

Nov. 5, 1940.

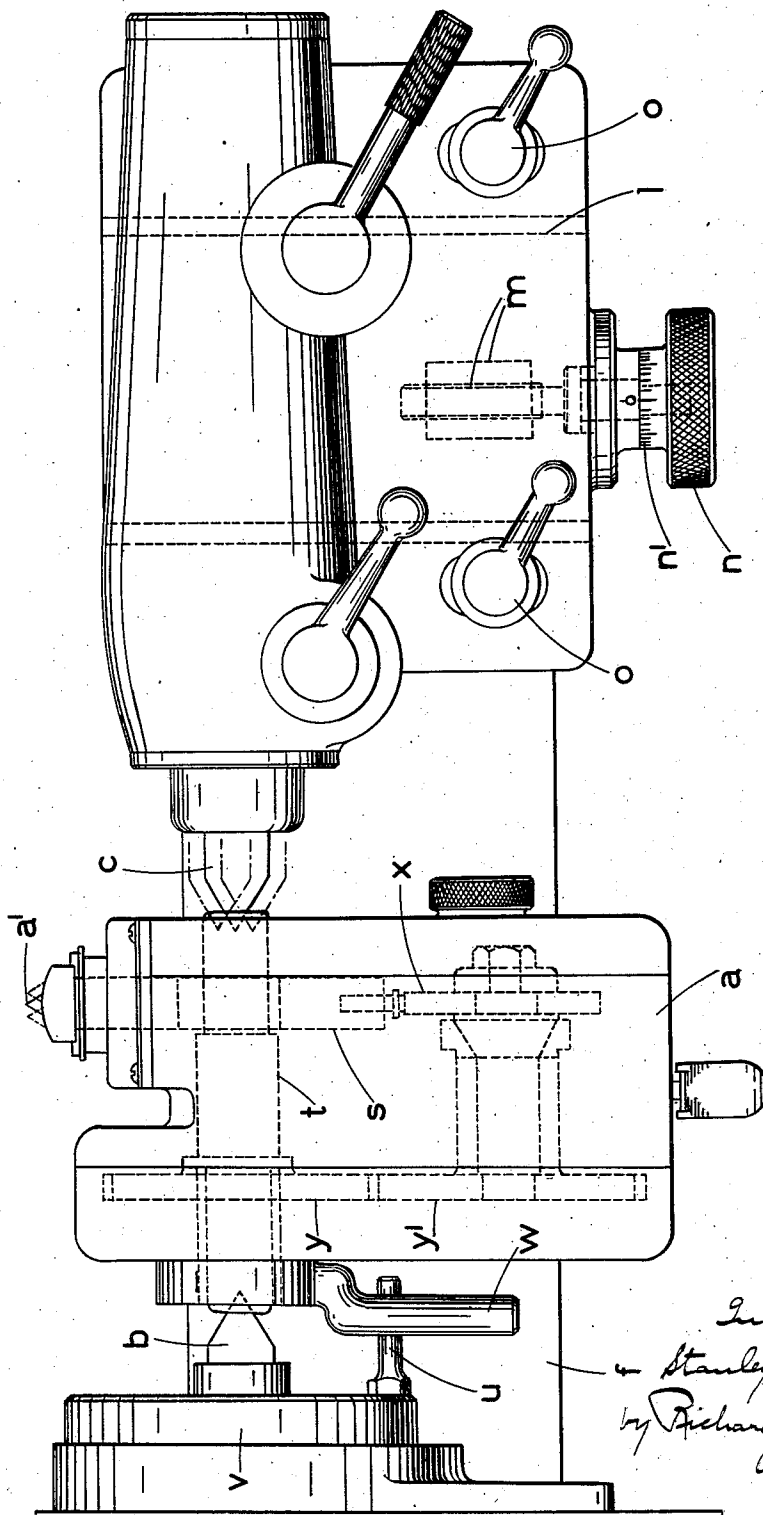
S. J. HARLEY

2,220,647

MEANS FOR SHAPING AND TRUING THE OPERATING SURFACES
OF GRINDING WHEELS USED FOR FORM GRINDING

Filed July 17, 1939

3 Sheets-Sheet 1



Inventor:
Stanley J. Harley
by Richard E. Babcock
Attorney

Nov. 5, 1940.

