

No. 725,521.

PATENTED APR. 14, 1903.

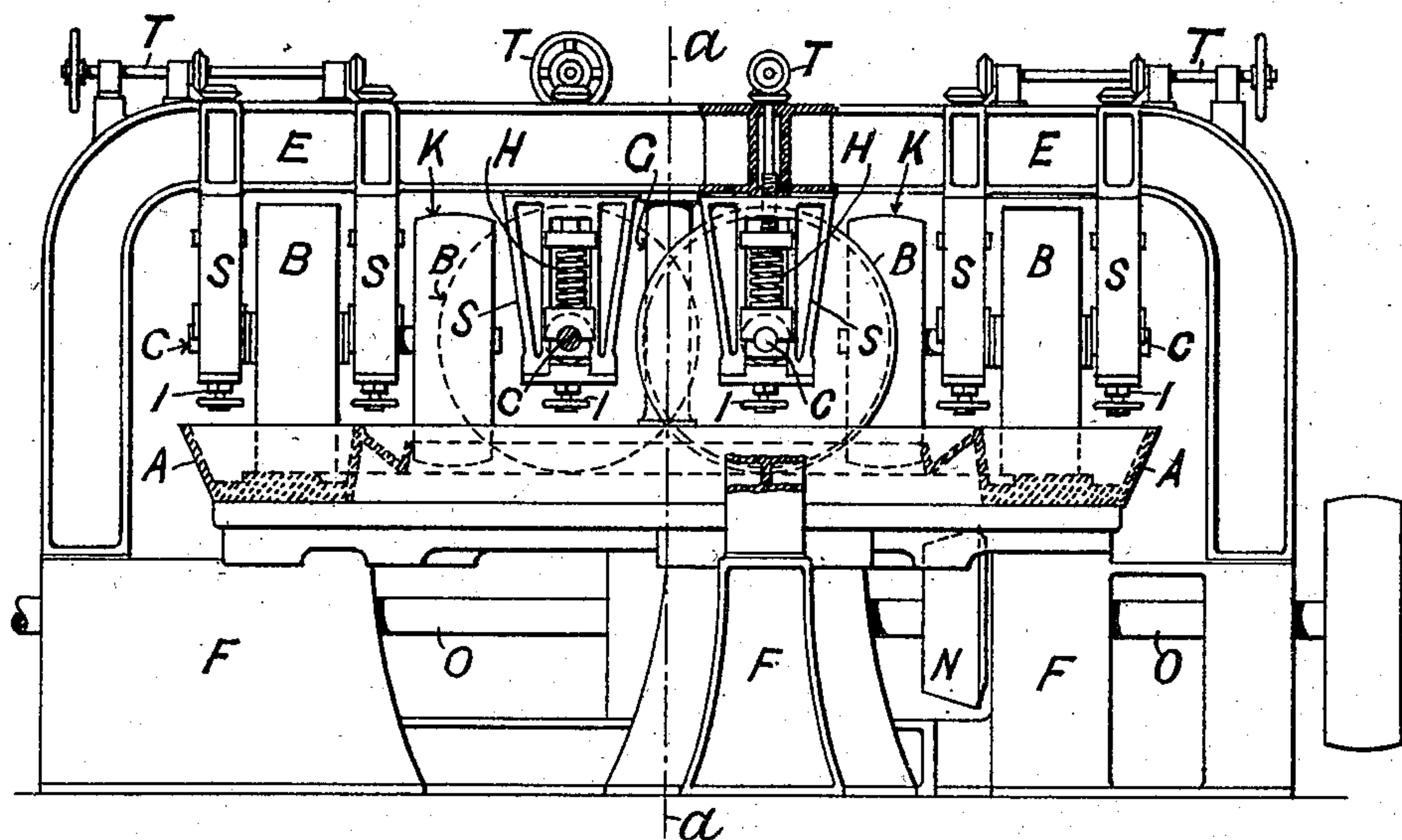
J. C. WEGERIF.
MILL FOR GRINDING.

APPLICATION FILED NOV. 7, 1902.

