

(No Model.)

F. M. STEARNS.
GRINDSTONE HANGINGS.

No. 299,870.

Patented June 3, 1884.

Fig. 1.

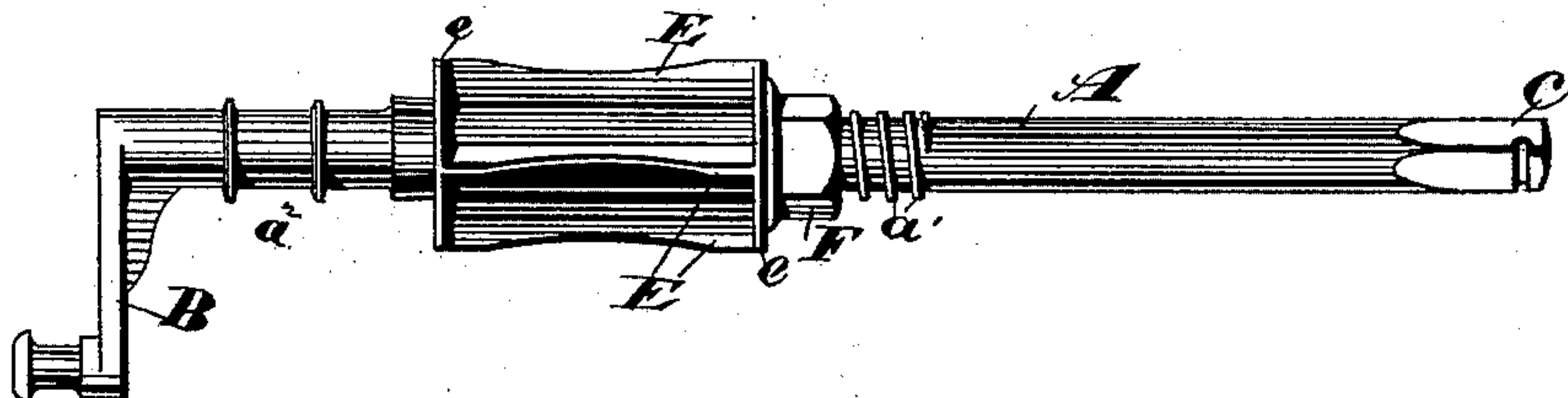


Fig. 2.

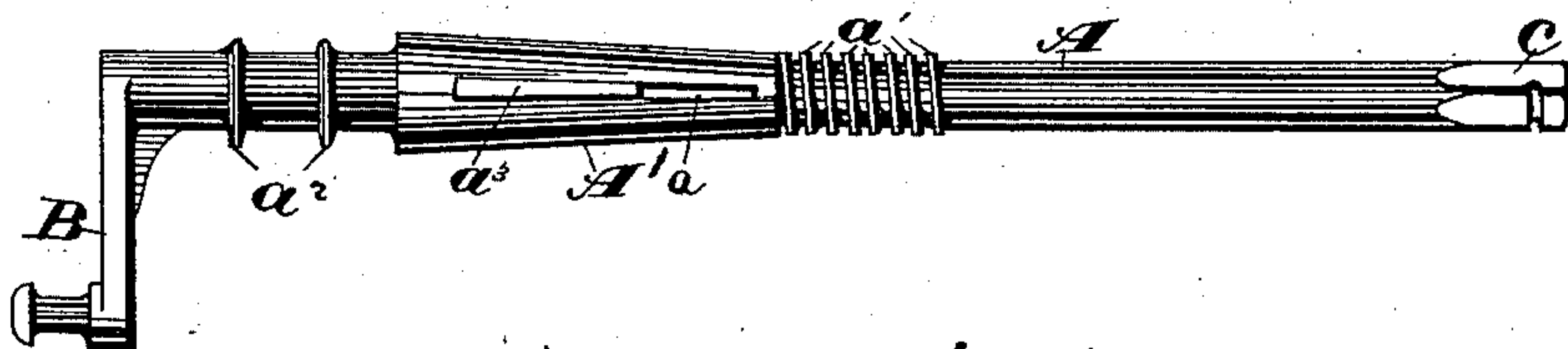


Fig. 3. Fig. 4.