S. J. HARLEY

2,220,647

MEANS FOR SHAPING AND TRUING THE OPERATING SURFACES
OF GRINDING WHEELS USED FOR FORM GRINDING

Filed July 17, 1939

3 Sheets-Sheet 2

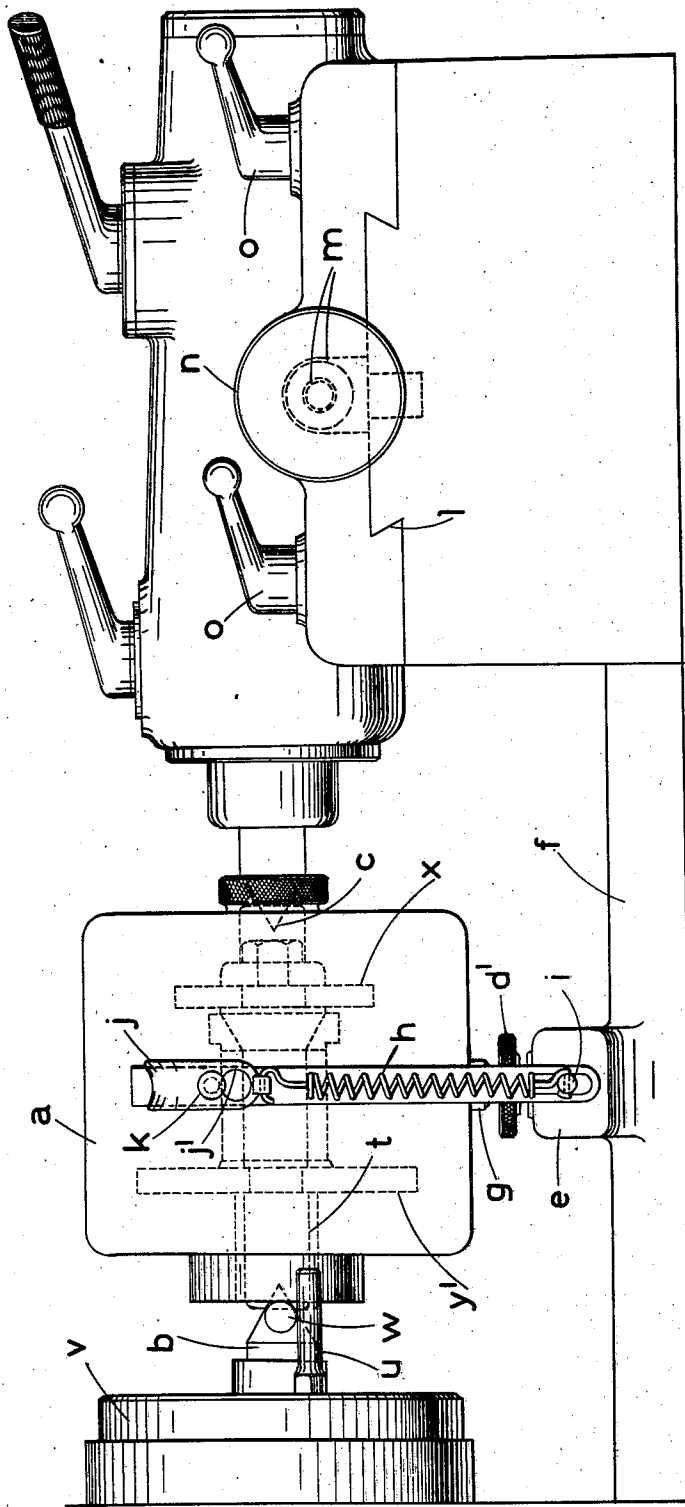


FIG. 2.

Inventor:
Stanley J. Harley
by Richard E. Babcock
Attorney

Nov. 5, 1940.