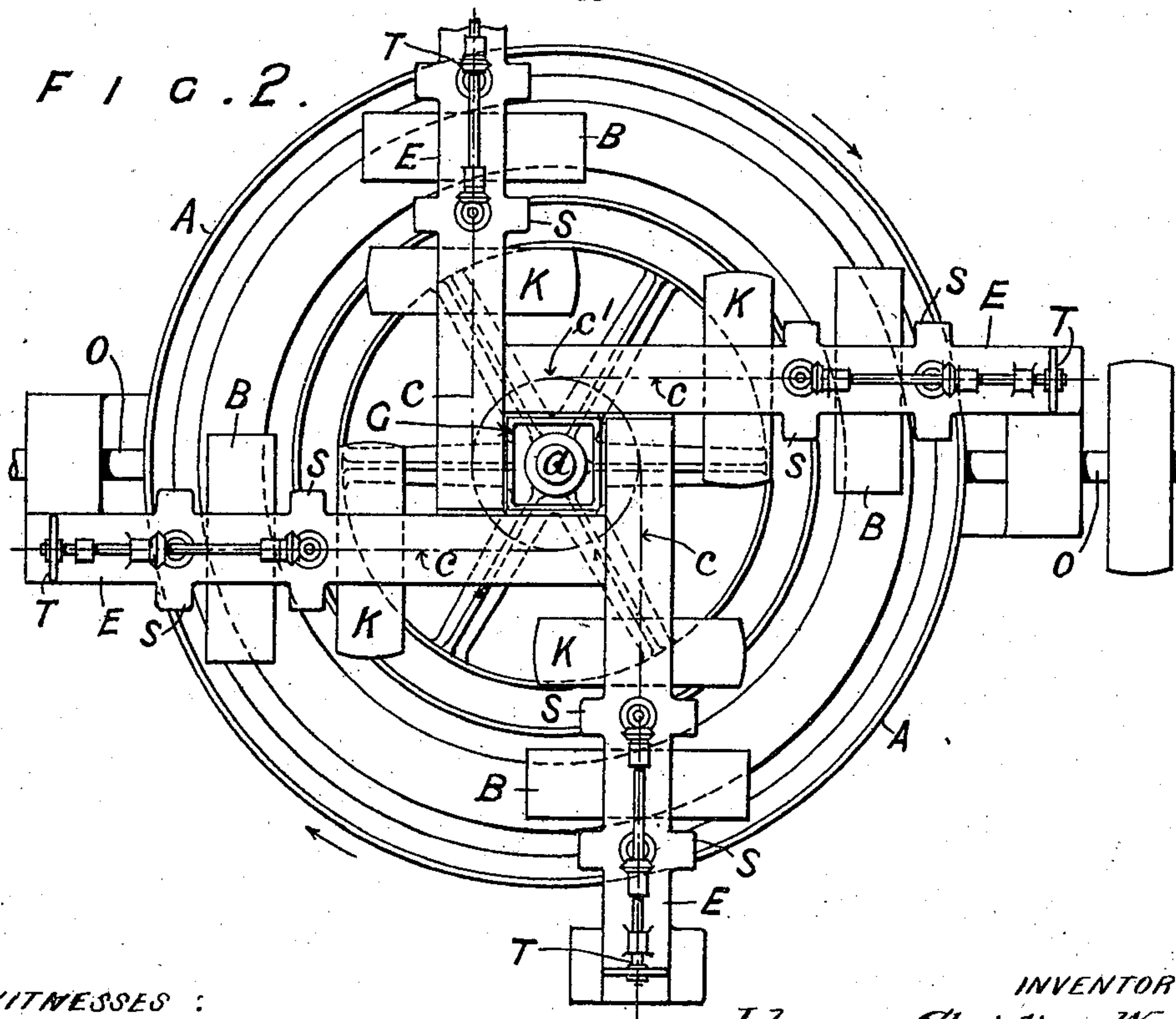
NO MODEL.

2 SHEETS--SHEET 1.

F I C I.



F / C . 2 .



WITNESSES :

W. M. Avery

A. H. Davis

INVENTOR

Johannes Christiaan Wegerif

BY

Мини

ATTORNEYS.

