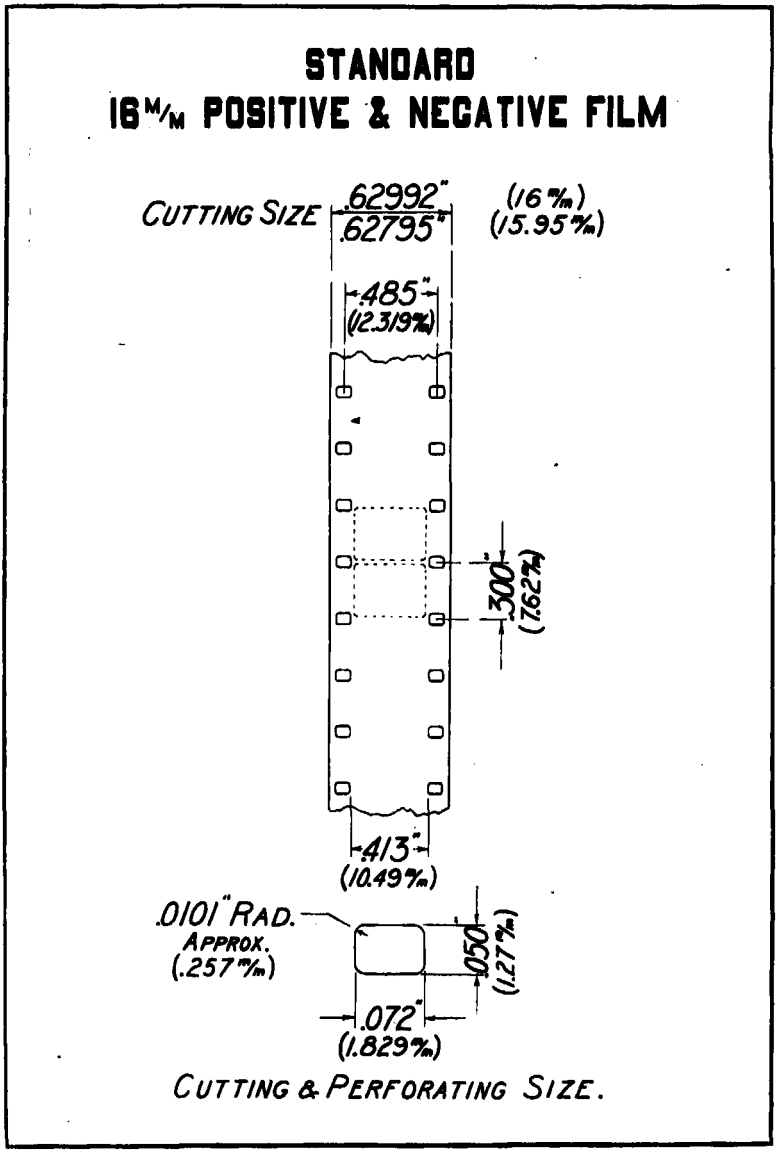
STANDARD
16 M/M POSITIVE & NEGATIVE FILM
CUTTING SIZE
.62992"
.62795"
(16 m/m)
(15.95 m/m)
.485"
(12.319 m/m)
.300"
(7.62 m/m)
.413"
(10.49 m/m)
.0101" RAD.
APPROX.
(.257 m/m)
.050"
(1.27 m/m)
.072"
(1.829 m/m)
CUTTING & PERFORATING SIZE.