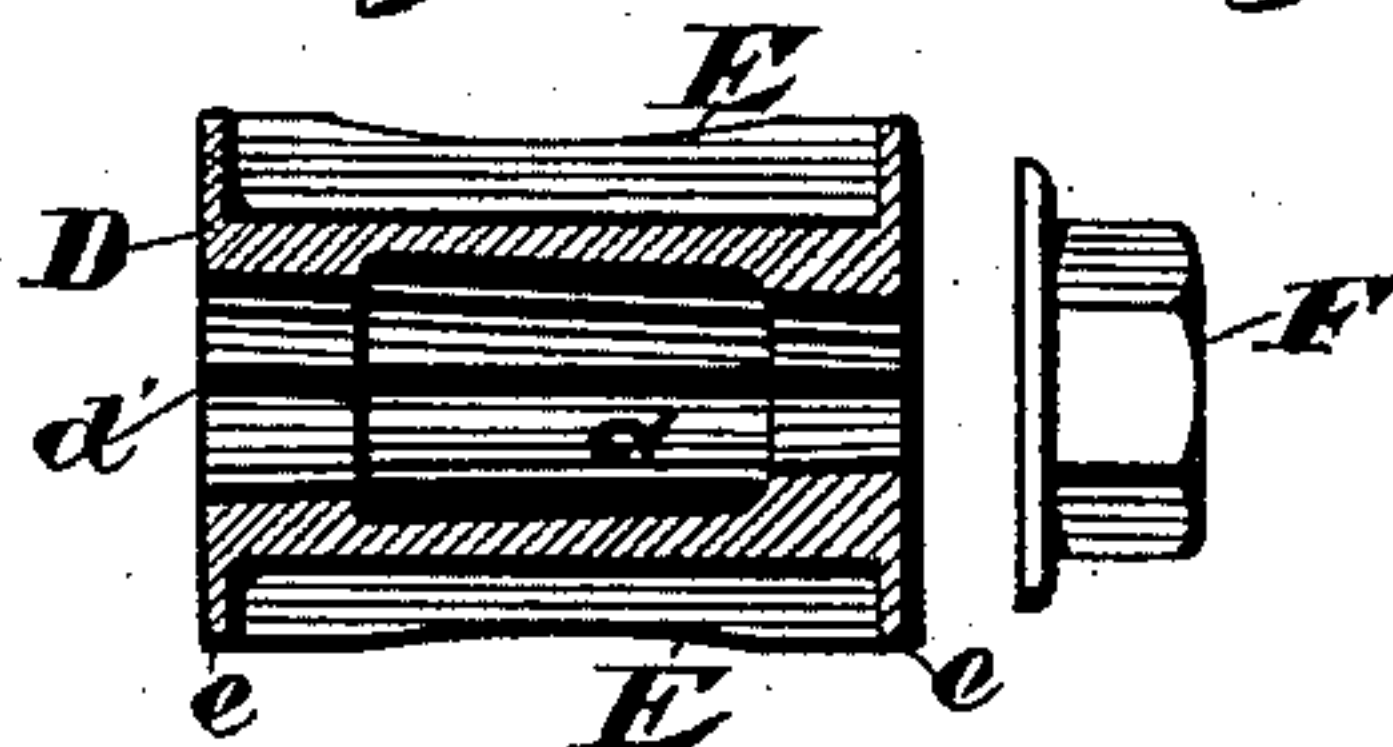
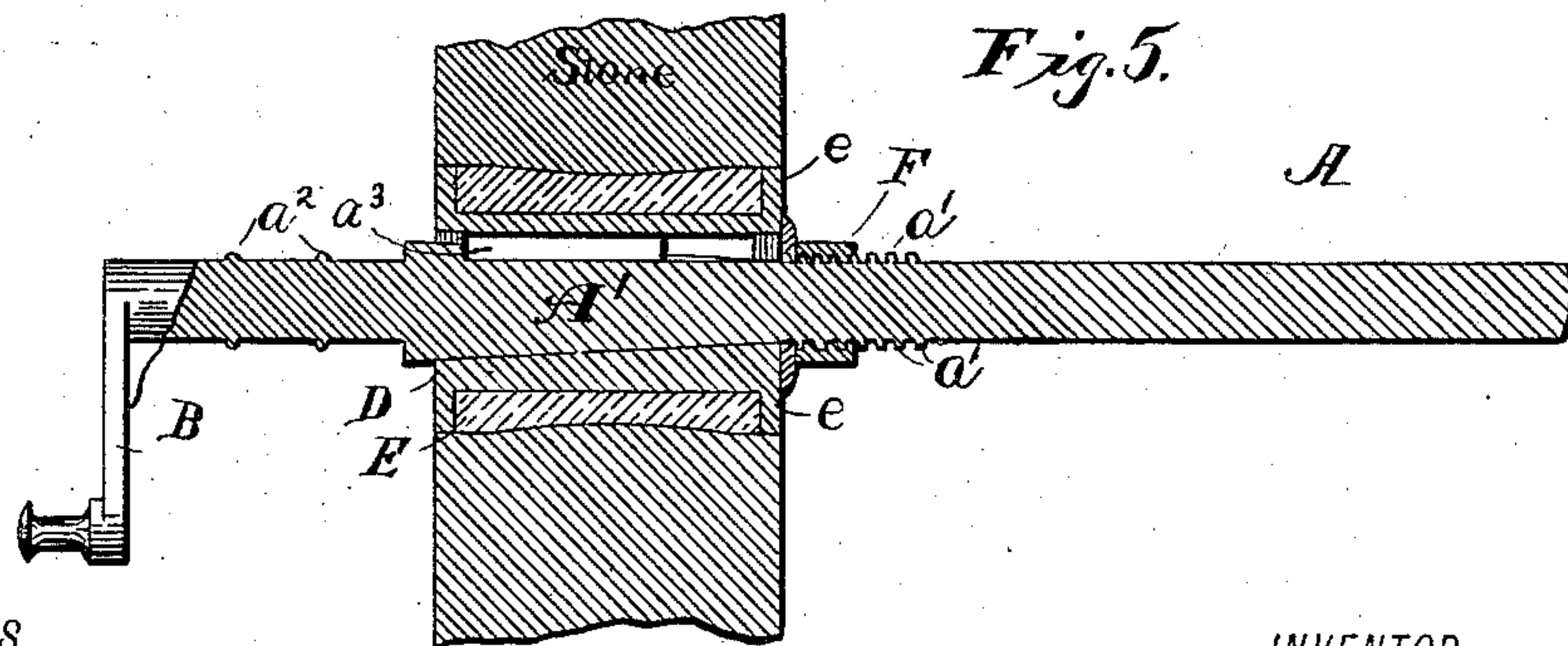