No. 725,521.

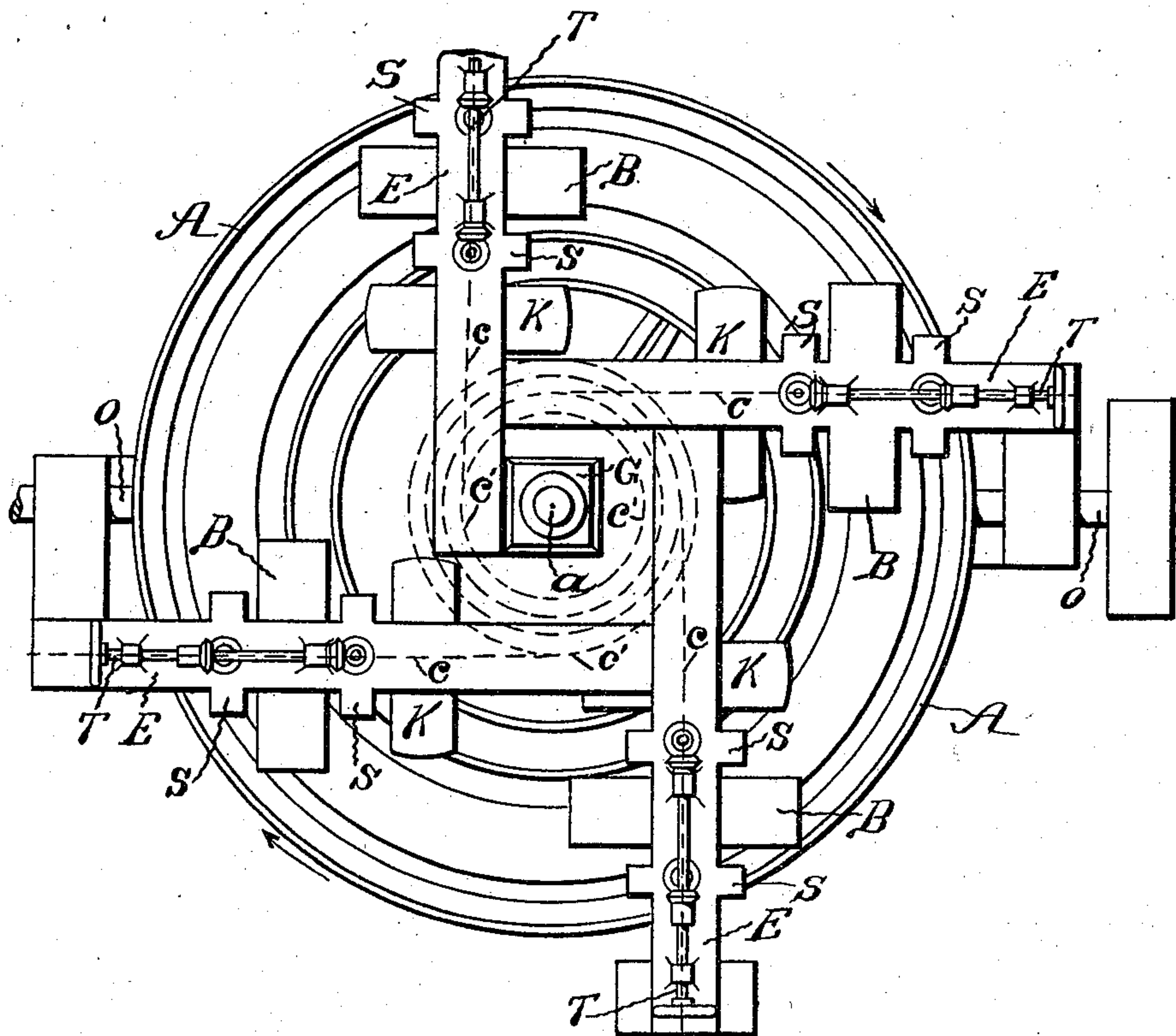
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NO MODEL.

2 SHEETS—SHEET 2.

FIG. 3.