CHART 4

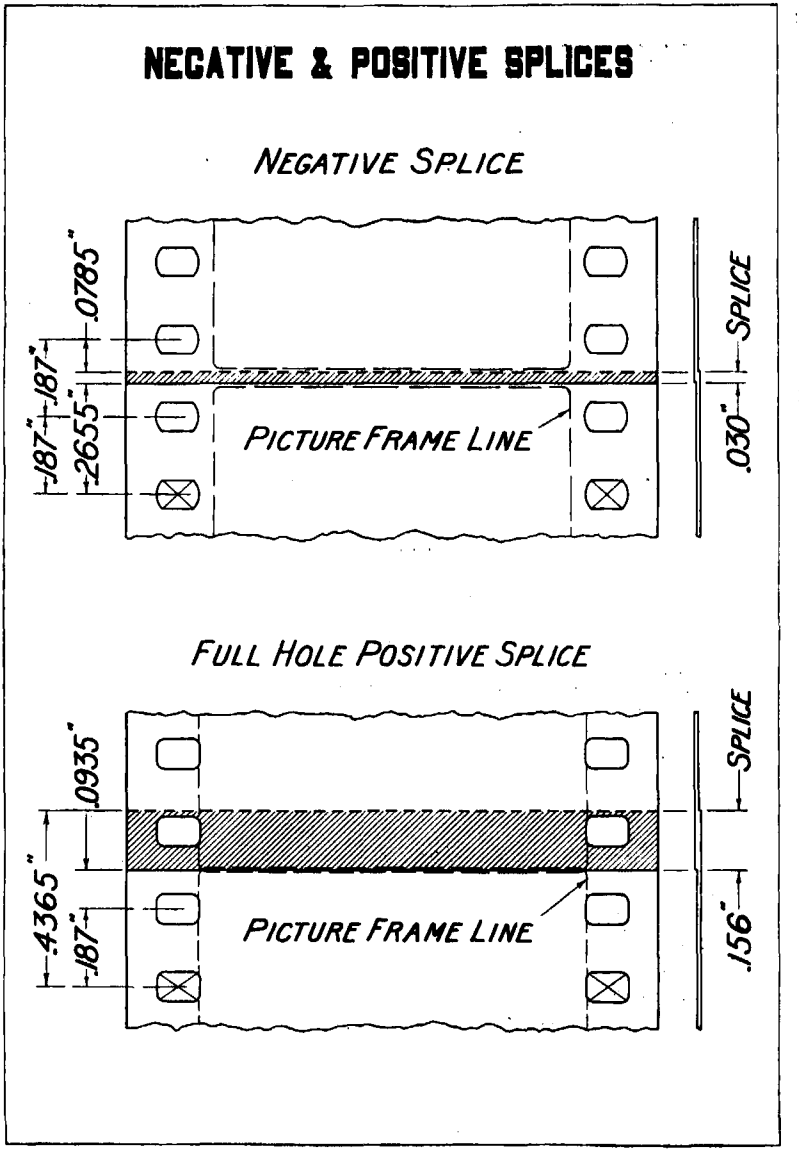
NEGATIVE & POSITIVE SPLICES
NEGATIVE SPLICE
.0785"
.187"
.187"
.2655"
PICTURE FRAME LINE
SPLICE
.030"
FULL HOLE POSITIVE SPLICE
.0935"
.4365"
.187"
PICTURE FRAME LINE
SPLICE
.156"

CHART 5

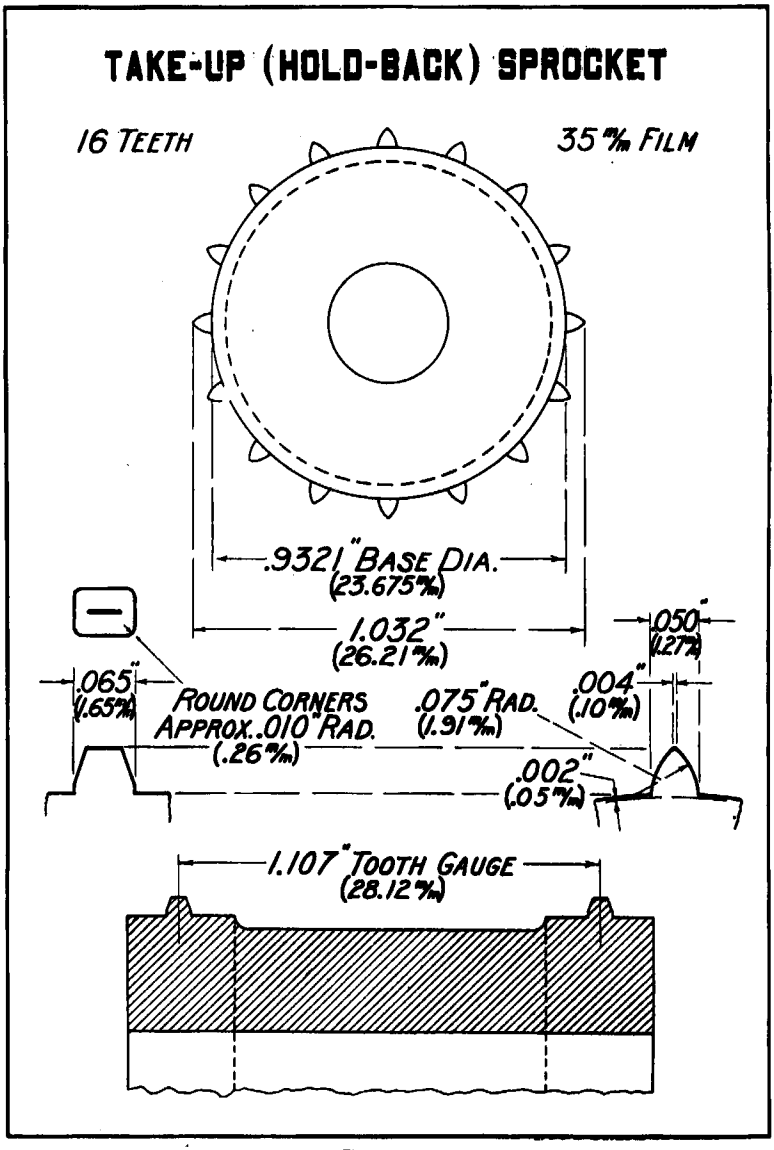
TAKE-UP (HOLD-BACK) SPROCKET
16 TEETH
35 m/m FILM
.9321" BASE DIA.
(23.675 m/m)
1.032"
(26.21 m/m)
.050"
(1.27 m/m)
.065"
(1.65 m/m)
ROUND CORNERS
APPROX. .010" RAD.
(.26 m/m)
.075" RAD.
(1.91 m/m)
.004"
(.10 m/m)
.002"
(.05 m/m)
1.107" TOOTH GAUGE
(28.12 m/m)

