CLAIMS

1. A flipping apparatus for flipping articles comprising:

a first flipping arm configured to pick an article and to perform a rotation between a pick position and a pass position; and,

a second flipping arm configured to receive the article from the first flipping arm, to perform a rotation between a receive position and a place position and to place the article,

wherein

the pass position and the receive position are coextensive and the article is passed from the first flipping arm to the second flipping arm at the pass and receive positions;

the first flipping arm is further configured to perform the rotation from the pick position to the pass position at a first rotational speed, and the rotation from the pass position to the pick position at a second rotational speed, which is higher than the first rotational speed; and,

the second flipping arm is further configured to perform the rotation from the receive position to the place position at a third rotational speed, and the rotation from the place position to the receive position at a fourth rotational speed, which is higher than the third rotational speed.

2. The flipping apparatus of claim **1**, configured to control the first flipping arm to pick an article from a stream of articles, while the second flipping arm is performing the rotation from the receive position to the place position.

3. The flipping apparatus of claim **1**, configured to control the first flipping arm and the second flipping arm in such a way that the second flipping arm inserts an article into a stream of articles at a position relative to the stream of articles from which the first flipping arm has picked an article.

4. The flipping apparatus of claim **1**, wherein the first flipping arm and the second flipping arm are configured to hold articles by vacuum.

5. The flipping apparatus of claim **1**, wherein at least the first flipping arm or at least the second flipping arm is configured to perform a translation movement.

6. The flipping apparatus of claim **5**, wherein the first flipping arm or the second flipping arm is configured to perform the translation movement at two different rotational speeds.

7. The flipping apparatus of claim **5**, configured to pick an article with the first flipping arm from a first location and to place the article, in a flipped state, at a second location with the second flipping arm.

8. A system for processing articles, comprising:

a transport means to provide at least one stream of articles through the system; and

at least one flipping apparatus comprising:

a first flipping arm configured to pick an article and to perform a rotation between a pick position and a pass position; and,

a second flipping arm configured to receive the article from the first flipping arm, to perform a rotation between a receive position and a place position and to place the article,

wherein

the pass position and the receive position are coextensive and the article is passed from the first flipping arm to the second flipping arm at the pass and receive positions;

the first flipping arm is further configured to perform the rotation from the pick position to the pass position at a first rotational speed, and the rotation from the pass position to the pick position at a rotational second speed, which is higher than the first rotational speed; and,

the second flipping arm is further configured to perform the rotation from the receive position to the place position at a third rotational speed, and the rotation from the place position to the receive position at a fourth rotational speed, which is higher than the third rotational speed.

9. The system of claim **8**, configured to operate the transport means to transport a further article to the at least one flipping apparatus, while an article is being flipped by the at least one flipping apparatus.

10. The system of claim **8**, wherein the at least one stream of articles comprises an input stream and an output stream, wherein the at least one flipping apparatus is configured to pick an article from the input stream with the first flipping arm in the pick position and to place the article, in a flipped state, into the output stream with the second flipping arm in the place position, and wherein the input stream and the output stream are in a same plane perpendicular to a plane in which the first flipping arm performs the rotation from the pick position to the pass position and to a plane in which the second flipping arm performs the rotation from the receive position to the place position.

11. The system of claim **8**, wherein the transport means is a rotating turret having carriers at defined positions, each carrier configured to hold one article.

12. The system of claim **8**, wherein the transport means is a rotating turret having carrier groups at defined positions, each carrier group comprising a plurality of carriers, each carrier configured to hold one article.

13. A method for processing articles comprising the following steps:

picking an article from a first location with a first flipping arm of a flipping apparatus, while the first flipping arm is in a pick position;

performing a rotation of the first flipping arm, carrying the article, from the pick position into a pass position at a first rotational speed;

passing the article from the first flipping arm in the pass position to a second flipping arm of the flipping apparatus, with the second flipping arm in a receive position;

performing a rotation of the second flipping arm carrying the article from the receive position into a place position at a third rotational speed; and

placing the article, in a flipped state, at a second location with the second flipping arm in the place position,

wherein prior to picking the article the first flipping arm has rotated into the pick position from the pass position at a second rotational speed, which is higher than the first rotational speed, and

wherein prior to the passing of the article from the first flipping arm to the second flipping arm the second flipping arm has rotated into the receive position from the place position at a fourth rotational speed, which is higher than the third rotational speed.

14. The method of claim **13**, wherein, while the second flipping arm is carrying the article, a further article is provided to the flipping apparatus and the first flipping arm is rotating from the pass position to the pick position at the second rotational speed to pick the further article.

15. The method of claim **13**, wherein the second location is identical to the first location.

16. The method of claim **14**, wherein the articles are transported to the flipping apparatus in a stream of articles, and the second flipping arm places the article at a location relative to the stream of articles after the first flipping arm has picked the further article from the same location.

17. The method of claim **13**, wherein at least the first flipping arm or at least the second flipping arm performs a translation movement in addition to the respective rotation.

18. The method of claim **17**, wherein both the first flipping arm and the second flipping arm perform a translation movement in addition to the respective rotation.

19. The method of claim **17**, wherein at least the first flipping arm or at least the second flipping arm, if not carrying an article, performs the translation movement at a higher speed than if carrying an article.

20. The method of claim **17**, wherein the second location is at a distance from the first location.