of the links b and c are a measure of their velocities. The sense of these velocities is readily determined from the signs of the ratios $\frac{b^1}{b}$ and $\frac{c^1}{c}$ thus b^1 and b are opposite in sign, hence ω, is of opposite sense to ω, and by a similar process of reasoning it may be shown that ω is of the same sense as ω.

The figure $O^1P^1Q^1R^1$ is evidently a vector diagram for the mechanism, the distance of any point on this diagram from the pole O being a measure of the velocity of the corresponding point in the mechanism. The direction of motion is normal to the line joining the point on the vector diagram to O and the sense of motion is also known from that of the angular velocity of the primary link. Further, the lengths of the sides of this figure b^1 (P^1Q^1), d^1 or (OR^1) etc., are measures of the angular velocities of the links, the sense of each angular velocity being readily determined. (Note that the length d^1 or OR^1 is infinitely

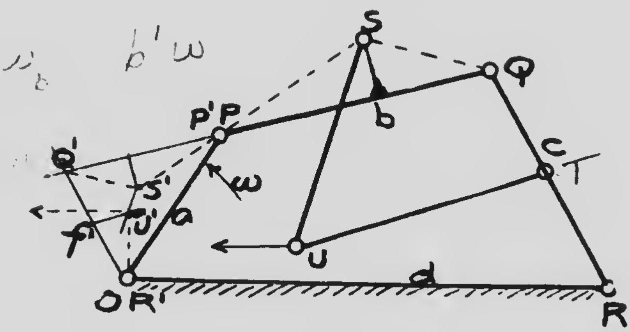

Fig. 6.

short denoting that d has no angular velocity, since it is fixed in space.)

In Fig. 5 other positions and proportions of a similar mechanism are shown in which the solution is given and various relations marked below. It is to be noted that if the image of any link reduces to a single point two causes are possible, (a) if this point falls at O the link is stationary for the instant, as at d^1, but if the point be not at O the inference is that all points in the link move in exactly the same way, or the link has a motion of translation at the given instant.

The method will now be employed to solve a few typical cases.

Fig. 6 is taken as a simple example, not because it illustrates any practical mechanism.

Here we find Q^1P^1 and R^1 as before, and since we know the motions of S — O and S — P to be $\perp$ respectively to SQ and SP, hence we draw S^1P^1 parallel to SP and S^1Q^1 par-