CHART 6

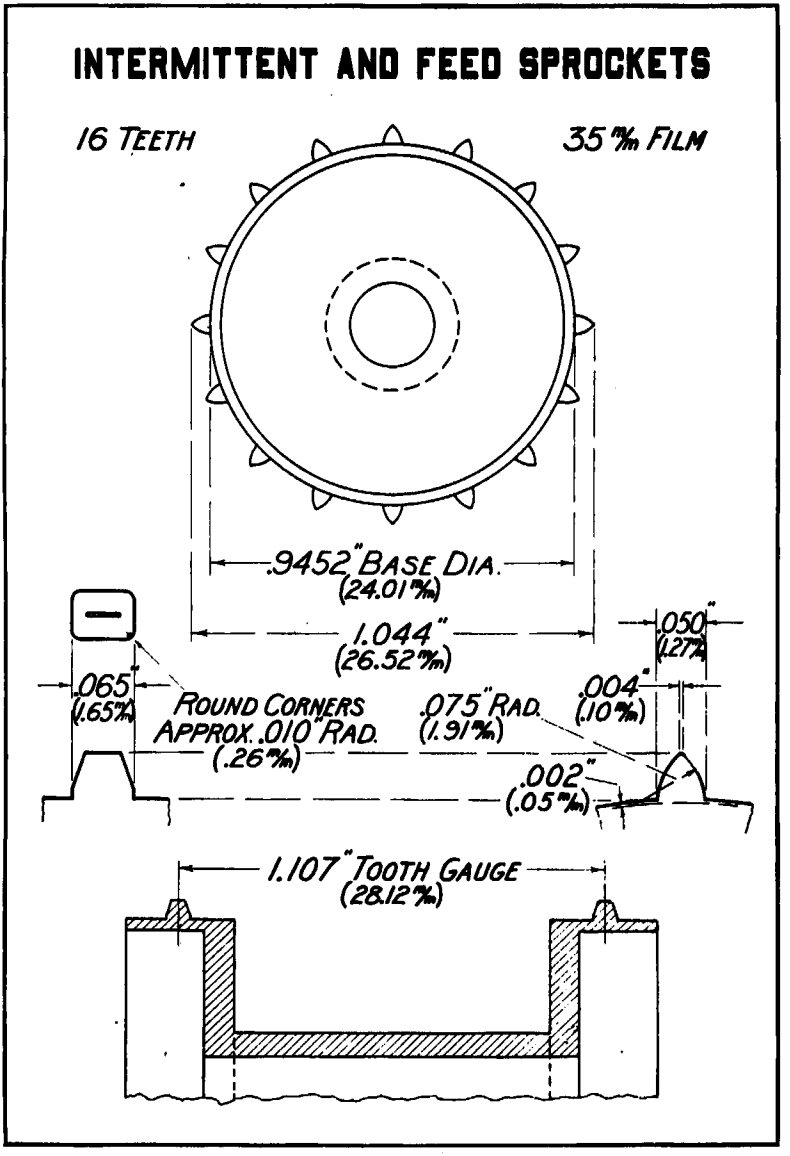
INTERMITTENT AND FEED SPROCKETS
16 TEETH
35 m/m FILM
.9452" BASE DIA.
(24.01 m/m)
1.044"
(26.52 m/m)
.050"
(1.27 m/m)
.065"
(1.65 m/m)
ROUND CORNERS
APPROX. .010" RAD.
(.26 m/m)
.075" RAD.
(1.91 m/m)
.004"
(.10 m/m)
.002"
(.05 m/m)
1.107" TOOTH GAUGE
(28.12 m/m)

CHART 7