

## BRAIDING MACHINE by TIM EDWARDS

Whilst looking similar to the braiding machine in the 1966 Meccano Magazine the operating mechanism has been extensively redesigned as the original proved to be very unreliable. This model has proved to be very reliable in exhibitions and can run all day without a problem when properly set up (apart from reloading the bobbins). These notes give additional information and refer to the photos and attached drawings.

### BRIEF CONSTRUCTIONAL NOTES

The framework structure is virtually identical to that in the 1966 Meccano Magazine. (Photo 1 & 4 for general views). The framework is also shown in black in Figs. 1-3. Pay particular attention during construction to ensure that the geometry of the carrier slide rod mountings is very accurate.

The carrier slides (photo 4 & 10) are also virtually identical except that a bush wheel is bolted in addition under the centre arm crank for extra security. These carriers have to be built very accurately - I used a slightly bent 2 1/2" \* 1/2" double angle strip between the carrier arms to ensure accurate alignment. I also provide a double chain drive to the carrier slide rods to avoid chain slippage (photos 5 & 7 & Fig.1). Take great care to ensure that the carrier slides are accurately aligned with each other to allow the bobbin carriers to move smoothly from one to the other. Patience with this task will be rewarded by a smooth running braider.

The bobbin carriers (photos 8) have been redesigned for improved reliability. These use some of the modern French parts. The 5 hole plastic mini strip was very useful here. However some builders have found this caused problems and omitted it with success, although it has never caused me any.

The main operating drive rod (operates clockwise) (right hand side of photo 6 and left hand side of photo 7) has a 2 1/2" face plate on the bottom. This is bolted to the incoming chain sprocket wheel to avoid slippage. The double carrier drive sprockets on this rod are also bolted together.

The two main operating arms (photo 7 and Fig.1) are connected to the same pivot point on this faceplate. They are angled at 45 degrees to each other. These operating arms both have a 2" slotted strip at one end and a 2 1/2" slotted strip at the other. This gives a combined slot of 1 1/2" which together with the 2" throw of the drive from the faceplate give an intermittent motion of 1/2"

The operating arm going to the front (photo 12) is connected via a bell crank and another strip to one of the corner operating arms via a flexible coupling (photo 12). The four corner arms are connected together via a **loose** face plate on the centre rod of the braiding machine (photo 5, 6 & 13). See also Fig 1

The other main operating arm is connected via a crank with an obtuse angle bracket (photo 7) to another strip and then via a flexible coupling to the centre rod of the braiding machine (photo 6).