Fig. 5.



WITNESSES

John W. Hounie
Geo. W. King

INVENTOR

Francis M. Stearns
Leggett & Leggett
Attorneys

UNITED STATES PATENT OFFICE.

FRANK M. STEARNS, OF BEREA, OHIO.

GRINDSTONE-HANGINGS.

SPECIFICATION forming part of Letters Patent No. 299,870, dated June 3, 1884.

Application filed February 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. STEARNS, of Berea, in the county of Cuyahoga and State of Ohio, have invented certain new and useful
5 Improvements in Grindstone-Hangings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

10 My invention relates to improvements in grindstone-hangings, the object being to provide grindstone-hangings that will revolve the stone more accurately than those heretofore in use. A further object is to construct the parts
15 so that the spindle is easily removable for shipment. A further object is to provide means for securing the spindle and sleeve so that they will turn together, and without any projecting lugs that would interfere with turning off the
20 spindle or boring the sleeve.

With these objects in view my invention consists in certain features of construction and in combination of parts, hereinafter described, and pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a side elevation of my improved grindstone-hangings. Fig. 2 is a side elevation of the spindle. Fig. 3 is a longitudinal section of the sleeve. Fig. 4 is an elevation of the nut,
30 and Fig. 5 is a longitudinal sectional view of the spindle and sleeve.