WITNESSES:

Wm. C. McKenzie
Jos. A. Ryan

INVENTOR

Johannes Christiaan Wegerif

BY *Munn & Co.*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHANNES CHRISTIAAN WEGERIF, OF BATTLESBRIDGE, ENGLAND,
ASSIGNOR TO THE RENFREW CRUSHER COMPANY, LIMITED, OF
LONDON, ENGLAND.

MILL FOR GRINDING.

SPECIFICATION forming part of Letters Patent No. 725,521, dated April 14, 1903.

Application filed November 7, 1902. Serial No. 130,399. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES CHRISTIAAN WEGERIF, engineer, a subject of the Queen of the Netherlands, residing at Rawreth Rectory, Battlesbridge, in the county of Essex, England, have invented certain new and useful Improvements in Mills for Grinding, of which the following is a specification.

My invention relates to pan-and-roller mills of that kind wherein the grinding-rollers are set skewwise or with their axes non-radial to the axis of the pan and, as well as the pan, are positively driven, so as to thereby cause a tearing or disruptive action to be exerted on the particles to be ground in addition to the usual crushing action. The disruptive or tearing action thus obtained may be the same for all the rollers in the same pan, or it may be varied to suit the varying degree of fineness of the material in its progress through the mill by arranging the axes of the grinding-rollers or edge runners tangential in the one case to the same circle and in the other case to different circles concentric with the pan-axis. The minimum distances between the rollers and the pan may also be progressively varied inversely as the obliquity of the rollers and with the same object. The pan and likewise the rollers are positively driven, so that their points of contact run in similar but diverging directions, the bearings of the roller-gudgeons being loaded by the pressure of springs or weighted levers directly applied thereto.

In the accompanying drawings, Figure 1 is an elevation, and Fig. 2 a plan, of the improved pan-and-roller mill; and Fig. 3 is a plan view illustrating a modified arrangement of the axes of the rollers.

The same letters of reference indicate the same parts in all the figures.

A is a pan.

B represents the rollers.

C represents the roller-gudgeons, each mounted in bearings fitted to slide in vertical guides in a pair of arms S. In Figs. 1 and 2 these arms S are dependent from the cross-girders E of a fixed overhead frame, the axes c of the rollers being tangential to the same circle c' , or the axes of successive rollers might be tangential to circles of progressively larger diameters concentric with the

axis a of the pan, as shown in Fig. 3, so as to produce progressively-varying degrees of cross-grinding suited to the progressively-varying degree of fineness of the material operated on. The bearings of the roller-gudgeons are loaded by springs H, applied directly thereto, and put under compression, which is regulated simultaneously for both springs of the same roller by means of hand-operated screw-gear T. Stops, adjusted by hand-wheel and screw-gear I, are provided for regulating the minimum distance between the rollers B and pan A. This minimum distance may be the same for all the rollers in the same pan, or it may diminish progressively for successive rollers to suit the progressively-varying degree of fineness of the material operated on. Each roller-gudgeon C carries a belt-pulley K, driven by a belt from overhead counter-shafting. (Not shown.)

The pan is driven from a horizontal shaft O, beneath it, through a bevel-wheel N, gearing with a ring of teeth on the under side of the pan. The pan is of annular form and rotates about an axis a .

I claim—

1. In a pan-and-roller mill in which the grinding-rollers as well as the pan are positively driven and have their axes mounted non-radially to the pan-axis, bearings at opposite sides of each roller in which the axis is mounted, the said bearings being loaded with yielding pressure applied directly to each bearing, both of the bearings for each roller being fitted to slide in fixed vertical guides, substantially as specified.

2. In a pan-and-roller mill, in which the pan and grinding-rollers are positively driven and in which the axes of the said rollers are mounted non-radially to the pan-axis, bearings at opposite sides of each roller in which the axis is mounted, fixed vertical guides in which the bearings are fitted to slide, a spring applied directly to each bearing and adapted to be compressed to exert pressure thereon, and means for simultaneously regulating the degree of compression for both springs of the same roller, as set forth.

JOHANNES CHRISTIAAN WEGERIF.

Witnesses:

JOSEPH LAKE,

WALTER J. SKERTEN.