S. J. HARLEY

2,220,647

MEANS FOR SHAPING AND TRUING THE OPERATING SURFACES
OF GRINDING WHEELS USED FOR FORM GRINDING

OF GRINDING WHEELS USED FOR FORM GRINDING

Filed July 17, 1939

3 Sheets-Sheet 3

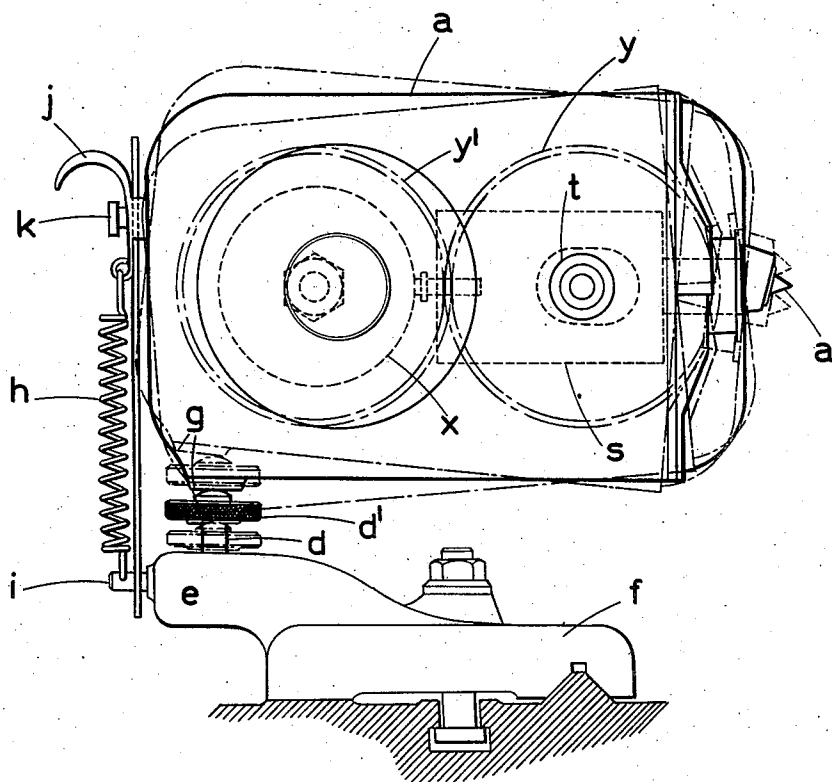


FIG. 3.

Inventor:
Stanley J. Harley
by Richard E. Babcock
Attorney

UNITED STATES PATENT OFFICE

2,220,647

MEANS FOR SHAPING AND TRUING THE
OPERATING SURFACES OF GRINDING
WHEELS USED FOR FORM GRINDING

Stanley Jaffa Harley, Coventry, England

Application July 17, 1939, Serial No. 284,955
In Great Britain November 23, 1937

6 Claims. (Cl. 125—11)

This invention relates to the shaping and truing of the operative surfaces of grinding wheels used for form grinding and has for its object to provide an improved arrangement of the dressing tool whereby the depth and/or angle of the form it is desired to give the wheel can be varied at will.

According to the present invention a wheel dressing attachment is adapted to be mounted between the work centres of the grinding machine and provision is made whereby the position of the said attachment may be adjusted about the axis of said centres in relation to the wheel for the purpose of varying the depth of the form to be cut. One of the said centres is also made adjustable laterally for the purpose of varying the angle of the said form.

The wheel dressing attachment may itself be of any suitable type, such for example, as is described in the Specifications of British Patents Nos. 398,841 and 412,464 in which the form to be cut in the wheel is produced by relative movement in two directions between the wheel and the dressing tool, or the shaping and truing attachment may be of the type in which the movement of the dressing tool is derived from a former, such for example as is described in the specifications of British Patents Nos. 461,969 and 469,876.

In the accompanying drawings—
Figures 1 and 2 are a plan view and a side view respectively showing the wheel dressing attachment mounted between the work centres.

Figure 3 is an end view of the wheel dressing attachment shown in Figures 1 and 2.

Referring to the drawings, the wheel dressing attachment *a* is mounted by means of the spindle *t* hereinafter referred to, between the work centres *b* and *c* of the grinding machine and is capable of adjustment about the axis of the said centres, as shown in dotted lines in Figure 3. This adjustment of the wheel dressing attachment is effected by means of a screw *d*, threaded in a projection *e* on the main slide *f* of the grinding machine, the upper end of said screw *d* being adapted to bear against an abutment *g* on the wheel dressing attachment and is provided or formed with a knurled portion *d*¹ for manipulation purposes. The abutment *g* is kept in engagement with the screw *d* by a tension spring *h* one end of which is anchored to a pin *i* on the projection *e*, the other end being attached to the wheel dressing attachment through a clip member *j* having a bayonet slot *j*¹ therein which engages a pin *k* on the said wheel dressing at-

tachment. Thus by rotating the screw *d* in one direction the wheel dressing attachment will be rocked about the axis of the work centres against the action of the spring *h*, whilst rotation of the screw in the other direction will allow the spring to rock the wheel dressing attachment in the reverse direction.