A represents the spindle, provided in the usual manner with the small crank B and an end, *c*, squared up to receive a larger crank.
35 The spindle is provided with a raised tapering seat, *A'*, that is turned off on a true taper, and has a groove, *a*, cast in the face of the seat, and running longitudinally with the shaft, but extending not quite to either end of the
40 seat, as shown in Fig. 2. The spindle is provided with the threaded part *a'* and the annular ribs *a''*, that guide the spindle on the rollers (not shown) that usually support the spindle. The thimble D is cast with a core
45 through the center longitudinally, and afterward bored on a true taper to fit the seat *A'* of the spindle A. The sleeve may be chambered at *d* to lessen the expense in boring, so that when the sleeve engages the spindle the
50 bearing-surface is only at the ends of the sleeve. The sleeve is provided with the groove

d', cast in the inner wall and extending through the sleeve, as shown. On the outside the sleeve is provided with the wings E, and the sleeve is further strengthened on the ends by the
55 ribs *e*. A nut, F, is provided to engage the threaded part *a'*, and is made to force the sleeve onto the tapering part of the spindle and secure it. The friction between the spindle and sleeve, when the latter is forced firmly
60 to its seat on the former by the nut, is usually sufficient to cause the two parts to revolve together.

To prevent the possibility of the spindle's turning in the thimble, a piece of metal, *a'''*, of
65 suitable size—for instance, a part of a large nail or piece of small rod—may be used as a key and laid in the groove *a*, and the sleeve, with the walls of its groove *d'* embracing the key loosely, slipped onto the spindle and se-
70 cured, as aforesaid. Neither the grooves nor the key require any fitting, and the end walls of the groove *a* confine the key within the said grooves.

It will be seen that there are no lugs or pro-
75 jections to interfere with turning the spindle or boring the sleeve.

In manufacturing grindstones a rude eye is cut while the stone is in the rough. The sleeve is placed in its proper position in the
80 eye, and the space between the sleeve and the stone filled with cement. After the cement has hardened, the stone, by means of the sleeve, is mounted on a spindle and "turned off" true. The small cast-iron spindles, such as herein-
85 before described, and upon which the stone is afterward mounted for use, are not of suitable shape or of sufficient strength for this rough work of turning off the stone. For
90 this purpose a heavy steel shaft is commonly used, mounted in suitable boxes, and with an overhanging end that is turned down to fit the said sleeve, and provided with a threaded end and nut. From this fact it will be seen that
95 if the hole through the sleeve and the seat on the spindle are cylindrical, and are left "in the rough," as has heretofore been the custom, when finally mounted for use on a spindle that
100 at most had only been thrust into the sleeve to see if it could enter, only approximate accuracy in the running of the stone could be expected. With my improved spindle and

sleeve the parts are brought, by means of the nut, to a firm bearing that insures a true-running stone. These sleeves are of different lengths to suit the thickness of the different stones. The flanges usually placed on each side of the stone are found to be quite useless. The cement used in securing the sleeve is harder and stronger than the stones, and without these flanges the sides of the stone can be turned down flush with the ends of the sleeve, making a finished job and requiring no further dressing. The wings *E* and the ribs *e* will furnish ample means for securing the sleeve in the cement without any flanges. It is important in shipping these goods, especially to foreign countries, that they be packed in as small compass as possible, and this may be easily accomplished with the construction shown, as there are no projecting flanges either on the stone or spindle.

What I claim is—

1. The combination, with the spindle provided with the elongated tapering raised seat, and with a threaded part joining the raised seat on the smaller end, of a sleeve formed in

a single piece and provided throughout its entire length with a conical or tapering bore, which latter fits the seat on the spindle, and a nut for locking the sleeve on the raised seat, substantially as set forth.

2. In grindstone-hangings, a spindle provided with a raised tapering seat, with a groove in the face of the seat extending longitudinally with the spindle, but terminating at either end inside of the raised seat, and with a threaded part joining the tapering seat on the smaller end, and provided with a nut, in combination with a sleeve with a tapering bore adapted to fit the tapering seat of the spindle, and provided with an internal longitudinal groove running from end to end of the sleeve, the wings *E* and the ribs *e*, and the key *a*³, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 21st day of February, 1884.

FRANK M. STEARNS.

Witnesses:

G. A. HUBBARD,
AMY McCAULEY.