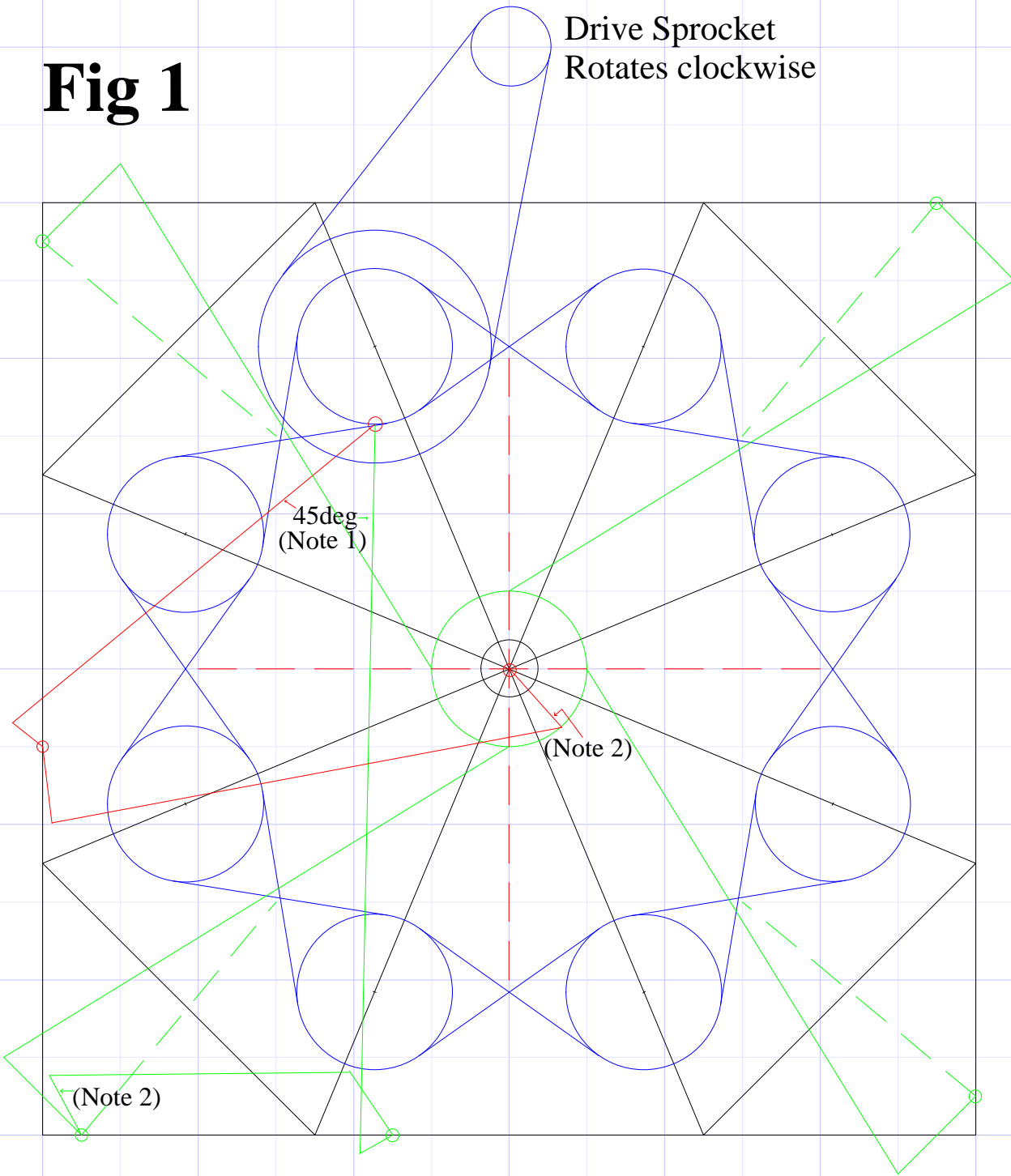
The drive from the motor is shown in the bottom left of photo 14. An elastic band drive is provided to protect the motor in the event of a jam.

The motion of the bobbins is shown in Figs.2 & 3. One set of four bobbins go clockwise and the other set go anti-clockwise, alternatively passing inside and outside each other.

The 45 Deg angle between the operating arms automatically give the correct relationship between the center and corner bobbin moving arms. It is then a matter of correctly adjusting the faceplate on the main drive rod, so that the bobbin moving arms operate when the bobbin carriers are in the correct position to be moved from one carrier to the next.