In order to allow variation of the angle of the form to be cut, the work centre *c* is made adjustable laterally, relatively to the centre *b*, as shown in dotted lines in Figure 1. This adjustment is effected by the work centre *c* being mounted on a transverse slide *l* which is controlled by a screw and nut gear *m* with a manipulating knob *n* which may have a scale or graduations *n*¹ marked thereon. Locking screws *o* may be provided to lock the slide in the position determined by its controlling screw and nut gear.

With this arrangement, the dressing tool *a*¹ of the wheel dressing attachment can be adjusted about the axis of the work centres, as shown in dotted lines in Figure 3, to vary the depth of the form to be cut, and also it can be adjusted to the positions shown in dotted lines in Figure 1 to vary the angle of the form to be cut.

As already stated the wheel dressing attachment itself may be of any suitable type and in the arrangement shown is of the kind in which the movement of the dressing tool is the resultant of two simultaneous motions at right angles to each other. One of these motions is produced by the movement of the main slide *f* carrying the work centres *b* and *c* along the bed of the machine and is responsible for the length component of the compound movement of the dressing tool. The other or depth component is derived from a cam *x* which operates a slide *s* carrying the dressing tool *a*¹ and is driven by gears *y*, *y*¹, from a spindle *t* which is rotatably mounted in the body of the attachment and is driven by a peg *u* on the driving head *v* of the machine engaging an arm or crank *w* on the outer end of said spindle. The two motions are correlated and of such relative and respective extent as to cause the dressing tool to generate the desired form in the wheel.

I claim:

1. In a wheel dressing attachment for grinding machines having a pair of work-centres carried by a table having a traversing motion relatively to and across the operative face of the grinding wheel, a casing adapted for mounting between said centres, a dressing tool slidably mounted in said casing, means carried by said casing and adapted for operative driven connection with said machine for imparting a reciprocatory motion to

said tool simultaneously with and in a direction at an angle to the traversing motion of said table and means for adjusting the angular positions of said casing about the axis of said centres.

- 5 2. In a wheel dressing attachment for grinding machines having a pair of work-centres carried by a table having a traversing motion relatively to and across the operative face of the grinding wheel, a casing adapted for mounting between
- 10 said centres, a dressing tool slidably mounted in said casing and means carried by said casing and adapted for operative driven connection with said machine for imparting a reciprocatory motion to said tool simultaneously with and in a direction at
- 15 an angle to the traversing motion of said table and means for adjusting the position of one of said centres relatively to the other centre in a lateral direction.
3. In a wheel dressing attachment for grinding
- 20 machines having a pair of work-centres carried by a table having a traversing motion relatively to and across the operative face of the grinding wheel a casing, a spindle rotatable therein, and adapted for operative driven connection with said
- 25 machine, said casing being adapted for mounting between said centres by means of said spindle, a dressing tool slidably mounted in said casing, a cam in operative driven connection with said spindle for imparting a reciprocating motion to
- 30 said tool simultaneously with and at an angle to the traversing motions of said table, and means for adjusting the angular position of the wheel dressing attachment about the axis of said centres.
- 35 4. In a wheel dressing attachment for grinding machines having a pair of work-centres carried by a table having a traversing motion relatively to and across the operative face of the grinding wheel, a casing, a spindle rotatable therein, and

adapted for operative driven connection with said machine, said casing being adapted for mounting between said centres by means of said spindle, a dressing tool slidably mounted in said casing, a cam in operative driven connection with said spindle for imparting a reciprocating motion to said tool simultaneously with and at an angle to the traversing motion of said table, and means for adjusting the position of one of said centres relatively to the other centre in a lateral direction.

5. Wheel dressing means for grinding machines of the type embodying a pair of work centres carried by a table having a traversing movement relative to and across the operative face of the grinding wheel, comprising a casing pivotally mounted between said centers, a dressing tool carried by said casing to be disposed in operative engagement with the grinding wheel, means for adjusting and maintaining the casing in various angular positions about the axis of said centres in order to vary the depth of the cut of said dressing tool, and means for adjusting the lateral position of one of said centres relative to the other in order to obtain the desired angle of cut of said dressing tool.

6. Wheel dressing means for grinding machines of the type embodying a pair of work centres carried by a table having a traversing movement relative to and across the operative face of the grinding wheel, comprising a casing pivotally mounted between said centres, a dressing tool carried by said casing to be disposed in operative engagement with the grinding wheel, and means for adjusting the lateral position of one of said centres relative to the other in order to obtain the desired angle of cut of said dressing tool.

STANLEY JAFFA HARLEY.