for winter use.

The wisdom manifested in inducing these air currents is often readily apparent. The entrance to a hive kept in my attic, for observation, consisted of a glass covered passage (between the hive and the window sill) about fifteen inches long by twelve wide and one-half inch high. During the honey making season the floor of this passage was often so obstructed with idle bees as to impede the passage of their more industrious fellows. When it was observed however, that the wings of these "idlers" were always in motion, so rapidly in fact that each clung to the floor to prevent

es entially like those of the common fly, w th which we are, alas! only too familiar. U like the fly, however, which belongs to the order Diptera, or two winged insects, the bee has fo r, a pair on each side. When closed they ove lap upon the back, e abling the bee to enter flower cells unobstructed by his wings.

Unlike the butterfly and other four winged insects, the bee is provided with means by which the wings on either side may be coupled together, to secure unity of movement and greater efficiency in flight. The means provided is a row of t enty-one hooklets, a few of which are shown greatly

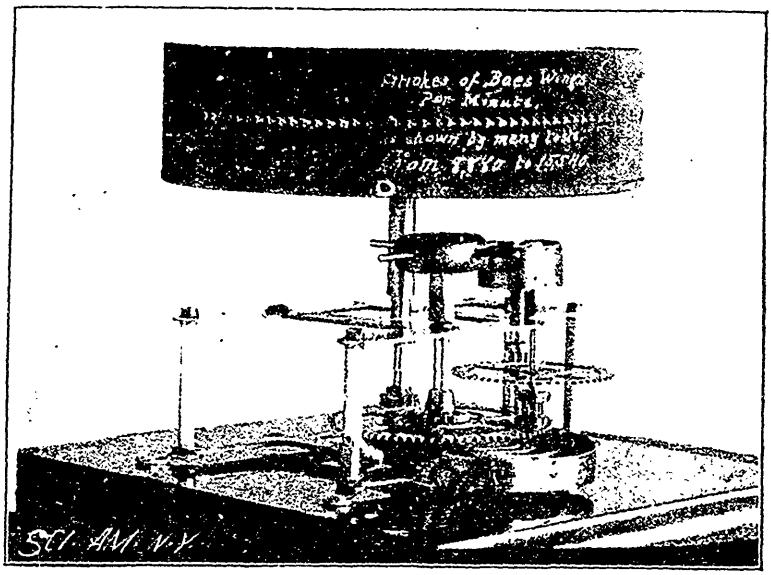

Fig. 3. WING STROKES OF BEE AS RECORDED ON SMOKED CYLINDER.

flight, and that all on one side faced one way while those opposite faced the other, thereby producing air currents in opposite directions through the same passage, and with the co-operation of those within, through the otherwise nearly air tight hive I felt like apologizing to the toilers for my slanderous thought, and was impressed anew that "they also serve who only stand and wait." So rapidly does the evaporation progress that when a hive is placed on scales to note the daily increase, it is found to weigh materially less in the morning than on the previous night.

The structure of the wing consists of a thin transparent membrane stretched over a delicate framework of horn-like substance,

enlarged in the accompanying cut

These hooklets, attached to the anterior rib of the posterior wing, are so placed as to engage the hindmost rib of the forward wing, and thereby render the two one in effect, as seen upon the right in the next view; and yet quickly disengagable (as seen at the left) for overlapping when occasion requires (see cut No. 2).

In addition to this unity of action on either side there is also operative connection between the wings on opposite sides, though I am unable to state how it is effected. That it exists is proved by the fact that if the wings on either side be moved up and down, artificially, those on the opposite side will move in unison with