# Fig 1

Drive Sprocket  
Rotates clockwise



## KEY

**BLACK** - Basic Framework of the Braiding Machine

**BLUE** - Drive Gears and Chain  
(Double drive to eliminate slippage)

**GREEN** - Operating mechanism for the Corner sweep arms

----- Show the Bobbin Move Arms

**RED** - Operating mechanism for the centre sweep arms.

----- Show the bobbin move arms

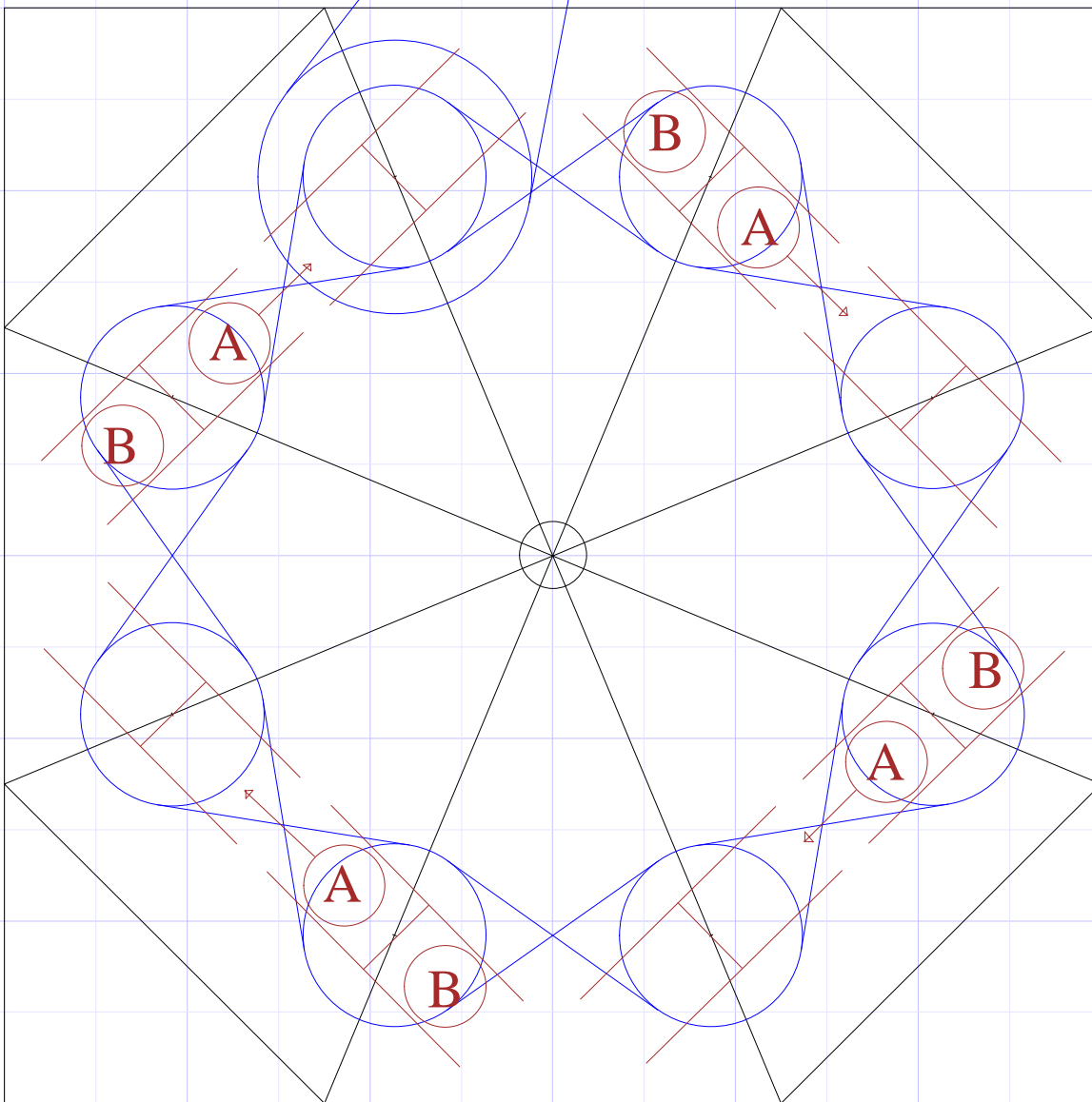
Note 1 : Scale - 1 square = 1 inch

Note 2 :- These two operating arms have slots totalling 1 1/2". This combined with the 2" stroke give by the driving crank means that they just impart a stroke of 1/2" to the following crank. The 45 Deg angle is very important

Note 3 : These are flexible couplings.

# Fig 2

Drive Sprocket  
Rotates clockwise



## KEY

BLACK - Basic Framework of the Braiding Machine

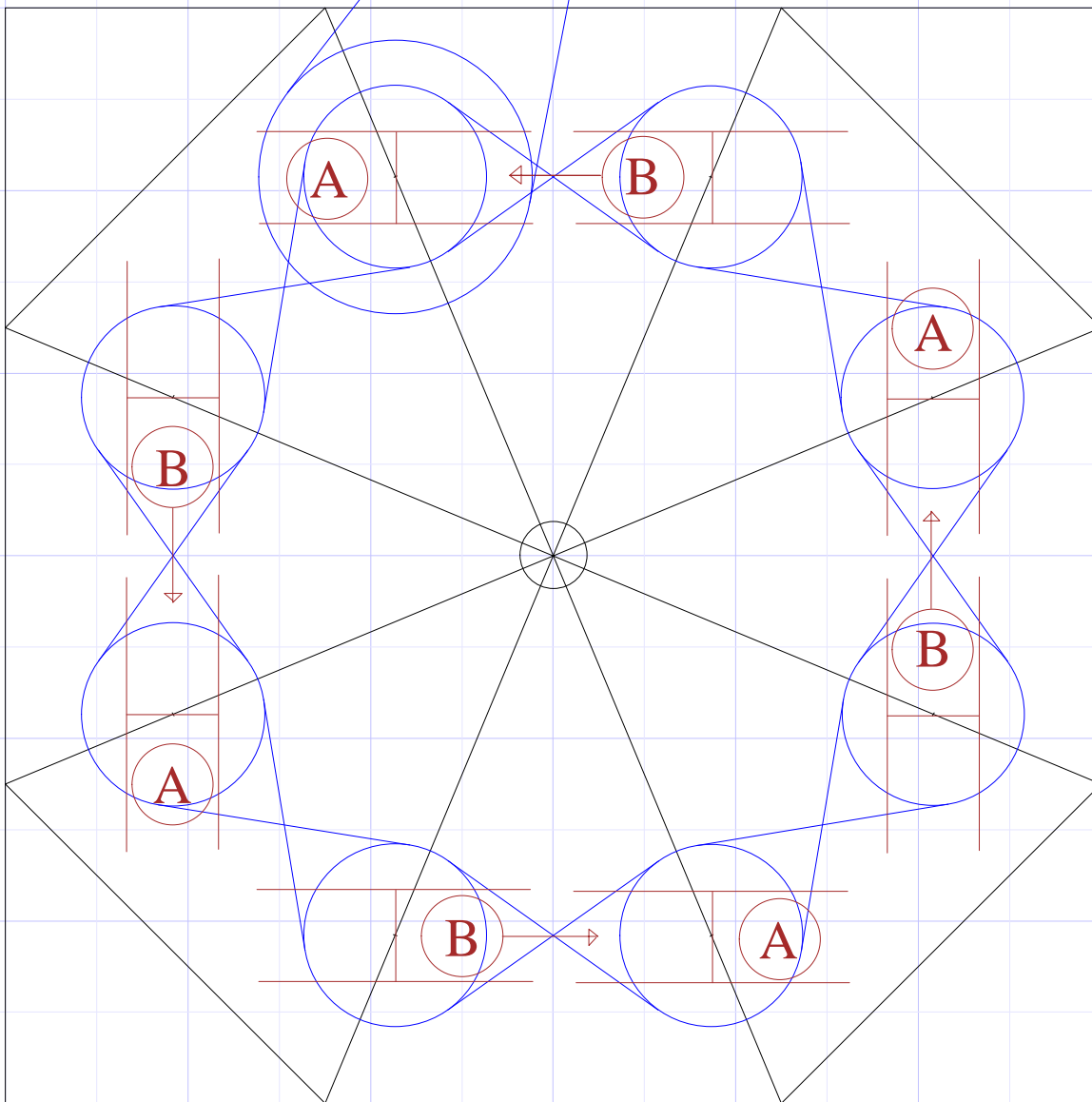
BLUE - Drive Gears and Chain  
(Double drive to eliminate slippage)

BROWN - Bobbin carriers

Note 1 : Scale - 1 square = 1 inch

# Fig 3

Drive Sprocket  
Rotates clockwise



## KEY

BLACK - Basic Framework of the Braiding Machine

BLUE - Drive Gears and Chain  
(Double drive to eliminate slippage)

BROWN - Bobbin carriers

Note 1 : Scale - 1 square = 1 inch